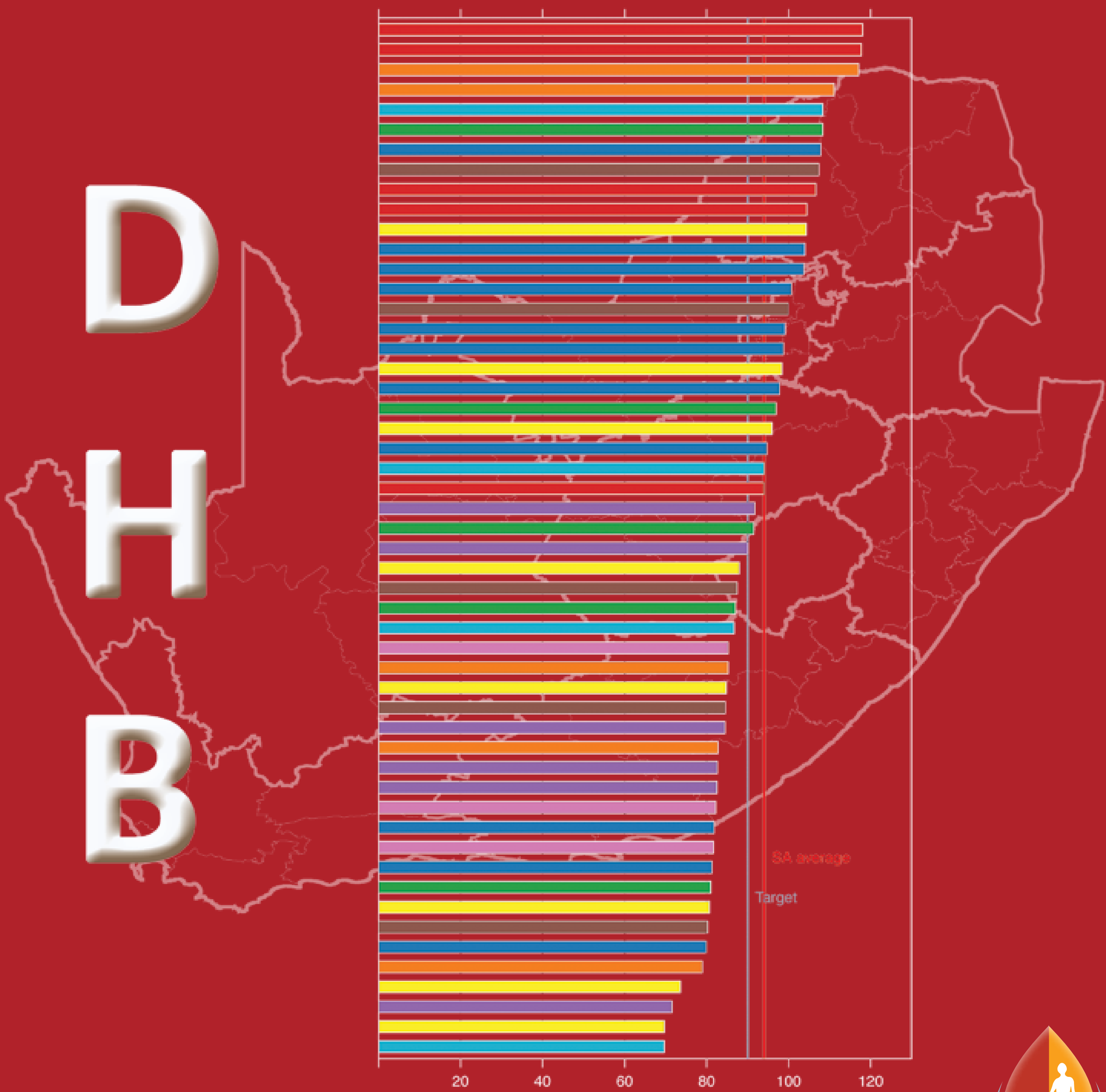
District Health Barometer

DHB



2018/19

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District Health Barometer

2018/19

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List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ALOS	Average length of stay
ANC	Antenatal care
APP	Annual performance plan
ART	Antiretroviral therapy
BAS	Basic accounting system
BCG	Bacille Calmette-Guérin (vaccine)
BMI	Body mass index
BP	Blood pressure
CCMDD	Centralised Chronic Medicines Dispensing and Distribution
CDC	Community day centre
CervCA	Cervical cancer
CFR	Case fatality rate
CHC	Community health centre
CMS	Council for Medical Schemes
CPI	Consumer price index
CPR	Contraceptive prevalence rate
CS	Community survey
CT	Child treatment
CYPR	Couple year protection rate
DBP	Diastolic blood pressure
Depo	Medroxyprogesterone
DHB	District Health Barometer
DHIS	District Health Information Software
DHMIS	District Health Management Information System
DHS	District health services
DI	Deprivation index
DNA	Deoxyribonucleic acid
DR	Drug-resistant
DS	Drug-susceptible
DTaP-IPV-Hib-HBV	Diphtheria, tetanus, acellular pertussis + Inactivated polio vaccine + Haemophilus influenzae type B + Hepatitis B combined vaccine
DTP	Diphtheria, tetanus and pertussis
EC	Eastern Cape
EDRWeb	Electronic Drug-resistant Tuberculosis Register
EHP	Environmental health practitioner
EHS	Environmental health services
EPI	Expanded Programme on Immunisation
ETR.Net	Electronic Tuberculosis Register
FP	Family planning
FS	Free State
FY	Financial year
GHS	General Household Survey
GIS	Geographic information system
GP	Gauteng Province
HDACC	Health Data Advisory and Coordinating Committee
Hib	Haemophilus influenzae
HIV	Human immunodeficiency virus
HPV	Human papillomavirus
HSRC	Human Sciences Research Council
HST	Health Systems Trust
HWD	Health worker density
IBUR	Inpatient bed utilisation rate
IC	Ideal Clinic
ICRM	Ideal Clinic Realisation and Maintenance
ICU	Intensive care unit
IHR	International health regulations
IMCI	Integrated management of childhood illness
Imm	Immunisation
IPC	Infection prevention and control
IUCD	Intra-uterine copper device
KZ	KwaZulu-Natal
LG	Local government

LM/SD	Local municipality/sub-district
LP	Limpopo Province
LTFU	Loss to follow-up
MDR	Multidrug-resistant
MHS	Municipal health services
MP	Mpumalanga Province
MTCT	Mother-to-child transmission
NC	Northern Cape
NCDs	Non-communicable diseases
NDoH	National Department of Health
NET-EN	Norethisterone enanthate
NHI	National Health Insurance
NHLS	National Health Laboratory Service
NIDS	National Indicator Data Set
NiDS	National Income Dynamics Study
NSP	National Strategic Plan
NW	North West
OPD	Outpatient department
OPV	Oral polio vaccine
PCR	Polymerase chain reaction
PCV	Pneumococcal conjugated vaccine
PDC	Pregnancy and delivery care
PDE	Patient day equivalent
PDoH	Provincial Departments of Health
PEPFAR	President's Emergency Plan for AIDS Relief
PERSAL	Personnel and Salary Administration System
PHC	Primary health care
PHS	Port Health Services
PLHIV	People living with HIV
PMTCT	Prevention of mother-to-child transmission of HIV
PoE	Points of entry
PPIP	Perinatal Problem Identification Programme
PPTICRM	Perfect Permanent Teams for Ideal Clinic Realisation and Maintenance
RMNCH	Reproductive, maternal, newborn, and child health
RV	Rotavirus
SA	South Africa
SABSSM	South African National HIV Prevalence, Incidence, Behaviour and Communication Surveys
SADHS	South Africa Demographic and Health Survey
SAHPRA	South African Health Products Regulatory Authority
SAIMD	South African Index of Multiple Deprivation
SAM	Severe acute malnutrition
SAMRC	South African Medical Research Council
SANHANES	South African National Health and Nutrition Examination Survey
SBP	Systolic blood pressure
SD	Sub-district
SDG	Sustainable development goal
Stats SA	Statistics South Africa
STI	Sexually transmitted infection
TB	Tuberculosis
Td	Tetanus and reduced-strength diphtheria vaccine
TIER.Net	Tuberculosis and HIV Register
TROA	Total clients remaining on ART
UHC	Universal health coverage
UN	United Nations
UNHLM	United Nations High Level Meeting
VL	Viral load
VLS	Viral load suppressed
WASH	Water sanitation and hygiene
WC	Western Cape
WHO	World Health Organization
XDR	Extremely drug-resistant

Foreword

The *District Health Barometer* (*DHB*) has helped to address a significant challenge in the South African public health sector, namely the challenge of accurately measuring change and progress over time, and effecting the necessary interventions. This challenge has been compounded by incomplete and contradictory information, as well as inadequate analysis and utilisation of data for decision making. Thus the *DHB* functions as a tool for health-sector managers to monitor and evaluate not only trends in health status and service delivery, but also the underlying quality of routinely collected health information in South Africa.

Now in its 14th edition, the *DHB* continues to produce information on a wide range of health services across the country's 52 health districts, and has become an important planning and management resource for health service providers, managers, researchers and policy-makers. The publication is divided into two distinct but interlinked offerings. The *DHB: District Health Profiles* published electronically is used by districts in their annual planning processes, and provides valuable health sector performance information and trends across all levels of the health service, both public and private, the non-government sector, as well as research and tertiary institutions. The *DHB* complements the *DHB: District Health Profiles* in featuring commentary on and analysis of selected indicators, and together the two publications seek to highlight inequities in health outcomes, health-resource allocation and delivery across all provinces and districts. Importantly, with just a decade left to realise the Sustainable Development Goals, and no direct measurement of many of these indicators within the health system, this year's edition introduces information on the calculation of a Universal Health Coverage index for South Africa using a set of proxy indicators.

We are grateful to the National Department of Health, health districts and other stakeholders for their continuing support of the *DHB* and their collaboration in the production of this unique health and planning resource. As always, we welcome commentary and feedback on the usefulness of the publication and suggestions for improvement of future editions.

Dr Themba L. Moeti

Chief Executive Officer

Health Systems Trust

Introduction

Background

The 2018/19 *District Health Barometer* (*DHB*) provides an overview of the delivery of selected healthcare services in the public health sector across the provinces, districts and local municipalities/sub-districts of South Africa. The *DHB* has been an annual publication since 2005. The main focus of the 2018/19 publication is the Sustainable Development Goals (SDGs)[a] and the Universal Health Coverage (UHC)[b] index. Data are drawn from the electronic District Health Information Software (WebDHIS), the Ideal Clinic Realisation and Maintenance system, Statistics South Africa (Stats SA) surveys, the National Treasury Basic Accounting System (BAS), the Personnel Administration (PERSAL) system, the TIER.Net for Tuberculosis (TB) and antiretroviral (ART) data, the Electronic Drug-resistant Tuberculosis Register (EDRWeb), the National Income Dynamics Study (NiDS), and other National Department of Health (NDoH) information systems. The publication seeks to highlight inequities in health outcomes, health-resource allocation and health delivery, and to track the efficiency of health processes, across all provinces and districts.

Compilation of the *DHB* is guided by a technical working group made up of managers from the NDoH, the Health Information Systems Programme (HISP), and the Health Systems Trust (HST). The *DHB* is again divided into two separate but complementary publications, namely the *DHB: District Health Profiles*, and the *DHB*. The district chapter format in the *District Health Profiles* is aligned with the District Health Plan (DHP) template of the NDoH for the period 2020/21 - 2022/23. The district chapters in the *DHB* only contain trend graphs of the indicators included in Section A: Indicator Comparisons per programme of this publication.

Methodology and data sources

Indicators used in the 2018/19 *DHB*

The indicators[c] in this *DHB* have been approved by the NDoH. The chosen indicators are those linked to measuring the NDoH's Annual Performance Plan (APP), the provincial APPs and the DHPs of the districts, as well as progress on the SDGs and UHC. All the indicators in this publication are categorised according to the UHC index; where applicable, the indicator names are also replicated from the National Indicator Data Set.

Indicators based on health facility data were updated from WebDHIS for the financial years up to 2018/19, ending in March each year. The data were received in July 2019.

Population data

Indicators requiring population denominators were assigned mid-year population estimates for the relevant year, as available at the time of calculation. The district population estimates (five-year age groups) used were developed by Stats SA for 2002 - 2021 (based on the best available information from Census 2016 and other sources of demographic information). These are the same population estimates currently included in the WebDHIS.

Uninsured population estimates

The uninsured population time series was based on medical scheme coverage modelled estimates developed by Daniel Shapiro of Insight Actuaries and Consultants, together with the population time series estimates currently in the DHIS for all years. Overall, from year 1 to year 2 the coverage level remained remarkably static, at around 16% ± 1%. Therefore, for the purposes of this analysis, it was considered adequate to apply a single-year estimate of medical scheme coverage to the whole population time series, since the variation in coverage between districts is more relevant than changes in coverage over time.

a Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf.

b World Health Organization. Available from: https://www.who.int/healthsystems/universal_health_coverage/en/.

c A table with definitions, references and terms for each indicator used in this report is available in Appendix 1.

The number of covered and uncovered lives was estimated using Insight's small area model. The model used different sets of survey data to estimate the population and the number of medical scheme beneficiaries for small areas in the South African Census. The small-area estimates were then aggregated to municipalities according to the current municipal demarcations.

Small area populations were estimated by rescaling Census 2011 person data to the total population; this was done by local municipality as per the 2016 Community Survey[d] and by metro as per the 2018 General Household Survey.[e]

The number of medical scheme beneficiaries was estimated using a predictive model. Household information from the 2018 General Household Survey was used to model the number of medical scheme beneficiaries in a household, based on predictors also available in the Census data. Separate models were built for the probability of a household having coverage, and for the number of individuals covered if that household had coverage. The predictors included gender of the household head, age of the household head, province, metro, income category, and number of household members. The models were then applied to Census data to predict the number of medical scheme members in households for each small area. Household information was taken from Descriptive Community Profile data of the Census and scaled using the 2016 Community Survey and the 2018 General Household Survey total populations. The predicted number of medical scheme beneficiaries was scaled to the number of medical scheme beneficiaries by metro from the 2018 General Household Survey, and to the number of medical scheme beneficiaries by province in the Council for Medical Schemes Annual Report.

District health expenditure indicators

Provincial health expenditure up to 2018/19 was extracted from the National Treasury Basic accounting system (BAS). Expenditure allocated to specific health facilities (listed hierarchically according to 'responsibility level') was coded to the latest DHIS facility information. All other expenditure that could not be clearly allocated to a specific district (such as, for example, provincial-level expenditure) was allocated to each district proportionate to the population share of the area involved.

Provincial expenditure was coded according to the programmes and sub-programmes published by the National Treasury. Expenditure from sub-programmes 2.2-2.7 (community health clinics, community health centres, community-based services, other community services, and HIV and nutrition) constitutes the non-hospital PHC expenditure under District Health Services. Total District Health Services expenditure includes all sub-programmes under Programme 2: District Health Services, except sub-programme 2.8 (Coroner services).

Additional data sources used include:

- Data from the National Treasury on local government expenditure on PHC. Net expenditure was used, i.e. expenditure less revenue (which includes transfers from provinces to local government).
- Factors for inflation adjustments based on Consumer Price Index (CPI) (Stats SA) were used to convert expenditure for all years to real 2018/19 prices. This means that increases in expenditure over time reflect greater availability of resources rather than merely increases to cover the increasing cost of health care due to inflation.
- Uninsured population estimates, derived from modelled estimates of medical scheme coverage and the DHIS population time series.

Per capita expenditure indicators use public sector expenditure divided by the uninsured population. However, the General Household Survey[f] and other sources indicate that the uninsured population makes significant use of private sector services, and the insured population also makes some use of public sector services. As such, it is acknowledged that there is a wide range of uncertainty surrounding the true size of the population that is dependent on public sector services, which affects the accuracy of the per capita expenditure indicators.

Smoothed pneumonia case fatality rate and corresponding rescaled index indicator

The UHC indicator reported by the WHO is 'care-seeking behaviour for children with suspected pneumonia', expressed in percentage terms. This measure can be included in survey instruments used by caregivers about illnesses that children might have had in the previous two weeks. The 2016 South Africa Demographic and Health Survey (SADHS) reported on the percentage of children with symptoms of acute respiratory infection for whom advice or treatment was sought; however, the numbers were so small that only a single national figure was provided. An alternative, which can be obtained from DHIS data, is an index based on the pneumonia case fatality rate (CFR) in children under 5 years of age. The pneumonia CFR under

d Statistics South Africa. Community Survey 2016. Available from: http://www.statssa.gov.za/?page_id=6283.

e Statistics South Africa. General Household Survey, 2018. Available from: http://www.statssa.gov.za/?p=12180.

f Statistics South Africa. General Household Survey. Pretoria: Stats SA; 2015.

5 years is defined as the number of pneumonia deaths in children under 5 years as a proportion of pneumonia separations under 5 years in health facilities. It therefore only measures deaths in children admitted to a health facility.

District-level time series for pneumonia CFR under 5 years were computed by smoothing DHIS yearly data using a generalised additive model with thin-plate splines, after removal of extreme outliers. A rescaled indicator (expressed as a coverage on the scale 0-100) was calculated, as per WHO guidance, by applying the following formula: index = (max CFR – min CFR) / (max risk – min risk) x 100, where CFR is the smoothed estimate describe above, and max CFR and min CFR are the maximum and minimum values of CFR observed across districts, respectively.

TB indicators

TB indicators were provided by the NDoH for the most recent year, based on the TIER.Net and EDRWeb.

Diabetes prevalence and treatment coverage

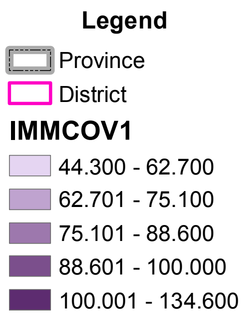
In order to generate local estimates of diabetes prevalence, a machine-learning model was trained with SADHS 2016 data to predict individual probability of being diabetic using demographic information (age, gender, race), bio-behavioural characteristics (body mass index, waist circumference, current smoking), self-reported previous diagnosis, and use of medication. The model was then applied to data from each NiDS 'wave' to estimate the prevalence at sub-national level by averaging the predicted probabilities of being diabetic for the individuals in each district and adjusting for the imperfect sensitivity and specificity of the predictive model. The sampling design of the survey was taken into account in the procedure. The proportion of patients with diabetes receiving treatment was directly estimated from self-reported data, and treatment coverage was calculated as the ratio between the proportion of the population on treatment, and diabetes prevalence. A smooth variation over time was assumed for both diabetes prevalence and treatment coverage within each district, and final yearly estimates were generated by fitting a series of generalised linear models.

Data display

Indicator maps and ranking

ArcMap 10.6 was used to generate the thematic or choropleth maps of indicator values by district and sub-district. Most of the maps were created using 'natural breaks',[g] with five categories as the default. In some cases the distribution was heavily skewed at the local municipality level and manual breaks were chosen to better illustrate areas of public health importance. For all indicators, low indicator values are represented by light shades, and high indicator values by darker shades, regardless of whether high values are 'best' or 'worst'. Therefore, dark shades are not always best, and each indicator map should be interpreted in terms of the desired target range for that indicator.

Figure 1: Example of natural breaks in choropleth maps of indicator values by district and sub-district



Averages

All averages (provincial and national) are *weighted averages*, based on the total numerator and denominator for all the sub-areas included, and are, therefore, not averages of *the district indicator values*. These averages may appear 'skewed' for any indicator in any province where there are districts of very different sizes or workloads, and where a bigger district has a very different value from the other smaller districts in a province.

g This is the default classification method in ArcMap, using the Jenks Optimisation algorithm to group values within a class, resulting in classes of similar values separated by breakpoints. This method works well with data that are not evenly distributed and not heavily skewed towards one end of the distribution.

Financial year and calendar year

Indicators from the DHIS and the BAS cover the 12 months from April to March, which is the financial year of the NDoH. Indicators for financial years are annotated as 2018/19 or FY 2019. The TB data from TIER.Net and EDRWeb cover a calendar year. Data from the Stats SA surveys correspond with the period of a survey. Human resources (HR) data are cross-sectional (for a specific month in a year). In the Excel file produced with the *DHB*, the single year indicated for summary purposes is the one including the majority of the data.

Indicator ranking – is first always best?

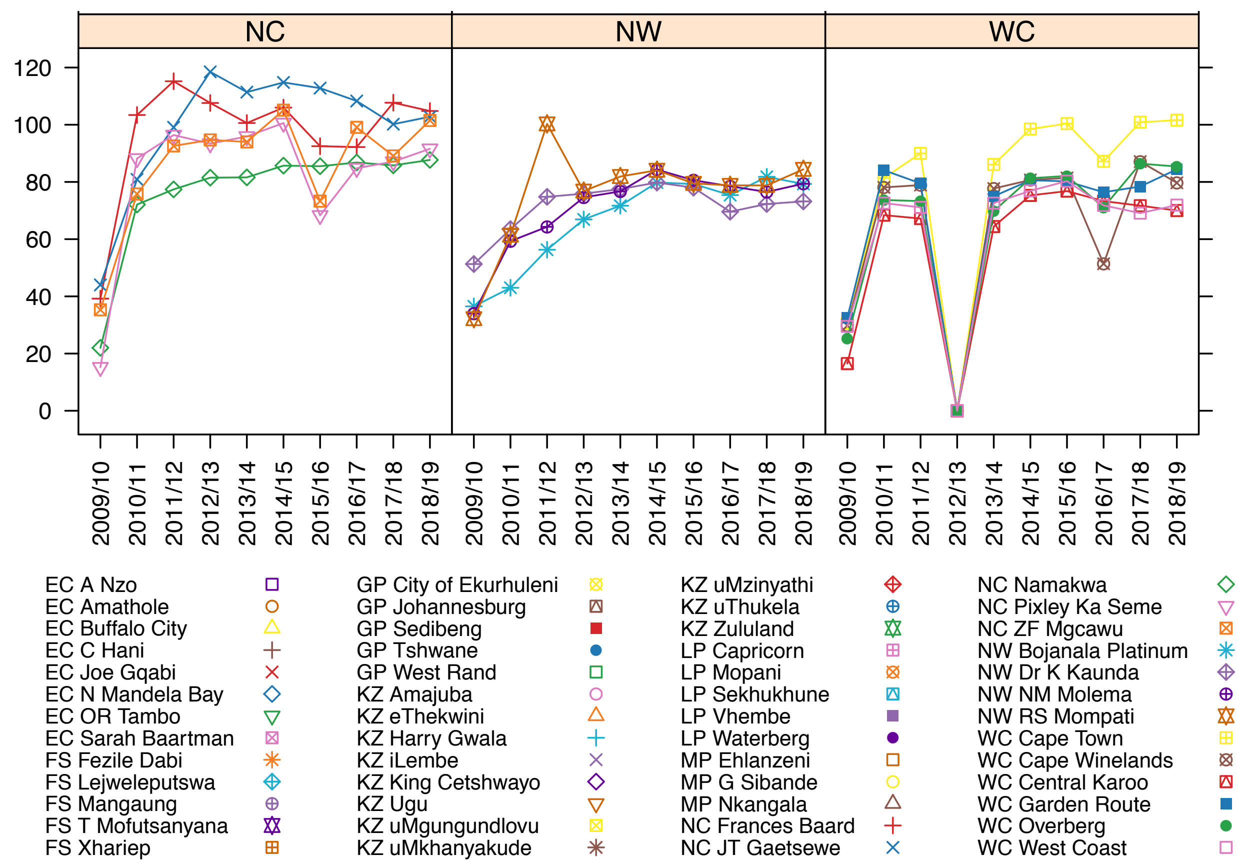
The districts are ranked from 1 to 52 (for the various indicators in the league table graphs, where number 1 represents the best performance and number 52 the worst performance). However, with some indicators, such the expenditure indicators, an indicator in the number 1 position does not mean best performance; 'best' is usually in the middle range close to the South African average. For these indicators, order from top to bottom should therefore not necessarily be considered as best to worst. Individual indicators are therefore ranked as either ascending (low values are best, for example maternal mortality ratios) or descending (high values are best, for example immunisation coverage).

In the *DHB* data file, the indicator ranks for all districts are coloured from green to red. It must be noted that this is only a crude indication of performance and is based on the position of a district *relative* to the other 51 districts and not based on a target or fixed standard. Therefore, it is possible that an indicator may improve in a district, but it could drop in rank (i.e. go from green towards red) if other districts have improved to a greater extent.

Trends

Annual indicator trends (district and provincial) are included in some chapters in Section A: Indicator Comparisons per programme (Figure 2). Indicator comparisons by district help the reader to explore how an indicator varies over a number of years across districts and provinces. As the scale of the y-axis is the same for all the graphs, one can notice differences easily. Annual trends also reveal variation and change within the districts in a particular province over time.

Figure 2: Example of annual indicator trends across districts and provinces, 2008/09 - 2018/19



In section B of the report, composite graphs show annual trends for all districts for all the indicators included in Section A: Indicator Comparisons per programme of the *DHB*. The district indicator value is shown together with the relevant provincial averages and South African national averages (Figure 3).

Figure 3: Example of annual indicator trends for districts

1. Overview of universal health coverage and the health-related Sustainable Development Goals

Naomi Massyn, Candy Day, Noluthando Ndlovu, Annibale Cois

This chapter serves to locate the policy objective of universal health coverage (UHC) in the context of global commitments, in particular, the health-related Sustainable Development Goals (SDGs). In South Africa, National Health Insurance (NHI) is fundamentally directed at achieving UHC and at meeting the health-related SDGs.

The World Health Organization (WHO) defines UHC as "ensuring that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user to financial hardship".[a]

This definition of UHC embodies three related objectives:[b]

- There should be equity in access to health services, with everyone who needs services receiving them regardless of ability to pay.
- The quality and effectiveness of health services should be such that they meet the expected goals of improving the health of those receiving such services.
- The cost of accessing quality, effective healthcare services should not put people at risk of financial harm.

Universal health coverage is firmly based on the WHO constitution of 1948, which declared health a fundamental human right, and on the Health for All agenda set by the Alma Ata Declaration in 1978 and confirmed in Astana in 2018.[c] Universal health coverage is a fundamental component of the health-related SDGs and holds out hope of better health and protection for the world's most disadvantaged populations.

The SDGs are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity.[d] Although a number of SDGs are relevant to health, SDG Goal 3 specifically focuses on ensuring healthy lives and promotes well-being for all at all ages. The relevant health-related goals, targets and indicators are listed in Table 1.

Table 1: SDG 3 goals, targets and indicators

Goals and targets		Indicators
3.1	By 2030, reduce the global maternal mortality ratio to less than 70 per 100 000 live births	3.1.1 Maternal mortality ratio 3.1.2 Proportion of births attended by skilled health personnel
3.2	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1 000 live births and under-5 mortality to at least as low as 25 per 1 000 live births	3.2.1 Under-5 mortality rate 3.2.2 Neonatal mortality rate
3.3	By 2030, end the epidemics of Acquired Immune Deficiency Syndrome (AIDS), tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.3.1 Number of new HIV infections per 1 000 uninfected population, by sex, age and key populations 3.3.2 Tuberculosis incidence per 100 000 population 3.3.3 Malaria incidence per 1 000 population 3.3.4 Hepatitis B incidence per 100 000 population 3.3.5 Number of people requiring interventions against neglected tropical diseases
3.4	By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease 3.4.2 Suicide mortality rate
3.5	Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	3.5.1 Coverage of treatment interventions 3.5.2 Harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol
3.6	By 2020, halve the number of global deaths and injuries from road traffic accidents	3.6.1 Death rate due to road traffic injuries

a World Health Organization. Available from: https://www.who.int/healthsystems/universal_health_coverage/en/.

b World Health Organization. Available from: https://www.who.int/health_financing/universal_coverage_definition/en/.

c World Health Organization. Preamble to the constitution of the World Health Organization as adopted by the International Health Conference. New York, 19-22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

d Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf.

3.7	By 2030, ensure universal access to sexual and reproductive healthcare services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	3.7.1 3.7.2	Proportion of women of reproductive age (aged 15 - 49 years) who have their need for family planning satisfied with modern methods Adolescent birth rate (aged 10 - 14 years and 15 - 19 years) per 1 000 women in that age group
3.8	Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all	3.8.1 3.8.2	Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population) Proportion of population with large household expenditures on health as a share of total household expenditure or income
3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 3.9.2 3.9.3	Mortality rate attributed to household and ambient air pollution Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) Mortality rate attributed to unintentional poisoning
3.a	Strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries, as appropriate	3.a.1	Age-standardized prevalence of current tobacco use among persons aged 15 years and older
3.b	Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	3.b.1 3.b.2 3.b.3	Proportion of the target population covered by all vaccines included in their national programme Total net official development assistance to medical research and basic health sectors Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis
3.c	Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	3.c.1	Health worker density and distribution
3.d	Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	3.d.1	International Health Regulations (IHR) capacity and health emergency preparedness

Source: Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. A/RES/71/313.

A key objective of UHC is to avoid catastrophic health spending.[e] Universal health coverage is both an end in itself, as expressed in SDG target 3.8, as well as the most logical way to ensure progress towards meeting other health-related SDG targets. Two indicators were adopted by the United Nations (UN) Statistical Commission in March 2017 to monitor progress towards SDG target 3.8: average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases (NCDs) and service capacity and access, among the general and the most disadvantaged populations (SDG indicator 3.8.1); and the proportion of households with large expenditures on health as a share of total household consumption or income (SDG indicator 3.8.2).

A composite UHC service coverage index has been developed, based on four basic principles.[f] The first principle concerns the preference for effective service coverage indicators as the most relevant and direct result of country efforts to meet people's needs for quality health services. Secondly, the index should include indicators for different types of services, namely prevention (comprising health promotion and illness prevention), and indicators for treatment (comprising curative services, rehabilitation, and palliation). Thirdly, the index should cover the main health areas of reproductive, maternal, newborn, and child health, infectious diseases, NCDs, and injuries. Finally, the index should be disaggregated by key inequality dimensions. The index is based on 16 tracer indicators, four from each of the following categories: reproductive, maternal, newborn, and child health; infectious diseases; NCDs; and service capacity and access. The index is explained more comprehensively in the chapter on UHC – the service coverage index at district level.

Alignment of the National Indicator Data Set (NIDS),[g] together with maximal use of periodic survey data will be needed in order to establish clear baseline data for the UHC service coverage index for South Africa, and to track progress over time. In addition, South Africa needs to contribute to the ongoing debates on the design and implementation of the UHC service coverage index. The current National Health Act (No. 61 of 2003)[h] allocates responsibility for facilitating and coordinating

e Wagstaff A, Flores G, Hsu J, et al. Progress on catastrophic health spending in 133 countries: a retrospective observational study. Lancet Glob Health. 2017 (published online 13 December 2017.) Available from: http://dx.doi.org/10.1016/S2214-109X(17)30429-1.

f Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. December 2017. Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

g National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; April 2017.

h Republic of South Africa. National Health Act (No. 61 of 2003). Available from: https://www.up.ac.za/media/shared/12/ZP_Files/health-act.zp122778.pdf.

the establishment, implementation and maintenance of a health information system at all levels to the National Department of Health (NDoH). This effort is supported by the Health Data Advisory and Coordinating Committee (HDACC). The 2011 District Health Management Information System (DHMIS) Policy[i] defines the requirements and expectations to provide comprehensive, timely, reliable and good-quality routine evidence for tracking and improving health service delivery.

In order to align the health information system, engagement will also be needed with the authorities responsible for periodic surveys, such as the South African National Health and Nutrition Examination Survey (SANHANES), the National Income Dynamics Study (NiDS) and the South Africa Demographic and Health Survey (SADHS). Engagement with Statistics South Africa (Stats SA), the Human Sciences Research Council (HSRC), the South African Medical Research Council (SAMRC) and the Council for Medical Schemes (CMS) will also be critical. Importantly, the National Health Insurance Bill,[j] allocates the design and maintenance of a health information system to the NHI Fund, amending the National Health Act.

The 2018 Presidential Health Summit highlighted the fact that the current health information system is fragmented, and poses a major challenge to effective stewardship of the health system.[k] In particular, the report of the Summit noted that no integrated electronic health record is currently in use in South Africa.

Notwithstanding all of these limitations, Chapter 6 presents results for the UHC service coverage index at district level for the period 2016/17. In several instances alternative indicators were used in place of the globally recommended tracers, and in some cases data were only accessible for some sectors of the population. The methods and adaptations are described in that chapter, to create a platform for further refinement of the best approach to monitor realisation of UHC across all districts in South Africa.

i National Department of Health. District Health Management Information System Policy. Pretoria: NDoH; 2011.

j Minister of Health. National Health Insurance Bill (No. 11 of 2019).

k Presidential Health Summit 2018. Strengthening the South African health system towards an integrated and unified health system. Birchwood Conference Centre, Johannesburg; 19 - 20 October 2018. Available from: http://www.thepresidency.gov.za/download/file/fid/1493

2. Reproductive, maternal, newborn and child health

Universal health coverage (UHC) is a fundamental component of the health-related Sustainable Development Goals (SDGs) and holds out hope of better health and protection for the world's poorest.[a] A UHC index[b] was developed based on four basic principles. The first principle concerns the preference for effective service coverage indicators as the most relevant and direct result of country efforts to meet people's needs for quality health services. Second, the index should include indicators for different types of services, namely prevention (comprising health promotion and illness prevention), and indicators for treatment (comprising curative services, rehabilitation, and palliation). Third, the index should cover the main health areas of reproductive, maternal, newborn, and child health (RMNCH), infectious diseases, non-communicable diseases, and injuries. Finally, the index should be disaggregated by key inequality dimensions.

Although a number of SDG goals are relevant to health, SDG Goal 3 specifically focuses on ensuring healthy lives and promotes well-being for all at all ages.[c] Goal 3.1 stipulates that by 2030, the global maternal mortality ratio should be reduced to less than 70 per 100 000 live births. Goal 3.2 indicates that by 2030, preventable deaths of newborns and children under 5 years of age should be ended, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1 000 live births, and under-5 mortality to at least as low as 25 per 1 000 live births. Goal 3.7 stipulates that by 2030, universal access to sexual and reproductive healthcare services should be ensured, including for family planning, information and education, and that reproductive health should be integrated into national strategies and programmes. The indicators identified to measure progress are the proportion of women of reproductive age (aged 15 - 49 years) who have their need for family planning satisfied with modern methods, and the adolescent birth rate (aged 10 - 14 years, and 15 - 19 years) per 1 000 women in that age group.

Sixteen tracer indicators were selected for the index, four each from RMNCH, infectious diseases, non-communicable diseases, and service capacity and access. The RMNCH category covers family planning, antenatal care, immunisation, and care-seeking behaviour for children with suspected pneumonia.

2.1 Maternal and neonatal health

Neil McKerrow

This section of the RMNCH category of the UHC index covers maternal and newborn health and includes two proxy indicators for UHC and two SDG indicators, namely:

- Antenatal 1st visit before 20 weeks rate
- Antenatal 1st visit coverage
- Maternal mortality in facility ratio
- Neonatal death in facility rate.

Antenatal 1st visit before 20 weeks rate

Antenatal care is a public health strategy that provides an invaluable opportunity for pregnant women to receive a variety of evidenced-based interventions leading to a positive pregnancy experience.[d] To achieve maximal impact, women should ideally book for antenatal care for the first time during the first trimester of their pregnancy but preferably before 20 weeks' gestation. This facilitates the timely identification of women who require special attention, referral to a higher level of care, or more antenatal visits. As almost one-third of pregnant women in South Africa are human immunodeficiency virus (HIV)-positive (30.7%; range 15.9% - 41.1%),[e] early booking for antenatal care allows for the early identification and treatment of these women and supports interventions to protect the unborn baby and eliminate mother-to-child transmission of HIV.

The antenatal 1st visit before 20 weeks rate measures the number of pregnant women who have a booking visit (first visit) before they are 20 weeks (about half way) into their pregnancy as a proportion of all antenatal 1st visits. The numerator is the number of 1st antenatal visits before 20 weeks, and the denominator is the total number of antenatal 1st visits.

a World Health Organization. Preamble to the constitution of the World Health Organization as adopted by the international health conference. New York, 19-22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

b Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. December 2017. Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

c Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf.

d World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: WHO; 2016.

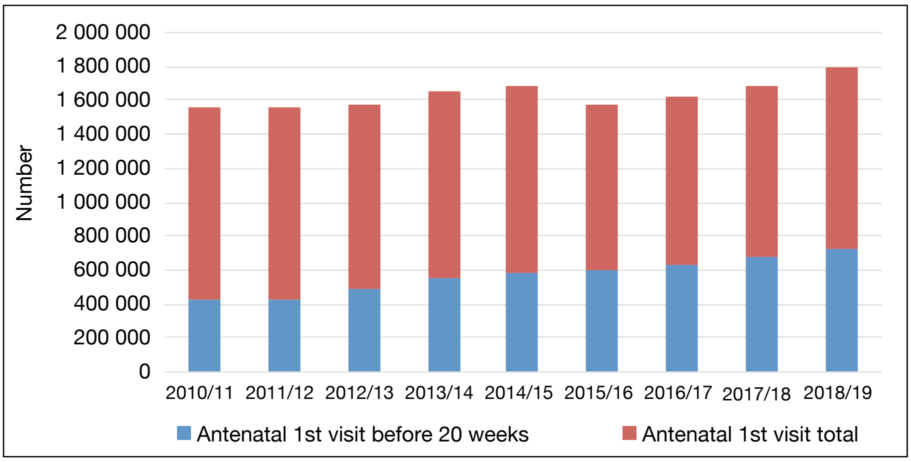
e Woldesenbet SA, Kufa T, Lombard C, et al. The 2017 National Antenatal Sentinel HIV Survey, South Africa. Pretoria: NDoH; 2019.

The National Department of Health (NDoH) Annual Performance Plan (APP) 2016/17 - 2018/19 set a national target of 66% for the antenatal 1st visit before 20 weeks rate.

National overview

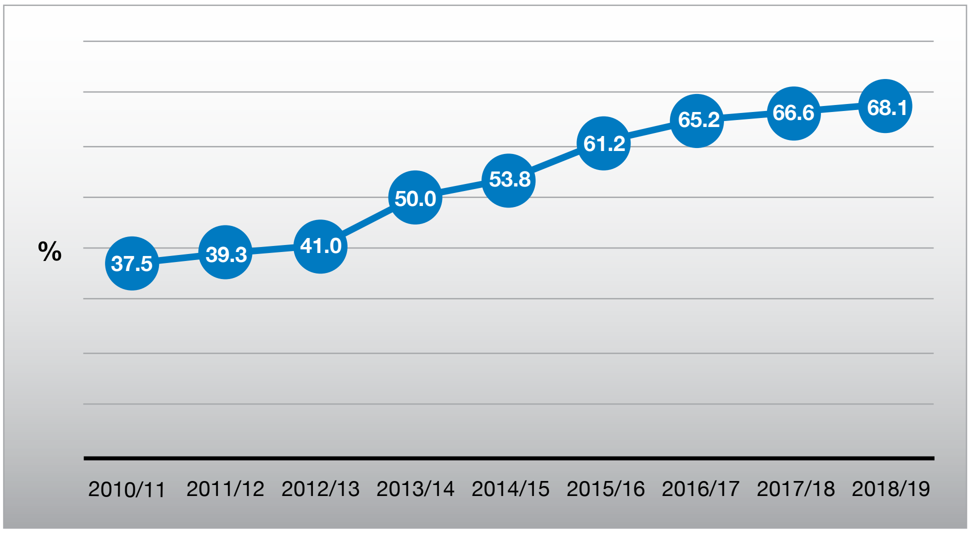
In 2018/19, 1 071 081 pregnant women booked for antenatal care in the public sector, of whom 729 259 (68.1%) were before 20 weeks of gestation. This maintains the trend since 2010/11 of an annual increase in the proportion of women booking early. Figure 1 shows the total number of antenatal 1st visits and 1st antenatal visits before 20 weeks. Despite a fluctuation from year to year in the total number of women booking for antenatal care, the antenatal 1st visit before 20 weeks rate increased each year over the same period (Figure 2), with an overall increase of 30.6 percentage points since 2010/11. In 2018/19, the antenatal 1st visit before 20 weeks rate of 68.1% was above the national target of 66%. The 2016 South Africa Demographic and Health Survey (SADHS) reported that 47% of women had an early booking before 13 weeks.

Figure 1: Number of antenatal 1st visits (total) and 1st visit before 20 weeks, 2010/11 - 2018/19



Source: DHIS.

Figure 2: National antenatal 1st visit before 20 weeks rate, 2010/11 - 2018/19

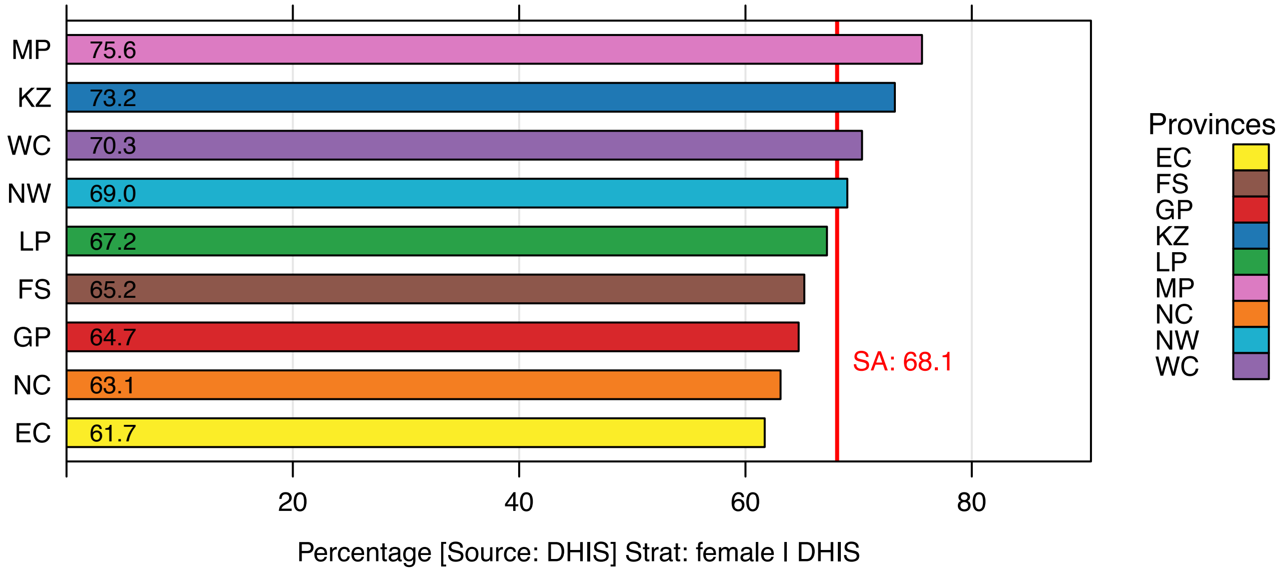


Source: DHIS.

Provincial overview

Figure 3 shows that there was little difference in the antenatal 1st visit before 20 weeks rate between provinces, ranging from a low of 61.7% in the Eastern Cape (EC) to a high of 75.6% in Mpumalanga (MP). Five provinces managed to exceed the national target of 66% and four provinces achieved an antenatal 1st visit before 20 weeks rate above the national average of 68.1%. Free State (FS), Gauteng (GP), Northern Cape (NC) and the Eastern Cape performed below the national target, showing a marked decline in performance compared with 2017/18.

Figure 3: Antenatal 1st visit before 20 weeks rate by province, 2018/19



Between 2017/18 and 2018/19, the antenatal 1st visit before 20 weeks rate decreased in three provinces (Eastern Cape, Free State and Northern Cape) and increased in the remaining six (Table 1). Five of these six maintained an annual increase over the four years from 2014/15. Except for Limpopo (LP), which had a decrease in performance between 2016/17 and 2017/18, in all the other provinces the 2018/19 rate was higher than that of 2014/15. Six provinces increased the antenatal 1st visit before 20 weeks rate by over 10 percentage points between 2014/15 and 2018/19. The rate in Western Cape (WC) increased by only 4.5 percentage points compared with the 19.0 percentage point increase in Mpumalanga from 2014/15.

Table 1: Antenatal 1st visit before 20 weeks rate by province, 2014/15 - 2018/19

Province	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point difference between 2014/15 and 2018/19
Eastern Cape	48.1	59.7	63.8	64.8	61.7	13.6
Free State	58.6	62.9	65.8	65.6	65.2	6.6
Gauteng	48.2	55.0	58.4	61.4	64.7	16.5
KwaZulu-Natal	57.4	64.8	70.2	72.1	73.2	15.8
Limpopo	50.7	60.7	65.7	63.2	67.2	16.5
Mpumalanga	56.6	65.9	71.7	73.8	75.6	19.0
Northern Cape	57.7	62.4	64.7	64.0	63.1	5.4
North West	54.3	60.6	63.7	66.2	69.0	14.7
Western Cape	65.8	67.7	69.6	69.7	70.3	4.5
South Africa	53.8	61.2	65.2	66.6	68.1	14.3

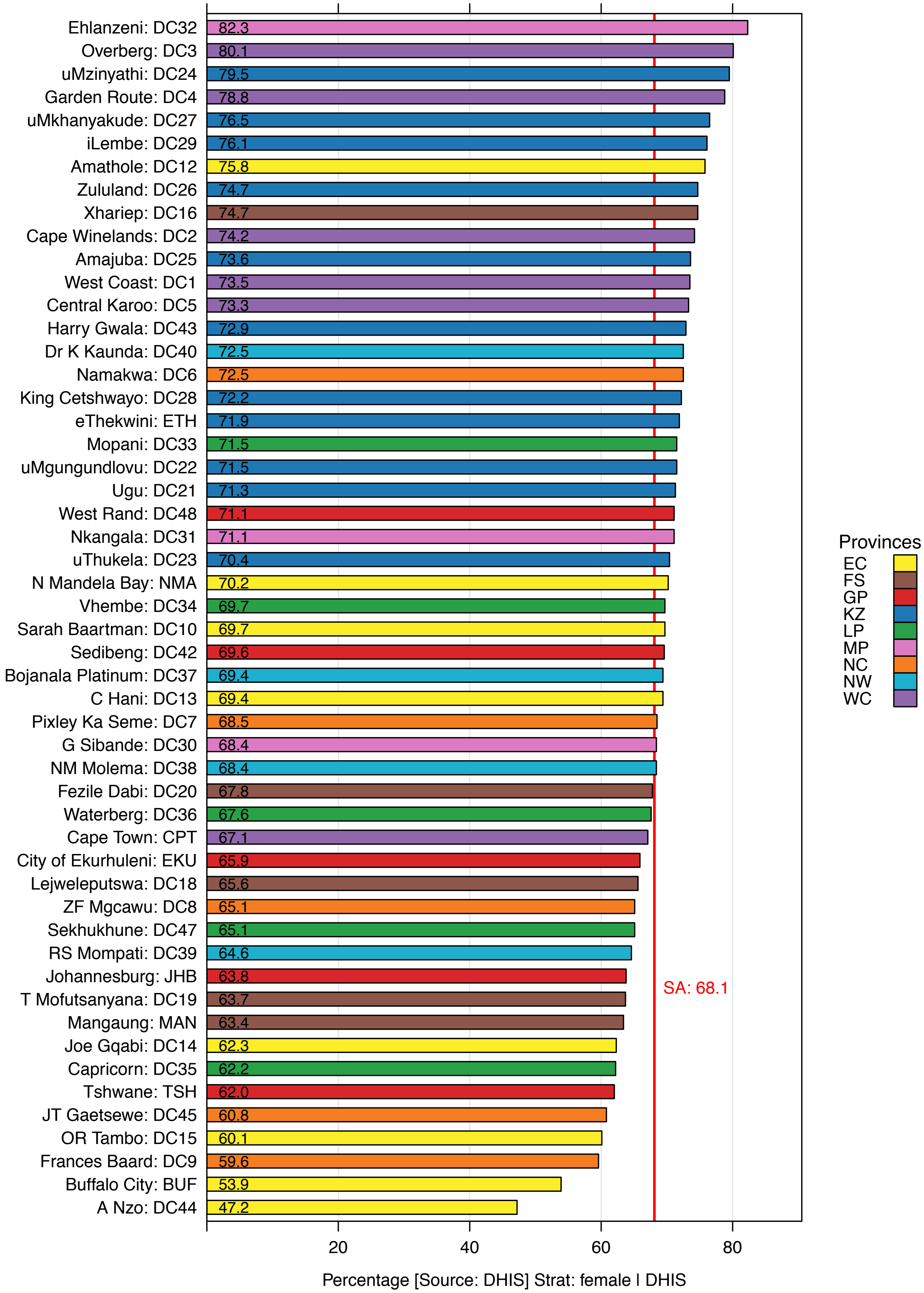
Source: DHIS.

District overview

Figure 4 shows the antenatal 1st visit before 20 weeks rate across the 52 districts in the country, with a 1.7-fold variation from a low of 47.2% in Alfred Nzo (EC) to a high of 82.3% in Ehlanzeni (MP). Thirty-three districts had an antenatal 1st visit before 20 weeks rate above the national average, and 36 surpassed the national target. Both KwaZulu-Natal (KZ) and Mpumalanga exceeded the national average in all their districts, but in the Free State only one district managed to better the national average.

Four districts in KwaZulu-Natal were among the 10 districts with the highest antenatal 1st visit before 20 weeks rate, together with three districts in the Western Cape and one each in the Eastern Cape, Free State and Mpumalanga. The Eastern Cape had four districts among the 10 with the lowest antenatal 1st visit before 20 weeks rate, together with two districts each in the Free State and Northern Cape and one each in Gauteng and Limpopo.

Figure 4: Antenatal 1st visit by 20 weeks rate by district, 2018/19



Over the five-year period from 2014/15 to 2018/19, the antenatal 1st visit before 20 weeks rate improved in all districts countrywide (Table 2). Between 2017/18 and 2018/19, the antenatal 1st visit before 20 weeks rate improved in 35 districts. The greatest improvement was in Vhembe (LP), where the rate increased by 6.6 percentage points, from 63.1% to 69.7%. The rate was unchanged in three districts and declined in 14. Of these 14 districts, the greatest decline was in Buffalo City (EC), where the rate fell from 66.9% to 53.9% (13.0 percentage points).

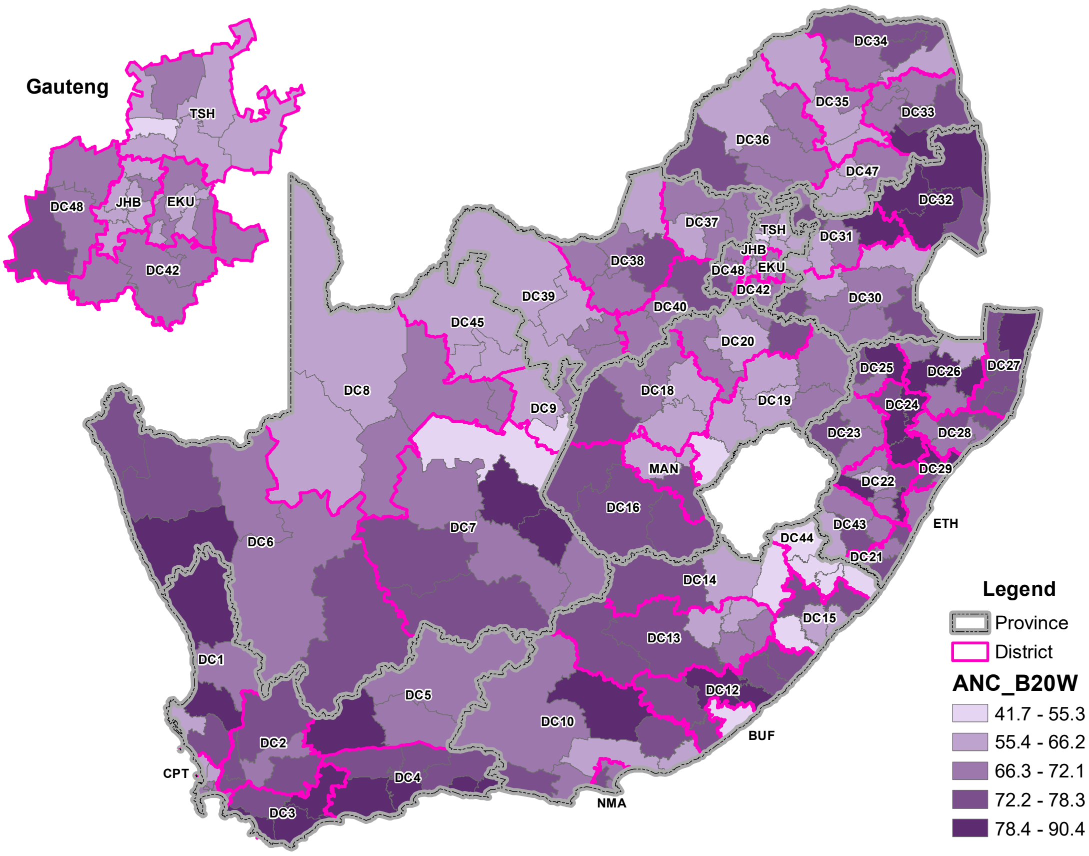
Table 2: Antenatal 1st visit by 20 weeks rate by district, 2014/15 - 2018/19

		2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
Eastern Cape	Alfred Nzo	37.5	42.8	45.4	47.8	47.2
	Amathole	54.3	67.0	71.5	70.8	75.8
	Buffalo City	42.7	59.2	62.6	66.9	53.9
	Chris Hani	59.7	67.3	69.9	68.2	69.4
	Joe Gqabi	50.9	57.0	59.8	64.6	62.3
	Nelson Mandela Bay	55.4	61.5	65.6	66.7	70.2
	OR Tambo	41.8	60.1	67.1	66.8	60.1
	Sarah Baartman	63.2	69.0	71.0	69.8	69.7
Free State	Fezile Dabi	55.8	58.0	65.5	66.2	67.8
	Lejweleputswa	60.7	63.4	65.3	65.6	65.6
	Mangaung	56.6	63.0	64.3	63.1	63.4
	Thabo Mofutsanyana	58.5	63.1	66.1	65.6	63.7
	Xhariep	68.8	77.1	76.4	78.7	74.7
Gauteng	Ekurhuleni	48.8	54.9	57.9	62.0	65.9
	Johannesburg	45.7	52.2	55.8	59.1	63.8
	Sedibeng	56.8	65.3	67.6	71.0	69.6
	Tshwane	46.4	55.0	58.8	60.3	62.0
	West Rand	57.6	61.6	66.1	68.7	71.1
KwaZulu-Natal	Amajuba	52.8	58.6	70.2	71.5	73.6
	eThekwini	54.3	63.9	67.6	70.1	71.9
	Harry Gwala	56.9	64.5	72.1	72.9	72.9
	iLembe	57.7	65.6	72.3	76.9	76.1
	King Cetshwayo	58.3	63.3	69.6	70.3	72.2
	Ugu DM	61.6	65.5	70.1	69.8	71.3
	uMgungundlovu	59.9	68.7	71.2	70.0	71.5
	uMkhanyakude	59.3	66.4	72.5	75.3	76.5
	uMzinyathi	60.9	68.4	74.4	78.8	79.5
	uThukela	57.0	61.7	71.0	71.7	70.4
	Zululand	60.7	67.0	71.7	74.6	74.7
Limpopo	Capricorn	46.1	56.5	60.6	61.1	62.2
	Mopani	55.0	63.2	70.1	68.3	71.5
	Sekhukhune	47.8	59.2	65.2	60.3	65.1
	Vhembe	53.7	63.5	67.9	63.1	69.7
	Waterberg	49.9	61.0	64.3	63.4	67.6
Mpumalanga	Ehlanzeni	63.1	71.7	77.8	79.5	82.3
	Gert Sibande	46.9	55.9	61.1	67.6	68.4
	Nkangala	54.5	63.9	68.3	70.5	71.1
Northern Cape	Frances Baard	59.2	62.9	65.8	64.9	59.6
	John Taolo Gaetsewe	50.9	57.3	59.3	59.3	60.8
	Namakwa	69.1	73.9	75.0	73.8	72.5
	Pixley Ka Seme	61.3	67.0	69.9	67.8	68.5
	Zwelentlanga Fatman Mgcawu	57.4	61.0	63.0	61.8	65.1
North West	Bojanala Platinum	52.3	56.4	60.5	67.0	69.4
	Dr Kenneth Kaunda	56.3	69.3	70.7	69.2	72.5
	Ngaka Modiri Molema	54.6	61.1	65.7	68.0	68.4
	Dr Ruth Segomotsi Mompati	56.9	62.6	62.8	59.2	64.6
Western Cape	Cape Town	61.5	63.8	66.1	66.4	67.1
	Cape Winelands	72.7	73.6	74.5	74.4	74.2
	Central Karoo	69.1	73.3	73.3	74.1	73.3
	Garden Route	76.1	76.9	79.1	78.0	78.8
	Overberg	75.3	78.7	78.0	80.1	80.1
	West Coast	73.3	72.3	73.1	70.8	73.5

Source: DHIS.

Map 1 shows the antenatal 1st visit by 20 weeks rate by local municipality/sub-district (LM/SD) in 2018/19. Ten LM/SDs had an antenatal 1st visit by 20 weeks rate below 55.4%.

Map 1: Antenatal 1st visit by 20 weeks rate by local municipality/sub-district, 2018/19



Source: DHIS.

In 2018/19, the rate among LM/SDs varied between 41.7% in Ntabankulu (Alfred Nzo (EC)) and 90.4% in Bushbuckridge (Ehlanzeni (MP)). One hundred and forty-four LM/SDs achieved a rate above the national average, three equalled the national average, and there were no data for three LM/SDs.

Table 3 shows the six LM/SDs with an antenatal 1st visit before 20 weeks rate below 50% in 2018/19. Five of the six LMs were in the Eastern Cape, with four in Alfred Nzo district.

Table 3: Local municipalities with the lowest antenatal 1st visit by 20 weeks rate, 2018/19

Province	District	Local municipality	Antenatal 1st visit before 20 weeks rate (%)
Eastern Cape	Alfred Nzo	Ntabankulu	41.7
Eastern Cape	OR Tambo	King Sabata Dalindyebo	46.9
Eastern Cape	Alfred Nzo	Mbizana	47.3
Eastern Cape	Alfred Nzo	Umzimvubu	47.7
Free State	Thabo Mofutsanyana	Mantsopa	48.4
Eastern Cape	Alfred Nzo	Matatiele	49.8

Source: DHIS.

Key findings

- The national antenatal 1st visit before 20 weeks rate of 68.1% was above the national target and has increased consistently since 2010/11.
- There was little interprovincial variation in the antenatal 1st visit before 20 weeks rate. Four provinces had a rate above the national average and five exceeded the national target. The 2018/19 rate in all nine provinces was above the rate achieved in 2014/15.
- At district level, the antenatal 1st visit before 20 weeks rate ranged from 47.2% in Alfred Nzo (EC) to 82.3% in Ehlanzeni (MP). Over the past year, the rate improved in 35 districts, and 20 districts saw a sustained improvement over the past three years.

- The rate in LM/SDs varied between 41.7% in Ntabankulu (Alfred Nzo (EC)) to 90.4% in Bushbuckridge (Ehlanzeni (MP)). Alfred Nzo district has four LMs; in 2018/19, all four were among the six LMs with the lowest antenatal 1st visit before 20 weeks rate in the country, resulting in this district having the lowest rate in the country. The reasons for this widespread low booking rate need to be investigated.

Conclusion

In 2018/19, the country achieved the NDoH APP target of 66%. However, many LM/SDs performed well below the national target.

Recommendations

- Implementation needs to be strengthened for existing strategies that promote antenatal attendance, especially in districts and provinces with low antenatal 1st visit before 20 weeks rates.
- Outreach and support services must be established to support poor-performing facilities and districts and to ensure positive pregnancy experience.
- Data quality should be examined in poor-performing LM/SDs and this should be addressed if data quality is the reason for the poor performance.

Antenatal 1st visit coverage

The antenatal 1st visit coverage measures the proportion of potential antenatal clients coming for at least one (booking) antenatal visit.[f] The census number of children under one year factorised by 1.15 is used as a proxy denominator; the extra 0.15 (15%) is a rough estimate to cater for late miscarriages (~10 - 26 weeks' gestation), still births (after 26 weeks gestation), and infant mortality. Pregnant women are regarded as potential antenatal clients from around 10 weeks' gestation, i.e. spontaneous abortions before that are excluded, as well as termination of pregnancy (TOP) cases. The numerator is the total number of 1st antenatal visits, while the denominator is the estimated number of pregnant women at ~10 weeks' gestation. The antenatal 1st visit coverage is an indication of access to skilled antenatal care, which is needed to improve the health of both mother and baby and to reduce poor pregnancy outcomes as well as maternal and child mortality.

It is recognised that a significant proportion of maternal deaths in low- and middle-income countries,[c] as well as an estimated two-thirds of stillbirths,[g] are the consequence of poor antenatal care. Antenatal care is a public health strategy that provides an opportunity for pregnant women to receive a variety of prescribed interventions, including routine antenatal nutritional support, maternal and foetal assessments, and various preventive measures and treatment for common symptoms associated with pregnancy.

The NDoH's APP 2016/17 - 2018/19 includes a target for the antenatal 1st visit before 20 weeks, but not for antenatal first visit coverage.

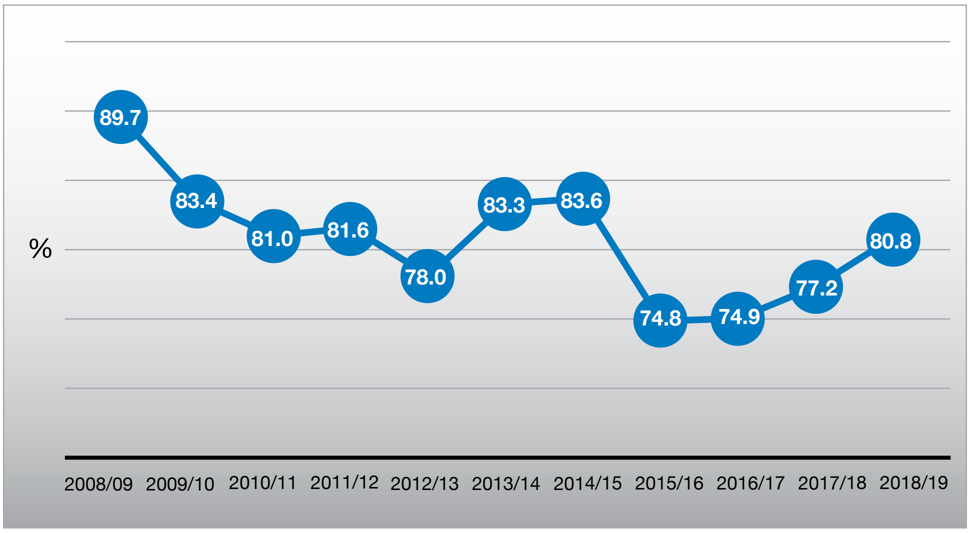
National overview

In 2018/19, over 1 million women booked for antenatal care, giving an antenatal 1st visit coverage of 80.8%. This represents a 4.7% increase on the previous year's coverage, and a year-on-year increase for the third consecutive year (Figure 5). However, it is below the peak coverage of 89.7% reported in 2008/09, and the 94% self-reported coverage recorded in the 2016 SADHS.[g]

f National Department of Health. National Indicator Data Set 2017. Pretoria; NDoH. 2017

g National Department of Health (NDoH), Statistics South Africa (Stats SA), South African Medical Research Council (SAMRC), and ICF. 2019. South Africa Demographic and Health Survey 2016. Pretoria, South Africa, and Rockville, Maryland, USA: NDoH, Stats SA, SAMRC, and ICF.

Figure 5: Trend in antenatal 1st visit coverage, 2008/09 - 2018/19

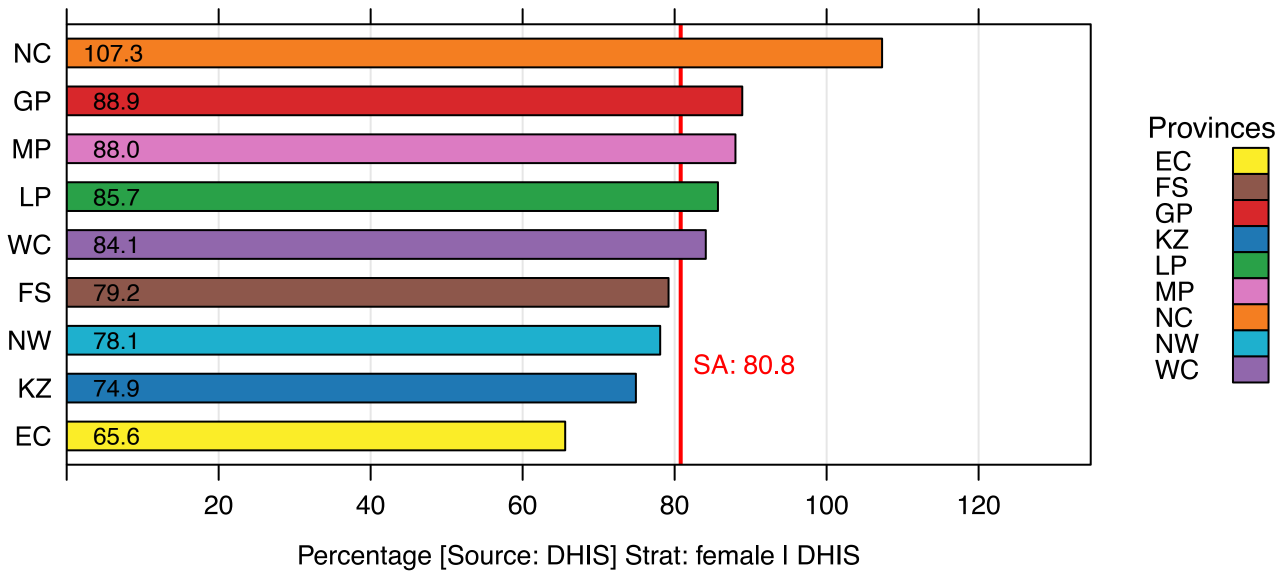


Source: DHIS.

Provincial overview

Figure 6 shows an interprovincial variation ranging from a low of 65.6% coverage in the Eastern Cape to a high of 107.3% in the Northern Cape. This is a much broader range than the provincial coverage reported in the 2016 SADHS,[g] which found the lowest coverage in Gauteng (89.9%) and the highest in the Eastern Cape (98.5%). The coverage of 107.3% in the Northern Cape may have been due to an under-estimation of the under 1 year population, or due to women conceiving in other provinces and then going back to the Northern Cape for antenatal care and delivery. Five provinces achieved a coverage level greater than the national average.

Figure 6: Antenatal 1st visit coverage by province, 2018/19



Over the past year, the antenatal 1st visit coverage increased in seven provinces and decreased in only two, namely Mpumalanga and North West (Table 4). However, only five provinces managed to increase the coverage year-on-year from 2016/17. All nine provinces achieved an increase in antenatal 1st visit coverage from 2015/16. In six provinces, coverage in 2014/15 was higher than in 2018/19. From 2015/16, national coverage increased by 8.0%, and provincial increases ranged from 2.9% in Gauteng to 17.0% in the Northern Cape. Four provinces achieved an increase of more than 10% over the period.

Table 4: Trends in antenatal 1st visit coverage by province, 2014/15 - 2018/19

Province	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
Eastern Cape	72.1	58.5	56.6	58.6	65.6
Free State	80.2	69.7	72.1	74.2	79.2
Gauteng	95.6	86.4	87.5	85.6	88.9
KwaZulu-Natal	78.1	70.4	68.1	70.3	74.9
Limpopo	86.3	78.8	82.0	83.4	85.7
Mpumalanga	86.6	81.2	77.6	89.4	88.0
Northern Cape	102.3	91.7	97.1	97.5	107.3
North West	80.8	72.9	76.8	78.5	78.1
Western Cape	79.2	73.4	75.8	79.1	84.1
South Africa	83.6	74.8	74.9	77.2	80.8

Source: DHIS.

District overview

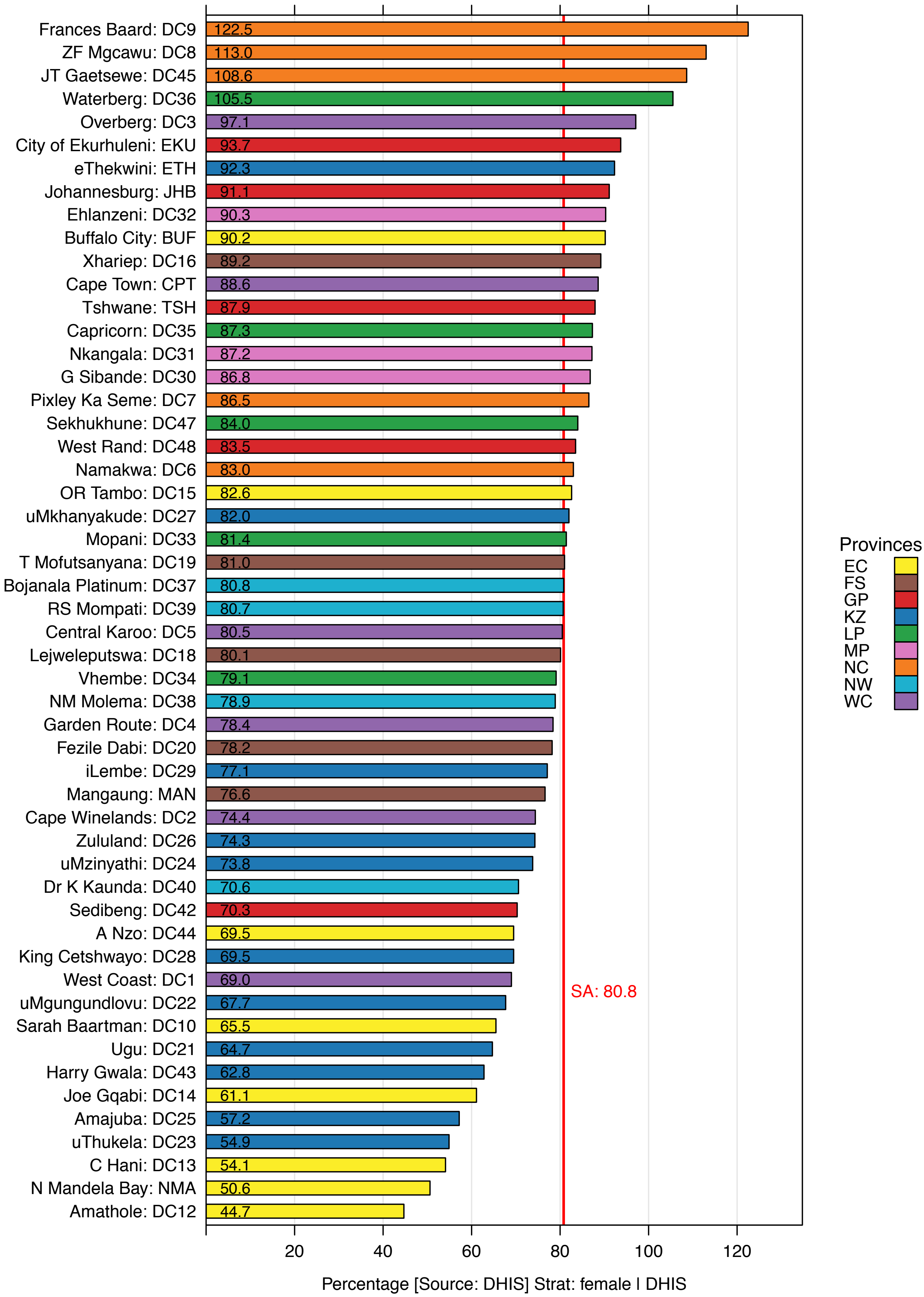
Map 2 and Figure 7 show antenatal 1st visit coverage across the 52 districts in the country, with a gap of 77.8% and a 2.7-fold variation between the districts with the highest and lowest coverage levels. Coverage ranged from 44.7% in Amathole (EC) to 122.5% in Frances Baard (NC). Twenty-five districts achieved an antenatal 1st visit coverage equal to or higher than the national average, including all five districts in the Northern Cape.

Of the 10 districts with the highest coverage, three were in the Northern Cape, two in Gauteng, and one each in the Eastern Cape, KwaZulu-Natal, Limpopo, Mpumalanga and the Western Cape. The Eastern Cape and KwaZulu-Natal each had five districts among the 10 with the lowest coverage levels.

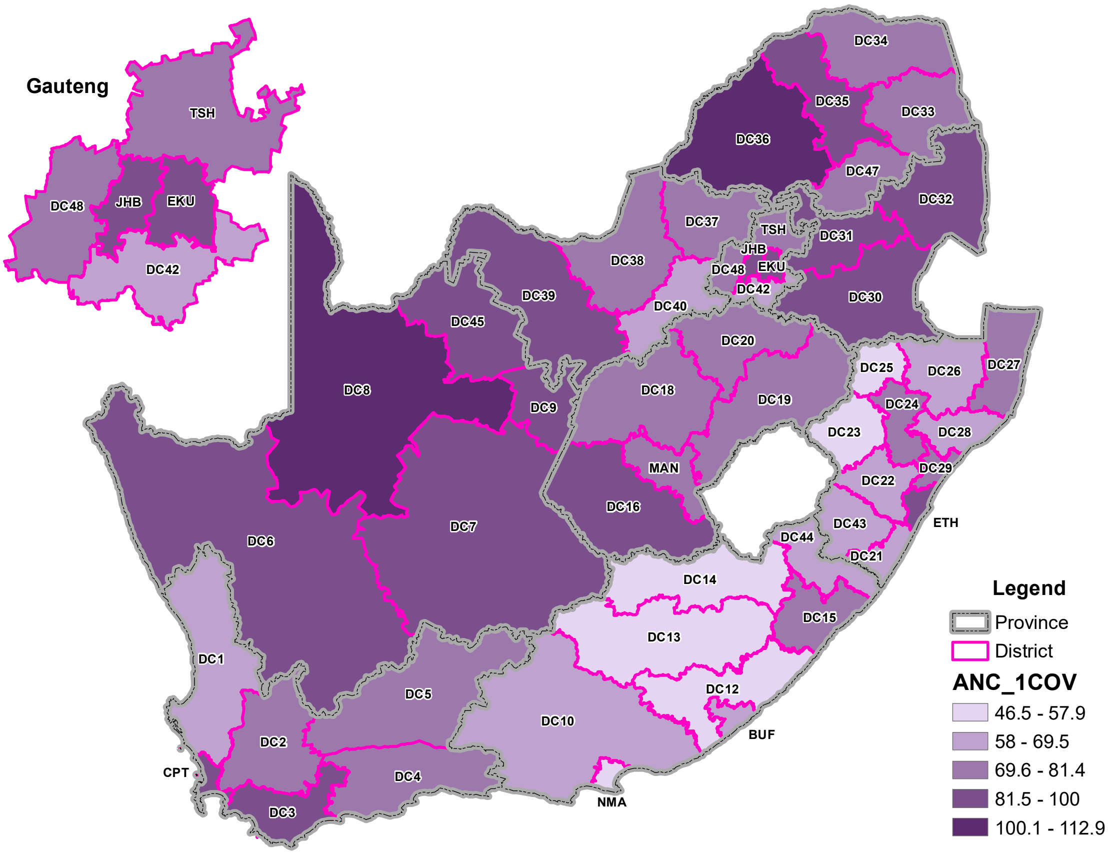
Over the four-year period from 2015/16 to 2018/19, antenatal 1st visit coverage improved in 46 districts across the country. The greatest improvement occurred in Buffalo City (EC), where it increased by 44.5%, from 62.4% in 2015/16 to 90.2% in 2018/19. The coverage level declined in six districts, with the greatest fall occurring in Amathole (EC), from 48.2% to 44.7%, a reduction of 7.3%.

Between 2017/18 and 2018/19, antenatal 1st visit coverage improved in 45 districts. The greatest improvement occurred in Buffalo City (EC), with a 47.9% increase from 61.0% coverage to 90.2%. Between 2017/18 and 2018/19, seven districts achieved an increase in the antenatal 1st visit coverage of more than 10%. There was a reduction in coverage in seven districts, with the greatest decline (14.7%) in Dr Ruth Segomotsi Mompati (NW), where coverage levels fell from 94.6% to 80.7%.

Figure 7: Antenatal 1st visit coverage by district, 2018/19



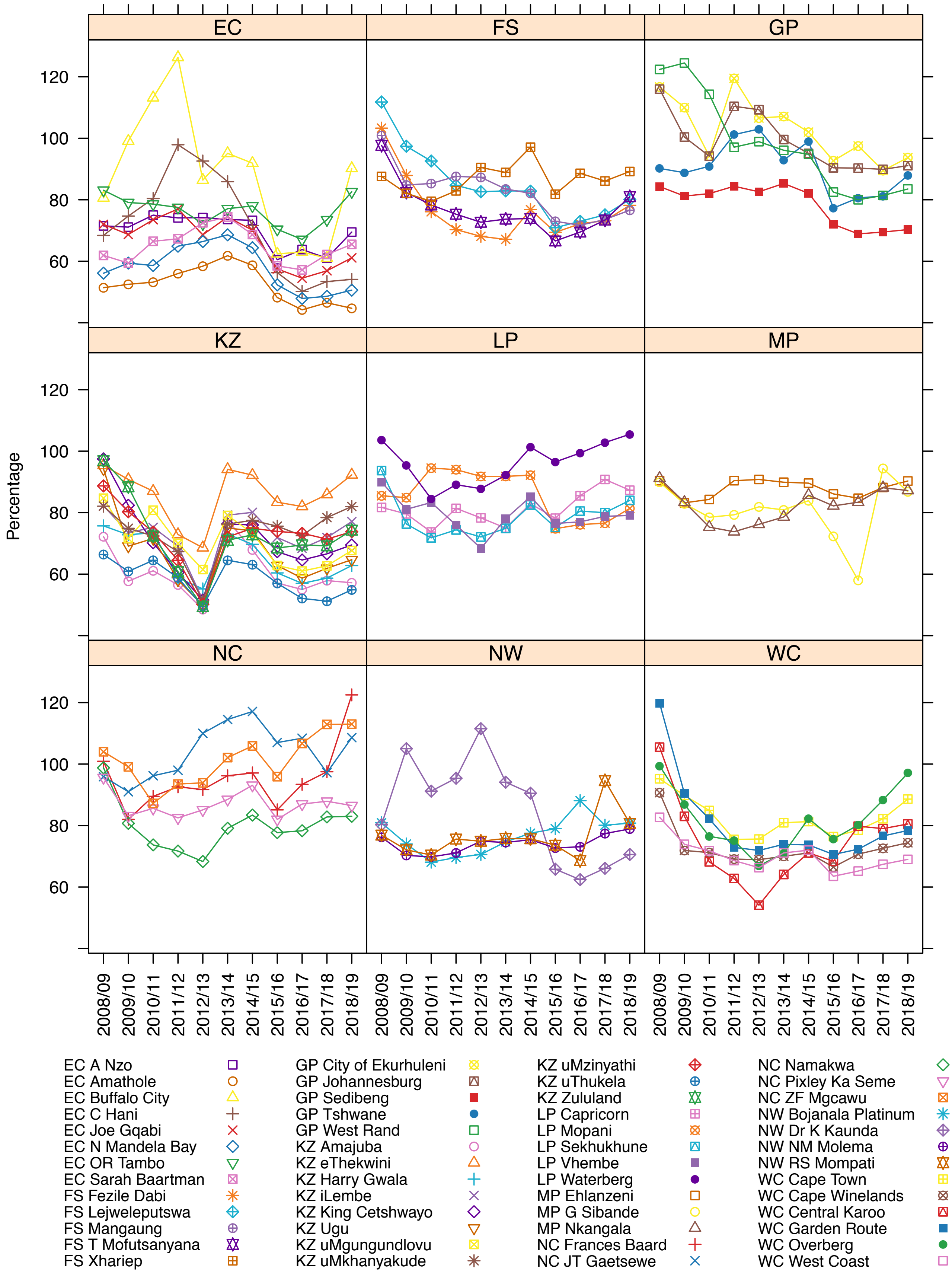
Map 2: Antenatal 1st visit coverage by district, 2018/19



Source: DHIS.

Figure 8 shows the annual trends in the antenatal 1st visit coverage for districts, with marked variation between districts across all provinces from one year to another. While 45 districts showed an increased antenatal 1st visit coverage over the past year, only three provinces (Free State, Gauteng and the Western Cape) achieved an increase in all districts. Thirty-three districts achieved an increased antenatal 1st visit coverage over the past two years, and only 16 managed to sustain an annual increase over three years; of these, five were in the Western Cape, three each in the Free State, Limpopo and Northern Cape, and one each in Gauteng and North West.

Figure 8: Annual trends for antenatal 1st visit coverage by province and district, 2008/09 - 2018/19



Source: DHIS.

Key findings

- In 2018/19, the national antenatal 1st visit coverage was 80.8%.
- There was a 41.7 percentage point difference in antenatal 1st visit coverage between the best and worst-performing provinces (65.6% to 107.3%). Coverage levels increased in seven provinces over the past year, and four provinces (Free State, Limpopo, Northern Cape and the Western Cape) managed to achieve annual increases over the past three years.
- There was a 2.7-fold difference between the best and worst-performing districts (44.7% versus 122.5%). Forty-six districts achieved a higher antenatal 1st visit coverage in 2018/19 than in 2015/16, and 16 managed to sustain an annual increase in coverage over three consecutive years.

Conclusion

- Improvement in antenatal 1st visit coverage has continued, although the 2018/19 coverage of 80.8% is lower than that achieved in 2014/15 (83.6%), and much lower than the self-reported level of 94% recorded in the 2016 SADHS.[g]
- The proportion of pregnant women receiving antenatal care is improving, and strategies to facilitate attendance appear to be working.

Recommendations

- Implementation of existing strategies to promote antenatal attendance need to be strengthened, especially in districts and provinces with low antenatal 1st visit coverage levels.
- Outreach and support services must be established to support poor-performing facilities and districts and to ensure positive pregnancy experience.

Maternal mortality in facility ratio

The World Health Organization defines maternal mortality as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. [h]

According to the 2017 National Indicator Data Set,[f] the maternal mortality in facility ratio measures the number of women who die in a facility during pregnancy, childbirth and the puerperium or within 42 days of termination of pregnancy irrespective of the duration and site of the pregnancy and irrespective of the cause of death (obstetric and non-obstetric) per 100 000 live births in the facility. It is a proxy for the population-based maternal mortality ratio and provides an indication of the quality of antenatal, intrapartum and postnatal care.

The maternal mortality rate is a key indicator for Goal 3 of the SDG, with a target of less than 70 maternal deaths for every 100 000 live births by the year 2030.[i] In South Africa, the national Health Data Advisory and Co-ordinating Committee (HDACC) has set an interim target of a downward trend below 100 maternal deaths per 100 000 live births by 2019.[j]

In 2017, an estimated 295 000 maternal deaths occurred globally, with two-thirds of these (196 000; 66.4%) occurring in sub-Saharan Africa. Between 2000 and 2017, there was an estimated 38.4% reduction in the global maternal mortality rate, from 342 deaths per 100 000 live births to 211 per 100 000 live births, with an annual rate of reduction of 2.9%. In sub-Saharan Africa, the maternal mortality rate declined by 38.3% over the same period, with an annual rate of reduction of 2.8%. [k]

National overview

In 2018/19, 1 065 maternal deaths occurred, resulting in a maternal mortality in facility ratio of 105.9 per 100 000 live births (Figure 9). This is marginally above the 2017/18 figure of 105.7 per 100 000 live births, and has interrupted the ongoing decline since 2013/14. It is, however, substantially lower than the estimated ratio of 134 per 100 000 live births in the 2016 Rapid Mortality Surveillance (RMS) report.[l] Some effort will be required to accelerate the downward trend to achieve the local HDACC target of below 100 per 100 000 live births by 2019 and the SDG target of less than 70 per 100 000 live births by 2030. From 2014/15, the country has achieved an 8.4% reduction in maternal mortality, with an annual rate of reduction of 2.8%.

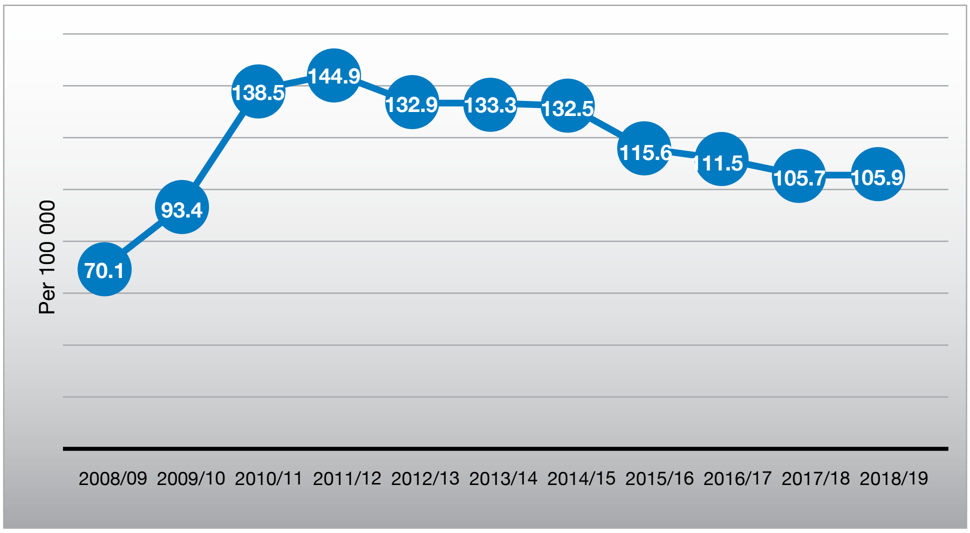
h World Health Organization. Health statistics and information systems: Maternal mortality ratio (per 100 000 live births). Available from: http//www.who.int/healthinfo/statistics/indmaternalmortality/en/.

i United Nations Development Programme 2019. Sustainable Development Goals. Available from: https://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pd.

j Dorrington RE, Bradshaw D, Laubscher R, Nannan N. Rapid mortality surveillance report 2017. Cape Town: South African Medical Research Council; 2019.

k Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019.

Figure 9: Trends in maternal mortality in facility ratio, 2008/09 - 2018/19

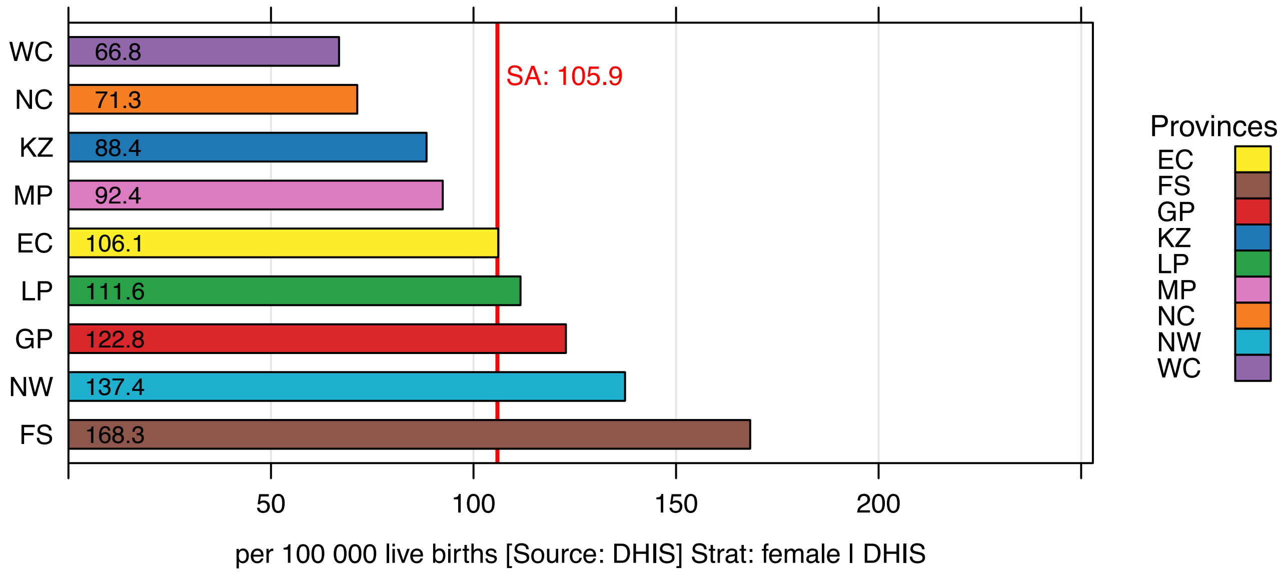


Source: DHIS.

Provincial overview

The national figure conceals a 2.5-fold variation among provinces (shown in Figure 10), ranging from a low of 66.8 maternal deaths per 100 000 live births in facilities in the Western Cape to a high of 168.3 per 100 000 in the Free State. Although four provinces achieved a maternal mortality in facility ratio below both the national average and the HDACC target, only the Western Cape has achieved the SDG target of less than 70 per 100 000 live births.

Figure 10: Maternal mortality in facility ratio by province, 2018/19



Over the past year the maternal mortality in facility ratio decreased in only three provinces, namely the Eastern Cape, KwaZulu-Natal and Mpumalanga (Table 5). Although no province maintained an annual reduction over the past two years, in 2018/19 eight provinces attained a maternal mortality ratio lower than the ratio in 2015/16. The exceptions were Gauteng, which experienced an 18.3% increase in the maternal mortality ratio, and Free State, with a 37.8% increase. The rate of reduction over the four years in the remaining provinces ranged from 0.1% in the Western Cape to 31.3% in the Northern Cape. The annual rate of reduction ranged from 0% in the Western Cape to 10.4% in the Northern Cape.

Table 5: Trends in maternal mortality in facility ratio by province, 2015/16 - 2018/19

Province	2015/16 (Per 100 000)	2016/17 (Per 100 000)	2017/18 (Per 100 000)	2018/19 (Per 100 000)	Rate of reduction 2015/16 - 2018/19 (%)	Annual rate of reduction (%)
Eastern Cape	128.0	127.6	128.3	106.1	17.1	5.7
Free State	122.1	148.4	132.9	168.3	-37.8	-12.6
Gauteng	103.8	114/7	108.5	122.8	-18.3	-6.1
KwaZulu-Natal	121.9	100.2	101.9	88.4	27.5	9.2
Limpopo	139.4	125.9	109.2	111.6	19.9	6.6
Mpumalanga	119.1	123.0	120.0	92.4	22.4	7.5
Northern Cape	103.8	87.5	65.9	71.3	31.3	10.4
North West	141.7	130.1	117.5	137.4	3.0	1.0
Western Cape	66.9	57.7	55.1	66.8	0.1	0.0
South Africa	115.6	111.5	105.7	105.9	8.4	2.8

Source: DHIS.

District overview

Figure 11 shows the maternal mortality in facility ratio across the 52 districts in the country. There was a 7.4-fold variation in the maternal mortality in facility ratio, from a low of 31.2 deaths per 100 000 live births in Sarah Baartman (EC) to a high of 229.9 deaths per 100 000 live births in Lejweleputswa (FS). Thirty-three districts had a maternal mortality in facility ratio below the national average, 31 achieved the HDACC target for 2019, and only 17 reached the SDG target. No province attained a maternal mortality in facility ratio below the national average in all their districts, and only one district in the Free State managed to better the national average.

The 10 districts with the lowest maternal mortality in facility ratio included four districts in KwaZulu-Natal, two districts each in the Eastern and Western Cape, and one each in North West and the Northern Cape. The 10 districts with the highest maternal mortality in facility ratio included three districts in the Free State, two districts each in the Eastern Cape and North West, and one each in Gauteng, Limpopo and the Western Cape.

Between 2017/18 and 2018/19, the maternal mortality in facility ratio improved in 23 districts. The greatest improvement occurred in Sarah Baartman (EC), which had a 78.3% reduction, from 143.5 maternal deaths per 100 000 live births (9 maternal deaths) to 31.2 per 100 000 (2 maternal deaths). However, one reason may have been that complicated cases in Sarah Baartman are referred to hospitals in Nelson Mandela Bay (EC), and the maternal death is then reported by Nelson Mandela Bay. A further 17 districts also achieved a rate of reduction of more than 10%. Although Lejweleputswa (FS) had the highest maternal mortality in facility ratio (25 maternal deaths), Pixley Ka Seme (NC) experienced the greatest increase (203.9%), from 31.1 maternal deaths per 100 000 live births (1 maternal death) to 94.5 per 100 000 (3 maternal deaths).

Over the three-year period from 2015/16 to 2018/19, the maternal mortality in facility ratio improved in 30 districts across the country. The greatest improvement occurred in Sarah Baartman (EC) where it declined by 65.9%, from 91.4 maternal deaths per 100 000 live births (6 maternal deaths) to 31.2 per 100 000 (2 maternal deaths). The worst performance occurred in Thabo Mofutsanyana in the Free State, which saw an 86.8% increase from 83.7 maternal deaths per 100 000 live births (11 maternal deaths) to 156.4 per 100 000 (26 maternal deaths).

Figure 11: Maternal mortality in facility ratio by district, 2018/19

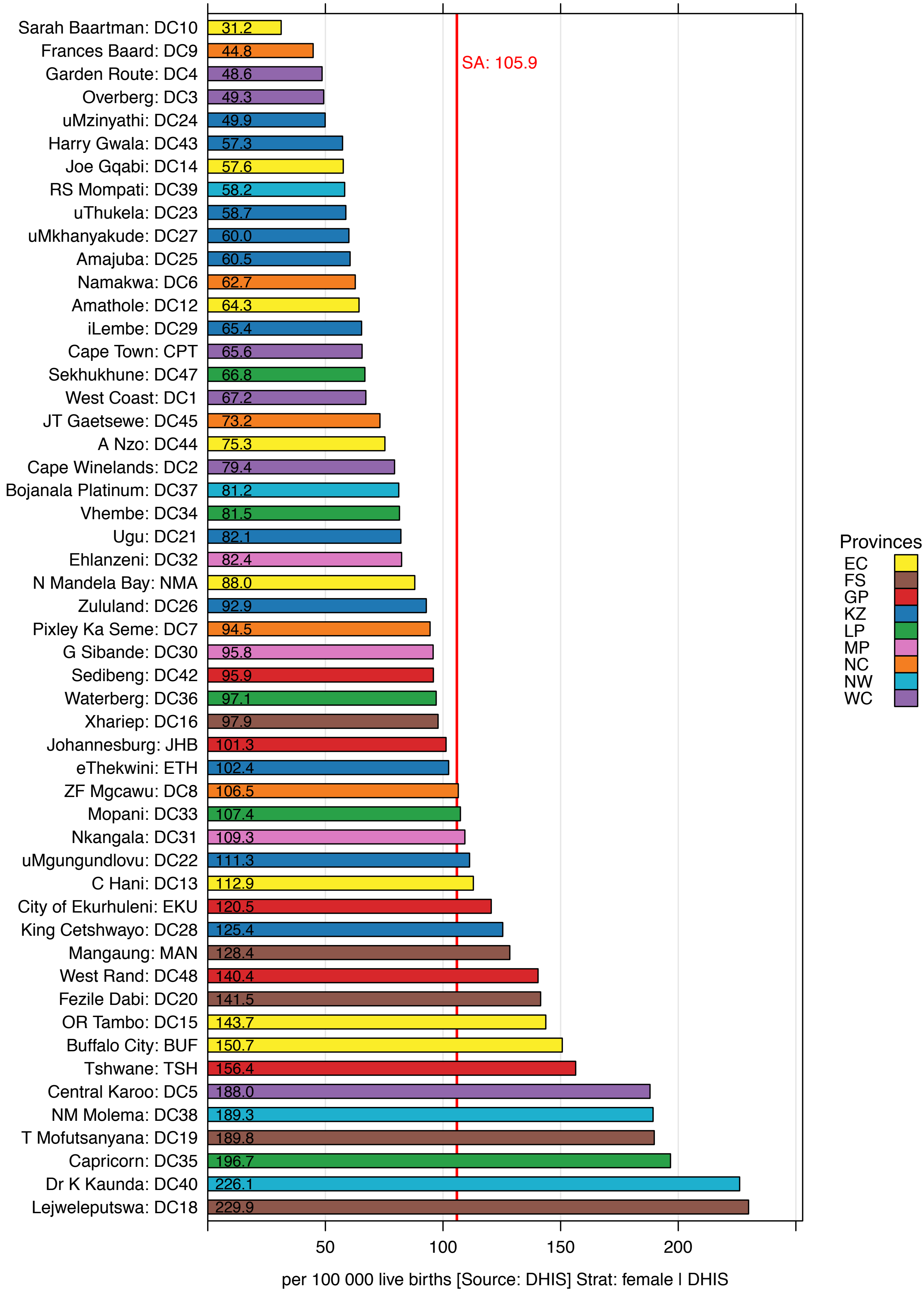
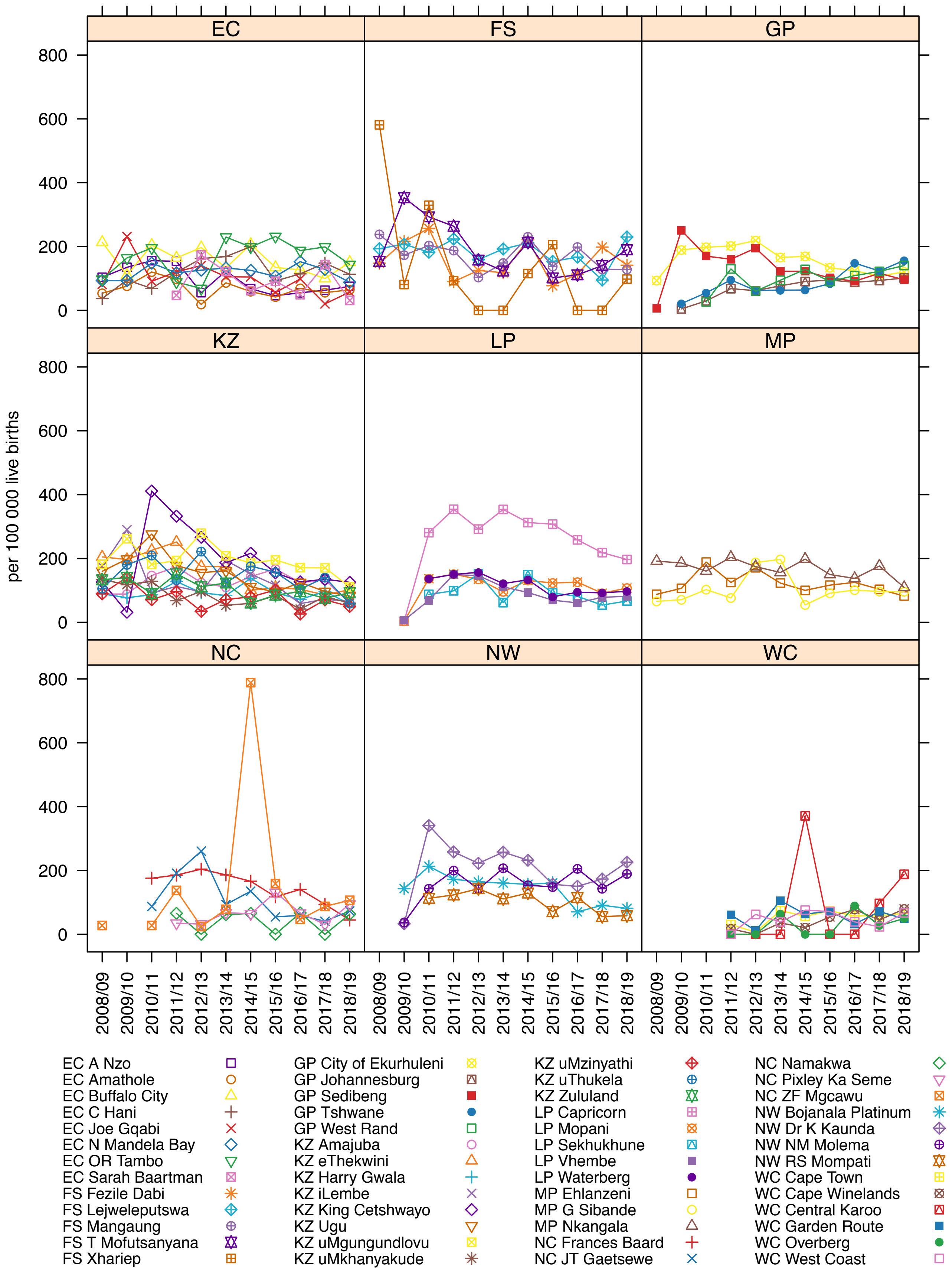


Figure 12 shows the annual trends in the maternal mortality in facility ratio for districts, with marked variation across all provinces from one year to another. While 23 districts showed a reduced maternal mortality in facility ratio over the past year, five provinces (Gauteng, Limpopo, Northern Cape, North West and Western Cape) had only a single district achieve this. Only eight districts achieved a reduced maternal mortality in facility ratio over the past two years, and only two, uMgungundlovu (KZ) and Capricorn (LP), managed to sustain a decreasing maternal mortality in facility ratio over three consecutive years.

The maternal mortality in facility ratio increased in 29 districts between 2017/18 and 2018/19, in nine districts over the past two years, and in three districts every year from 2015/16, namely in Alfred Nzo (EC), Thabo Mofutsanyana (FS) and West Rand (GP).

Figure 12: Annual trends for maternal mortality in facility ratio by province and district, 2008/09 - 2018/19

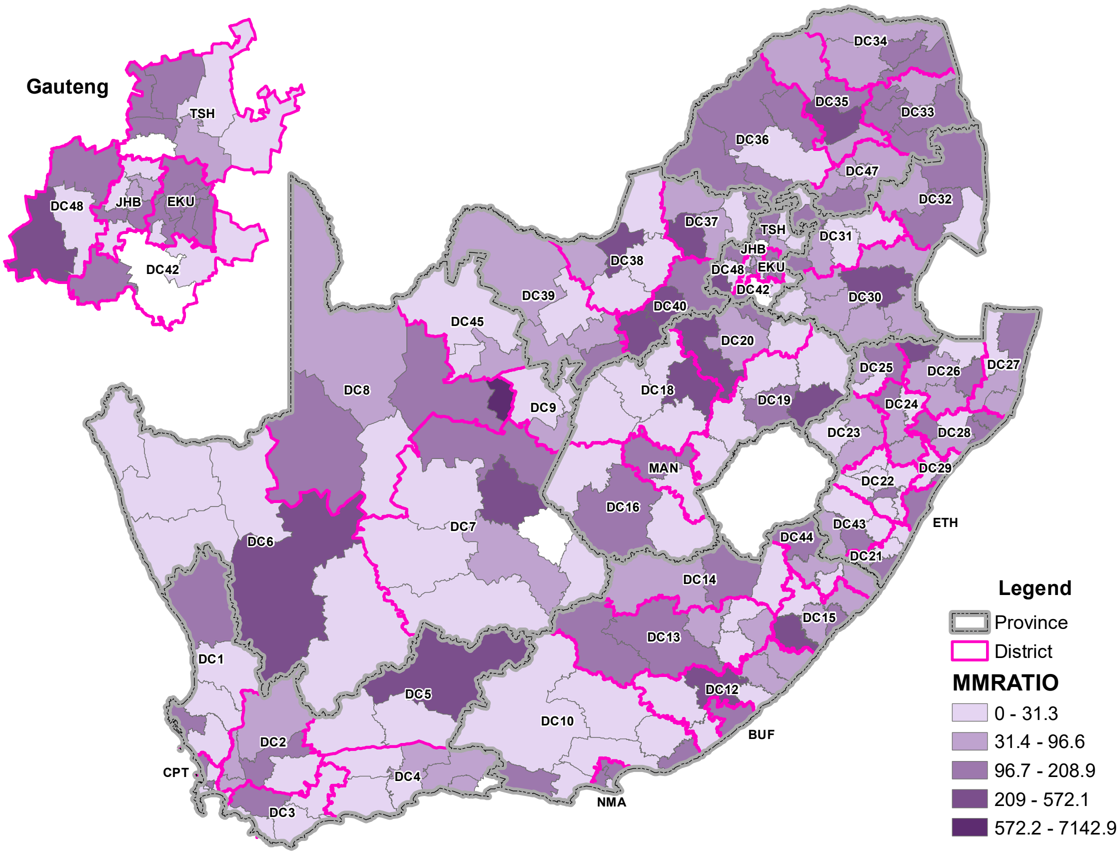


Source: DHIS.

Map 3 shows that at LM/SD level there was wide variation in the maternal mortality in facility ratio in 2018/19, from zero per 100 000 live births in 81 LM/SDs to 7 142.9 maternal deaths per 100 000 live births in Kgatelopele (Zwelentlanga Fatman Mgcawu (NC)).

The Western Cape and KwaZulu-Natal each had 16 LM/SDs without any maternal deaths, followed by 14 in the Eastern Cape, 12 in the Free State, 10 in the Northern Cape, eight in Gauteng, three in North West, and one each in Limpopo and Mpumalanga. One hundred and forty-one LM/SDs achieved a ratio below the national average, and there were no data for three LM/SDs. The rate declined in 81 LM/SDs, increased in 72, and remained unchanged in 56 LM/SDs.

Map 3: Maternal mortality in facility ratio by local municipality/sub-district, 2018/19



Source: DHIS.

Table 6 lists the five LM/SDs with the highest maternal mortality in facility ratio in 2018/19. Only Kgatelopele and eDumbe had a maternal mortality in facility ratio above 500 per 100 000 live births. Although Kgatelopele had the highest ratio, there were only five maternal deaths. Mahikeng, with a much lower ratio, had 29 maternal deaths. The relatively high number of maternal deaths in Kgatelopele and Mahikeng LMs may have been due to poor data quality.

Table 6: Five local municipalities with the highest maternal mortality in facility ratio, 2018/19

Province	District	Local municipality/sub-district	Maternal mortality in facility ratio per 100 000 live births	Number of maternal deaths
Eastern Cape	Amathole	Amahlathi	321.5	3
North West	Ngaka Modiri Molema	Mahikeng	346.5	29
Northern Cape	Pixley Ka Seme	Thembelihle	383.1	1
KwaZulu-Natal	Zululand	eDumbe	572.1	1
Northern Cape	Zwelentlanga Fatman Mgcawu	Kgatelopele	7 142.9	5

Source: DHIS.

Key findings

- The national maternal mortality in facility ratio declined annually between 2014/15 and 2017/18, but remained static at around 106 maternal deaths per 100 000 live births in 2017/18 and 2018/19.
- The maternal mortality in facility ratio in the worst-performing province was 2.5 times that of the best-preforming province (168.3 (Free State) versus 66.8 (Western Cape) per 100 00 live births). Four provinces achieved a maternal

mortality in facility ratio better than the national average and below the 2019 HDACC target, but only the Western Cape achieved a ratio below the SDG target.

- There was a 7.4-fold difference between the best and worst-performing districts (31.2 (Sarah Baartman (EC)) versus 229.9 (Lejweleputswa (FS)) per 100 000 live births). Thirty districts achieved a lower maternal mortality in facility ratio in 2018/19 than in 2015/16, and only two districts, uMgungundlovu (KZ) and Capricorn (LP), managed to reduce the ratio over three consecutive years.

Conclusion

Based on the downward trend in the national maternal mortality in facility ratio over the last five years, the country may still achieve the 2030 SDG target. Some effort will be required to accelerate the downward trend to achieve the local HDACC target of below 100 per 100 000 live births by 2019 and the SDG target of less than 70 per 100 000 live births by 2030.

Recommendations

The causes of maternal death are well understood, and strategies to reduce these have been identified or developed by the National Committee for the Confidential Enquiry into Maternal Deaths (NCCEMD).

- Systems need to be established to validate data at the point of collection and to ensure the alignment of different data sources, namely the District Health Information Software (DHIS), NCCEMD, and vital registration.
- Implementation of existing interventions needs to be strengthened, especially in districts and provinces with high maternal death in facility ratios.
- Outreach and support services must be established to support poor-performing facilities and districts.
- Systems must be developed or adopted to ensure effective oversight and accountability and the inclusion of a key result area for maternal, newborn and child survival in the performance agreements of facility Chief Executive Officers (CEOs) and district managers.

Neonatal death in facility rate

The neonatal death in facility rate measures the number of neonates, aged 0 - 28 days, who died during their stay in the facility as a proportion of all babies born in the facility, expressed per 1 000 live births.[f] This rate includes both early and late neonatal deaths (0 - 7 days and 8 - 28 days) and is an indication of the quality of antenatal and intrapartum care of the mother as well as the postnatal care of the neonate.

Neonatal mortality rate is a key indicator for Goal 3 of the SDGs, with a target of fewer than 12 deaths in the neonatal period for every 1 000 live births by the year 2030.[i] Between 1990 and 2018, there was an estimated 56% reduction in deaths among children and adolescents below 15 years of age globally, including a 52% reduction in neonatal mortality, from 5 million deaths in 1990 to 2.5 million in 2018.[l] Neonatal deaths account for 44% of under-5 deaths,[m] with the bulk of these occurring in low- and middle-income countries; any further improvement in the under 5 years mortality rate requires ongoing reduction in the number of neonatal deaths. The global neonatal mortality rate was estimated to be 18 per 1 000 live births in 2018, but in sub-Saharan Africa, where there has been no improvement in 40% of countries, it was 28 per 1 000 live births, and 42 of the 48 sub-Saharan African countries are not expected to achieve the SDG target.[b]

The DHIS reports primarily on neonatal deaths in the public health system. From 2012, for a variety of reasons, the number of deaths reported via the DHIS has exceeded the number captured in the vital registration system, and from 2016, estimates of the neonatal mortality rate have been based on DHIS data.[n]

National overview

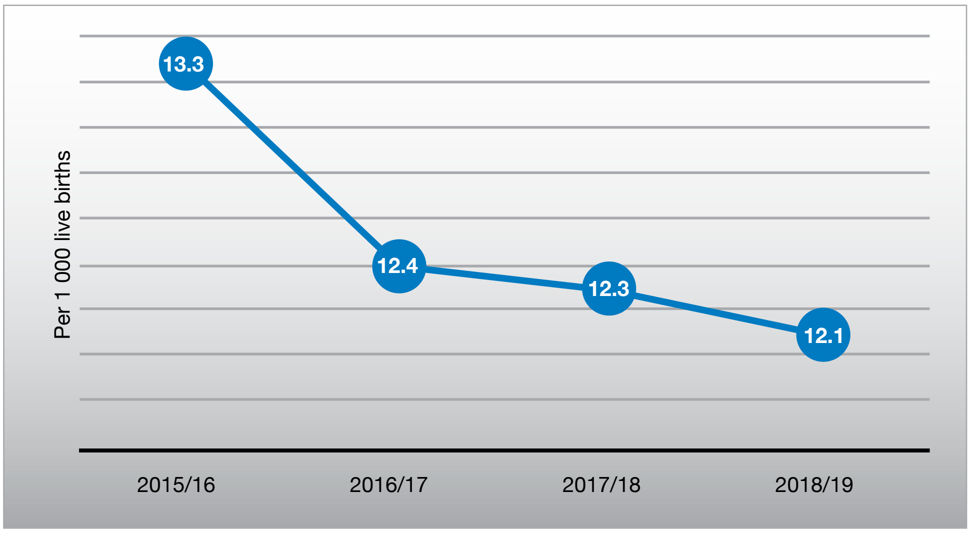
In 2018/19, the national neonatal death in facility rate was 12.1 per 1 000 live births (Figure 13). This maintains the recent trend of a declining neonatal death rate and is in line with estimates in the Rapid Mortality Surveillance report,[n] but is significantly lower than the neonatal mortality rate of 21 reported in the 2016 by the SADHS.[l] While it suggests that South Africa is on track to achieve the SDG target, it is substantially higher than the local target of 8 deaths per 1 000 live births by 2019 set by the HDACC.

l UN Inter-agency Group for Child Mortality Estimation (UNIGME). 'Levels and Trends in Child Mortality: Report 2019, Estimates developed by the United Nations Inter-agency Group for Child Mortality Estimation'. New York: UNICEF, 2019. Available from: www.childinfo.org/files/Child_Mortality_Report_2019.pdf.

m World Health Organization. Every Newborn: an action plan to end preventable deaths. WHO Press, Geneva, 2014.

n Dorrington RE, Bradshaw D, Laubscher R, Nannan N (2019). Rapid mortality surveillance report 2017. Cape Town: South African Medical Research Council. ISBN: 978-1-928340-36-2.

Figure 13: National neonatal death in facility rate, 2015/16 - 2018/19

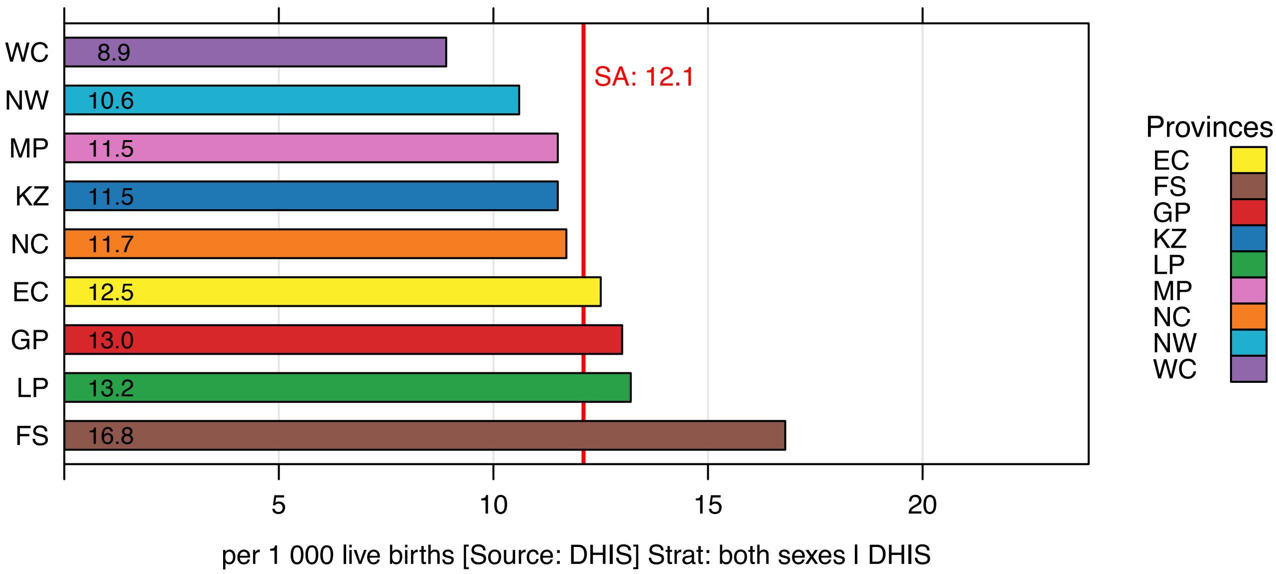


Source: DHIS.

Provincial overview

The national figure conceals a wide interprovincial variation (shown in Figure 14), from a low of 8.9 neonatal deaths per 1 000 live births in facilities in the Western Cape to a high of 16.8 in the Free State. Five provinces achieved a neonatal death in facility rate below the national average of 12.1 deaths per 1 000 live births as well as the SDG target of 12 deaths per 1 000 live births, but none achieved the HDACC target of 8 deaths per 1 000 live births. Four provinces had a neonatal death in facility rate above both the national average and the SDG target.

Figure 14: Neonatal death in facility rate by province, 2018/19



Over the past year the neonatal death in facility rate declined in four provinces, increased in four provinces, and remained constant in Mpumalanga (Table 7). From 2015/16, the rate fluctuated from year to year in all provinces except KwaZulu-Natal. In 2018/19, the neonatal death in facility rate was lower than that of 2015/16 in five provinces, namely North West, Northern Cape, Eastern Cape, Limpopo and KwaZulu-Natal.

Table 7: Trend in neonatal death in facility rate by province, 2015/16 - 2018/19

Province	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
Eastern Cape	15.8	13.2	13.8	12.5
Free State	14.1	14.3	14.1	16.8
Gauteng	12.9	13.6	13.6	13.0
KwaZulu-Natal	14.6	12.4	12.4	11.5
Limpopo	14.6	12.2	12.4	13.2
Mpumalanga	10.9	10.9	11.5	11.5
Northern Cape	12.1	12.1	9.4	10.6
North West	16.2	15.8	11.6	11.7
Western Cape	8.8	8.5	9.0	8.9
South Africa	13.3	12.4	12.3	12.1

Source: DHIS.

District overview

Figure 15 shows the neonatal death in facility rate across the 52 districts in the country, with a 3.5-fold variation, from a low of 6.1 deaths per 1 000 live births in the West Coast (WC) to a high of 21.7 deaths per 1 000 live births in Lejweleputswa (FS). Thirty-one districts had a neonatal death in facility rate below the national average and the SDG target, and 11 districts had already achieved the HDACC target for 2019. North West and the Western Cape were the only provinces in which all districts achieved a neonatal death in facility rate equal to or lower than the national average. In Free State and Limpopo, only one district achieved a neonatal death in facility rate below the national average.

Four districts in the Western Cape were among the 10 districts with the lowest neonatal death in facility rate, together with two districts in the Eastern Cape and one each in the Free State, Gauteng, KwaZulu-Natal and the Northern Cape. Four districts in the Free State were among the 10 with the highest neonatal death in facility rate, together with two districts in the Eastern Cape and one each in Gauteng, KwaZulu-Natal, Limpopo and the Northern Cape.

Between 2017/18 and 2018/19, the neonatal death in facility rate improved in 30 districts. The greatest improvement occurred in Harry Gwala (KZ), where the rate halved from 15.1 to 7.2 per 1 000 live births. The worst-performing district was Ngaka Modiri Molema (NW), where the rate doubled from 4.7 to 10.2 neonatal deaths per 1 000 live births. Over the four-year period from 2015/16 to 2018/19, the neonatal death in facility rate improved in 32 districts across the country. The greatest improvement occurred in John Taolo Gaetsewe (NC), where the rate halved from 16.0 to 7.2, and the worst performance occurred in Thabo Mofutsanyana (FS), which saw a 74% increase from 8.0 to 13.9 neonatal deaths per 1 000 live births.

Figure 15: Neonatal death in facility rate by district, 2018/19

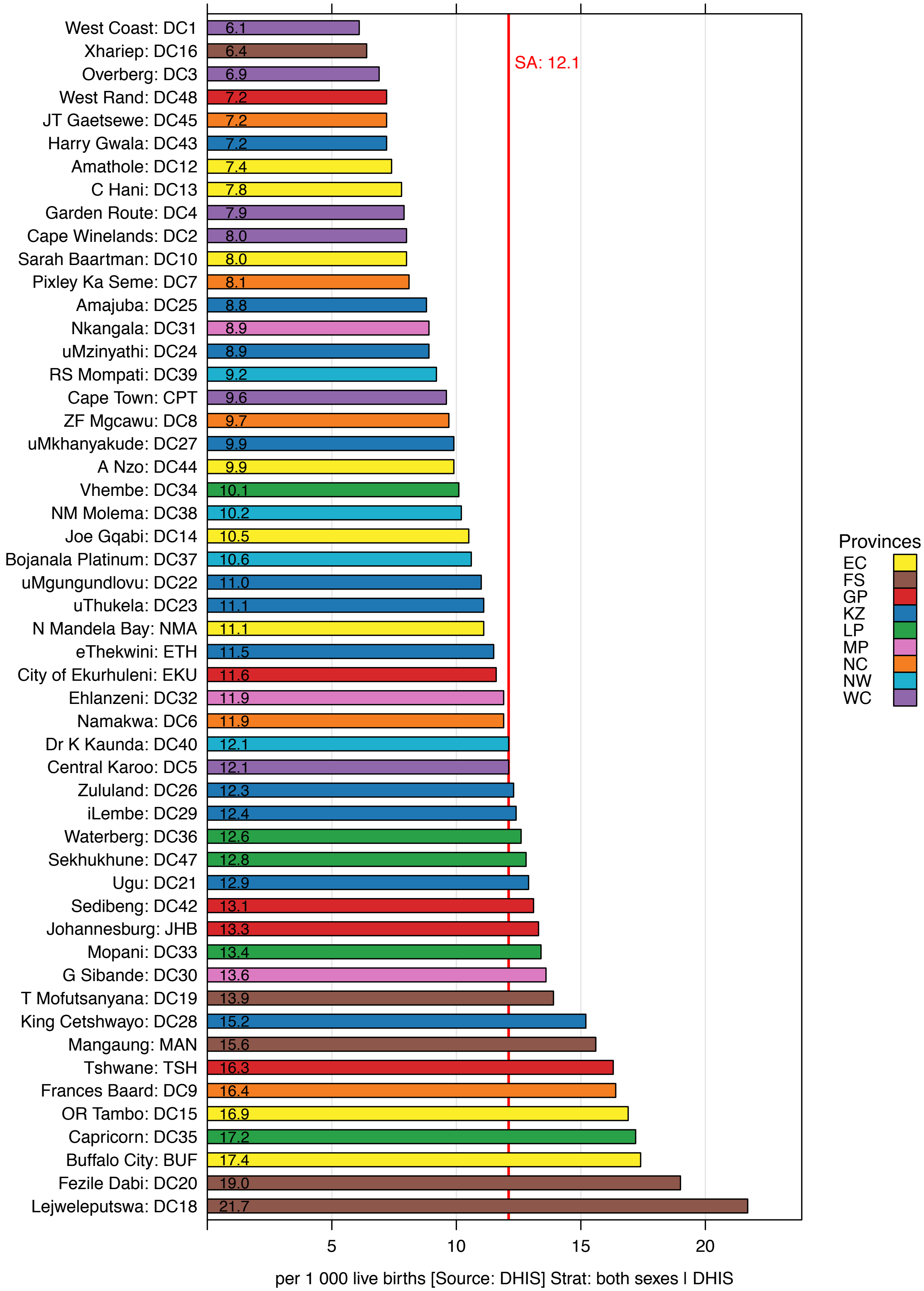
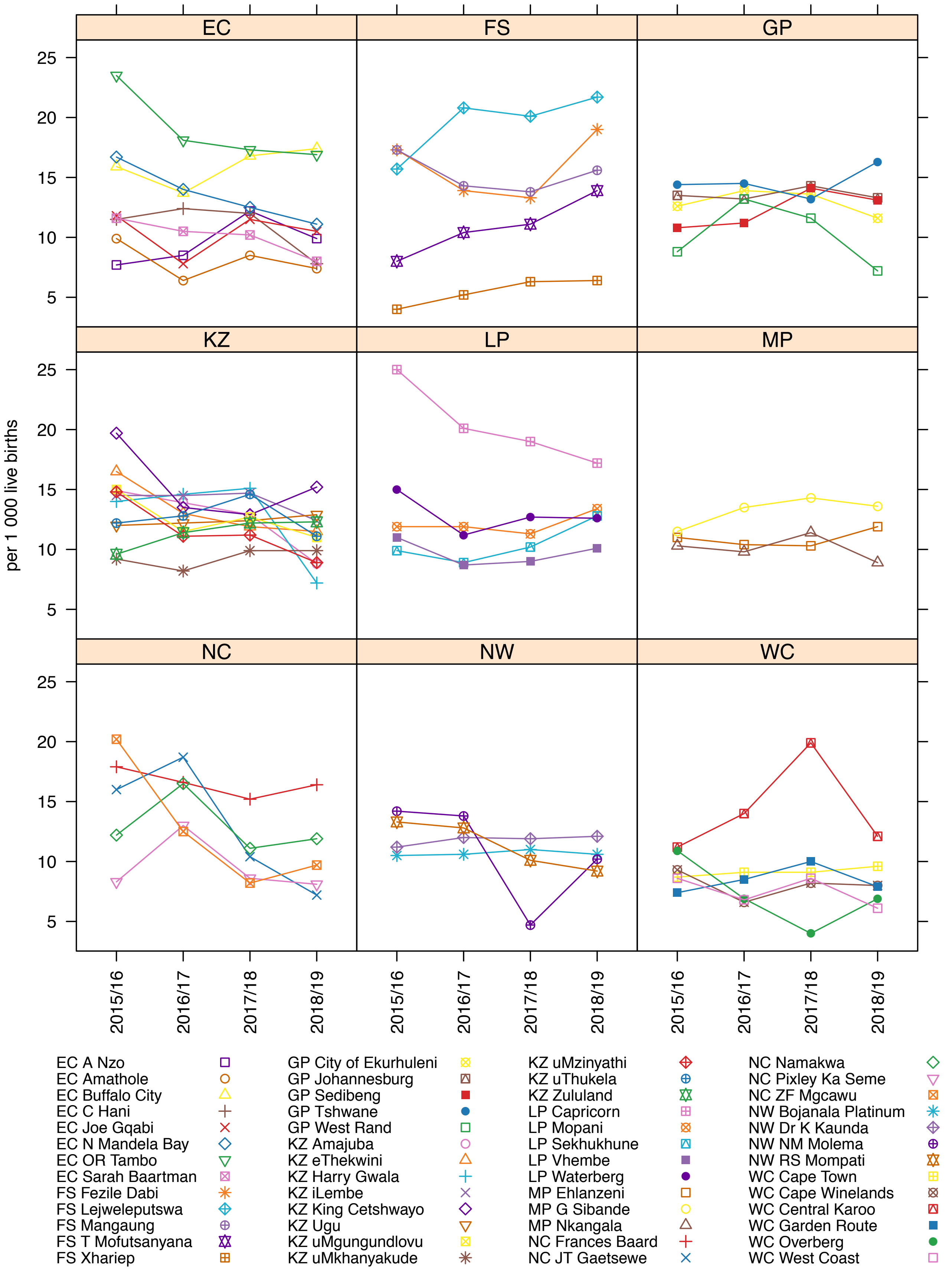


Figure 16 shows the annual trends in the neonatal death in facility rate for districts, with marked variation across all provinces from one year to another between 2015/16 and 2018/19. While 30 districts showed a reduced neonatal death in facility rate over the past year, only 14 achieved this over the past two years, and only seven managed to sustain a decreasing neonatal death in facility rate over three years. The latter included three districts in the Eastern Cape (OR Tambo, Nelson Mandela Bay and Sarah Baartman), two in KwaZulu-Natal (Amajuba and eThekwini), and one each in Limpopo (Capricorn) and the North West (Dr Ruth Segomotsi Mompati).

No district in the Free State managed to reduce the neonatal death in facility rate between 2017/18 and 2018/19, and five districts in the country saw an increase in the neonatal death in facility rate every year from 2015/16, including two in the Free State (Thabo Mofutsanyana and Xhariep), two in KwaZulu-Natal (Ugu and Zululand), and one in the Western Cape (Cape Town).

Figure 16: Annual trends for neonatal death in facility rate by district, 2015/16 - 2018/19

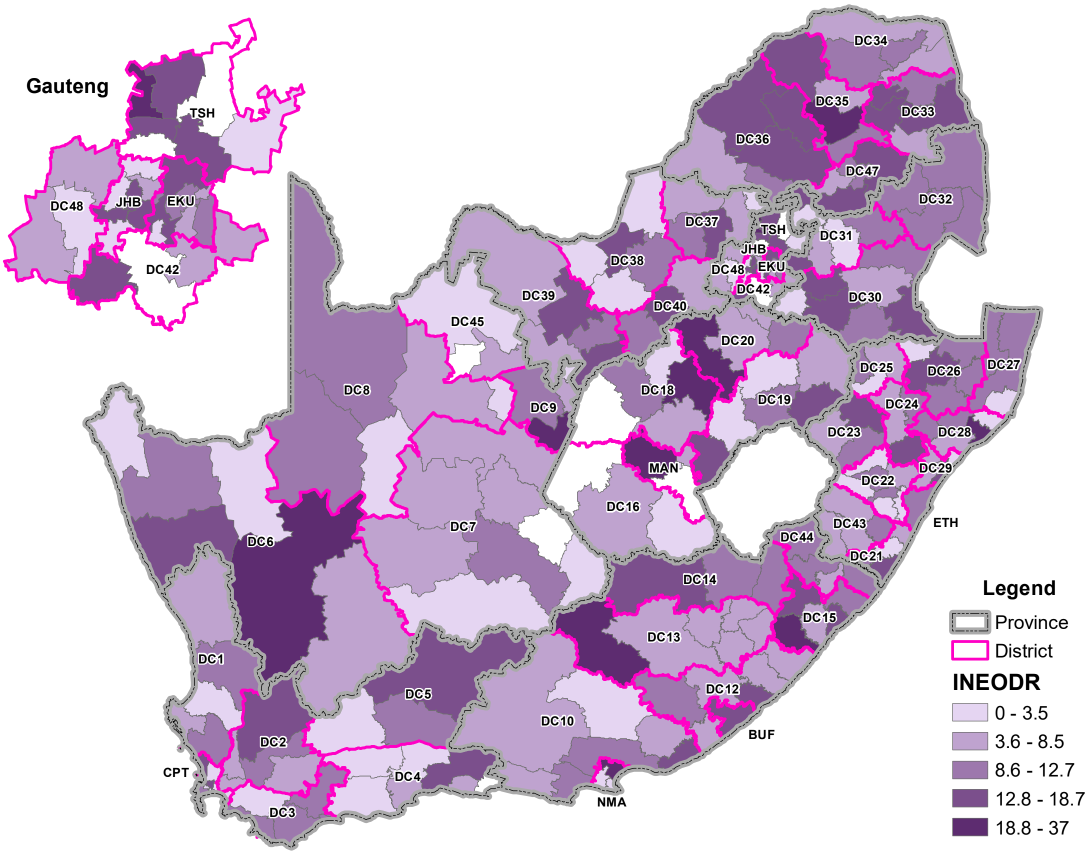


Source: DHIS.

At the LM/SD level there was wide variation in the neonatal death in facility rate in 2018/19, from 0 neonatal deaths per 1 000 live births in 25 LM/SDs to 37.0 neonatal deaths per 1 000 live births in Moqhaka (Fezile Dabi (FS)) (Map 4). One hundred and sixty-three LM/SDs achieved a rate below the national average, and there were no data for a further nine LM/SDs. One reason may have been that most of these LM/SDs do not have district hospitals where deliveries are conducted or newborn babies are admitted.

Between 2017/18 and 2018/19, the rate declined in 110 LM/SDs and increased in 104. Eight LM/SDs achieved a reduction of more than 10 neonatal deaths per 1 000 live births, with Mkhambathini (uMgungundlovu (KZ)) achieving the greatest decline. However, the rate in Mkhambathini which was 0 neonatal deaths per 1 000 live births in 2015/16 and 2016/17, increased to 375.0 per 1 000 in 2017/18, and then declined to 0 per 1 000 in 2018/19. The greatest increase in rate occurred in Great Kei (Amathole (EC)), and a further four LM/SDs saw an increase in the rate of more than 10 neonatal deaths per 1 000 live births. The rate in Great Kei was 0 neonatal deaths per 1 000 live births between 2015/16 and 2017/18, and then increased to 15.5 per 1 000 in 2018/19. The huge outliers in rate in Mkhambathini and Great Kei between 2017/18 and 2018/19 may have been due to poor data quality or small numbers.

Map 4: Neonatal death in facility rate by local municipality/sub-district, 2018/19



Source: DHIS.

Table 8 lists the five LM/SDs with the highest neonatal death in facility rate in 2018/19.

Table 8: Local municipalities/sub-districts with the highest neonatal death in facility rate, 2018/19

Province	District	Local municipality/sub-district	Neonatal death in facility rate (per 1 000 live births)
Gauteng	Tshwane	Tshwane 1	21.3
Limpopo	Capricorn	Polokwane	21.4
Free State	Lejweleputswa	Matjhabeng	24.4
Eastern Cape	OR Tambo	King Sabata Dalindyebo	25.5
Free State	Fezile Dabi	Moqhaka	37.0

Source: DHIS.

Key findings

- The national neonatal death in facility rate has continued to decline since 2015/16, and the country is on track to achieve the SDG target.
- The neonatal death in facility rate in the worst-performing province was almost double that of the best-performing province (16.8 (Free State) versus 8.9 (Western Cape) neonatal deaths per 1 000 live births), and over the past four years there has been either no change or a worsening of the neonatal death in facility rate in the Free State, Gauteng, Mpumalanga and Western Cape.
- There was a 3.5-fold difference between the best- and worst-performing districts; only 14 districts managed to reduce the neonatal death in facility rate over two consecutive years, and only seven districts did so over three consecutive years.
- There was a wide fluctuation in the neonatal death in facility rate from one year to another at the LM/SD level, and in light of the small number of deaths at this level it is important to consider the absolute number of deaths rather than the rate.

Conclusion

- If the neonatal death in facility rate continues to decline annually as in the past four years, then the country is on track to achieve the SDG target.

Recommendations

The causes of neonatal death are well understood and interventions with the potential to reduce neonatal deaths due to these causes have already been adopted in the country. These include antenatal steroids for preterm labour, neonatal resuscitation, chlorhexidine cord cleansing, continuous positive airways pressure, Kangaroo Mother Care, and case management of sick and small newborns.

- Systems need to be established to validate data at the point of collection and to ensure the alignment of different data sources: DHIS, Perinatal Problem Identification Programme and vital registration.
- Implementation of existing interventions needs to be strengthened, especially in districts and provinces with high neonatal death in facility rates.
- Outreach and support services must be established to support poor-performing facilities and districts.
- Systems must be developed or adopted to ensure effective oversight and accountability and the inclusion of a key result area for maternal, newborn and child survival in the performance agreements of facility CEOs and district managers.

2.2 Child health and nutrition

Lesley Bamford

This section of the reproductive, maternal, newborn and child health (RMNCH) category of the universal health coverage (UHC) index[a] reports on child treatment, with a focus on two proxy indicators related to pneumonia and an additional indicator with a focus on nutrition. These indicators are:

- Pneumonia incidence
- Pneumonia case fatality rate (CFR)
- Severe acute malnutrition CFR.

Sustainable Development Goal (SDG) 3.2 calls for an end to preventable deaths among newborns and children under 5 years of age, and aims to achieve an under-5 mortality rate below 25 deaths per 1 000 live births in all countries by 2030.[b] With an estimated under-5 mortality of 32 per 1 000 live births in 2017,[c] South Africa is currently on track to achieve this target, providing that recent declines in child mortality are sustained.

Despite a 30% reduction in the global incidence of child pneumonia and a 51% decrease in mortality associated with child pneumonia during the Millennium Development Goal period (1990 - 2015), pneumonia remains the leading cause of death in young children outside the newborn period.[d] In 2016, pneumonia accounted for an estimated 16% of deaths in children under 5 years of age globally, and for 17% of child deaths in South Africa.[e] Achievement of SDG Target 3.2 is thus closely linked to prevention and improved management of pneumonia in young children.

Almost all deaths due to pneumonia are preventable using available technologies. The key to reducing these deaths is, therefore, to ensure that all children have access to a package of preventive and curative health services. This package needs to focus primarily on ensuring a reduction in the incidence of pneumonia by reducing the risk factors associated with the condition, and ensuring that children who develop pneumonia are correctly identified and managed. The Integrated Global Action Plan for Pneumonia and Diarrhoea defines this package as including:[d]

- Exclusive breastfeeding for six months and continued breastfeeding with appropriate complementary feeding (this will reduce the incidence and severity of pneumonia).
- Immunisation against pneumococcal disease and *Haemophilus influenzae* type b, the two most common bacterial causes of childhood pneumonia.
- Immunisation against measles and pertussis (this substantially reduces pneumonia illness and death in children).
- Prevention of vertical transmission of human immunodeficiency virus (HIV) infection, and early identification and treatment of children with HIV infection.
- Water, sanitation and hygiene interventions, including access to and use of safe drinking water and sanitation, as well as promotion of key hygiene practices that provide health, economic and social benefits.
- Reduction of household air pollution with improved stoves, as this has been shown to reduce severe pneumonia.
- Use of simple, standardised guidelines for the identification and treatment of pneumonia in the community, at first-level health facilities, and at referral hospitals, such as those for integrated management of childhood illness (IMCI).

The reductions in incidence of pneumonia described above are consistent with decreased prevalence of some of the key risk factors for pneumonia. Across all low- and middle-income regions, prevalence has decreased for most key risk factors for pneumonia, including non-exclusive breastfeeding, overcrowding, malnutrition, indoor air pollution, and paediatric HIV infection. In contrast, the prevalence of low birthweight (an important risk factor for childhood pneumonia) has not declined.[f]

Children who develop pneumonia require treatment. Non-severe cases can be treated at home with antibiotics, while more severe cases require oxygen and other supportive treatment. Improved access to care, including quality of care in hospitals, is key to reducing mortality associated with pneumonia.[g] Care-seeking behaviour for children with suspected

a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b United Nations General Assembly. Transforming our World: The 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. New York: UN; 2015. Available from: https://sustainabledevelopment.un.org/post2015/transformingourworld.

c Dorrington R, Bradshaw D, Laubscher R, Nannan N. Rapid mortality surveillance report 2017. Cape Town: South African Medical Research Council; 2019.

d World Health Organization and United Nations Children's Fund. Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025: The Integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD). Geneva: WHO and UNICEF; 2013.

e Available from: https://data.unicef.org/topic/child-health/pneumonia/.

f Howie SRC, Murdoch DR. Global childhood pneumonia: the good news, the bad news, and the way ahead. Lancet Glob Health. 2019;7(1):e4-5.

g McAllister DA, Liu L, Shi T, et al. Global, regional, and national estimates of pneumonia morbidity and mortality in children younger than 5 years between 2000 and 2015: a systematic analysis. Lancet Glob Health. 2019;7:e47-e57.

pneumonia (as measured by the proportion of children with suspected pneumonia who seek care) is included as one of the four RMNCH indicators in the UHC index, which is used to monitor progress towards achieving SDG Target 3.8; the latter calls for universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality and affordable essential medicines and vaccines for all.[b]

Information on care-seeking for pneumonia is collected through the South Africa Demographic and Health Survey. The percentage of children under 5 years of age with suspected pneumonia in the two weeks preceding the survey, and taken to an appropriate health facility or provider, was reported to be 66% in 2003[h] and 88% in 2016.[i]

While population-based indicators are useful to monitor progress in addressing child pneumonia, like most population-based indicators they are only available infrequently and are not available at a disaggregated level. Healthcare workers and managers therefore rely on the two child pneumonia indicators collected through the District Health Information Software (DHIS), namely pneumonia incidence and pneumonia CFR. While these two indicators allow monitoring at local level and comparison between areas, they need to be interpreted with care.

In order to be recorded as a pneumonia case, a child must access health services, must be correctly assessed and identified as meeting the case definition for pneumonia, and must be recorded as a case. Low pneumonia incidence in an area may reflect a true low incidence, but it may also reflect poor access to health services, or that healthcare workers do not have the necessary skills to correctly identify and record children as having pneumonia. For this reason, no target for pneumonia incidence can be set, and facilities and districts should rather compare themselves with the average provincial or national incidence. Districts reporting an incidence lower than in districts with comparable socio-economic status and healthcare infrastructure should consider whether access to primary healthcare services is adequate, and whether healthcare workers have the knowledge and skills to correctly identify children with pneumonia. Districts with higher incidence than comparable districts should also consider whether the case definitions are being applied correctly, or whether pneumonia is being over-diagnosed, which is likely to result in children receiving unnecessary courses of antibiotics.

The pneumonia CFR also needs to be interpreted with care. A high CFR is undoubtedly of concern, and likely to reflect late presentation to and/or poor quality of care within health facilities. However, when CFRs are low, as they now are in South Africa, small fluctuations or differences between facilities or districts or over time, may be unimportant. Case fatality rates only provide information on children who die within health facilities. Rates are also sensitive to the number of children admitted, and may increase despite a decline in the number of deaths. Monitoring the number of child deaths and the circumstances of each death (through mortality audits) is likely to lead to more accurate understanding, and provide for more appropriate, effective and targeted strategies to address childhood pneumonia.

The child under 5 years pneumonia incidence is defined as the number of children under 5 years newly diagnosed with pneumonia per 1 000 children under 5 years in the population. The definition of pneumonia is aligned with the World Health Organization (WHO) definition, and includes any child under 5 years of age with cough and fast breathing. As with other DHIS indicators, only children who access public sector facilities are included.

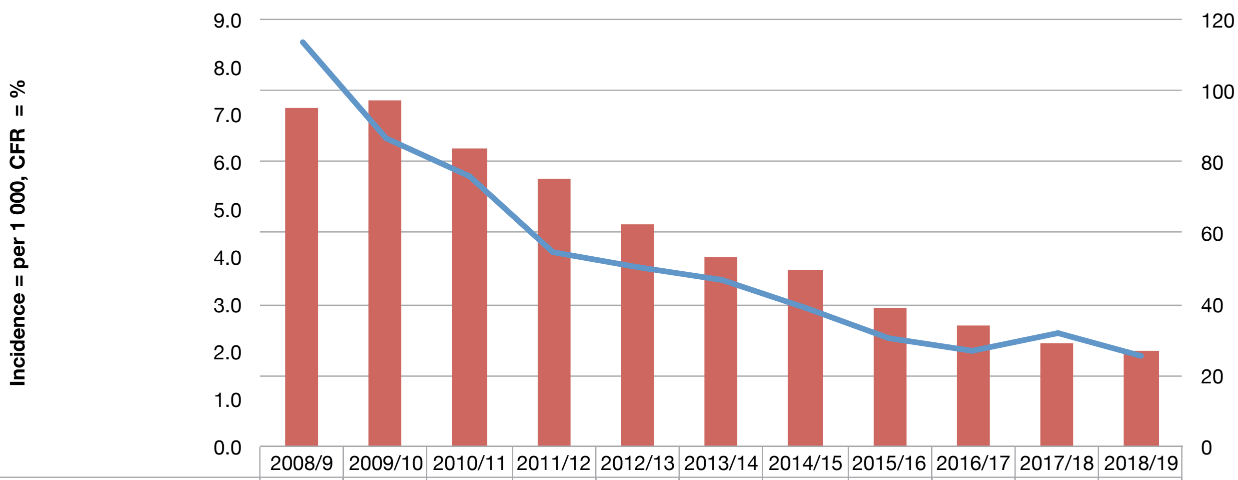
The pneumonia CFR is defined as the number of pneumonia deaths among children under 5 years as a proportion of children under 5 years admitted as inpatients with pneumonia (measured as pneumonia separations) in public sector health facilities.

In 2018/19, the pneumonia incidence in children under 5 years of age was 27.2 cases per 1 000 children, and the pneumonia CFR was 1.9%. Both of these indicators have declined significantly since 2008/09 (see Figure 1).

h Department of Health, Medical Research Council and ORC Macro. South Africa Demographic and Health Survey 2003. Pretoria: NDoH; 2007.

i National Department of Health, Statistics South Africa, South African Medical Research Council, and International Children's Fund. South Africa Demographic and Health Survey 2016. Pretoria: NDoH; 2017.

Figure 1: Pneumonia incidence and case fatality rates, 2008/09 - 2018/19



	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Pneumonia Incidence	94.9	97.4	83.6	75.1	62.5	53.2	49.3	38.6	34.3	28.8	27.2
Pneumonia CFR	8.5	6.5	5.7	4.1	3.8	3.5	2.9	2.3	2.0	2.4	1.9

Source: DHIS.

In order to understand these figures better, Table 1 shows the absolute number of new cases, admissions and deaths, as well as the number of cases, admissions and deaths per 1 000 children in the population for the past five years. As noted previously, the incidence (new cases per 1 000 children) declined consistently during this period. The number of admissions and deaths declined significantly between 2016/17 and 2017/18, before increasing again in 2018/19. The decline during 2017/18 coincided with the introduction of the new National Indicator Dataset (NIDS),[j] which included some changes to how child deaths were recorded; although these should not have affected the numbers, they may have led to underreporting in some facilities, and it will be important to monitor trends in future years.

Table 1: Pneumonia cases, inpatients, deaths and case fatality rates, 2014/15 - 2018/19

		New cases		Separations		Deaths		
	Children under 5 years of age population (Number)	Pneumonia new in children under 5 years (Number)	Pneumonia incidence per 1 000 population under 5 years (Number)	Pneumonia separations under 5 years (Number)	Separations per 1 000 population under 5 years (Number)	Pneumonia deaths under 5 years (Number)	Deaths per 1 000 population under 5 years (Number)	Pneumonia case fatality rate (%)
2014/15	5 847 312	258 065	44.1	48 365	8.3	1 411	0.24	2.9
2015/16	5 865 009	226 435	38.5	53 290	9.1	1 240	0.21	2.3
2016/17	5 870 309	200 955	34.3	49 832	8.5	1 003	0.17	2.0
2017/18	5 859 479	168 504	28.8	35 354	6.0	858	0.15	2.4
2018/19	5 846 024	159 281	27.3	50 212	8.6	962	0.16	1.9

Source: DHIS.

Figure 2 and Table 2 show the provincial figures for pneumonia incidence in 2018/19; these figures range from 4.5 cases per 1 000 children in Mpumalanga (MP) to 84.1 cases per 1 000 children in the Western Cape (WC). This 20-fold difference in incidence is unlikely to be an accurate reflection of the true incidence of child pneumonia, and is likely to represent underreporting in provinces such as Mpumalanga and North West (NW) and possible overreporting in the Western Cape.

j National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; April 2017.

Figure 2: Child under 5 years pneumonia incidence by province, 2018/19

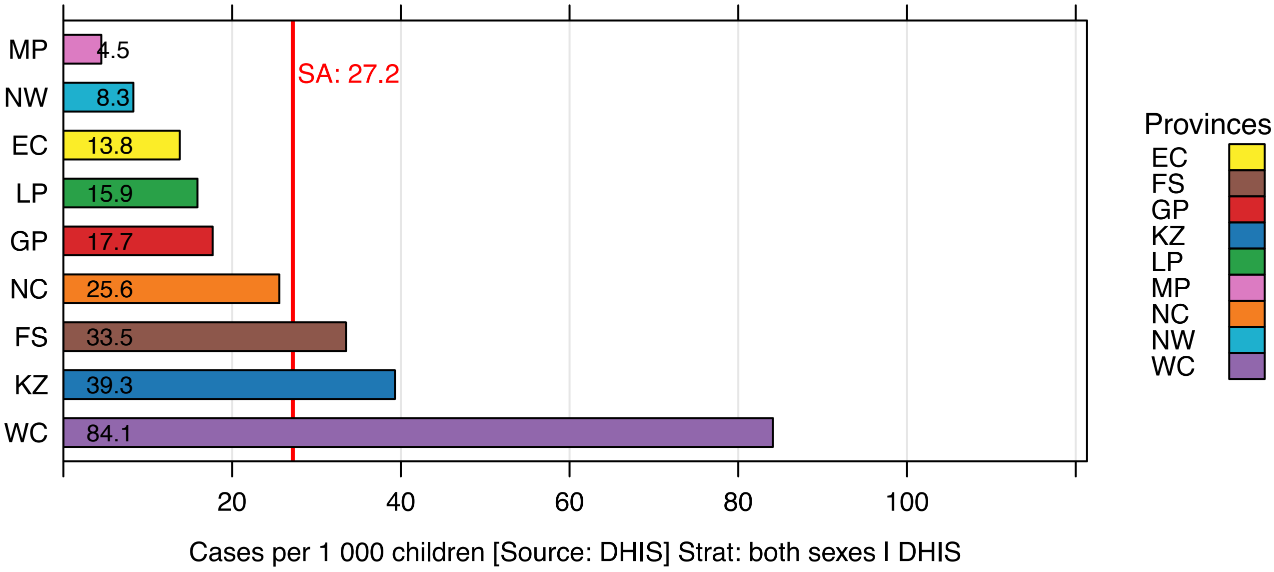


Figure 3 and Table 2 show the provincial figures for the pneumonia CFR in 2018/19. The Western Cape reported a CFR of 0.2%; the other eight provinces reported fairly similar rates ranging from 1.7% in Free State (FS) to 3.3% in Limpopo (LP).

Figure 3: Child under 5 years pneumonia case fatality rate by province, 2018/19

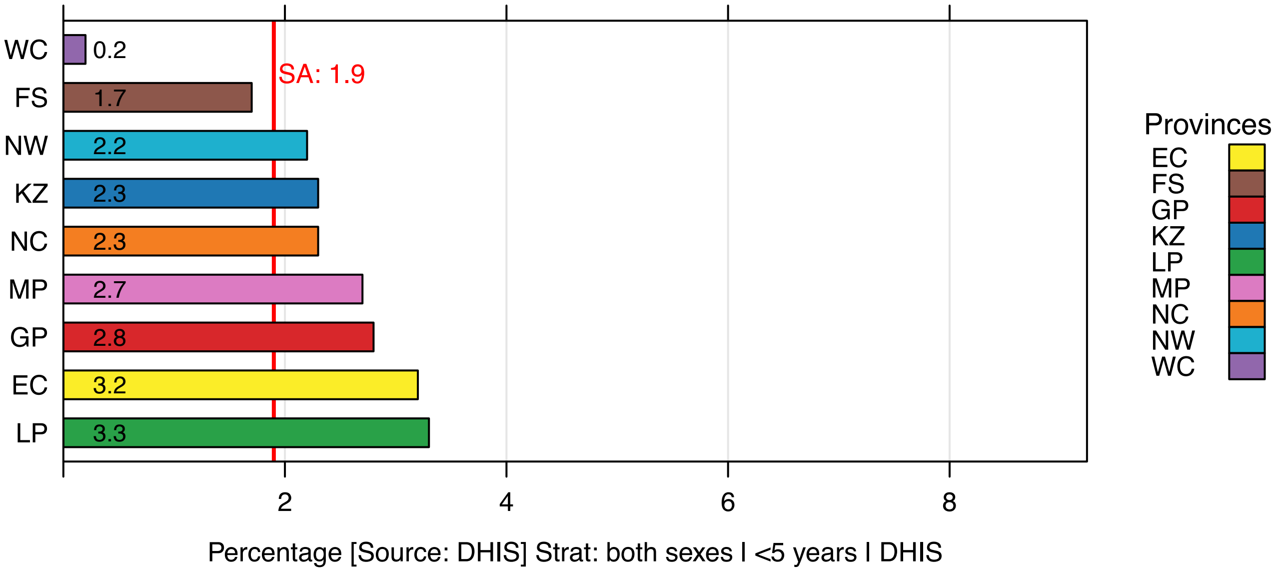


Table 2 shows more detailed information, with population rates. More children were admitted in the Western Cape than in other provinces, with the number of admissions per 1 000 children being far higher than in other provinces (27.6 versus the national average of 8.6). Although the Western Cape also reported fewer deaths per 1 000 children than other provinces, there was closer alignment with other provinces for this indicator compared with the CFR. This indicates that the extremely low CFR reported by the Western Cape is at least in part due to the fact that comparably more children are admitted, presumably indicating better access to services and/or a lower threshold for admission. Nearly one-third (31.5%) of identified pneumonia cases (N = 159 281) were admitted to hospital (N = 50 212). Clearly there are data-quality issues in Mpumalanga, with more admissions than diagnosed cases. In the North West and Limpopo, more than half the cases diagnosed were admitted, and in the remaining provinces the admission rates were between 20% and 40% of the new cases.

Table 2: Pneumonia cases, inpatients, deaths and case fatality rates by province, 2018/19

	Children under 5 years of age population (Number)	New cases		Separations			Deaths		Pneumonia case fatality rate (%)
		Pneumonia new in child under 5 years (Number)	Pneumonia incidence per 1 000 population under 5 years (Number)	Pneumonia separations under 5 years (Number)	Separations per 1 000 population under 5 years (Number)	Separations as proportion of new cases (%)	Pneumonia deaths under 5 years (Number)	Deaths per 1 000 population under 5 years (Number)	
Eastern Cape	832 565	11 496	13.8	4 564	5.5	39.7	147	0.18	3.2
Free State	270 136	9 061	33.5	2 368	8.8	26.1	41	0.15	1.7
Gauteng	1 264 759	22 358	17.7	4 678	3.7	20.9	132	0.10	2.8
KwaZulu-Natal	1 329 055	52 169	39.3	12 370	9.3	23.7	279	0.21	2.3
Limpopo	664 483	10 577	15.9	5 435	8.2	51.4	178	0.27	3.3
Mpumalanga	442 437	2 002	4.5	2 876	6.5	143.7	77	0.17	2.7
Northern Cape	103 916	2 660	25.6	1 045	10.1	39.3	24	0.23	2.3
North West	395 511	3 278	8.3	2 205	5.6	67.3	49	0.12	2.2
Western Cape	543 165	45 680	84.1	14 671	27.0	32.1	35	0.06	0.2
South Africa	5 846 024	159 281	27.2	50 212	8.6	31.5	962	0.16	1.9

Source: DHIS.

Figures 4 and 5 show district-level pneumonia incidence and pneumonia CFRs respectively. The district incidence for child under 5 years pneumonia ranged from 110.3 per 1 000 children in Cape Town (WC) to 2.3 per 1 000 children in Gert Sibande (MP). Fourteen districts reported an incidence above the national average of 27.2 cases per 1 000 children. This included all six districts in the Western Cape, four of 11 districts in KwaZulu-Natal (KZ), two districts in Free State, and one district each in the Northern Cape (NC) and Eastern Cape (EC).

The three districts in Mpumalanga were among the four districts with the lowest incidence, namely Gert Sibande (2.9 per 1 000), Nkangala (3.9 per 1 000), and Ehlanzeni (5.9 per 1 000). Bojanala Platinum (NW) reported an incidence of 3.9 cases per 1 000 children. As described above, this suggests that children are not accessing health services, or that healthcare workers are failing to identify and record cases of pneumonia correctly.

District-level pneumonia CFRs ranged from 0% in three districts (Overberg (WC), Namakwa and Zwelentlanga Fatman Mgcawu (both NC), to 8.4% in Capricorn (LP). An additional nine districts reported CFRs of 1% or lower. These districts included the remaining five districts in the Western Cape (West Coast (0.1%), Cape Winelands (0.2%), Cape Town (0.3%), Garden Route (0.3%) and Central Karoo (0.4%)), as well as Sarah Baartman (EC) (0.5%), Xhariep and Lejweleputswa (both 0.9%) in Free State, and Amajuba (KZ) (1.0%). Four districts reported CFRs above 5%. These were Capricorn (LP), which reported a CFR of 8.4%, as well as Sedibeng (Gauteng (GP)) (5.7%), Fezile Dabi (FS) (5.4%), and OR Tambo (EC) (5.0%).

Figure 4: Child under 5 years pneumonia incidence by district, 2018/19

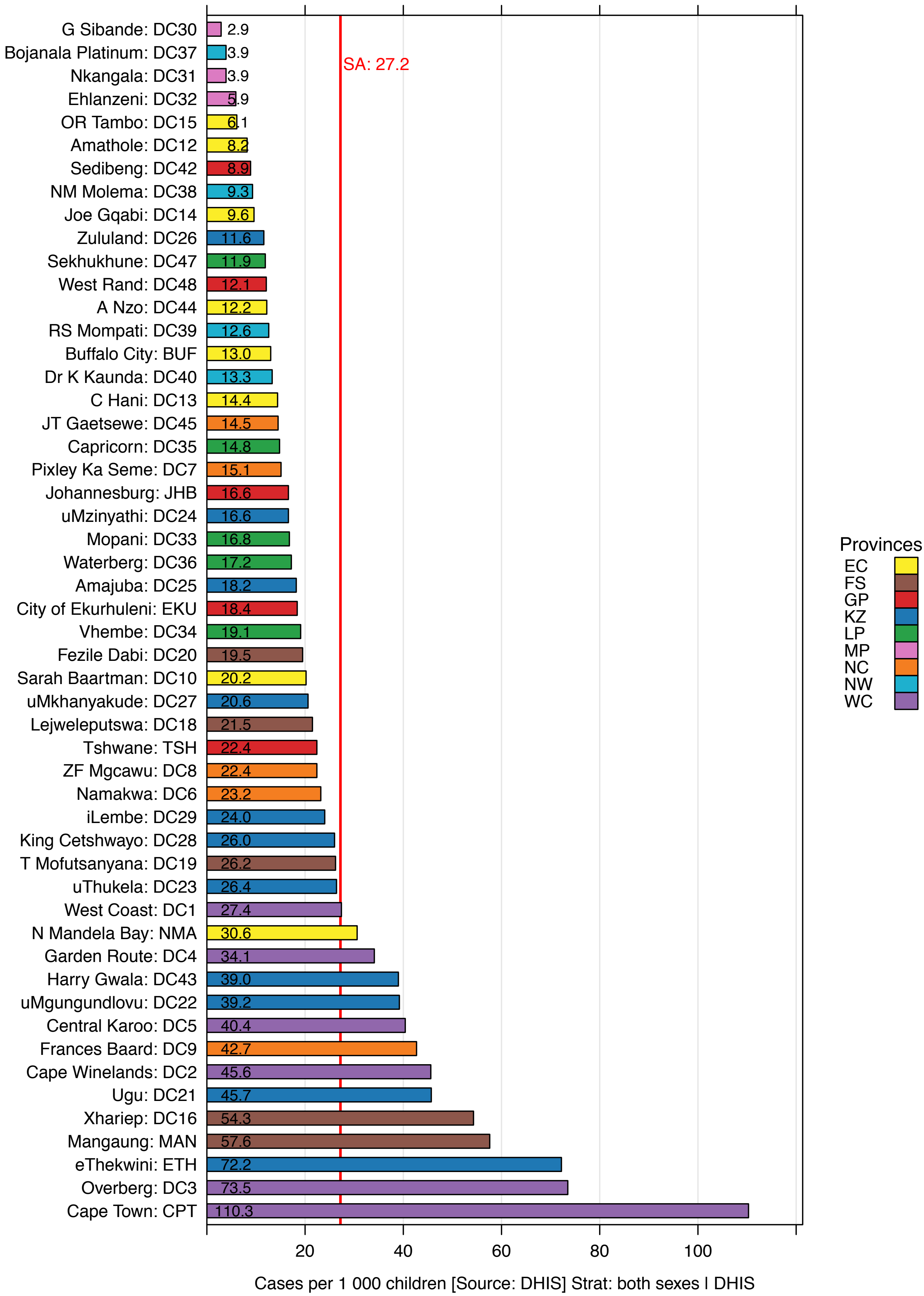


Figure 5: Child under 5 years pneumonia case fatality rate by district, 2018/19

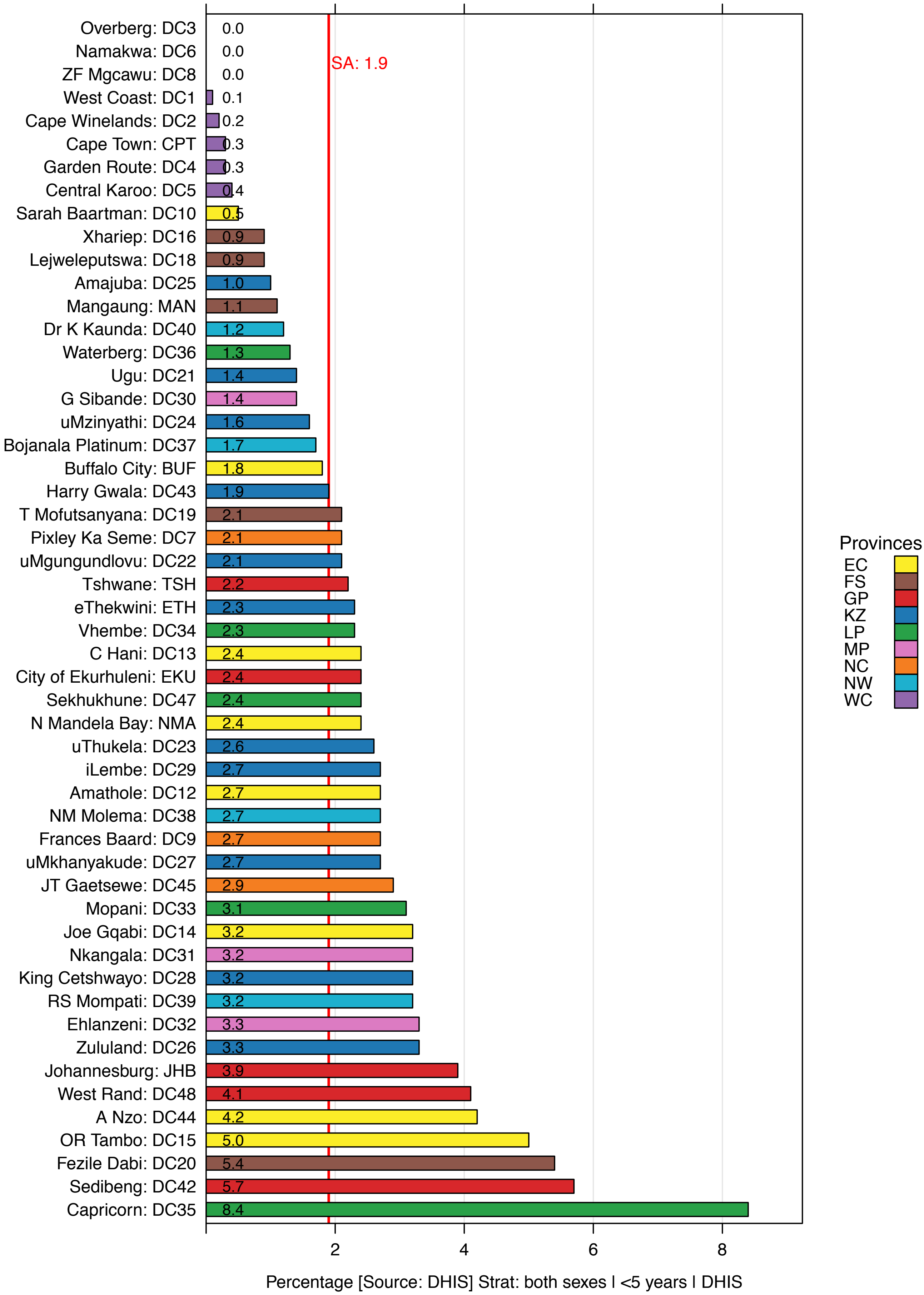


Table 3 shows the districts with the highest and lowest values for each indicator, while Table 4 shows the absolute number of new cases, admissions and deaths, as well as the number of cases, admissions and deaths per 1 000 children in the population per district.

The districts with the highest number of deaths were eThekwini (KZ) (N = 85), OR Tambo (EC) (N = 75), Capricorn (LP) (N = 66), Ehlanzeni (MP) (N = 55), Vhembe (LP) (N = 47), King Cetshwayo (KZ) (N = 40), Tshwane (GP) (N = 39), Mopani (LP) (N = 39), and Ekurhuleni (GP) (N = 37). All other districts reported fewer than 40 deaths. In contrast, the districts with the highest number of deaths per 1 000 children were Frances Baard (NC) (0.56), Capricorn (LP) (0.47), OR Tambo (EC) (0.39), Dr Ruth Segomotsi Mompati (NW) (0.33), and Fezile Dabi (FS) (0.31). It should be noted that these high values may in some instances reflect the presence of referral facilities within the district.

Table 3: Pneumonia cases, inpatients, deaths and case fatality rates, 2018/19: districts with highest and lowest values

Pneumonia new in child under 5 years (Number)		Pneumonia separations under 5 years (Number)		Separations per 1 000 population under 5 years (Number)		Pneumonia deaths under 5 years (Number)		Pneumonia case fatality rate (%)	
Highest value									
Cape Town (WC)	36 951	Cape Town (WC)	8 989	Cape Town (WC)	110.1	eThekwini (KZ)	85	Capricorn (LP)	8.4
eThekwini (GP)	26 062	eThekwini (KZ)	3 619	Overberg (WC)	73.4	OR Tambo (EC)	75	Sedibeng (GP)	5.7
Johannesburg (GP)	7 649	Vhembe (LP)	2 008	eThekwini (KZ)	72.2	Capricorn (LP)	66	Fezile Dabi (FS)	5.4
Tshwane (GP)	7 216	Garden Route (WC)	1 832	Mangaung (FS)	57.6	Ehlanzeni (MP)	55	OR Tambo (EC)	5.0
Ekurhuleni (GP)	5 669	Cape Winelands WC)	1 817	Xhariep (FS)	54.4	Vhembe (LP)	47	Alfred Nzo (EC)	4.2
Lowest value									
Namakwa (NC)	208	Pixley Ka Seme (NC)	48	Gert Sibande (MP)	2.9	Namakwa (NC)	0	Namakwa (NC)	0
Pixley Ka Seme (NC)	271	Zwelentlanga Fatman Mgcawu (NC)	73	Bojanala Platinum (NW)	3.9	Zwelentlanga Fatman Mgcawu (NC)	0	Zwelentlanga Fatman Mgcawu (NC)	0
Central Karoo (WC)	287	Namakwa (NC)	77	Nkangala (MP)	3.9	Overberg (WC)	0	Overberg (WC)	0
Gert Sibande (MP)	323	Sedibeng (GP)	88	Ehlanzeni (MP)	5.9	Xhariep (FS), Pixley Ka Seme (NC), Central Karoo (EC), West Coast (WC)	1	West Coast (WC)	0.1
John Taolo Gaetsewe NC)	355	Xhariep (FS)	112	OR Tambo (EC)	6.1			Cape Winelands (WC)	0.2

Source: DHIS.

Table 4: Pneumonia cases, admissions, deaths and case fatality rates per district, 2018/19

			New cases		Separations		Deaths		
		Children under 5 years of age population (Number)	Pneumonia new in child under 5 years (Number)	Pneumonia incidence per 1 000 population under 5 years (Number)	Pneumonia separations under 5 years (Number)	Separations per 1 000 population under 5 years (Number)	Pneumonia deaths under 5 years (Number)	Deaths per 1 000 population under 5 years (Number)	Pneumonia case fatality rate (%)
Eastern Cape	Alfred Nzo	113 064	1 377	12.2	357	3.2	15	0.13	4.2
	Amathole	118 150	966	8.2	373	3.2	10	0.08	2.7
	Buffalo City	88 790	1 162	13.1	550	6.2	10	0.11	1.8
	Chris Hani	92 638	1 326	14.3	452	4.9	11	0.12	2.4
	Joe Gqabi	41 987	401	9.6	185	4.4	6	0.14	3.2
	Nelson Mandela Bay	130 151	4 000	30.7	765	5.9	18	0.14	2.4
	OR Tambo	194 401	1 188	6.1	1 488	7.7	75	0.39	5.0
	Sarah Baartman	53 386	1 076	20.2	394	7.4	2	0.04	0.5
Free State	Fezile Dabi	45 426	882	19.4	258	5.7	14	0.31	5.4
	Lejweleputswa	61 398	1 321	21.5	434	7.1	4	0.07	0.9
	Mangaung	72 829	4 196	57.6	1 090	15.0	12	0.16	1.1
	Thabo Mofutsanyana	79 831	2 083	26.1	474	5.9	10	0.13	2.1
	Xhariep	10 653	579	54.4	112	10.5	1	0.09	0.9
Gauteng	Johannesburg	460 868	7 649	16.6	674	1.5	26	0.06	3.9
	Tshwane	322 71	7 216	22.4	1 776	5.5	39	0.12	2.2
	Ekurhuleni	307 210	5 669	18.5	1 533	5.0	37	0.12	2.4
	Sedibeng	92 070	823	8.9	88	1.0	5	0.05	5.7
	West Rand	82 441	1 001	12.1	607	7.4	25	0.30	4.1

		Children under 5 years of age population (Number)	New cases		Separations		Deaths		Pneumonia case fatality rate (%)
			Pneumonia new in child under 5 years (Number)	Pneumonia incidence per 1 000 population under 5 years (Number)	Pneumonia separations under 5 years (Number)	Separations per 1 000 population under 5 years (Number)	Pneumonia deaths under 5 years (Number)	Deaths per 1 000 population under 5 years (Number)	
KwaZulu-Natal	Amajuba	74 190	1 351	18.2	510	6.9	5	0.07	1.0
	eThekwini	360 780	26 062	72.2	3 619	10.0	85	0.24	2.3
	Harry Gwala	72 922	2 847	39.0	918	12.6	17	0.23	1.9
	iLembe	77 642	1 862	24.0	805	10.4	22	0.28	2.7
	King Cetshwayo	134 335	3 496	26.0	1 257	9.4	40	0.30	3.2
	Ugu	96 100	4 392	45.7	1 472	15.3	21	0.22	1.4
	uMgungundlovu	124 943	4 911	39.3	1 189	9.5	25	0.20	2.1
	uMkhanyakude	93 690	1 931	20.6	667	7.1	18	0.19	2.7
	uMzinyathi	75 433	1 250	16.6	812	10.8	13	0.17	1.6
	uThukela	103 218	2 729	26.4	643	6.2	17	0.16	2.6
	Zululand	115 805	1 338	11.6	478	4.1	16	0.14	3.3
Limpopo	Capricorn	140 239	2 071	14.8	789	5.6	66	0.47	8.4
	Mopani	136 521	2 299	16.8	1 244	9.1	39	0.29	3.1
	Sekhukhune	146 073	1 734	11.9	698	4.8	17	0.12	2.4
	Vhembe	169 452	3 233	19.1	2 008	11.8	47	0.28	2.3
	Waterberg	72 199	1 240	17.2	696	9.6	9	0.12	1.3
Mpumalanga	Ehlanzeni	194 714	1 148	5.9	1 682	8.6	55	0.28	3.3
	Gert Sibande	112 130	323	2.9	915	8.2	13	0.12	1.4
	Nkangala	135 594	531	3.9	279	2.1	9	0.07	3.2
Northern Cape	Frances Baard	32 139	1 372	42.7	675	21.0	18	0.56	2.7
	John Taolo Gaetsewe	24 545	355	14.5	172	7.0	5	0.20	2.9
	Namakwa	8 976	208	23.2	77	8.6	0	0.00	0.0
	Pixley Ka Seme	17 946	271	15.1	48	2.7	1	0.06	2.1
	Zwelentlanga Fatman Mgcawu	20 310	454	22.4	73	3.6	0	0.00	0.0
North West	Bojanala Platinum	166 611	651	3.9	541	3.2	9	0.05	1.7
	Dr K Kaunda	75 961	1 014	13.3	519	6.8	6	0.08	1.2
	Dr Ruth Segomotsi Mompati	57 693	725	12.6	592	10.3	19	0.33	3.2
	Ngaka Modiri Molema	95 246	888	9.3	553	5.8	15	0.16	2.7
Western Cape	Cape Winelands	80 741	3 691	45.7	1 817	22.5	3	0.04	0.2
	Central Karoo	7 119	287	40.3	236	33.2	1	0.14	0.4
	Cape Town	335 521	36 951	110.1	8 989	26.8	24	0.07	0.3
	Garden Route	53 540	1 824	34.1	1 832	34.2	6	0.11	0.3
	Overberg	24 017	1 764	73.4	691	28.8	0	0.00	0.0
	West Coast	42 227	1 163	27.5	1 106	26.2	1	0.02	0.1

Source: DHIS.

Key findings

- In 2018/19, the national pneumonia incidence in children under 5 years of age was 27.2 cases per 1 000 children, and the pneumonia CFR was 1.9%.
- The national pneumonia incidence declined from 94.9 per 1 000 children under 5 years in 2008/09 to 27.2 per 1 000 in 2018/19, and the pneumonia CFR declined from 8.5% to 1.9% over the same period.
- Among the provinces, the pneumonia incidence for 2018/19 ranged from 4.5 cases per 1 000 children in Mpumalanga to 84.1 cases per 1 000 children in the Western Cape. This 20-fold difference in incidence is unlikely to be an accurate reflection of the true incidence of child pneumonia, and is likely to represent underreporting in provinces such as Mpumalanga and North West, and possible overreporting in the Western Cape.
- At district level, the child under 5 years pneumonia incidence ranged from 110.3 per 1 000 children in Cape Town (WC) to 2.3 per 1 000 children in Gert Sibande (MP).
- Western Cape reported a pneumonia CFR of 0.2%; the other eight provinces reported rates ranging from 1.7% in Free State to 3.3% in Limpopo. The national rate was 1.9%.

- District-level pneumonia CFRs ranged from 0% to 8.4%. Three districts (Overberg (WC), Namakwa (NC) and Zwelentlanga Fatman Mgcawu (NC)) reported no pneumonia deaths. Four districts reported CFRs above 5%. These were Capricorn (LP), which reported a CFR of 8.4%, as well as Sedibeng (GP) (5.7%), Fezile Dabi (FS) (5.4%), and OR Tambo (EC) (5%).

Conclusion

- The pneumonia incidence, number of deaths, and CFRs have declined over the past decade.
- Wide provincial variation in pneumonia incidence likely reflects both differences in access to primary health care services, as well as differences in identification and recording of cases in different settings (despite the availability of well-established standardised case definitions).
- Further reductions in child deaths due to pneumonia will contribute to reductions in the under-5 mortality rate required for South Africa to reach the SDG 3 target of an under-5 mortality rate of less than 25 per 1 000 live births. It should be noted, however, that the proportion of child deaths due to pneumonia is likely to fall relative to overall child mortality; thus its value as a proxy for overall child mortality is likely to decline over time.
- Care-seeking for suspected pneumonia in young children is one of the four coverage indicators included in the UHC index. Data suggest that care-seeking rates are high. It should be noted, however, that a high proportion of child deaths occur at home, often after care has been sought from the health system;[k,l] highlighting the need to ensure that attention is paid to improving the quality of care provided in health services.

Recommendations

As noted in the introduction, most deaths due to pneumonia are preventable. The following recommendations to ensure further reductions in the pneumonia CFR which have been identified previously[m] still apply:

- Continued improvement in the reduction of mother-to-child transmission of HIV and a reduction in HIV prevalence among pregnant women, as well as improved measures to ensure that all HIV-infected children are identified early, receive antiretroviral therapy, and are virally suppressed.
- Improvement in infant and young child feeding, especially increased rates of exclusive breastfeeding until six months old, and improvement in complementary feeding practices in children aged 6 - 24 months.
- Increased coverage of preventive and promotive services, especially immunisation.
- Earlier access to appropriate health care when sick, through improved household care-seeking behaviour and through ensuring access to care. Community healthcare workers have an important role to play in ensuring that all caregivers are familiar with the danger signs, which are contained in the Road-to-Health Booklet.
- Improved case management in primary health care facilities and hospitals.
- Social determinants of health must be addressed, especially household food security, access to basic services, particularly water and sanitation, and ensuring that all eligible children receive a child support or other grant.
- Community case management of diarrhoea and pneumonia by community health workers has been shown to reduce under-5 mortality,[n] and consideration should be given to introducing this in parts of the country with high mortality rates, especially in remote rural areas where access to health services may be difficult.

Health workers and managers should look carefully at local DHIS data on a regular basis. As noted above, wide variation in both pneumonia incidence and pneumonia CFRs at provincial and district levels is likely to reflect differences in identification and recording of cases in different settings. More attention should, therefore, be paid to standardisation and accurate and complete recording, especially in districts where the reported incidence is far higher or lower than the national average. Attention should also be paid to absolute numbers and population rates for admissions and deaths, as these may guide a more targeted response than relying only on CFRs.

k Price J, Willcox M, Kabudula CW, et al. Care pathways during a child's final illness in rural South Africa: Findings from a social autopsy study. PLOS One. 2019;14:e0224284.

l D'Ambruoso L, Kahn K, Wagner RG, et al. Moving from medical to health systems classifications of deaths: extending verbal autopsy to collect information on the circumstances of mortality. Glob Health Res Policy. 2016;1:2.

m Bamford L, Barron P, Kauchali S, Dlamini N. Inpatient case fatality rates improvements in children under 5: Diarrhoeal disease, pneumonia and severe acute malnutrition. S Afr Med J. 2018; 108(3 Suppl. 1):S33-S37. Doi:10.7196/SAMJ.2018.v108i3.12772.

n World Health Organization, United Nations Children's Fund. Joint Statement: Integrated Community Case Management. An equity-focused strategy to improve access to essential treatment services for children. New York: UNICEF; 2012. Available from: http://www.who.int/maternal_child_adolescent/documents/ statement_child_services_access_whounicef.pdf.

Severe acute malnutrition under 5 years case fatality rate

The severe acute malnutrition (SAM) under 5 years CFR is defined as the proportion of SAM deaths in children under 5 years as a proportion of all children under 5 years with SAM in health facilities. The primary purpose of the indicator is to monitor treatment outcomes for children under 5 years admitted as inpatients with SAM. A child under 5 years is classified as being severely malnourished if s/he has a weight-for-height/length below -3 standard deviation scores (≤3 SD), and/or presence of bilateral pitting oedema, and/or the child (aged 6 - 59 months) has a mid-upper arm circumference less than 115 mm.

It should be noted that the data element definitions for SAM admissions (recorded as separations) and deaths were amended by the 2017 NIDS.[j] Prior to 2017, only children with a clinical diagnosis of SAM were included in both the numerator and denominator. The 2017 NIDS requires that nutritional status be determined for all children admitted, and that all children who meet the case definition for SAM should be included in both the denominator and the numerator when calculating the SAM CFR. Furthermore, while in the past a child's death could be classified as being due to diarrhoea, pneumonia or SAM, now the death of any child with SAM should be recorded as a SAM death (irrespective of the main cause of death).

Sustainable Development Goal 2 aims to: "End hunger, achieve food security and improved nutrition and promote sustainable agriculture". Target 2.2 aims (by 2030) to: "end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons".[b] While SDG 2 focuses broadly on improving nutrition, young children with SAM can be regarded as representing the most nutritionally disadvantaged and vulnerable group, and ending deaths from SAM in young children is, therefore, an important component of efforts to achieve this goal.

Addressing SAM also contributes towards achievement of SDG 3.2, which calls for an end to preventable child deaths, with a target of achieving an under-5 mortality rate below 25 deaths per 1 000 live births in all countries by 2030. Globally, almost half of all under-5 deaths are associated with undernutrition[o] and children with SAM are 6.3 times as likely to die from diarrhoea, and 8.7 times more likely to die from pneumonia, than children with these diseases who are not malnourished.[p] Data from child mortality audits show that one-third of children under 5 years of age who died in South African public hospitals had SAM, and a further 27% were underweight for their age.[q]

The evidence on what is required to prevent and address child malnutrition is well established. A Lancet Series on Maternal and Child Nutrition[r] spelt this out as a combination of 'nutrition-specific' and 'nutrition-sensitive' interventions and programmes. The nutrition-specific interventions include breastfeeding, dietary and micronutrient supplementation, and treatment of SAM. Nutrition-sensitive approaches are the actions in health and other sectors that enable good nutrition, such as food security, early childhood development, water and sanitation, family and women's education and empowerment, social protection, and accessible health services.[s]

National overview

The national SAM CFR for 2018/19 was 7.1%. The CFR has declined steadily from 19.3% in 2009/10, as shown in Figure 6.

o Black RE, Victora CG, Walker SP, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet. 2013;382(9890):427-51. https://doi.org/10.1016/ S0140-6736(13)60937-X.

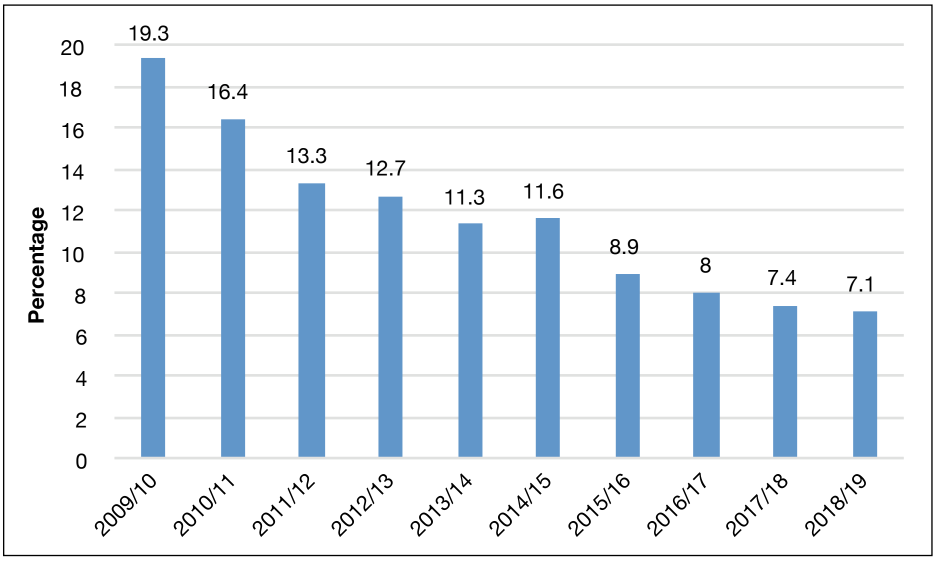
p Black RE, Allen LH, Bhutta ZA, et al. Maternal and child undernutrition: Global and regional exposures and health consequences. Lancet. 2013;371(9608):243-60. https://doi.org/10.1016/S0140- 6736(07)61690-0.

q Stephen CR. Saving Children 2012-2013: An eighth survey of child healthcare in South Africa. Pretoria: Tshepesa Press, 2016. Available from: http://www.childpip.org.za/images/stories/documents/saving_children_2012-2013.pdf].

r Executive summary of The Lancet Series on Maternal and Child Nutrition. Lancet. 2013;382:1-12.

s Schneider H, van der Merwe M, Marutla B, Cupido J, Kauchali S. The whole is more than the sum of the parts: establishing an enabling health system environment for reducing acute child malnutrition in a rural South African district. Health Policy Plan. 2019;34:430-9.

Figure 6: Severe acute malnutrition under 5 years case fatality rate, 2009/10 - 2018/19



Source: DHIS.

Table 5 shows more detailed data for the past five years. The absolute number of separations and deaths associated with SAM, as well as the number of separations and deaths per 1 000 and deaths per 100 000 children under 5 years respectively have declined over this period. The number of deaths per 100 000 children under 5 years declined from 31.7 per 100 000 in 2014/15 to 13.8 per 100 000 in 2018/19. These declines were noted despite the fact that the number of SAM admissions and deaths was expected to increase following the introduction of the revised NIDS[j] in April 2017, suggesting that underreporting may explain some of this decline.

Table 5: Severe acute malnutrition under 5 years inpatients, deaths and case fatality rates, 2014/15 - 2018/19

	Children under 5 years of age population (Number)	Severe acute malnutrition separations under 5 years (Number)	Separations per 1 000 children under 5 years (Number)	Severe acute malnutrition deaths in facility under 5 years (Number)	Deaths per 100 000 children under 5 years (Number)	Severe acute malnutrition under 5 years case fatality rate (%)
2014/15	5 847 312	15 911	2.7	1 851	31.7	11.6
2015/16	5 865 009	15 515	2.6	1 379	23.5	8.9
2016/17	5 870 309	14 924	2.5	1 188	20.2	8.0
2017/18	5 859 479	11 110	1.9	817	13.9	7.4
2018/19	5 846 136	11 280	1.9	806	13.8	7.1

Source: DHIS.

Provincial overview

Provincial figures (shown in Figure 7) demonstrate wide variation. The highest SAM CFR was reported in North West (9.3%), while the lowest was reported in the Western Cape (1.6%). In addition to North West, KwaZulu-Natal (7.8%), Eastern Cape (8.9%) and Mpumalanga (9.1%) reported CFRs higher than the national average of 7.1%.

However, data in Table 6 reveal a different picture. While North West reported both a high number of deaths per 100 000 children (25.8) and a high CFR (9.3%), other provinces such as the Northern Cape and Free State reported higher-than-average deaths per 100 000 children (26.9 and 21.8 respectively) despite reporting lower-than-average CFRs (4.3% and 6.2%).

Figure 7: Severe acute malnutrition under 5 years case fatality rate by province, 2018/19

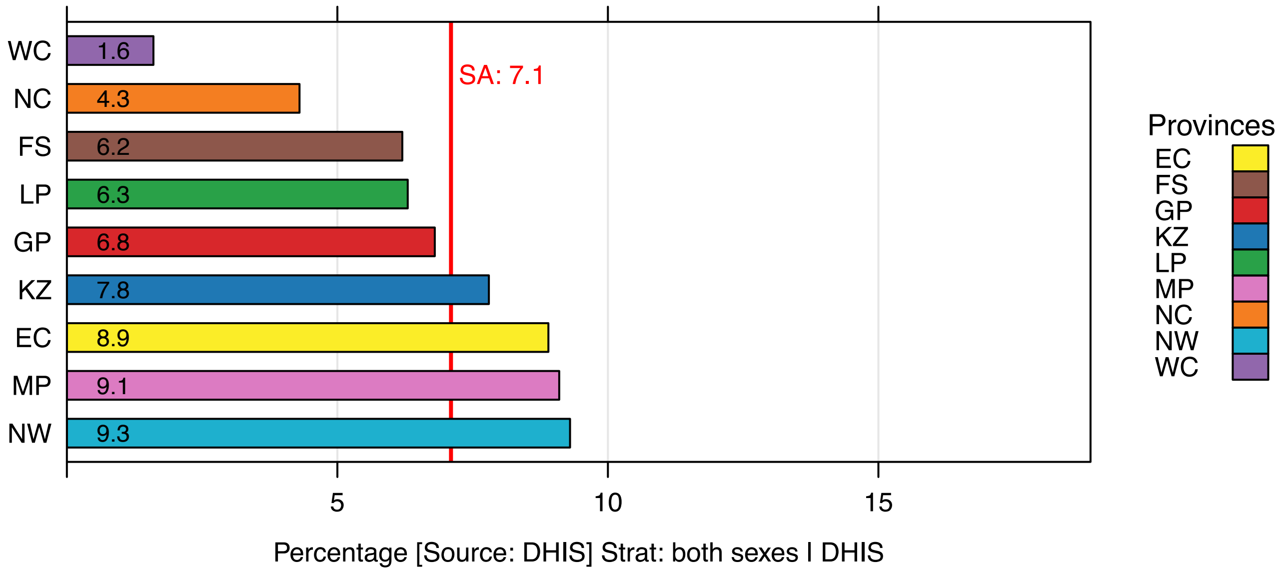


Table 6: Severe acute malnutrition inpatient deaths and case fatality rate by province, 2018/19

	Children under 5 years of age population (Number)	Severe acute malnutrition separations under 5 years (Number)	Separations per 1 000 children under 5 years (Number)	Severe acute malnutrition deaths under 5 years (Number)	Deaths per 100 000 children under 5 years (Number)	Severe acute malnutrition case fatality rate (%)
Eastern Cape	832 565	1 464	1.8	131	15.7	8.9
Free State	270 136	951	3.5	59	21.8	6.2
Gauteng	1 264 759	1 544	1.2	105	8.3	6.8
KwaZulu-Natal	1 329 055	2 289	1.7	179	13.5	7.8
Limpopo	664 483	1 987	3.0	125	18.8	6.3
Mpumalanga	442 437	744	1.7	68	15.4	9.1
Northern Cape	103 916	648	6.2	28	26.9	4.3
North West	395 511	1 100	2.8	102	25.8	9.3
Western Cape	543 165	553	1.0	9	1.7	1.6
South Africa	5 846 024	11 280	1.9	806	13.8	7.1

Source: DHIS.

District overview

Figure 8 shows the SAM CFR for each district. The highest CFR (17.2%) was recorded in Buffalo City (EC). Three districts in the Western Cape (Central Karoo, Overberg and West Coast) reported no deaths associated with SAM, and an additional three districts reported CFRs below 1%. These were Xhariep (FS) (0.4%), Cape Town (WC) (0.4%), and Nelson Mandela Bay (EC) (0.6%).

Figure 8: Severe acute malnutrition under 5 years case fatality rate by district, 2018/19

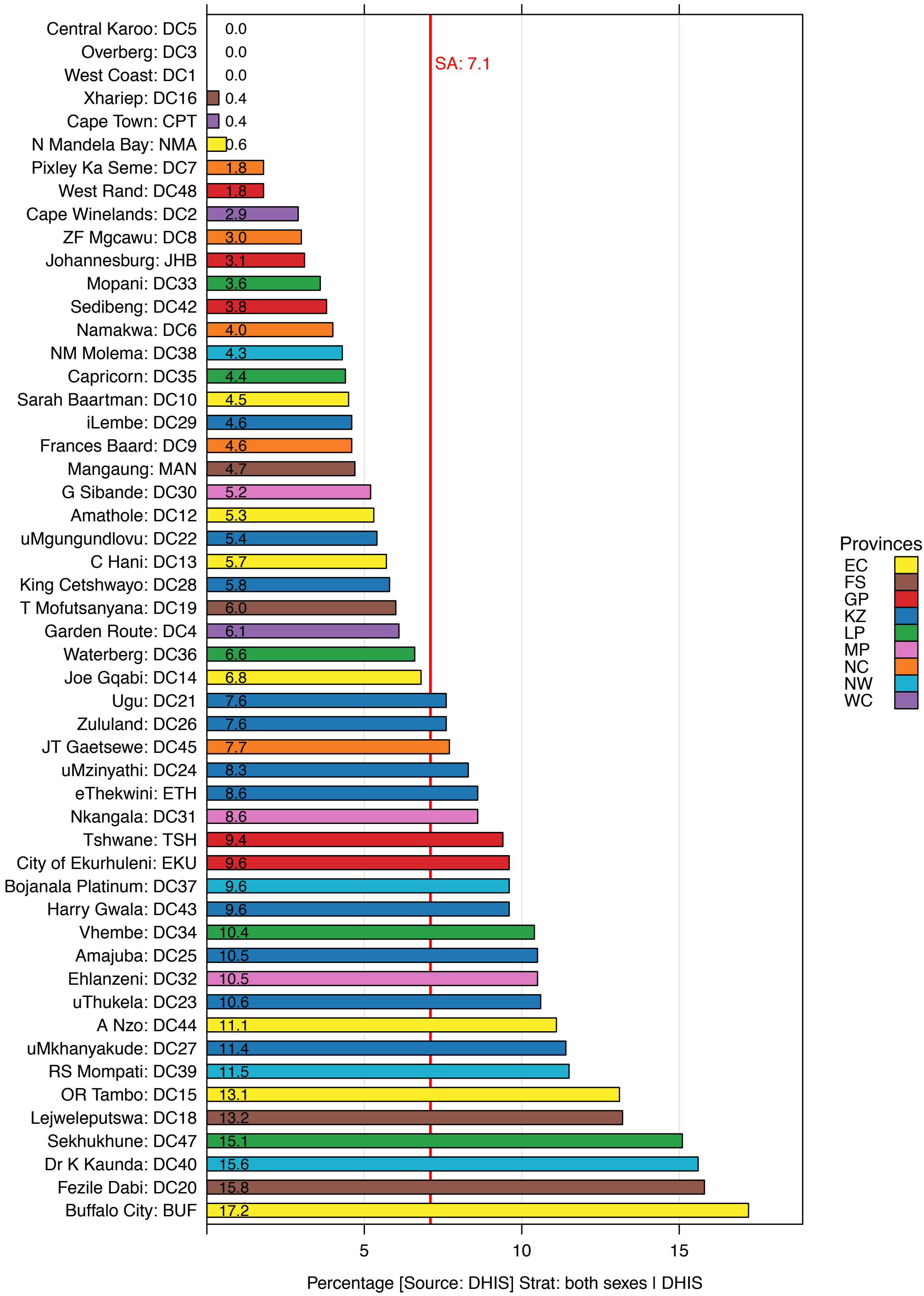


Table 7 shows the absolute number of new SAM cases, separations and deaths, as well as the number of cases, separations per 1 000 and deaths per 100 000 children in the population per district.

Table 7: Severe acute malnutrition admissions, deaths and case fatality rates per district, 2018/19

		Children under 5 years of age population (Number)	Severe acute malnutrition inpatients under 5 years (Number)	Separations per 1 000 children under 5 years (Number)	Severe acute malnutrition deaths under 5 years (Number)	Deaths per 100 000 children under 5 years (Number)	Severe acute malnutrition case fatality rate (%)
Eastern Cape	Alfred Nzo	113 064	190	1.7	21	18.6	11.1
	Amathole	118 150	94	0.8	5	4.2	5.3
	Buffalo City	88 790	122	1.4	21	23.7	17.2
	Chris Hani	92 638	263	2.8	15	16.2	5.7
	Joe Gqabi	41 987	117	2.8	8	19.1	6.8
	Nelson Mandela Bay	130 151	161	1.2	1	0.8	0.6
	OR Tambo	194 401	429	2.2	56	28.8	13.1
	Sarah Baartman	53 386	88	1.6	4	7.5	4.5
Free State	Fezile Dabi	45 426	76	1.7	12	26.4	15.8
	Lejweleputswa	61 398	167	2.7	22	35.8	13.2
	Mangaung	72 829	212	2.9	10	13.7	4.7
	Thabo Mofutsanyana	79 831	235	2.9	14	17.5	6.0
	Xhariep	10 653	261	24.5	1	9.4	0.4
Gauteng	Johannesburg	460 868	420	0.9	13	2.8	3.1
	Tshwane	322 171	635	2.0	60	18.6	9.4
	Ekurhuleni	307 210	272	0.9	26	8.5	9.6
	Sedibeng	92 070	105	1.1	4	4.3	3.8
	West Rand	82 441	112	1.4	2	2.4	1.8
KwaZulu-Natal	Amajuba	74 190	76	1.0	8	10.8	10.5
	eThekwini	360 780	536	1.5	46	12.8	8.6
	Harry Gwala	72 922	157	2.2	15	20.6	9.6
	iLembe	77 642	237	3.1	11	14.2	4.6
	King Cetshwayo	134 335	276	2.1	16	11.9	5.8
	Ugu	96 100	158	1.6	12	12.5	7.6
	uMgungundlovu	124 943	239	1.9	13	10.4	5.4
	uMkhanyakude	93 690	105	1.1	12	12.8	11.4
	uMzinyathi	75 433	144	1.9	12	15.9	8.3
	uThukela	103 218	217	2.1	23	22.3	10.6
	Zululand	115 805	144	1.2	11	9.5	7.6
Limpopo	Capricorn	140 239	387	2.8	17	12.1	4.4
	Mopani	136 521	825	6.0	30	22.0	3.6
	Sekhukhune	146 073	179	1.2	27	18.5	15.1
	Vhembe	169 452	307	1.8	32	18.9	10.4
	Waterberg	72 199	289	4.0	19	26.3	6.6
Mpumalanga	Ehlanzeni	194 714	447	2.3	47	24.1	10.5
	Gert Sibande	112 130	134	1.2	7	6.2	5.2
	Nkangala	135 594	163	1.2	14	10.3	8.6
Northern Cape	Frances Baard	32 139	325	10.1	15	46.7	4.6
	John Taolo Gaetsewe	24 545	78	3.2	6	24.4	7.7
	Namakwa	8 976	25	2.8	1	11.1	4.0
	Pixley Ka Seme	17 946	55	3.1	1	5.6	1.8
	Zwelentlanga Fatman Mgcawu	20 310	165	8.1	5	24.6	3.0
North West	Bojanala Platinum	166 611	178	1.1	17	10.2	9.6
	Dr K Kaunda	75 961	109	1.4	17	22.4	15.6
	Dr Ruth Segomotsi Mompati	57 693	461	8.0	53	91.9	11.5
	Ngaka Modiri Molema	95 246	352	3.7	15	15.7	4.3
Western Cape	Cape Winelands	80 741	138	1.7	4	5.0	2.9
	Central Karoo	7 119	18	2.5	0	0.0	0
	Cape Town	335 521	260	0.8	1	0.3	0.4
	Garden Route	53 540	66	1.2	4	7.5	6.1
	Overberg	24 017	20	0.8	0	0.0	0
	West Coast	42 227	51	1.2	0	0.0	0

Source: DHIS.

Table 8 shows the districts with the highest and lowest values for each indicator. The districts with the highest number of deaths were: Tshwane (GP) (N = 60 deaths), OR Tambo (EC) (N = 56 deaths), Dr Ruth Segomotsi Mompati (NW) (N = 53 deaths), Ehlanzeni (MP) (N = 67 deaths), and eThekwini (KZ) (N = 46 deaths). The five districts with the highest numbers of deaths per 100 000 children under five years of age were: Dr Ruth Segomotsi Mompati (NW) (91.9), Frances Baard (NC) (46.7), Lejweleputswa (FS) (35.8), OR Tambo (EC) (28.8), and Fezile Dabi (FS) (26.4).

Table 8: Severe acute malnutrition admissions, deaths and case fatality rates, 2018/19: districts with highest and lowest values

Severe acute malnutrition inpatients under 5 years (Number)		Separations per 1 000 children under 5 years (Number)		Severe acute malnutrition deaths under 5 years (Number)		Deaths per 100 000 children under 5 years (Number)		Severe acute malnutrition under 5 years case fatality rate (%)	
Worst performing									
Mopani (LP)	825	Xhariep (FS)	24.5	Tshwane (GP)	60	RS Mompati (NW)	91.9	Buffalo City (EC)	17.2
Tshwane (GP)	635	Frances Baard (NC)	10.1	OR Tambo (EC)	56	Frances Baard (NC)	46.7	Fezile Dabi (FS)	15.8
eThekwini (KZ)	536	Zwelentlanga Fatman Mgcawu (NC)	8.1	Ruth Segomotsi Mompati (NW)	53	Lejweleputswa (FS)	35.8	Dr K Kaunda (NW)	15.6
Ruth Segomotsi Mompati (NW)	461	Ruth Segomotsi Mompati (NW)	8.0	Ehlanzeni (MP)	47	OR Tambo (EC)	28.8	Sekhukhune (LP)	15.1
Ehlanzeni (MP)	447	Mopani (LP)	6.0	eThekwini (KZ)	46	Fezile Dabi (FS)	26.4	Lejweleputswa (FS)	13.2
Best performing									
Central Karoo (WC)	18	Cape Town (WC)	0.8	Central Karoo (WC)	0	Central Karoo (WC)	0	Central Karoo (WC)	0.0
Overberg (WC)	20	Amathole (EC)	0.8	Overberg (WC)	0	Overberg (WC)	0	Overberg (WC)	0.0
Namakwa (NC)	25	Overberg (WC)	0.8	West Coast (WC)	0	West Coast (WC)	0	West Coast (WC)	0.0
West Coast (WC)	51	Ekurhuleni (GP)	0.9	Pixley Ka Seme (NC)	1	Cape Town (WC)	0.3	Cape Town (WC)	0.4
Pixley Ka Seme (NC)	55	Johannesburg (GP)	0.9	Cape Town (WC)	1	Nelson Mandela Bay (EC)	0.8	Nelson Mandela Bay (EC)	0.6

Source: DHIS.

Key findings

- The national SAM CFR has declined steadily, from 19.3% in 2009/10 to 7.1% in 2018/19. The highest SAM CFR was reported in North West (9.3%), while the lowest was reported in the Western Cape (1.6%).
- Among districts, the highest CFR (17.2%) was recorded in Buffalo City (EC). Three districts in the Western Cape (Central Karoo, Overberg and West Coast) reported no deaths associated with SAM, and an additional three district reported CFRs below 1%.
- Districts with the highest number of SAM deaths were: Tshwane (GP) (N = 60 deaths), OR Tambo (EC) (N = 56 deaths), Dr Ruth Segomotsi Mompati (NW) (N = 53 deaths), Ehlanzeni (MP) (N = 67 deaths), and eThekwini (KZ) (N = 46 deaths).

Conclusion

- The number of admissions, deaths and CFRs associated with SAM and reported through the DHIS have declined over time. However, it is likely that underreporting persists in many areas, therefore care should be exercised in interpreting reported results. More attention should be paid to ensuring early identification of SAM cases, and standardisation and recording should be improved. It is likely that many uncomplicated cases are currently missed owing to failure to accurately measure and classify the nutritional status of children admitted with other diseases (especially diarrhoea and pneumonia). Better recognition of children with SAM and earlier appropriate case management should reduce the number of deaths associated with the condition. This, together with recognition of more uncomplicated cases (where mortality is lower), is likely to result in a further decline in the SAM CFR.[l]
- Healthcare workers and managers should look carefully at local DHIS data on a regular basis. While monitoring and tracking of the SAM CFR is important, attention must also be paid to data completeness and accuracy. Looking at absolute numbers and population rates of admissions and deaths, and interpreting these carefully based on knowledge of the local context is more useful than simply looking at CFRs.
- Current efforts to improve data quality are focused on ensuring that all hospitals collect admission and discharge data using standardised tools (including a standardised paediatric ward register), and that there is full alignment between child mortality audit and DHIS data.

Recommendations

Correct case management based on nationally adapted WHO guidelines[t] has been shown to reduce CFRs substantially.[u] Interventions to reduce SAM incidence and CFRs are well-known and include:

- ✦ Primary prevention through improved infant feeding practices, especially improved exclusive breastfeeding for the first six months of life, as well as ongoing breastfeeding with the introduction of appropriate complementary feeds from six months of age.
- ✦ Early identification and intervention in the case of growth faltering and moderate-acute malnutrition through improved use of the Road-to-Health Booklet as one of the basic steps to be used at each and every encounter with a child.
- ✦ Early identification of children with SAM; this should be done at community level by community health workers or as part of growth monitoring at primary health care facilities.
- ✦ Early identification and correct management of children with SAM should be implemented using the WHO Ten Steps for the Management of Severe Malnutrition.[v] Availability of equipment and nutritional supplements should be monitored in all health facilities on a regular basis.
- ✦ Attention should also be paid to ensuring complete and accurate reporting of data on admissions and deaths due to SAM from all health facilities. Harmonisation of data from different sources, especially routine DHIS data and mortality review data from the Child Perinatal Problem Identification Programme (PPIP), should also be encouraged. Child PPIP should also be extended to cover all hospitals in South Africa.

Successful implementation of these interventions requires an enabling environment and a 'whole system' approach, with different stakeholders acting together at different levels to achieve improvements. A case study described how one rural South African district was able to create an environment where national commitments were translated into district-level implementation and achieved accelerated declines in hospital admissions and in-patient mortality from SAM in young children over a four-year period.[r] The district health-system-strengthening intervention was assessed as being successful because it changed providers' and managers' knowledge and use of data, and strengthened leadership, participation, and coordination with existing resources and capacity. Further reductions in SAM incidence and case fatality will require more districts to develop and implement similar initiatives that address undernutrition in children in a systematic and comprehensive manner.

t National Department of Health. Integrated Management of Children with Acute Malnutrition in South Africa: Operational guidelines. Pretoria: NDoH; 2015.

u Ashworth A, Chopra M, McCoy D, et al. WHO guidelines for management of severe malnutrition in rural South African hospitals: Effect on case fatality and the influence of operational factors. Lancet. 2004;363(9415):1110-5. https://doi.org/10.1016/S0140-6736(04)15894-7.

v World Health Organization. Management of severe malnutrition: A manual for physicians and other senior health workers. WHO. Geneva. Available from: https://www.who.int/nutrition/publications/en/manage_severe_malnutrition_eng.pdf.

2.3 Immunisation

Ramokone Maphoto, Mamokete Lunga, Naomi Massyn

This section covers immunisation health service coverage of the reproductive, maternal, newborn and child health category in the universal health coverage (UHC) index,[a] and includes four indicators, namely:

- Immunisation coverage under 1 year
- Measles 2nd dose coverage
- Confirmed measles case incidence
- DTaP-IPV-Hib-HBV 3rd dose coverage.

Since its inception, the Expanded Programme on Immunisation (EPI) has reached notable milestones. The EPI aims to reach and protect every child in the targeted age group in South Africa through lifesaving vaccines and quality services. Immunisation is a central pillar of UHC, and Sustainable Development Goal (SDG) 3.8 uses vaccination coverage as a tracer intervention for monitoring coverage of essential health services.[b] Additionally, SDG 3.b.1 looks at access to affordable essential medicines and vaccines as measured through vaccine coverage of vaccines in the target population. The vaccines are: Diphtheria-tetanus-pertussis (DTP) (three doses), measles (two doses), and one dose each of polio, hepatitis B, *Haemophilus influenzae* type b, pneumococcal conjugate, and rotavirus vaccines.[a]

South Africa was certified as a polio-free country in September 2019. This marks a great achievement for the EPI programme. As the world awaits global eradication of the polio virus, the EPI continues to maintain and strengthen the surveillance of vaccine-preventable diseases. Measles has been targeted for elimination and South Africa has strengthened routine immunisation and surveillance of measles. However, there are challenges in some districts, with low vaccine coverage and underreporting of suspected measles cases.

Table 1 shows the EPI (South Africa) revised immunisation schedule as of December 2015.[c]

Table 1: Expanded Programme on Immunisation Schedule

Age	Antigens
Birth	OPV 0, BCG
6 weeks	OPV 1, DTaP-IPV-Hib-HepB 1, RV 1, PCV 1
10 weeks	DTaP-IPV-Hib-HepB 2
14 weeks	DTaP-IPV-Hib-HepB 3, RV 2, PCV 2
6 months	Measles 1
9 months	PCV3
12 months	Measles 2
18 months	DTaP-IPV-Hib-HepB 4
6 years	Td
12 years	Td
Grade 4 girls, aged 9 years and older in public sector schools	HPV

BCG = bacille Calmette-Guerin; DTaP-IPV-Hib-HBV = diphtheria, tetanus and pertussis, inactivated polio vaccine, *Haemophilus influenzae* type B, hepatitis B vaccine; HPV = human papillomavirus; OPV = oral polio vaccine; PCV = pneumococcal conjugate vaccine; RV = rotavirus vaccine; Td = tetanus and reduced strength of diphtheria vaccine.

Immunisation under 1 year coverage

Immunisation under 1 year coverage measures the number of children under 1 year who completed their primary course of immunisation as a proportion of the population under 1 year.[d] The numerator is the total number of children under 1 year old who have received BCG; OPV 1; DTaP-IPV-Hib-HBV 1, 2, 3; PCV 1, 2, 3; RV 1 and 2; and measles 1 vaccines, divided by the target population of children under 1 year old expressed as a percentage. The child should only be counted as fully immunised once she/he has received the last of these vaccines, which is normally the PCV 3rd dose, and there is documented proof of all the required vaccines as in the Road-to-Health Booklet. Measles 2nd dose is not included when analysing immunisation coverage under 1 year.

a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b GBD 2017 SDG Collaborators. Measuring progress from 1990 to 2017 and projecting attainment to 2030 of the health-related Sustainable Development Goals for 195 countries and territories: a systematic analysis for the Global Burden of Disease Study 2017. Lancet 2018;392:2091-138. Available from: http://dx.doi.org/10.1016/S0140-6736(18)32281-5.

c Available from: http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=2ahUKEwiLnMzWqZ_mAhV5SxUIHfYWDvEQFjABegQIBRAH&url=http%3A%2F%2Fwww.health.gov.za%2Findex.php%2Fcomponent%2Fphocadownload%2Fcategory%2F371-measles-campaign%3Fdownload%3D2104%3Achildhood-immunisation-schedule&usg=AOvVaw2M53pCCWnMizFpfHhbr_Cc.

d National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; April 2017.

National overview

Between 2015/16 and 2017/18, the national immunisation under 1 year coverage was below 80% (Table 2). However, after a stabilised supply of hexavalent vaccine, the coverage increased to 81.9% in 2018/19. The country was unable to meet the global target of 90%. One reason may have been that data for the numerator were collected mainly by public sector facilities, but the denominator includes the total under 1 year population (including those who receive services in the private sector), leading to an under-measurement of the indicator.

Table 2: National immunisation under 1 year coverage, 2014/15 - 2018/19

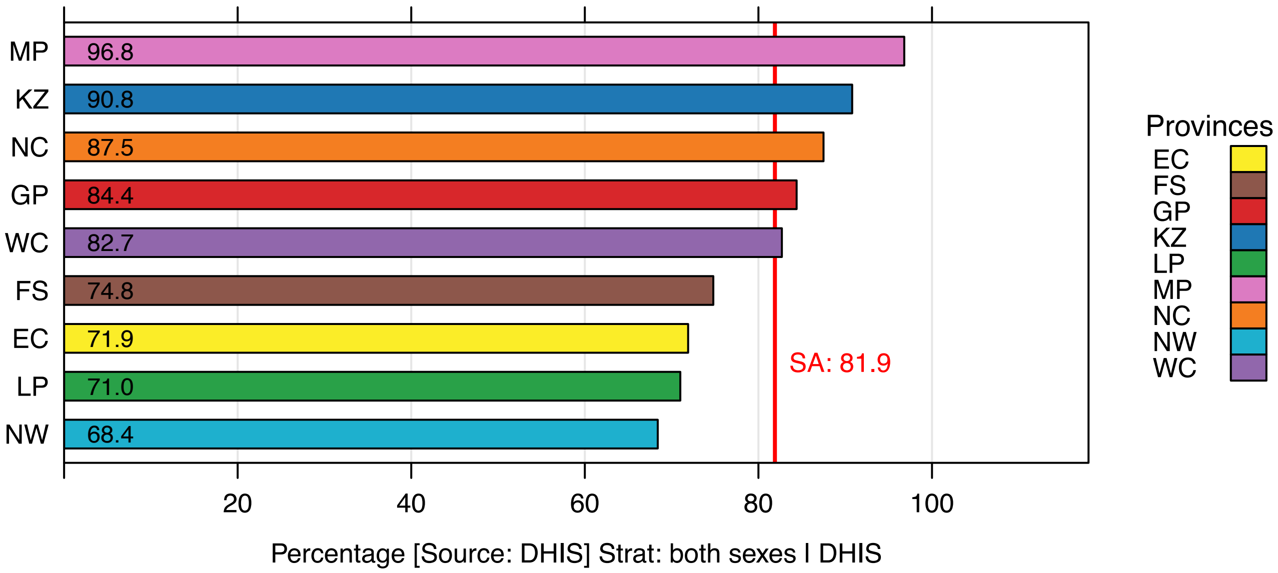
	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
South Africa	82.9	79.5	70.9	76.9	81.9

Source: DHIS.

Provincial overview

The provincial immunisation under 1 year coverage varied from 68.4% in North West (NW) to 96.8% in Mpumalanga (MP) (Figure 1). Five of the nine provinces surpassed the national average of 81.9%, namely Mpumalanga, KwaZulu-Natal (KZ), Northern Cape (NC), Gauteng (GP) and the Western Cape (WC).

Figure 1: Immunisation under 1 year coverage by province, 2018/2019



Overall, a noticeable improvement in coverage was observed in most provinces except for North West, which experienced a decline of one percentage point in coverage, from 69.4% in 2017/18 to 68.4% in 2018/19. The Eastern Cape (EC) was the worst-performing province in 2017/18 but improved by 3.5 percentage points in 2018/19 (Table 3). Of note is that Mpumalanga and KwaZulu-Natal met the global target of 90%.

Table 3: Immunisation under 1 year coverage by province, 2014/15 - 2018/19

Province	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point change between 2017/18 and 2018/19
Eastern Cape	71.9	73.1	63.9	68.4	71.9	3.5
Free State	80.8	72.7	68.5	71.2	74.8	3.6
Gauteng	94.1	86.6	74.7	76.8	84.4	7.6
KwaZulu-Natal	80.1	74.4	74.0	81.3	90.8	9.5
Limpopo	79.7	76.3	60.0	70.4	71.0	0.6
Mpumalanga	81.5	85.9	75.6	89.7	96.8	7.1
Northern Cape	98.9	96.2	90.8	83.9	87.5	3.6
North West	76.5	76.2	69.0	69.4	68.4	-1.0
Western Cape	87.1	84.9	74.8	80.9	82.7	1.8
South Africa	82.9	79.5	70.9	76.9	81.9	5.0

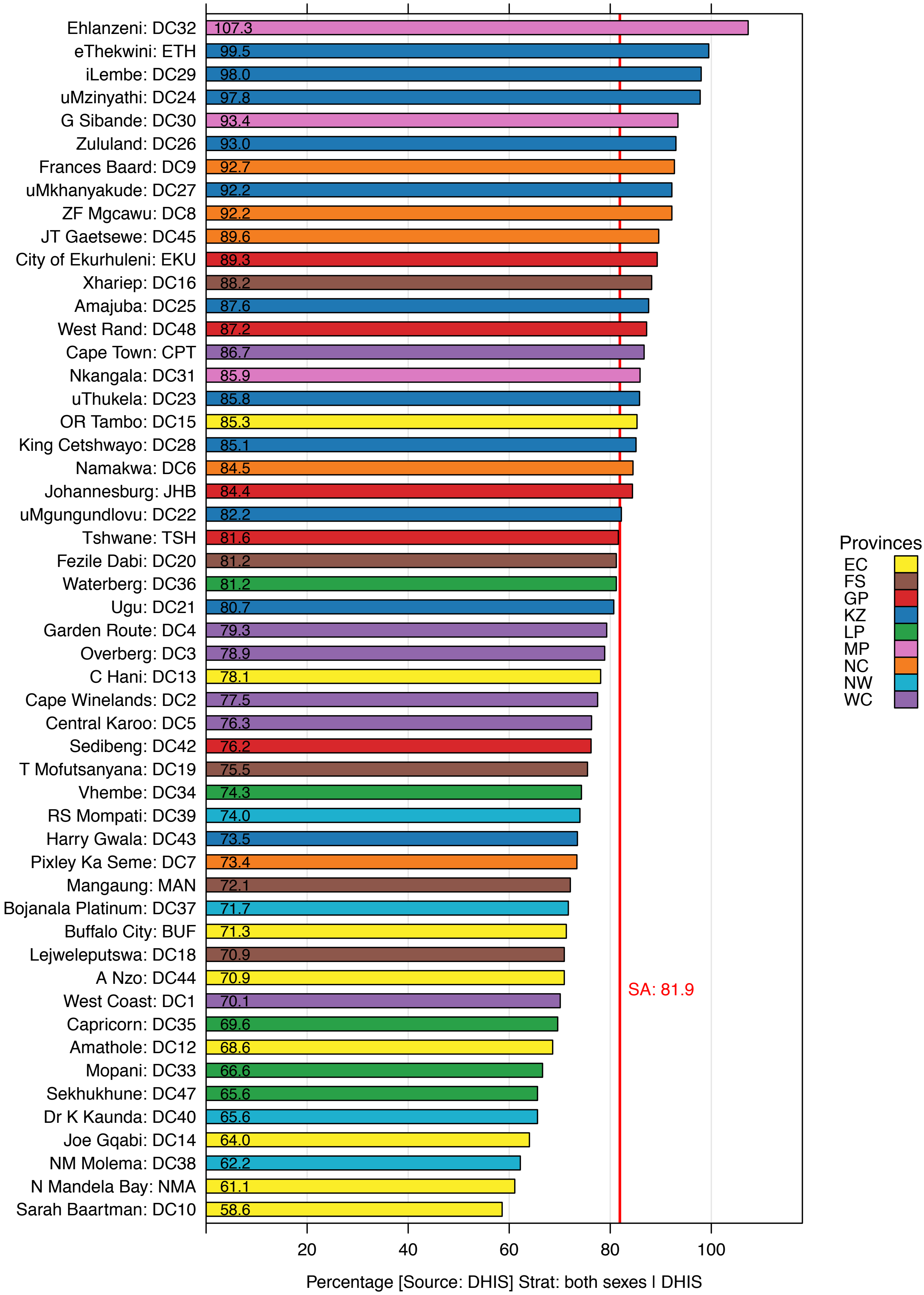
Source: DHIS.

District overview

Figure 2 shows the immunisation under 1 year coverage by district. It is concerning to note that coverage within districts was suboptimal across the provinces. Only nine districts reached the national target of 91%, five of which were in KwaZulu-Natal. Of the 22 districts that reached the national average of 81.9%, six were in KwaZulu-Natal (eThekwini, iLembe, uMzinyathi, Zululand, uMkhanyakude and King Cetshwayo). The number of districts with coverage less than 70% dropped from 17 districts in 2017/18 to nine districts in 2018/19. Sarah Baartman (EC) had the lowest immunisation under 1 year coverage for the second year in a row, reporting coverage of 55.8% in 2017/18 and 58.6% in 2018/19. Nelson Mandela Bay (EC) had the second-lowest coverage in both years at 58.2% in 2017/18 and 61.1% in 2018/19.

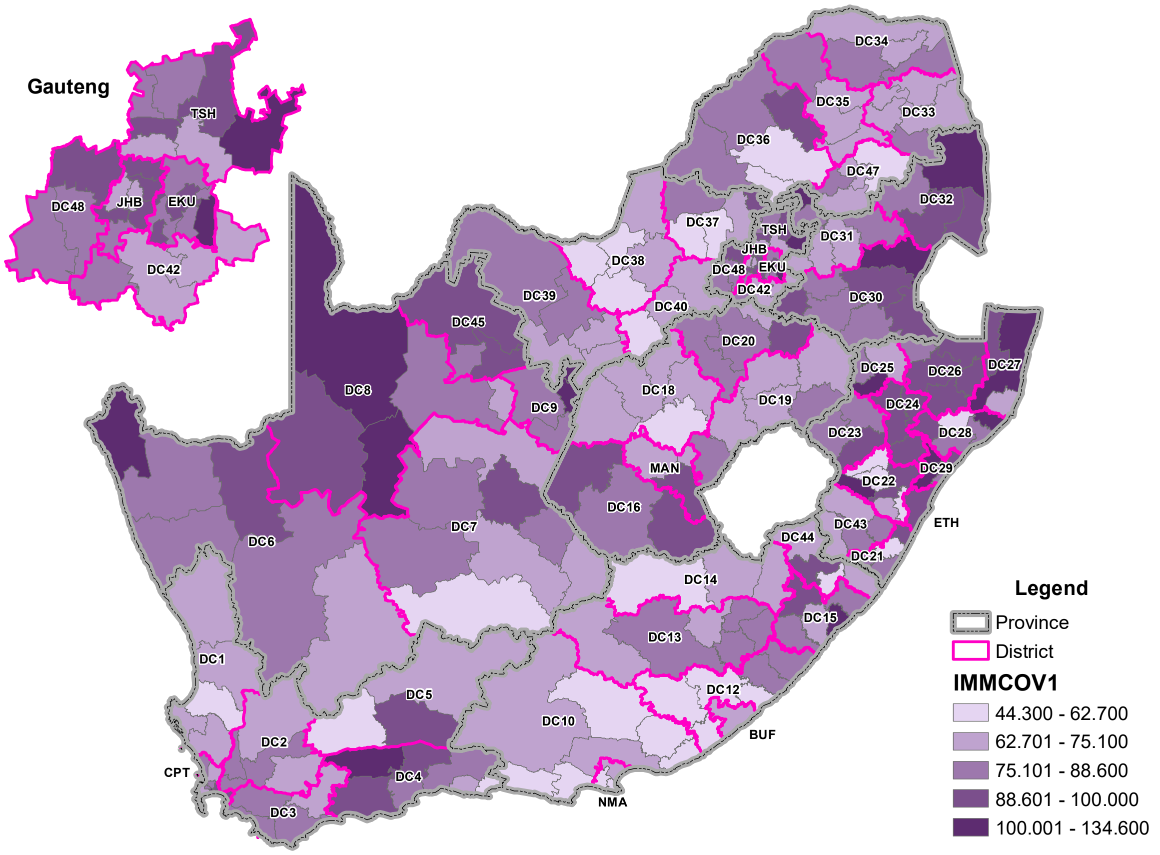
Ehlanzeni (MP) had the highest immunisation under 1 year coverage at 107.3% in 2018/19, followed by eThekwini (KZ) at 99.5%. Such high levels reflect ongoing problems regarding use of the appropriate denominator.

Figure 2: Immunisation under 1 year coverage by district, 2018/19



Map 1 shows that local municipality/sub-districts (LM/SD) with the lowest immunisation under 1 year coverage were mainly in the rural districts. Twenty-two LMs had an immunisation under 1 year coverage below 60%, while 20 had a coverage over 100%. Of the LMs with a coverage below 60%, 11 were in the Eastern Cape and four in North West.

Map 1: Immunisation under 1 year coverage by local municipality/sub-district, 2018/19



Source: DHIS.

Measles 2nd dose coverage

The measles 2nd dose coverage measures the proportion of children aged 1 year who received measles 2nd dose as a proportion of the 1 year population.[d] The indicator measures protection of children against measles. Because the 1st measles dose (given at 6 months) has a failure rate of 15%, the 2nd dose (given at 12 months) is important to ensure protection. All children older than 12 months who have missed the 1st dose measles at 6 months should receive this dose immediately and receive the second dose within 4 weeks.

Administration of the second dose of measles vaccine has a large impact on population immunity. High levels of immunity within the population are imperative to reach the elimination goal.

National overview

The national measles 2nd dose coverage ranged from 82.8% in 2014/15 to 76.5% in 2018/19 (Table 4). The country has not achieved the global elimination target of 95%[a] for the past five years. The coverage has not improved for two consecutive years and there have been annual fluctuations.

Table 4: National measles 2nd dose coverage, 2014/15 - 2018/19

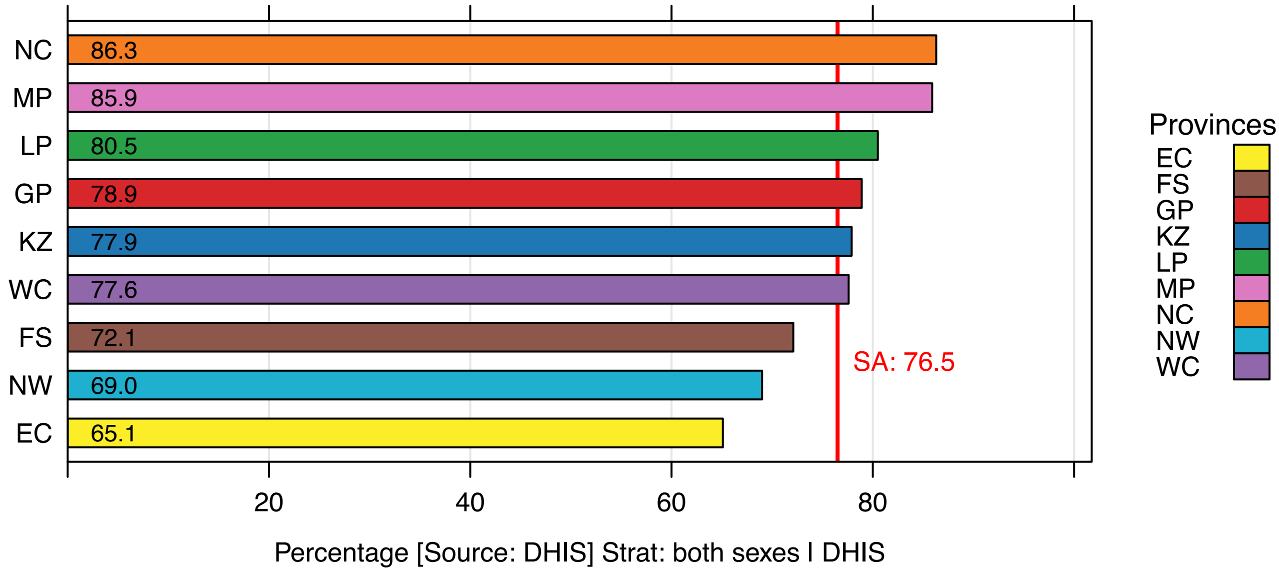
	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
South Africa	82.8	74.8	83.6	76.4	76.5

Source: DHIS.

Provincial overview

None of the nine provinces reached the national target for measles 2nd dose coverage of 91% as well as the global target of 95%[b] in 2018/19 (Figure 3). North West and the Eastern Cape had the lowest measles 2nd dose coverages, putting the provinces at high risk of measles outbreaks. Coverage increased marginally in the Free State (FS), Gauteng and KwaZulu-Natal between 2017/18 and 2018/19, but declined by more than three percentage points in Limpopo (LP) (from 84.7% to 80.5%), Mpumalanga (from 89.2% to 85.9%) and North West (from 72.4% to 69.0%) over the same period.

Figure 3: Measles 2nd dose coverage by province, 2018/19

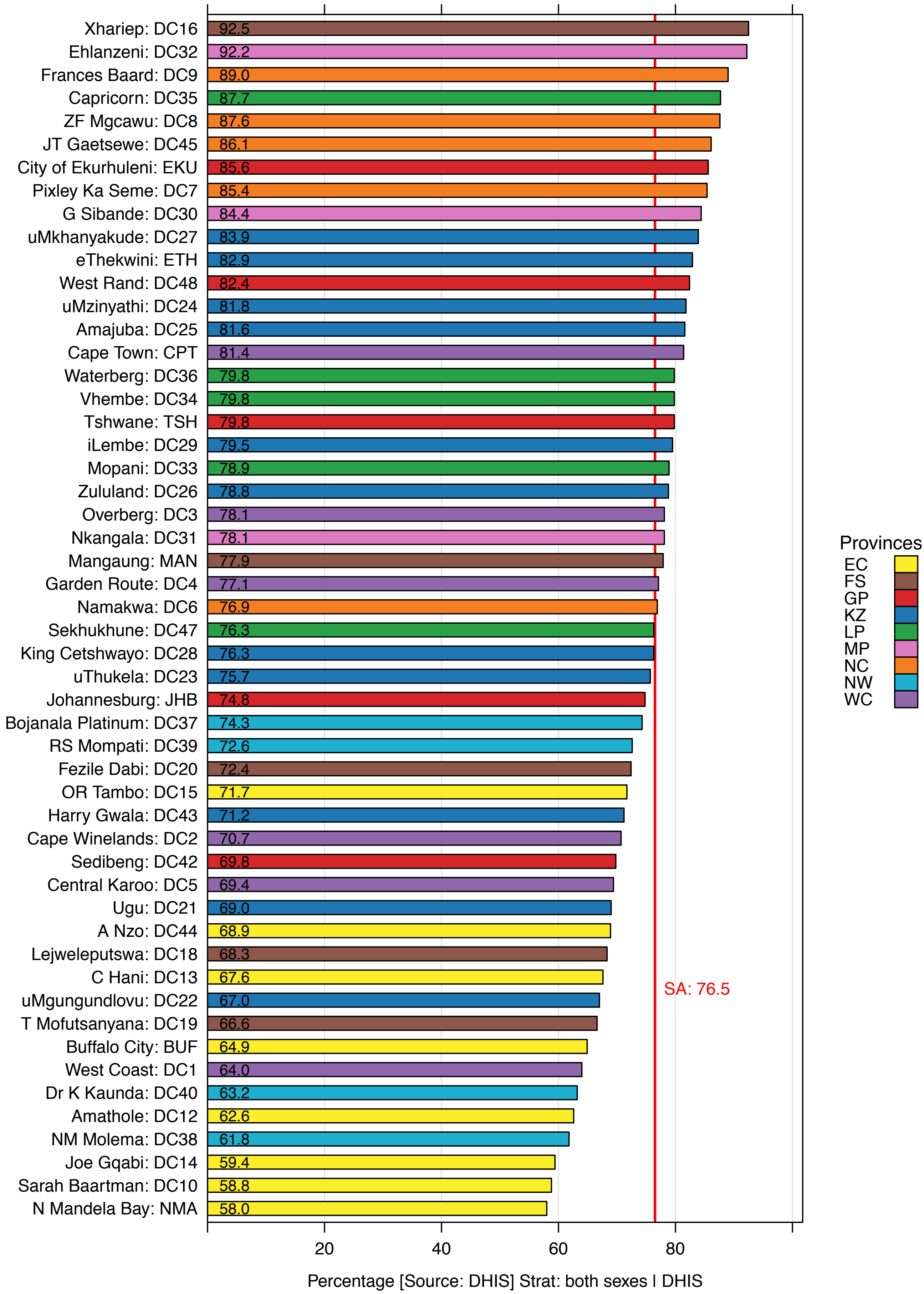


District overview

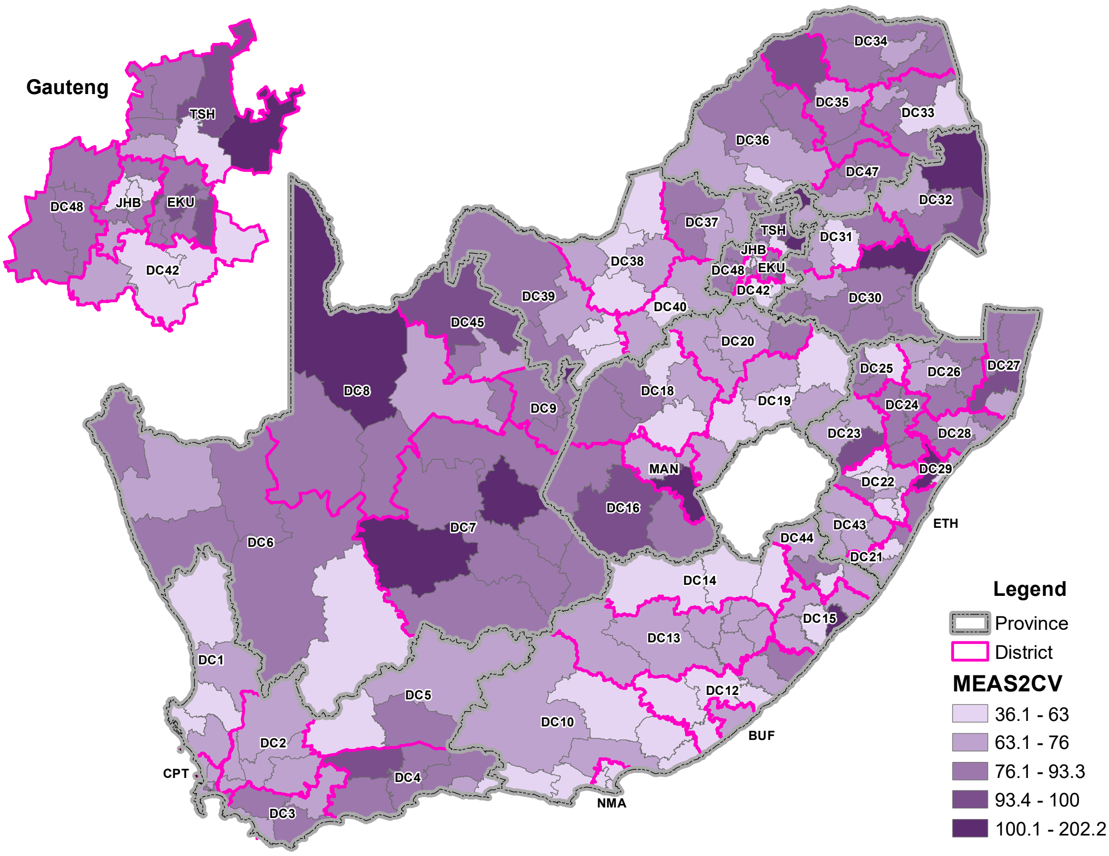
Sixteen of the 52 districts had measles 2nd dose coverage rates less than 70% (Figure 4 and Map 2), compared with 18 districts in 2017/18. Of the 16 districts with a measles 2nd dose coverage less than 70%, seven were from the Eastern Cape. As with immunisation under 1 year coverage, Nelson Mandela Bay and Sarah Baartman had the lowest coverage rates for the second year in a row. Only two districts (Ehlanzeni (MP) and Xhariep (FS) achieved the national target of 91%; however, none of the districts met the global target of 95%.

In Limpopo, Gauteng and the Northern Cape, three of the five districts in each province had a decline in measles 2nd dose coverage between 2017/18 and 2018/19 (Table 5). Two of three districts in Mpumalanga and three of four districts in North West also had a decline in coverage. Sekhukhune (LP) experienced the highest drop in coverage among the districts between 2017/18 and 2018/19, namely 12.1 percentage points. Amajuba (KZ) was the only district with an increase in coverage of more than 10 percentage points.

Figure 4: Measles 2nd dose coverage by district, 2018/19



Map 2: Measles 2nd dose coverage by district, 2018/19



Source: DHIS.

Table 5: Measles 2nd dose coverage by district, 2014/15 - 2018/19

Province	District	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point change between 2017/18 and 2018/19
Eastern Cape	Amathole	74.8	63.4	64.6	58.0	62.6	4.6
	Buffalo City	79.8	66.7	76.6	62.5	64.9	2.4
	Chris Hani	76.5	77.1	82.0	73.6	67.6	-6.0
	Joe Gqabi	69.0	81.1	81.9	64.1	59.4	-4.7
	Nelson Mandela Bay	74.2	54.0	68.9	53.0	58.0	5.0
	OR Tambo	74.0	73.0	79.2	78.2	71.7	-6.5
	Sarah Baartman	71.4	62.0	76.3	54.7	58.8	4.1
Free State	Fezile Dabi	75.0	70.1	84.4	68.3	72.4	4.1
	Lejweleputswa	95.1	74.2	85.9	66.1	68.3	2.2
	Mangaung	68.9	85.4	94.4	73.4	77.9	4.5
	Thabo Mofutsanyana	83.9	71.3	75.5	64.5	66.6	2.1
	Xhariep	114.5	99.9	120.2	95.7	92.5	-3.2
Gauteng	Ekurhuleni	101.1	79.2	98.6	81.0	85.6	4.6
	Johannesburg	90.7	80.1	88.0	76.5	74.8	-1.7
	Sedibeng	96.5	79.4	93.4	73.3	69.8	-3.5
	Tshwane	88.6	71.5	68.4	65.0	79.8	-1.8
	West Rand	118.0	81.1	86.9	81.6	82.4	0.8
KwaZulu-Natal	Amajuba	98.8	71.2	78.2	71.1	81.6	10.5
	eThekwini	94.3	71.8	87.3	85.3	82.9	-2.4
	Harry Gwala	79.1	65.8	93.4	66.6	71.2	4.6
	iLembe	79.5	66.2	97.0	76.2	79.5	3.3
	King Cetshwayo	86.6	77.5	84.3	82.9	76.3	-6.6
	Ugu	72.9	76.4	86.2	68.2	69.0	0.8
	uMgungundlovu	75.2	59.2	68.8	64.6	67.0	2.4
	uMkhanyakude	87.2	71.8	88.6	82.4	83.9	1.5
	uMzinyathi	85.0	81.8	91.7	84.4	81.8	-2.6
	uThukela	84.7	66.6	74.3	66.6	75.7	9.1
	Zululand	88.9	63.0	83.0	81.3	78.8	-2.5

Province	District	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point change between 2017/18 and 2018/19
Limpopo	Capricorn	83.2	79.5	85.7	87.2	87.7	0.5
	Mopani	92.3	82.8	91.2	86.3	78.9	-7.4
	Sekhukhune	83.9	75.3	80.5	88.4	76.3	-12.1
	Vhembe	87.9	90.8	90.5	78.2	79.8	1.6
	Waterberg	61.4	78.3	87.0	84.6	79.8	-4.8
Mpumalanga	Ehlanzeni	74.2	83.6	97.0	100.5	92.2	-8.3
	Gert Sibande	78.1	63.5	53.9	80.8	84.4	3.6
	Nkangala	72.4	75.6	84.9	79.1	78.1	-1.0
Northern Cape	Frances Baard	83.2	77.5	106.2	88.8	89.0	0.2
	John Taolo Gaetsewe	80.3	96.7	111.4	91.8	86.1	-5.7
	Namakwa	62.4	79.8	90.7	77.0	76.9	-0.1
	Pixley Ka Seme	73.4	81.4	99.8	84.8	85.4	0.6
	Zwelentlanga Fatman Mgcawu	73.9	76.7	106.2	88.8	87.6	-1.2
North West	Bojanala Platinum	70.9	68.2	72.5	75.9	74.3	1.6
	Dr Kenneth Kaunda	79.0	66.4	77.8	66.6	63.2	-3.4
	Ngaka Modiri Molema	88.3	66.6	74.6	68.7	61.8	-6.9
	Dr Ruth Segomotsi Mompati	80.5	69.9	78.2	76	72.6	-3.4
Western Cape	Cape Town	77.4	84.9	87.8	82.6	81.4	-1.2
	Cape Winelands	71.5	74.0	82.4	69.9	70.7	0.8
	Central Karoo	76.7	81.7	80.3	76.7	69.4	-7.3
	Garden route	82.0	84.3	80.6	75.1	77.1	2.0
	Overberg	73.5	76.7	91.8	79.8	78.1	-1.7
	West Coast	70.1	70.6	86.9	63.0	64.0	1.0

Source: DHIS.

Confirmed measles case incidence

The confirmed measles case incidence indicator measures the number of laboratory-confirmed measles cases per million population.

National overview

The reporting period for this indicator is a calendar year. In 2018, the national measles incidence was 1.3 per million population (Table 6), and South Africa did not meet the World Health Organization (WHO) elimination target of less than 1 measles case per million population. However, the incidence declined from 3.6 per million population in 2017, and the number of confirmed cases dropped from 207 to 75. Of the 207 confirmed cases in 2017, 94 were in Gauteng, 53 in KwaZulu-Natal, and 25 in the Western Cape. Of the 75 confirmed cases in 2018, most were in KwaZulu-Natal (N = 22).

Table 6: National confirmed measles case incidence (per million population) and number of confirmed measles case, 2016 - 2018

	2016	2017	2018
Measles incidence per million (Number)	0.6	3.6	1.3
Number of confirmed measles cases	32	207	75

Source: NDoH.

Provincial overview

Table 7 shows that the Northern Cape had the highest confirmed measles case incidence in 2018 at 3.3 cases per million population, followed by the Free State at 2.1 cases per million. Six provinces had measles incidence rates below the WHO elimination target of less than 1 case per million population in 2018.

Table 8 shows that there was no obvious correlation between the confirmed measles case incidence and the measles 2nd dose coverage in 2018/19. Mpumalanga and the Northern Cape, with the highest measles 2nd dose coverage in 2018/19 (85.9% and 86.3% respectively), also had a high confirmed measles case incidence (1.3 and 3.3 cases per million in 2018 respectively). The Eastern Cape, with a measles 2nd dose coverage of 65.1%, had a confirmed measles case incidence of 0.3 cases per million. It appears that the provinces with the highest confirmed measles case incidence border on other countries and that the cases may be due to migration of people to South Africa, e.g. the Northern Cape borders on Namibia and Botswana; Mpumalanga borders on eSwatini (Swaziland) and Mozambique; and Free State and

Kwazulu-Natal border on Lesotho and eSwatini. However, this was not the case with Limpopo, although it borders on Zimbabwe and Mozambique.

Table 7: Confirmed measles case incidence by province, 2016 - 2018

	2016 (per million) (Number)	2017 (per million) (Number)	2018 (per million) (Number)
Eastern Cape	0.3	0.3	0.3
Free State	0.0	0.3	2.1
Gauteng	1.1	6.8	1.1
KwaZulu-Natal	0.5	4.7	1.9
Limpopo	0.2	0.5	0.8
Mpumalanga	0.2	0.2	1.3
Northern Cape	0.8	0.0	3.3
North West	0.5	3.1	0.8
Western Cape	0.8	5.8	1.4

Source: DHIS.

Table 8: Confirmed measles case incidence and measles 2nd dose coverage by province, 2018/19

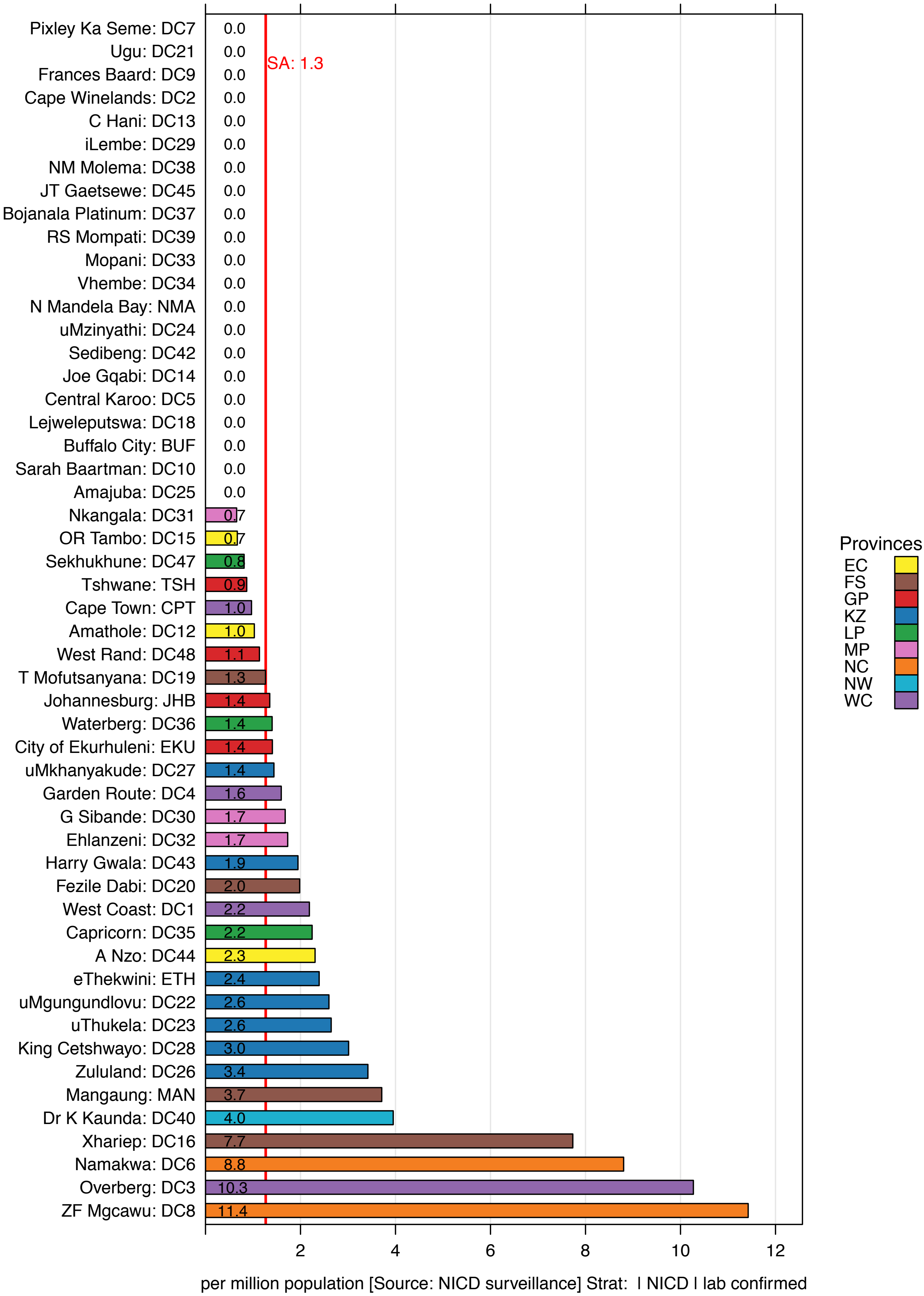
	Confirmed measles case incidence (per million population) 2018 (Number)	Measles 2nd dose coverage 2018/19 (%)
Eastern Cape	0.3	65.1
Free State	2.1	72.1
Gauteng	1.1	78.9
KwaZulu-Natal	1.9	77.9
Limpopo	0.8	80.5
Mpumalanga	1.3	85.9
Northern Cape	3.3	86.3
North West	0.8	69.0
Western Cape	1.4	77.6

Source: DHIS.

District overview

Twenty-one of the 52 districts did not report any confirmed measles cases in 2018 (Figure 5), and 27 districts exceeded the WHO elimination target of less than 1 case per million population. Zwelentlanga Fatman Mgcawu (NC) (3 confirmed cases) had the highest incidence at 11.4 cases per million with a measles 2nd dose coverage of 87.6%, followed by Overberg (WC) at 10.3 cases per million (3 confirmed cases) with a measles 2nd dose coverage of 78.1%, Namakwa (NC) at 7.7 cases per million (1 confirmed case) with a measles 2nd dose coverage of 76.9%, and Dr K Kaunda (NW) at 4.0 cases per million population (3 confirmed cases) with a measles 2nd dose coverage of 63.2%. The districts with the highest number of confirmed measles cases in 2018 were eThekwini (KZ) (9 confirmed cases) and Johannesburg (GP) (7 confirmed cases).

Figure 5: Confirmed measles case incidence by district, 2018/19



DTaP-IPV-Hib-HBV 3rd dose coverage

The DTaP-IPV-Hib-HBV is a vaccine that protects against six diseases, namely: diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type b, and Hepatitis B. Recently, South Africa's status as a polio-free country was reinstated due to improvements in both routine immunisation of IPV-3 dose and surveillance. However, immunisation and surveillance activities need to continue and be improved because of the risk of importation of polio cases. High DTaP-IPV-Hib-HBV 3rd dose coverage is needed to maintain population immunity.

DTaP-IPV-Hib-HBV 3rd dose coverage is used as a proxy for the UHC indicator "Child immunisation for infants with three doses of diphtheria, tetanus, and pertussus vaccine" in the reproductive, maternal, newborn and child health category.[e]

DTaP-IPV-Hib-HBV 3rd dose coverage measures the children under 1 year who received DTaP-IPV-Hib-HBV 3rd dose, normally at 14 weeks, as a proportion of the population under 1 year expressed as a percentage.[d] Administration of both pentavalent and hexavalent vaccines forms part of the numerator to ensure accurate coverage of historical data.

National overview

The national DTaP-IPV-Hib-HBV 3rd dose coverage declined from 88.7% in 2014/15 to 76.6% in 2016/17 and 2017/18, but then increased to 83.0% in 2018/19 (Table 9).

Table 9: National DTaP-IPV-Hib-HBV 3rd dose coverage, 2014/15 - 2018/19

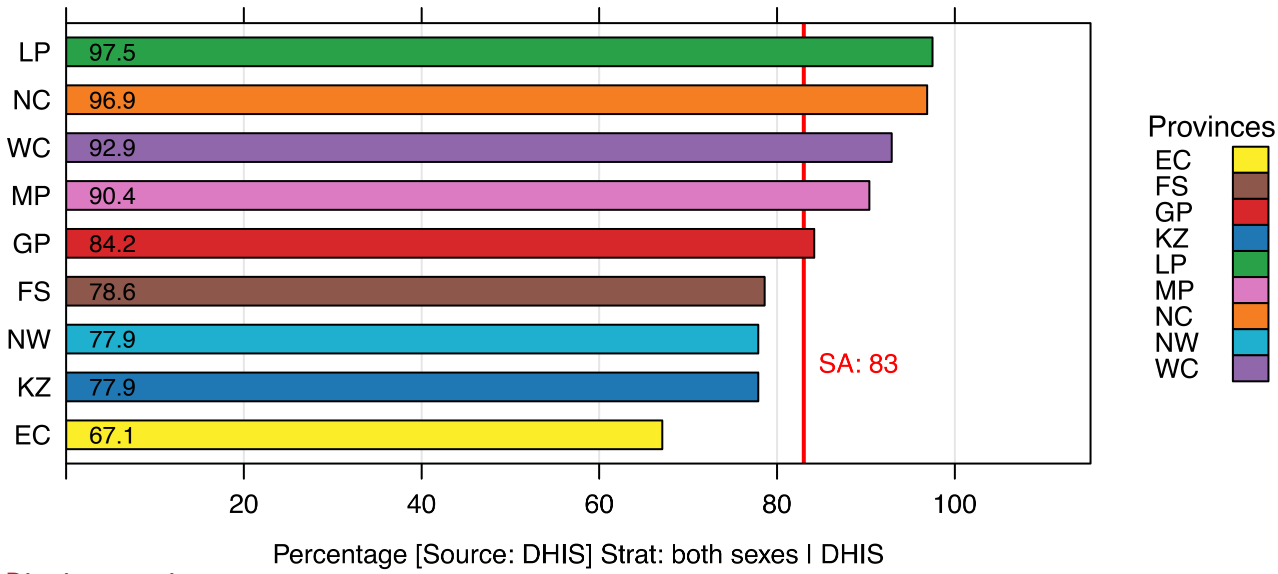
	2014/15 (%)	2015/16 (%)	2016/17 (%)	2017/18 (%)	2018/19 (%)
DTaP-IPV-Hib-HBV 3rd dose coverage	88.7	79.1	76.6	76.6	83.0

Source: DHIS.

Provincial overview

Limpopo had the highest DTaP-IPV-Hib-HBV 3rd dose coverage in 2018/19 at 97.5%, followed by the Northern Cape at 96.9% (Figure 6). Four provinces exceeded the national and global targets of 90% in 2018/19. The Eastern Cape had the lowest DTaP-IPV-Hib-HBV 3rd dose coverage (67.1%), and the province experienced an outbreak of pertussis during 2018. The low DTaP-IPV-Hib-HBV 3rd dose coverage in the Eastern Cape is consistent with the low immunisation under 1 year coverage of 71.9% (Figure 1).

Figure 6: DTaP-IPV-Hib-HBV 3rd dose coverage by province, 2018/19

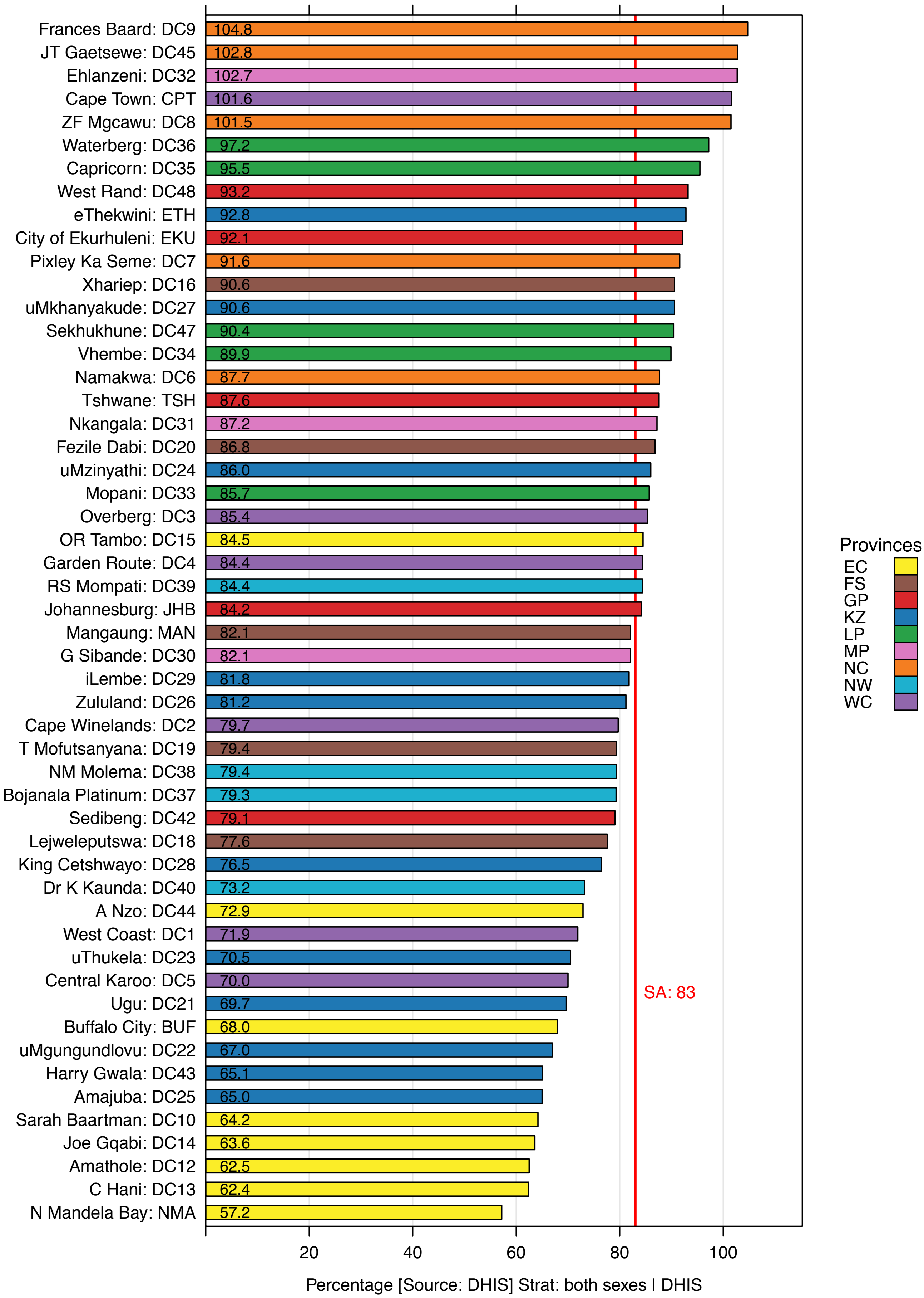


District overview

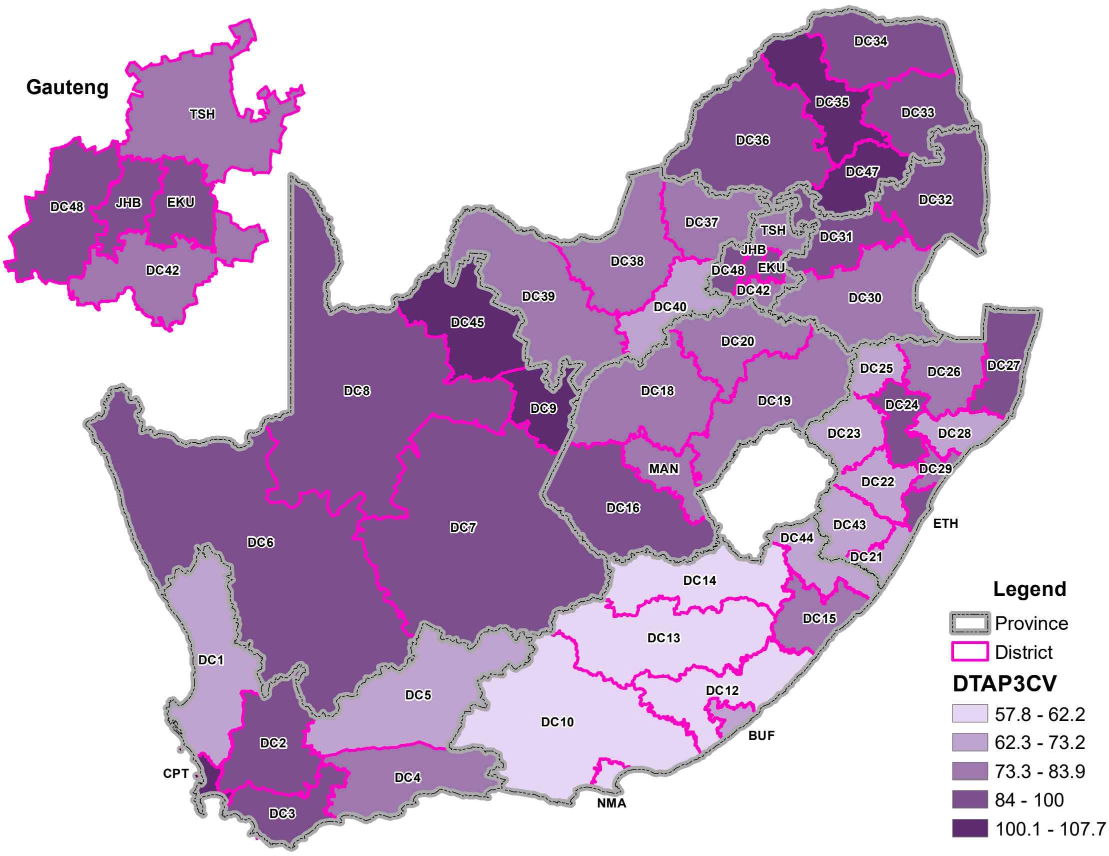
Five districts had a DTaP-IPV-Hib-HBV 3rd dose coverage of more than 100% in 2018/19, with three of these districts in the Northern Cape (Frances Baard, John Taolo Gaetsewe and Zwelentlanga Fatman Mgcawu) (Figure 7 and Map 3). All the Northern Cape districts ranked among the 16 best-performing districts for the DTaP-IPV-Hib-HBV 3rd dose coverage, but Pixley Ka Seme had the 16th-lowest immunisation under 1 year coverage over the same period at 73.4%. In 2018/19, Nelson Mandela Bay (EC) had the lowest coverage in the country at 57.2%, and six of the eight districts in the Eastern Cape ranked among the 10 worst-performing districts.

e Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. December 2017. Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

Figure 7: DTaP-IPV-Hib-HBV 3rd dose coverage by district, 2018/19



Map 3: DTaP-IPV-Hib-HBV 3rd dose coverage by district, 2018/19



Source: DHIS.

Fifteen districts had a decline in the DTaP-IPV-Hib-HBV 3rd dose coverage between 2017/18 and 2018/19 (Table 10). All six districts in Limpopo had a drop in coverage over this period, with the highest decline occurring in Sekhukhune (12.6 percentage points).

Table 10: DTaP-IPV-Hib-HBV 3rd dose coverage for districts showing a decline between 2017/18 and 2018/19

	2017/18 (%)	2018/19 (%)	Percentage point difference between 2017/18 and 2018/19
Xhariep (FS)	96.3	90.6	-5.7
Johannesburg (GP)	85.2	84.2	-1.0
Sedibeng (GP)	82.3	79.1	-3.2
Amajuba (KZ)	66.0	65.0	-1.0
uMzinyathi (KZ)	92.0	86.0	-6.0
Capricorn(LP)	103.7	95.5	-8.2
Mopani (LP)	92.0	85.7	-6.3
Sekhukhune (LP)	103.0	90.4	-12.6
Vhembe (LP)	92.8	89.9	-2.9
Waterberg (LP)	99.3	97.2	-2.1
Nkangala (MP)	89.1	87.2	-1.9
Bojanala Platinum (NW)	81.8	79.3	-2.5
Cape Winelands (WC)	87.1	79.7	-7.4
Central Karoo (WC)	71.7	70.0	-1.7
Overberg (WC)	86.4	85.4	-1.0

Source: DHIS.

Key findings

Immunisation under 1 year coverage

- In 2018/19, national coverage for immunisation under 1 year increased by 5.0 percentage points to 81.9%. This was partly due to the stabilised supply of hexavalent vaccine.
- Eight provinces improved the immunisation under 1 year coverage between 2017/18 and 2018/19, with the exception of North West, which showed a decrease of one percentage point.
- Only nine districts reached the national target of 91%, five of which were in KwaZulu-Natal. Sarah Baartman (EC) had the lowest immunisation under 1 year coverage for the second year in a row at 55.8% in 2017/18 and 58.6% in 2018/19. Nelson Mandela Bay (EC) had the second-lowest coverage in both years at 58.2% in 2017/18 and 61.1% in 2018/19.

Measles 2nd dose coverage

- The measles 2nd dose coverage did not improve for two consecutive years and remained static at around 76.5%.
- In 2018/19, none of the nine provinces reached the national target for measles 2nd dose coverage of 91% as well as the global target of 95%.
- Sixteen of the 52 districts had measles 2nd dose coverage rates of less than 70%. Of these 16 districts, seven were in the Eastern Cape. Nelson Mandela Bay and Sarah Baartman had the lowest coverage rates for the second year in a row (as for the immunisation under 1 year coverage). Only two districts, Ehlanzeni (MP) and Xhariep (FS) achieved the national target of 91%. However, none of the districts met the global target of 95%.

Confirmed measles case incidence

- In 2018, the national measles incidence was 1.3 per million population (75 confirmed cases), and South Africa did not meet the WHO elimination target of less than 1 measles case per million population. However, the incidence declined from 3.6 per million population in 2017.
- The Northern Cape had the highest confirmed measles case incidence in 2018 at 3.3 cases per million population (4 confirmed cases), followed by the Free State at 2.1 cases per million (4 confirmed cases). Six provinces were below the WHO elimination target of less than 1 case per million population in 2018.
- The districts with the highest number of confirmed cases in 2018 were eThekwini (KZ) (9 confirmed cases) and Johannesburg (GP) (7 confirmed cases).
- There was no obvious relationship between the confirmed measles case incidence and the measles 2nd dose coverage in 2018/19.
- The provinces with the highest confirmed measles case incidence border on other countries and it is possible that the cases may have been due to migration of infected people into South Africa.
- Twenty-one of the 52 districts did not report any confirmed measles cases in 2018, and 27 districts were below the WHO elimination target of less than 1 case per million population.

DTaP-IPV-Hib-HBV 3rd dose coverage

- The national DTaP-IPV-Hib-HBV 3rd dose coverage declined from 88.7% in 2014/15 to 76.6% in 2016/17 and 2017/18, but increased to 83.0% in 2018/19.
- Limpopo had the highest DTaP-IPV-Hib-HBV 3rd dose coverage in 2018/19 at 97.5%, followed by the Northern Cape at 96.9%. Four provinces exceeded the national and global targets of 90% in 2018/19.
- In 2018/19, the Eastern Cape had the lowest DTaP-IPV-Hib-HBV 3rd dose coverage (67.1%), and the province also experienced an outbreak of pertussis during 2018.
- Five districts had a DTaP-IPV-Hib-HBV 3rd dose coverage of more than 100% in 2018/19, three of which were in the Northern Cape. All the Northern Cape districts ranked among the 16 best-performing districts for DTaP-IPV-Hib-HBV 3rd dose coverage, but Pixley Ka Seme had the 16th lowest immunisation under 1 year coverage over the same period at 73.4%.
- Nelson Mandela Bay had the lowest coverage at 57.2% in 2018/19, and six of the eight districts in the Eastern Cape ranked among the 10 worst-performing districts.

Conclusions

- The country did not meet the global target for immunisation under 1 year coverage of 90% in 2018/19. One reason may have been that data for the numerator are collected mainly by public sector facilities but the denominator includes the total under 1 year population (including the private sector), leading to an under-measurement of the indicator.

- The country did not achieve the global elimination target of 95% for measles 2nd dose coverage for the past five years.
- South Africa did not meet the WHO elimination target of less than 1 measles case per million population.

Recommendations

- A Memorandum of Understanding with the private sector should be fast tracked so that data on immunisations provided by the sector are included in coverage estimates.
- Community healthcare workers should become more involved in the EPI programme; they could help to raise awareness of the importance of immunisation and trace defaulters.
- Frequency and quality of supervisory visits should be improved at provincial, district and facility level.
- Immunisation services should be available at all health facilities at all times, and every contact with a child should be used as an opportunity to provide immunisations.
- There should be collaboration with early childhood development organisations to offer immunisation services on a regular and structured basis.

2.4 Reproductive health

Mags Beksinska, Melanie Pleaner, Jenni Smit

This section of the reproductive, maternal, newborn and child health (RMNCH) category of the universal health coverage (UHC) index[a] reports on the indicator related to family planning, focusing on a proxy indicator, namely couple year protection rate (CYPR).

Several global indicators are used to measure progress towards contraceptive availability and use; these are described as they pertain to South Africa, and include the following:

- Universal health coverage: A proxy indicator is used for UHC, namely 'demand for family planning among married women satisfied with a modern method'.[b] This increased from 37% (2005 - 2011) to 48% (2012 - 2017), implying an improvement, but a global unmet need of 52%.
- Sustainable Development Goals (SDGs): Goal 3.7 of the SDGs calls on countries to ensure universal access to sexual and reproductive health services by 2030. This includes family planning, information and education, plus the integration of reproductive health into national strategies and programmes. The SDG indicator is the proportion of women of reproductive age (15 - 49 years) who have their need for family planning satisfied with modern methods.[c] Table 1 summarises key data elements in South Africa based on the Estimates and Projections of Family Planning Indicators 2019,[d] which estimates country-level contraceptive prevalence, unmet need for family planning, and SDG indicator 3.7.1 (the proportion of women who have their need for family planning satisfied with modern methods).

Table 1: Family Planning and the 2030 Agenda for Sustainable Development, South Africa, 2019

Contraceptive prevalence any method* 2019 (%)		Contraceptive prevalence modern methods* 2019 (%)		Unmet need for family planning* 2019 (%)		Demand for family planning satisfied with modern methods* 2019 (%)		Change in the demand for family planning satisfied with modern methods (percentage points) 2000 - 2019		Number of women aged 15 - 49 years (thousands)	Percentage of married/ in-union women aged 15 - 49 years	Year of the latest survey data median available
Median	90% uncertainty interval	Median	90% uncertainty interval	Median	90% uncertainty interval	Median	90% uncertainty interval	Median	90% uncertainty interval			
49.4	(41.1 - 57.8)	49.1	(40.9 - 57.5)	11.0	(7.3 - 15.7)	81.3	(73.3 - 88.0)	0.7	(-8.5 - 8.9)	15 720	35.1	2016

Source: UN, 2019.[c] *Percentage among all women of reproductive age (15 - 49 years old).

Contraceptive prevalence rate (CPR): This describes the percentage of in-union women, sexually active women, or all women aged 15 - 49 years currently using a modern method of contraception. For women in-union, CPR was 63.7% in 2010,[e] and the 2016 South Africa Demographic and Health Survey (SADHS)[f] reported a CPR of 55.0% among in-union women and 60% among sexually active women using a method of contraception. According to these data, therefore, the CPR among women in-union decreased from 63.7% to 55.0% from 2010 to 2016.

Couple year protection rate: CYPR is a proxy indicator for CPR. It has been the indicator utilised routinely in the District Health Information Software (DHIS) in South Africa, and it forms part of the 2017 National Indicator Data Set[g] of the National Department of Health. Couple year protection rate is the primary indicator used in this chapter, as has been the case in previous years.

Couple year protection rate is based on dispensing, rather than end-use data. Box 1 describes the current method used to calculate the CYPR.

a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b Boerma T, Requejo J, Victora CG, et al. Countdown to 2030: tracking progress towards universal coverage for reproductive, maternal, newborn, and child health. Lancet. 2018;391:1538-48. doi: 10.1016/S0140-6736(18)30104-1.

c United Nations, Department of Economic and Social Affairs, Population Division. Family Planning and the 2030 Agenda for Sustainable Development: Data Booklet (ST/ESA/ SER.A/429). New York: UN; 2019.

d Available from: https://www.un.org/en/development/desa/population/publications/pdf/family/Figure_Model-based_estimates_Countries_2019.pdf.

e Alkema L, Kantorova V, Menozzi C, Biddlecom A. National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. Lancet. 2013 May 11;381(9878):1642-52.

f National Department of Health (NDoH), Statistics South Africa (Stats SA), South African Medical Research Council (SAMRC), and International Children's Fund (ICF). South Africa Demographic and Health Survey 2016. Pretoria, South Africa, and Rockville, Maryland, USA: NDoH, Stats SA, SAMRC, and ICF; 2019.

g National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; 2017.

Box 1: Couple year protection rate (WHO)

Couple year protection rate is defined as women protected against pregnancy by modern contraceptive methods, including sterilisation. The indicator is calculated as the number of women aged 15 - 49 years using a contraceptive method divided by the total number of women aged 15 - 49 years in the population, multiplied by 100 and expressed as a percentage.

South Africa adopted the World Health Organization (WHO) method to calculate CYPR from 2016/17. According to the WHO, contraceptive years are the total of (Oral pill cycles/15) + (Medroxyprogesterone injection/4) + (Norethisterone enanthate injection/6) + (Intrauterine contraceptive device (IUCD) x 4.5) + (Subdermal implant x 2.5) + Male condoms distributed/120) + (Female condoms distributed/120) + (Male sterilisation x 10) + (Female sterilisation x 10).

Each contraceptive type is adjusted by a factor to convert it into a contraceptive year. For example, one female sterilisation is equivalent to 10 contraceptive years, and one Medroxyprogesterone injection is equivalent to 0.25 contraceptive years.

Source: District Health Barometer 2017/18.[h]

National overview

Table 2 shows the number of contraceptive years equivalent and contraceptive data elements for the last three financial years, namely 2016/17, 2017/18 and 2018/19.

The overall contraceptive years equivalent increased by 4.4% in 2018/19 from the previous year (2017/18). This increase is positive; however, it is still not at the level of 2016/17.

The number of female condoms distributed decreased by 17.1% between 2017/18 and 2018/19 (Table 2). This is the second consecutive year that distribution has decreased. However, the number of male condoms distributed increased slightly by 4.7% between 2017/18 and 2018/19, following a decline of 24.4% between 2016/17 and 2017/18. Encouragingly, two long-acting reversible contraceptives (which are highly effective, with high continuation rates) showed a steady increase: the intrauterine contraceptive device (IUCD) showed a 37.2% increase and subdermal contraceptive implants a 62.5% increase over the same period. Of the two injectable methods, medroxyprogesterone acetate (Depo) remained stable, with a slight (2.9%) increase. Norethisterone enanthate (NET-EN), the two-monthly injection, experienced a significant decline, down by around 47.9% across South Africa compared with the previous two years when it was stable at between 3.6 and 3.7 million contraceptive years. Although NET-EN has always constituted a lower proportion of hormone injection uptake, from 2016/17 the proportion of NET-EN injections dropped from approximately two-thirds (62.0%) to one-third (30.6%) of the contraceptive years equivalent. The reason for the decline was a shortage of NET-EN due to challenges in the global production of NET-EN. The oral contraceptive pill made gains on the previous two years and increased by 20.7% compared with 2017/18. Sterilisation, both female and male, has always played a small part in contraceptive choice among South African men and women; however, both these methods showed gains in the last three years, with male sterilisation almost doubling in 2018/19 compared with 2017/18, and numbers increasing from 709 to 1 366.

It is important to note that while certain methods increased considerably percentage wise between 2017/18 and 2018/19, distribution of some of these methods (e.g. subdermal contraceptive implants and IUCDs) was still low in terms of actual numbers dispensed. The subdermal implant, for instance, increased to over 200 000 units, but when compared with methods like the three-month injection (Depo), which recorded over six million units in 2018/19, it was still a less-utilised method.

The methods were distributed mainly via public sector facilities. Although the private sector renders a family planning service, data are not submitted for capture on the District Health Information Software (DHIS), and if submitted, they are sometimes inconsistent.

h Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Chapter 9: Reproductive Health. Durban: Health Systems Trust; January 2019.

Table 2: Total contraceptive years equivalent and contraception data elements comparing 2016/17 - 2018/19

Data element	2016/17 (Number)	Contraceptive years* equivalent (Number)	2017/18 (Number)	Contraceptive years* equivalent (Number)	2018/19 (Number)	Contraceptive years* equivalent (Number)	Percentage change in number of methods issued between 2017/18 and 2018/19
Contraceptive years* equivalent	7 684 503	10 817 919	6 940 471	9 229 026	7 247 868	9 588 919	4.4
Female condoms distributed	26 071 405	217 262	21 308 215	177 568	17 658 915	147 157	-17.1
Male condoms distributed	917 253 117	7 643 775	693 498 769	5 779 156	726 202 616	6 051 688	4.7
Depo medroxyprogesterone injection	5 814 786	1 453 697	6 027 784	1 506 946	6 206 245	1 551 561	3.0
Norethisterone enanthate injection	3 631 081	650 180	3 720 442	620 074	1 939 006	323 167	-47.9
Oral pill cycle	3 611 072	240 738	3 525 633	235 042	4 257 198	283 813	20.7
Sterilisation, female	37 681	376 810	40 668	406 680	45 372	453 720	11.6
Sterilisation, male	571	5 710	709	7 090	1 366	13 660	92.7
Intrauterine contraceptive device inserted	23 381	105 215	37 415	168 368	51 334	231 003	37.2
Subdermal contraceptive implant inserted	49 813	124 533	131 241	328 103	213 260	533 150	62.5

Source: DHIS.

National overview

In 2018/19, the national CYPR was 61.0%, with a small increase of 1.2% from 2017/18. According to the National Strategic Plan 2015/16 - 2019/20, the baseline for CYPR was 37% in 2013/14, and the target for 2019/20 is 75%. This means that while steady progress has been made, a 14% increase is required to reach this target in the next reporting year (2019/20).

Provincial overview

Figure 1 shows the CYPR per province in 2018/19. Only two provinces (Free State (FS) and the Western Cape (WC) currently meet the 75% CYPR target for the next financial year (2019/20).

Figure 1: Couple year protection rate by province, 2018/19

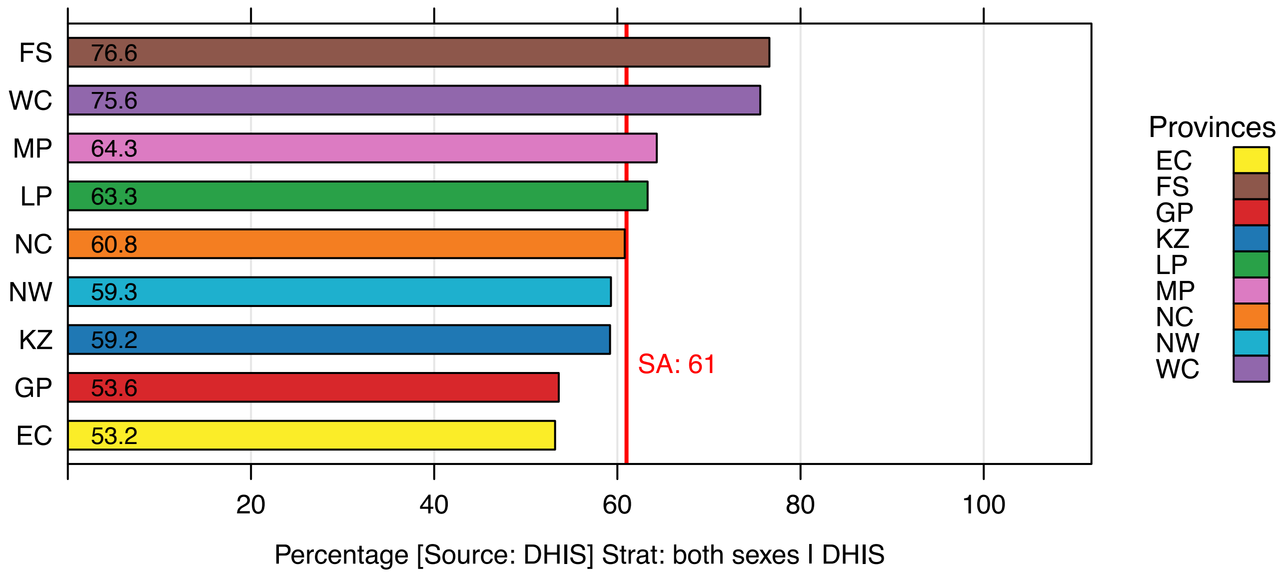


Table 3 shows the CYPR among provinces between 2017/18 and 2018/19. Six provinces showed an increase from the previous year, with KwaZulu-Natal (KZ) reflecting the highest increase (12.7 percentage points) followed by the Free State (9.9 percentage points). The CYPR decreased in three provinces: Limpopo (LP), the Western Cape, and Gauteng (GP), with Limpopo showing the biggest decrease of 7.2 percentage points.

Table 3: Couple year protection rate by province, 2017/18 - 2018/19

	2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point difference between 2016/17 and 2018/19
Eastern Cape	74.7	48.9	53.2	4.3
Free State	66.1	66.7	76.6	9.9
Gauteng	60.3	59.3	53.6	-5.7
KwaZulu-Natal	74.9	46.5	59.2	12.7
Limpopo	85.5	70.5	63.3	-7.2
Mpumalanga	71.4	62.4	64.3	1.9
Northern Cape	47.6	59.8	60.8	1.0
North West	60.1	56.9	59.3	2.4
Western Cape	78.9	81.4	75.6	-5.8
South Africa	70.6	59.8	61.0	1.2

Source: DHIS.

Table 4 shows the number of methods issued by province, comparing 2017/18 and 2018/19.

- Intrauterine contraceptive device: KwaZulu-Natal not only had the largest number of IUCD insertions for both years, but also showed the biggest increase over the two-year period (N = 10 415); followed by Gauteng, with a 2 278 increase; and Limpopo and the Eastern Cape (EC), with increases of 1 169 and 364 respectively. Mpumalanga (MP) was the only province to show a decrease, from 1 733 to 581.
- Medroxyprogesterone injection: The following provinces decreased over the three years: Free State, KwaZulu-Natal, and North West (NW). The other six provinces showed small increases.
- Norethisterone enanthate injection: All provinces showed a decrease in the numbers of NET-EN issued. Overall, NET-EN distribution declined countrywide by an average of 47.9%, with the largest drop in Limpopo (67.4% decrease), and the smallest drop in the Eastern Cape (27.9% decrease). As mentioned, the reason for the decline was a shortage of NET-EN due to challenges in global production.
- Oral pill cycle: Six provinces experienced an increase in the number of oral pill cycles issued, with Gauteng showing the biggest increase, followed by Limpopo, and the smallest increase in the Northern Cape (NC) followed by the Free State for the 2018/19 period.
- Female sterilisation: All provinces showed an increase in female sterilisations. In 2018/19, KwaZulu-Natal had the biggest increase, followed by Gauteng.
- Male sterilisation: Male sterilisation was low across provinces, with 709 performed in 2017/18, increasing to 1 366 in 2018/19. However, the increase was almost entirely attributable to an 11-fold increase in KwaZulu-Natal (from 46 to 543 male sterilisations), putting the province close to the Western Cape, which performed the most male sterilisations in the country in 2018/19 (N = 593). The Free State was the third-best performing province and increased by 62.9% (from 97 to 158 male sterilisations). Four provinces reported five or fewer male sterilisations for the 2018/19 year (Gauteng, Limpopo, Northern Cape and North West).
- Subdermal implants inserted: There were wide differences between the provinces in subdermal implant insertions. The biggest increase from 2017/18 to 2018/19 was in KwaZulu-Natal, which doubled its numbers from 45 819 to 93 423, outperforming all other provinces by a wide margin. This was largely a result of political support from the Member of the Executive Council for Health in the province. Gauteng and the Western Cape followed KwaZulu-Natal as the next-highest performing provinces. Four provinces reported numbers less than 10 000 in 2018/19 (Eastern Cape, Free State, Mpumalanga and Northern Cape), with two showing decreases from 2017/18 (Eastern and Northern Cape).
- Condom distribution: Both male and female condoms were still below levels reported in 2016/17. KwaZulu-Natal increased female condom distribution by 50% over the two-year period. Gauteng, which had a high distribution in 2017/18, fell by almost 50%. Although male condom distribution increased nationally between 2017/18 and 2018/19 (by 4.7%), the situation provincially shows wide differences, with some provinces increasing, while others remained static or decreased. The Eastern Cape, Free State, KwaZulu-Natal, Mpumalanga and North West showed increases.

Table 4: Number of contraceptive methods issued by province: differences between 2017/18 and 2018/19

		IUCD inserted (Number)	Medroxy progesterone injection (Number)	Norethisterone enanthate injection (Number)	Oral pill cycle (Number)	Sterilisation, female (Number)	Sterilisation, male (Number)	Subdermal implant inserted (Number)	Female condoms distributed (Number)	Male condoms distributed (Number)
Eastern Cape	2017/18	2 047	813 333	548 171	269 967	4 116	19	9 469	2 307 467	61 256 400
	2018/19	2 411	908 438	394 879	277 997	4 421	22	7 181	2 579 661	73 672 416
Free State	2017/18	1 589	383 898	128 677	166 428	2 797	97	5 912	1 536 400	40 867 600
	2018/19	1669	380 314	100 397	166 239	3 272	158	7 162	1 218 303	50 756 150
Gauteng	2017/18	4 727	1 068 612	796 132	1 028 117	7 345	1	19 569	7 275 376	190 349 748
	2018/19	7 005	1 148 458	346 766	1 432 002	7 861	0	33 383	3 760 346	172 953 486
KwaZulu-Natal	2017/18	13 784	1 473 478	453 095	505 438	10 273	46	45 819	1 721 584	75 557 900
	2018/19	24 199	1 378 046	196 482	451 708	11 912	543	93 423	3 397 759	111 028 599
Limpopo	2017/18	2 359	528 818	772 118	546 528	3 682	1	11 524	3 349 577	90 930 032
	2018/19	3 528	612 285	251 421	804 013	4 018	2	20 167	1 737 808	82 563 322
Mpumalanga	2017/18	1 733	453 146	410 670	243 943	2 694	10	1 657	1 040 630	62 703 737
	2018/19	581	507 056	228 294	304 629	3 542	43	2 312	1 951 650	67 150 600
Northern Cape	2017/18	83	150 908	65 636	56 555	1 291	5	4 233	290 490	13 313 498
	2018/19	66	159 659	47 358	52 778	1 338	3	4 171	333 100	13 934 960
North West	2017/18	1 992	317 292	233 413	237 308	2 047	5	7 129	1 163 991	45 031 814
	2018/19	2 286	252 400	131 140	290262	2 368	2	12 989	782 888	50 820 283
Western Cape	2017/18	9 101	838 299	312 530	471 349	6 423	525	25 929	2 622 700	114 396 200
	2018/19	9 589	859 589	242 269	477 570	6 640	593	32 472	1 897 400	103 322 800

Source: DHIS.

District overview

Figure 2 shows the CYPR by district. Overberg (WC) had the highest rate at 101.6%, and Alfred Nzo (EC) the lowest rate at 31.8%. The rate above 100% in Overberg needs to be investigated and may be due to poor data quality or an underestimation of the female population aged 15 - 49 years. Five of the six Western Cape districts had a CYPR above 80%, with only Cape Town lower than this at 68.8%. Some provinces showed wide differences in their district CYPRs; for instance, Gauteng had an overall CYPR of 53.6%, yet one of its districts, West Rand, performed well, with a CYPR of 86.4% (the third top-performing district in the country). Unfortunately, three of the five Gauteng districts ranked among the 10 lowest-performing districts. Several other provinces showed similar patterns, with some districts performing well above the national average but with one or two districts with a CYPR below the national average, bringing down the overall provincial rate. Six of the eight districts in the Eastern Cape and five of the 11 districts in KwaZulu-Natal had CYPRs below the national rate of 61.0%.

Figure 2: Couple year protection rate by district, 2018/19

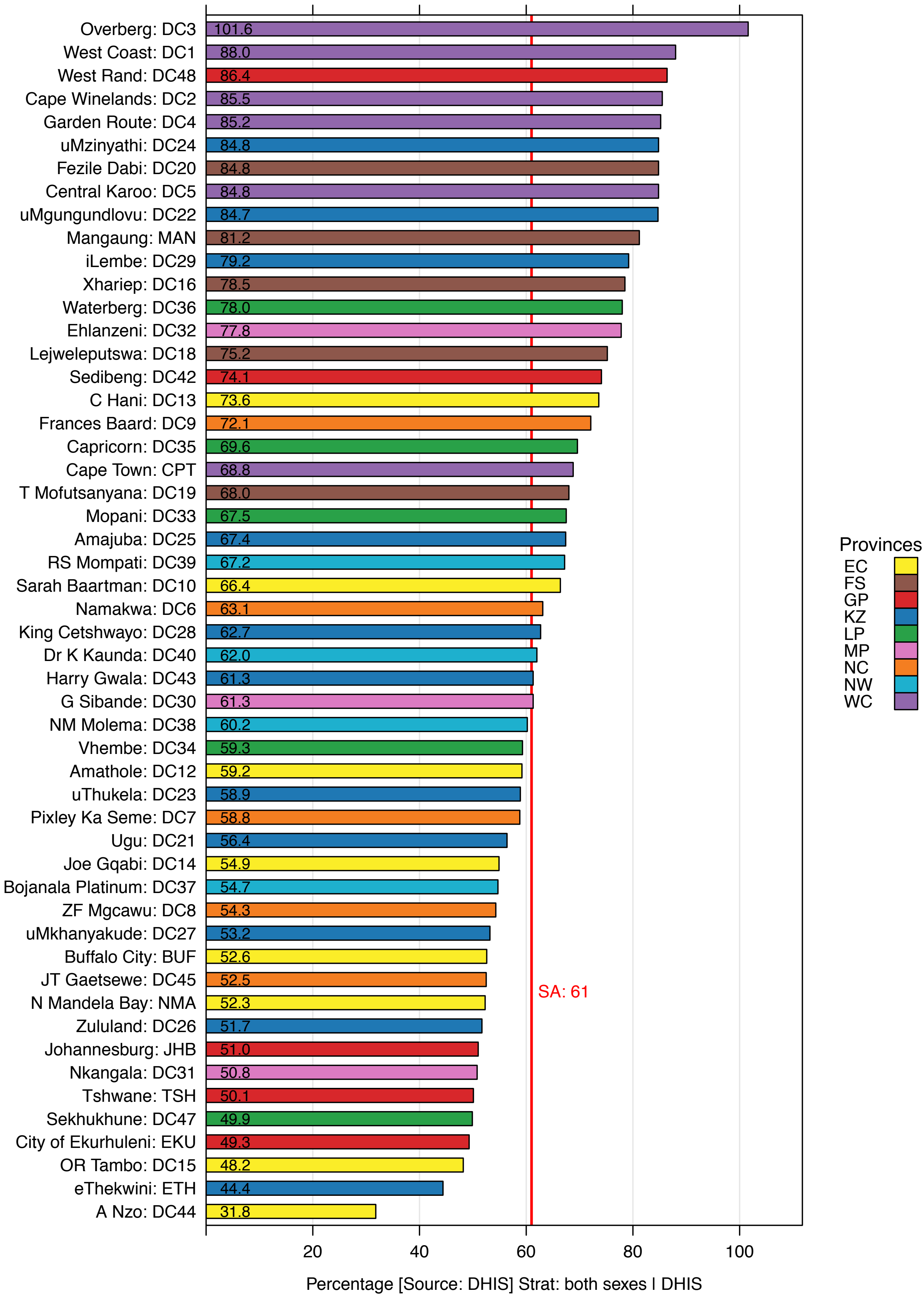


Table 5 shows the CYPR by district between 2016/17 and 2018/19. In 2017/18, four districts had a CYPR below 40%, with Alfred Nzo (EC) the lowest at 29.9%; however, in 2018/19 only Alfred Nzo remained under 40% at 31.8%.

In 2018/19, four provinces (Eastern Cape, Gauteng, Limpopo and Mpumalanga) had a CYPR below the 2016/17 rate in all their respective districts. This was also the case in KwaZulu-Natal in all but one district (King Cetshwayo).

Although the comparison over three years was not favourable 2017/18 shows some positive improvements. In 2018/19, some districts made far greater CYPR gains than others, notably Mangaung (FS), and Ugu and uMgungundlovu (both KZ), which increased by over 20 percentage points in 2018/19. Several other districts (distributed across provinces) made solid increases of between 10 and 20 percentage points. Ten of the 11 districts in KwaZulu-Natal showed increases from 2017/18. Similarly, the Eastern Cape showed increased CYPRs in five of the eight districts from 2017/18, albeit from very low bases.

Table 5: Couple year protection rate by district, 2016/17 - 2018/19

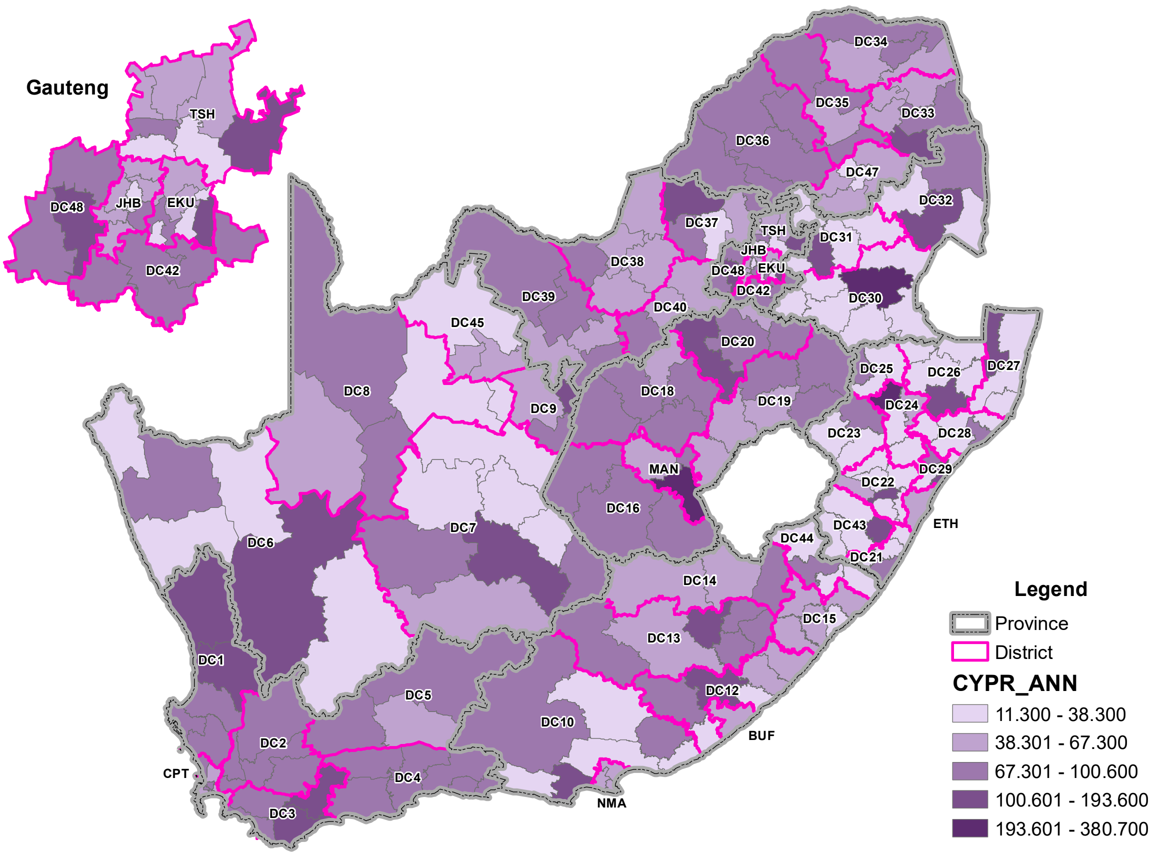
		2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point difference between 2017/18 and 2018/19
Eastern Cape	Alfred Nzo	42.5	29.8	31.8	2.0
	Amathole	91.8	47.7	59.2	11.5
	Buffalo City	71.6	34.0	52.6	18.6
	Chris Hani	88.5	64.5	73.6	9.1
	Joe Gqabi	71.2	59.8	54.9	-4.9
	Nelson Mandela Bay	67.8	51.3	52.3	1.0
	OR Tambo	82.3	49.1	48.2	-0.9
	Sarah Baartman	71.4	67.1	66.4	-0.7
Free State	Fezile Dabi	103.6	74.0	84.8	10.8
	Lejweleputswa	66.9	71.3	75.2	3.9
	Mangaung	49.3	60.0	81.2	21.2
	Thabo Mofutsanyana	58.7	62.3	68.0	5.7
	Xhariep	69.3	83.0	78.5	-4.5
Gauteng	Ekurhuleni	51.1	56.6	49.3	-7.3
	Johannesburg	53.6	58.5	51.0	-7.5
	Sedibeng	110.2	63.9	74.1	10.2
	Tshwane	55.2	51.1	50.1	-1.0
	West Rand	89.7	88.9	86.4	-2.5
KwaZulu-Natal	Amajuba	70.2	60.9	67.4	6.5
	eThekwini	63.9	31.6	44.4	12.8
	Harry Gwala	90.2	46.1	61.3	15.2
	iLembe	79.4	60.9	79.2	18.3
	King Cetshwayo	60.3	55.2	62.7	7.5
	Ugu	65.9	30.2	56.4	26.2
	uMgungundlovu	85.6	52.7	84.7	32.0
	uMkhanyakude	62.3	47.0	53.2	6.2
	uMzinyathi	150.4	74.7	84.8	10.1
	uThukela	78.4	52.5	58.9	6.4
	Zululand	70.1	57.3	51.7	-5.6
Limpopo	Capricorn	87.5	69.2	69.6	0.4
	Mopani	88.1	68.3	67.5	-0.8
	Sekhukhune	74.0	67.9	49.9	-18.0
	Vhembe	81.2	62.0	59.3	-2.7
	Waterberg	102.3	97.1	78.0	-19.1
Mpumalanga	Ehlanzeni	82.8	74.5	77.8	3.3
	Gert Sibande	66.7	57.7	61.3	3.6
	Nkangala	60.2	51.4	50.8	-0.6
Northern Cape	Frances Baard	48.4	66.1	72.1	6.0
	John Taolo Gaetsewe	45.1	56.3	52.5	-3.8
	Namakwa	53.9	58.6	63.1	4.5
	Pixley Ka Seme	53.1	61.8	58.8	-3.0
	Zwelentlanga Fatman Mgcawu	40.2	53.4	54.3	0.9
North West	Bojanala Platinum	58.2	52.7	54.7	2.0
	Dr Kenneth Kaunda	67.3	64.4	62.0	-2.4
	Ngaka Modiri Molema	59.1	52.5	60.2	7.7
	Dr Ruth Segomotsi Mompati	52.8	65.0	67.2	2.2

		2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point difference between 2017/18 and 2018/19
Western Cape	Cape Town	70.9	80.4	68.8	-11.6
	Cape Winelands	93.3	74.6	85.5	10.9
	Central Karoo	115.7	119.7	84.8	-34.9
	Garden Route	90.5	86.0	85.2	-0.8
	Overberg	96.3	87.2	101.6	14.4
	West Coast	82.5	81.2	88.0	6.8

Source: DHIS.

Map 1 shows the detail of CYPRs across South Africa in all local municipalities and sub-districts (LM/SDs). Fifty-four LM/SDs reported a CYPR of less than 30% in 2018/19. This is slightly lower than in 2017/18, when 61 LM/SDs reported a CYPR below 30%. Of the 54 LM/SDs with a CYPR below 30%, 21 were located in KwaZulu-Natal and 13 were located in Mpumalanga. Of the 13 LMs in Mpumalanga, five had a CYPR below 15%. Table 6 shows the 10 LM/SDs with the lowest CYPR (below 15%) in 2018/19. Conversely, 27 LM/SDs reported CYPRs of over 100% in 2018/19, which is similar to the previous year (2017/18) when 31 reported figures over 100%. Some LM/SDs reported a CYPR over 200%, with 286% reported by Naledi LM (Mangaung (FS)), 313% by Msukaligwa LM (Gert Sibande (MP)), and the highest rate of 380% reported by Endumeni LM (uMzinyathi (KZ)).

Map 1: Couple year protection rate by local municipality/sub-district, 2018/19



Source: DHIS.

Table 6: Ten local municipalities with the lowest couple year protection rate, 2018/19

Province	District	Local municipality/ sub-district	Couple year protection rate (%)
Northern Cape	Zwelentlanga Fatman Mgcawu	Kgatelopele	11.3
Eastern Cape	Alfred Nzo	Mbizana	11.4
Mpumalanga	Ehlanzeni	Thembisile Hani	12.3
KwaZulu-Natal	uMgungundlovu	Richmond	12.7
Mpumalanga	Nkangala	Victor Khanye	12.9
Mpumalanga	Gert Sibande	Govan Mbeki	13.1
Mpumalanga	Gert Sibande	Steve Tshwete	13.2
Eastern Cape	Alfred Nzo	Ntabankulu	13.5
KwaZulu-Natal	uMgungundlovu	uMngeni	14.5
Eastern Cape	Amathole	Great Kei	14.6

Source: DHIS.

Male condom distribution

In the National Strategic Plan for HIV, STIs and TB 2017-2022, condoms are one of the pillars of prevention against the human immunodeficiency virus (HIV) and sexually transmitted infections (STIs).[i] The National Contraception Policy[j] emphasises the importance of the male condom as a contraceptive method that should always be available in public sector facilities. This is central to the effective delivery of quality and comprehensive sexual and reproductive health services, particularly for the prevention of unintended pregnancy and HIV/STI (i.e. dual protection).

In 2018/19, 726 202 616 male condoms were distributed in South Africa (Table 7). Although male condom distribution increased by 4.7% in 2018/19 compared with 2017/18 (693 498 769 condoms), the numbers are still far below those of 2016/17 (917 253 117 condoms, more than 20% higher than 2018/19). There were some decreases in distribution between 2017/18 and 2018/19 in certain provinces and districts. Gauteng distributed approximately 21 million fewer condoms in 2018/19, while the Western Cape distributed 17 million fewer condoms. In Gauteng, a decrease of 12 million was seen in one district (Johannesburg); however, despite this drop Johannesburg still remains in the number one spot nationally for district distribution, with over 63 million male condoms distributed in 2018/19. Similarly, in the Western Cape reduced distribution occurred primarily in Cape Town, with over 15 million fewer condoms distributed. As with Johannesburg, it is important to note that Cape Town remains the second-largest distributor of male condoms, at almost 57 million in 2018/19.

Increases were seen across all districts in KwaZulu-Natal, with the exception of Zululand which distributed over two million fewer condoms in 2018/19 than 2017/18, and a small decrease in King Cetshwayo. The overall increase in male condom distribution in KwaZulu-Natal was 35 million compared with 2017/18; this province showed the biggest male condom distribution increase among the provinces. All districts in two provinces (Mpumalanga and North West) showed increased male condom distribution in 2018/19 compared with 2017/18, while all other provinces showed a combination of increases and decreases within their districts over the same period.

i Department of Health. South Africa's National Strategic Plan for HIV, TB and STIs 2017-2022. Pretoria: NDoH; 2017.

j Department of Health. National Contraception and Fertility Planning Policy and Service Delivery Guidelines. Pretoria: NDoH; 2012.

Table 7: Number of male condoms distributed by district, 2016/17 - 2018/19

Province	District	2017/18	2017/18	2018/19	Male condoms distributed, change between 2017/18 and 2018/19
		(Number)	(Number)	(Number)	(Number)
Eastern Cape	Alfred Nzo	8 027 572	4 063 200	4 990 800	927 600
	Amathole	21 736 691	8 275 400	11 816 000	3 540 600
	Buffalo City	13 311 782	3 261 600	8 022 000	4 760 400
	Chris Hani	15 241 797	10 180 100	13 011 800	2 831 700
	Joe Gqabi	6 507 873	5 285 200	4 788 000	-497 200
	Nelson Mandela Bay	17 153 563	10 528 000	11 052 000	524 000
	OR Tambo	30 160 794	6 054 000	13 471 816	7 417 816
	Sarah Baartman	7 358 682	13 608 900	6 520 000	-7 088 900
Free State	Fezile Dabi	12 664 400	7 675 400	9 210 000	1 534 600
	Lejweleputswa	9 360 000	10 350 000	11 286 150	936 150
	Mangaung	7 180 800	9 930 000	15 320 000	5 390 000
	Thabo Mofutsanyana	2 358 000	10 584 000	12 672 000	2 088 000
	Xhariep	10 130 000	2 328 200	2 268 000	-60 200
Gauteng	Ekurhuleni	37 438 474	41 432 400	35 698 443	-5 733 957
	Johannesburg	65 637 544	75 671 122	63 519 632	-12 151 490
	Sedibeng	26 517 867	13 096 104	16 305 411	3 209 307
	Tshwane	47 052 548	41 797 662	40 135 400	-1 662 262
	West Rand	19 416 103	18 352 460	17 294 600	-1 057 860
KwaZulu-Natal	Amajuba	8 419 270	5 298 000	5 676 000	378 000
	eThekwini	48 498 377	9 133 700	22 726 626	13 592 926
	Harry Gwala	12 654 860	3 978 000	5 388 000	1 410 000
	iLembe	10 580 808	5 988 000	9 354 000	3 366 000
	King Cetshwayo	24 025 094	8 670 000	8 597 600	-72 400
	Ugu	8 310 801	1 386 000	6 809 469	5 423 469
	uMgungundlovu	23 472 867	11 583 300	23 167 104	11 583 804
	uMkhanyakude	12 459 361	4 596 000	5 101 800	505 800
	uMzinyathi	13 829 379	8 874 000	9 438 000	564 000
	uThukela	11 469 300	6 251 300	7 294 000	1 042 700
	Zululand	11 853 972	9 799 600	7 476 000	-2 323 600
Limpopo	Capricorn	29 404 778	20 950 000	20 274 322	-675 678
	Mopani	26 329 135	17 656 600	18 974 000	1 317 400
	Sekhukhune	28 918 918	18 069 432	12 933 200	-5 136 232
	Vhembe	17 026 062	18 843 800	18 934 800	91 000
	Waterberg	21 757 802	15 410 200	11 447 000	-3 963 200
Mpumalanga	Ehlanzeni	33 959 665	28 696 100	31 392 000	2 695 900
	Gert Sibande	21 406 424	15 517 609	16 740 000	1 222 391
	Nkangala	22 337 246	18 490 028	19 018 600	528 572
Northern Cape	Frances Baard	2 318 255	4 036 736	4 608 000	571 264
	John Taolo Gaetsewe	1 662 922	2 604 802	2 571 000	-33 802
	Namakwa	944 563	998 800	1 093 000	94 200
	Pixley Ka Seme	2 269 335	2 889 800	2 658 000	-231 800
	Zwelentlanga Fatman Mgcawu	1 840 948	2 783 360	3 004 960	221 600
North West	Bojanala Platinum	21 148 556	17 303 600	18 620 300	1 316 700
	Dr Kenneth Kaunda	11 694 167	10 915 766	11 157 000	241 234
	Ngaka Modiri Molema	13 088 148	10 853 700	14 128 787	3 275 087
	Dr Ruth Segomotsi Mompati	4 529 746	5 958 748	6 914 196	955 448
Western Cape	Cape Town	63 010 777	72 478 400	56 777 200	-15 701 200
	Cape Winelands	20 593 957	14 503 800	17 743 000	3 239 200
	Central Karoo	2 355 590	3 475 400	1 566 000	-1 909 400
	Garden Route	12 333 444	10 872 000	10 380 000	-492 000
	Overberg	6 536 300	5 437 800	7 047 400	1 609 600
	West Coast	8 957 800	7 628 800	9 809 200	2 180 400
South Africa		**917 253 117**	**694 406 929**	**726 202 616**	**31 795 687**

Source: DHIS.

Key findings

- The national CYPR increased from 59.8% in 2017/18 to 61.0% in 2018/19, with rates in the Western Cape, Free State, Mpumalanga, Limpopo and Northern Cape equalling or exceeding the national average.
- Thirteen districts had an increase in CYPR of 10 or more percentage points between 2017/18 and 2018/19, with the highest increase occurring in uMgungundlovu (KZ) (32.0 percentage points).
- Seven districts showed decreased CYPRs from 2017/18 to 2018/19 (more than 5 percentage points), with rates dropping by over 10% in four districts. The highest decrease in rate was in the Central Karoo (WC).
- The CYPR at LM/SD level needs to be evaluated to understand if the very low CYPR of less than 30% and rates higher than 100% were due to poor data quality, an underestimation of the female population aged 15 - 49 years, or whether the rates are a true reflection for 2018/19.
- Between 2017/18 and 2018/19:
  - The number of subdermal implants inserted increased by 82 000 (62.5%).
  - The number of the three-monthly injections (Depo) provided remained stable, while the number of two-monthly NET-EN injections fell by almost 1.8 million, a drop of almost 50%.
  - Male condom distribution recovered slightly, with an additional 33 million distributed, but female condom distribution fell by almost four million (-17%).
  - The IUCD fell to an all-time low of 15 150 insertions in 2015/16, but there was a significant improvement in 2018/19, namely 51 334 insertions, representing an increase of over one-third (37.2%) compared with 2017/18.

Conclusion

- It is encouraging to note an increase in use of long-acting reversible contraception methods, especially given their high efficacy and continuation rates. This trend needs to be sustained and developed, with continuous training and support given across the provinces.
- Complementary to this, there should be training in all contraceptive methods to ensure the promotion thereof and to ensure informed choice and decision-making.

Recommendations

- The causes of contraceptive stockouts at facilities during 2018/19 needs to be analysed, and strategies need to be in place to mitigate against this in future.
- Sustained demand-creation strategies need to be implemented to ensure awareness of contraceptive options and to promote under-used but important barrier methods such as the female condom.
- Contraception and dual protection need to be promoted actively, with integration into HIV, STI and other sexual reproductive health services and dual prevention options, including pre-exposure prophylaxis.
- In terms of data:
  - Quality data and correct application of the CYPR formula need to be overseen and checked, especially with regard to variations and outliers, as data quality form the basis of the integrity of the CYPR.
  - Over the years, the CYPR indicator has been criticised; these criticisms should be reviewed thoroughly and consideration given to the benefits of other options, such as the use of other global indicators.
  - Provinces and districts with a reduced CYPR in 2018/19 should analyse the possible causes, engage in quality-improvement processes, and address challenges and gaps.
- Given high teenage pregnancy rates in South Africa, age disaggregated data on contraceptive method utilisation should be collated routinely and included in future reports. The National Indicator Data Set should therefore differentiate between contraceptive methods issued to teenagers aged 14 - 19 years and contraceptive methods issued to women aged 20 - 49 years. A comparison between total deliveries and CYPR according to the age groupings should be done to show the consequences of low CYPR by district.
- Although emergency contraception is a method that can contribute to CYPR (1 year = 20 emergency contraception doses), it is not included in the South African CYPR calculations and therefore is not presented in this report. It would be important to include it as a method in the calculation of CYPR in order to be able to track its uptake in the districts and provinces, particularly in the context of high unintended pregnancies.

3. Infectious disease control

Sustainable Development Goal (SDG) 3.3 states that the epidemics of Acquired Immune Deficiency Syndrome (AIDS), tuberculosis (TB), malaria and neglected tropical diseases, hepatitis, water-borne diseases and other communicable diseases should be ended by 2030. The SDG indicators to measure progress with regard to TB and human immunodeficiency virus (HIV)/AIDS include: (1) number of new HIV infections per 1 000 uninfected population, by sex, age and key populations; and (2) TB incidence per 100 000 population.[a]

The four tracer indicators in the Universal Health Coverage (UHC) index[b] for the infectious disease control category include:

- TB effective treatment
- HIV antiretroviral treatment (ART)
- Insecticide-treated bednets
- At least basic sanitation.

This chapter focuses only on TB and HIV and AIDS.

3.1 Tuberculosis

Lindiwe Mvusi, Naomi Massyn, Norbert Ndjeka

The National Department of Health (NDoH) Annual Performance Plan (APP) 2019/20 - 2021/22 has one TB indicator, namely the number of missing TB patients found and treated.[c] The 2017 National Indicator Data Set[d] (NIDS) includes eight monthly TB indicators and 18 quarterly TB indicators.

This section covers nine TB indicators, namely

- TB symptom 5 years and older screened in facility rate
- TB sputum 5 years and older test rate
- TB child under 5 years start on treatment rate
- TB client 5 years and older start on treatment rate
- TB drug-susceptible (DS) client treatment success rate
- TB DS client loss to follow-up rate
- TB DS client death rate
- TB multidrug-resistant (MDR) treatment success rate
- TB extremely drug resistant (XDR) treatment success rate.

Proxy indicators to measure if the country is on track with UHC are TB child under 5 years start on treatment rate, TB client 5 years and older start on treatment rate, and TB DS client treatment success rate.

South Africa adopted the TB 90-90-90 targets in 2016.[e] This strategy aims to screen 90% of high-risk and vulnerable populations for TB, to diagnose and treat 90% of those with prevalent TB, and to successfully treat 90% with TB DS or 70% with drug-resistant (DR) TB by December 2020. These targets were modified to 90-100-90 in the National Strategic Plan (NSP) for HIV, TB and sexually transmitted infections (STIs) 2017 - 2022.[f] These targets are in line with the End TB strategy for 2035[g] to reduce TB mortality by 95% and TB incidence by 90%. In September 2018, the United Nations High Level Meeting (UNHLM)[h] adopted the following global TB targets for 2022:

- Successfully treat 40 million people with TB, including:
  - 3.5 million children
  - 1.5 million people with DR TB, including 115 000 children.
- Provide TB preventive treatment to at least 30 million people, including:

a Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf.

b Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

c National Department of Health. Annual Performance Plan 2019/20-2021/22. Pretoria: NDoH; 2016.

d National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; 2017.

e National Department of Health. National Tuberculosis Programme Plan and Strategy: 2017-2021. Pretoria: NDoH; 2017.

f Available from: https://sanac.org.za/the-national-strategic-plan/.

g Available from: https://www.who.int/tb/post2015_strategy/en/.

h Available from: http://www.stoptb.org/resources/countrytargets/.

- 4 million children under 5 years of age
- 20 million other household contacts of people with TB.

Subsequent to the UNHLM Declaration, the Stop TB Partnership developed country-level targets using 2017 World Health Organization (WHO) data on incidence estimates and country notifications. The targets for South Africa are shown in the Table 1.

Table 1: Tuberculosis targets (number) for South Africa, 2018 - 2022

Indicators	Targets					
	2018	2019	2020	2021	2022	Cummulative Total
Childhood TB diagnosis and treatment	15 900	18 300	20 700	21 100	21 100	97 100
MDR-TB diagnosis and treatment	9 600	10 100	11 100	12 100	11 100	54 000
Preventative Therapy (PT) for under-five Child Contacts	15 400	23 900	31 000	35 000	38 500	143 800
Preventative Therapy (PT) in contacts more than 5 years of age	11 793	39 867	85 485	116 347	138 379	391 870
Preventative Therapy (PT) in PLHIV	392 089	459 797	506 359	437 928	344 891	2 141 064
TB diagnosis and treatment	213 600	221 600	215 400	194 900	178 300	1 023 800
Total Preventative Therapy (PT)	419 300	523 600	622 800	589 300	521 800	2 676 800

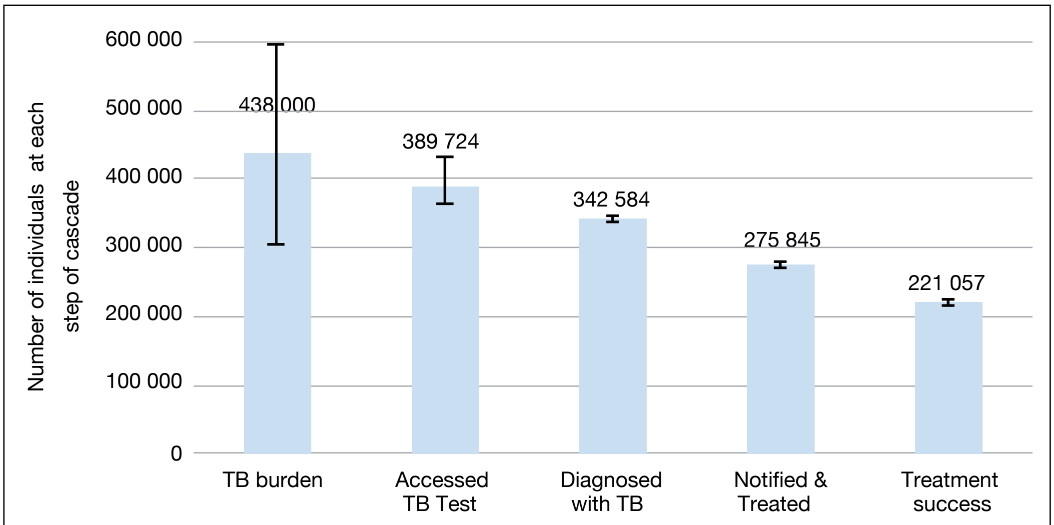
Source: United Nations High Level Meeting targets for South Africa, 2018 - 2022.[h]

It is estimated that there are ~160 000 missing TB patients in the country. South Africa has developed a strategy to find the missing TB patients and close the gaps in the TB care cascade (Figure 1).[i] The strategy involves a multipronged approach to find the missing patients, including the following interventions:

- Optimise TB screening.
- Improve screening of household contacts.
- Enhance case detection in key populations.
- Improve diagnostic yield through new diagnostic tools and revised algorithms.
- Improve quality standards in recording and reporting, including tracking of patients transferred between facilities.

The NDoH plans to find 80 000 additional TB patients in Year 1, and the other 80 000 in Year 2.

Figure 1: TB care cascade for 2016



Source: Adapted from Naidoo, Theron and Rangaka et al.; 2017.[j]

i Subbaraman R, Nathavitharana RR, Mayer KH, et al. Constructing care cascades for active tuberculosis: A strategy for program monitoring and identifying gaps in quality of care. PloS Med. 2019;16(2):e1002754. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6392267/.

j Adapted from Naidoo P, Theron G, Rangaka MX, et al. The South African tuberculosis care cascade: Estimated losses and methodological challenges. J Infect Dis. 2017;216(suppl_7):S702-S13. doi: 10.1093/infdis/jix335. Available from: https://www.ncbi.nlm.nih.gov/pubmed/29117342.

TB symptom 5 years and older screened in facility rate

The entry point to TB diagnosis and treatment for TB disease or infection is symptom screening. All clients presenting to health facilities for care are expected to be screened for TB symptoms. This is done by asking the patient about four TB symptoms. If any symptom is present, the patient is triaged to testing. Tuberculosis screening helps to detect TB early, reduce mortality due to TB, and reduce the risk of transmission of TB infection within health facilities, homes and communities.

This indicator measures the proportion of clients 5 years and older attending primary health care (PHC) facilities who were screened for TB.[d] The numerator is the number of clients 5 years and older who were screened for TB, and the denominator is the PHC headcount 5 years and older. The limitation of this indicator is that it does not assess the quality of TB screening provided.

National and provincial overview

In 2018/19, the national TB symptom 5 years and older screened in facility rate was 81.5% (Table 2). This was below the national target of 90%. The rate among the provinces ranged between 47.3% in the Western Cape (WC) and 97.6% in Free State (FS). Two provinces attained a rate of 90%, namely Free State (97.6%) and KwaZulu-Natal (KZ) (96.1%). Limpopo (LP) almost reached the target, with a rate of 89.8%.

A total of 80 913 045 individual clients aged 5 years and older were screened for TB from the 99 304 287 PHC clients (PHC headcount) seen in PHC facilities in 2018/19.

Table 2: Number of clients 5 years and older screened for TB versus PHC headcount 5 years and older and proportion of clients 5 years and older screened for TB in facility by province, 2018/19

	Number of clients 5 years and older screened for TB	PHC headcount 5 years and older (Number)	TB symptom 5 years and older screened in facility rate (%)
Eastern Cape	10 743 109	14 135 841	76.0
Free State	4 402 104	4 508 302	97.6
Gauteng	14 988 531	17 337 496	86.5
KwaZulu-Natal	22 887 074	23 812 492	96.1
Limpopo	10 327 131	11 502 157	89.8
Mpumalanga	5 967 503	7 520 313	79.4
Northern Cape	1 355 936	2 266 943	59.8
North West	4 542 551	6 174 880	73.6
Western Cape	5 699 106	12 045 863	47.3
South Africa	80 913 045	99 304 287	81.5

Source: DHIS.

District overview

Eight districts reported a TB symptom 5 years and older screened in facility rate over 100%, with Xhariep (FS) the highest at 167.9% (Table 3). This reflects data quality challenges.

Of major concern are the four districts that reported screening rates less than 60%, namely Cape Town (WC) (39.2%), Frances Baard (Northern Cape (NC)) (49.4%), John Taolo Gaetsewe (NC) (49.6%), and Dr Ruth Segomotsi Mompati (North West (NW)) (56.9%). There were huge variations in performance on this indicator within provinces.

Table 3: TB symptom 5 years and older screened in facility rate by district, 2017/18 - 2018/19

		2017/18 (%)	2018/19 (%)
Eastern Cape	Alfred Nzo	54.7	67.9
	Amathole	86.1	91.4
	Buffalo City	58.4	70.9
	Chris Hani	72.7	80.8
	Joe Gqabi	79.8	86.9
	Nelson Mandela Bay	55.6	76.5
	OR Tambo	59.5	82.5
	Sarah Baartman	53.8	69.4
Free State	Fezile Dabi	80.5	109.4
	Lejweleputswa	73.0	101.5
	Mangaung	88.7	105.5
	Thabo Mofutsanyana	79.2	87.0
	Xhariep	111.7	167.9
Gauteng	Ekurhuleni	85.0	88.3
	Johannesburg	80.5	87.4
	Sedibeng	85.6	95.1
	Tshwane	66.6	79.9
	West Rand	106.5	114.0
KwaZulu-Natal	Amajuba	88.7	109.6
	eThekwini	92.2	109.3
	Harry Gwala	83.2	92.4
	iLembe	82.7	97.2
	King Cetshwayo	83.6	89.8
	Ugu DM	86.5	97.2
	uMgungundlovu	98.1	105.3
	uMkhanyakude	70.8	79.7
	uMzinyathi	78.1	82.9
	uThukela	80.5	84.8
	Zululand	85.7	89.5
Limpopo	Capricorn	91.2	99.4
	Mopani	87.3	94.4
	Sekhukhune	76.8	88.5
	Vhembe	73.2	83.5
	Waterberg	84.5	96.6
Mpumalanga	Ehlanzeni	81.7	86.8
	Gert Sibande	66.5	77.9
	Nkangala	59.7	71.9
Northern Cape	Frances Baard	37.7	49.4
	John Taolo Gaetsewe	49.3	49.6
	Namakwa	51.6	71.4
	Pixley Ka Seme	51.6	60.4
	Zwelentlanga Fatman Mgcawu	68.2	90.0
North West	Bojanala Platinum	60.2	73.5
	Dr Kenneth Kaunda	74.4	92.9
	Dr Ruth Segomotsi Mompati	44.5	56.9
	Ngaka Modiri Molema	66.5	76.3
Western Cape	Cape Winelands	59.3	69.6
	Central Karoo	64.1	71.1
	Cape Town	31.0	39.2
	Garden Route	57.3	61.2
	Overberg	60.1	67.1
	West Coast	69.0	73.3
South Africa		83.7	73.1

Source: DHIS.

Key findings

- In 2018/19, the national TB symptom 5 years and older screened in facility rate was 81.5%. This was below the national target of 90%.
- The rate among the provinces ranged between 47.3% in the Western Cape and 97.6% in Free State. Two provinces attained a rate of 90%, namely Free State (97.6%) and KwaZulu-Natal (96.1%).
- Eight districts reported a TB symptom 5 years and older screened in facility rate over 100%, with Xhariep (FS) the highest at 167.9%. The rate in Cape Town was the lowest (39.2%); it should be ascertained if this is related to poor data quality or lack of attention to the need for screening.

Conclusion

- Good-quality TB screening should help with the early detection of TB. This is important in order to reduce TB mortality in the country and reduce the risk of transmission of TB infection.
- Data quality appears to be a challenge.

Recommendations

- Provinces and districts should strengthen the quality of TB screening by ensuring that the appropriate staff conduct the screening.
- Districts and facilities should improve data quality by ensuring that staff are trained and mentored in recording, collating and analysing the data collected.
- Provinces and districts should promote sharing of good practices and lessons learnt among districts and facilities.

TB sputum 5 years and older test rate

Bacteriological testing is the most practical way of confirming TB disease and determining the resistance profile of clients. Therefore, all symptomatic patients, especially those presenting with a cough, must have sputum collected and sent to the laboratory for testing. This is a measure of compliance with the diagnostic algorithm and quality of care provided to patients.

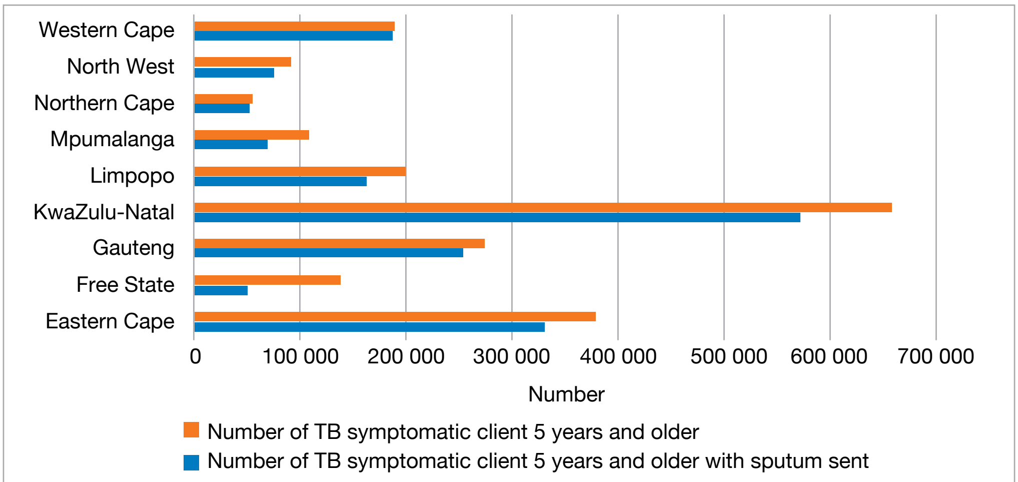
The TB sputum 5 years and older test rate measures the proportion of symptomatic clients 5 years and older who had a sputum test done.[d] The numerator is TB symptomatic client 5 years and older with sputum sent, and the denominator is TB symptomatic clients aged 5 years and older.

National and provincial overview

In 2018/19, the national TB sputum 5 years and older test rate was 83.8% (Figure 2 and Table 4). The rate ranged from 36.2% in the Free State to 99.0% in the Western Cape. This contrasts with the TB symptom 5 years and older screened in facility rate in 2018/19, where the Western Cape had the lowest rate at 47.3% and Free State the highest rate of 97.6%. One reason for this may be data-quality challenges.

Of the 2 088 567 individual clients 5 years and older with TB symptoms in the country, 1 750 932 clients were tested for TB.

Figure 2: Number of symptomatic clients 5 years and older versus clients 5 years and older with sputum tested, by province, 2018/19



Source: DHIS.

Table 4: Number and proportion of TB symptomatic clients 5 years and older with sputum tested, by province, 2018/19

	Number of TB symptomatic clients 5 years and older with sputum sent	Number of TB symptomatic clients 5 years and older	TB sputum 5 years and older test rate (%)
Eastern Cape	330 657	378 521	87.4
Free State	49 832	137 833	36.2
Gauteng	253 436	272 973	92.8
KwaZulu-Natal	573 157	659 737	86.9
Limpopo	162 064	199 812	81.1
Mpumalanga	68 572	107 131	64.0
Northern Cape	51 608	53 685	96.1
North West	74 666	90 046	82.9
Western Cape	186 940	188 829	99.0
South Africa	1 750 932	2 088 567	83.8

Source: DHIS.

District overview

Tshwane (Gauteng (GP)) had the highest TB sputum 5 years and older test rate in 2018/19 at 100.7% (Table 5). Twenty-eight districts reported a TB sputum 5 years and older test rate of more than 90% in 2018/19. The three districts with the lowest TB sputum 5 years and older test rate were Xhariep (FS) (25.4%), Lejweleputswa (FS) (25.6%) and Gert Sibande (Mpumalanga (MP)) (33.4%). Fourteen districts showed a decrease in rate between 2017/18 and 2018/19. uMzinyathi (KZ) showed the biggest decrease of 24.7 percentage points.

Table 5: TB sputum 5 years and older test rate by district, 2016/17 - 2018/19

		2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point difference between 2017/18 and 2018/19
Eastern Cape	Alfred Nzo	90.1	95.0	91.0	-4.0
	Amathole	64.4	83.2	91.1	7.9
	Buffalo City	87.2	86.4	93.0	6.6
	Chris Hani	60.9	69.3	76.2	6.9
	Joe Gqabi	78.6	92.0	96.7	4.7
	Nelson Mandela Bay	101.7	97.0	94.0	-3.0
	OR Tambo	74.6	80.1	80.2	0.1
	Sarah Baartman	98.2	93.0	92.0	-1.0
Free State	Fezile Dabi	61.9	25.9	83.7	57.8
	Lejweleputswa	70.9	16.1	25.6	9.5
	Mangaung	58.2	47.2	60.9	13.7
	Thabo Mofutsanyana	64.3	59.1	93.2	34.1
	Xhariep	26.8	3.5	25.4	21.9
Gauteng	Ekurhuleni	94.8	72.2	88.6	16.4
	Johannesburg	99.3	102.6	97.4	-5.2
	Sedibeng	115.1	93.0	93.7	0.7
	Tshwane	116.5	99.0	100.7	1.7
	West Rand	100.9	91.1	95.7	4.6
KwaZulu-Natal	Amajuba	92.9	64.9	79.0	14.1
	eThekwini	86.2	62.5	93.0	30.5
	Harry Gwala	93.5	77.3	83.4	6.1
	iLembe	91.2	75.5	86.2	10.7
	King Cetshwayo	98.7	81.8	95.2	13.4
	Ugu DM	98.3	87.7	88.1	0.4
	uMgungundlovu	81.9	56.4	86.2	29.8
	uMkhanyakude	91.2	89.4	93.2	3.8
	uMzinyathi	93.5	97.4	72.7	-24.7
	uThukela	98.4	84.1	84.4	0.3
	Zululand	92.0	82.9	94.2	11.3

		2016/17 (%)	2017/18 (%)	2018/19 (%)	Percentage point difference between 2017/18 and 2018/19
Limpopo	Capricorn	90.2	77.7	87.9	10.2
	Mopani	87.2	39.6	74.3	34.7
	Sekhukhune	89.3	91.2	97.9	6.7
	Vhembe	86.2	83.9	92.2	8.3
	Waterberg	91.3	86.4	83.1	-3.3
Mpumalanga	Ehlanzeni	97.3	69.1	93.4	24.3
	Gert Sibande	91.1	33.7	33.4	-0.3
	Nkangala	92.9	75.4	85.1	9.7
Northern Cape	Frances Baard	100.5	98.4	91.4	-7.0
	John Taolo Gaetsewe	71.5	80.0	77.7	-2.3
	Namakwa	99.9	98.7	99.6	0.9
	Pixley Ka Seme	60.1	90.8	99.4	8.6
	Zwelentlanga Fatman Mgcawu	91.8	76.0	98.6	22.6
North West	Bojanala Platinum	77.2	83.2	86.0	2.8
	Dr Kenneth Kaunda	94.3	85.1	77.2	-7.9
	Dr Ruth Segomotsi Mompati	128.2	78.5	88.0	9.5
	Ngaka Modiri Molema	50.2	70.1	68.4	-1.7
Western Cape	Cape Winelands	92.1	98.2	98.7	0.5
	Central Karoo	99.3	101.0	99.7	-1.3
	Cape Town	97.0	101.0	99.6	-1.4
	Garden Route	93.3	98.9	94.2	-4.7
	Overberg	100.0	94.9	99.3	4.4
	West Coast	100.0	99.7	99.7	0.0
South Africa		86.3	72.5	86.6	14.1

Source: DHIS.

Key findings

- In 2018/19, the national TB sputum 5 years and older test rate was 83.8%. The rate ranged from 36.2% in the Free State to 99.0% in the Western Cape.
- Twenty-eight districts reported a TB sputum 5 years and older test rate of more than 90% in 2018/19. Three districts had a TB sputum 5 years and older test rate below 35%.
- Fourteen districts showed a decrease in the testing rate between 2017/18 and 2018/19. uMzinyathi (KZ) showed the biggest decrease of 24.7 percentage points.

Conclusion

- Only 53.8% of districts reported a TB sputum 5 years and older test rate of 90% and more. As such, there is room for improvement to diagnose suspect TB clients as early as possible so as to initiate treatment and reduce the risk of transmission of TB infection.

Recommendations

- Provinces and districts should improve quality of care by training and mentoring healthcare workers on TB diagnostic algorithms.
- Provinces and districts with low TB sputum 5 years and older test rates should undertake an assessment of the facility practices, laboratory access, and data gaps that could be contributing to the low testing rate.
- Provinces and districts should promote sharing of good practices and lessons learnt among districts and facilities.
- Data-quality challenges should be addressed.

TB child under 5 years start on treatment rate

There is a huge gap between patients diagnosed with drug susceptible TB and those started on treatment. This is referred to as the initial loss-to-follow-up rate.

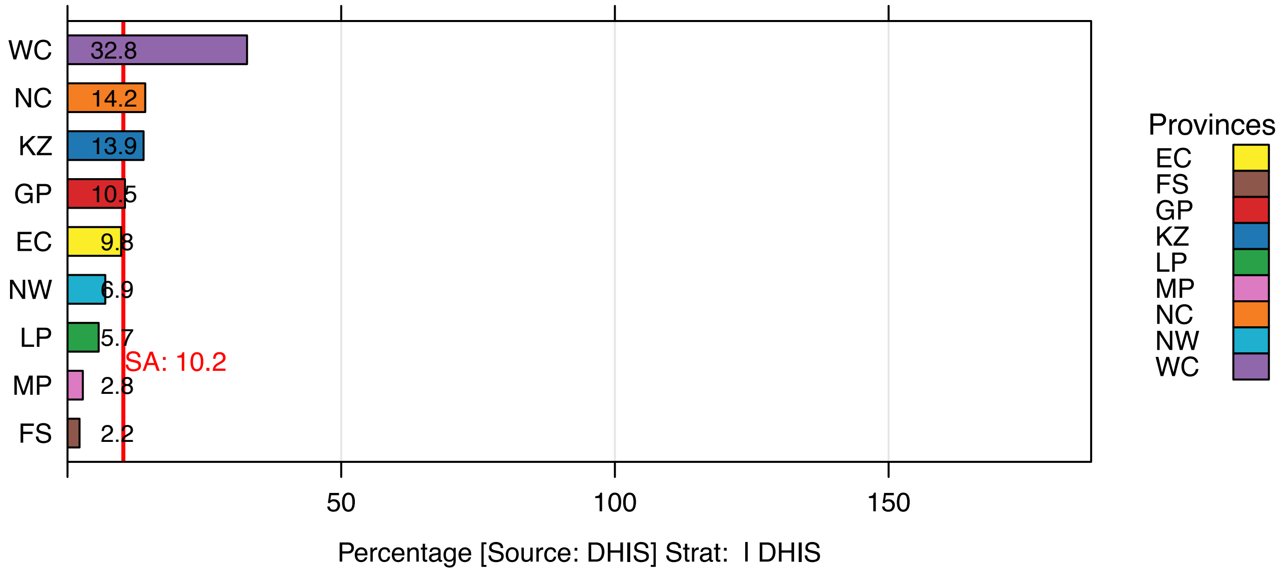
All patients with a confirmed TB diagnosis must be started on appropriate treatment for TB. This requires strengthening of linkage to treatment interventions such as community outreach services by community health worker teams, direct messaging to patients, and appointment reminders. Every effort must be made to track these patients and ensure that they are initiated on treatment.

The TB child under 5 years start on treatment rate measures the proportion of TB clients under 5 years started on treatment as a proportion of all symptomatic children under 5 years.[d] The numerator is TB child under 5 years start on treatment, and the denominator TB symptomatic child under 5 years.

National and provincial overview

In 2018/19, the national TB child under 5 years start on treatment rate was only 10.2%. Across provinces, the rate varied between 32.8% in the Western Cape and 2.2% in the Free State (Figure 3).

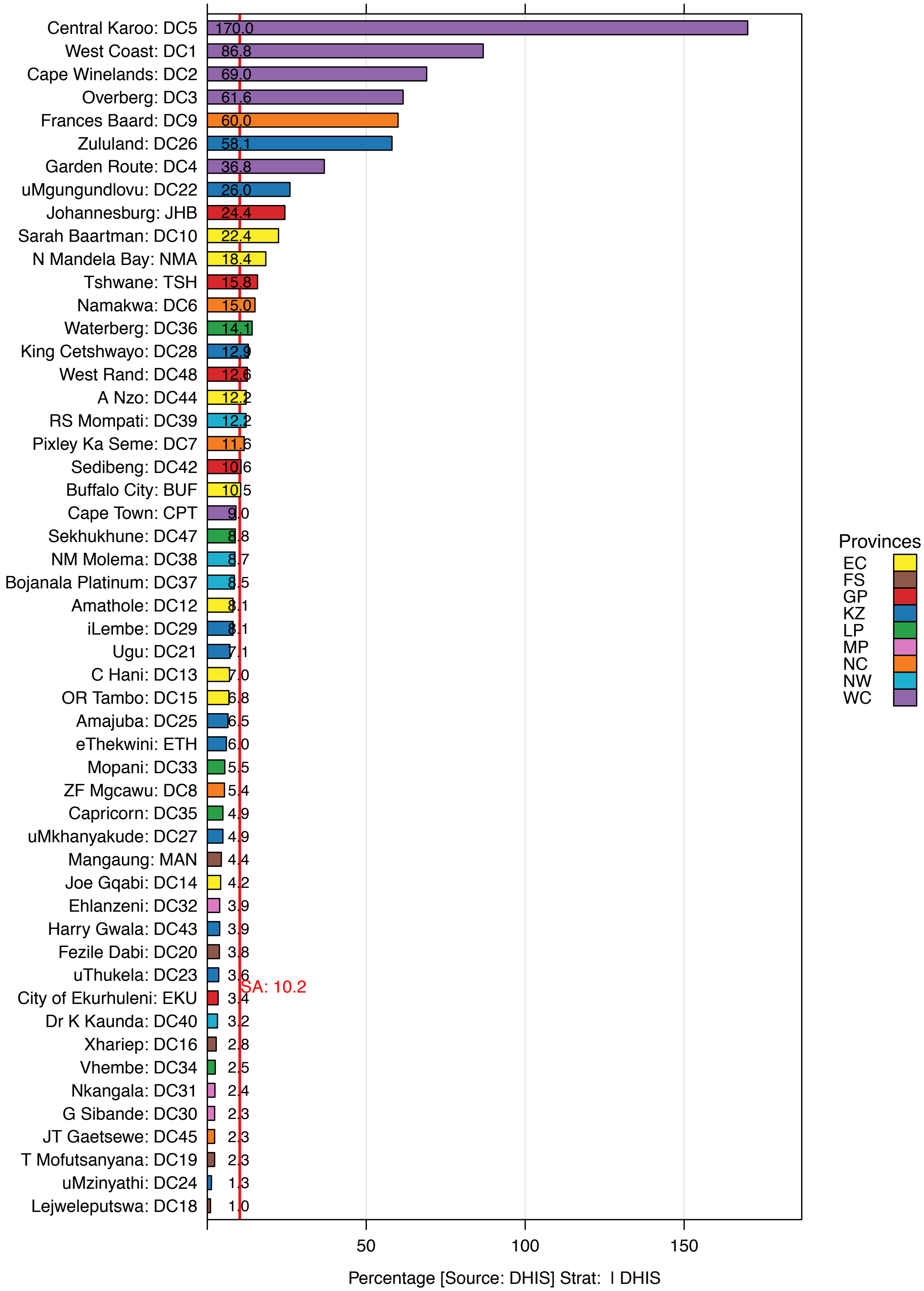
Figure 3: TB child under 5 years start on treatment rate by province, 2018/19



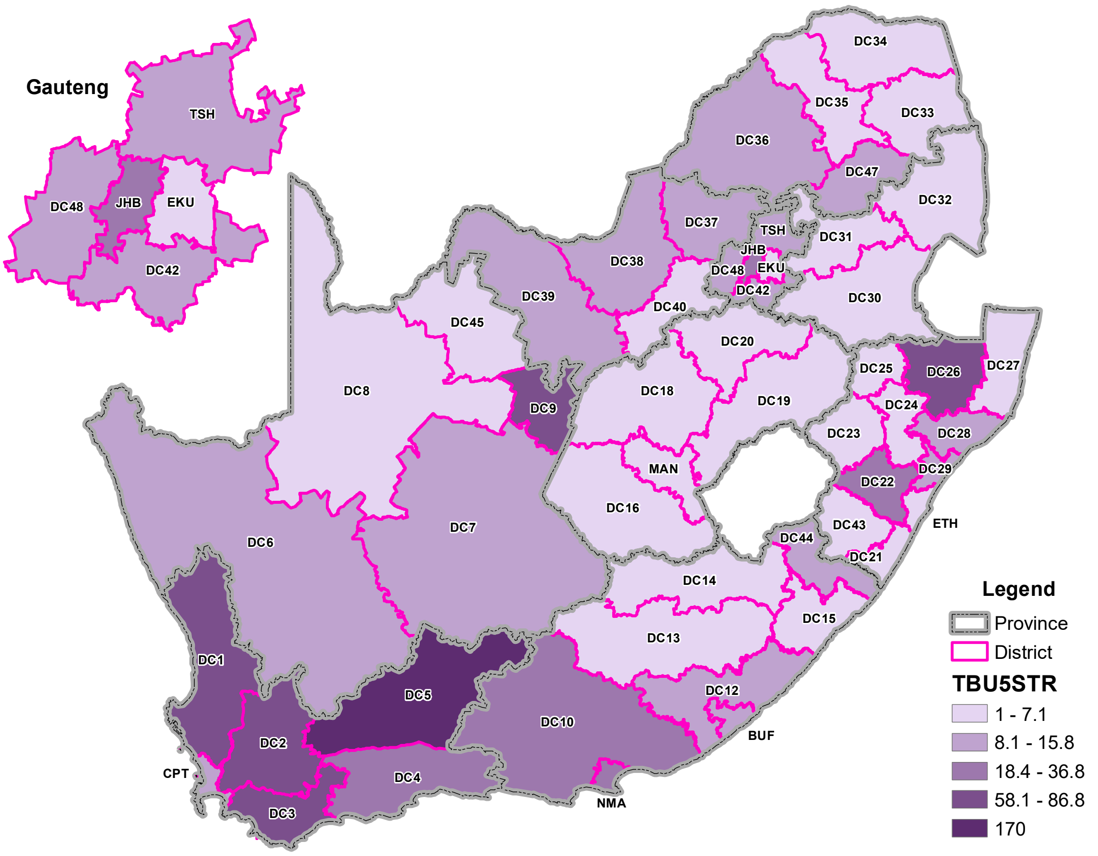
District overview

In 2018/19, Central Karoo (WC) had a TB child under 5 years start on treatment rate of 170.0% (Figure 4 and Map 1); however, a rate above 100% may be an indication of poor data quality or an inaccurate denominator. Five of the six districts in the Western Cape ranked among the 10 best-performing districts in 2018/19. Eighteen districts had a rate below 5%. Lejweleputswa (FS) only started 1.0% of children under 5 years with TB symptoms on treatment.

Figure 4: TB child under 5 years start on treatment rate by district, 2018/19



Map 1: TB child under 5 years start on treatment rate by district, 2018/19



Source: DHIS.

Key findings

- In 2018/19, the national TB child under 5 years start on treatment rate was only 10.2%. The Western Cape had the highest rate at 32.8%, and the Free State the lowest rate at only 2.2%.
- Eighteen districts had a rate below 5%.

Conclusion

- It is of great concern that only 10.5% of children under 5 years with TB symptoms received TB treatment in 2018/19, and the country is not on track to reach the UHC targets for TB effective treatment. The initial loss-to-follow-up rate for children under 5 years is unacceptably high.
- The low rates may be due to poor data quality. Another reason may be that the denominator of the indicator is misleading and giving these artificially low rates.

Recommendations

- The quality of the data for the numerator and denominator should be evaluated, and poor-data quality should be addressed.
- The denominator of the indicator should be changed to children under 5 years who are diagnosed with TB.
- All children under 5 years with TB symptoms should be initiated on TB treatment as per national guidelines.
- A few districts are initiating children on TB treatment at an acceptable rate. Lessons learnt in these districts should be shared with poor-performing districts to encourage those districts to improve.
- A national target should be set for the TB child under 5 years start on treatment rate.
- Provinces and districts must provide technical assistance to facilities with high initial loss-to-follow-up rates, and implement strategies to reduce this.

TB client 5 years and older start on treatment rate

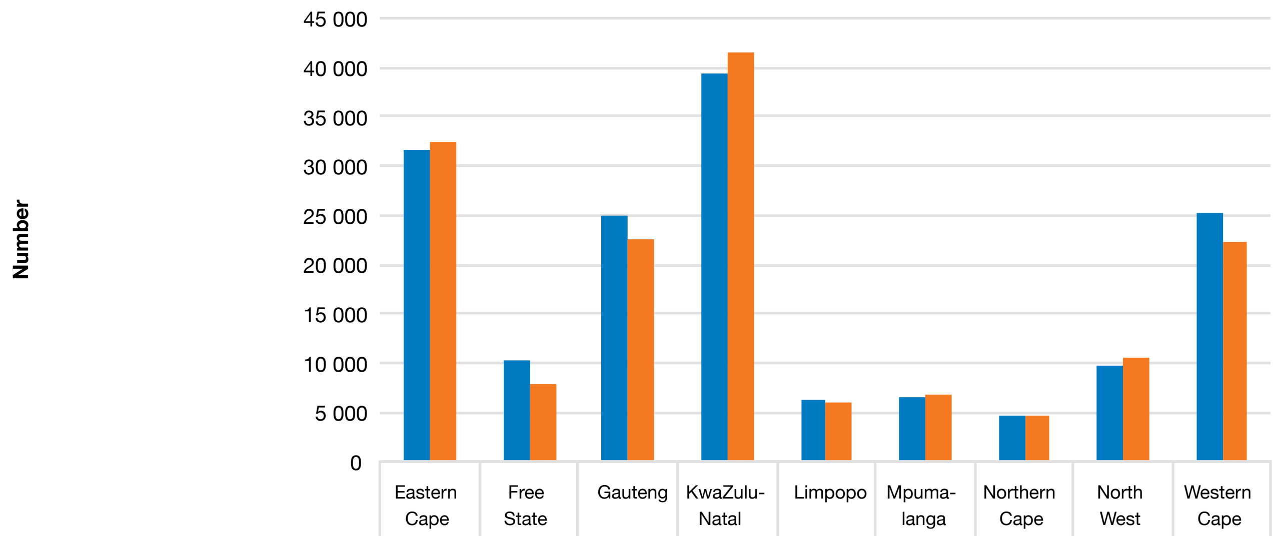
This indicator measures the TB client 5 years and older start on treatment as a proportion of patients who tested positive for TB.[d] The numerator is the TB client 5 years and older start on treatment, and the denominator is the TB symptomatic client 5 years and older tested positive (using GeneXpert testing).

National and provincial overview

Figure 5 shows the number of clients with diagnosed TB, and the number who started with TB DS treatment.

In 2018/19, the national TB client 5 years and older start on treatment rate was 97.8% (Figure 6), much higher than the TB child under 5 years start on treatment rate of only 10.2%. The national target for TB client 5 years and older start on treatment rate is 100%. Across provinces, the rate varied between 106.6% in North West and 77.1% in the Free State. Free State also had the lowest TB child under 5 years start on treatment rate in 2018/19. Five of the nine provinces had a rate exceeding 100%. A rate above 100% could be due to data-quality problems or inclusion of non-bacteriologically confirmed patients in the numerator, a result of using the TIER.Net instead of the TB identification register as a source for the numerator.

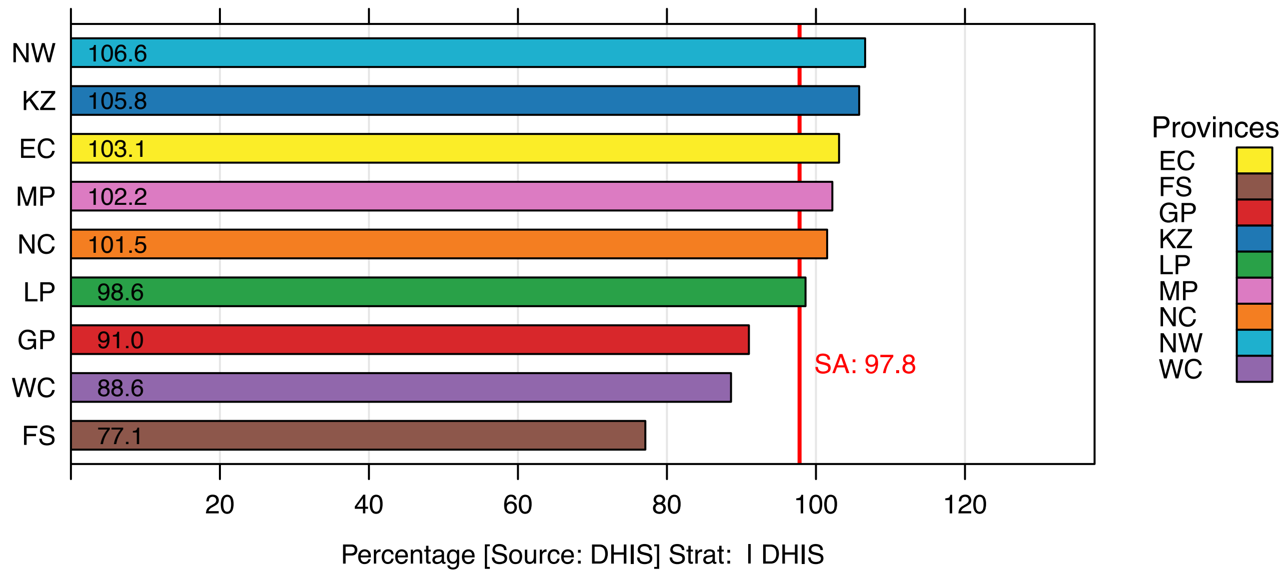
Figure 5: Number of clients with diagnosed drug-susceptible TB versus number started on treatment, by province, 2018/19



	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpuma-langa	Northern Cape	North West	Western Cape
TB clients with diagnosed DS TB	31 597	10 266	24 922	39 341	6 148	6 659	4 647	9 829	25 325
TB clients started on TB treatment	32 569	7 919	22 667	41 635	6 059	6 805	4 716	10 474	22 411

Source: DHIS.

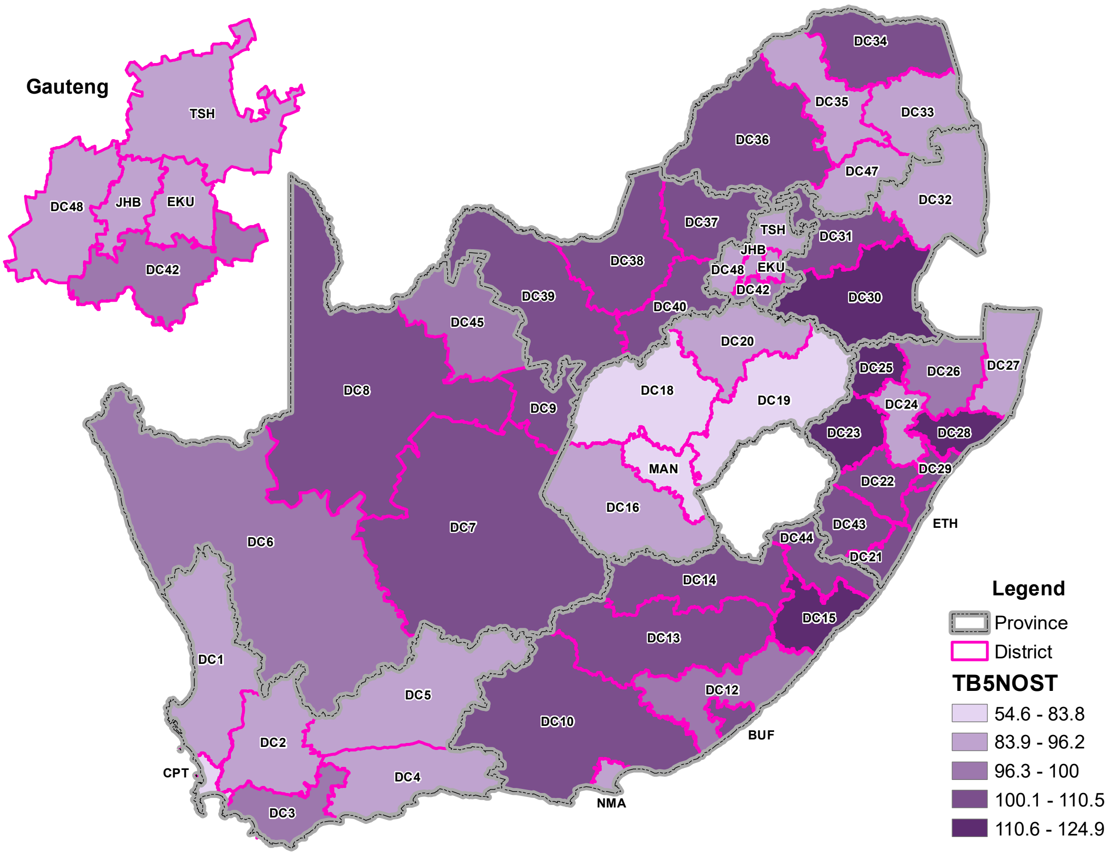
Figure 6: TB client 5 years and older start on treatment rate by province, 2018/19



District overview

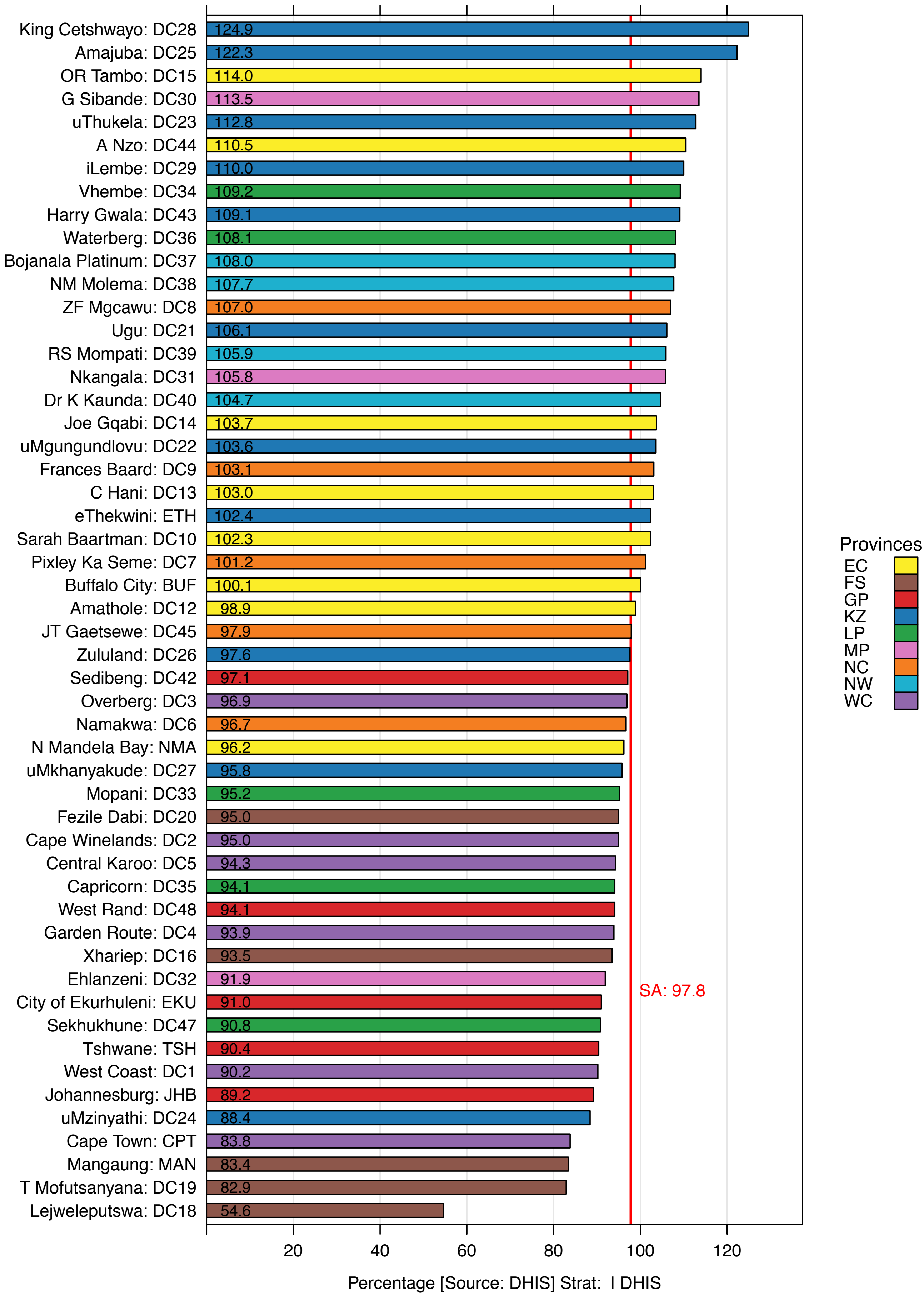
In 2018/19, the TB client 5 years and older start on treatment rate in the districts ranged between 124.9% in King Cetshwayo (KZ) and 54.6% in Lejweleputswa (FS) (Figure 7 and Map 2). Of all the districts, only Lejweleputswa did not report a treatment initiation rate above 80%, and the reason should be investigated. Twenty-five of the 52 districts reported a TB client 5 years and older start on treatment rate above 100%. Three of the five districts in Free State and Gauteng ranked among the 10 districts with the lowest rates.

Map 2: TB client 5 years and older start on treatment rate by district, 2018/19



Source: DHIS.

Figure 7: TB client 5 years and older start on treatment rate by district, 2018/19



Key findings

- In 2018/19, the national TB client 5 years and older start on treatment rate was 97.8%, much higher than the TB child under 5 years start on treatment rate of only 10.2%.
- Across provinces, the rate varied between 106.6% in North West and 77.1% in Free State.
- In 2018/19, King Cetshwayo (KZ) had the highest rate at 124.9% and Lejweleputswa (FS) the lowest rate at 54.6%. Of all the districts, only Lejweleputswa did not report a treatment initiation rate above 80%.

Conclusion

- Twenty-five of the 52 districts reported a TB client 5 years and older start on treatment rate above 100%.
- A rate above 100% could be due to data quality problems or the inclusion of non-bacteriologically confirmed patients in the numerator.

Recommendations

- Provinces and districts should ensure that data for this indicator are collected and calculated correctly, and they should closely monitor progress against the national target of 100%.
- Provinces and districts must provide technical assistance to facilities with high initial loss-to-follow-up, and implement strategies to reduce this.

TB drug-susceptible client treatment success rate

The last 90 of the 90-90-90 strategy[e] refers to TB treatment success. This is a measure of the effectiveness of retention in care and adherence strategies currently being implemented. Adherence strategies include counselling and education of patients on diagnosis, fast tracking patients for follow-up visits, tracing patient who miss appointments, adherence clubs, comprehensive management of patients with co-morbidities, and intensive adherence counselling.

The TB DS client treatment success rate measures the proportion of TB clients who successfully completed treatment (both cured and treatment completed). This applies to all DS-TB clients (new, re-treatment, other, pulmonary, and extra-pulmonary).[d]

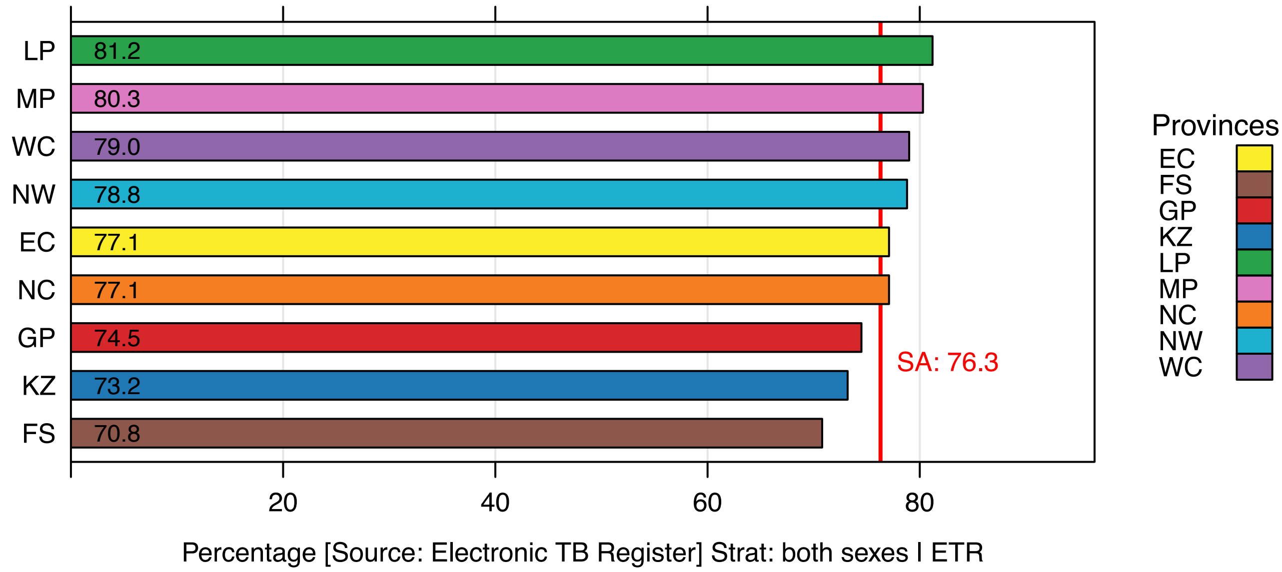
The numerator, namely TB client successfully completed treatment, includes patients who were bacteriologically confirmed as cured (smear-negative) at the end of treatment, and those who completed the required doses of treatment but do not have bacteriological confirmation of cure. The denominator is the number of TB clients started on treatment.

The data presented is for the cohort of patients who were started on treatment in 2017.

National and provincial overview

In 2017, the national TB DS client treatment success rate was 76.3% (Figure 8), against the national target of 90%. In 2016, the national TB DS treatment success rate was 81.7%, a marginal increase from 81.0% in 2015. One reason for the regression in 2017 may have been the change in the data-collection system, from the Electronic Tuberculosis Register (ETR.Net) to the TB HIV Electronic Register (TIER.Net). Limpopo performed the best, with a treatment success rate of 81.2%. Free State had a TB DS treatment success rate of 70.8%. The Free State did not perform satisfactorily on most of the TB indicators.

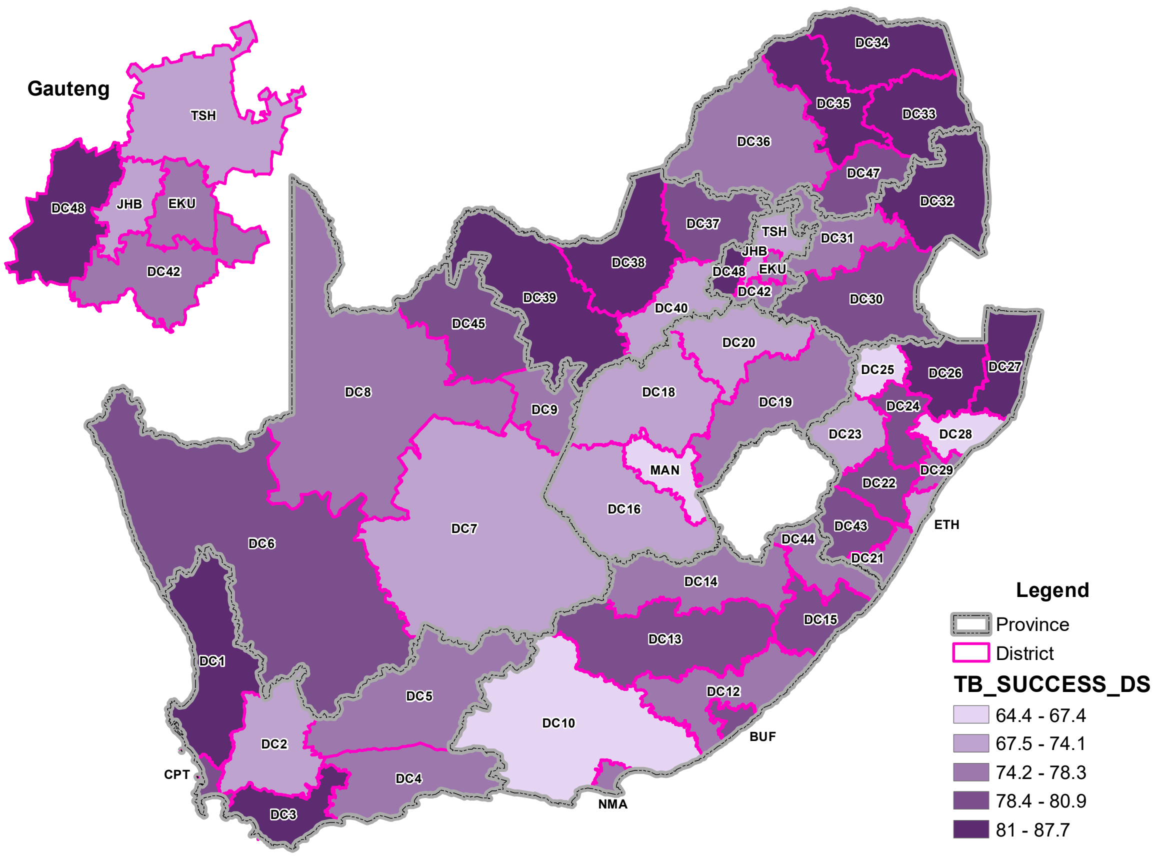
Figure 8: National TB drug-susceptible client treatment success rate by province, 2017



District overview

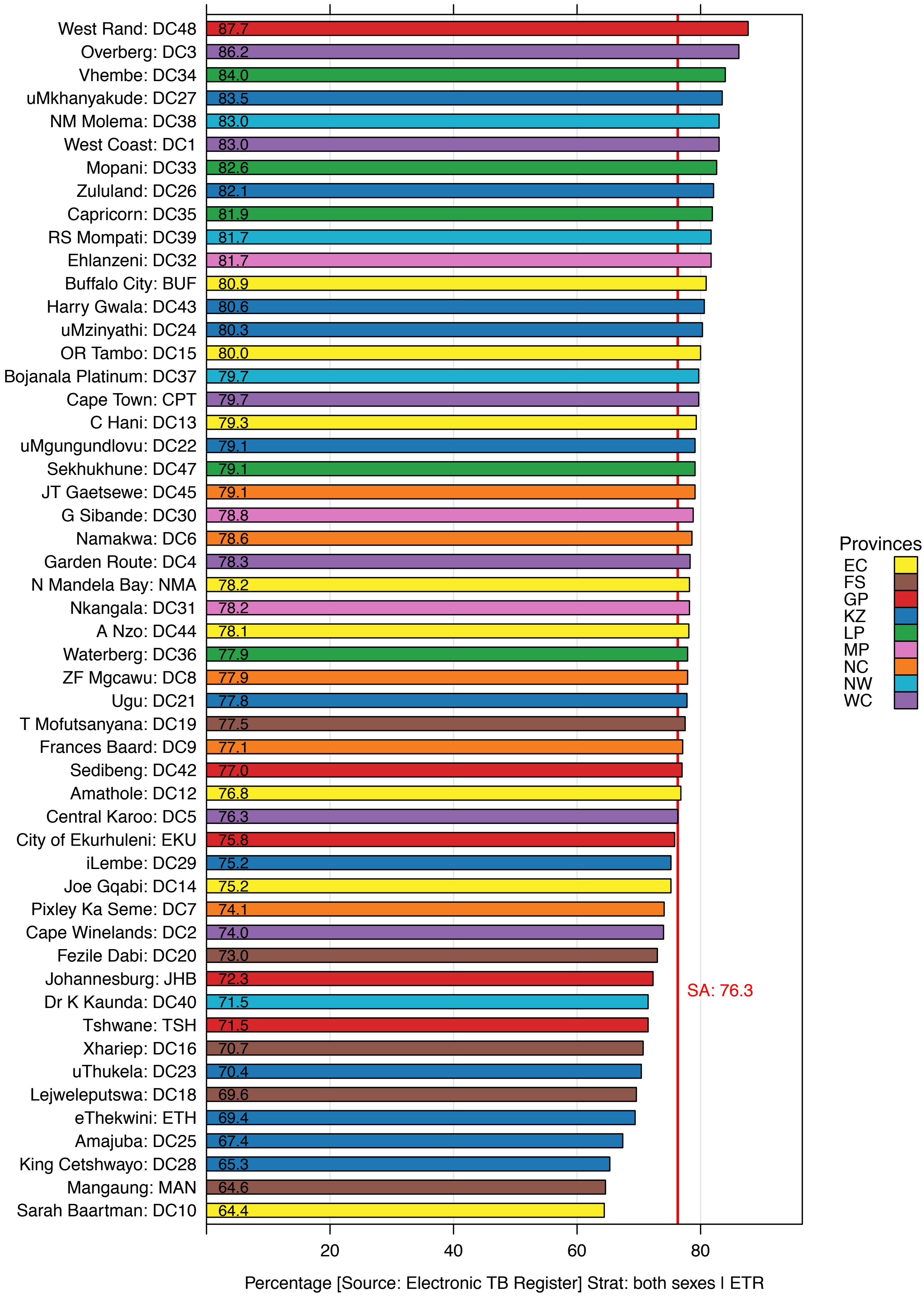
In 2017, the TB DS client treatment success rate in the districts varied between 87.7% in West Rand (GP) and 64.4% in Sarah Baartman (EC) (Figure 9 and Map 3). None of the districts reached the national target of 90%. Four KwaZulu-Natal and three Free State districts ranked among the 10 districts with the lowest TB DS client treatment success rates. Three districts in Limpopo ranked among the 10 best-performing districts.

Map 3: TB drug-susceptible client treatment success rate by district, 2017



Source: TIER.Net.

Figure 9: TB drug-susceptible client treatment success rate by district, 2017



Key findings

- In 2017, the national TB DS client treatment success rate was 76.3%, well below the national target of 90%. The rate decreased from 81.0% in 2015 and 81.7% in 2016.
- In 2017, the TB DS client treatment success rate in the districts varied between 87.7% in West Rand (GP) and 64.4% in Sarah Baartman (EC). None of the districts reached the national target of 90%.

Conclusion

- To reach the UHC targets for TB effective treatment, more effort is needed to increase the TB DS treatment success rate in all provinces.

Recommendations

- With provincial input, districts must review why they were unable to reach the 90% target for treatment success, and develop remedial plans urgently.
- Provinces and districts must share good practices and lessons learnt among districts and facilities.
- Districts should develop plans for attaining the 90% treatment success rate by December 2020.

TB drug-susceptible client loss to follow-up rate

The TB DS client loss to follow-up (LTFU) rate measures the TB DS clients who are lost to follow up (who missed two months or more of treatment) as a proportion of TB DS clients started on treatment. This applies to all TB DS clients (new, re-treatment, other, pulmonary, and extra-pulmonary).[d] This indicator indirectly measures the effectiveness of the retention strategies implemented. Close monitoring of patients who miss appointments, with timely and appropriate intervention, can reduce LTFU. Focus on reducing LTFU will not only improve treatment success, but also reduce ongoing transmission of TB in communities and the number of TB deaths as well.

The data presented here are for the cohort of patients who were started on treatment in 2017.

National and provincial overview

In 2017, the national TB DS client LTFU rate was 8.0%, against the national target of less than 5% (Table 6). The TB DS client LTFU rate was 6.4% in 2015 and 6.9% in 2016, showing an upward trend from 2015. On average, the TB DS client LTFU rate was high, varying from 5.7% in Limpopo to 11.1% in the Western Cape. Northern Cape and North West showed a marginal decrease in rate of 0.5 percentage points between 2016 and 2017. Only Gauteng had an increase of more than two percentage points over the same period. None of the provinces reached the national target of less than 5% in 2017. This is a reflection of poor implementation of patient retention strategies, and requires urgent attention.

Table 6: TB drug-susceptible client loss to follow-up rate by province, 2016 - 2017

	2016 (%)	2017 (%)	Percentage point difference between 2016 and 2017
Eastern Cape	6.8	7.8	1.0
Free State	5.7	6.3	0.6
Gauteng	6.2	8.9	2.7
KwaZulu-Natal	5.0	6.5	1.5
Limpopo	4.3	5.7	1.4
Mpumalanga	6.0	7.4	1.4
Northern Cape	10.3	9.8	-0.5
North West	7.2	6.7	-0.5
Western Cape	11.0	11.1	0.1
South Africa	6.9	8.0	1.1

Source: TIER.Net.

District overview

At district level, the TB DS client LTFU rate ranged from 2.0% in uMzinyathi (KZ) to 18.2% in Central Karoo (WC) (Table 7). Only nine districts reached the national target of less than 5%. Six of the nine districts were in KwaZulu-Natal. Eight districts had TB DS client LTFU rates above 10%, of which four were in the Western Cape. These districts should be prioritised for interventions aimed at reducing the LTFU of patients on treatment. Fourteen districts showed an improvement in TB DS client LTFU rate between 2016 and 2017, with the highest decrease in rate occurring in OR Tambo (EC) (9.7 percentage points). The highest increase in rate over the same period was in Sarah Baartman (EC), with 13.6 percentage points.

There were huge variations in rate among districts in the Eastern Cape, Gauteng and the Western Cape.

Table 7: TB drug-susceptible client loss to follow-up rate by district, 2016 - 2017

		2016 (%)	2017 (%)	Percentage point difference between 2016 and 2017
Eastern Cape	Alfred Nzo	5.9	5.4	-0.5
	Amathole	4.5	5.7	1.2
	Buffalo City	5.3	5.9	0.6
	Chris Hani	4.6	7.0	2.4
	Joe Gqabi	4.3	6.5	2.2
	Nelson Mandela Bay	10.3	10.1	-0.2
	OR Tambo	13.1	3.4	-9.7
	Sarah Baartman	3.1	16.7	13.6
Free State	Fezile Dabi	3.6	5.4	1.8
	Lejweleputswa	7.9	9.4	1.5
	Mangaung	6.6	5.7	-0.9
	Thabo Mofutsanyana	3.5	3.8	0.3
	Xhariep	5.4	9.1	3.7
Gauteng	Ekurhuleni	5.1	6.5	1.4
	Johannesburg	6.2	9.3	3.1
	Sedibeng	6.9	8.6	1.7
	Tshwane	8.0	12.7	4.7
	West Rand	2.8	3.0	0.2
KwaZulu-Natal	Amajuba	7.1	6.5	-0.6
	eThekwini	6.7	8.2	1.5
	Harry Gwala	4.5	3.4	-1.1
	iLembe	9.1	8.9	-0.2
	King Cetshwayo	3.9	7.7	3.8
	Ugu DM	3.9	6.5	2.6
	uMgungundlovu	3.6	4.8	1.2
	uMkhanyakude	2.2	2.7	0.5
	uMzinyathi	0.4	2.0	1.6
	uThukela	2.2	4.5	2.3
	Zululand	3.0	3.1	0.1
Limpopo	Capricorn	4.5	5.2	0.7
	Mopani	3.2	5.3	2.1
	Sekhukhune	4.9	7.0	2.1
	Vhembe	3.5	5.1	1.6
	Waterberg	5.3	6.4	1.1
Mpumalanga	Ehlanzeni	6.0	6.2	0.2
	Gert Sibande	7.0	8.6	1.6
	Nkangala	5.0	9.6	4.6
Northern Cape	Frances Baard	12.8	9.0	-3.8
	John Taolo Gaetsewe	10.7	10.1	-0.6
	Namakwa	8.5	8.2	-0.3
	Pixley Ka Seme	5.5	8.9	3.4
	Zwelentlanga Fatman Mgcawu	11.8	12.1	0.3
North West	Bojanala Platinum	8.2	6.1	-2.1
	Dr Kenneth Kaunda	7.3	7.4	0.1
	Dr Ruth Segomotsi Mompati	5.8	7.9	2.1
	Ngaka Modiri Molema	6.4	5.7	-0.7
Western Cape	Cape Winelands	13.4	13.0	-0.4
	Central Karoo	19.1	18.2	-0.9
	Cape Town	10.6	10.6	0.0
	Garden Route	12.5	13.0	0.5
	Overberg	6.4	6.8	0.4
	West Coast	8.8	8.9	0.1

Source: TIER.Net.

Key findings

- In 2017, the national TB DS client LTFU rate was 8.0%, against the national target of less than 5%.
- On average, the TB DS client LTFU rate was high, varying from 5.7% in Limpopo to 11.1% in the Western Cape.
- The TB DS client LTFU rate ranged from 2.0% in uMzinyathi (KZ) to 18.2% in Central Karoo (WC).
- Only nine districts reached the national target of less than 5%.
- Eight districts had TB DS client LTFU rates above 10%, four of which were in the Western Cape.

Conclusion

- The national TB DS client LTFU rate shows an upward trend from 2015.

Recommendations

- Provinces with TB DS client LTFU rates above the national target must develop plans to reduce these rates and prioritise districts and facilities with the highest rates for support. These plans should include monitoring of patients with missed appointments, adherence counselling, and support.
- The low TB DS client LTFU rate in uMzinyati (KZ) should be investigated so that lessons can be learnt.
- Provinces and districts should provide technical assistance to facilities in order to reduce LTFU of DS-TB clients.

TB drug-susceptible client death rate

The TB DS client death rate measures the proportion of TB DS clients who died during treatment. This applies to all TB DS clients (new, re-treatment, other, pulmonary, and extra-pulmonary).[d] The estimates for all TB deaths are reported by Statistics South Africa (Stats SA) from death notifications (Table 8). Tuberculosis remains the leading cause of death in the country despite the decline in number of people dying from the disease.[k]

Table 8: Leading causes of death in South Africa, 2014 - 2016

Causes of deaths (based on ICD-10)	2014			2015			2016		
	Rank	Number	%	Rank	Number	%	Rank	Number	%
Tuberculosis (A15 - A19)**	1	39 695	8.3	1	34 042	7.2	1	29 513	6.5
Diabetes mellitus (E10 - E14)	2	24 092	5.1	2	25 774	5.4	2	25 255	5.5
Other forms of heart diseases (I30 - I52)	3	23 009	4.8	4	23 299	4.9	3	23 515	5.1
Cerebrovascular diseases (I60 - I69)	2	24 258	5.1	3	23 505	5.0	4	23 137	5.1
Human immunodeficiency virus (HIV) disease (B20 - B24)	6	22 866	4.8	5	22 557	4.8	5	21 830	4.8
Hypertensive diseases (I10 - I15)	7	18 416	3.9	7	19 845	4.2	6	19 960	4.4
Influenza and pneumonia (J09 - J18)	5	22 878	4.8	6	21 001	4.4	7	19 638	4.3
Other viral diseases (B25 - B34)	9	14 574	3.1	8	16 475	3.5	8	16 577	3.6
Ischemic heart diseases (I20 - I25)	-	-	-	10	12 714	2.7	9	12 883	2.8
Chronic lower respiratory diseases (J40 - J47)	10	12 793	2.7	9	13 006	2.7	10	12 659	2.8
Intestinal infectious diseases (A00 - A09)	8	14 834	3.1	-	-	-	-	-	-
Other natural causes		208 537	43.7		207 820	43.9		200 403	43.9
Non-natural causes		50 939	10.7		53 228	11.2		51 242	11.2
All causes		476 891	100.0		473 266	100.0		56 612	100.0

Source: Statistics South Africa. Mortality and causes of death in South Africa, 2016: Findings from death notification. ** Including deaths due to MDR-TB and XDR-TB.

As estimated by the WHO,[h] globally the TB mortality remains high at 110 per 100 000, and is highest among HIV and TB co-infected patients.

National and provincial overview

In 2017, the national TB DS client death rate was 6.5%, against the national target of less than 5% (Table 9). The rate remained stable compared with the rate of 6.6% in 2016. Among the provinces, the rate varied between 3.9% in the Western Cape and 10.4% in Free State. Only the Western Cape reached the national target. Four provinces showed a marginal decrease in the TB DS client death rate between 2016 and 2017, with the highest decrease occurring in Limpopo (2.2 percentage points). The high TB DS client death rate is unacceptably high for a disease that is curable. This could be due to late detection of TB, co-morbidities especially TB/HIV, and incorrect diagnosis (among clinically diagnosed patients).

k Statistics South Africa. Mortality and causes of death in South Africa, 2016: Findings from death notification. Pretoria: Stats SA, 2018.

Table 9: TB drug-susceptible client death rate by province, 2016 - 2017

	2016 (%)	2017 (%)	Percentage point difference between 2016 and 2017
Eastern Cape	6.3	6.2	-0.1
Free State	10.1	10.4	0.3
Gauteng	5.8	6.3	0.5
KwaZulu-Natal	5.4	6.0	0.6
Limpopo	11.5	9.3	-2.2
Mpumalanga	7.4	7.3	-0.1
Northern Cape	7.7	9.0	1.3
North West	10.2	9.9	-0.3
Western Cape	3.8	3.9	0.1
South Africa	6.6	6.5	-0.1

Source: TIER.Net.

District overview

In 2017, Fezile Dabi (FS) reported the highest TB DS client death rate at 15.1%, and Overberg (WC) the lowest rate at 2.6% (Table 10). Nine districts had a TB DS client death rate above 10%. Only eight districts reached the national target of 5% or less; this included all six districts in the Western Cape. Twenty-one districts showed an improvement in the TB DS client death rate between 2016 and 2017, with the highest decrease in rate occurring in Dr Ruth Segomotsi Mompati (NW) (3.4 percentage points) and Sekhukhune (LP) (3.3 percentage points). The highest increase in rate over the same period was in King Cetshwayo (KZ) and Ngaka Modiri Molema (NW), at 2.6 and 2.5 percentage points respectively.

Table 10: TB drug-susceptible client death rates by district, 2016 - 2017

		2016 (%)	2017 (%)	Percentage point difference between 2016 and 2017
Eastern Cape	Alfred Nzo	9.6	10.4	0.8
	Amathole	7.1	7.0	-0.1
	Buffalo City	5.4	5.2	-0.2
	Chris Hani	6.3	6.3	0.0
	Joe Gqabi	9.7	8.0	-1.7
	Nelson Mandela Bay	6.6	6.4	-0.2
	OR Tambo	3.9	3.2	-0.7
	Sarah Baartman	6.5	6.3	-0.2
Free State	Fezile Dabi	13.8	15.1	1.3
	Lejweleputswa	7.6	8.4	0.8
	Mangaung	8.2	8.7	0.5
	Thabo Mofutsanyana	12.7	11.1	-1.6
	Xhariep	11.5	11.5	0.0
Gauteng	Ekurhuleni	5.9	6.1	0.2
	Johannesburg	4.2	5.1	0.9
	Sedibeng	9.2	8.4	-0.8
	Tshwane	6.9	7.7	0.8
	West Rand	6.3	6.4	0.1
KwaZulu-Natal	Amajuba	11.8	13.4	1.6
	eThekwini	3.7	3.5	-0.2
	Harry Gwala	7.9	8.9	1.0
	iLembe	5.2	5.9	0.7
	King Cetshwayo	5.5	8.1	2.6
	Ugu DM	5.8	7.6	1.8
	uMgungundlovu	4.8	5.7	0.9
	uMkhanyakude	7.6	7.8	0.2
	uMzinyathi	9.8	9.3	-0.5
	uThukela	4.9	5.3	0.4
	Zululand	7.7	8.2	0.5
Limpopo	Capricorn	12.5	9.6	-2.9
	Mopani	11.7	10.1	-1.6
	Sekhukhune	13.7	10.4	-3.3
	Vhembe	7.4	5.7	-1.7
	Waterberg	13.2	11.2	-2.0

		2016 (%)	2017 (%)	Percentage point difference between 2016 and 2017
Mpumalanga	Ehlanzeni	7.7	7.2	-0.5
	Gert Sibande	7.7	7.5	-0.2
	Nkangala	6.5	7.3	0.8
Northern Cape	Frances Baard	8.3	9.7	1.4
	John Taolo Gaetsewe	7.4	8.7	1.3
	Namakwa	6.0	7.0	1.0
	Pixley Ka Seme	7.5	9.0	1.5
	Zwelentlanga Fatman Mgcawu	7.9	9.1	1.2
North West	Bojanala Platinum	8.8	9.4	0.6
	Dr Kenneth Kaunda	13.8	12.5	-1.3
	Dr Ruth Segomotsi Mompati	10.8	7.4	-3.4
	Ngaka Modiri Molema	8.1	10.6	2.5
Western Cape	Cape Winelands	3.4	3.7	0.3
	Central Karoo	5.4	4.4	-1.0
	Cape Town	3.8	3.8	0.0
	Garden Route	4.9	5.0	0.1
	Overberg	2.5	2.6	0.1
	West Coast	4.1	3.8	-0.3

Source: TIER.Net.

Key findings

- In 2017, the national TB DS client death rate was 6.5%, against the national target of less than 5%. Among the provinces, the rate varied between 3.9% in the Western Cape and 10.4% in the Free State. Only the Western Cape reached the national target.
- In 2017, Fezile Dabi (FS) reported the highest TB DS client death rate at 15.1%, and Overberg (WC) the lowest rate at 2.6%.
- Nine districts had a TB DS client death rate above 10%.
- Only eight districts reached the national target of 5% or less; this included all six districts in the Western Cape.

Conclusion

- The TB DS client death rate remained stable between 2016 and 2017; however, two districts showed an increase in rate of around 2.5 percentage points over the same period.

Recommendations

- All provinces and districts with death rates above 5% should conduct clinical reviews to determine the causes of deaths and develop strategies to address this. The focus should be on facilities with high death rates.
- Districts and facilities should monitor deaths among TB patients monthly and ensure that these deaths are notified.

TB multidrug-resistant treatment success rate

In the End TB Strategy, the WHO set targets to treat MDR TB.[l] Drug resistance TB is more difficult to treat than DS TB and it threatens global progress towards the targets in the End TB Strategy. Between 2011 and 2018, the WHO developed and issued evidence-based policy recommendations on the treatment and care of patients with DR TB.

The TB MDR treatment success rate measures the TB MDR client successfully completing treatment as a proportion of TB MDR confirmed clients started on treatment.[d]

Prior to 2017, all patients were treated for 24 months. From 2017, several patients were treated with the nine-month regimen. While all outcomes are available for patients treated with the shorter regimen during the 2017, outcomes for those treated using the longer regimen are not yet available.

Essentially, longer treatment regimens for MDR TB have been producing poor treatment success; however, there has recently been a slight improvement. These regimens were based on kanamycin, moxifloxacin, ethionamide, terizidone and pyrazinamide. The injectable agent was removed last year from all WHO and South African guidelines as they were associated with a higher mortality rate and treatment failure. Ototoxicity and nephrotoxicity were also identified in patients who received kanamycin.

l World Health Organization. WHO consolidated guidelines on drug-resistant tuberculosis treatment. Geneva: WHO; 2019.

Recent improvement in the success rate is likely due to three factors:

- Improvement in data quality that resulted in reducing the proportion of not-evaluated records from 20% to less than 5%.
- Effective decentralisation that resulted in having at least one treatment initiation site in almost 90% of all sub-districts.
- Introduction of new and repurposed drugs such as bedaquiline and linezolid.

TB MDR treatment success rate with long-term treatment

National and provincial overview

In 2016, the national TB MDR treatment success rate (long-term treatment) was 53.9% (Figure 10). The rate varied between 66.5% in Limpopo and 41.5% in the Northern Cape. The rate increased from 47.2% in 2013 to 53.9% in 2016, and improved by 2.1% between 2015 and 2016 (Table 11). The Western Cape, Limpopo and Free State experienced the highest increases respectively, namely 7.8%, 7.1% and 5.5%. The Northern Cape experienced the biggest drop of 2.9 %.

Figure 10: TB MDR treatment success rate (long-term treatment) by province, 2016

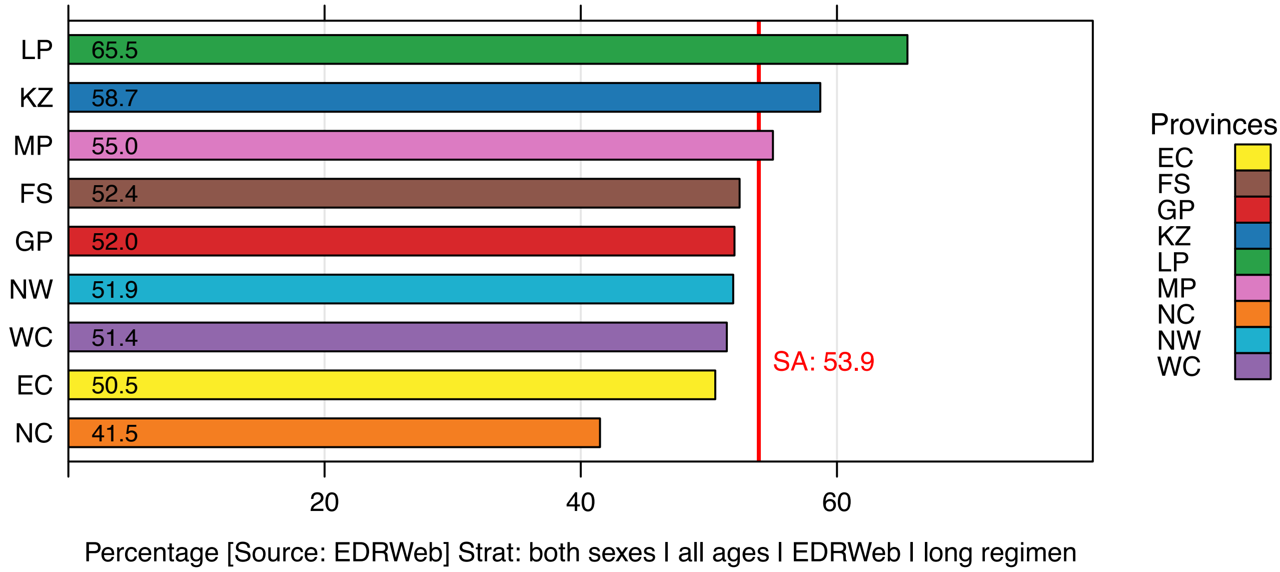


Table 11: TB MDR treatment success rate (long-term treatment) by province, 2013 - 2016

	2013 (%)	2014 (%)	2015 (%)	2016 (%)	Percentage point difference between 2015 and 2016
Eastern Cape	33.9	44.3	50.9	50.5	-0.4
Free State	41.7	45.8	46.9	52.4	+5.5
Gauteng	41.1	55.6	52.2	52.0	-0.2
KwaZulu-Natal	57.3	59.6	60.0	58.7	-1,3
Limpopo	53.0	58.4	58.4	65.5	+7.1
Mpumalanga	45.2	41.9	56.7	55.0	-1.7
Northern Cape	39.0	20.8	44.4	41.5	-2,9
North West	60.2	58.4	53.4	51.9	-1.5
Western Cape	43.5	41.5	43.6	51.4	+7.8
South Africa	47.2	50.5	51.8	53.9	+2.1

Source: EDRWeb.

District overview

In 2016, the TB MDR treatment success rate (long-term treatment) varied in the districts from 72.7% in uMkhanyakude (KZ) to 26.9% in Chris Hani (EC) (Figure 11). Three districts in the Northern Cape reported no data. However, clients in Namakwa are referred to Zwelentlanga Fatman Mgcawu for TB MDR treatment, and Pixley Ka Seme and John Taolo Gaetsewe refer clients to Frances Baard for TB MDR treatment. This explains why no data were submitted by the three districts.

Figure 11: TB MDR treatment success rate (long-term treatment) by district, 2016

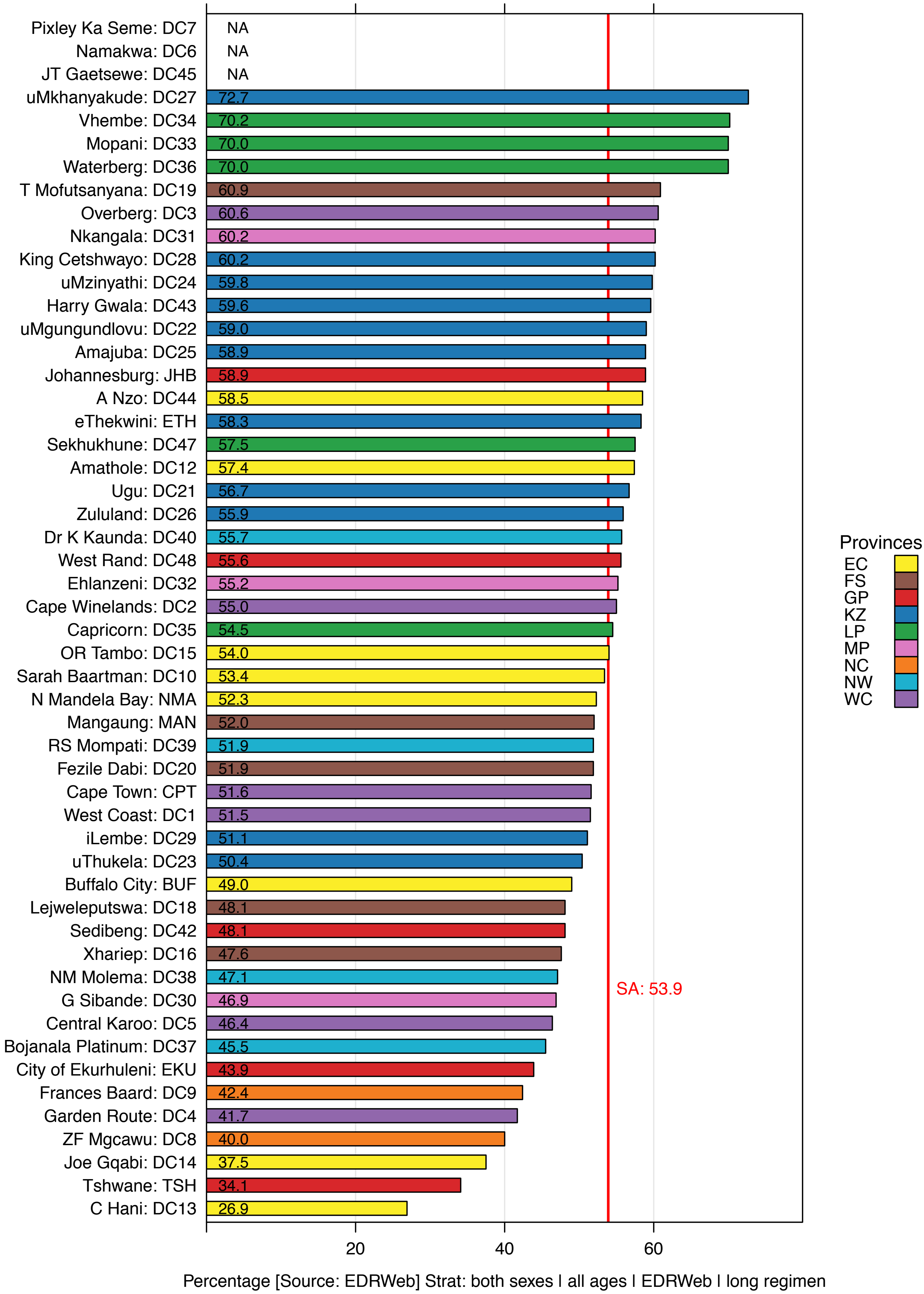


Table 12 shows that 22 districts experienced a drop in the long-term TB MDR treatment success rate between 2015 and 2016, with five districts showing a decrease of more than 10 percentage points. The highest decreases in the rate were in Mopani (LP) (30.0 percentage points) and Capricorn (LP) (26.8 percentage points). Four districts had increases over 10 percentage points. These were Cape Town (WC) (29.7 percentage points), Waterberg (LP) (13.0 percentage points), Cape Winelands (WC) (12.0 percentage points), and Vhembe (LP) (10.2 percentage points). Twenty-one districts had an increase in rate, while the remaining nine districts did not show any change. The increases varied between 0.2 percentage points in Overberg (WC) and 29.7 percentage points for Cape Town (WC).

Table 12: TB MDR treatment success rate (long-term treatment) by district, 2013 - 2016

		2013 (%)	2014 (%)	2015 (%)	2016 (%)	Percentage point difference between 2015 and 2016
Eastern Cape	Alfred Nzo	38.6	59.8	56.3	58.5	+2.2
	Amathole	38.3	51.9	40.4	57.4	+17.0
	Buffalo City	30.5	39.6	50.3	49.0	-0.7
	Chris Hani	37.3	35.9	29.2	26.9	-2.3
	Joe Gqabi	30.6	44.3	50.0	37.5	-12.5
	Nelson Mandela Bay	31.1	42.6	50.0	52.3	+2.3
	OR Tambo	39.2	44.1	56.4	54.0	-2.4
	Sarah Baartman	36.6	48.4	58.8	53.4	-5.4
Free State	Fezile Dabi	32.7	51.5	50.0	51.9	+1.9
	Lejweleputswa	35.9	44.4	47.2	48.1	+0.9
	Mangaung	42.6	36.4	42.7	52.0	+9.3
	Thabo Mofutsanyana	60.2	54.3	65.1	60.9	-4.2
	Xhariep	51.4	52.5	42.1	47.6	+5.5
Gauteng	Ekurhuleni	26.5	49.6	44.6	43.9	-0.7
	Johannesburg	49.1	58.3	60.3	58.9	-1.4
	Sedibeng	35.4	51.1	52.8	48.1	-4.7
	Tshwane	37.4	62.9	33.8	34.1	+0.3
	West Rand	30.5	44.7	47.6	55.6	+8.0
KwaZulu-Natal	Amajuba	60.3	58.3	51.5	58.9	+7.4
	eThekwini	55.9	57.7	58.9	58.3	-0.6
	Harry Gwala	59.5	54.3	64.6	59.6	-5.0
	iLembe	53.3	57.3	54.3	51.1	-3.2
	King Cetshwayo	52.9	60.8	62.0	60.2	-1.8
	Ugu	59.2	59.4	52.6	56.7	+4.1
	uMgungundlovu	59.2	58.2	63.2	59.0	-4.2
	uMkhanyakude	61.9	71.1	72.7	72.7	0.0
	uMzinyathi	64.7	62.5	63.4	59.8	-3.6
	uThukela	63.0	59.2	61.6	50.4	-11.2
	Zululand	56.8	59.0	56.5	55.9	- 0.6
Limpopo	Capricorn	53.1	61.3	81.3	54.5	-26.8
	Mopani	72.3	60.9	100.0	70.0	-30 0
	Sekhukhune	50.7	60.0	63.2	57.5	-5.7
	Vhembe	47.7	63.9	60.0	70.2	+10.2
	Waterberg	45.0	47.4	57.1	70.0	+13.0
Mpumalanga	Ehlanzeni	47.9	52.6	49.3	55.2	+5.9
	Gert Sibande	37.1	51.0	60.6	46.9	-13.3
	Nkangala	50.8		66.2	60.2	-6.0
Northern Cape	Frances Baard	41.7		44.8	42.4	-2.4
	John Taolo Gaetsewe	45.5		0.0		0.0
	Namakwa	38.1	35.0	0.0		0.0
	Pixley Ka Seme	42.7	37.0	0.0		0.0
	Zwelentlanga Fatman Mgcawu	32.5	36.4	43.6	40.0	-3.6
North West	Bojanala Platinum	63.8		36.4	45.5	+9.1
	Dr Kenneth Kaunda	58.2	57.6	56.6	55.7	-0.9
	Dr Ruth Segomotsi Mompati	58.4	64.0	51.9	51.9	0.0
	Ngaka Modiri Molema	64.4		42.9	47.1	+4.2
Western Cape	Cape Town	47.6	53.6	16.7	46.4	+29.7
	Cape Winelands	41.3	39.6	39.6	51.6	+12.0
	Central Karoo	51.4	52.3	58.8	55.0	-3.8
	Garden Route	44.3	35.0	38.6	41.7	+3.1
	Overberg	46.4	32.2	60.4	60.6	+0.2
	West Coast	51.7	52.0	50.5	51.5	+1.0

Source: EDRWeb.

TB MDR treatment success rate with short-term treatment

In 2017, the TB MDR treatment success rate for patients on the shorter regimen was 67% (Table 13). A further analysis of this cohort indicated that patients on oral regimens containing bedaquiline (injection-free regimen) had a treatment success rate of 74%, compared with a treatment success rate of 60% for those who received kanamycin (injection treatment).

The two major challenges have been a LTFU rate of 20% or more, and the death rate of 20% or more among MDR-TB patients.

It is noted that the LTFU rate decreased from 20% to 12% with the introduction of the shorter regimen. The introduction of bedaquiline also decreased the death rate, from 20% to 13%. These intervention appear to be very effective. It is hoped that future treatment cohorts will perform better than in the past with the longer kanamycin-based regimen. Unfortunately, kanamycin was only excluded from the treatment regimen between July 2018 and March 2019, meaning that several patients are still being treated with kanamycin in the longer treatment regimens of 2017, 2018 and quarter one of 2019. The final outcomes for these patients will only be available in March 2020, and the last group in March 2021. Fully injection-free cohort outcomes will be reported from March 2022. The expectation is then to achieve a treatment success rate of 70% for all MDR TB and XDR TB patients.

Table 13: National TB MDR treatment success rate (short-term treatment), 2017

RSA RR/MDR-TB Treatment Outcomes for 2017 Short Regimen						
	Number started on treatment	Treatment Success Rate	Death Rate	Loss to follow up rate	Treatment failure Rate	Not evaluated Rate
RR/MDR-TB	3 695	67%	18%	12%	2%	2%
RSA RR/MDR-TB Treatment Outcomes by regimen for 2017 Short Regimen						
	Number started on treatment	Treatment Success Rate	Death Rate	Loss to follow up rate	Treatment failure Rate	Not evaluated Rate
Injectable Regimen	1 372	60%	20%	15%	2%	2%
Bedaquiline Regimen	1 936	74%	13%	10%	1%	1%

Source: National Department of Health.

Key findings

- In 2016, the national TB MDR treatment success rate (long-term treatment) was 53.9%. The rate varied between 66.5% in Limpopo and 41.5% in the Northern Cape.
- Among the districts, the TB MDR treatment success rate (long-term treatment) varied between 72.7% in uMkhanyakude (KZ) and 26.9% in Chris Hani (EC).
- In 2017, the TB MDR treatment success rate was 67% for patients on the shorter regimen.
- A further analysis of the 2017 cohort indicated that patients on the oral shorter regimen containing bedaquiline (injection-free regimen) had a treatment success rate of 74% compared with 60% for those receiving kanamycin (injection treatment). Introduction of the shorter treatment regimen resulted in a decrease in the LTFU rate from 20% or more to 12%. The introduction of bedaquiline (injection-free regimen) also resulted in a decrease in the TB MDR death rate from 20% to 13%.

Conclusion

- The treatment success rate for patients on the shorter regimen needs to be maintained and improved to enable the country to reach the WHO targets set in the End TB strategy.
- Better outcomes are more likely to be published from 2022, because up to the end of 2021 most patients reported on will be those who have received a kanamycin-based treatment regimen. Results in the past have shown that such regimens only have a 50% - 55% treatment success rate. Global trends show the same results.

Recommendations

- Facilities that treat DR-TB patients need to improve treatment adherence, quality of care, and management of medication side-effects.
- Correct documentation of patient information and data management need to be prioritised as these elements affect the treatment success rate.

TB extremely drug resistant treatment success rate

The TB XDR treatment success rate measures the TB XDR clients successfully completing treatment as a proportion of TB XDR confirmed clients started on treatment.[d]

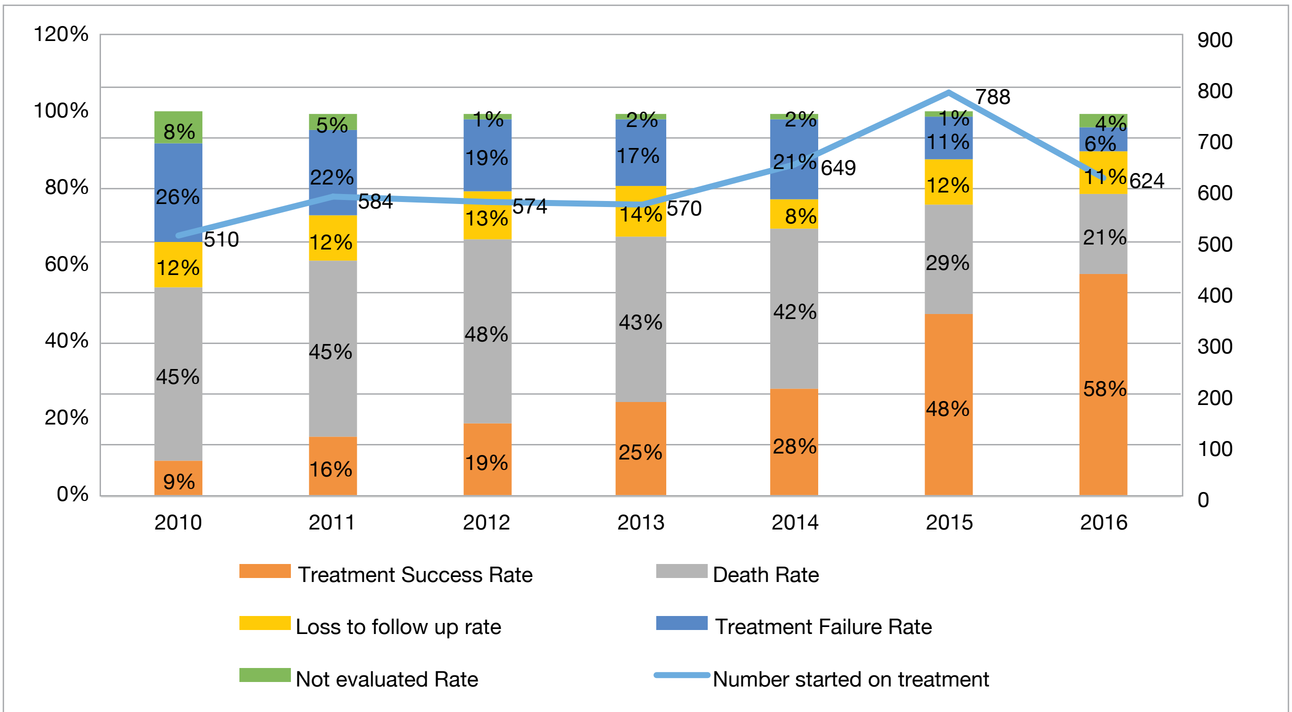
National and provincial overview

The TB XDR treatment success rate improved from 9% in 2010 to 58% in 2016 (Figure 12). The XDR-TB treatment is a long treatment of 24 months, but was recently reduced to 18 months, hence no outcomes for 2017 are available yet.

The XDR-TB treatment success rate for 2016 was better than the MDR-TB treatment success rate, although the opposite should be expected. The reason is that new and repurposed drugs have been core agents in the treatment of XDR-TB, while MDR-TB patients continued with kanamycin, injectable-based regimens.

The significant increase in the treatment success rate among XDR-TB patients has resulted in a more than 50% decrease in the XDR-TB death rate, from 45% in 2010 to 21% in 2016.

Figure 12: National TB XDR treatment success rate, 2010 - 2016



Source: National Department of Health.

In 2016, the TB XDR treatment success rate among the provinces varied from 0% in Limpopo to 81.0% in Mpumalanga (Table 14). Limpopo had the smallest number of TB XDR patients per cohort (less than five cases). KwaZulu-Natal, the Eastern Cape, Gauteng and the Western Cape had around 80% of all TB XDR cases in the country.

Table 14: TB XDR success rate by province, 2016

	2016 (%)
Eastern Cape	58.9
Free State	45.0
Gauteng	66.7
KwaZulu-Natal	62.0
Limpopo	0.0
Mpumalanga	81.0
Northern Cape	41.2
North West	63.6
Western Cape	50.5
South Africa	58.1

Source: EDRWeb.

A detailed analysis of TB XDR patients treated in 2016 shows a TB XDR treatment success rate of 69% for patients who received the bedaquiline injection-free regimen compared with the 20% TB XDR treatment success rate for patients who received an injectable (Table 15). It is noted that when the TB XDR treatment success rate is low, the TB XDR death and LTFU rates are high.

Table 15: National TB XDR outcomes, 2016

XDR-TB-2016	Number started on treatment	Treatment success (N)	Treatment success rate (%)	Died (N)	Death rate (%)	Loss to follow up (N)	Loss to follow up rate (%)	Treatment failure (N)	Treatment failure rate (%)	Not evaluated (N)	Not evaluated rate (%)
Injectable regimen	98	20	20%	37	38%	14	14%	24	24%	3	3%
Bedaquiline regimen	467	321	69%	74	16%	53	11%	15	3%	4	1%

Source: EDRWeb.

Key findings

- The TB XDR treatment success rate improved from 9% in 2010 to 58% in 2016.
- In 2016, the TB XDR treatment success rate among the provinces varied from 0% in Limpopo to 81.0% in Mpumalanga.
- Limpopo had the smallest number of TB XDR patients per cohort (less than five cases). KwaZulu-Natal, the Eastern Cape, Gauteng and the Western Cape had around 80% of all TB XDR cases in the country.

Conclusion

- The TB XDR treatment success rate showed the most improvement among the TB outcome indicators since 2010.
- A significant proportion of XDR-TB patients received new and repurposed drugs.

Recommendations

- Treatment adherence needs to be improved in all provinces. This will help reduce the TB XDR LTFU rate and increase the TB XDR treatment success rate.

3.2 HIV and AIDS

Tshepo Molapo, Lebogang Schultz, Naomi Massyn

This section of the infectious disease control category of the universal health coverage (UHC) index[a] covers three human immunodeficiency virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) indicators. The majority of data emanate from the District Health Information Software (DHIS), and in most instances the data have been disaggregated by province and district. The three indicators are:

- Infant polymerase chain reaction (PCR) test positive around 10 weeks rate
- Clients remaining on antiretroviral therapy (ART) rate
- ART client viral load suppressed (VLS) rate.

Infant PCR test positive around 10 weeks rate

If not identified early, HIV-infected infants are at high risk of mortality and morbidity, therefore every effort should be made to diagnose promptly and accurately and initiate treatment timeously in the case of infants who test PCR-positive around 10 weeks or earlier. Human Immunodeficiency Virus testing in the neonatal period has been recommended routinely for all HIV-exposed infants, including babies not exposed during pregnancy but exposed post-delivery due to breastfeeding. The deoxyribonucleic acid (DNA) PCR is a recommended test at birth, 10 and 14 weeks in all infants born to HIV-positive women.

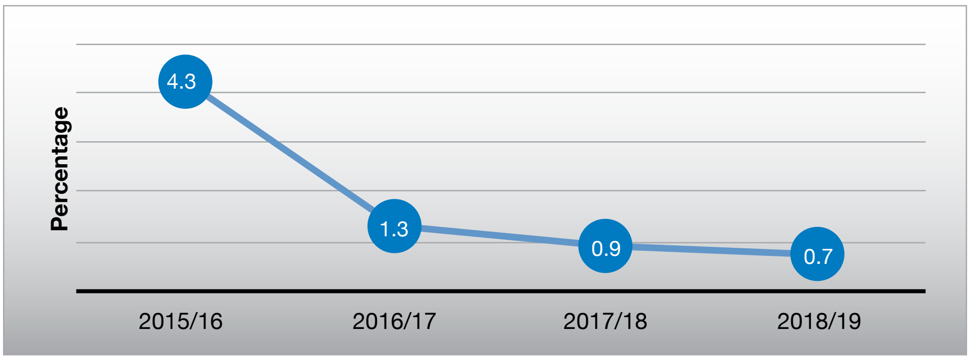
The infant PCR test positive around 10 weeks rate measures infants tested PCR-positive at follow-up test as a proportion of infants PCR tested around 10 weeks. The indicator is calculated using 'infant PCR test positive around 10 weeks' (numerator) over 'infant PCR test around 10 weeks' (denominator), expressed as percentage. The infant PCR test positive around 10 weeks rate was introduced and monitored from April 2016, and replaced the infant PCR test positive at 6 weeks rate.

The National Department of Health (NDoH) introduced the policy of lifelong ART regardless of CD4 count for pregnant mothers in 2015 and moved to testing infants for HIV at birth and 10 weeks.[b] The Last Mile Plan[c] was introduced in 2016 to eliminate the risk of mother-to-child transmission of HIV (MTCT) by encouraging mothers to book for antenatal care (ANC) booking visits before 20 weeks of gestation to allow for close monitoring during pregnancy.

National overview

The national infant PCR test positive around 10 weeks rate declined sharply from 4.3% in 2015/16 to 0.7% in 2018/19 (Figure 1). The decline was attributed to several strategies implemented to reduce MTCT, such as annual stock taking on implementation of policies, accurate recording, and expanding treatment initiation through all primary health care (PHC) nurses.

Figure 1: National infant PCR test positive around 10 weeks rate, 2015/16 - 2018/19



Source: DHIS.

a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

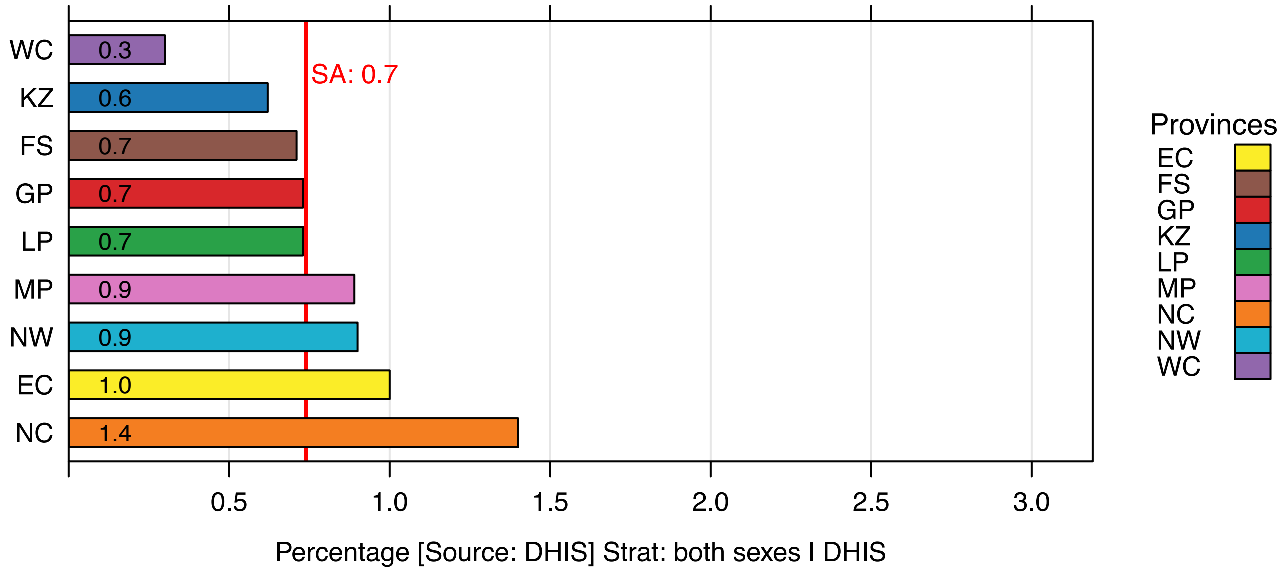
b Department of Health. National consolidated guidelines for the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults. Pretoria: NDoH; April 2015.

c National Department of Health. Last Mile Plan for Elimination of MTCT in South Africa. Pretoria: NDoH; 2016.

Provincial overview

The Western Cape (WC) reported the lowest infant PCR test positive around 10 weeks rate in 2018/19 (0.3%) when compared with the national average (Figure 2). The highest rate was reported by Northern Cape (NC) (1.4%); the rate in this province was high due to the high rate in John Taolo Gaetsewe district of 2.9%. It must be noted that while NC reported the highest PCR positivity rate, the absolute numbers in this province are very low.

Figure 2: Infant PCR test positive around 10 weeks rate by province, 2018/19



District overview

The district infant PCR test positive around 10 weeks rate ranged from 2.9% in John Taolo Gaetsewe (NC) to 0% in Central Karoo (WC) and Namakwa (NC) (Figure 3). Eleven districts had a rate of 1% or more, including four districts in the Eastern Cape (EC). The rate in John Taolo Gaetsewe fluctuated, from 1.2% in 2016/17 to 3.6% in 2017/18 and to 2.9% in 2018/19. Joe Morolong local municipality (LM) in John Taolo Gaetsewe reported a rate of 3.9% in 2018/19 and contributed to the high rate in the district.

Figure 3: Infant PCR test positive around 10 weeks rate by district, 2018/19

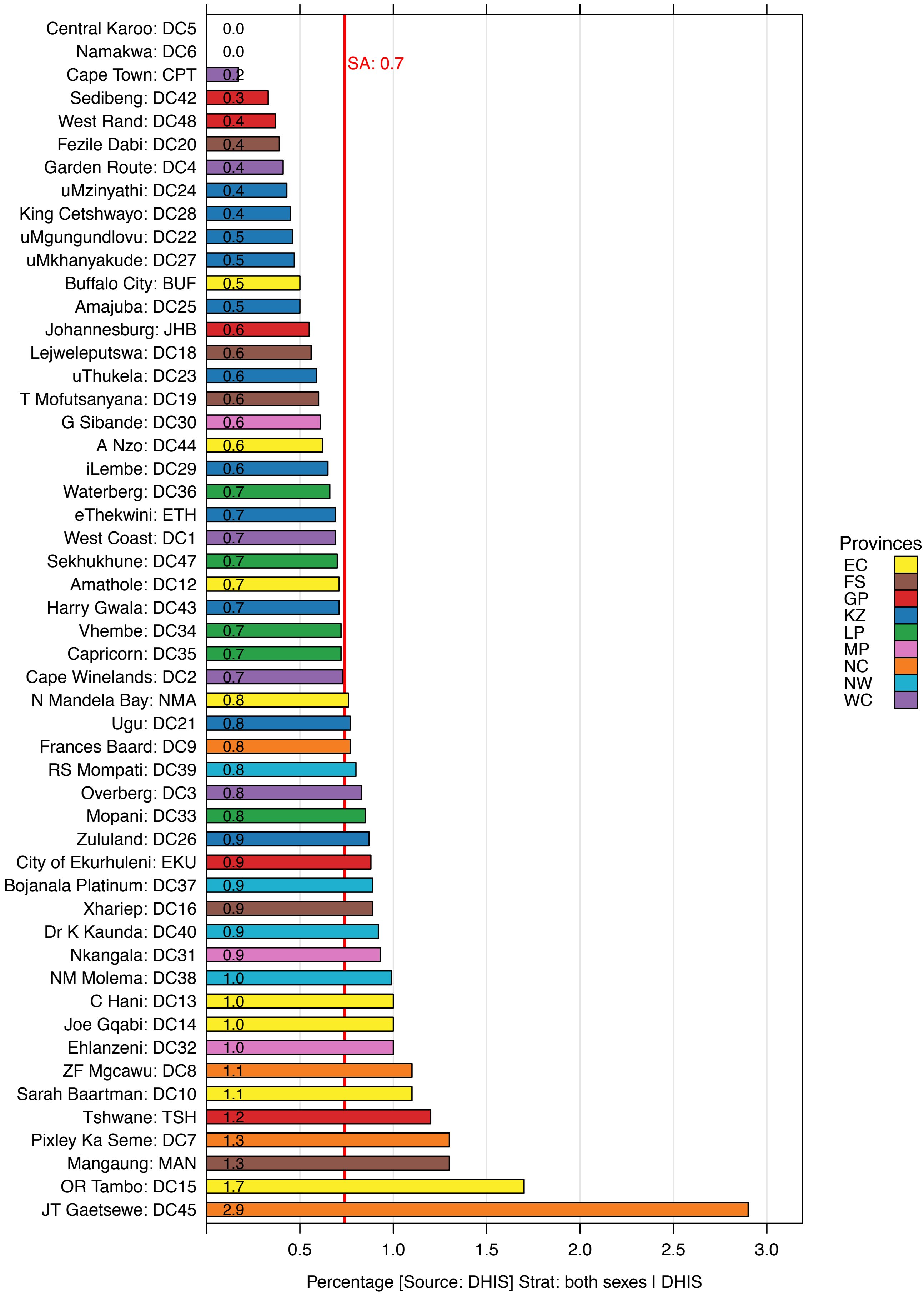


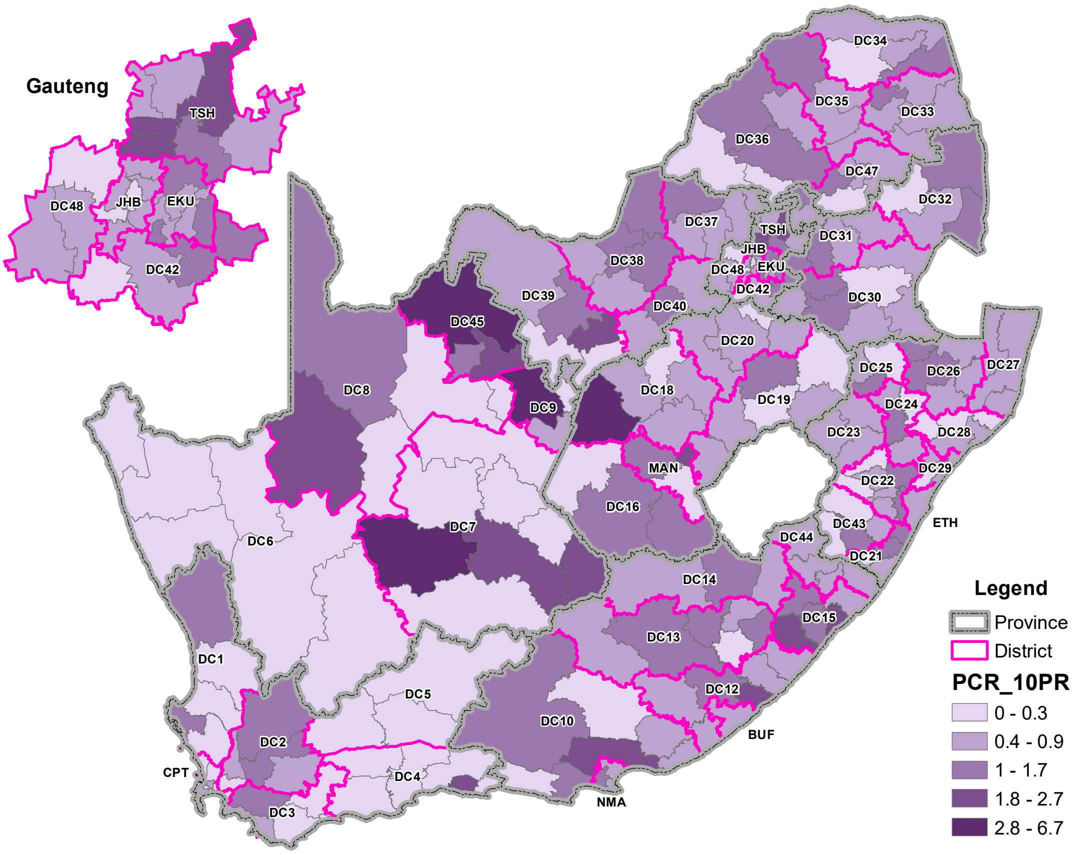
Table 1 and Map 1 show that four LM/sub-districts (SDs) in the Eastern Cape, two LM/SDs in Free State (FS), three LM/SDs in Gauteng (GP) (all three in Tshwane district), seven LM/SDs in the Northern Cape, and one LM/SD in North West (NW) and the Western Cape each had an infant PCR test positive around 10 weeks rate of 1.8% or more. The highest rate among the LM/SDs was Joe Morolong LM in John Taolo Gaetsewe (3.9%) and Kareeberg LM in Pixley Ka Seme (6.7%) in Northern Cape. The reason for the high infant PCR test positive around 10 weeks rate in the Northern Cape districts was because of the small numbers for infants tested at 10 weeks. In one facility in Joe Morolong (John Taolo Gaetsewe district (NC)) one infant was tested in October 2019 and the infant tested positive, and two infants were tested in January 2019 and both tested positive. This may reflect poor data quality because the above were the only months in 2018/19 when infants who were tested, tested positive. In all the other months none of the infants who were tested had a positive result.

Table 1: Local municipalities/sub-districts with an infant PCR test positive around 10 weeks rate of 2% or more, 2018/19

Province	District	Local municipality/sub-district	Infant PCR test positive around 10 weeks rate (%)
Eastern Cape	Amathole	Great Kei	2.3
	OR Tambo	King Sabata Dalindyebo	2.6
	OR Tambo	Port St Johns	2.4
	Sarah Baartman	Sundays River Valley	2.6
Free State	Mangaung	Thaba N'chu	2.1
	Lejweleputswa	Tokologo	3.6
Gauteng	Tshwane	Tshwane 3	2.0
		Tshwane 4	2.1
		Tshwane 5	2.1
Northern Cape	Frances Baard	Dikgatlong	3.5
	Pixley Ka Seme	Emthanjeni	2.5
	John Taolo Gaetsewe	Ga-Segonyana	2.7
	John Taolo Gaetsewe	Joe Morolong	3.9
	Zwelentlanga Fatman Mgcawu	Kai !Garib	2.6
	Pixley Ka Seme	Kareeberg	6.7
	Pixley Ka Seme	Umsobomvu	2.0
North West	Ruth Segomotsi Mompati	Mamusa	2.3
Western Cape	Garden Route	Knysna	2.7

Source: DHIS.

Map 1: Infant PCR test positive around 10 weeks rate by local municipality/sub-districts, 2018/19



Source: DHIS.

Key findings

- The national infant PCR test positive around 10 weeks rate declined from 4.3% in 2015/16 to 0.7% in 2018/19.
- In 2018/19, the Western Cape reported the lowest infant PCR test positive around 10 weeks rate at 0.3%, and the Northern Cape the highest rate at 1.4%.
- The district infant PCR test positive around 10 weeks rate ranged from 2.9% in John Taolo Gaetsewe (NC) to 0% in Central Karoo (WC) and Namakwa (NC).
- Eighteen LM/SDs reported an infant PCR test positive around 10 weeks rate of 2% or more. The highest rate among the LM/SDs was in Kareeberg LM (in Pixley Ka Seme (NC)), at 6.7%.

Conclusion

- Nationally, the infant PCR test positive around 10 weeks rate has decreased steadily.
- There are variances in the infant PCR test positive around 10 weeks rate between LM/SDs, districts and provinces.

Recommendations

- The high infant PCR test positive around 10 weeks rate in the 18 LM/SDs should be investigated to determine the reasons for these elevated levels. Use of detailed laboratory data available from the National Health Laboratory Service (NHLS) should help to pinpoint the problems.
- Screen for HIV exposure at all points of routine contact with infants and children, e.g. Expanded Programme on Immunisation (EPI) visits.
- There should be integration and collaboration between the NHLS, DHIS and TIER.Net in order to get more accurate positivity rates and improved data quality.

Clients remaining on ART rate

In 2019, approximately 7.5 million South Africans from all age groups were living with HIV.[d] The United Nations Programme on HIV/AIDS (UNAIDS) developed the 90-90-90 Strategy to address the HIV/AIDS epidemic and established new targets for HIV treatment scale-up beyond 2015. The aim of this strategy is to ensure that 90% of people living with HIV (PLHIV) are tested and know their status; that 90% of these PLHIV are on treatment; and that 90% of people on treatment have a suppressed viral load by December 2020.

The clients' remaining on ART rate is defined as the percentage of PLHIV currently receiving ART, among the estimated number of adults and children living with HIV. The numerator is 'total clients remaining on ART at end of the month' and the denominator 'estimated number of PLHIV'. Total clients remaining on ART includes the sum of all clients on treatment, including newly initiated patients and patients already on treatment.

The methodology to determine the estimated number of PLHIV at district level was determined by the NDoH and is described in the 2017/18 District Health Barometer.[e]

Sustainable Development Goal (SDG) 3.3 states: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.[f] The SDG indicator to measure the goal and target for HIV is the number of new HIV infections per 1 000 uninfected population, by sex, age and key populations. The infectious disease control category of the UHC index[g] has one indicator to monitor ART treatment, namely the percentage of people with HIV receiving ART.

The Thembisa model[h] and the World Health Organization (WHO)[i] estimate South Africa's ART coverage to be around 62%. Since introduction of ART in 2004, the country has made significant strides in expanding treatment to all. According to UNAIDS, provision of ART to 90% of PLHIV will avert a substantial number of deaths in high-burden HIV countries and can be a marker of how well a health system reaches marginalised populations with higher HIV prevalence in countries with lower HIV burden.[j]

Substantial progress has been made in initiating PLHIV on ART; however, data from various studies and the DHIS reflect slow progress towards achievement of the second 90-90-90 target, namely that 90% of PLHIV who know their status are receiving treatment.

National overview

According to the DHIS, the national clients remaining on ART rate increased from 58.9% in 2017 to 65.1% in March 2019, compared with the global second 90-90-90 target of 81% (90% of the first 90, those who know their status).

Provincial overview

In March 2019, the clients remaining on ART rate among provinces ranged from 78.7% in Limpopo (LP) to 56.0% in Gauteng (Figure 4). Limpopo, Free State, Northern Cape, KwaZulu-Natal (KZ) and Mpumalanga (MP) performances were above the national average.

d Johnson LF, Dorrington RE. Modelling the impact of HIV in South Africa's provinces: 2019 update. University of Cape Town; 2019. Available from: https://www.thembisa.org/content/downloadPage/ProvOutput4_2 /.

e Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; January 2019.

f Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicatorsIndicator%20Framework_A.RES.71.313%20Annex.pdf.

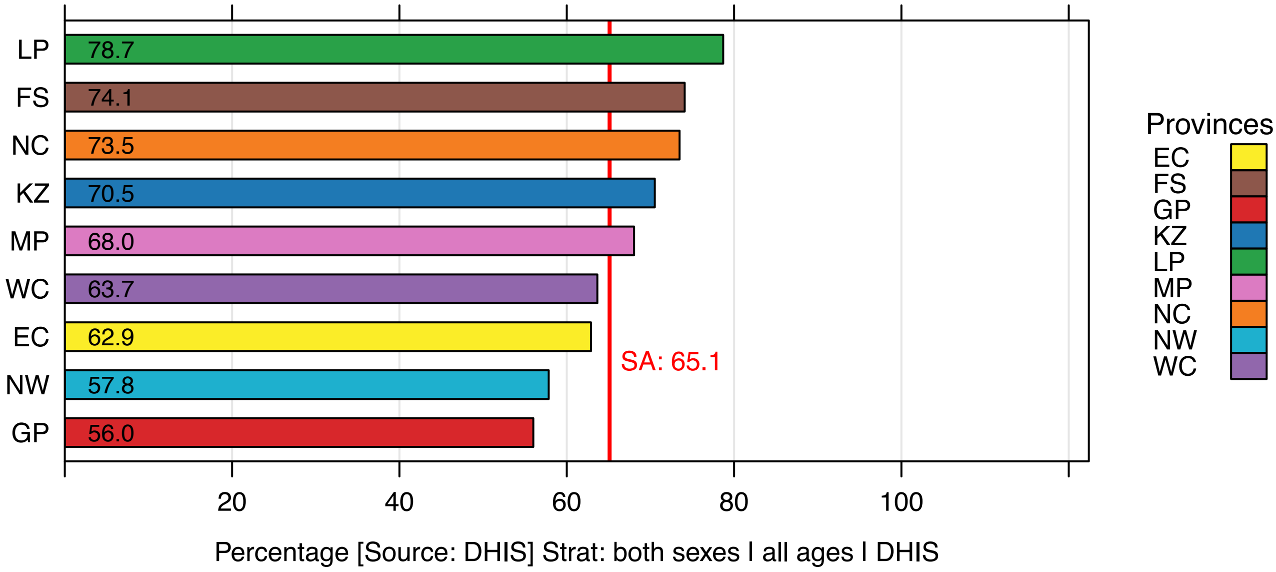
g Wagstaff A, Flores G, Hsu J, et al. Progress on catastrophic health spending in 133 countries: a retrospective observational study. Lancet Glob Health. 2018;6(2):e169-79. http://dx.doi.org/10.1016/S2214-109X(17)30429-1.

h Johnson L, Dorrington R. Thembisa version 4.2: A model for evaluating the impact of HIV/AIDS in South Africa. University of Cape Town; June 2019.

i World Health Organization. Antiretroviral therapy coverage estimates by country. Available from: http://apps.who.int/gho/data/view.main.23300?lang=en.

j UNAIDS. Interactive datasheet of HIV health indicators. 2017. Available from: http://aidsinfo.unaids.org/.

Figure 4: Clients remaining on ART rate by province, March 2019



According to the DHIS, there were 4 629 831 clients remaining on ART at the end of March 2019, of whom 156 178 were children under 15 years of age (Table 2).

Table 2: Clients remaining on ART by province, March 2019

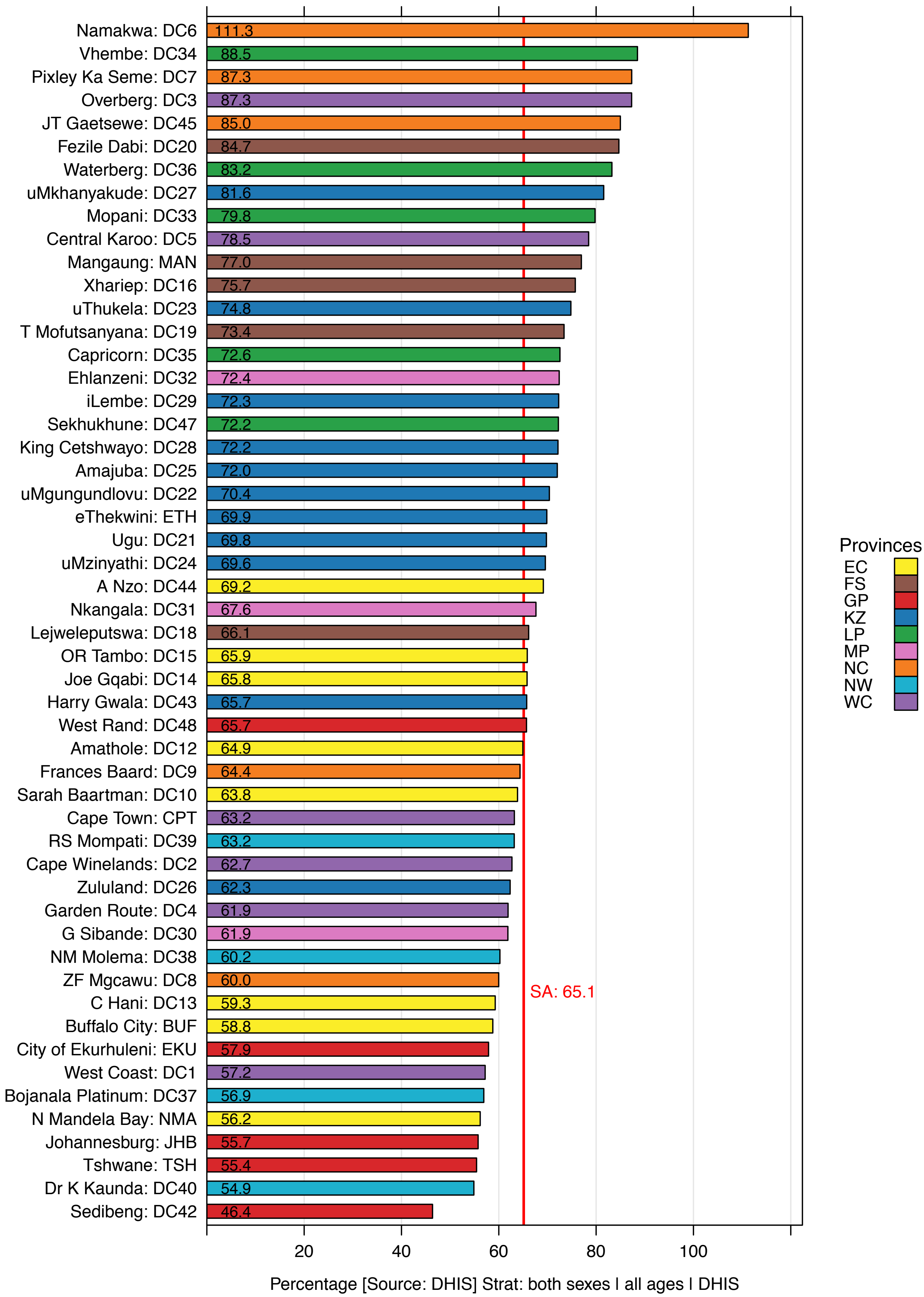
	Adults on ART at end of March 2019 (Number)	Children under 15 years on ART at end of March 2019 (Number)	Total clients remaining on ART at end of March 2019 (Number)
Eastern Cape	474 308	19 571	493 879
Free State	263 428	9 964	273 392
Gauteng	1 011 503	25 709	1 037 212
KwaZulu-Natal	1 339 651	48 037	1 387 688
Limpopo	342 409	14 506	356 915
Mpumalanga	447 571	16 998	464 569
Northern Cape	55 479	3 868	59 347
North West	269 416	9 386	278 802
Western Cape	269 888	8 139	278 027
South Africa	4 473 653	156 178	4 629 831

Source: DHIS.

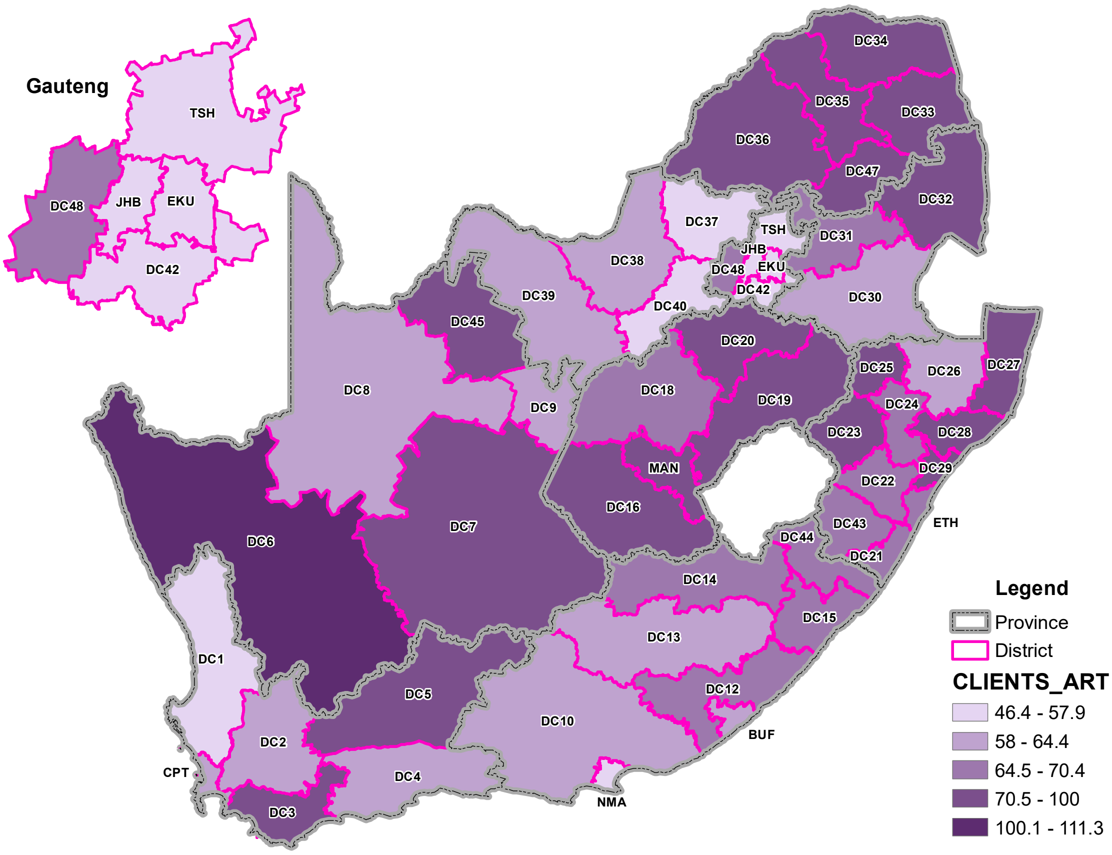
District overview

At district level, Namakwa (NC) had the highest clients remaining on ART rate (111.3%) in March 2019, and it was the only district to achieve the target of 90% (Figure 5 and Map 2). However, a rate above 100% might be an indication of poor data quality. Sedibeng (GP) with a rate of 46.4% performed the poorest among the districts. Four of the five districts in Gauteng were among the 10 districts with the lowest rates.

Figure 5: Clients remaining on ART rate by district, March 2019



Map 2: Clients remaining on ART rate by district, March 2019



Source: DHIS.

Key findings

- Nearly two-thirds (65.1%) of all PLHIV are on ART.
- There are wide variances in the rates for clients remaining on ART across provinces and districts.
- None of the provinces achieved the second of the 90-90-90 targets, namely that 90% of PLHIV who know their status are receiving treatment. In March 2019, the rate ranged from 78.7% in Limpopo to 56.0% in Gauteng.
- Four of the five districts in Gauteng were among the 10 districts with the lowest rates over the period.

Conclusion

- With 65.1% of PLHIV on ART, South Africa will have to accelerate efforts to reach the second 90-90-90 target of 81% by December 2020.
- Data quality appears to be a challenge in some districts.

Recommendations

- Expand testing and treatment to undiagnosed PLHIV through index testing, self-testing and targeted testing, with a special focus on men and children.
- Strengthen linkage to treatment for PLHIV who were diagnosed but never initiated on treatment.
- Strengthen retention strategies, such as the welcome-back campaigns, for patients who were never initiated and those who have defaulted treatment.
- Scale up differentiated service-delivery models by promoting and increasing the number of ART pick-up points.
- Strengthen the implementation of existing Operation Phuthuma initiatives such as:
  - Joint planning across government, community, donors and partners at all levels.
  - Weekly and monthly monitoring, reporting and tracking of facility targets.
  - Performance management through quality-improvement plans, facility-improvement plans, nerve-centre meetings, war rooms, and additional support visits as necessary.
  - Mobilisation and engagement of community organisations and structures to support the achievement of 90-90-90 targets.
  - Deep dives to identify and address data quality and systems issues.

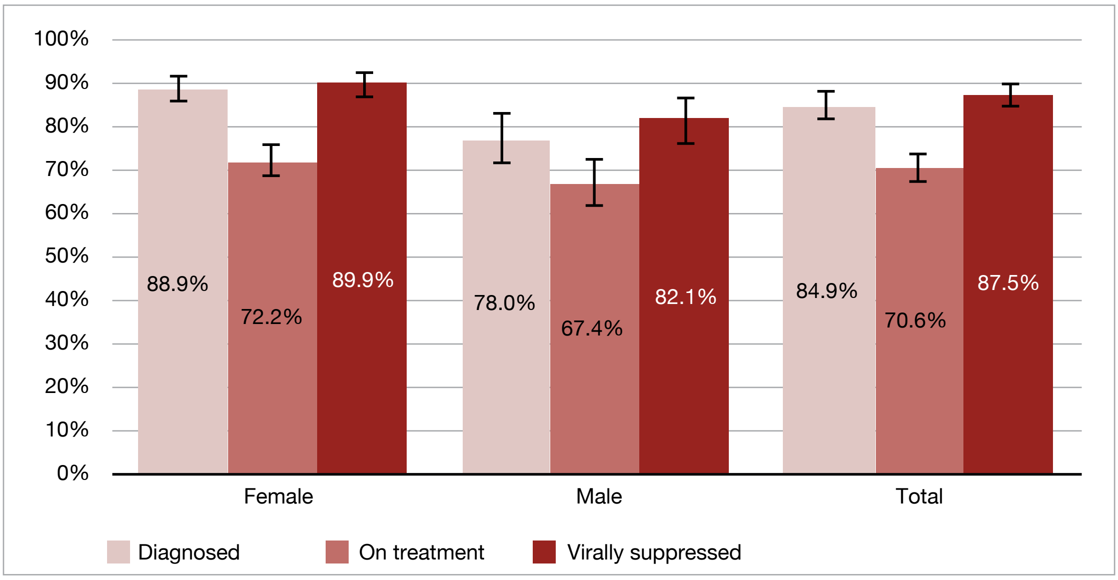
ART client viral load suppressed rate

The third 90 in the UNAIDS 90-90-90 strategy, is that 90% of people on treatment should have a suppressed viral load (VL) by December 2020. The WHO recommends VL testing as the preferred method for monitoring the clinical response to ART of patients with HIV infection.[k] Globally, HIV viral load suppression (VLS) is defined as a VL less than 1 000 copies per ml, and is a measure of ART effectiveness. The greater the VLS, the more effective the treatment. Currently, the 2017 National Indicator Data Set (NIDS)[l] considers VLS as <400 copies/ml. Viral load suppression is also a proxy indicator for adherence to treatment and for the risk of HIV transmission.

The ART client VLS rate indicator monitors the proportion of documented VL results from clients who have been on ART for at least 12 months with a suppressed result (<400 copies/ml). This allows ART programmes to monitor individual and overall programmatic response to ART as measured by virologic suppression. This indicator provides data on patients who have had a VL test in the past 12 months, and the percentage who were virally suppressed. Although the National ART Guidelines[b] recommends VL testing six months after ART initiation and every other year for persons on ART, data from the DHIS reflect lower VL testing uptake.

The 2017 South African National HIV Prevalence, Incidence, Behaviour and Communication Survey[m] reported VLS among PLHIV aged 15 - 64 years currently on ART at 87.5%. Gender disaggregation further reflects that 89.9% of HIV-positive females and 82.1% of HIV-positive males who are on ART are virally suppressed (Figure 6).

Figure 6: Attainment of the 90-90-90 targets among HIV-positive adults (15 - 64 years) by sex, 2017



Source: South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017.[m]

National overview

In 2018, the national adult VLS rate at 12 months was 90.6% (Figure 7), an increase of 2.7 percentage points from 2016, which meant that the target of 90% was reached. The child VLS rate at 12 months was much lower at 68.0% in 2018 (Figure 8). However, the rate had increased by 2.5 percentage points from 2016.

Provincial overview

In 2018, KwaZulu-Natal had the highest adult VLS rate at 12 months of 93.2%, and Limpopo the lowest rate at 85.4% (Figure 7). Five provinces reached the target of 90%.

Free State had the highest child VLS rate at 12 months (73.5%) and Northern Cape the lowest rate (58.7%) over the same period (Figure 8). The child VLS rate at 12 months in the Northern Cape declined by 12.3 percentage points, from 71.0% in 2016 to 58.7% in 2018 (Table 3).

k World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Geneva: WHO; 2013. Available from: http://apps.who.int/iris/bitstream/10665/85321/1/9789241505727_eng.pd.

l National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; April 2017.

m South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017. Cape Town: Human Sciences Research Council Press. PowerPoint presentation. Available from: http://repository.hsrc.ac.za/bitstream/handle/20.500.11910/13760/10848.pdf?sequence=1&isAllowed=y.

Figure 7: Adult viral load suppressed rate at 12 months by province, 2018

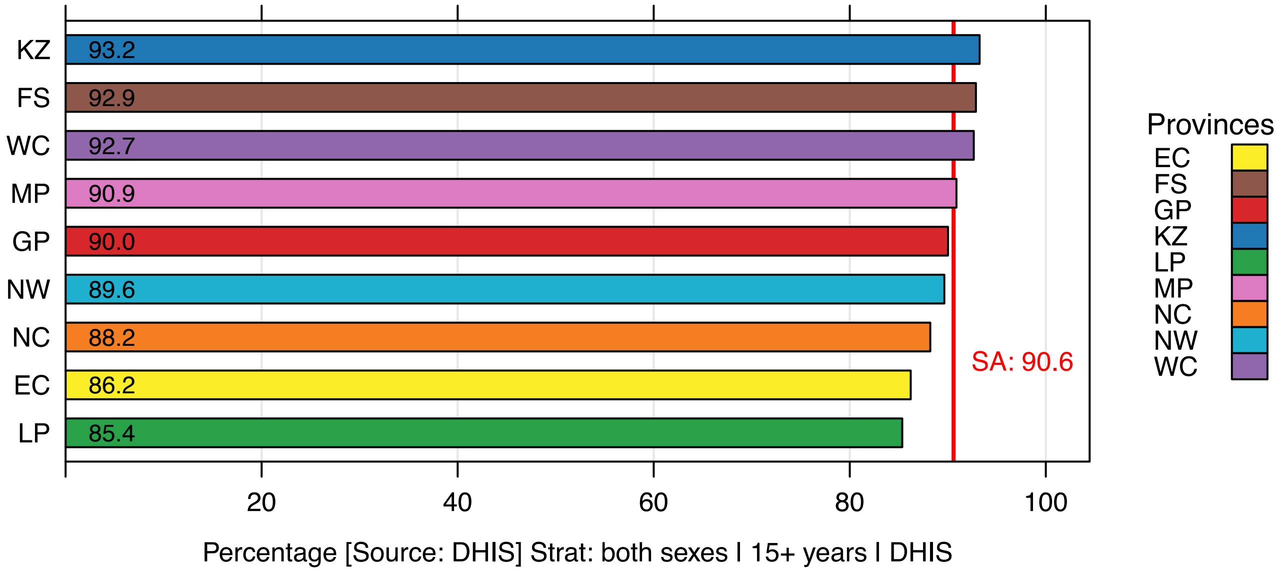


Figure 8: Child viral load suppressed rate at 12 months by province, 2018

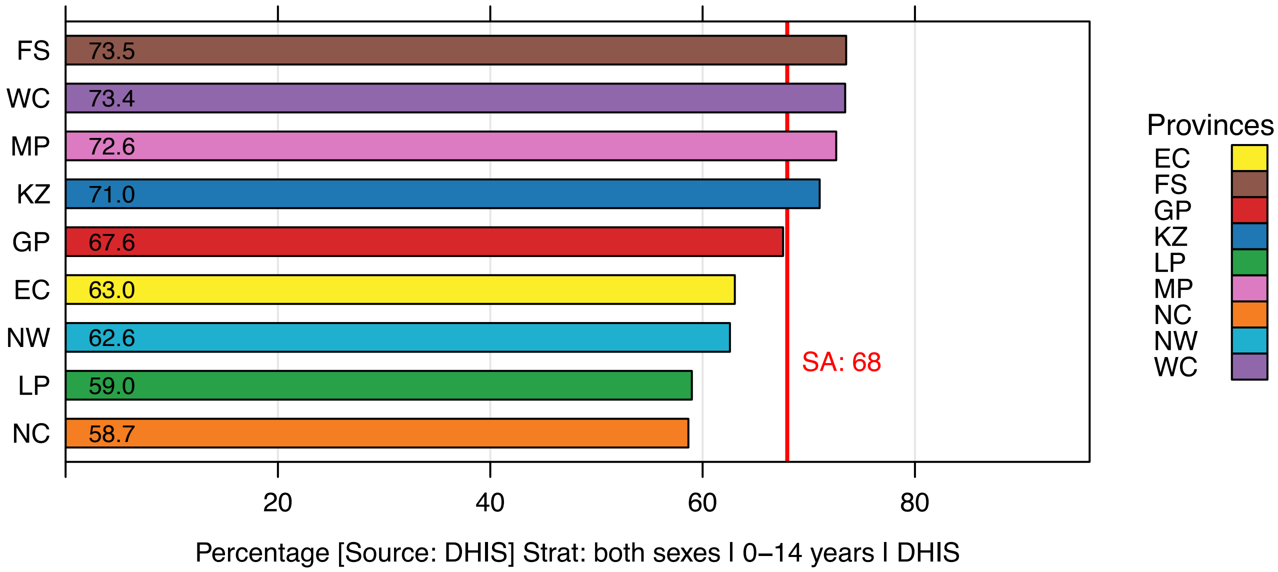


Table 3: Adult and child viral load suppressed rates at 12 months by province, 2016 - 2018

	Adult viral load suppressed rate at 12 months			Percentage point increase/ decrease between 2016 and 2018	Child viral load suppressed rate at 12 months			Percentage point increase/ decrease between 2016 and 2018
	2016 (%)	2017 (%)	2018 (%)		2016 (%)	2017 (%)	2018 (%)	
Eastern Cape	85.7	84.7	86.2	0.5	60.7	56.7	63.0	2.3
Free State	92.8	92.7	92.9	0.1	72.6	71.5	73.5	0.9
Gauteng	81.3	77.7	90.0	8.7	58.8	55.5	67.6	8.8
KwaZulu-Natal	93.5	93.2	93.2	-0.3	72.2	70.9	71.0	-1.2
Limpopo	83.3	81.2	85.4	2.1	56.1	52.3	59.0	2.9
Mpumalanga	89.5	89.8	90.9	1.4	67.4	66.4	72.6	5.2
Northern Cape	85.6	85.7	88.2	2.6	71.0	73.8	58.7	-12.3
North West	88.5	85.8	89.6	1.1	64.1	61.0	62.6	-1.5
Western Cape	92.2	92.3	92.7	0.5	67.0	69.1	73.4	6.4
South Africa	87.9	86.7	90.6	2.7	65.5	63.5	68.0	2.5

Source: DHIS.

District overview

In 2018, the adult VLS rate at 12 months among the districts ranged from 95.0% in Amajuba (KZ) to 76.0% in Central Karoo (WC) (Figure 9 and Map 3). All 11 districts in KwaZulu-Natal and the five districts in Free State reached the 90-90-90 target of 90%. The success in KwaZulu-Natal may have been due to the support of partners, which operate in seven of the 11 districts. These districts include uThukela, uMgungundlovu, Zululand, eThekwini, Ugu, Harry Gwala and King Cetshwayo. Partners also support Thabo Mofutsanyana and Lejweleputswa districts in the Free State.

In 2018, the child VLS rate at 12 months among the districts ranged from 87.7% in Namakwa (NC) to 0% in Central Karoo (WC) (Figure 10 and Map 4). The DHIS data show that 106 children were on ART in Central Karoo and a VL was done on 100 children. However, none of the 100 children had a suppressed VL of under 400 copies per ml. This might be due to poor data quality. The seven districts with partner support in KwaZulu-Natal and the two districts in Free State were among the districts that exceeded the national average of 68%. The reasons for the lower child VLS rate at 12 months among the districts should be investigated.

Figure 9: Adult viral load suppressed rate at 12 months by district, 2018

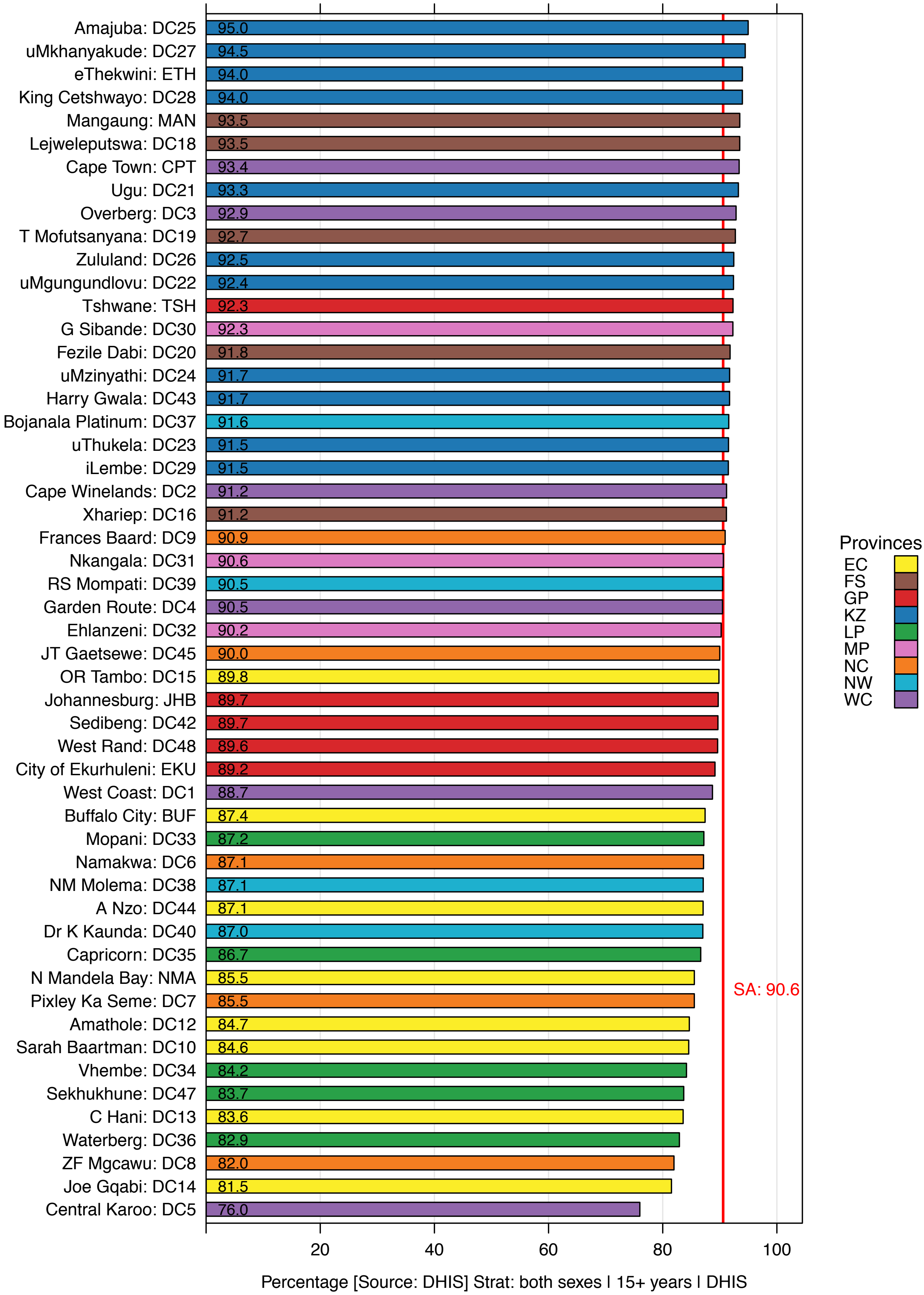
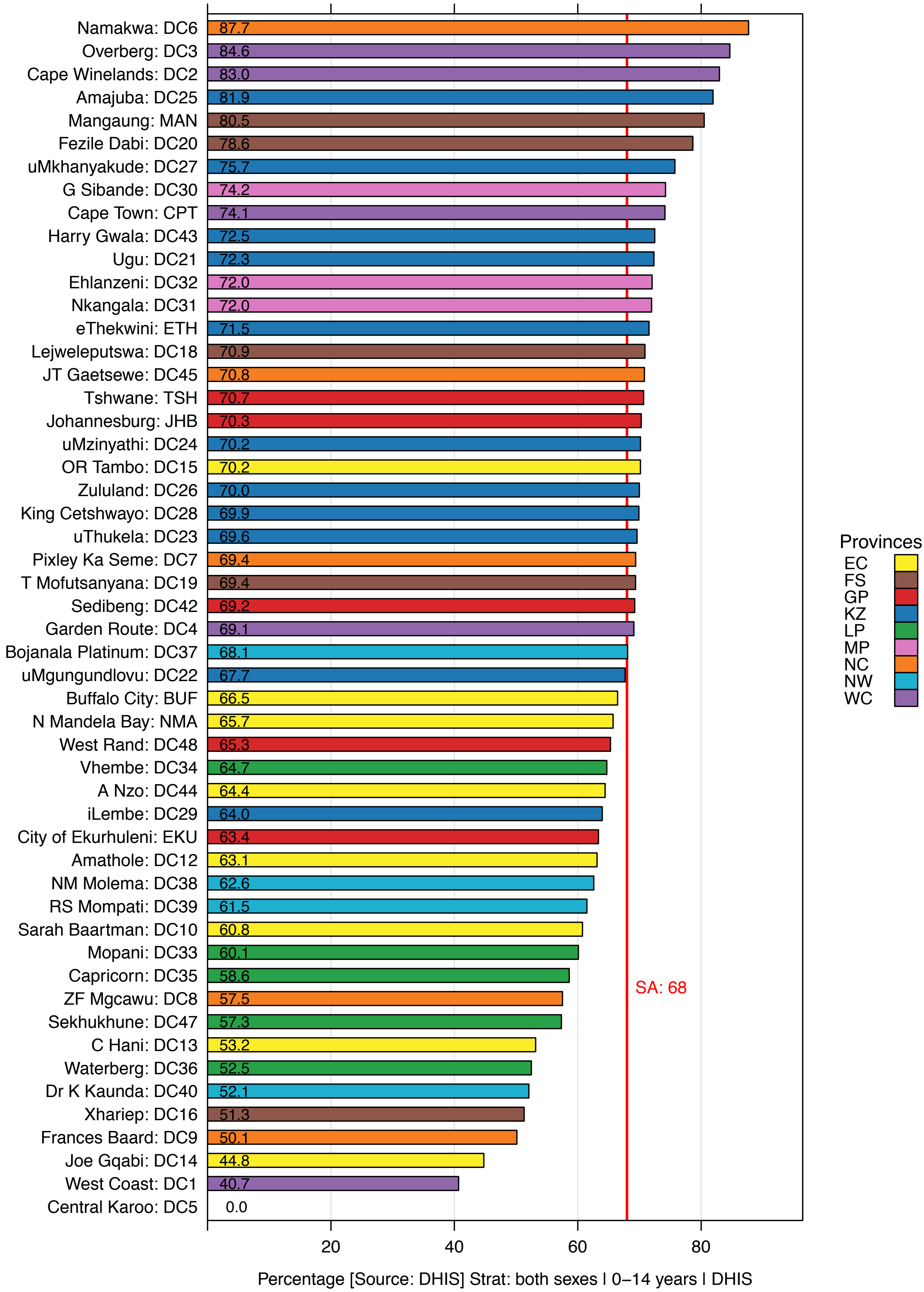
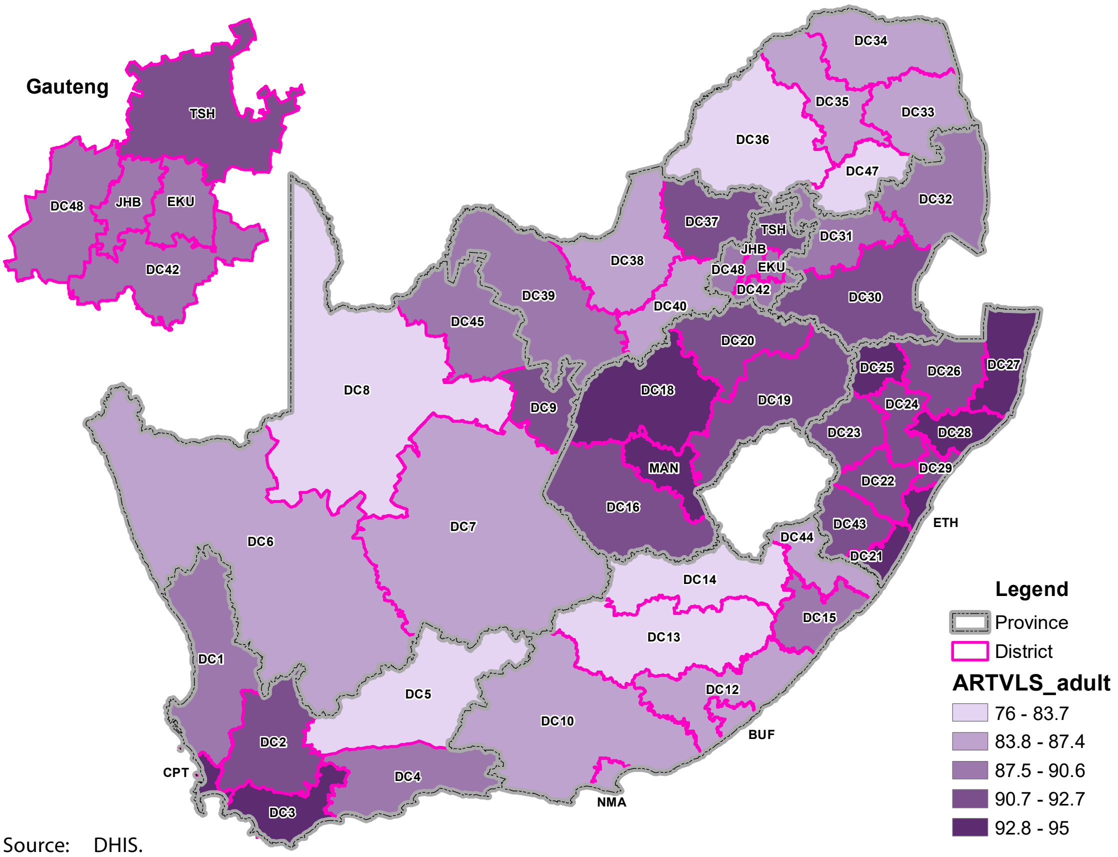


Figure 10: Child viral load suppressed rate at 12 months by district, 2018

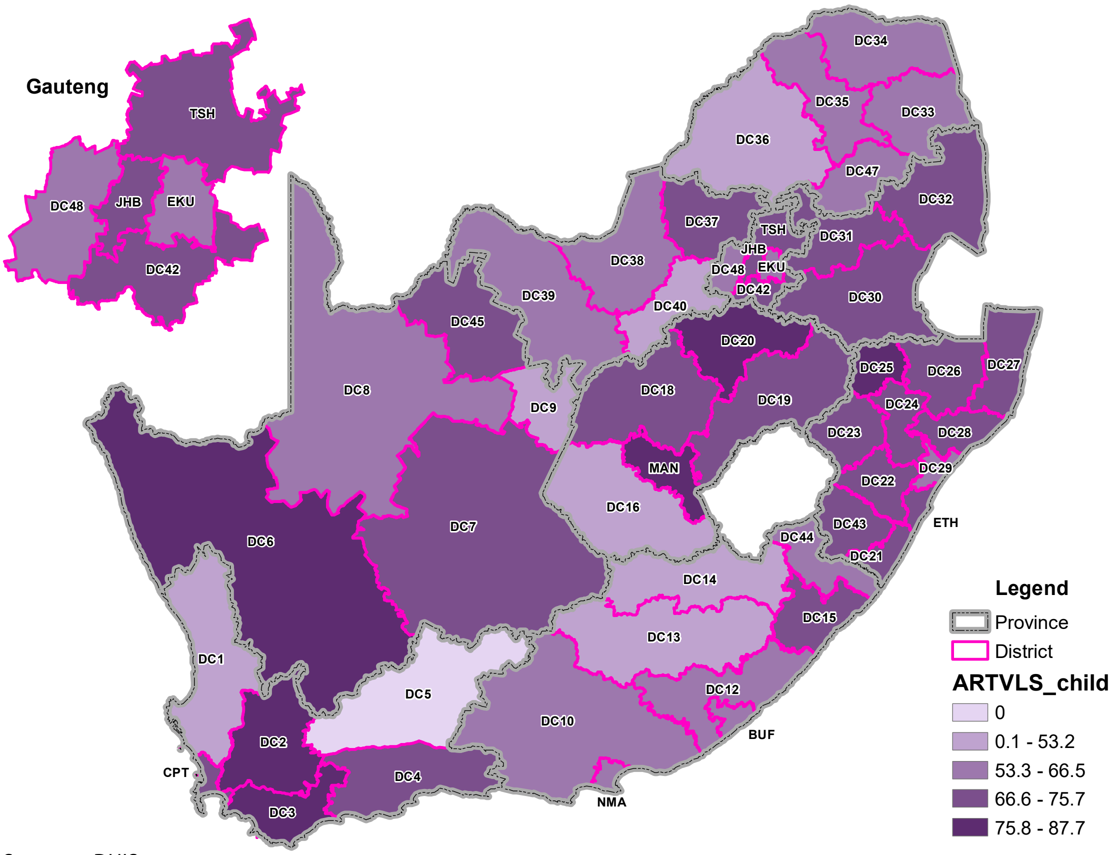


Map 3: Adult viral load suppressed rate at 12 months by district, 2018



Source: DHIS.

Map 4: Child viral load suppressed rate at 12 months by district, 2018



Source: DHIS.

Table 4 shows that between 2016 and 2018, the adult VLS rate at 12 months increased by more than 10 percentage points in three districts in Gauteng, namely Ekurhuleni (16.2), Sedibeng (14.3) and West Rand (10.6). The biggest decline in the rate was in Central Karoo (WC) at 8.1 percentage points over the same period, which may have been due to poor data quality. Between 2016 and 2018, the child VLS rate at 12 months increased by more than 10 percentage points in five districts. These districts were Ekurhuleni (GP) (14.8), Sedibeng (GP) (16.0), Harry Gwala (KZ) (11.5), Vhembe (LP) (10.7), and Garden Route (WC) (12.0). The biggest decline in rate over the same period was in Central Karoo (WC) (66.7), followed by Frances Baard (NC) (22.1), West Coast (WC) (14.9), Joe Gqabi (EC) (13.5), and Namakwa (NC) (12.3). These are mainly large rural districts with small populations and susceptible to data-quality issues.

Table 4: Adult and child viral load suppressed rate at 12 months by district, 2016 - 2018

		Adult viral load suppressed rate at 12 months			Percentage point increase/ decrease between 2016 and 2018	Child viral load suppressed rate at 12 months			Percentage point increase/ decrease between 2016 and 2018
		2016 (%)	2017 (%)	2018 (%)		2016 (%)	2017 (%)	2018 (%)	
Eastern Cape	Alfred Nzo	88.1	87.4	87.1	-1	60.4	52.9	64.4	4
	Amathole	83.6	82.1	84.7	1.1	57.1	57	63.1	6
	Buffalo City	87.8	87.7	87.4	-0.4	67.9	63.8	66.5	-1.4
	Chris Hani	84.2	83.2	83.6	-0.6	55.6	53.4	53.2	-2.4
	Joe Gqabi	79.8	79.8	81.5	1.7	58.3	62.4	44.8	-13.5
	Nelson Mandela Bay	84.2	83.4	85.5	1.3	57.4	51.3	65.7	8.3
	OR Tambo	88.4	87	89.8	1.4	67.2	60.8	70.2	3
	Sarah Baartman	83.6	83	84.6	1	58.7	52	60.8	2.1
Free State	Fezile Dabi	92.2	91.7	91.8	-0.4	71.4	68.7	78.6	7.2
	Lejweleputswa	93.4	93.4	93.5	0.1	62.4	68.2	70.9	8.5
	Mangaung	93.6	93.6	93.5	-0.1	77.2	72.7	80.5	3.3
	Thabo Mofutsanyana	92.5	92.4	92.7	0.2	75.5	76.4	69.4	-6.1
	Xhariep	89.5	89.3	91.2	1.7	58.8	52.7	51.3	-7.5
Gauteng	Ekurhuleni	73	66	89.2	16.2	48.6	42.7	63.4	14.8
	Johannesburg	86.5	84.8	89.7	3.2	68.7	64.4	70.3	1.6
	Sedibeng	75.4	67	89.7	14.3	53.2	44.1	69.2	16
	Tshwane	91.7	91.6	92.3	0.6	69.8	70.1	70.7	0.9
	West Rand	79	73.2	89.6	10.6	56.4	42	65.3	8.9
KwaZulu-Natal	Amajuba	94.7	95.4	95	0.3	84.7	81.2	81.9	-2.8
	eThekwini	93.8	93.6	94	0.2	74.4	71.4	71.5	-2.9
	Harry Gwala	91.6	90.9	91.7	0.1	61	61.1	72.5	11.5
	iLembe	91.3	91	91.5	0.2	67.4	71.9	64	-3.4
	King Cetshwayo	94.5	94.1	94	-0.5	74.9	75.6	69.9	-5
	Ugu DM	94.1	93.3	93.3	-0.8	73.7	67.2	72.3	-1.4
	uMgungundlovu	92.2	91.7	92.4	0.2	66.7	66.6	67.7	1
	uMkhanyakude	93.8	93.9	94.5	0.7	69.5	69.8	75.7	6.2
	uMzinyathi	92.2	91.8	91.7	-0.5	67.6	67.1	70.2	2.6
	uThukela	94	93.8	91.5	-2.5	73.1	71.2	69.6	-3.5
	Zululand	93.4	93.3	92.5	-0.9	73.3	75	70	-3.3
Limpopo	Capricorn	84.3	82.5	86.7	2.4	56.4	53.6	58.6	2.2
	Mopani	84.7	82.5	87.2	2.5	57.2	52.6	60.1	2.9
	Sekhukhune	83	81.3	83.7	0.7	57.4	55.6	57.3	-0.1
	Vhembe	81.8	79.5	84.2	2.4	54	49.9	64.7	10.7
	Waterberg	80.8	78.2	82.9	2.1	52.1	46	52.5	0.4
Mpumalanga	Ehlanzeni	88.8	89.3	90.2	1.4	66.4	64.3	72	5.6
	Gert Sibande	91.7	91.5	92.3	0.6	69.4	71.9	74.2	4.8
	Nkangala	88.9	88.9	90.6	1.7	68.9	66.2	72	3.1
Northern Cape	Frances Baard	90.1	90.2	90.9	0.8	72.2	79.9	50.1	-22.1
	John Taolo Gaetsewe	86.4	86	90	3.6	57.1	75.8	70.8	13.7
	Namakwa	85.7	83.9	87.1	1.4	100	75.2	87.7	-12.3
	Pixley Ka Seme	82.7	80.9	85.5	2.8	73.9	71.4	69.4	-4.5
	Zwelentlanga Fatman Mgcawu	80.1	81.1	82	1.9	63.6	48.4	57.5	-6.1

		Adult viral load suppressed rate at 12 months			Percentage point increase/ decrease between 2016 and 2018	Child viral load suppressed rate at 12 months			Percentage point increase/ decrease between 2016 and 2018
		2016 (%)	2017 (%)	2018 (%)		2016 (%)	2017 (%)	2018 (%)	
North West	Bojanala Platinum	91.2	90.6	91.6	0.4	68.6	66	68.1	-0.5
	Dr Kenneth Kaunda	86.2	84.1	87	0.8	61.8	62.2	52.1	-9.7
	Ngaka Modiri Molema	81.7	75.8	87.1	5.4	55.4	48.7	62.6	7.2
	Dr Ruth Segomotsi Mompati	88.8	87.7	90.5	1.7	55.6	64.6	61.5	5.9
Western Cape	Cape Town	93	92.9	93.4	0.4	70.3	70.6	74.1	3.8
	Cape Winelands	90.1	91.1	91.2	1.1	57.1	58.4	83	25.9
	Central Karoo	84.1	74.6	76	-8.1	66.7	66.8	0	-66.7
	Garden Route	89	89.2	90.5	1.5	57.1	72	69.1	12
	Overberg	94.1	94.5	92.9	-1.2	81	72.8	84.6	3.6
	West Coast	87.3	89.1	88.7	1.4	55.6	54.7	40.7	-14.9

Source: DHIS.

Key findings

- In 2018, the national adult VLS rate at 12 months was 90.6%, an increase of 2.7 percentage points from 2016. The third 90 target in the 90-90-90 strategy was reached.
- The child VLS rate at 12 months was 68.0% in 2018.
- In 2018, KwaZulu-Natal had the highest adult VLS rate at 12 months (93.2%), and Limpopo the lowest rate at 85.4%. Five provinces reached the 90-90-90 target of 90%.
- In 2018, Free State had the highest child VLS rate at 12 months (73.5%), and Northern Cape the lowest rate at 58.7%. In the Northern Cape, the child VL suppressed rate at 12 months declined by 12.3 percentage points from 71.0% in 2016 to 58.7% in 2018.
- In 2018, the adult VLS rate at 12 months among districts ranged from 95.0% in Amajuba (KZ) to 76.0% in Central Karoo (WC). All 11 districts in KwaZulu-Natal and the five districts in Free State reached the target of 90%.
- In 2018, the child VLS rate at 12 months among the districts ranged from 87.7% in Namakwa (NC) to 0% in Central Karoo (WC).
- Between 2016 and 2018, the adult VLS rate at 12 months increased by more than 10 percentage points in three districts in Gauteng. The biggest decline in rate was in Central Karoo (WC) at 8.1 percentage points over the same period.
- Between 2016 and 2018, five districts had an increase of more than 10 percentage points in the child VLS rate at 12 months, and five districts showed a huge drop in rate, from 66.7 percentage points in Central Karoo (WC), to Frances Baard (NC) (22.1), West Coast (WC) (14.9), Joe Gqabi (EC) (13.5), and Namakwa (NC) (12.3).

Conclusion

- Although the country reached the 90-90-90 target of 90% for adult VLS rate at 12 months, several provinces are lagging behind, viz. North West, Northern Cape, Eastern Cape and Limpopo.
- None of the provinces reached the 90-90-90 target of 90% for the child VLS rate at 12 months.
- Data quality appears to be a challenge.

Recommendations

Viral load test uptake

- Develop an improvement plan to identify leakages in VL test uptake.
- Develop a training and mentorship plan to strengthen capacity to routinely collect, analyse, and use VL data at all levels to improve quality of services and patient outcomes.
- Implement practical strategies such as the use of charting tools and reminders to ensure that patients know when they should have a VL test performed.
- Develop effective systems for reviewing VL results, filing VL results when they are returned to the clinic, and reinforcing the importance of achieving VL suppression, not merely registering VL results.

Viral load suppression

- Strengthen VL test uptake and VL suppression, especially in children and men.
- Act on results, thus reinforcing the cascade.
- Strengthen adherence by improving treatment literacy, including innovations such as U=U (Undetectable viral load = Un-transmittable HIV).
- Intensify case management and follow-up of patients who are not virally suppressed.
- Implement differentiated service models to promote adherence to treatment and optimal clinical outcomes.
- Provide ongoing training and mentorship to prepare health workers and systems to manage higher rates of non-suppression among infants, children and adolescents.

4 Non-communicable diseases

Annibale Cois, Andre Pascal Kengne

The human, social and economic burdens associated with non-communicable diseases (NCDs) have been rising globally, and at present NCDs are the leading cause of death in most countries and the main driver of disability worldwide.[a,b]

Previously, NCDs were associated with affluence and late stages of demographic transition. Currently, NCDs are disproportionately and increasingly affecting low- and middle-income countries, with policies, legislation, services and infrastructure often struggling to keep pace with the rapidly growing number of people affected.[c] In sub-Saharan Africa, the relative contribution of NCDs to the total burden of disease (years of life lost) is predicted to reach 35.9% by 2040, compared with 53.6% for communicable diseases together with maternal, perinatal and nutritional conditions.[d]

South Africa has one of the highest NCD prevalence rates in sub-Saharan Africa. From 2009, the burden of disease associated with NCDs has exceeded the burden from communicable diseases in terms of years of life lost and disability-adjusted life years. Despite the persistent human immunodeficiency virus (HIV) epidemic, the number of NCD-related deaths has surpassed the number of deaths due to communicable diseases together with maternal, perinatal and nutritional conditions.[e,f] Recent mortality data confirm this trend: in 2016, 57.5% of the 456 612 deaths recorded in South Africa were due to NCDs, compared with 31.3% due to communicable diseases together with maternal, perinatal and nutritional conditions and HIV/ Acquired Immune Deficiency Syndrome (AIDS)), and 11.2% due to external causes (e.g. accidents, homicide and suicide). This amounts to an average 1.7% annual increase in the proportion of NCD-related deaths over the total number of deaths from 2009.[g] Many patients with HIV/AIDS and tuberculosis (TB) also experience NCDs, and a significant number of maternal deaths are due to hypertension.

Non-communicable diseases include a large number of conditions, broadly characterised by their non-infectious nature, long duration, and generally slow progression. Cardiovascular diseases, hypertension, chronic obstructive pulmonary disorders, diabetes, cancers and mental disorders account for a large proportion of the burden associated with NCDs. The seven indicators presented in this chapter aim to provide some indication of the distribution and temporal trends of these categories of diseases in the country. The seven indicators are:

- Prevalence of non-raised blood pressure
- Prevalence of obesity and overweight
- Prevalence of diabetes
- Treatment coverage for diabetes
- Cervical cancer screening coverage
- Mental disorders treatment rate new
- Mental health separation rate.

Age-standardised prevalence of non-raised blood pressure, treatment coverage for diabetes, and cervical cancer screening coverage are three of the four indicators that define the NCD management section of the Universal Health Coverage (UHC) index proposed in 2018 by Hogan and colleagues[h] to track progress in the achievement of Goal 3.8 of the Sustainable Development Goals (SDGs).[i] The prevalence of non-raised blood pressure is considered a proxy for both effective health promotion and effective medical services in the prevention of cardiovascular disease. The treatment coverage for diabetes is a direct indicator of diabetes management, which in the last available estimates of the UHC index for South Africa, replaces the proxy indicator used in Hogan's original proposal (mean fasting plasma glucose).[a] Cervical cancer treatment coverage is used as a proxy for cancer detection and treatment.[a]

a World Health Organization. Global status report on noncommunicable diseases 2014. Geneva: WHO; 2014.

b Institute for Health Metrics and Evaluation. Findings from the global burden of disease study 2017. Seattle: IHME; 2018.

c Islam SMS, Purnat TD, Phuong NTA, Mwingira U, Schacht K, Fröschl G. Non-Communicable Diseases (NCDs) in developing countries: a symposium report. Global Health. 2014;10(1):81. Available from: https://doi.org/10.1186/s12992-014-0081-9.

d Foreman KJ, Marquez N, Dolgert A, et al. Forecasting life expectancy, years of life lost, and all-cause and cause-specific mortality for 250 causes of death: reference and alternative scenarios for 2016–40 for 195 countries and territories. Lancet. 2018;392(10159):2052-90. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31694-5/fulltext.

e Day C, Groenewald P, Laubscher R, Chaudhry S, van Schaik N, Bradshaw D. Monitoring of non-communicable diseases such as hypertension in South Africa: Challenges for the post-2015 global development agenda. S Afr Med J. 2014;104(10):680-7.

f Statistics South Africa. Mortality and causes of death in South Africa, 2016: Findings from death notification. Pretoria: Stats SA; 2018.

g Ibidem.

h Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. Lancet Glob Health. 2018;6(2):e152-e168.

i United Nations. Sustainable Development Goals. Available from: https://www.un.org/sustainabledevelopment/health/.

The estimates reported in this chapter were affected by lack of primary data of adequate quality, especially the following: uncertainty regarding the population data used as denominators for some indicators; incompleteness of facility data sourced from the District Health Information Software (DHIS); and limitation of the survey data used for blood pressure, overweight and diabetes indicators.

Non-raised blood pressure and overweight and obesity prevalence were estimated directly from survey data and may be imperfectly representative due to small sample sizes in some districts. Multiple surveys in the period of interest increased the reliability of the trend estimates, but all datasets used here originated from the same study (the National Income Dynamics Study),[j] and independently collected data are needed to confirm or dispute the results.

The modelling techniques applied to overcome the lack of data on diabetes prevalence and treatment coverage were certainly not free from problems, and consequently some of the local-level estimates seem unlikely. The models developed for this chapter were based on a series of assumptions which, although plausible and supported by reliable evidence, are subject to a large degree of uncertainty. The actual numerical values of the indicators reported in the tables and graphs must therefore be interpreted with caution. This is especially true for local estimates in small districts (in terms of size of the population and, consequently, number of people selected in the sample) where the uncertainty tends to be higher, and for treatment coverage estimates that rely on self-reported treatment status.

Prevalence of non-raised blood pressure

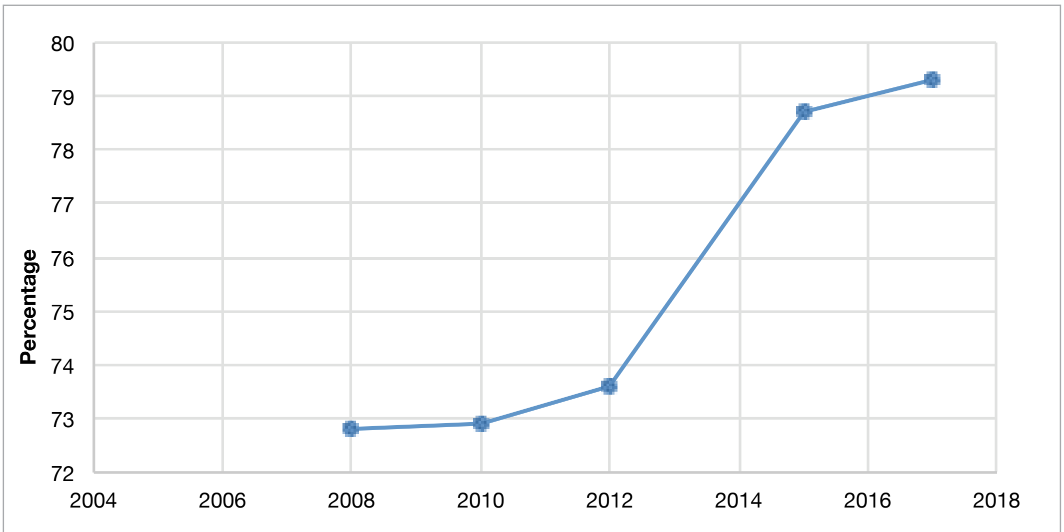
Raised blood pressure, i.e. systolic blood pressure (SBP)[3] 140 mmHg and/or diastolic blood pressure (DBP)[3] 90 mmHg, is a major risk factor for cardiovascular disease and many other pathologies (including renal impairment, retinal haemorrhage and visual impairment). Blood pressure levels are directly and strongly correlated with the risk of stroke and coronary heart disease. Treating systolic and diastolic blood pressure until they are less than 140/90 mmHg is associated with a significant reduction in cardiovascular complications.[k]

The indicator discussed here, namely prevalence of non-raised blood pressure, is defined as the percentage of adults (15 years and older) in the general population with SBP <140 mmHg and DBP <90 mmHg.[l]

National overview

In 2017, the age-standardised prevalence of non-raised blood pressure in the general adult population was 79.3%. In line with the consistently increasing trend observed from at least 2008 (Figure 1), this value was higher than the estimate for 2015, albeit only marginally.

Figure 1: National age-standardised prevalence of non-raised blood pressure among adults (15 years and older), 2008 - 2017



Source: HST estimates from the National Income Dynamics Study[j] data.

j Southern Africa Labour and Development Research Unit. National Income Dynamics Study Datasets [Wave 1, Version 7.0.0; Wave 2, Version 4.0.0; Wave 3, Version 3.0.0; Wave 4, Version 2.0.0; Wave 5, Version 1.0.0]. Pretoria: Government of South Africa; 2018.

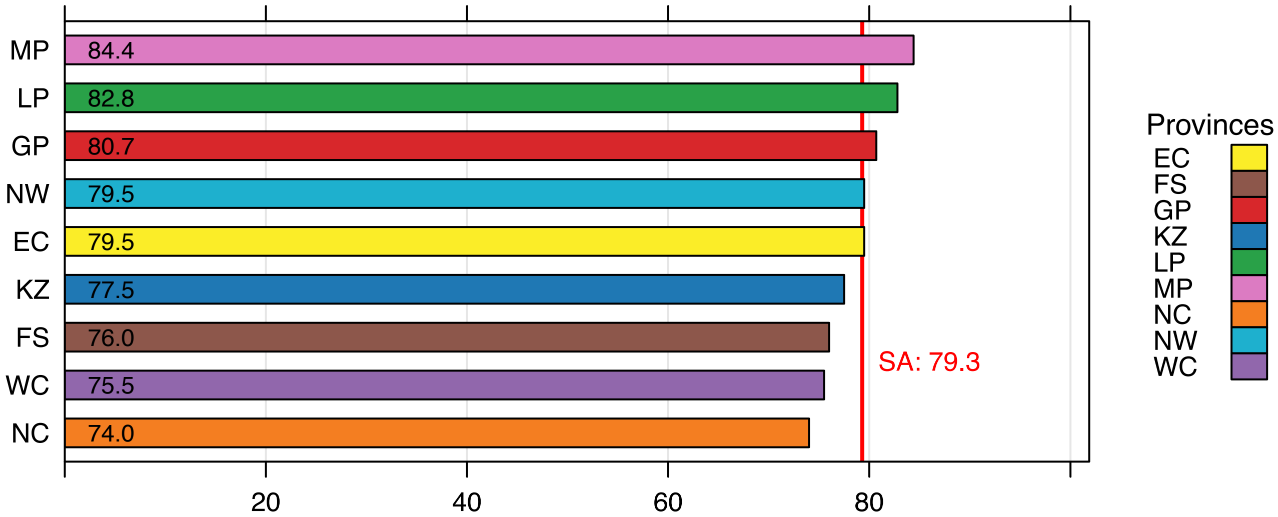
k World Health Organization. Global Health Observatory data: Raised Blood Pressure. Available from: https://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/.

l Note that the indicator does not distinguish between individuals whose blood pressure is naturally below the threshold and those whose blood pressure is reduced due to treatment. As a consequence, the values analysed here are not comparable with estimates of prevalence of hypertension (or lack thereof). In fact, in epidemiological practice hypertension is defined as having either raised blood pressure or being in treatment or both, and for this reason prevalence of hypertension is always higher than prevalence of raised blood pressure.

Provincial overview

In 2017, the age-standardised prevalence of non-raised blood pressure was fairly consistent across provinces, ranging from 74.5% in the Northern Cape (NC) to 84.4% in Mpumalanga (MP) (Figure 2). Compared with 2015, modest decreases can be observed in Limpopo (LP) (0.5%) and the Western Cape (WC) (0.6%) but modest increases in North West (NW) (0.4%), and Gauteng (GP) (0.9%). Other provinces showed more substantial decreases (1.8% in KwaZulu-Natal (KZ), and 2.1% in the Free State (FS), or increases (3.0% in the Northern Cape, 3.4% in the Eastern Cape (EC) and 3.6% in Mpumalanga). Longer-term trends were positive for all provinces, with average increases during the period 2008 - 2017 varying from 3.0% in Limpopo to 13.1% in Mpumalanga.

Figure 2: Age-standardised prevalence of non-raised blood pressure among adults (15 years and older) by province, 2017



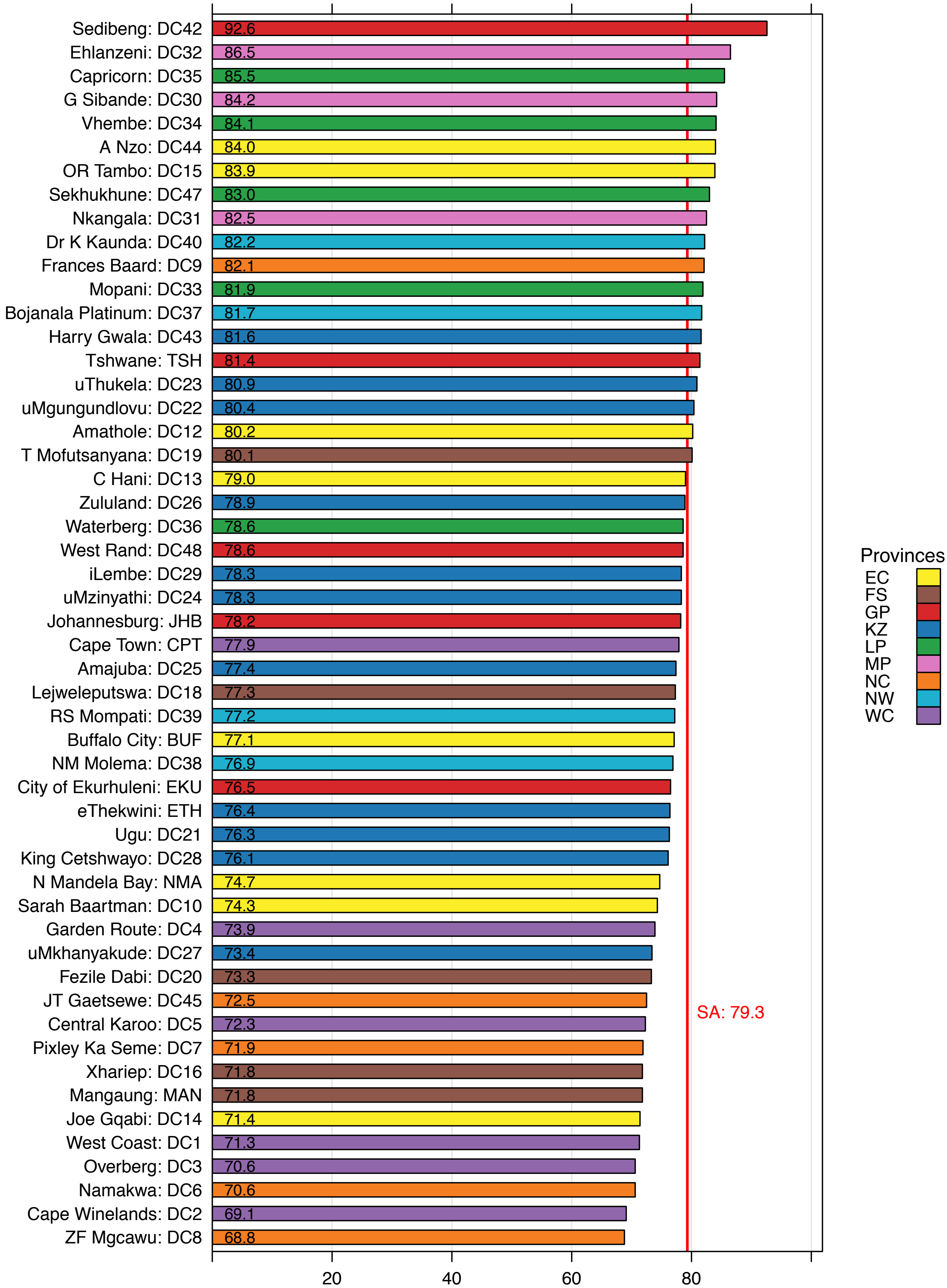
Source: HST estimates from National Income Dynamics Study[m] data.

District overview

As shown in Figure 3, the prevalence of non-raised blood pressure varied quite substantially across districts, from a minimum of 68.8% in Zwelentlanga Fatman Mgcawu (NC) to a maximum of 92.6% in Sedibeng (GP). Map 1 shows a clear geographical pattern in the prevalence of non-raised blood pressure, with the lowest prevalences concentrated in the Western Cape, Northern Cape and part of the Free State, and the highest prevalences consistently recorded in the northern part of the country (Mpumalanga, Limpopo and Gauteng).

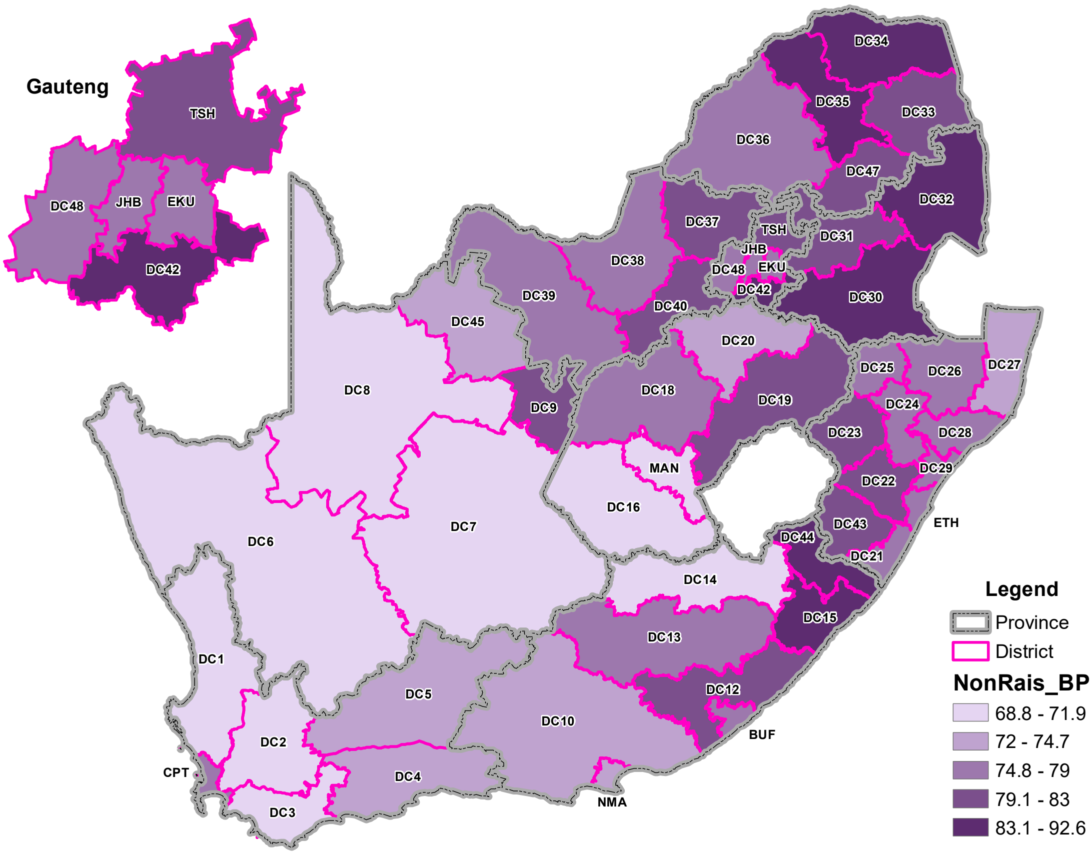
m Southern Africa Labour and Development Research Unit. National Income Dynamics Study Datasets [Wave 5, Version 1.0.0]. Pretoria: Government of South Africa; 2018.

Figure 3: Age-standardised prevalence of non-raised blood pressure among adults (15 years and older) by district, 2017



Source: HST estimates from National Income Dynamics Study[m] data.

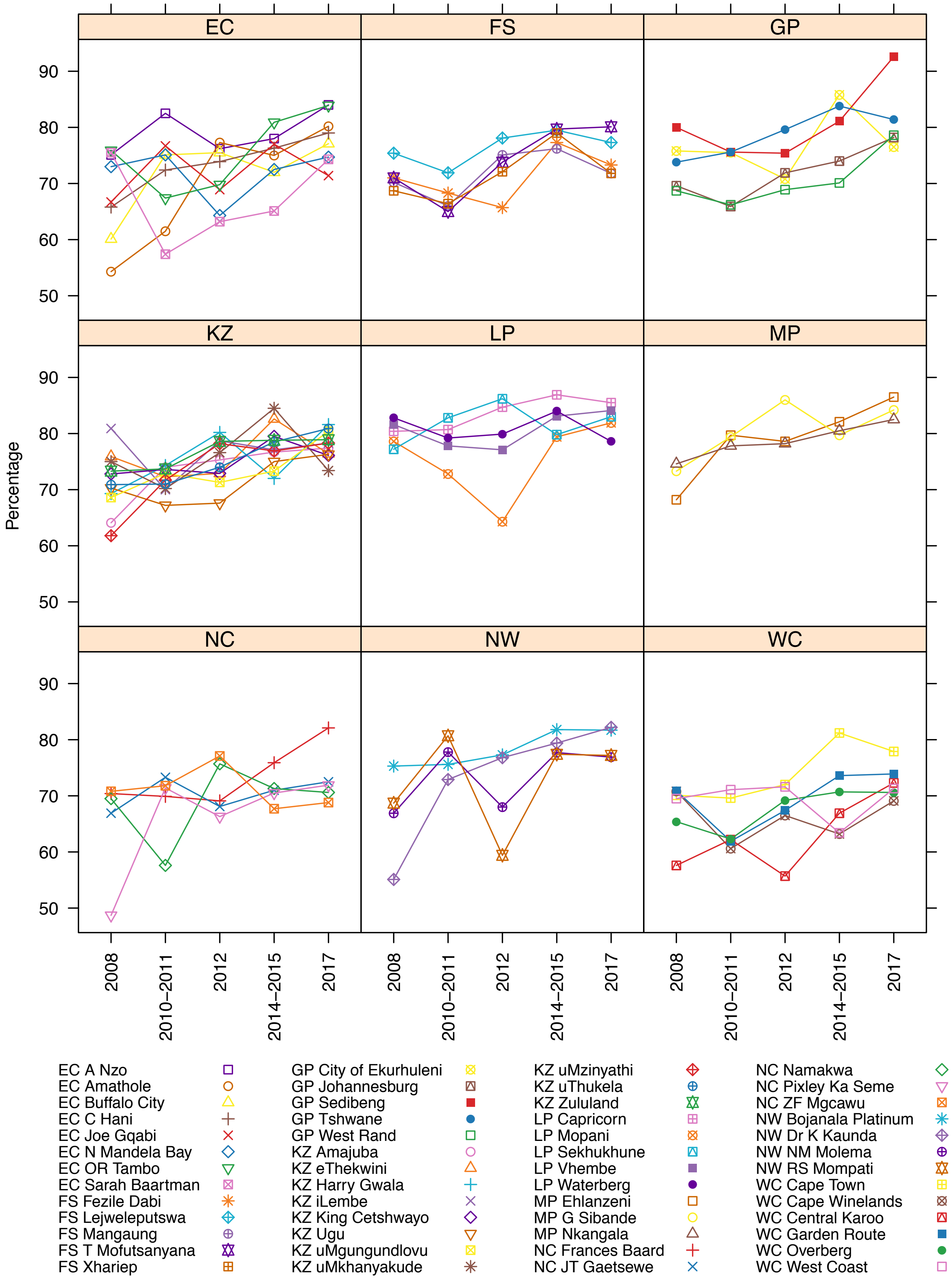
Map 1: Age-standardised prevalence of non-raised blood pressure among adults (15 years and older) by district, 2017



Source: HST estimates from National Income Dynamics Study[m] data.

With few exceptions, long-term temporal trends increased consistently across districts (Figure 4). Between 2008 and 2017, only six districts (Sarah Baartman (EC), iLembe and uMkhanyakude (both KZ), Waterberg (LP), Zwelentlanga Fatman Mgcawu (NC) and Cape Winelands (WC)) experienced a reduction in the prevalence of non-raised blood pressure. All the remaining districts experienced an increase, varying from a modest 0.5% in eThekwini (KZ) to a remarkable 27.1% in Dr K Kaunda (NW).

Figure 4: Annual trends for age-standardised prevalence of non-raised blood pressure among adults (15 years and older) by district, 2008 - 2017



Source: HST estimates from National Income Dynamics Study[n] data.

n Southern Africa Labour and Development Research Unit. National Income Dynamics Study Datasets [Wave 1, Version 7.0.0; Wave 2, Version 4.0.0; Wave 3, Version 3.0.0; Wave 4, Version 2.0.0; Wave 5, Version 1.0.0]. Pretoria: Government of South Africa; 2018.

A decreasing trend in mean blood pressure and prevalence of hypertension in the general adult population of South Africa have been observed previously,[o] and attributed mainly to increased uptake of antihypertensive treatment.[p]

More research and data collection are needed to confirm this finding and exclude the possibility of an unreliable result. However, given the strong direct relationship between raised blood pressure and cardiovascular disease, if this trend is confirmed it will undoubtedly contribute toward the achievement of Goal 3.4 of the SDGs, namely one-third reduction of premature mortality from NCDs. According to a comparative analysis of age-standardised death rates for NCDs reported by Nojilana and colleagues, this reduction is already happening.[q]

It is also reassuring to note a consistent trend towards improvement in blood pressure control in the large majority of districts.

Prevalence of obesity and overweight

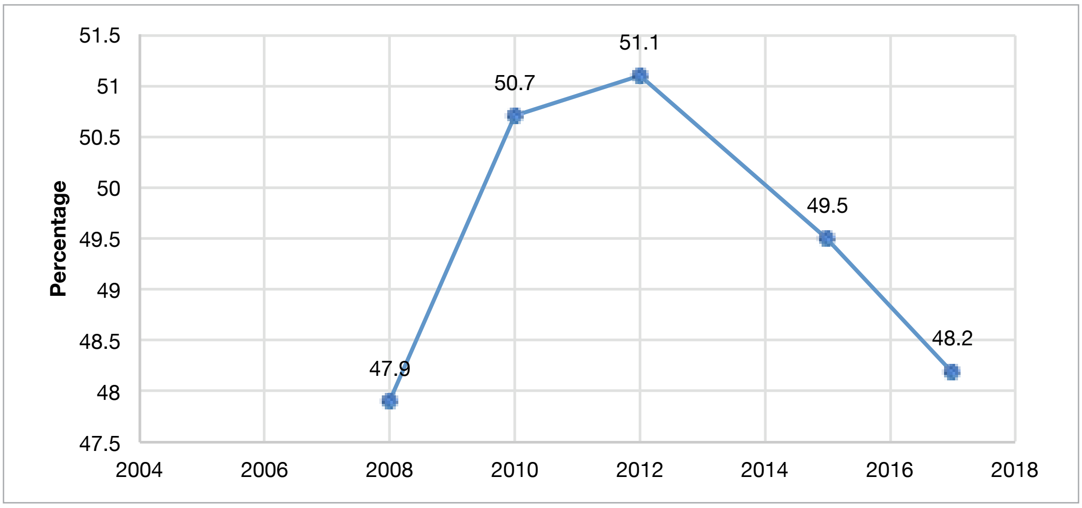
Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Excessive body fat is a strong independent predictor of cardiovascular disease and diabetes, and substantially increases the risk of developing a series of other pathological conditions, including various types of cancers and musculoskeletal and mental disorders, with important negative consequences on quality of life, work productivity, and healthcare costs.[r]

The indicator analysed here represents the percentage of adults (15 years and older) whose body mass index (BMI) equals or exceeds the conventional threshold of 25 kg/m^2 which identifies a body weight that is excessive for a given height. Body mass index is not a direct measure of body fat, but correlates relatively well with various direct measures such as skinfold thickness, underwater weighing, and with the results of other more complex measurement techniques. More interestingly, from a public health perspective, a large body of research shows that BMI is strongly correlated with the risk of developing the negative health outcomes cited above, chiefly cardiovascular diseases and diabetes.[s]

National overview

Overall, the age-standardised prevalence of obesity and overweight in the South African adult population increased slightly in the last decade, from 47.9% observed in 2008 to 48.2% in 2017. However, the graph in Figure 5 indicates that this overall small difference between values recorded 10 years apart is far from the result of a gradual increase. On the contrary, it suggests that the net change is the result of the reversal of an initially strong positive trend, which brought down the peak prevalence observed in 2012 to values similar to those observed in 2008.

Figure 5: National age-standardised prevalence of overweight and obesity among adults (15 years and older), 2008 - 2017



Source: HST estimates from National Income Dynamics Study[n] data.

o Day C, Groenewald P, Laubscher R, van Schaik N, Bradshaw D. Monitoring of non-communicable diseases such as hypertension in South Africa: Challenges for the post-2015 global development agenda. S Afr Med J. 2014;104(10):680-7.

p Cois A, Ehrlich R. Antihypertensive treatment and blood pressure trends among South African adults: A repeated cross-sectional analysis of a population panel survey. PLOS One. 2018;13(8):e0200606.

q Nojilana B, Bradshaw D, Pillay-van Wyk V, et al. Emerging trends in non-communicable disease mortality in South Africa, 1997-2010. S Afr Med J. 2016;106(5):477-84.

r Chooi YC, Ding C, Magkos F. The epidemiology of obesity. Metabolism. 2019;92:6-10.

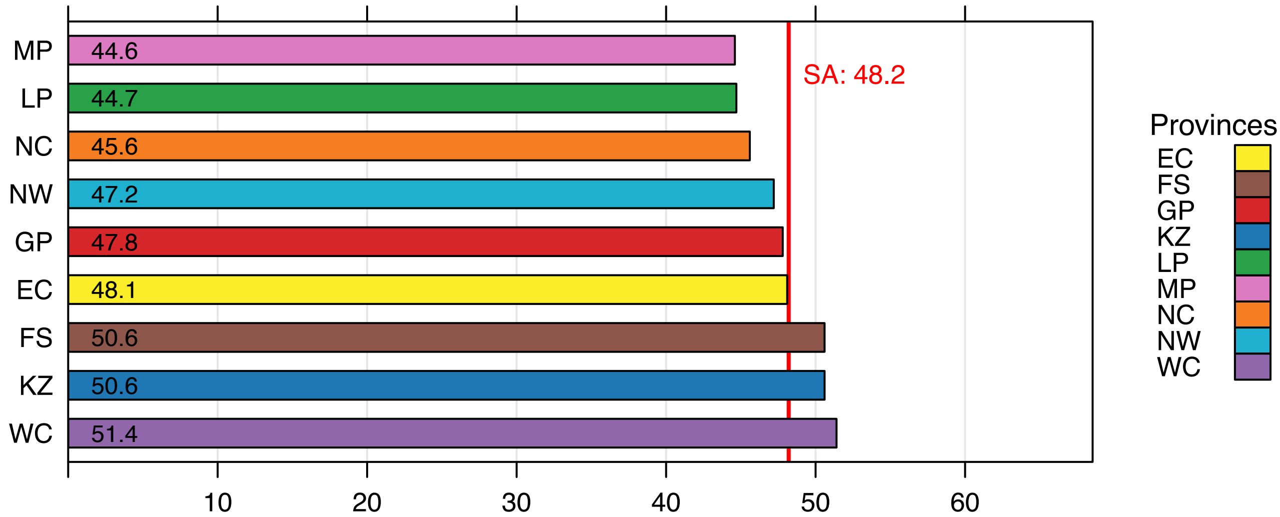
s Centers for Diseases Control and Prevention. Defining Adult Overweight and Obesity. Available from: https://www.cdc.gov/obesity/adult/defining.html.

Provincial overview

Comparison of the prevalence of overweight and obesity recorded across provinces in 2017 (Figure 6) indicates relatively small differences, with an overall range of less than 7 percentage points. The province with the highest prevalence was the Western Cape (51.4%), and the province with the lowest prevalence was Mpumalanga (44.6%).

Long-term trends (estimated as differences between values recorded in 2008 and 2017) decreased for the Western and Eastern Cape (5.8% and 2.8%, respectively) and Gauteng (2.0%); remained constant for Mpumalanga; and increased for all other provinces (1.5% for KwaZulu-Natal, 4.3% for Free State, 5.3% for Limpopo, 5.8% for North West, and 7.6% for the Northern Cape).

Figure 6: Age-standardised prevalence of overweight and obesity among adults (15 years and older) by province, 2017

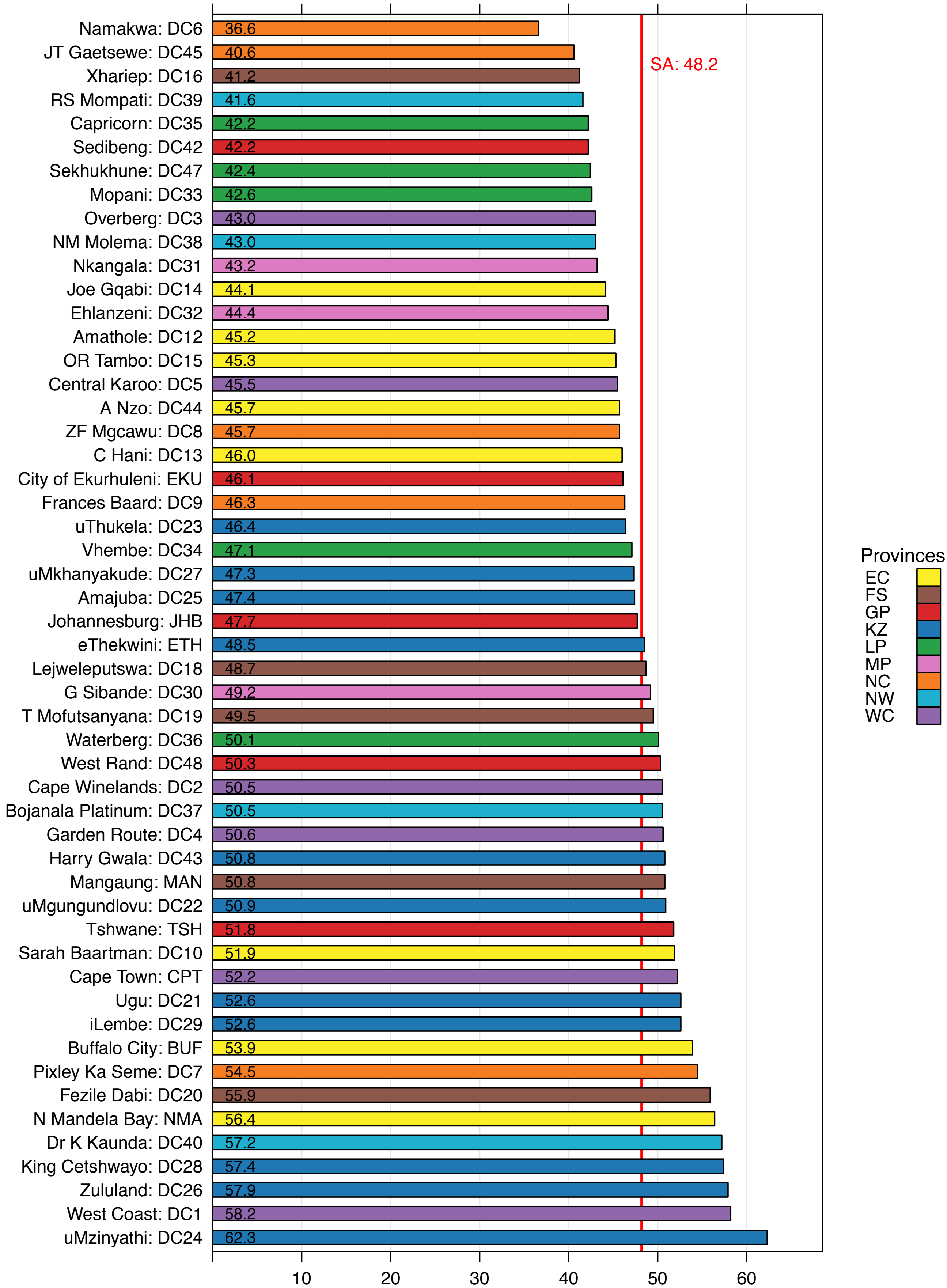


Source: HST estimates from National Income Dynamics Study[m] data.

District overview

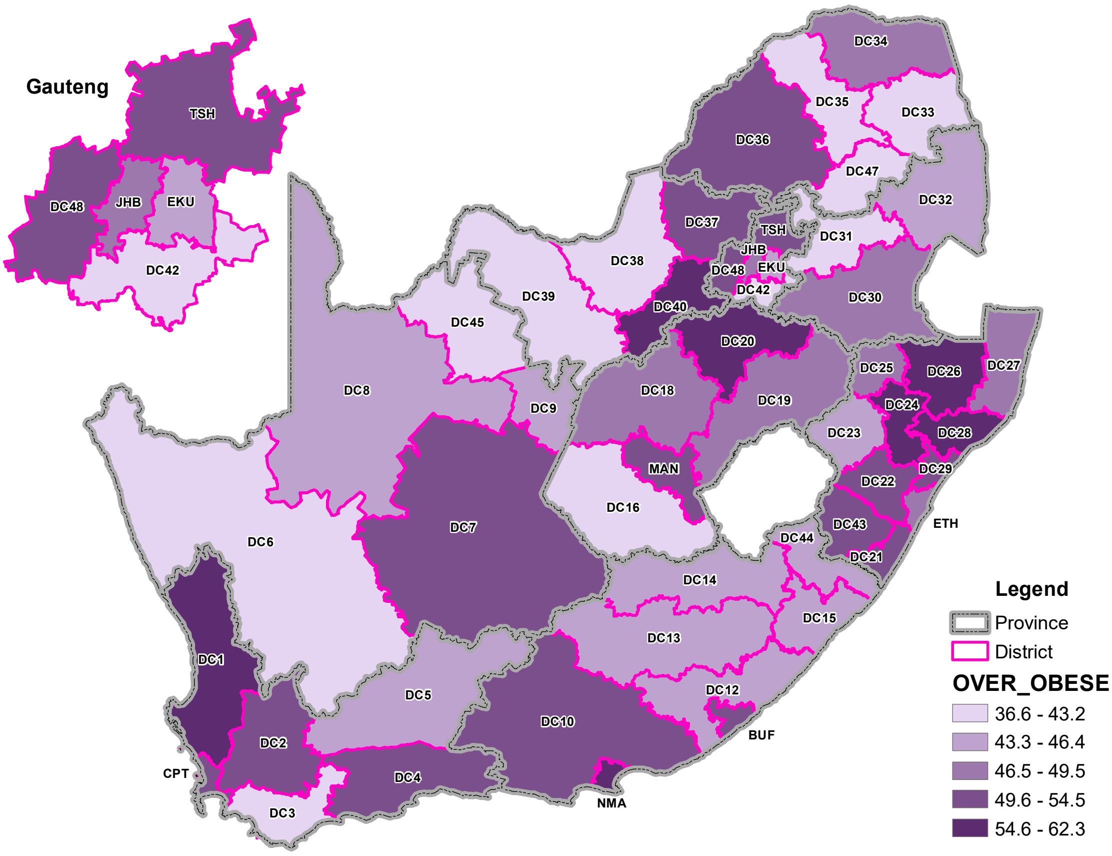
Variations in the prevalence of obesity and overweight were more evident across districts, as shown in Figure 7 and Map 2. There was more than 25 percentage points difference between the lowest prevalence (36.6% in Namakwa (NC) and the highest (62.3% in uMzinyathi (KZ).

Figure 7: Age-standardised prevalence of overweight and obesity among adults (15 years and older) by district, 2017



Source: HST estimates from National Income Dynamics Study[m] data.

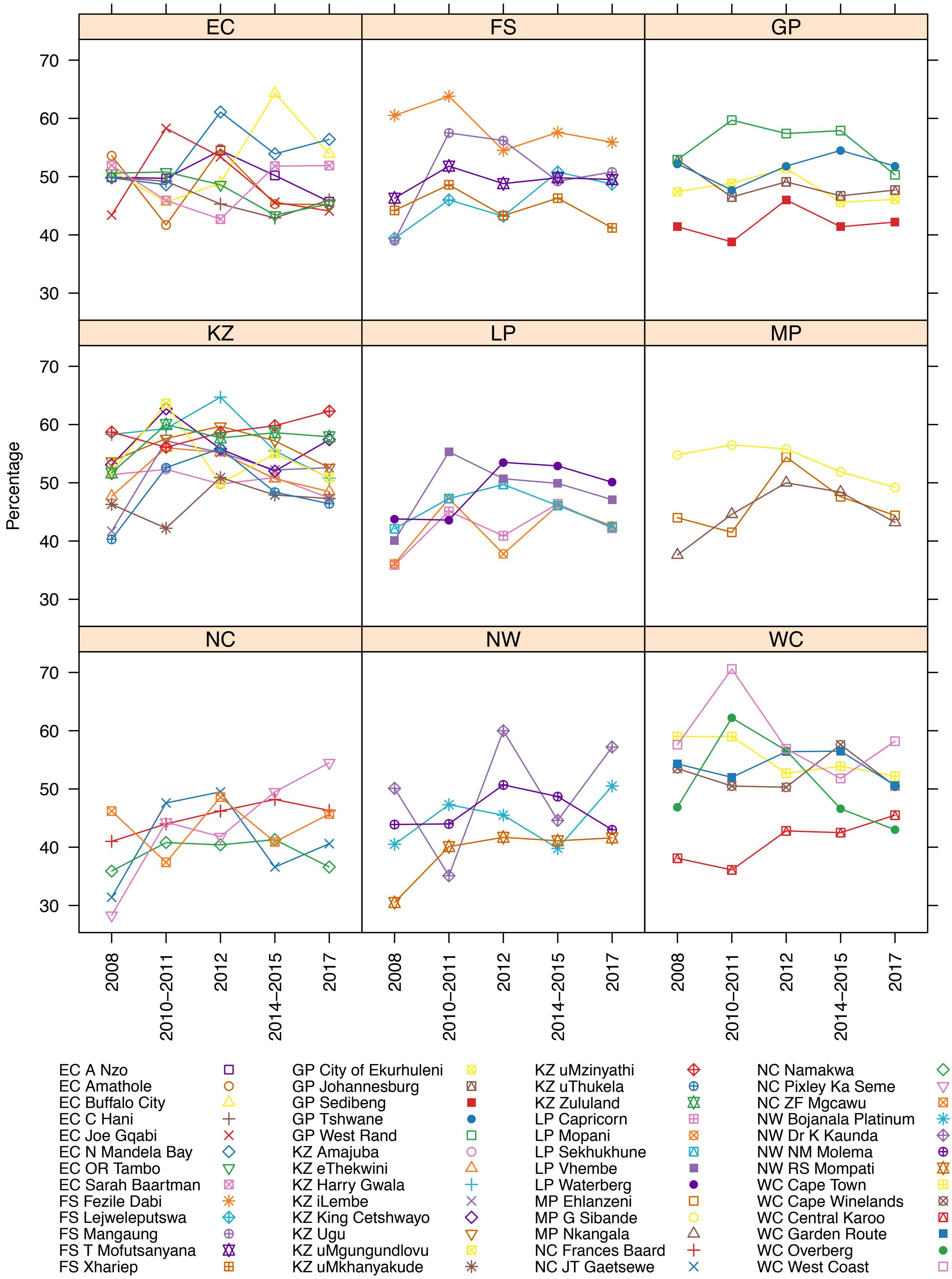
Map 2: Age-standardised prevalence of overweight and obesity among adults (15 years and older) by district, 2017



Source: HST estimates from National Income Dynamics Study[m] data.

The comparison of overweight and obesity trends across districts (Figure 8) also confirms the large variability, even between districts in the same province.

Figure 8: Annual trends for age-standardised prevalence of overweight and obesity among adults (15 years and older) by district, 2008 - 2017



Source: HST estimates from National Income Dynamics Study[n] data.

The data presented above confirm previous findings, namely that the proportion of adults who are obese and overweight is much higher today than 20 years ago. However, the data also offer some preliminary indication that even given population ageing, this trend may start stabilising, if not reversing. If confirmed by future research, this observation would certainly be a source of positive expectation regarding future decreases in the incidence of the many pathological conditions correlated with unhealthy BMI levels.

Some implausibly large year-to-year variations in the prevalence of obesity and overweight point to limitations in the available survey data, including small sample sizes at district level and inhomogeneous response rates across population groups. However, it is unlikely that sampling variability and survey measurement limitations alone could explain some of the observed differences between districts, repeated over various years. These differences call for further research to identify possible causes.

Diabetes prevalence and treatment coverage

Diabetes mellitus (or simply 'diabetes') is a serious, long-term pathological condition characterised by raised blood glucose levels. It is a major source of morbidity, mortality and health costs worldwide. Globally, the number of adults living with diabetes in 2019 was estimated at 463 million, projected to grow to 578 million by 2030.[t] Untreated diabetes results in raised blood glucose levels for a prolonged period of time and is directly associated with a series of severe health complications, including cardiovascular disease, neuropathy, kidney damage and eye disease (leading to visual loss, and possibly blindness).[u]

In order to track temporal trends and inter-district discrepancies relative to diabetes in South Africa, this section considers two different (but correlated) indicators. The first, namely prevalence of diabetes, is a direct measure of the spread of the disease in the population and is defined as the percentage of adults (15 years and older) in the general population who are diabetic. The second, namely treatment coverage for diabetes, is a measure of the response of the health system, and is defined as the percentage of adult diabetics (15 years and older) in the general population who are on treatment.

Unfortunately, data on the prevalence of diabetes in the general population are scarce in South Africa, and rely mostly on self-report and/or focus on specific populations or selected geographical regions. In the last decade, only two surveys have produced diabetes estimates based on blood samples collected in large nationally representative samples: the South African National Health and Nutrition Examination Survey (SANHANES)[v] in 2012, and the South Africa Demographic and Health Survey (SADHS) in 2016.[w] However, the sampling design and realisation of these surveys do not allow for the production of reliable estimates at sub-provincial level.

The values of the indicators reported and discussed below are, therefore, indirectly estimated using the modelling technique described in the Introduction and Overview chapter of this publication.

National overview

The modelled prevalence of diabetes in the general adult population of South Africa showed an almost linear increase from 5.5% estimated for 2008 to 10.6% estimated for 2017 (Figure 9). This large increase was accompanied by an 8.6 percentage point decrease in treatment coverage (Figure 10).

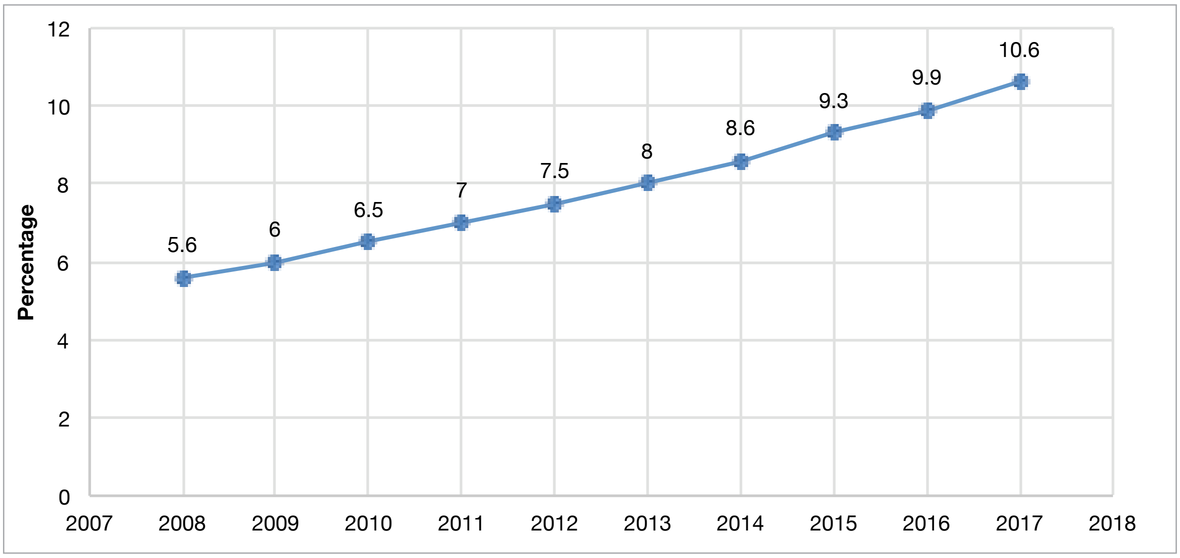
t International Diabetes Federation. IDF Diabetes Atlas. 9th ed. Brussels: IDF; 2019.

u Centers for Disease Control and Prevention. Complications Due to Diabetes. Available from: https://www.cdc.gov/diabetes/managing/problems.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdiabetes%2Fliving%2Fproblems.html.

v Shisana O, Labadarios D, Rehle T, et al. The South African National Health and Nutrition Examination Survey (SANHANES-1). Cape Town: HSRC Press; 2013.

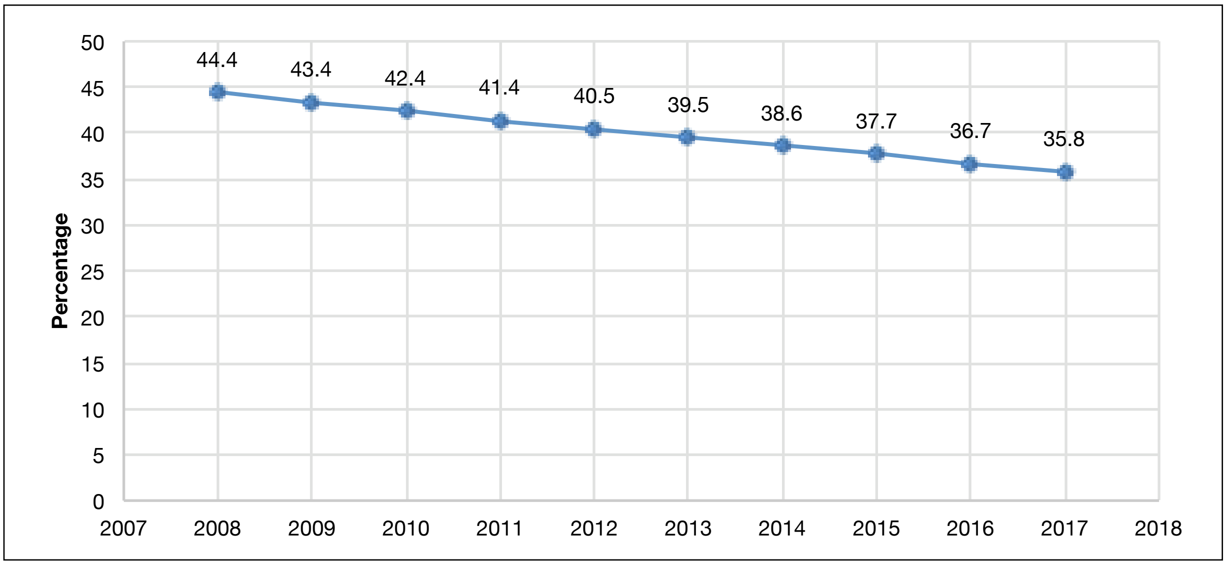
w National Department of Health, Statistics South Africa, South African Medical Research Council, and International Children's Fund. South Africa Demographic and Health Survey 2016. Pretoria: NDoH; 2017.

Figure 9: National prevalence of diabetes among adults (15 years and older), 2008 - 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

Figure 10: National diabetes treatment coverage among adults (15 years and older), 2008 - 2017 (modelled)



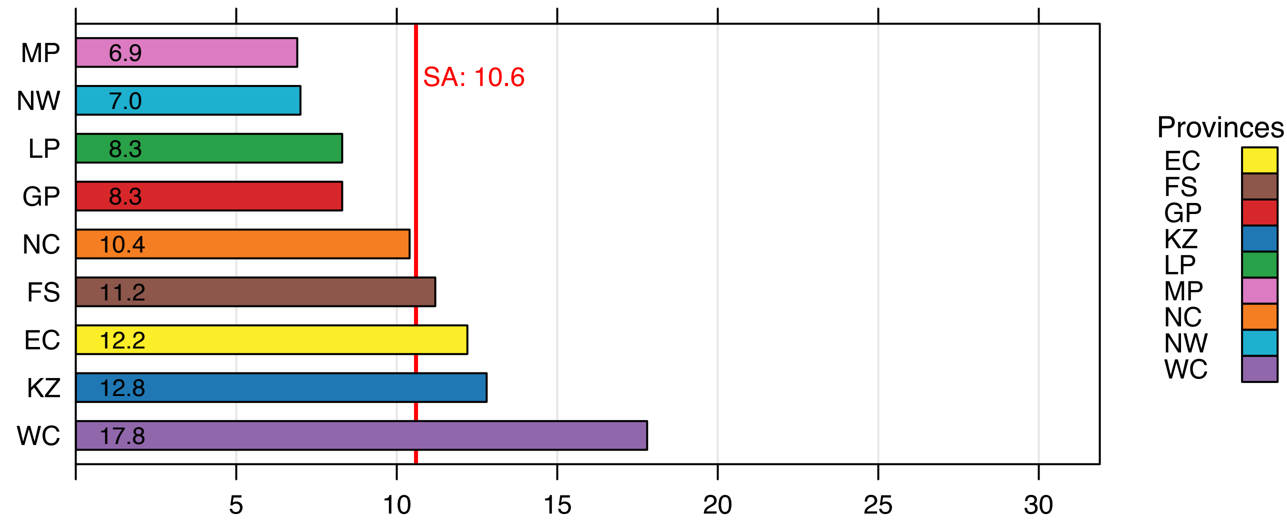
Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

Provincial overview

As shown in Figure 11, both prevalence and treatment coverage varied widely across provinces. Estimated prevalence was lowest in Mpumalanga (6.9%) and more than double that rate in the Western Cape (17.8%), which had the highest prevalence estimation.

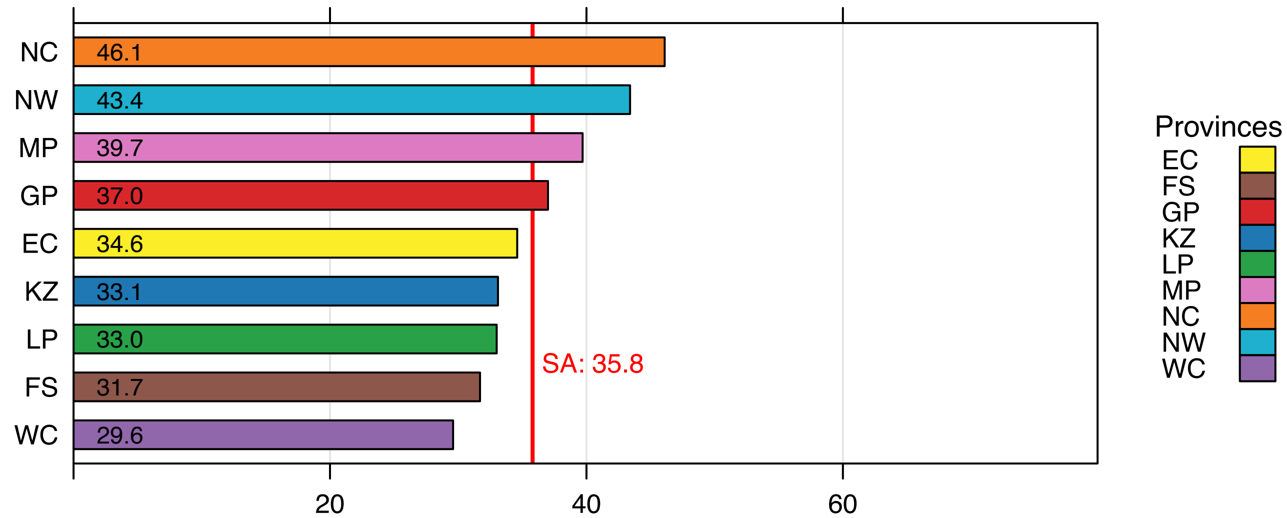
Treatment coverage varied from 29.6% in the Western Cape to 46.1% in the Northern Cape (Figure 12).

Figure 11: Prevalence of diabetes among adults (15 years and older) by province, 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

Figure 12: Diabetes treatment coverage among adults (15 years and older) by province, 2017 (modelled)

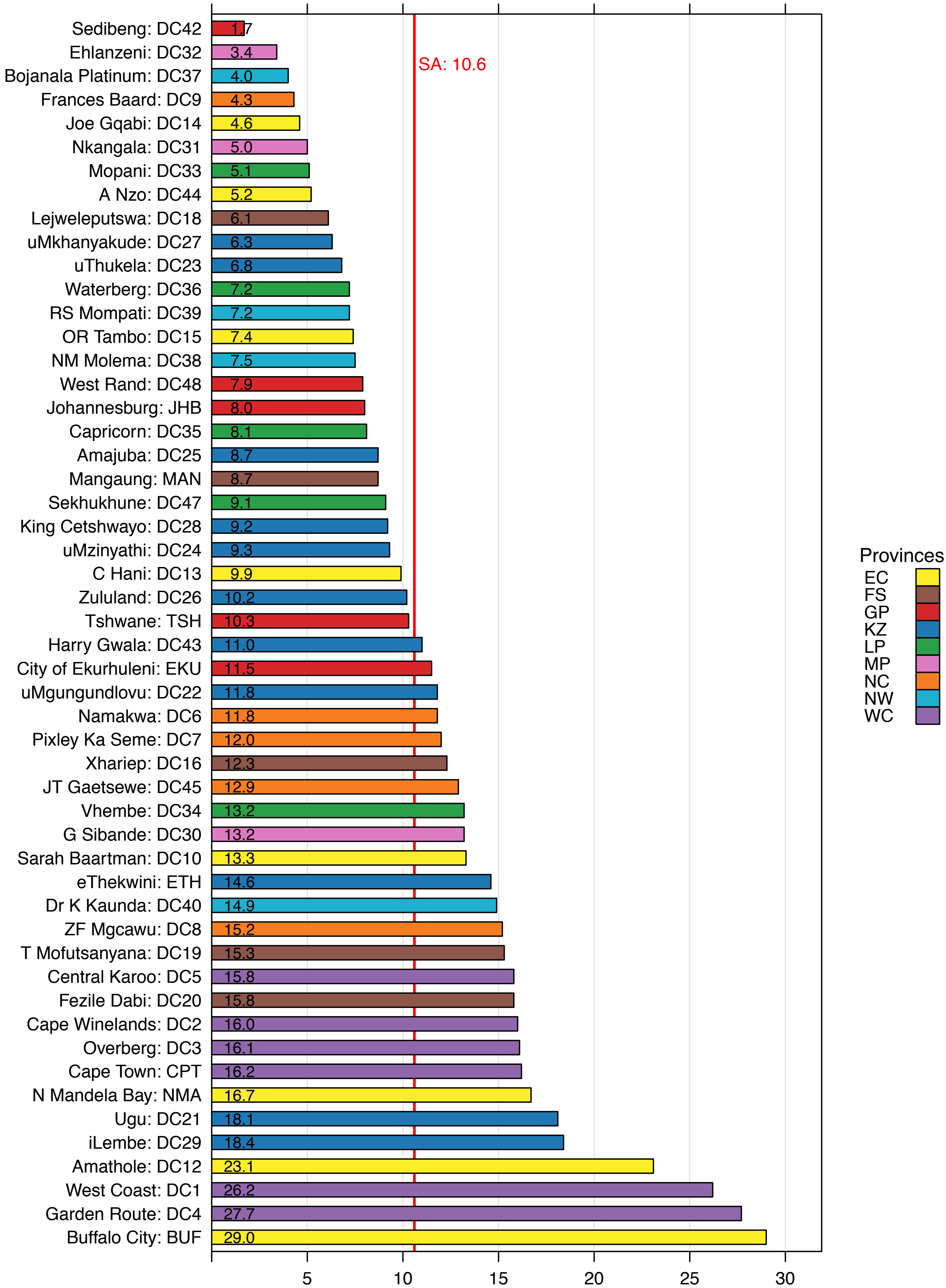


Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

District overview

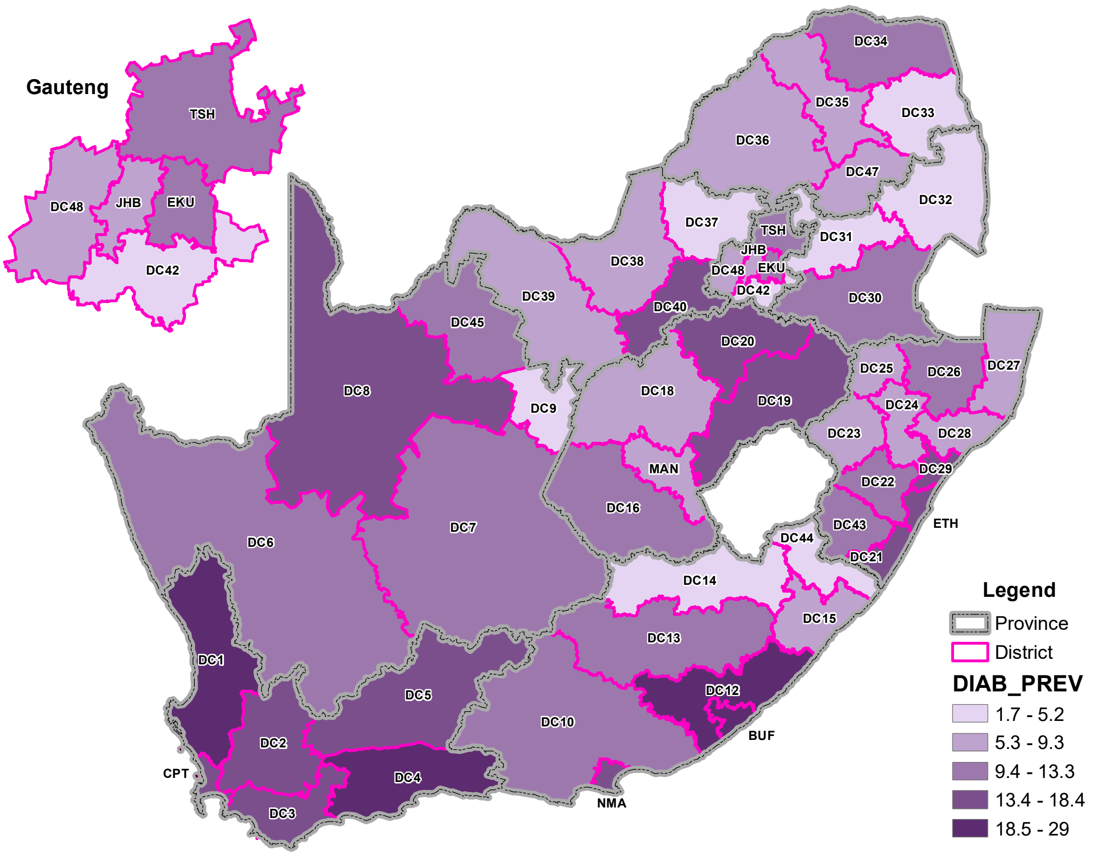
There was a 17-fold variation in the prevalence of diabetes across districts, ranging from the minimal value estimated for Sedibeng (GP) (1.7% in 2017) to the extremely high value (29.0%) estimated for Buffalo City (EC) (Figure 13). There was some clustering of districts with a high prevalence of diabetes; this is best seen in Map 3, which shows high-prevalence areas concentrated in the Western Cape, part of North West, and the metropolitan municipalities in KwaZulu-Natal and the Eastern Cape.

Figure 13: Prevalence of diabetes among adults (15 years and older) by district, 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

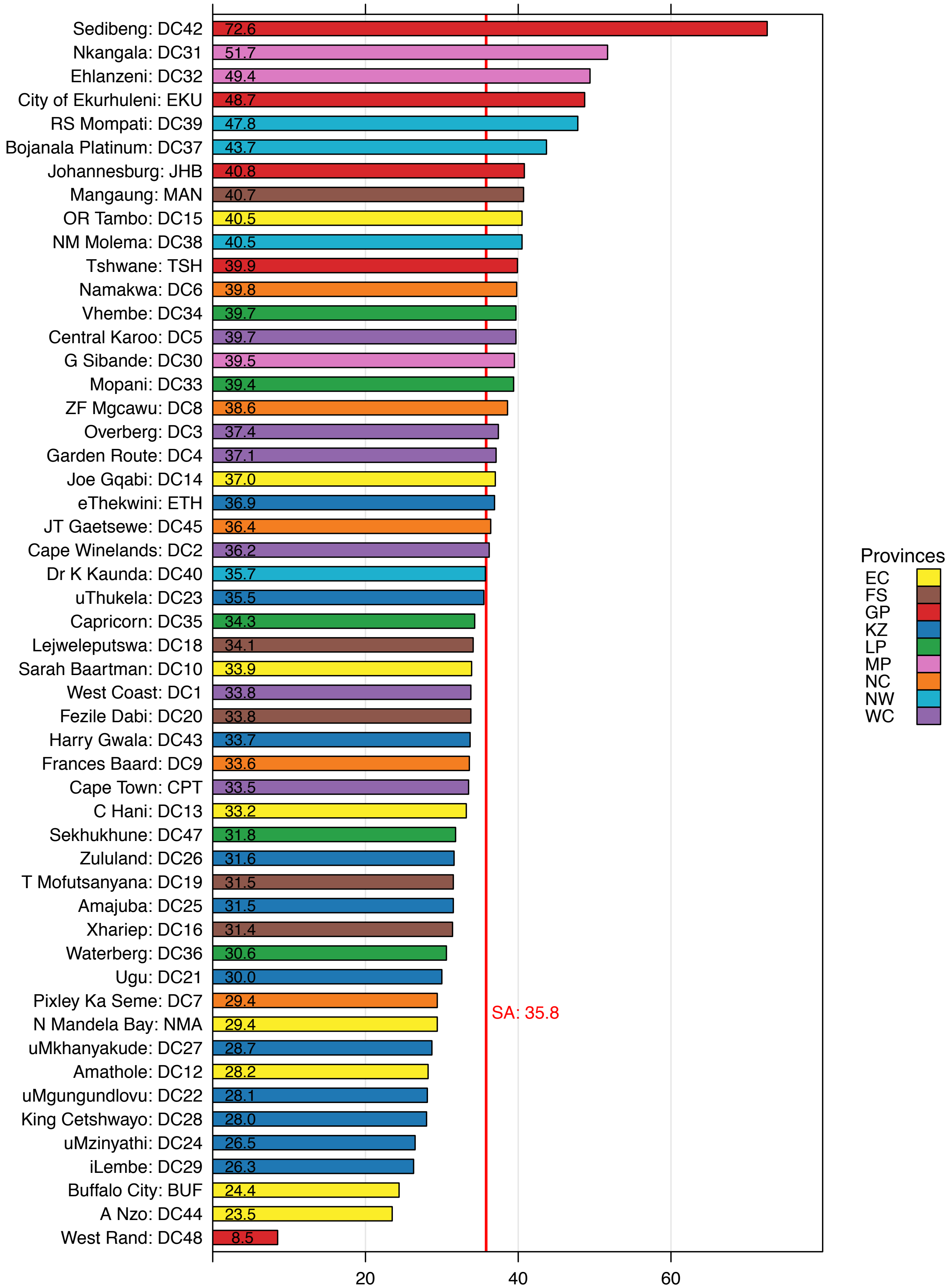
Map 3: Prevalence of diabetes among adults (15 years and older) by district, 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

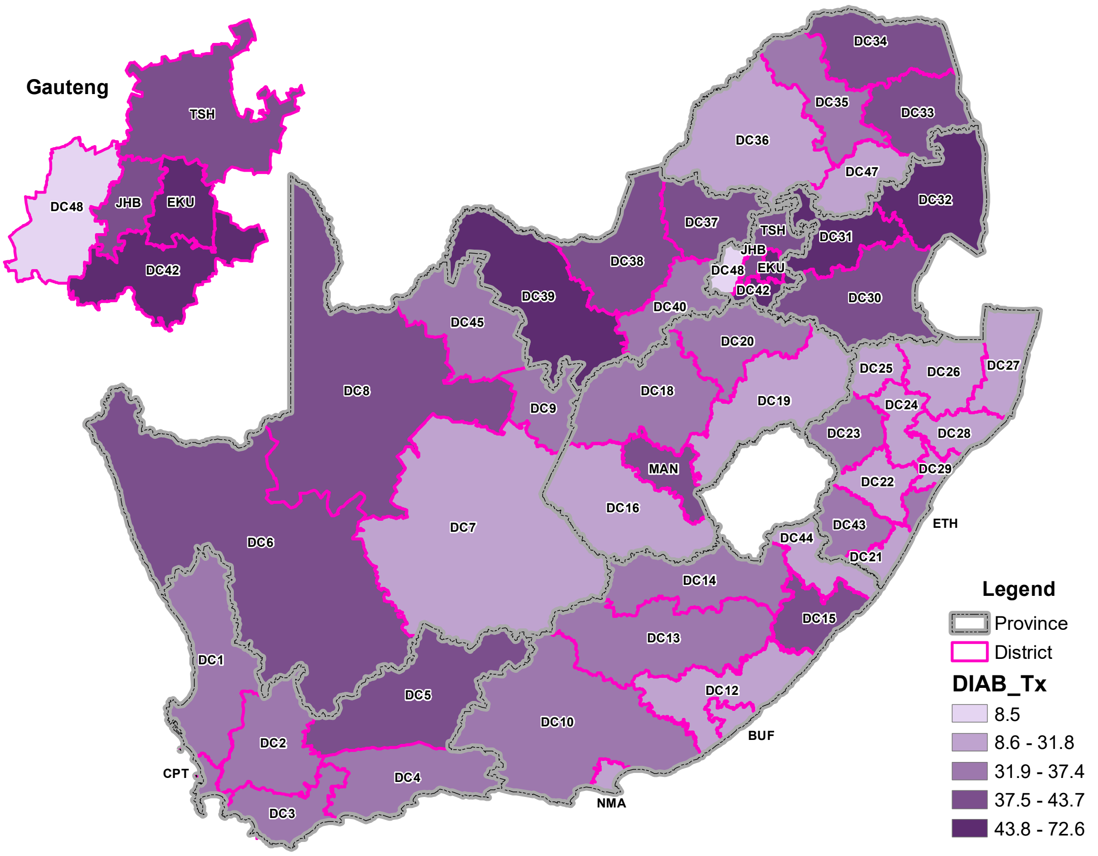
Treatment coverage also varied widely across districts, from a low of 8.5% in West Rand to 72.6% in Sedibeng (both GP) (Figure 14 and Map 4).

Figure 14: Diabetes treatment coverage among adults (15 years and older) by district, 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

Map 4: Diabetes treatment coverage among adults (15 years and older) by district, 2017 (modelled)

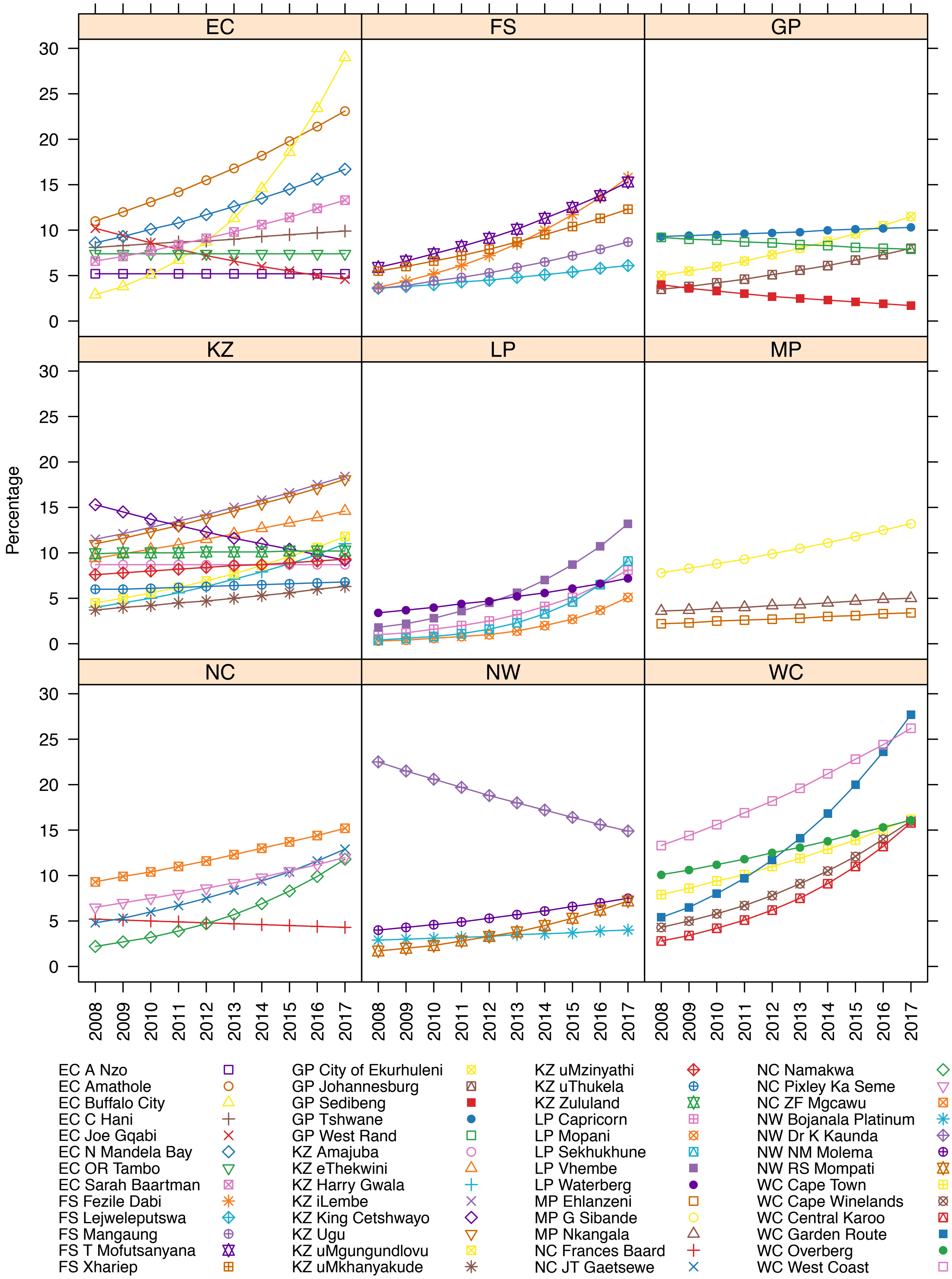


Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

The temporal trends in diabetes prevalence (Figure 15) increased in all but six districts, namely Joe Gqabi (EC), Sedibeng and West Rand (both GP), King Cethswayo (KZ), Frances Baard (NC) and Dr K Kaunda (NW).

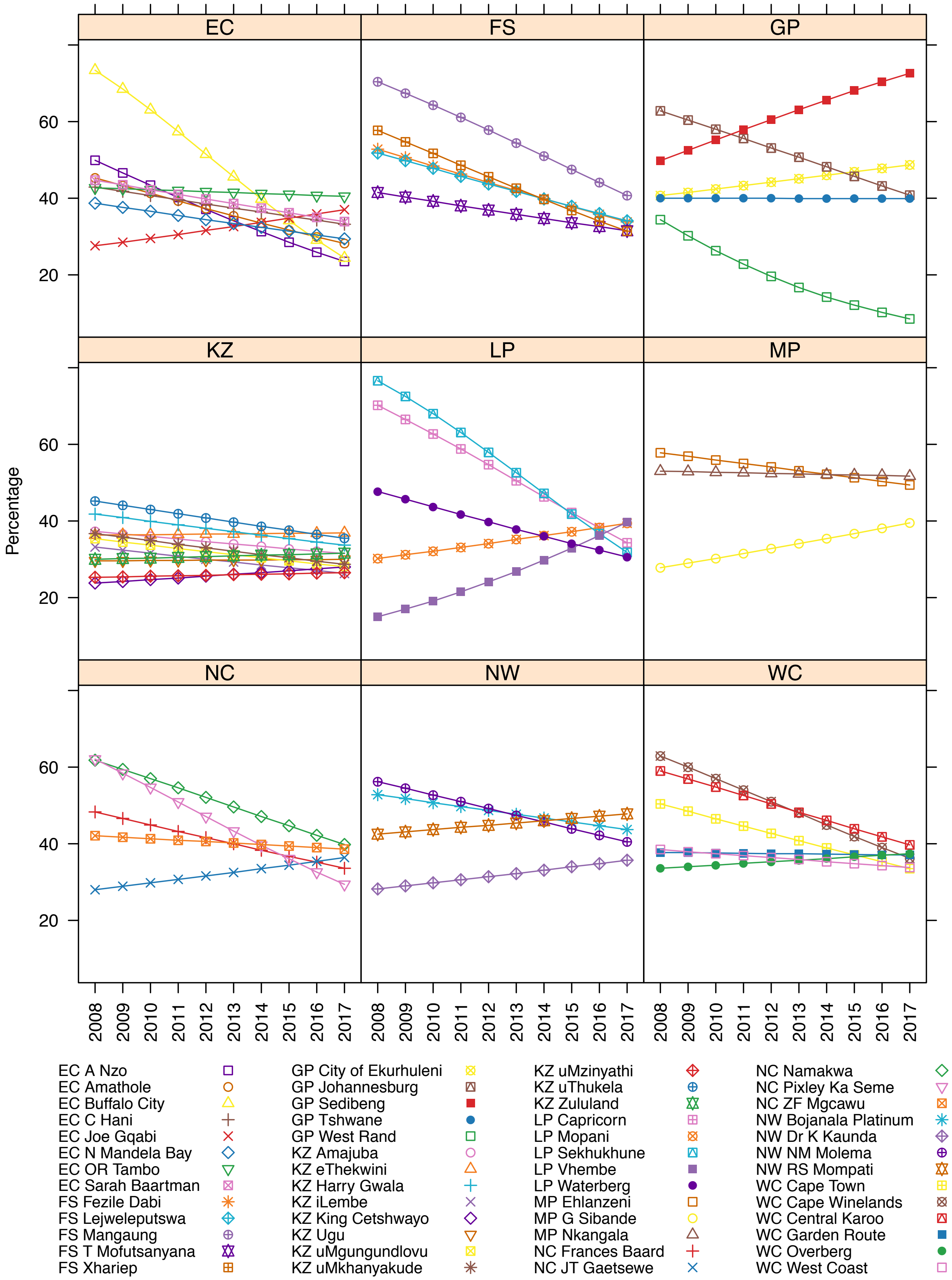
In contrast, treatment coverage decreased in most districts, with the exception of Joe Gqabi (EC), Sedibeng and Ekhuruleni (both GP), Mopani and Vhembe (both LP), Gert Sibande (MP), John Taolo Gaetsewe (NC), Dr K Kaunda and Dr Ruth Segomotsi Mompati (both NW), and Overberg (WC) (Figure 16).

Figure 15: Annual trends for diabetes prevalence among adults (15 years and older) by district, 2008 - 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

Figure 16: Annual trends for diabetes treatment coverage among adults (15 years and older) by district, 2008 - 2017 (modelled)



Source: HST estimates from National Income Dynamics Study[n] and South Africa Demographic and Health Survey[w] data.

Cervical cancer screening coverage

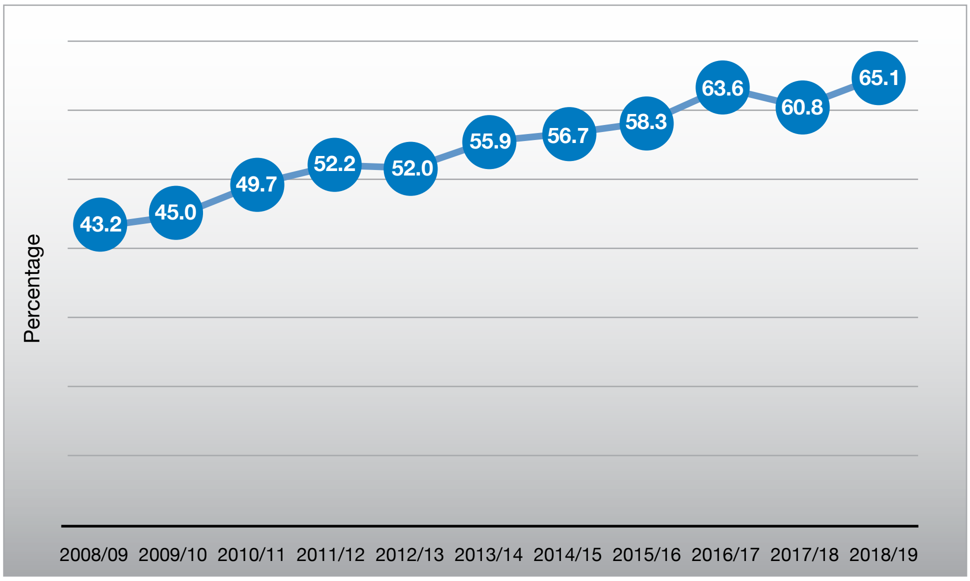
Cervical cancer is a leading cause of death from cancer among women. While it isn't clear what causes cervical cancer, human papilloma virus (HPV) infection certainly plays a role in its occurrence. Multiple sexual partners, early sexual activity, other sexually transmitted infections, smoking, and weakened immune system are other risk factors for cervical cancer. Actions to reduce the risk of cervical cancer include: HPV vaccine, safe sex, avoiding or quitting smoking, and routine screening tests to identify and treat early-stage cervical cancer.

Cervical cancer coverage measures the number of women aged 30 years and older who received a screening for cervical cancer, as a proportion of 10% of all women aged 30 years and above. According to the South African cervical cancer prevention and control policy,[x] starting at the age of 30 years, women should have cervical smears (for screening) done at 10-year intervals. The screening frequency is higher in women considered to be at high risk. Cervical pap smear or visual inspections with acetic acid (VIA) are the methods of screening often used.

National overview

During the decade from 2008/09 to 2018/19, the proportion of South African women aged 30 years and above screened for cervical cancer at least once every 10 years increased steadily from 43.2% to 65.1%, despite a small decrease between 2016/17 and 2017/18, as shown in Figure 17.

Figure 17: National cervical cancer screening coverage among women aged 30 years and older, 2008/09 - 2018/19



Source: DHIS.

Provincial overview

In 2018/19, cervical cancer screening coverage among women aged 30 years and older varied substantially across provinces. The proportion of women (30 years and older) screened for cervical cancer at least once every 10 years ranged from 46.0% in the Northern Cape to 89.9% in Mpumalanga, as shown in Figure 18. Despite year-by-year fluctuations, cervical cancer screening coverage increased between 2008/09 and 2018/19 across all provinces (Figure 19).

x National Department of Health. Cervical cancer prevention and control policy. Pretoria: NDoH; 2017.

Figure 18: Cervical cancer screening coverage among women 30 years and older by province, 2018/19

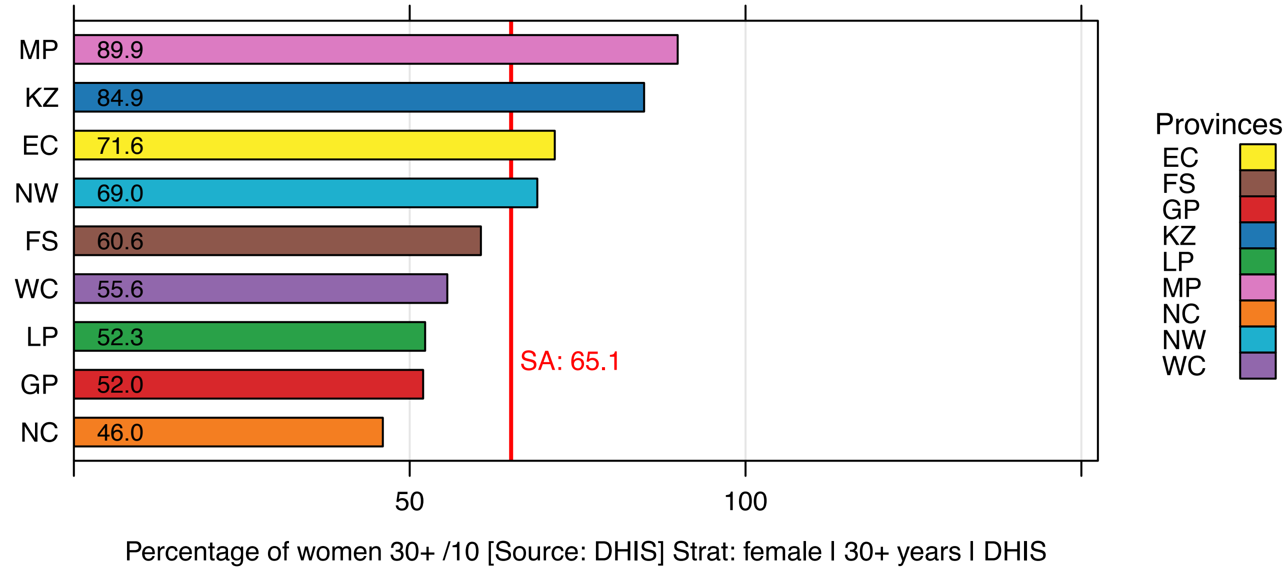
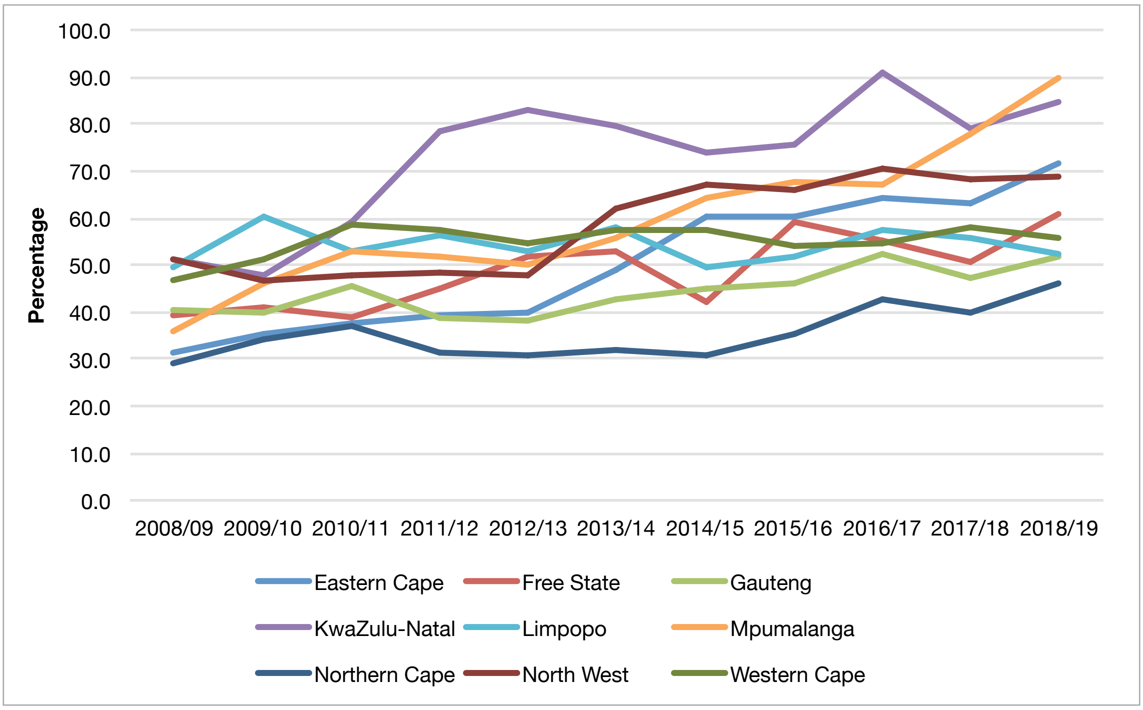


Figure 19: Annual trends for cervical cancer screening coverage among women (30 years and older) by province, 2008/09 - 2018/19

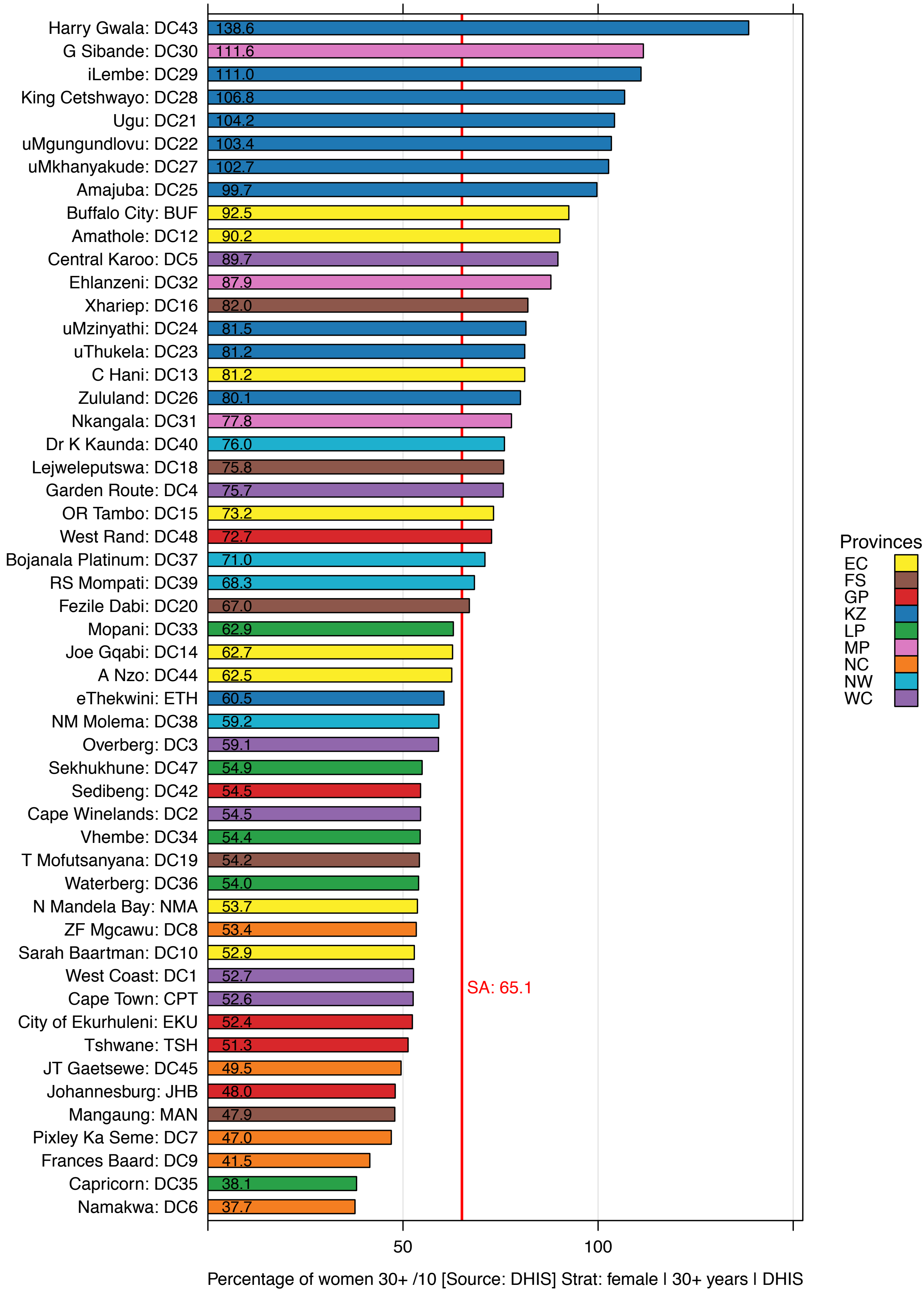


Source: DHIS.

District overview

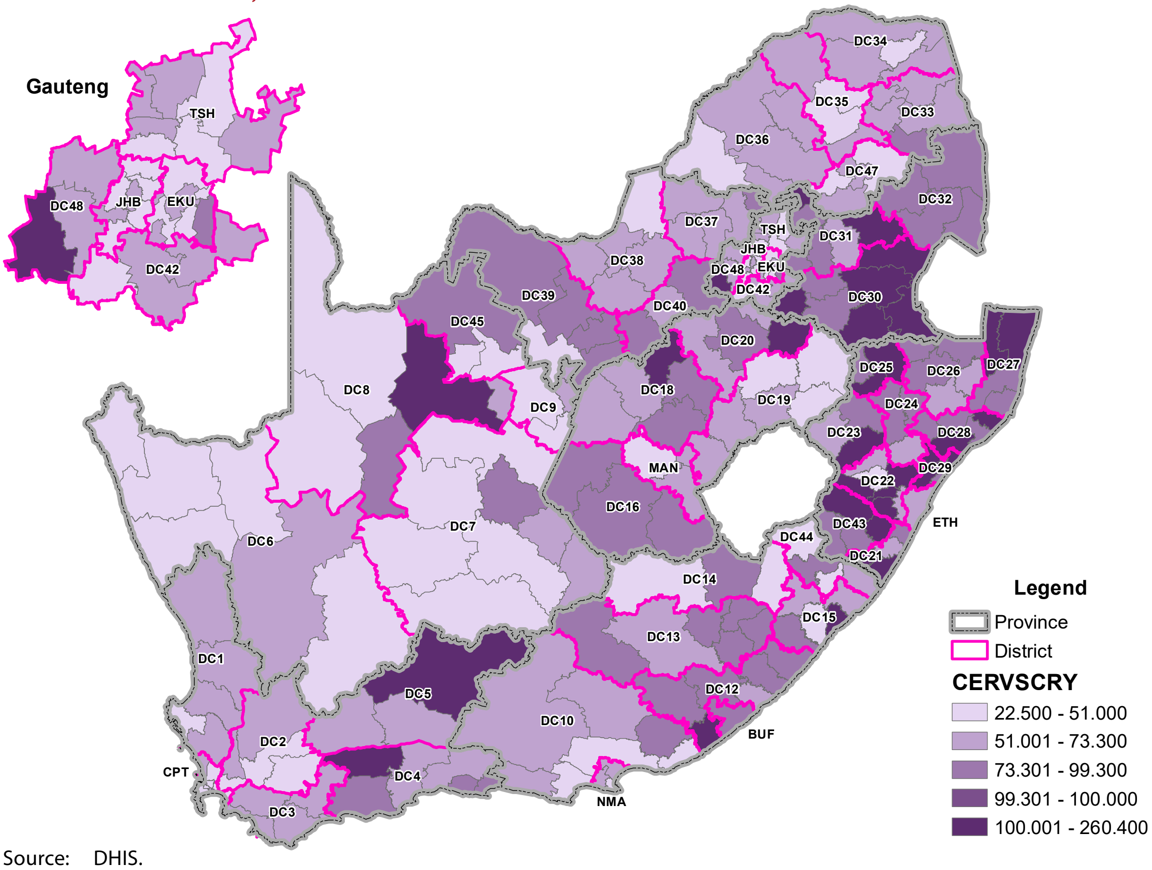
The cervical cancer screening coverage varied substantially across districts, with the lowest coverage rate (37.7%) recorded in Namakwa (NC), and the highest coverage of 138.6% in Harry Gwala (KZ) (Figure 20). Eight districts (seven in KwaZulu-Natal) reported a coverage above 100%. The reasons may have been poor data quality or an under-estimation of the female population 30 years and older. However, given the very high prevalence of HIV among women in KwaZulu-Natal, which puts them in the high-risk category, it is likely that these women have had pap smears more frequently than once every 10 years. This increases the numerator, thereby making rates of over 100% more likely. Four of the five districts in the Northern Cape had a cervical screening coverage below 50%.

Figure 20: Cervical cancer screening coverage among women 30 years and older by district, 2018/19



Map 5 shows some clustering of districts for level of screening coverage by local municipality/sub-district (LM/SD).

Map 5: Cervical cancer screening coverage among women (30 years and older) by local municipality/ sub-district, 2018/19



Source: DHIS.

Table 1 shows the 23 LM/SDs with a cervical screening coverage rate below 40%. Almost all of these LM/SDs were in the Northern Cape.

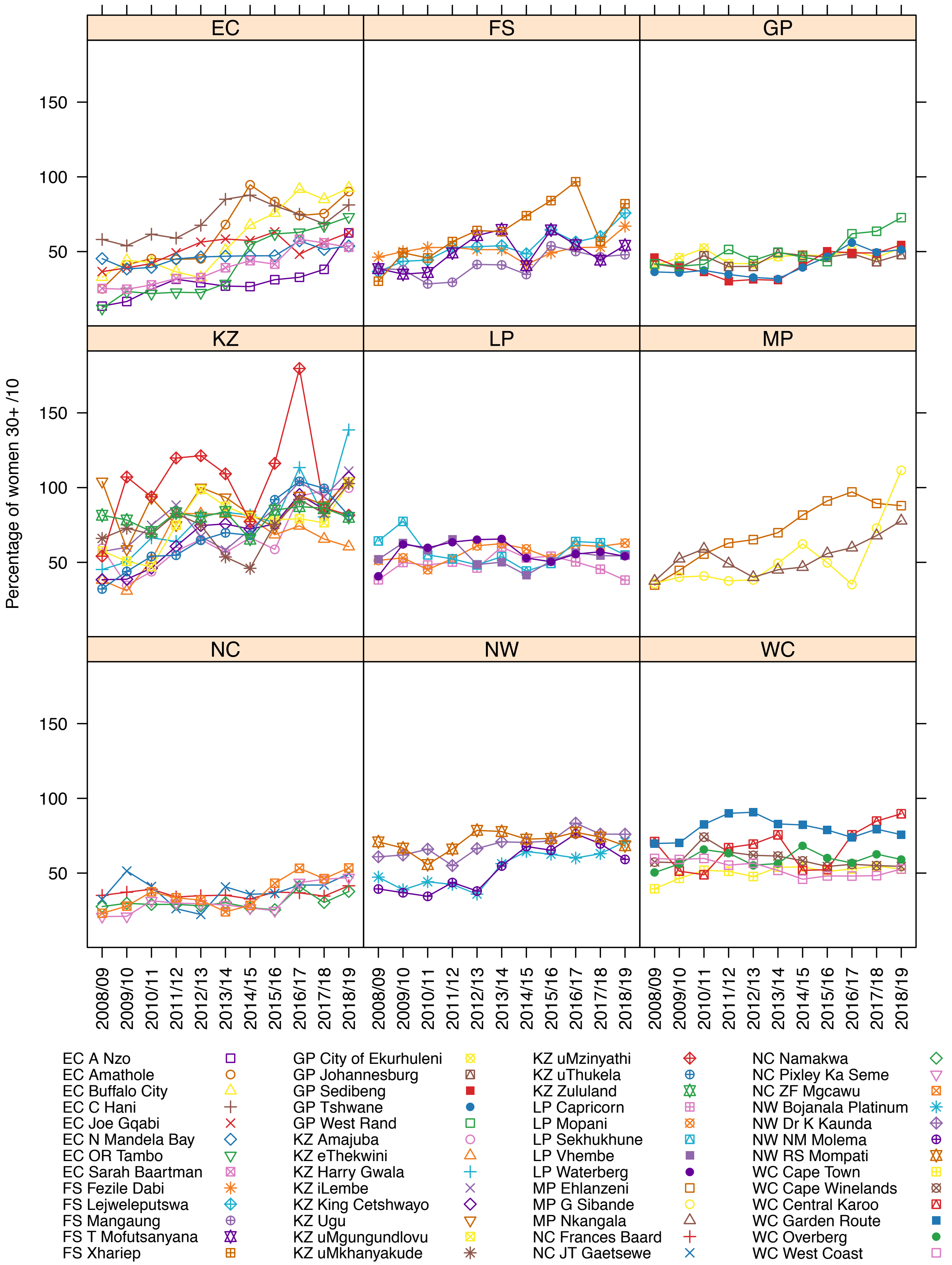
Table 1: Local municipality/sub-district with cervical cancer screening coverage below 40%, 2018/19

Province	District	Local municipality/ sub-district	Cervical screening coverage (%)
Northern Cape	Namakwa	Kamiesberg	22.5
Northern Cape	Pixley Ka Seme	Ubuntu	24.2
Northern Cape	Namakwa	Richtersveld	26.6
Limpopo	Capricorn	Polokwane	28.5
Northern Cape	Zwelentlanga Fatman Mgcawu	Kai !Garib	29.9
KwaZulu-Natal	uMgungundlovu	uMngeni	30.7
Northern Cape	Pixley Ka Seme	Kareeberg	32.3
Free State	Thabo Mofutsanyana	Phumelela	32.5
Gauteng	Johannesburg	Johannesburg C	32.9
Gauteng	Tshwane	Tshwane 4	34.1
Northern Cape	Namakwa	Khâi-Ma	34.1
Northern Cape	John Taolo Gaetsewe	Ga-Segonyana	34.4
Gauteng	Ekurhuleni	Ekurhuleni N1	34.7
Eastern Cape	Alfred Nzo	Ntabankulu	35.5
Northern Cape	Frances Baard	Sol Plaatje	35.8
Northern Cape	Pixley Ka Seme	Siyathemba	36.1
Northern Cape	Pixley Ka Seme	Emthanjeni	36.4
Northern Cape	John Taolo Gaetsewe	Gamagara	36.5
Northern Cape	Namakwa	Karoo Hoogland	36.6
Northern Cape	Namakwa	Nama Khoi	36.6
Eastern Cape	Sarah Baartman	Kouga	37.3
Eastern Cape	Sarah Baartman	Sundays River Valley	37.3
Free State	Mangaung	Bloemfontein	37.9

Source: DHIS.

Variable trends were seen in cervical cancer screening coverage by district across years, as shown in Figure 21. Data suggest that cervical cancer coverage has recovered from a drop observed between 2017/18 and 2018/19, and is continuing the improvement seen between 2008/09 and 2017/18. To what extent this improvement translated into early detection and treatment of cervical cancer cannot be ascertained from the available data.

Figure 21: Annual trends for cervical cancer screening coverage by district, 2008/09 - 2018/19



Source: DHIS.

Mental disorders treatment rate new

Mental disorders refer to a wide range of conditions that affect mood, thinking, perception, behaviour and relationships with others. Depression, anxiety disorders, and dementia are some common mental disorders. There are effective strategies to prevent mental disorders such as depression, and effective treatments are available to alleviate the suffering caused by these conditions.

'Mental disorder treatment rate new' measures the number of clients treated for mental disorders (depression, anxiety, dementia, psychosis, mania, suicide, developmental disorders, behavioural disorders and substance use) as a proportion of total primary health care (PHC) headcount expressed as a percentage.[y] The numerator is PHC new client treated for mental disorders, and the denominator is total PHC headcount.

National overview

In 2018/19, the mental disorder treatment rate new in South Africa was 0.4% (Table 2).

Provincial overview

In 2018/19, the mental disorder treatment rate new ranged from almost 0% in KwaZulu-Natal to 1.2% in the Free State. Only two districts in KwaZulu-Natal submitted numerator data for this indicator. Data for the numerator were not collected in the Western Cape at all, so this province was not included in the reporting.

Table 2: Mental disorder treatment rate new by province, 2018/19

	2018/19 (%)
Eastern Cape	0.2
Free State	1.2
Gauteng	0.4
KwaZulu-Natal	0.0
Limpopo	1.1
Mpumalanga	0.5
Northern Cape	0.4
North West	0.2
Western Cape	0.0
South Africa	0.4

Source: DHIS.

District overview

By district, the mental disorder treatment rate new ranged from 0.1% in eight districts (excluding the six districts in the Western Cape and nine of the 11 districts in KwaZulu-Natal) to 4.0% in Mopani (LP), as shown in Table 3. Namakwa reported a rate of 0%; however, it is not clear if the district had not submitted data for the numerator or if no new client was treated for a mental disorder in the period.

Table 3: Mental disorder treatment rate new by district, 2018/19

		2018/19 (%)
Eastern Cape	Alfred Nzo	0.2
	Amathole	0.1
	Buffalo City	0.2
	Chris Hani	0.2
	Joe Gqabi	0.3
	Nelson Mandela Bay	0.5
	OR Tambo	0.3
	Sarah Baartman	0.2
Free State	Fezile Dabi	1.2
	Lejweleputswa	0.6
	Mangaung	2.9
	Thabo Mofutsanyana	0.4
	Xhariep	0.3

y National Department of Health. 2017 National Indicator Data Set. Pretoria: NDoH; April 2017.

		2018/19 (%)
Gauteng	Ekurhuleni	0.2
	Johannesburg	0.8
	Sedibeng	0.2
	Tshwane	0.3
	West Rand	0.1
KwaZulu-Natal	Amajuba	0.1
	eThekwini	0.0
	Harry Gwala	0.0
	iLembe	0.0
	King Cetshwayo	0.0
	Ugu	0.1
	uMgungundlovu	0.0
	uMkhanyakude	0.0
	uMzinyathi	0.0
	uThukela	0.0
	Zululand	0.0
Limpopo	Capricorn	0.6
	Mopani	4.0
	Sekhukhune	0.3
	Vhembe	0.1
	Waterberg	0.1
Mpumalanga	Ehlanzeni	0.4
	Gert Sibande	0.7
	Nkangala	0.4
Northern Cape	Frances Baard	0.5
	John Taolo Gaetsewe	0.1
	Namakwa	0.0
	Pixley Ka Seme	0.6
	Zwelentlanga Fatman Mgcawu	0.5
North West	Bojanala Platinum	0.2
	Dr Kenneth Kaunda	0.5
	Dr Ruth Segomotsi Mompati	0.1
	Ngaka Modiri Molema	0.2
Western Cape	Cape Town	0.0
	Cape Winelands	0.0
	Central Karoo	0.0
	Garden Route	0.0
	Overberg	0.0
	West Coast	0.0

Source: DHIS.

Mental health separation rate

In South Africa there are currently 24 public psychiatric hospitals that only admit patients with psychiatric health problems (Table 4). However, district, regional, provincial, tertiary and national central hospitals also admit psychiatric patients for a period of 72 hours. If the patients require further care, they are referred to a psychiatric hospital.

Research from various sources[z,aa] indicates that the patient population requiring short-term hospitalisation for management of acute psychiatric problems such as suicide, brief psychosis, or panic attacks, or brief hospitalisation for severe psychiatric disorders such as schizophrenia or bipolar disorder, constitutes approximately 3% of the general population in South Africa.

In the past, people with mental health problems requiring hospitalisation were frequently admitted and treated in the large centralised specialised psychiatric hospitals. The future envisages an integrated model in which beds are provided in general hospitals, with the specialised psychiatric hospitals being utilised for long-term care where indicated.

z Flisher AJ, Lund C, Muller L, et al. Norms and standards for psychiatric care in South Africa: A report submitted to the Department of Health, Republic of South Africa (Tender No. GES 105/96-97). Cape Town: Department of Psychiatry, University of Cape Town; 1998.

aa Lund C, Flisher AJ. Norms for mental health services in South Africa. Soc Psychiatry Psychiatr Epidemiol. 2006;41:587-94.

Table 4: Number of public psychiatric hospitals and total number of public hospitals in South Africa, March 2019

	Number of public psychiatric hospitals	Total number of public hospitals
Eastern Cape	4	110
Free State	1	53
Gauteng	6	132
KwaZulu-Natal	6	114
Limpopo	3	53
Mpumalanga	0	51
Northern Cape	1	19
North West	2	26
Western Cape	4	102
South Africa	24	660

Source: DHIS.

The mental health separation rate measures the proportion of clients admitted for mental health problems. Inpatient separations is the total number of inpatient discharges, inpatient deaths and inpatient transfers out.[y] Inpatient separation is used as a proxy for admissions, and is used to monitor mental health admission trends in public hospitals.

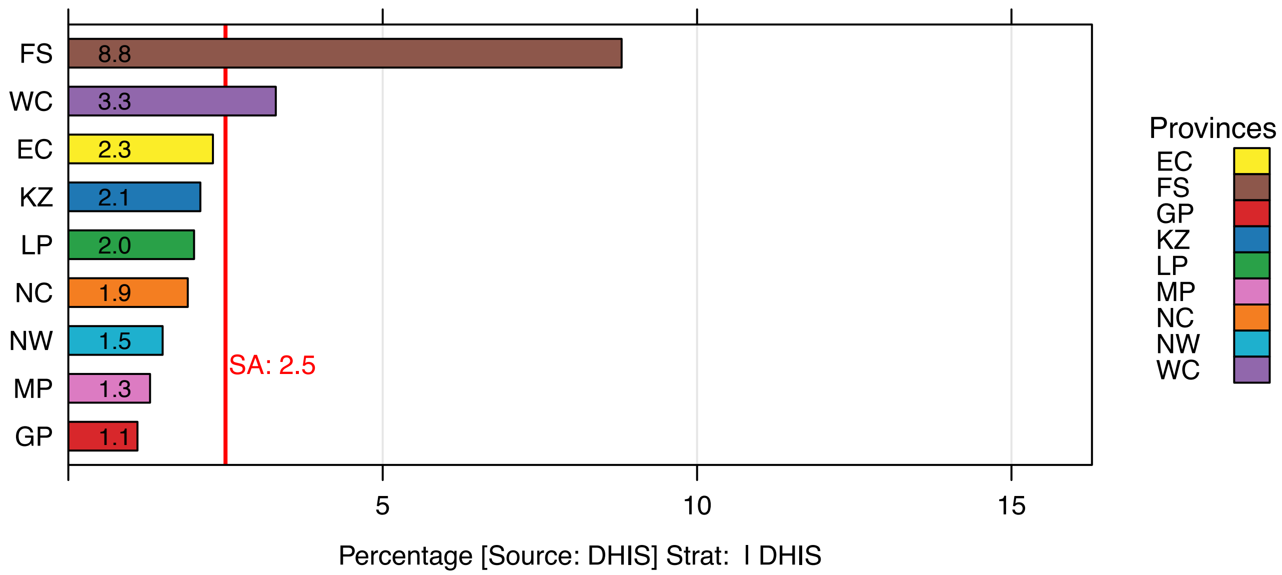
National overview

In 2018/19, the mental health separation rate was 2.5% at national level (Figure 22). The 24 public psychiatric hospitals had a mental health separation rate of 100%.The overall rate of 2.5% includes patients admitted for a mental health problem in public psychiatric and other hospitals, indicating that on average 2.5% of all patients admitted in all public hospitals in 2018/19 were admitted for a mental health problem. The 2.5% average mental health separation rate seems to be in line with the research findings.[z,aa]

Provincial overview

In 2018/19, the mental health separation rate by province ranged from 1.1% in Gauteng to 8.8% in the Free State (Figure 22).

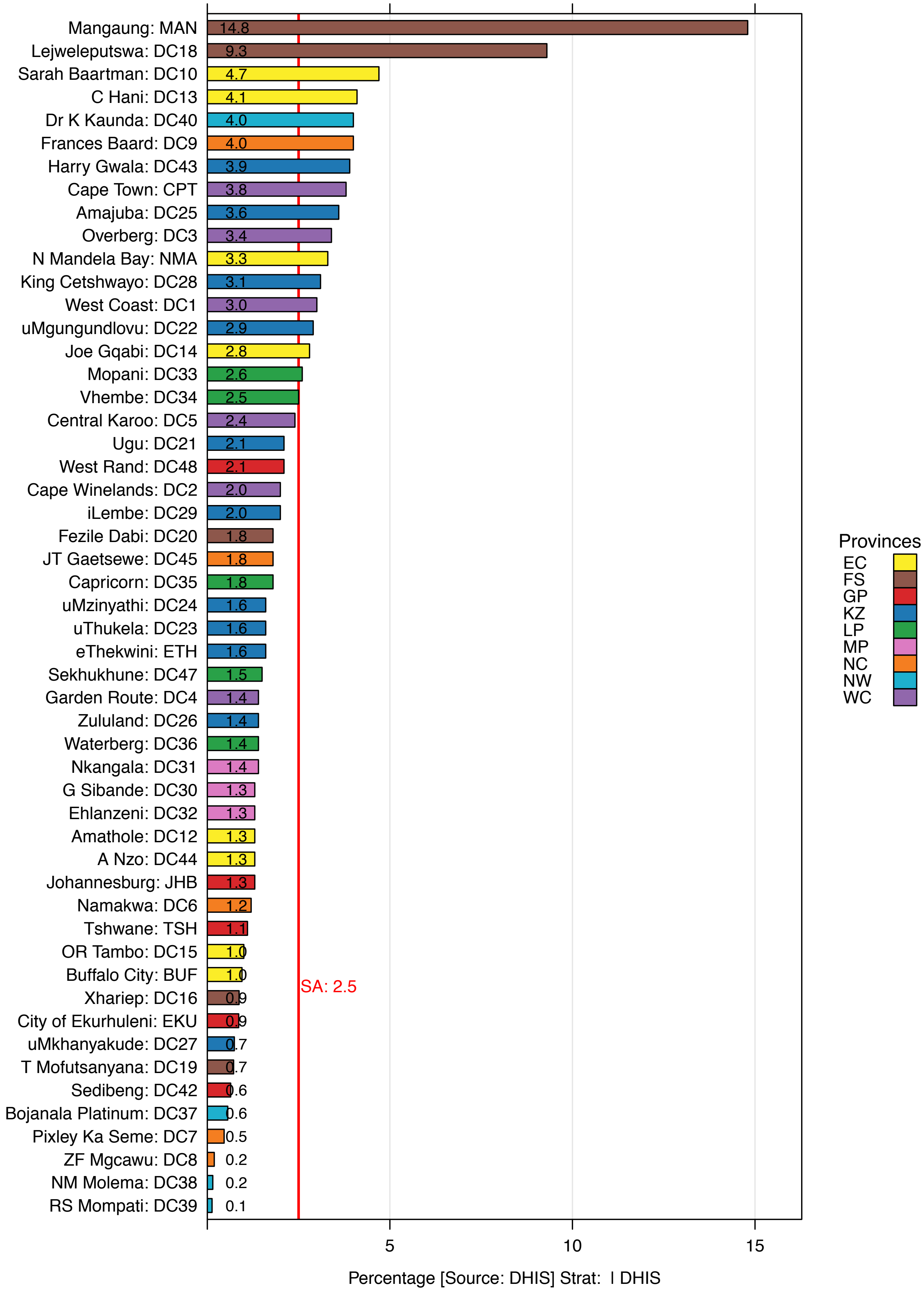
Figure 22: Mental health separation rate by province, 2018/19



District overview

In 2018/19, the mental health separation rate by district ranged from 0.1% in Mopani (LP) to 14.8% in Maugaung (FS) (Figure 23). Map 6 shows that within provinces there was substantial variation in the mental health separation rate by district. Rates in Maugaung and Lejweleputswa appear suspicious and may have been due to poor data quality.

Figure 23: Mental health separation rate by district, 2018/19



Key observations

- Values for numerators and denominators for three indicators, namely cervical cancer screening coverage, mental disorders treatment rate, mental health separation rate, were obtained directly from DHIS and therefore might include implausible values for some districts due to poor data quality or lack of data.
- The trend in age-standardised prevalence of non-raised blood pressure increased at both national and provincial level. Most districts followed the same trend, with a few exceptions.
- The age-standardised prevalence of overweight and obesity increased over the 10-year period, but the 2017 data seem to suggest stabilisation.
- Diabetes prevalence is increasing rapidly in South Africa as a whole. With a few exceptions, this is also true at local level, although the pace of growth showed significant variation across districts. The values of the indicators are not age-standardised, which means that part of the growth is a likely consequence of population ageing, given the strong relationship between age and risk of diabetes. However, the observed rate of increase is well beyond what can be explained by demographic changes alone and clearly points towards a rapidly expanding diabetes epidemic in the country, similar to what is happening worldwide, and in low- and middle-income countries in particular.[bb]
- In contrast, diabetes treatment coverage is decreasing rapidly almost everywhere. This is not surprising given that data on the incidence of new diabetes diagnoses, analysed in previous editions of the District Health Barometer (DHB),[cc] show rates of increase less than half the estimated rates shown here. Even though the comparison must take into account that the cited incidence data only include public health facilities, the difference points clearly towards an increasing number of undiagnosed (and therefore untreated) diabetic patients in South Africa. Both these trends are counter to the desired achievement of the SDG targets. In particular, increasing diabetes prevalence and decreasing treatment coverage make the achievement of Target 3.4 (reduction of premature mortality for NCDs) more difficult. Moreover, decreasing diabetes treatment coverage will make achievement of Target 3.8 more difficult (coverage of essential services is a component of this target).
- After a transient decline between 2017/18 and 2018/19, cervical cancer screening coverage increased sustainably in the country over the last decade, with about 65% of eligible women (aged 30 years and older) currently receiving screening. The impact of this positive pattern on the incidence of cervical cancer is difficult to ascertain in the absence of updated data.
- In 2018/19, treatment of mental health disorders in PHC patients was generally low, likely reflecting a combination of under-recognition and under-treatment of these conditions in PHC patients, and under-reporting to the DHIS when recognised and treated.
- In 2018/19, mental health problems accounted for 2.5% of hospital admissions in all hospitals, providing a baseline figure against which future trends can be monitored. The observed national average was driven by high admission rates in two provinces, namely Free State and the Western Cape.

Conclusions

- Despite the existence of a comprehensive set of policies covering the major risk factors for NCDs (including legislation to reduce tobacco consumption and intake of fatty acids, salt, sugar and unhealthy food),[dd] cervical cancers,[x] and mental health,[ee] the data discussed in this chapter suggest that the burden associated with NCDs is currently large and unlikely to be reduced in the short term.
- Estimates of diabetes prevalence and coverage are worrying and seem to suggest that the health system is not keeping up with rapidly increasing needs. Estimates regarding blood pressure control, and possibly obesity, show moderate signs of improvement, but both indicators are not on par with the objectives set by the government's Strategic Plan for the Prevention of Non-communicable Diseases.[ff]
- After a transient decrease between 2017 and 2018, cervical cancer screening coverage continued to improve in 2018/19, sustaining the overall trend observed over the last decade.

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bb International Diabetes Federation. IDF Diabetes Atlas. 9th ed. Brussels: IDF; 2019.

cc Kengne AP, Sayed B. Non-communicable diseases. In: Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; 2019.

dd Ndinda C, Ndhlovu TP, Juma P, Asiki G, Kyobutungi C. The evolution of non-communicable diseases policies in post-apartheid South Africa. BMC Public Health. 2018;18(1):956.

ee National Department of Health. Mental health policy framework and strategic plan 2013-2020. Pretoria: NDoH; 2013.

ff National Department of Health. Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2013-2017. Pretoria: NDoH; 2013.

- Potential issues with the quality and completeness of available data on mental health service provision, and lack of time-trend figures, currently preclude effective use of these data in understanding the performance of the health system in dealing with mental health disorders.

Recommendations

- As recommended by Kengne and Sayed,[cc] strategies for early detection and diagnosis of diabetes and adequate management of diabetic patients should be implemented urgently to improve treatment coverage and reduce adverse health consequences of untreated diabetes.
- Comparative analyses of data from multiple sources should be undertaken to produce reliable estimates on the prevalence of raised blood pressure and the distribution of BMI and other obesity indicators, and to confirm or refute the suggestion of a possible recent reversal of a previously increasing trend.
- More data should be collected and analysed on the actual prevalence and incidence of diabetes in the general population.
- Data from other sources, such as the National Cancer Registry and the National Health Laboratory Service, should be exploited to understand how the improving cervical cancer screening coverage rate is affecting the incidence, types and outcomes of cervical cancer in the country.
- Data quality and completeness must be improved so that there can be better appraisal of efforts by the health system to prevent and control mental disorders and achieve SDG Target 3.4.

5. Service capacity and access

The four tracer indicators of the universal health coverage (UHC) index[a] for the service capacity and access category include hospital bed density, health worker density, access to essential medicines, and the International Health Regulations[b] core capacity index. This chapter includes four tracer indicators, namely hospital bed density, health worker density (human resources), access to essential medicines, and health security by means of the proxy indicator 'environmental health services compliance rate'. However, the section also focuses on other aspects of access to health services and covers the following:

- Primary health care (PHC) management
- Inpatient management
- Environmental health services
- Finance
- Human resources.

5.1 PHC management

Ronel Steinhöbel, Khadija Jamaloodien, Naomi Massyn

The PHC management section includes the following indicators, namely:

- Percentage ideal clinics (IC)
- Percentage of fixed PHC facilities with 90% of tracer medicines available
- Tracer items stock-out rate (fixed clinic/community health centre (CHC)/community day centre (CDC)).

Percentage Ideal Clinics

The IC framework sets out the standards for PHC facilities to provide good-quality health services. An IC is defined as a clinic with good infrastructure, adequate staff, adequate medicines and supplies, good administrative processes, and sufficient adequate bulk supplies. Applicable clinical policies, protocols and guidelines are adhered to, and it harnesses partner and stakeholder support.[c]

The IC Realisation and Maintenance (ICRM) programme was initiated by the National Department of Health (NDoH) in July 2013 in order to systematically improve PHC facilities and the quality of care they provide. The programme was further strengthened through being adopted by the Presidency as part of Operation Phakisa.[d]

During the 2014/15 financial year, the IC framework was developed and tested at 10 PHC facilities each in Mpumalanga (MP), Gauteng (GP), Free State (FS) and KwaZulu-Natal (KZ). These facilities served as learning sites. A simple strategy of making use of managers with experience of working in clinics was used to ensure that the learning sites obtained IC status. Using the lessons learned from the learning sites, the testing framework was then revised and rolled out in all provinces, except the Western Cape (WC), for implementation in 2015/16. The Western Cape joined the programme in 2016/17, thus bringing all nine provinces on board.

Perfect Permanent Teams for IC Realisation and Maintenance (PPTICRM) were established in each district as drivers for implementation of the ICRM programme. In the early stages, the PPTICRMs were mobilised to conduct the first inter-provincial peer reviews. This was later changed to cross-district peer review within the respective provinces during the third quarter of each year to verify results of the self-assessments and district assessments conducted during the first and second quarters. The purpose was to improve weaknesses in clinics.

The approach adopted was that facility managers would conduct baseline status determination in the first three months of the financial year, verified by the PPTICRM in each district. The IC Assessment Tool is used to conduct status determinations at PHC facilities. The assessment tool consists of 10 components and 32 sub-components. Each sub-component contains a number of elements, and some elements are further defined by checklists containing a set of measures.

Each element is also assigned a specific weight, i.e. vital, essential or important. In order for a facility to obtain IC status, the facility must score a minimum of 83% for elements weighted as 'vital', 70% for elements weighted as 'essential', and

a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b World Health Organization. International Health Regulations 2005. Geneva: WHO; May 2005.

c National Department of Health. Ideal Clinic of South Africa: Quarterly provincial report on PHC facilities identified to be Ideal in 2018/19. Pretoria: NDoH; April 2019.

d President Jacob Zuma. Report on Operation Phakisa implementation. The Presidency, South African Government, 13 August 2015.

70% for elements weighted as 'important'. Facility performance is then categorised as silver (70 - 79%), gold (80 - 89%), or platinum (90 - 100%) for each status determination.

The data used in this section were based on assessments conducted during 2018/19 using version 18 of the assessment tool, with 208 elements.

The percentage IC indicator measures the proportion of fixed PHC facilities that achieved IC status, viz. silver, gold or platinum status. The denominator is the total number of fixed PHC facilities; the numerator is the number of facilities that obtained IC status during cross-district peer reviews during 2018/19. Primary health care facilities that obtained IC status in previous financial years are not reviewed again by cross-district peer review teams in subsequent years; once they have achieved IC status they are assessed by district teams. These facilities are included in the numerator.

National overview

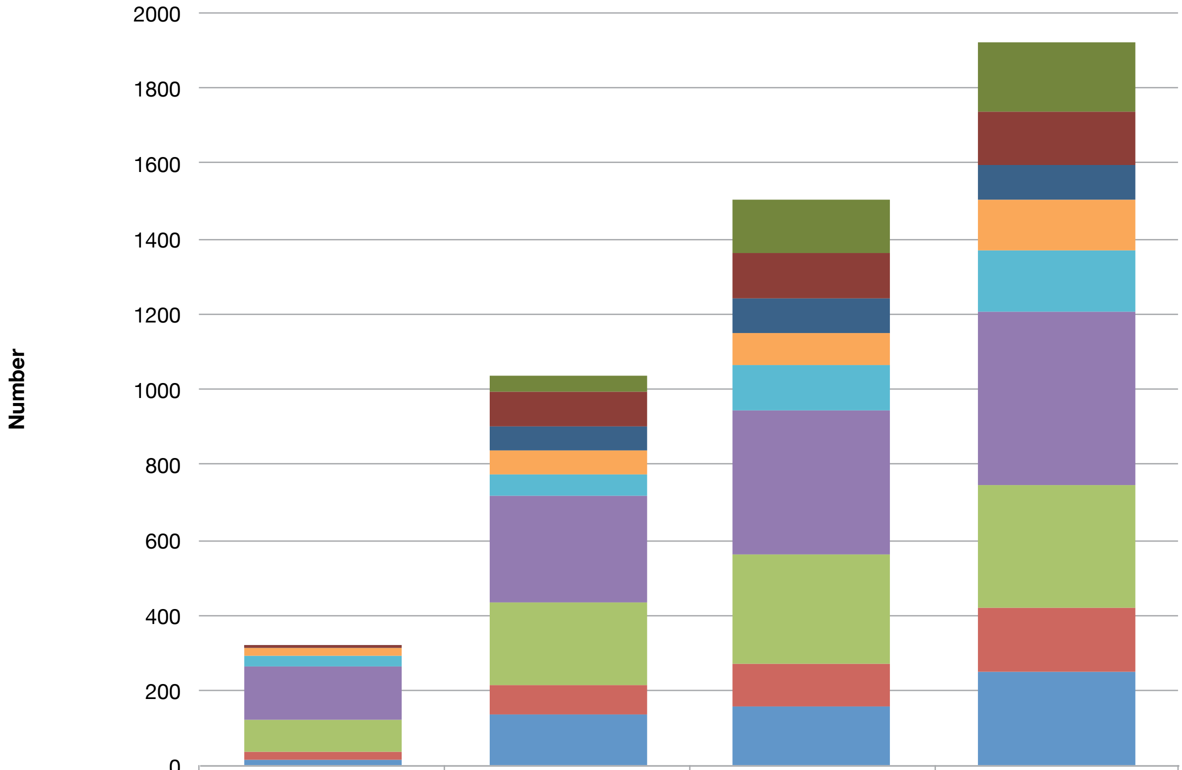
Table 1 and Figure 1 set out the number and percentage of facilities that have obtained IC status in the country in every financial year since the inception of the ICRM programme in 2015. The percentage ICs increased from 9.3% (322) in 2015/16 to 55.4% (1 920) in 2018/19. An incremental approach is being used over the five-year period to ensure that all PHC facilities are classified as ideal by 2020/21. The number of ICs in 2016/17 was three times more than in 2015/16 (from 322 to 1 037) (715 more) but the increase per annum then slowed down to 470 between 2016/17 and 2017/18, and to 413 between 2017/18 and 2018/19. The target of having all PHC facilities ideal by 2020/21 appears unrealistic based on the increase in numbers between 2015/16 and 2018/19.

Table 1: Number and percentage of facilities with Ideal Clinic status by province, 2015/16 - 2018/19

Province	Total number of facilities	Number of Ideal Clinics 2015/16	% Ideal Clinics 2015/16	Number of Ideal Clinics 2016/17	% Ideal Clinics 2016/17	Number of Ideal Clinics 2017/18	% Ideal Clinics 2017/18	Number of Ideal Clinics 2018/19	% Ideal Clinics 2018/19
Eastern Cape	768	14	1.8%	139	18.1%	157	20.4%	249	32.4%
Free State	222	22	9.9%	78	35.1%	114	51.4%	168	75.7%
Gauteng	370	89	24.1%	215	58.1%	291	78.6%	330	89.2%
KwaZulu-Natal	605	141	23.3%	288	47.6%	383	63.3%	461	76.2%
Limpopo	480	27	5.6%	51	10.6%	121	25.2%	165	34.4%
Mpumalanga	288	19	6.6%	66	22.9%	87	30.2%	133	46.2%
Northern Cape	161	3	1.9%	67	41.6%	89	55.3%	92	57.1%
North West	309	7	2.3%	92	29.8%	121	39.2%	141	45.6%
Western Cape	265		0.0%	41	15.5%	144	54.3%	181	68.3%
South Africa	3 468	322	9.3%	1 037	29.9%	1 507	43.5%	1 920	55.4%

Source: Ideal Clinic web-based application.

Figure 1: Number of facilities with Ideal Clinic status, by province, 2015/16 - 2018/19



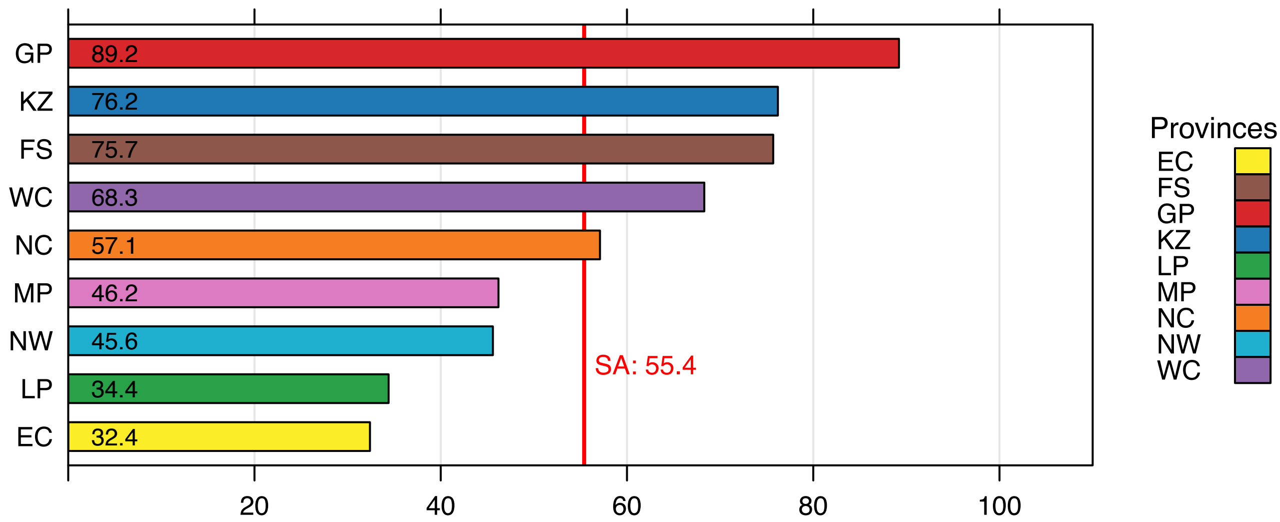
	Ideal Clinics 2015/16	Ideal Clinics 2016/17	Ideal Clinics 2017/18	Ideal Clinics 2018/19
Western Cape		41	144	181
North West	7	92	121	141
Northern Cape	3	67	89	92
Mpumalanga	19	66	87	133
Limpopo	27	51	121	165
KwaZulu-Natal	141	288	383	461
Gauteng	89	215	291	330
Free State	22	78	114	168
Eastern Cape	14	139	157	249

Source: Ideal Clinic web-based application.

Provincial overview

In 2018/19, Gauteng had the highest percentage of facilities with IC status at 89.2%, followed by KwaZulu-Natal (76.2%) and the Free State (75.7%). The Eastern Cape (EC) performed the worst, with only 32.4% of fixed PHC facilities obtaining IC status, followed by Limpopo (LP) at 34.4% (Figure 2).

Figure 2: Percentage of facilities with Ideal Clinic status by province, 2018/19



Source: Ideal Clinic web-based application.

Maintenance of facilities that have obtained IC status in previous financial years remains a concern. Of the facilities that obtained IC status in 2015/16, 2016/17 and 2017/18, 9.4% (31), 13.5% (106), and 12.2% (70) respectively lost their IC status in 2018/19. An additional 445 facilities obtained IC status in 2018/19 (Table 2).

Table 2: Number of facilities that retained Ideal Clinic status and/or obtained a new Ideal Clinic status by province, 2015/16 - 2018/19

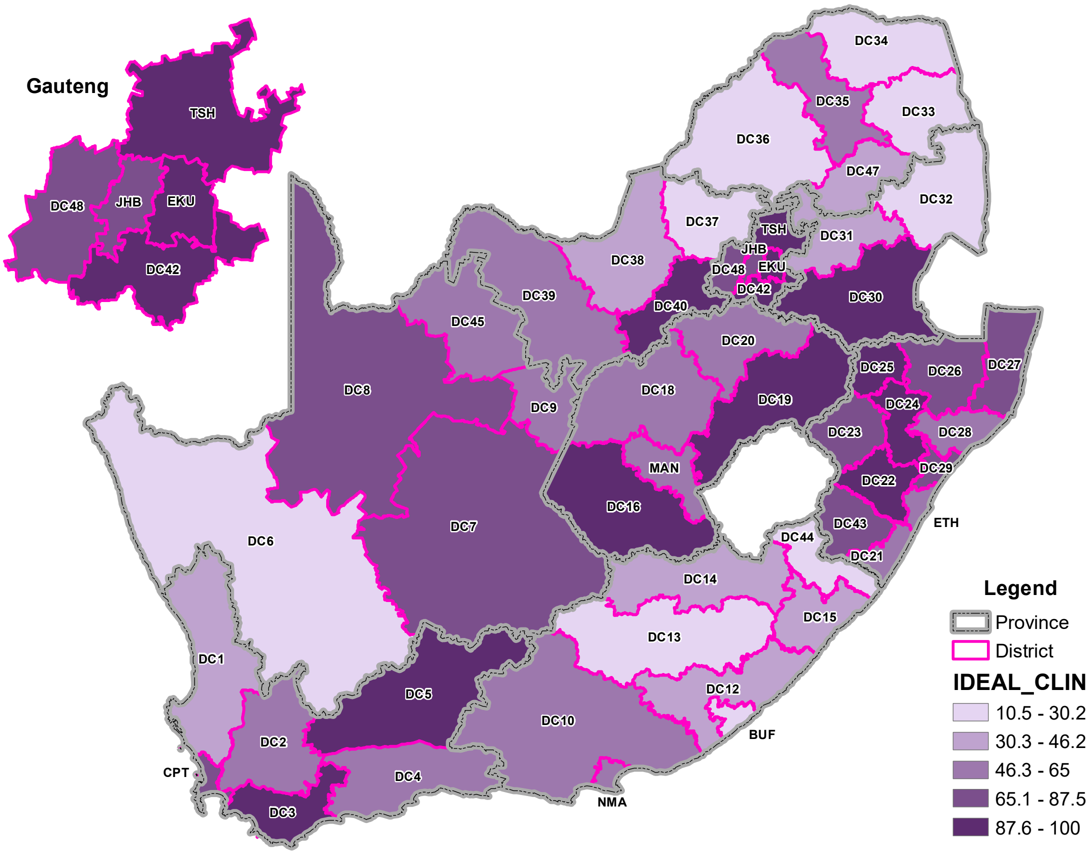
Province	Total number of fixed PHC facilities	Number of Ideal Clinics in 2015/16	Number of Ideal Clinics in 2015/16 that remained Ideal	% Ideal Clinics in 2015/16 that remained Ideal	Number of Ideal Clinics in 2016/17	Number of Ideal Clinics in 2016/17 that remained Ideal	% Ideal Clinics in 2016/17 that remained Ideal	Number of Ideal Clinics in 2017/18	Number of Ideal Clinics in 2017/18 that remained Ideal	% Ideal Clinics in 2017/18 that remained Ideal	Number of Ideal Clinics in 2018/19	Total number of Ideal Clinics in 2018/19	Total % Ideal Clinics in 2018/19
Eastern Cape	768	14	13	93%	127	100	79%	64	52	81%	84	249	32%
Free State	222	22	22	100%	58	58	100%	39	39	100%	49	168	76%
Gauteng	370	89	83	93%	131	126	96%	91	85	93%	36	330	89%
KwaZulu-Natal	605	141	129	91%	193	172	89%	80	75	94%	85	461	76%
Limpopo	480	27	19	70%	38	31	82%	72	61	85%	54	165	34%
Mpumalanga	288	19	16	84%	48	37	77%	41	36	88%	44	133	46%
Northern Cape	161	3	2	67%	64	50	78%	31	23	74%	17	92	57%
North West	308	7	7	100%	86	70	81%	46	34	74%	30	141	46%
Western Cape	265				41	36	88%	110	99	90%	46	181	68%
South Africa	3 467	322	291	90%	786	680	87%	574	504	88%	445	1 920	55%

Source: Ideal Clinic web-based application.

District overview

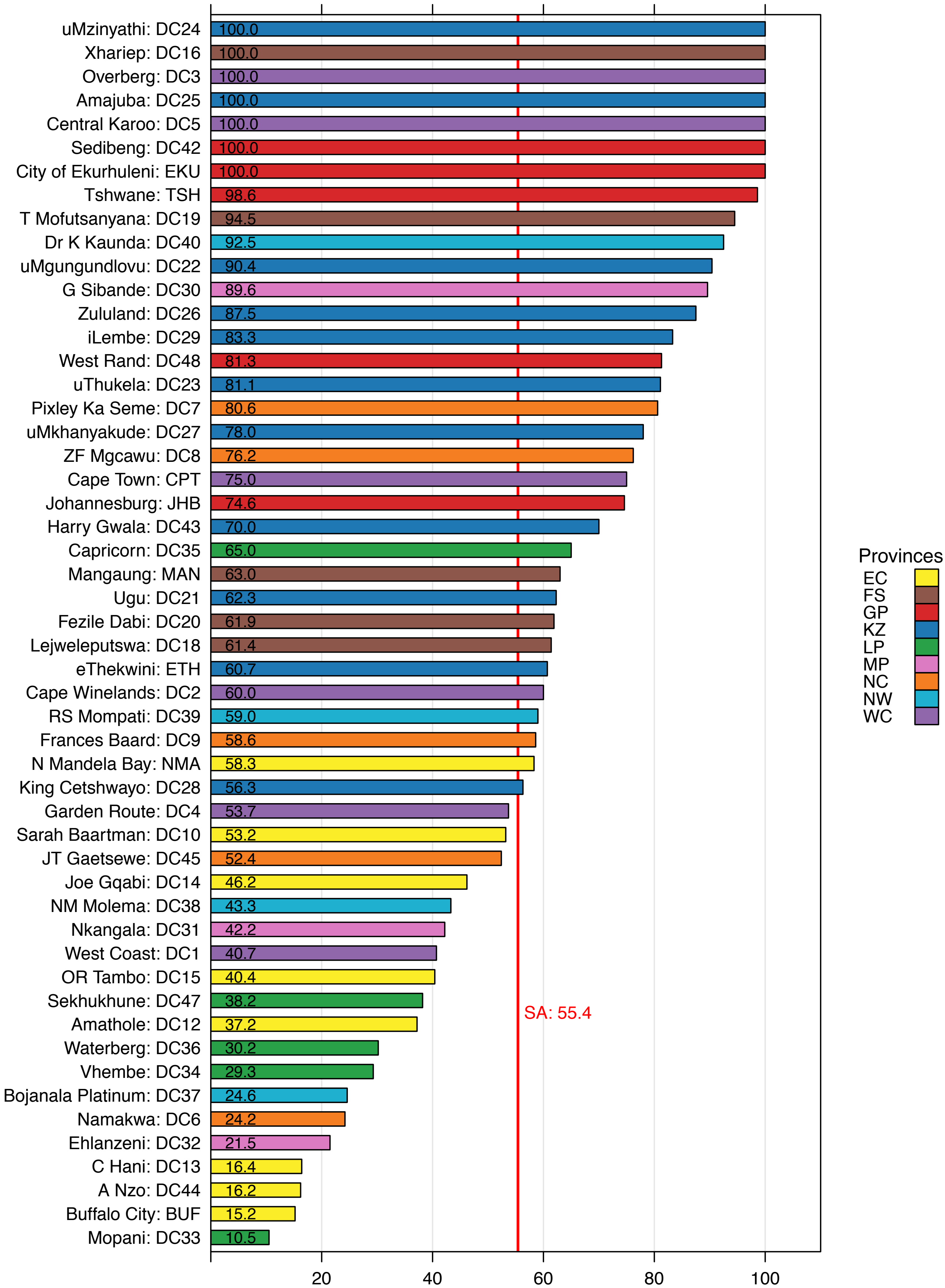
Map 1 and Figure 3 show the percentage of facilities with IC status per district in 2018/19. All districts had facilities that reached IC status. uMzinyathi (KZ), Xhariep (FS), Overberg (WC), Amajuba (KZ), Central Karoo (WC), Sedibeng (GP) and Ekurhuleni (GP) were the best-performing districts, with all facilities (100%) achieving IC status. Mopani (LP) performed the worst, with only 10.5% of clinics achieving IC status. Together with Mopani (LP), Buffalo City (EC), Alfred Nzo (EC), Chris Hani (EC), Namakwa (Northern Cape (NC)), Bojanala Platinum (North West (NW)), Vhembe (LP) and Waterberg (LP) were the worst-performing districts, with less than 30% of clinics being ICs. Seven of the eight districts in the Eastern Cape had an IC status below the national average of 55.4%.

Map 1: Percentage of Ideal Clinics by district, 2018/19



Source: Ideal Clinic web-based application.

Figure 3: Percentage of Ideal Clinics by district, 2018/19



Source: Ideal Clinic web-based application

Key findings

- The percentage of facilities with IC status increased significantly from 9.0% in 2015/16 to 55.4% in 2018/19.
- The number of facilities with IC status in 2016/17 was three times higher than in 2015/16 (from 322 to 1 037) (715 more), but the increase per annum then slowed down to 470 between 2016/17 and 2017/18 and to 413 between 2017/18 and 2018/19.
- In 2018/19, the percentage of facilities with IC status by province ranged from 89.2% in Gauteng to 32.4% in the Eastern Cape.
- All districts had facilities that achieved IC status. The percentage of facilities with IC status, by district, ranged between 10.5% and 100%.
- Sustainability remains problematic as 9.4% (31), 13.5% (106) and 12.2% (70) of facilities that obtained IC status in 2015/16, 2016/17 and 2017/18 respectively, had lost their IC status by 2018/19.
- Major challenges remain the same as in 2017/18. The top 10 failed elements were:
  - Appointment of staff in line with WISN[e] (workload indicators of staffing need)
  - Buildings comply with safety regulations
  - Establishment of functional Clinic Committees
  - Training of nurses in basic life support
  - Patient records adhere to integrated clinical services management prescriptions
  - Record keeping, filing, archiving and disposal of records
  - Providing youth-friendly services
  - Improvement of infrastructure of PHC facilities
  - Availability of cleaning equipment and materials
  - Appropriate storage area for healthcare waste.

Conclusion

The target that all PHC facilities have IC status by 2020/21 appears unrealistic based on the increase in numbers between 2015/16 and 2018/19.

Recommendations

Recommendations to address the top ten failed elements:

- Appointment of staff in line with WISN:
  - WISN assessments were conducted; the results of these findings must be implemented to address human resource deficiencies.
- Buildings comply with safety regulations:
  - The majority of facilities are very old and do not have updated electrical and fire compliance certificates. Facilities must work closely with municipalities to obtain updated certificates.
- Establishment of functional Clinic Committees:
  - The National Governance for District Health Services Guideline should be developed and published.
- Training of nurses in basic life support:
  - Basic life support instructors trained by the NDoH must roll out the provincial training programme to ensure training of 80% of nurses in PHC facilities.
- Patient records adhere to integrated clinical services management prescriptions:
  - All PHC facilities should use of the standardised patient records.
- Record keeping, filing, archiving and disposal of records:
  - Training of provincial staff on the National Guideline for Filing, Archiving and Disposal of Patient Records in Primary Health Care Facilities[f] in PHC facilities.
  - Provincial staff who attended the meeting should train district and facility staff in their provinces and monitor implementation of the Guideline.

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e National Department of Health. Ideal Clinic definitions, components and checklists, version 17. Pretoria: NDoH; April 2017.

f National Department of Health. National Guideline for Filing, Archiving and Disposal of Patient Records in Primary Health Care Facilities. Pretoria: NDoH; December 2017.

- ✦ Providing youth-friendly services:
  - Implementation of the National Adolescent and Youth Health Policy[g] should be strengthened.
- ✦ Improvement of infrastructure of PHC facilities:
  - The NDoH in collaboration with provinces should complete schedules for PHC facilities needing major refurbishment or rebuilding that should include appropriate storage area for healthcare waste.
  - Maintenance hubs should be developed in districts to ensure that proactive planned maintenance is carried out promptly.
- ✦ Availability of cleaning equipment and materials:
  - The National Infection Prevention and Control (IPC) Strategic Framework and the Practical Manual for Implementation of the National IPC Strategic Framework should be finalised, published and rolled out.[h]
  - Procurement processes should be strengthened to ensure that cleaning equipment and materials are available at facility level.
- ✦ General:
  - Functioning of provincial and district-level scale-up PPTICRMs responsible for supporting and monitoring clinics need to be strengthened in some provinces and districts.
  - Facilities that obtained IC status during peer review should be monitored closely to ensure that they retain IC status in the following years.

Percentage of fixed PHC facilities with 90% of tracer medicines available

The Sustainable Development Goal indicator 3.b.3[i] expects countries to determine the proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis. The UHC index[a] tracer indicator on access to essential medication measures the proportion of health facilities with the World Health Organization (WHO)-recommended core list of essential medicines available in the facility.[j] In South Africa, a proxy indicator is used, namely the proportion of PHC facilities (fixed clinics/CHCs/CDCs) that experienced a stock-out of any tracer item for any time during the period under review.

The 'percentage of fixed PHC facilities with 90% of tracer medicines available' indicator forms part of the IC framework to provide good-quality health services, and the data are obtained from the IC system. The indicator measures the percentage of PHC facilities that have 90% of tracer medicines available. The denominator is the total number of fixed PHC facilities, including CHCs and CDCs; the numerator is the number of facilities that have 90% or more of tracer medicines available in the facility. Tracer medicines are selected from the PHC Standard Treatment Guidelines and Essential Medicines List 2018[k] that considers the most prevalent morbidities and the therapeutic importance within a particular setting.

National and provincial overview

The national percentage of fixed PHC facilities with 90% of tracer medicines available improved from 78.4% in 2016/17 to 91.9% in 2017/18, but then decreased to 84.7% in 2018/19. The percentage of fixed PHC facilities with 90% of tracer medicines available ranged between 97.7% in the Free State and 66.6% in North West (Figure 4).

g National Department of Health. National Adolescent and Youth Health Policy. Pretoria: NDoH; 2017.

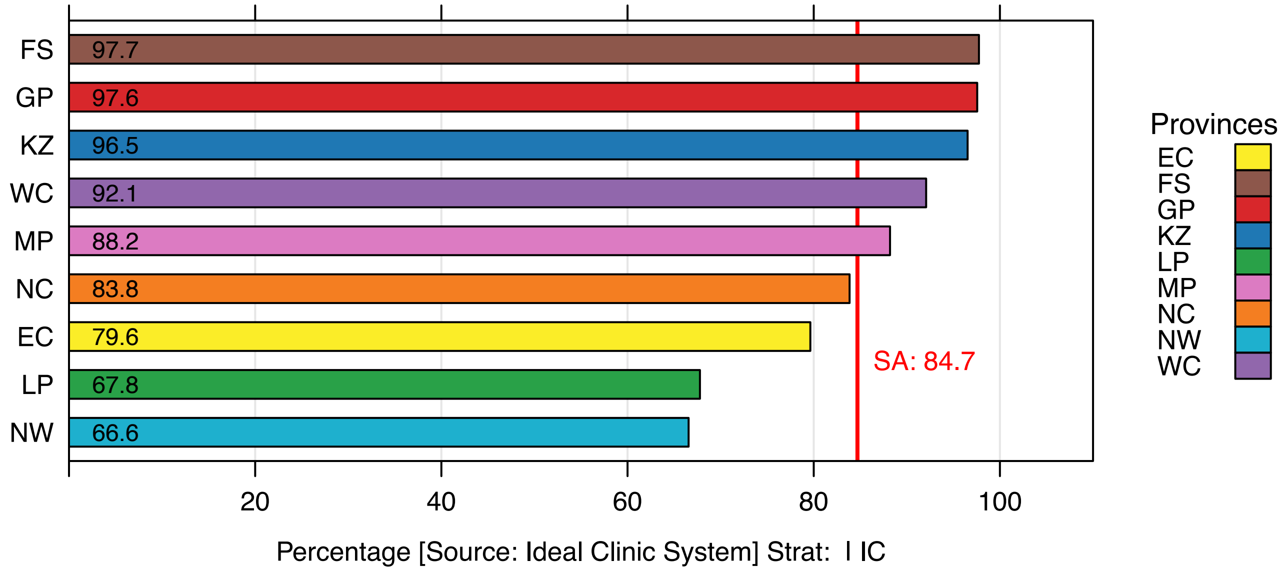
h National Department of Health. Draft National Infection Prevention and Control (IPC) Strategic Framework and Practical Manual for Implementation of the National IPC Strategic Framework. Pretoria: NDoH; 2019.

i Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf.

j World Health Organization. Primary Health Care on the Road to Universal Health Coverage: 2019 Global Monitoring Report. Geneva: WHO; 2019.

k National Department of Health. Essential Drugs Programme. Primary Health Care Standard Treatment Guidelines and Essential Medicines List. 6th ed. Pretoria: NDoH; 2018.

Figure 4: Percentage of fixed PHC facilities with 90% of tracer medicines available by province, 2018/19

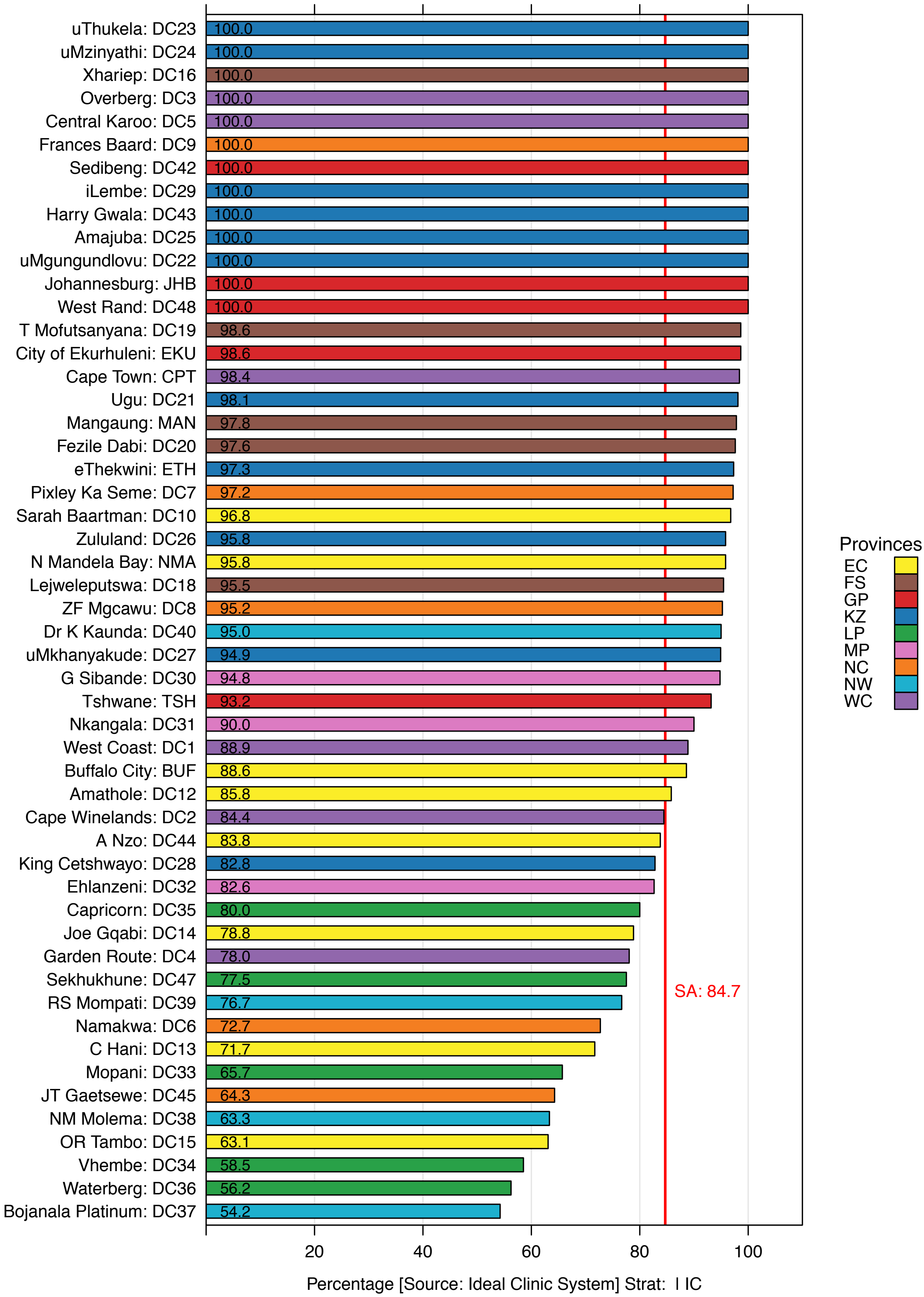


Source: Ideal Clinic web-based application.

District overview

Figure 5 shows the percentage of fixed PHC facilities that had 90% of tracer medicines available, by district. Thirteen districts (six from KwaZulu-Natal) reported that all their PHC facilities had 90% of tracer medicines available. Three districts had a percentage below 60% for fixed PHC facilities with 90% of tracer medicines available. These districts were Bojanala Platinum (NW) (54.2%), and Waterberg (56.2%) and Vhembe (58.5%) (both LP). All five districts in Limpopo scored below the national average of 84.7%.

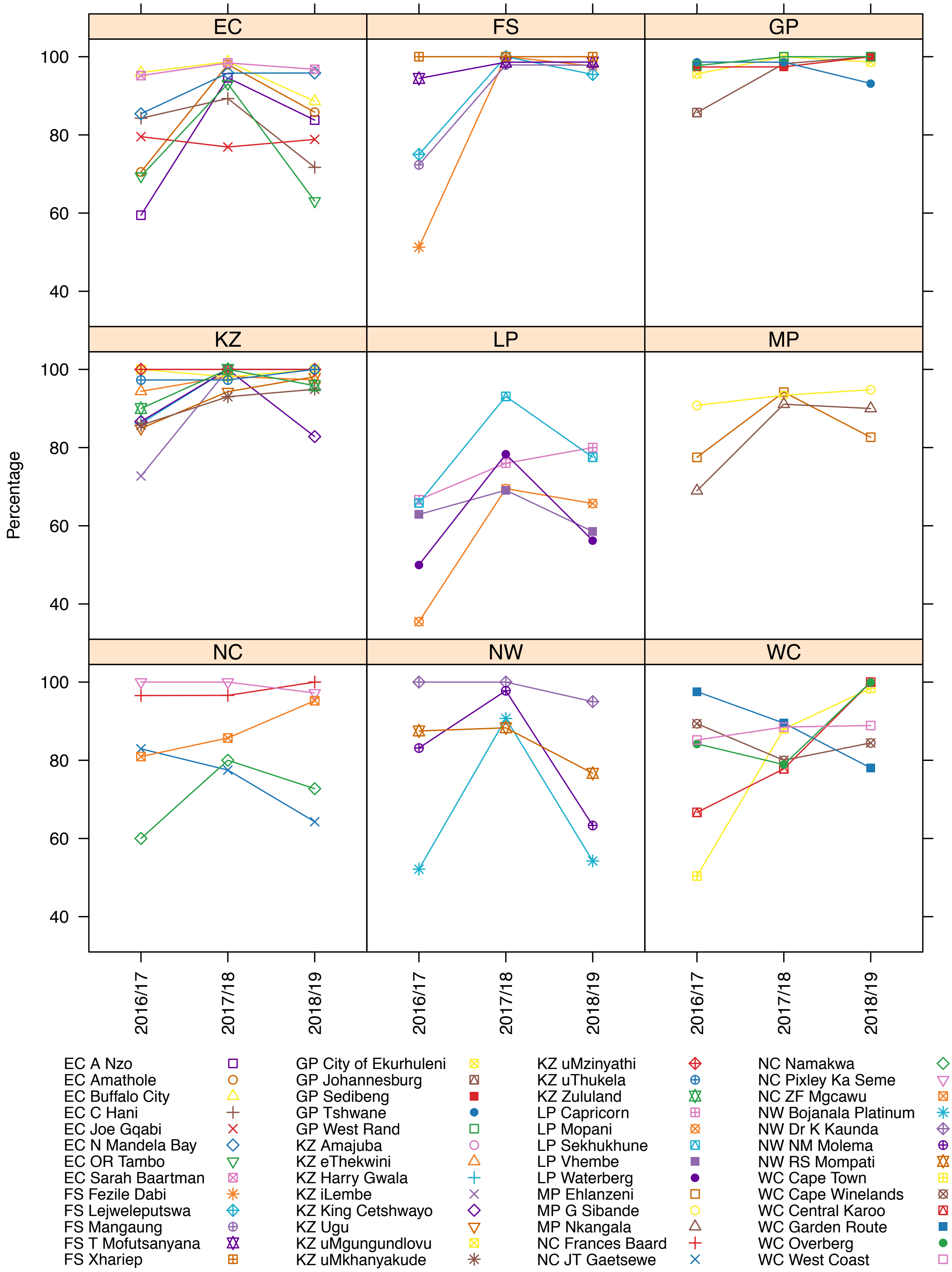
Figure 5: Percentage of fixed PHC facilities with 90% of tracer medicines available by district, 2018/19



Source: Ideal Clinic web-based application.

Figure 6 shows the percentage of fixed PHC facilities with 90% of tracer medicines available by district between 2016/17 and 2018/19. Huge fluctuations were observed for most districts in the Eastern Cape, Limpopo, Mpumalanga and North West. This may have been due to poor data quality. The Central Karoo (WC) and John Taolo Gaetsewe (NC) showed an annual decrease over the period.

Figure 6: Annual trend of percentage of fixed PHC facilities with 90% of tracer medicines available by district, 2016/17 - 2018/19



Source: Ideal Clinic web-based application.

Tracer items stock-out rate (fixed clinic/CHC/CDC)

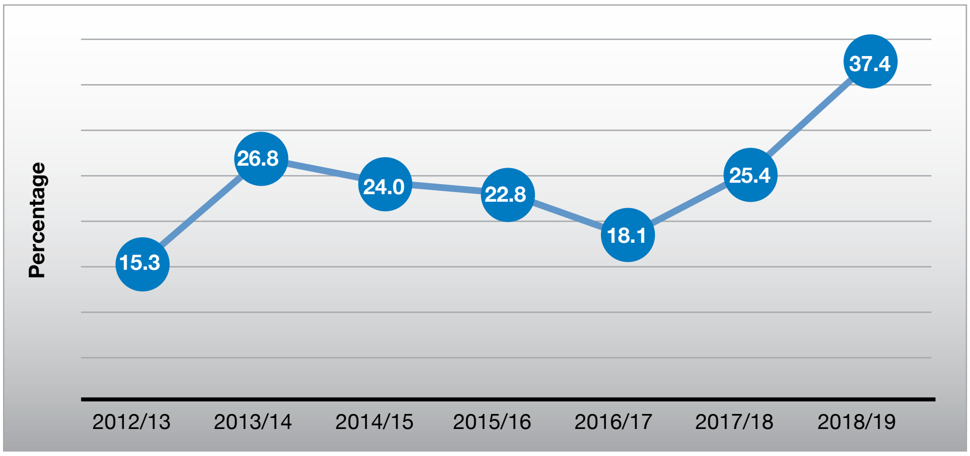
The tracer items stock-out rate (fixed clinic/CHC/CDC) measures the proportion of all fixed clinics, CHCs and CDCs that had stock-outs of any tracer item for any period as a proportion of fixed clinics and CHCs/CDCs. The data source was the District Health Information Software (DHIS).

In 2018/19, some provinces experienced medication stock-outs due to the fact that suppliers were not paid on time. Provincial accounts were also placed on hold. There were also supplier-related challenges with certain items such as contraceptive methods (stock-out of norethisterone enanthate due to challenges in the global production of the injection), which could not be overcome quickly.

National overview

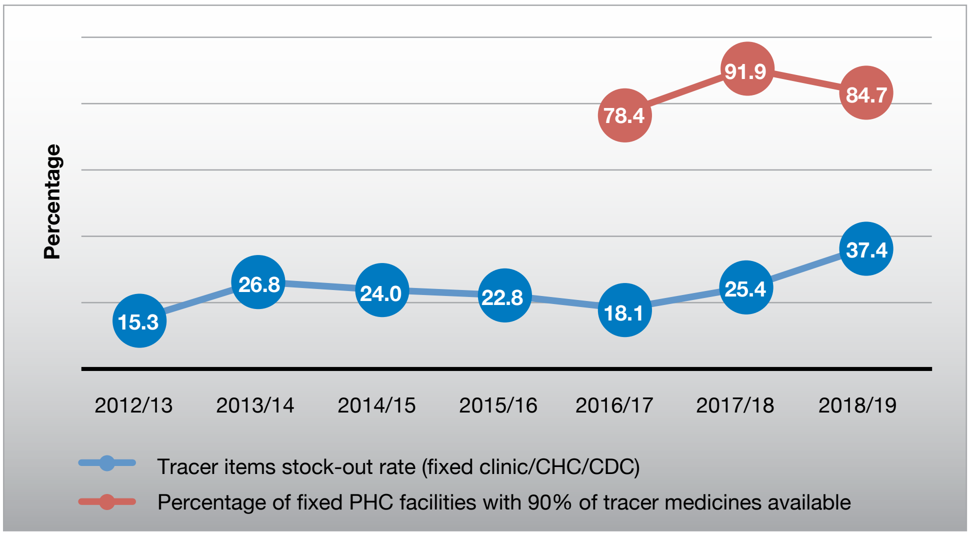
The tracer items stock-out rate (fixed clinic/CHC/CDC) fluctuated between 2012/13 and 2018/19. The rate increased from 18.1% in 2016/17 to 37.4% in 2018/19 (Figure 7). Figure 8 shows a comparison between the national tracer items stock-out rate (fixed clinic/CHC/CDC) and the percentage of fixed PHC facilities with 90% of tracer medicines available. In 2017/18, there was no correlation between the two indicators as both indicators showed an increase from 2016/17. The reason may have been due to poor data quality. However, there was a correlation between the two indicators between 2017/18 and 2018/19. The percentage of fixed PHC facilities with 90% of tracer medicines available declined from 91.9% to 84.7%, and the tracer items stock-out rate (fixed clinic/CHC/CDC) increased from 25.4% to 37.4% over this period.

Figure 7: National tracer items stock-out rate (fixed clinic/CHC/CDC), 2012/13 - 2018/19



Source: DHIS.

Figure 8: Comparison between the national tracer items stock-out rate (fixed clinic/CHC/CDC) (2012/13 - 2018/19) and the percentage of fixed PHC facilities with 90% of tracer medicines available (2016/17 - 2018/19)

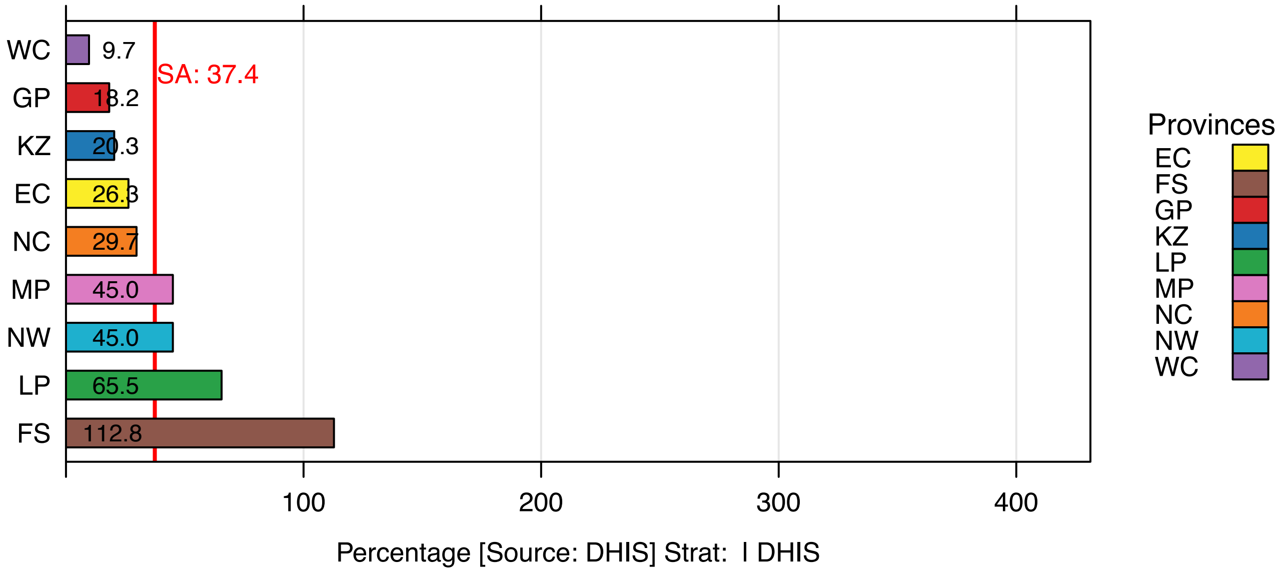


Source: DHIS.

Provincial overview

In 2018/19, the Western Cape had the smallest proportion of fixed primary care facilities with stock-outs of any tracer item for any period (9.7%). The Free State had a rate of 112.8%; however, a rate above 100% is an indication of poor data quality. In Mpumalanga, North West and Limpopo, more than 40% of fixed clinics, CHCs and CDCs had a stock-out of any tracer item for any period.

Figure 8: Tracer items stock-out rate (fixed clinic/CHC/CDC) by province, 2018/19

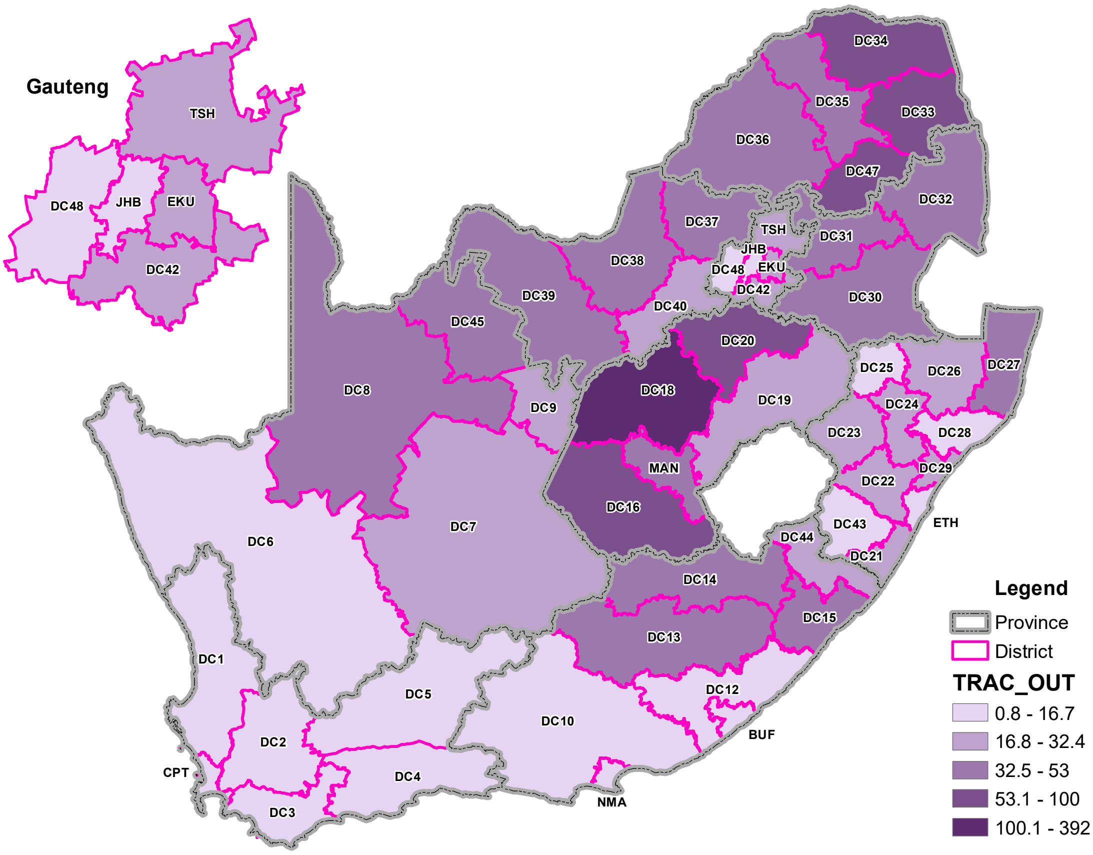


District overview

In 2018/19, the tracer items stock-out rate (fixed clinic/CHC/CDC) across districts ranged from 0.8% in Buffalo City (EC) to 392% in Lejweleputswa (FS) (Figure 9 and Map 2). The rate in Lejweleputswa is totally unrealistic and needs to be investigated. The rate there was 39.6% in 2016/17 and 41.3% in 2017/18. Four of the five districts in both the Free State and Limpopo were among the districts with a tracer items stock-out rate (fixed clinic/CHC/CDC) above the national average of 37.4%.

Figure 9: Tracer items stock-out rate (fixed clinic/CHC/CDC) by district, 2018/19

Map 2: Tracer items stock-out rate (fixed clinic/CHC/CDC) by district, 2018/19



Source: DHIS.

Key findings

- The national percentage of fixed PHC facilities with 90% of tracer medicines available improved from 78.4% in 2016/17 to 91.9% in 2017/18, but then decreased to 84.7% in 2018/19. The percentage of fixed PHC facilities with 90% of tracer medicines available among the provinces ranged between 97.7% in the Free State and 66.6% in North West.
- Thirteen districts (six from KwaZulu-Natal) reported that all their PHC facilities had 90% of tracer medicines available. Three districts were below 60% for the percentage of fixed PHC facilities with 90% of tracer medicines available, namely Bojanala Platinum (NW) (54.2%), Waterberg (56.2%) and Vhembe (58.5%) (both LP). All five districts in Limpopo scored below the national average of 84.7%
- Between 2016/17 and 2018/19, huge fluctuations were observed for the percentage of fixed PHC facilities with 90% of tracer medicines available in most districts in the Eastern Cape, Limpopo, Mpumalanga and North West. This was probably due to poor data quality. The Central Karoo (WC) and John Taolo Gaetsewe (NC) showed an annual decrease over the period.
- In 2018/19, some provinces experienced medication stock-outs due to several challenges. The national tracer items stock-out rate (fixed clinic/CHC/CDC) fluctuated between 2012/13 and 2018/19. However, the rate increased from 18.1% in 2016/17 to 37.4% in 2018/19. This was probably due to the unrealistic rate of 392% in Lejweleputswa in the Free State.
- In 2017/18, there was no correlation between the tracer items stock-out rate (fixed clinic/CHC/CDC) and the percentage of fixed PHC facilities with 90% of tracer medicines available as both indicators showed an increase from 2016/17. The reason may have been due to poor data quality. However, there was a correlation between the two indicators between 2017/18 and 2018/19. The percentage of fixed PHC facilities with 90% of tracer medicines available declined from 91.9% to 84.7% and the tracer items stock-out rate (fixed clinic/CHC/CDC) increased from 25.4% to 37.4% over this period.
- In 208/19, the Western Cape had the fewest fixed clinics, CHCs and CDCs with stock-outs of any tracer item for any period (9.7%). The Free State had a rate of 112.8%; however, a rate above 100% is an indication of poor data quality. In Mpumalanga, North West and Limpopo, more than 40% of fixed clinics, CHCs and CDCs had a stock-out of any tracer item for any period.

- In 2018/19, the tracer items stock-out rate (fixed clinic/CHC/CDC) across districts ranged from 0.8% in Buffalo City (EC) to 392% in Lejweleputswa (FS). The rate in Lejweleputswa is totally unrealistic and may have been due to poor data quality. Four of the five districts in both the Free State and Limpopo were among the districts with a tracer items stock-out rate (fixed clinic/CHC/CDC) above the national average of 37.4%.

Conclusion

- The country is not on track to reach SDG and UHC goals regarding access to essential medication.
- Data quality appears to be a challenge, especially in the Free State.

Recommendations

- Funding should be earmarked for pharmaceutical and related items. Funds appropriated for medicines that are unspent in a particular year should be rolled over in the subsequent year.
- Human resources for pharmacy services should be aligned with the needs of the district. Where feasible, each clinic should have a pharmacist's assistant.
- Responsibility for medicine availability should be included in the performance agreement of facility managers, nurses responsible for dispensing, and district managers.
- Data-quality challenges need to be addressed urgently. The current source of data is the DHIS. This situation will be addressed if the data source changes to the National Surveillance Centre.

5.2 Inpatient management

Naomi Massyn

The service capacity and access category of the universal health coverage (UHC) index[a] covers four health service areas, namely hospital access, healthcare worker density, access to essential medicines, and health security. This section covers the hospital access area. The UHC indicator is the number of hospital beds per person. However, two other indicators are also included in this section. The three indicators covered are:

- Hospital beds per 10 000 target population
- OPD new client not referred rate (district and all hospitals)
- Inpatient crude death rate (all hospitals).

In 1994, the Government decided to use a primary health care (PHC) approach to deliver healthcare services through a district health system.[b] Through this system, all patients are expected to first receive primary care at a clinic or health centre where an initial diagnosis is made and treatment conducted. If required, patients are then referred, managed, and if necessary, admitted to a district hospital. If the patient requires more specialised care, s/he will be transferred to the appropriate regional, provincial tertiary or national central hospital. All these hospitals have accident and emergency departments where patients requiring urgent care can also be treated and admitted.

Primary health care service is the first level of contact with the national health system for individuals, families and communities, bringing health care as close as possible to where people live and work; as such, it constitutes the first element in a continuing health care process. Ideally, the distribution of PHC clinics and community health centres (CHCs) should be informed primarily by need; however, some clinics were built as a donation by missionaries, philanthropists and traditional leaders. The government took a decision in 1994 that people must not travel more than five kilometres to access a clinic. This led to the extensive construction of clinics in areas with the greatest need. Provinces were also expected to be biased towards PHC in the allocation of resources.

However, hospitals remain major consumers of health budgets, and more than 35% (R31 billion) of the district health service expenditure (approximately R90 billion in 2018/19) was spent on district hospitals. Provincial and central hospital services expenditure in 2018/19 was around R75.4 billion.

The cost effectiveness of hospital services will be discussed in the finance section of this chapter. District hospitals are located mainly in rural and peri-urban areas, while regional hospitals tend to be concentrated in bigger towns and secondary cities, and provincial tertiary and national central hospitals in metropolitan municipalities and big cities. Specialised hospitals are located in peri-urban and metropolitan municipalities.

Hospital services are also rendered by the private sector. Medical scheme members are the target market for private hospitals, whereas public sector hospitals mainly admit non-medical scheme members (uninsured population).[b] In 2018, the average medical scheme coverage in South Africa was 15.4%[c]. In that year, virtually the entire uninsured population (84.6% of South Africans) made use of the hospital services rendered by the public sector in district, regional, provincial tertiary, national central, or specialised facilities, e.g. tuberculosis (TB) and psychiatric hospitals and rehabilitation centres.

Hospital beds per 10 000 target population

Hospital beds per 10 000 target population refers to the number of inpatient beds per 10 000 target population. In the case of public sector inpatient beds, the uninsured population is used as the target population. Hospital beds include inpatient beds available in district, regional, provincial tertiary, national central, specialised TB, specialised psychiatric, specialised orthopaedic, specialised chronic hospitals and rehabilitation centres in the public sector.

The National Department of Health (NDoH) is currently in the second phase of developing national health insurance (NHI), known globally as universal health coverage. The World Health Organization (WHO) defines UHC as: "ensuring that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user to financial hardship".[d] The UHC index[a] uses an additional indicator, namely hospital bed density, that forms part of the service capacity and access level. The international definition for hospital bed density refers to the number of hospital beds per 1 000 people. The beds include inpatient beds available in public, private, general, and specialised hospitals and

a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b The South African Medical Association. Submission to the Competition Commission Market Enquiry into Private Health Care In Respect of Proposed Regulatory Interventions for Licensing of Health Facilities (14 February 2018). Pretoria: SAMA; 26 February 2018. Available from: https://www.samedical.org/file/678.

c GHS modelled estimates of medical scheme coverage.

d World Health Organization. Available from: https://www.who.int/healthsystems/universal_health_coverage/en/.

rehabilitation centres. In most cases, beds for both acute and chronic care are included.[e] According to the WHO,[f] there is no global norm for the density of hospital beds in relation to total population, and hospital beds are used to indicate the availability of in-patient services.

The NHI Bill[g] that is currently out for public comment is intended to drive the implementation of NHI, which should ensure that access to health care will no longer be determined by affordability. National health insurance will place the burden of health care cost on the health services.

Distribution of hospital services remains a conundrum, even in high-income societies.[b] Where the population is dispersed and distances are great, access to hospital and emergency services becomes more problematic. The financial sustainability of small hospitals in rural and remote areas has become a major concern in terms of both capital expenditure and running costs, and attracting highly skilled staff to rural and remote locations remains a further challenge.[b]

According to the 2017 National Indicator Data Set (NIDS)[h] of the NDoH, total inpatient beds refers to all inpatient beds approved for use within a health facility, regardless of the capacity of the hospital to admit patients for inpatient care, for e.g. if wards are closed due to staff shortage, the number of inpatient beds must not be decreased accordingly. The number of approved beds is a semi-permanent data element. Any increase or decrease must be motivated for and this can only be done through the office of the provincial Head of Department, and the NDoH should be informed when such changes occur. Depending on the level of care and the services the hospital renders, hospitals have specialties or sub-categories of inpatient beds such as medicine, surgery, gynaecology, orthopaedics, paediatrics, maternity, psychiatry, intensive care unit (ICU), neonatal ICU, and high care.

The NIDS defines a bed as a unit of accommodation in a health facility for admitting patients. An admission is a patient who undergoes the formal hospital admission process as either an inpatient or a day patient because they require inpatient care that cannot be administered on an outpatient basis.

Hospital beds per 10 000 target population (all hospital types)

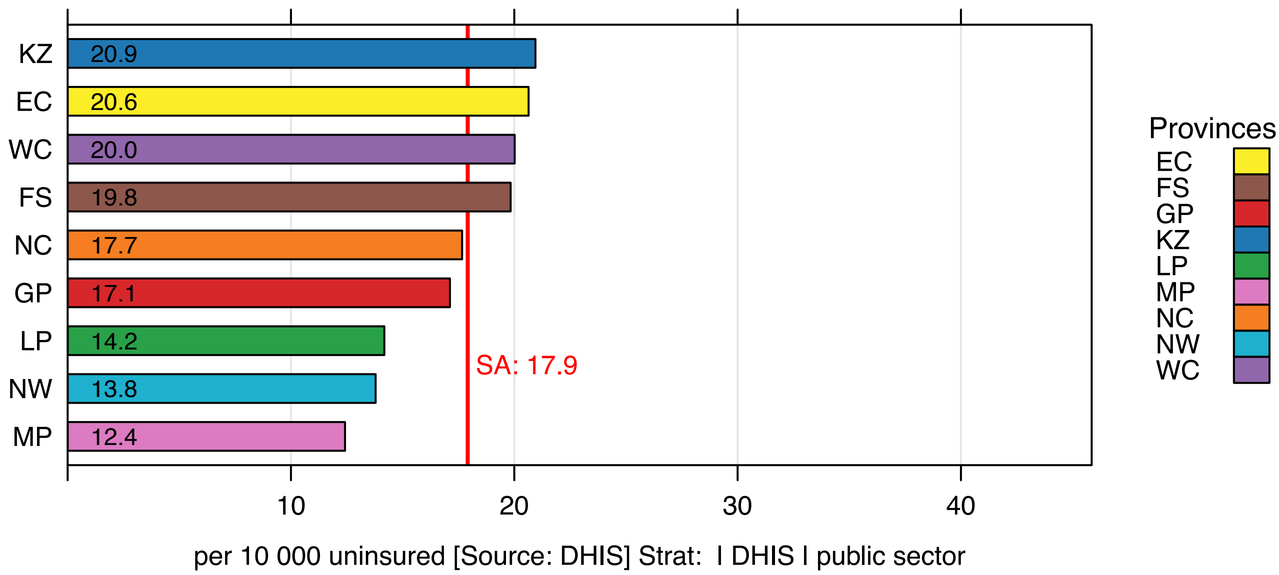
National overview

In March 2019, the number of inpatient hospital beds for all types of hospitals in the public sector was 17.9 per 10 000 uninsured population (Figure 1).

Provincial overview

Provincially, KwaZulu-Natal (KZ) had the highest number of inpatient hospital beds at 20.9 per 10 000, and Mpumalanga (MP) the lowest number at 12.4 per 10 000 target population in March 2019.

Figure 1: Hospital beds per 10 000 target population by province, March 2019 (all types of hospitals)



e The World Fact Book. Available from: https://www.cia.gov/library/publications/resources/the-world-factbook/fields/360.html.

f Kubheka, B. Clear goals are needed to address overcrowding in Gauteng hospitals. City Press. Available from: https://city-press.news24.com/Voices/clear-goals-are-needed-to-address-overcrowding-in-gauteng-hospitals-20180928.

g Republic of South Africa. National Health Insurance Bill. Government Gazette No. 42598 of 26 July 2019. Available from: https://www.gov.za/sites/default/files/gcis_document/201908/national-health-insurance-bill-b-11-2019.pdf.

h National Department of Health. National Indicator Data Set 2017. Pretoria: NDoH; January 2017.

Between 2016 and 2019, the total number of inpatient hospital beds per 10 000 target population remained relatively stable in the Western Cape (WC), North West (NW), Free State (FS), Eastern Cape (EC) and Limpopo (LP) (Table 1). In the Northern Cape (NC), inpatient hospital beds per 10 000 fluctuated at between 20.2 in 2017 and 17.7 in 2019. In KwaZulu-Natal, numbers decreased from 24.1 per 10 000 in 2017 to 20.9 per 10 000 in 2018 and 2019. In Gauteng (GP), numbers decreased annually from 18.4 per 10 000 in 2016 to 17.1 per 10 000 in 2019. The inpatient hospital beds per 10 000 target population also decreased in Mpumalanga, from 13.1 to 12.4 per 10 000 over the same period. Tables 1 - 3 show that in some provinces the reason for the annual fluctuation in the number of beds per 10 000 uninsured population was poor data quality for the number of inpatient beds. Analysis in March for the years 2015 - 2019 indicates that the number of beds fluctuated year-on-year (highlighted in yellow in Tables 1 - 3), and in some provinces there were huge outliers, e.g. in eThekwini (KZ) the provincial tertiary hospital reported no beds in March 2016 and only 13 bed in March 2018. This is a searing indictment of the data collection system and lack of use of the data at provincial and national levels.

However, in some cases there may have been a real increase or decrease in the number of inpatient beds (highlighted in green in Tables 1 - 3). Analysis was not done for specialised hospitals, and data quality for district hospitals is discussed separately as part of the district overview.

Table 1: Number of inpatient beds by national central hospitals, 2015 - 2019

District	Number of national central hospitals	Number of inpatient beds				
		March 2015	March 2016	March 2017	March 2018	March 2019
OR Tambo	1	528	556	569	569	576
Eastern Cape	**1**	**528**	**556**	**569**	**569**	**576**
Mangaung	1	636	636	636	636	636
Free State	**1**	**636**	**636**	**636**	**636**	**636**
Johannesburg	2	3 705	3 713	3 595	3 748	3 748
Tshwane	2	2 370	2 500	2 343	2 347	2 345
Gauteng	**4**	**6 075**	**6 213**	**5 938**	**6 095**	**6 093**
eThekwini	1	846	846	846	846	846
KwaZulu-Natal	**1**	**846**	**846**	**846**	**846**	**846**
Cape Town	2	2 359	2 359	2 359	2 359	2 359
Western Cape	**2**	**2 359**	**2 359**	**2 359**	**2 359**	**2 359**
South Africa	**9**	**10 444**	**10 610**	**10 348**	**10 505**	**10 510**

Source: DHIS.

Table 2: Number of inpatient beds by provincial tertiary hospitals, 2015 - 2019

District	Number of provincial tertiary hospitals	Number of inpatient beds				
		March 2015	March 2016	March 2017	March 2018	March 2019
Buffalo City	1	883	868	868	842	868
Nelson Mandela Bay	2	740	790	790	790	891
Eastern Cape	**3**	**1 623**	**1 658**	**1 658**	**1 632**	**1 759**
Mangaung	1	609	588	588	588	588
Free State	**1**	**609**	**588**	**588**	**588**	**588**
Johannesburg	1	589	616	616	616	601
Tshwane	1	735	720	711	720	720
Ekurhuleni	1	840	840	840	840	840
Gauteng	**3**	**2 164**	**2 176**	**2 167**	**2 176**	**2 161**
eThekwini	1	852		772	13	807
King Cetshwayo	1	458	429	430	430	436
uMgungundlovu	1	475	466	505	505	505
KwaZulu-Natal	**3**	**1 785**	**895**	**1 707**	**948**	**1 748**
Capricorn	2	1 003	1 003	1 013	1 013	1 013
Limpopo	**2**	**1 003**	**1 003**	**1 013**	**1 013**	**1 013**
Ehlanzeni	1	393	393	393	392	392
Nkangala	1	350	350	350	350	382
Mpumalanga	**2**	**743**	**743**	**743**	**742**	**774**
Frances Baard	1	657	691	671	671	674
Northern Cape	**1**	**657**	**691**	**671**	**671**	**674**
Bojanala Platinum	1	450	394	394	370	370
Dr Kenneth Kaunda	1	528	859	859	859	859
North West	**2**	**978**	**1253**	**1253**	**1229**	**1229**

District	Number of provincial tertiary hospitals	Number of inpatient beds March 2015	March 2016	March 2017	March 2018	March 2019
Cape Town	1	272	272	272	272	272
Western Cape	**1**	**272**	**272**	**272**	**272**	**272**
South Africa	**18**	**9 834**	**9 279**	**10 072**	**9 271**	**10 218**

Source: DHIS.

Table 3: Number of inpatient beds by regional hospitals, 2015 - 2019

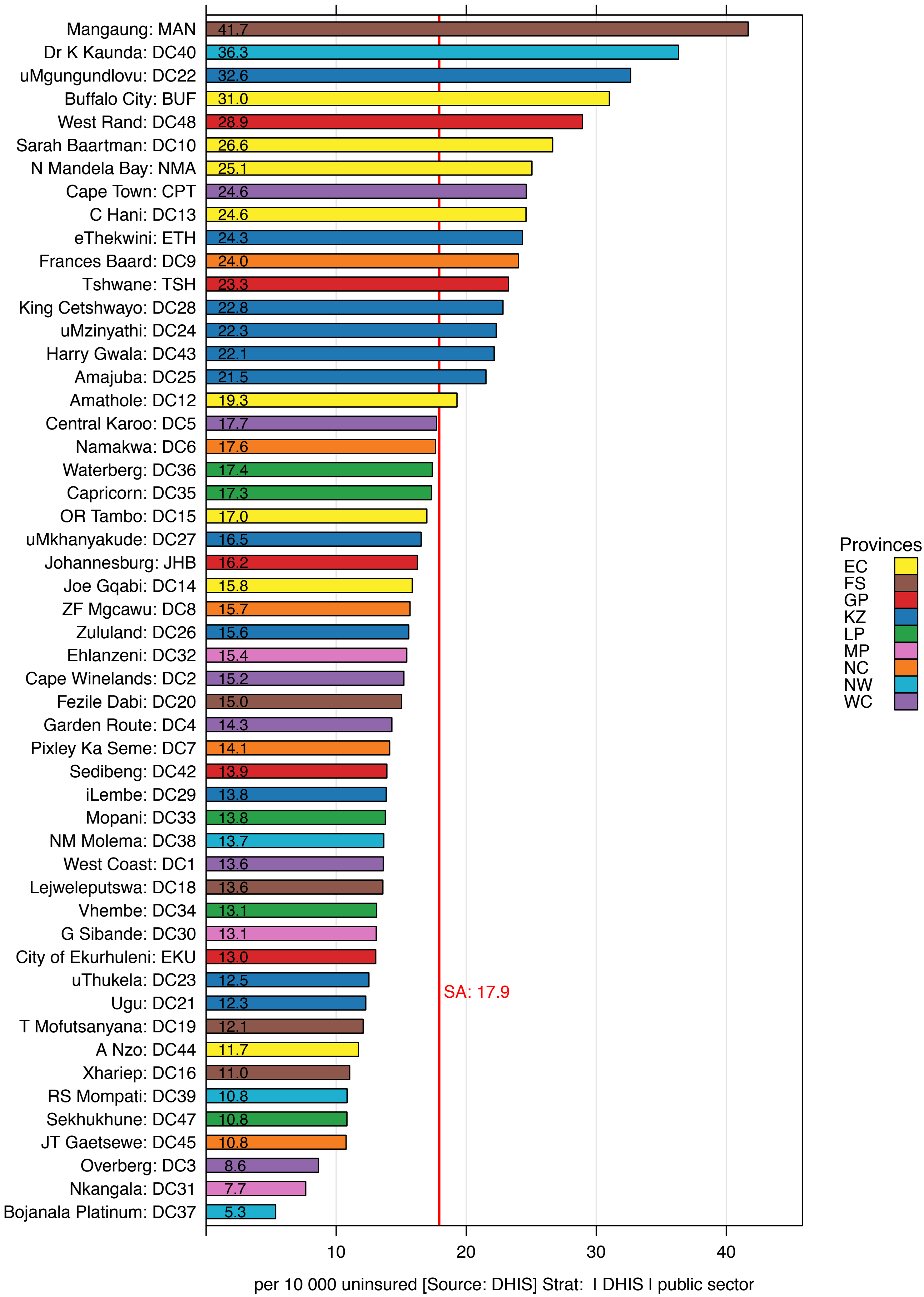
District	Number of regional hospitals	Number of inpatient beds March 2015	March 2016	March 2017	March 2018
Buffalo City	1	702	712	551	571
Chris Hani	1	297	297	297	297
Nelson Mandela Bay	1	627	627	627	627
OR Tambo	2	564	587	573	587
Eastern Cape	**5**	**2 190**	**2 223**	**2 048**	**2 082**
Fezile Dabi	1	312	312	312	312
Lejweleputswa	1	495	495	469	469
Thabo Mofutsanyana	2	410	410	369	403
Free State	**4**	**1 217**	**1 217**	**1 150**	**1 184**
Johannesburg	2	573	548	562	562
Tshwane	1	322	322	322	322
Ekurhuleni	4	2 209	2 209	2 249	2 249
Sedibeng	1	764	821	794	775
West Rand	1	855	917	855	855
Gauteng	**9**	**4 723**	**4 817**	**4 782**	**4 763**
Amajuba	2	1 078	1 055	1 068	1 068
eThekwini	6	3 315	4 847	3 334	3 341
iLembe	1	500	500	500	500
King Cetshwayo	1	361	369	369	369
Ugu	1	336	336	309	309
uMgungundlovu	1	897	898	897	897
uThukela	1	454	454	454	458
KwaZulu-Natal	**13**	**6 941**	**8 459**	**6 931**	**6 942**
Mopani	1	214	250	250	316
Sekhukhune	2	616	616	581	581
Vhembe	1	400	400	400	380
Waterberg	1	266	266	266	266
Limpopo	**5**	**1 496**	**1 532**	**1 497**	**1 543**
Ehlanzeni	2	651	651	651	651
Gert Sibande	1	218	218	218	226
Mpumalanga	3	869	869	869	877
Zwelentlanga Fatman Mgcawu	1	218	218	240	227
Northern Cape	**1**	**218**	**218**	**240**	**227**
Dr Kenneth Kaunda	1	335	335	335	305
Dr Ruth Segomotsi Mompati	1	92	120	120	133
Ngaka Modiri Molema	1	392	392	392	392
North West	**3**	**819**	**847**	**847**	**830**
Cape Winelands	2	578	582	602	606
Cape Town	2	539	539	539	549
Garden Route	1	272	272	272	272
Western Cape	**5**	**1 389**	**1 393**	**1 413**	**1 427**
South Africa	**48**	**19 862**	**21 575**	**19 777**	**19 875**

Source: DHIS.

District overview

In March 2019, Mangaung (FS) had the highest number of inpatient beds per 10 000 target population for all types of hospitals (41.7 per 10 000), 36.4 more beds per 10 000 than Bojanala Platinum (NW), which had the lowest number of beds at only 5.3 per 10 000 (Figure 2). Although most the metropolitan municipalities had high numbers of inpatient hospital beds per 10 000 target population (Buffalo City (EC) 31.0, Nelson Mandela Bay (EC) 25.1, Cape Town (WC) 24.6, eThekwini (KZ) 24.3, Tshwane (GP) 23.3), the number of inpatient beds in Mangaung was extremely high. Johannesburg and Ekurhuleni metropolitan municipalities (both GP) had inpatient beds per 10 000 target population of 16.2 and 13.0 respectively, much lower than the number in the rest of the metropolitan municipalities. The higher number of beds in the metropolitan districts are mostly because the provincial tertiary and national central hospitals are located in these districts.

Figure 2: Hospital beds per 10 000 target population by district, March 2019 (all types of hospitals)



Hospital beds per 10 000 target population (district hospitals)

District hospitals inpatient beds constitute on average about one-third of all inpatient beds. In March 2019, there were 30 531 district hospital inpatient beds out of around 90 000 inpatient beds for all types of hospitals. This is a key metric as one would expect a pyramid-type shape for provision of hospital beds, with more beds at lower-category (district level) and fewer beds at central/national level. This has important implications for both equity and cost in the overall health system.

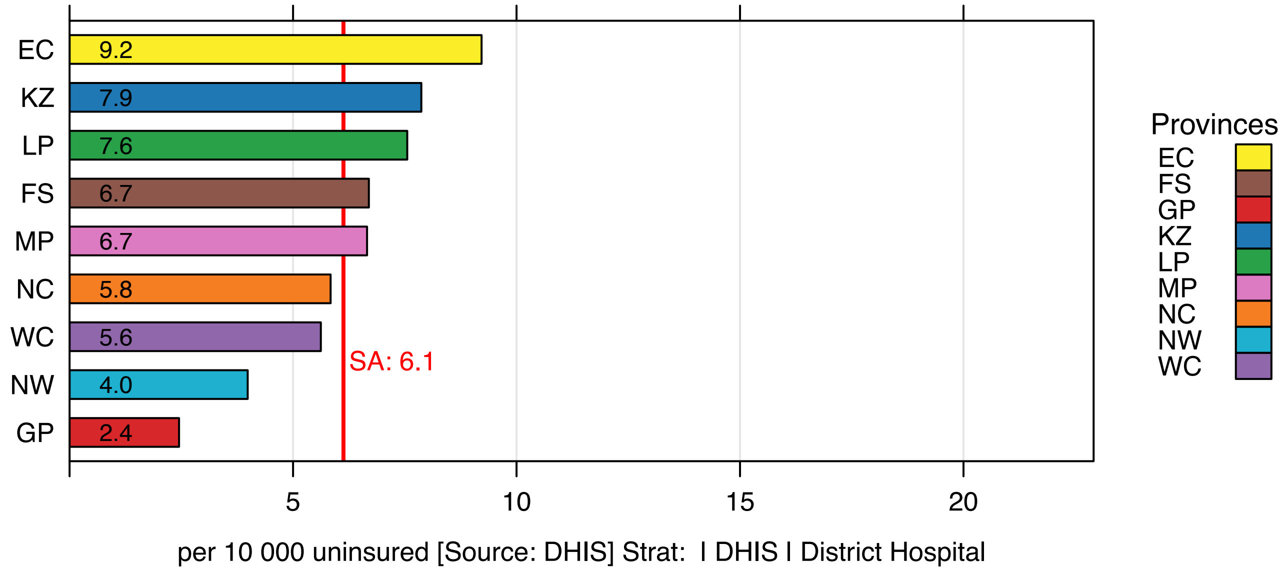
National overview

Nationally, in the public sector, the number of hospital beds for district hospitals was 6.1 per 10 000 target population in March 2019, compared with 17.9 inpatient beds per 10 000 for all types of hospitals (Figure 3).

Provincial overview

Provincially, in March 2019 the Eastern Cape had the highest number of inpatient hospital beds (9.2) per 10 000 target population for district hospitals, and Gauteng the lowest number at 2.4 per 10 000 (a nearly four-fold difference). Such a huge difference implies that overall planning of the health system in South Africa is inconsistent and inequitable.

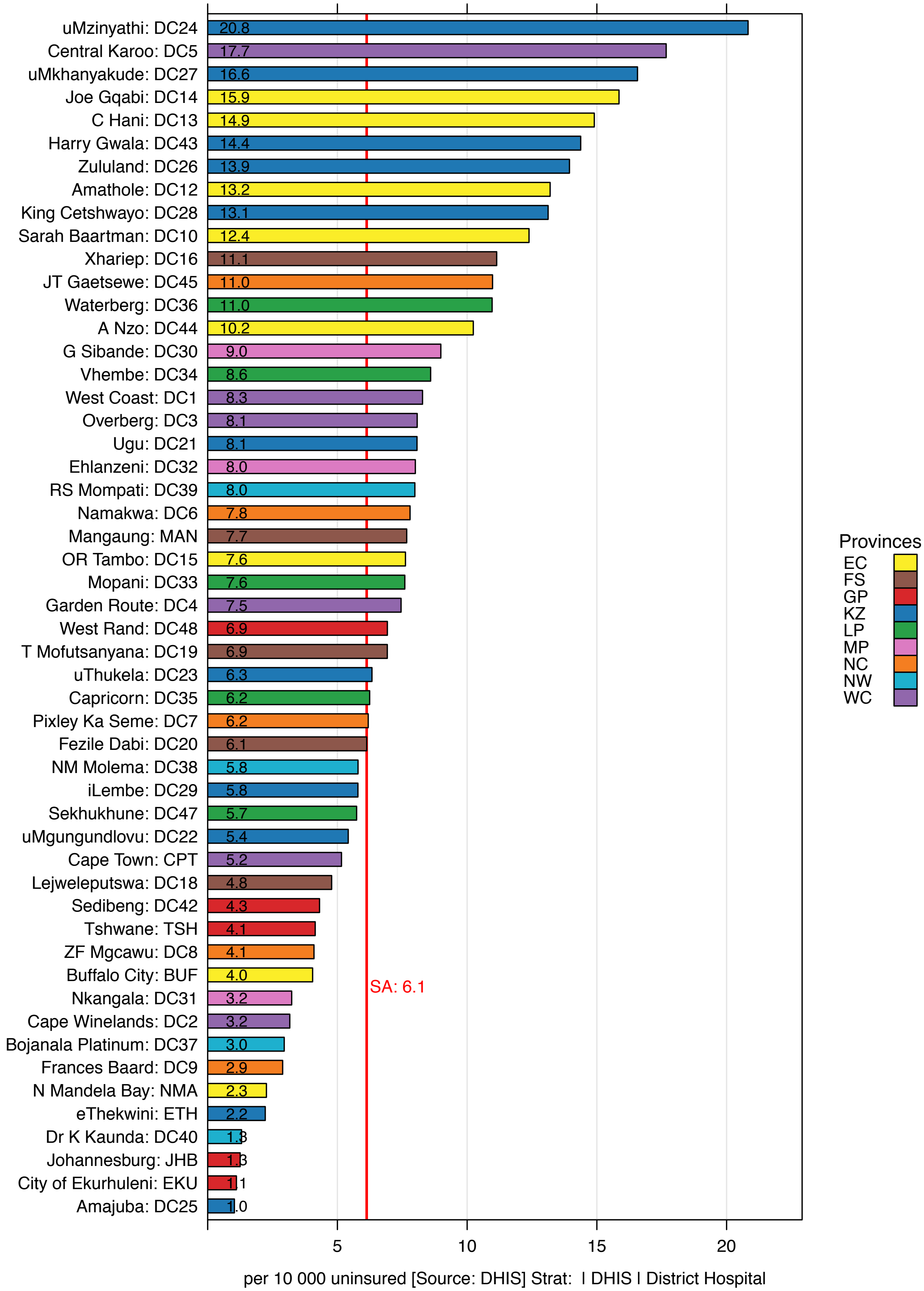
Figure 3: Hospital beds per 10 000 target population by province, March 2019 (district hospitals)



District overview

In March 2019, uMzinyathi (KZ) had the highest number (20.8) of hospital beds per 10 000 target population for district hospitals, 19.8 more beds per 10 000 than Amajuba (KZ), with the lowest number (only 1.0 bed per 10 000) (Figure 4). This shows the inequity in distribution of hospital beds per 10 000 population intra-provincially between districts as well as inter-provincially. Figure 4 also shows the inequity in distribution of hospital beds per 10 000 population between provinces. Five districts in KwaZulu-Natal and four districts in the Eastern Cape ranked among the 10 districts with the highest number of hospital beds per 10 000 target population. The highest number of hospital beds per 10 000 population was in the rural districts. In 20 of the 52 districts the hospital beds per 10 000 target population was below the national average of 6.1 beds. Six of the 20 districts were metropolitan municipalities; however, some regional and all provincial tertiary and national hospitals are located in the metropolitan municipalities that also admit patients who are supposed to be admitted to district hospitals, which implies inefficiencies in the system.

Figure 4: Hospital beds per 10 000 target population by district, March 2019 (district hospitals)



An analysis of the number of district hospital beds in March each year (2015 - 2019) indicates that, as for regional, provincial tertiary and national central hospitals, the number fluctuated year-on-year in most districts (highlighted in yellow in Table 4), and in some provinces there were huge outliers, especially in KwaZulu-Natal in March 2017, e.g. in Amajuba the district hospital reported no beds, and Harry Gwala, Ugu and Zululand showed huge outliers. However, in some cases there may have been a real increase or decrease in the number of inpatient beds (highlighted in green).

Table 4 also shows inequity in the average number of inpatient beds per district hospital within provinces, which contributed to inequity in the number of hospitals, the average number of hospital beds per hospital, and the hospital beds per 10 000 target population. In the Eastern Cape, Joe Gqabi has 11 district hospitals for a population of 373 266, alongside nine district hospitals in OR Tambo with a population of 1 495 055. In KwaZulu-Natal, Amajuba with a population of 576 908 has only one district hospital compared with four district hospitals for a population of 568 386 in uMzinyathi. In North West, Dr Ruth Segomotsi Mompati has four district hospitals for a population of 479 326, while Ngaka Modiri Molema has double the population (957 449) but only five district hospitals.

Table 4: Average number of inpatient beds by district hospitals, 2016 - 2019

District	Number of district hospitals	Number of inpatient beds					Average number of beds per hospital: March 2019	Population 2018
		March 2015	March 2016	March 2017	March 2018	March 2019		
Alfred Nzo	6	832	824	833	839	866	144.3	869 157
Amathole	12	1 266	1 266	1 266	1 266	1 266	105.5	995 414
Buffalo	2	299	272	272	272	272	136.0	856 897
Chris Hani	14	1 165	1 165	1 165	1 165	1 165	83.2	818 150
Joe Gqabi	11	537	537	537	578	568	51.6	373 266
Nelson Mandela Bay	1	238	238	238	238	238	238.0	1 302 906
OR Tambo	9	1198	1154	924	1104	1104	122.7	1 495 055
Sarah Baartman	10	601	574	577	601	601	60.1	524 603
Eastern Cape	**65**	**6 136**	**6 030**	**5 812**	**6 063**	**6 080**	**93.5**	**7 235 448**
Fezile Dabi	4	275	275	275	269	270	67.5	504 761
Lejweleputswa	5	285	285	285	285	285	57.0	673 024
Mangaung	3	439	458	485	415	483	161.0	780 755
Thabo Mofutsanyana	9	480	501	501	501	501	55.7	792 608
Xhariep	3 in 2015 - 2017, 4 in 2018 & 2019	76	76	76	149	155	6.2	154 811
Free State	**24 in 2015 - 2017, 25 in 2018 & 2019**	**1 555**	**1 595**	**1 622**	**1 619**	**1 694**	**67.8**	**2 905 959**
Johannesburg	2	574	630	445	572	518	259.0	5 201 673
Tshwane	5	992	1032	1002	1016	1021	204.2	3 473 874
Ekurhuleni	1	230	292	288	299	305	305.0	3 561 977
Sedibeng	2	343	350	340	340	340	170.0	984 810
West Rand	2	445	504	508	468	468	234.0	881 918
Gauteng	**12**	**2 584**	**2 808**	**2 583**	**2 695**	**2 652**	**221.0**	**14 104 252**
Amajuba	1	52	52		52	56	56.0	576 908
eThekwini	4	781	766	655	701	686	171.5	3 767 465
Harry Gwala	4	716	715	1 077	706	706	176.5	513 317
iLembe	3	382	382	382	379	379	126.3	704 966
King Cetshwayo	6	1 182	1 180	1 146	1 208	1 208	201.3	998 053
Ugu	3	807	807	1 103	807	597	199.0	787 096
uMgungundlovu	2	571	569	571	571	571	285.5	1 165 427
Umkhanyakude	5	1 234	1 215	1 109	1 109	1 109	221.8	696 042
uMzinyathi	4	1154	1154	1 154	1 134	1 134	283.5	568 386
Uthukela	2	463	463	463	455	455	227.5	758 834
Zululand	5	1 273	1 235	818	1 182	1 182	236.4	880 638
KwaZulu-Natal	**39**	**8 615**	**8 538**	**8 478**	**8 304**	**8 083**	**207.3**	**11 417 132**
Capricorn	8 in 2015 - 2017, 6 in 2018 & 2019	697	771	771	773	773	128.8	1 338 763
Mopani	6	831	841	864	874	877	146.2	1 225 473
Sekhukhune	5	679	679	679	679	679	135.8	1 233 967
Vhembe	6	1 149	961	1 156	1 156	1 186	197.7	1 457 007
Waterberg	7	723	723	723	723	723	103.3	715 272
Limpopo	**32 in 2015 - 2017, 30 in 2018 & 2019**	**4 079**	**3 975**	**4 193**	**4 205**	**4 238**	**141.3**	**5 970 482**
Ehlanzeni	8	1 208	1 208	1 228	1 403	1 253	156.6	1 734 492
Gert Sibande	8	1 008	1 043	949	836	949	118.6	1 196 425
Nkangala	7	557	557	584	584	431	61.6	1 531 445
Mpumalanga	**23**	**2 773**	**2 808**	**2 761**	**2 823**	**2 633**	**114.5**	**4 462 362**
Frances Baard	2	60	95	95	95	93	46.5	381 186
John Taolo Gaetsewe	2	233	233	233	233	233	116.5	243 804
Namakwa	2	73	73	73	73	73	36.5	113 554
Pixley Ka Seme	3	114	114	114	114	114	38.0	209 791
Zwelentlanga Fatman Mgcawu	2	60	60	92	92	92	46.0	263 401
Northern Cape	**11**	**540**	**575**	**607**	**607**	**605**	**55.0**	**1 211 736**
Bojanala Platinum	3	376	376	376	376	445	148.3	1 720 519
Dr Kenneth Kaunda	1	88	88	88	88	88	88.0	761 652
Dr Ruth Segomotsi Mompati	4	438	438	159	357	356	89.0	479 326
Ngaka Modiri Molema	5	528	528	467	511	507	101.4	957 449
North West	**13**	**1 430**	**1 430**	**1 090**	**1 332**	**1 396**	**107.4**	**3 918 946**
Cape Winelands	4	257	257	257	261	247	61.8	916 384

District	Number of district hospitals	Number of inpatient beds March 2015	March 2016	March 2017	March 2018	March 2019	Average number of beds per hospital: March 2019	Population 2018
Central Karoo	4	120	120	120	120	120	30.0	76 821
Cape Town	9 in 2015 - 2018 & 8 in 2019	1 550	1 579	1 598	1 624	1 683	210.4	4 140 565
Garden Route	6	396	396	396	396	396	66.0	628 623
Overberg	4	202	202	202	202	202	50.5	293 504
West Coast	7	366	366	366	322	322	46.0	459 686
Western Cape	**34 in 2015 - 2018 & 33 in 2019**	**2 891**	**2 920**	**2 939**	**2 925**	**2 970**	**90.0**	**6 515 583**
South Africa	**253**	**30 603**	**30 679**	**30 085**	**30 573**	**30 351**	**120.0**	**57 741 900**

Source: DHIS.

Key findings

- There is no standard norm or formula to determine the number of beds needed for inpatient services.
- The total number of inpatient hospital beds per 10 000 target population remained relative stable in the Western Cape, North West, Free State, Eastern Cape and Limpopo between 2016 and 2019, but decreased in KwaZulu-Natal, Gauteng and Limpopo. In the Northern Cape, the number of inpatient hospital beds per 10 000 fluctuated annually between 2017 and 2019.
- There is an inequitable distribution in the number of beds per 10 000 population. These differences manifest between provinces (e.g. Gauteng and the Eastern Cape) as well as intra-provincially between districts in the same province (e.g. uMzinyathi and Amajuba (both KZ).

Conclusion

- It appears that there is no direct relationship between the rural location of a district, the number of hospitals, and the number of beds per 10 000 target population.
- Data quality appears to be problematic.

Recommendations

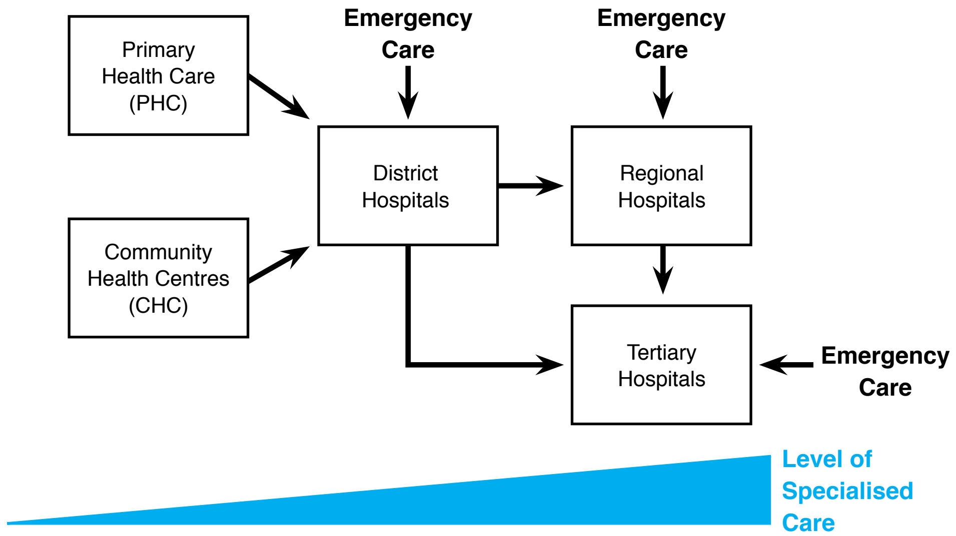
- The NDoH should establish a realistic norm or formula to determine the number of beds needed for hospital services to be rendered efficiently and cost effectively, and for long-term planning to be formulated and implemented to reduce inequities in access in district and other hospitals. A clear needs-based approach should be used to determine the number of hospital beds at each level.
- In the case of hospitals that do not use an electronic data-collection system, data-collection tools should be standardised to improve data quality.
- The staff complement in hospitals should be based on the number of inpatient beds needed and according to a standardised formula.

OPD new client not referred rate

The South African public health sector has a hierarchical referral structure between hospitals and clinics,[i] as shown in Figure 5.

i Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; January 2019.

Figure 5: Hierarchical referral structure between public hospitals and clinics



The outpatient department (OPD) new client not referred rate is defined as new OPD clients not referred as a proportion of the total OPD new clients seen at a hospital.[h] It monitors utilisation trends for clients by-passing PHC facilities, and the effect of PHC re-engineering on OPD utilisation. It does not include OPD follow-up and emergency clients in the denominator. It therefore monitors clients who access hospitals directly for PHC services, including for the treatment of minor ailments.

All patients are supposed to first receive primary care at a clinic or health centre where initial diagnosis and treatment are conducted, and if needed they should then be referred to a district hospital. If patients require more specialised care, they will be transferred to a regional, provincial tertiary or national central hospital.

The district, regional, provincial tertiary and national central hospitals all have an emergency department through which patients can also be admitted as inpatients. An emergency headcount is defined as a client attending the emergency unit in a facility with a condition requiring emergency treatment.[h] A medical emergency is an injury or illness that is acute and poses an immediate risk to a person's life or long-term health.

All regional, provincial tertiary and national central hospitals have OPD units, and patients can only access the OPD by means of a referral letter from a lower-level service. The majority of district hospitals in the country do not have a specific OPD unit, and all emergency and non-emergency cases are seen at the emergency/casualty unit. At all these hospitals, non-emergency case patients can access the emergency/casualty units directly after hours and on weekends. When the OPD unit is closed, hospitals should not record non-emergency cases attending the emergency/casualty department as emergency cases. Non-emergency cases should therefore be counted as one of the OPD general clinic data elements (new cases with or without referral letters or follow-up cases).

High OPD new client not referred rates imply either overburdened PHC facilities or inadequately performing facilities resulting in poor referral systems or both. High rates could also indicate clients being resistant to change or clients who insist on being seen by a medical doctor.

National overview

In 2018/19, the OPD new client not referred rate for all hospitals (district, regional, provincial tertiary and national central hospitals) was 47.0%, compared with the rate for district hospitals at 60.8% (Figures 6 and 7).

Provincial overview

The Western Cape had the lowest OPD new client not referred rate at around 12% for all hospitals and district hospitals only. In Limpopo, the highest OPD new client not referred rates for all hospitals and district hospitals only were 66.4% and 73.6% respectively. The average rate for South Africa was 47.0% for all hospitals and 60.8% for district hospitals. This implies that the referral system is not working adequately, resulting in inefficiencies in the system (through patients being treated unnecessarily at hospitals that are more expensive than clinics); there are also implications for quality as hospitals become inundated with patients who should have been treated elsewhere. As exemplified in the Western Cape, it is possible to achieve single-digit rates if the referral system is implemented properly.

Figure 6: National OPD new client not referred rate (all hospitals) by province, 2018/19

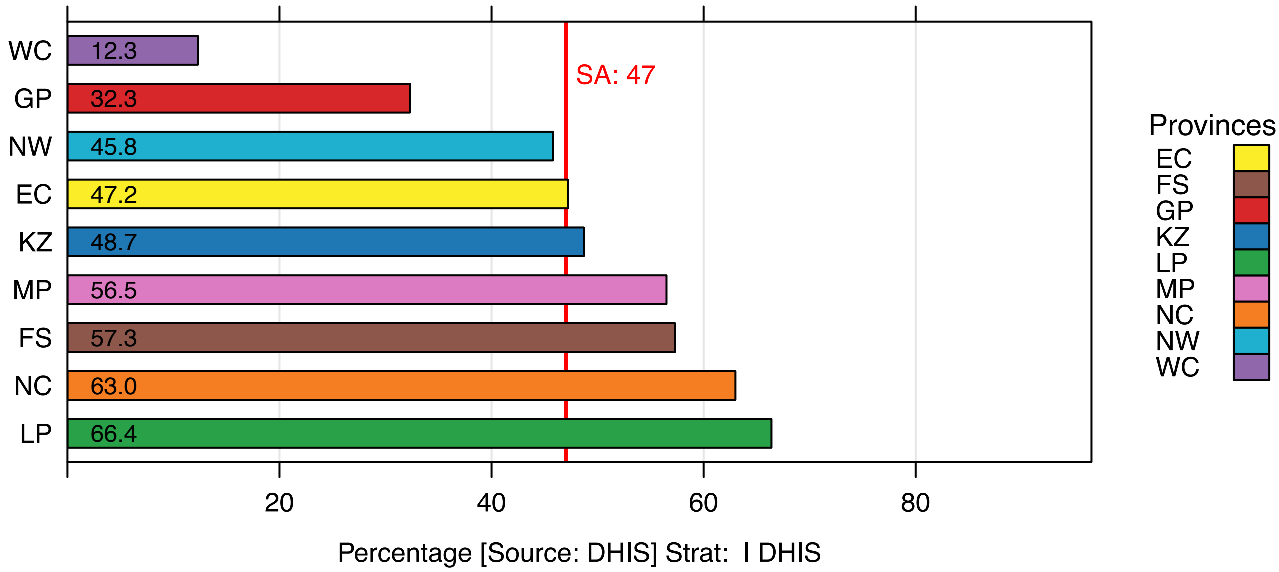
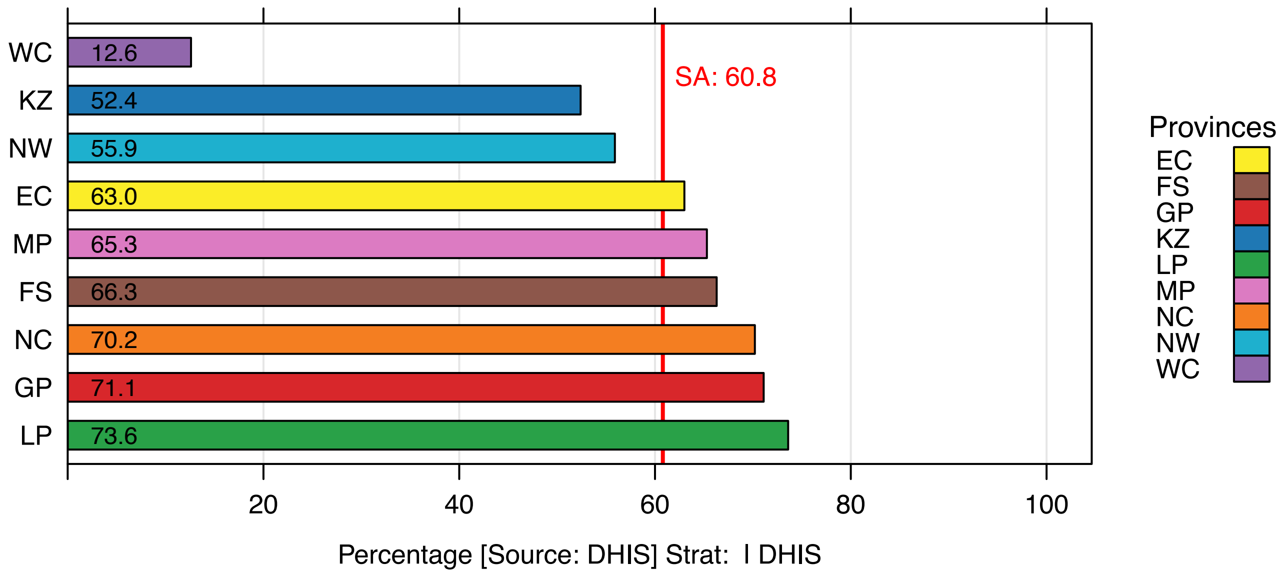


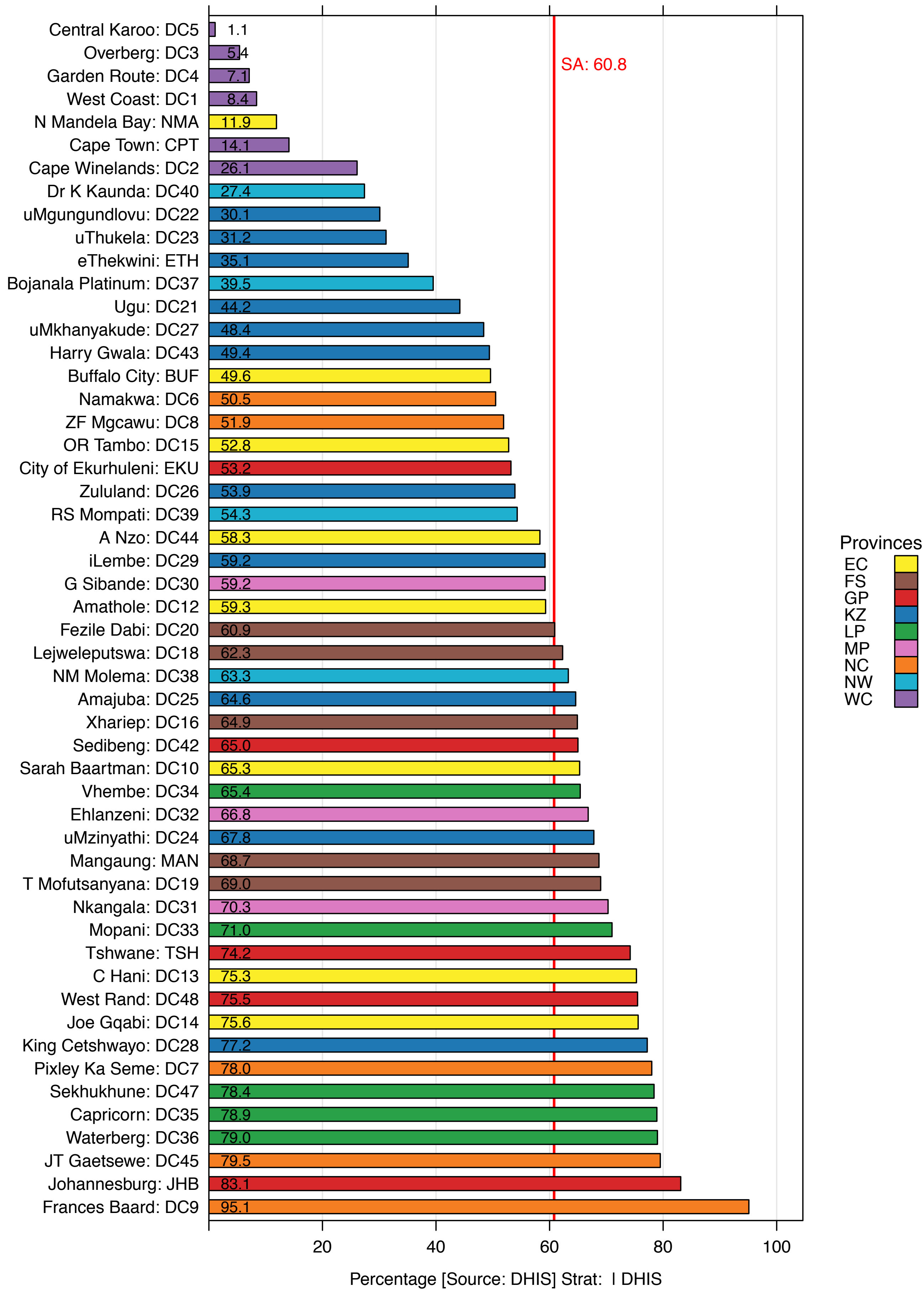
Figure 7: OPD new client not referred rate (district hospitals) by province, 2018/19



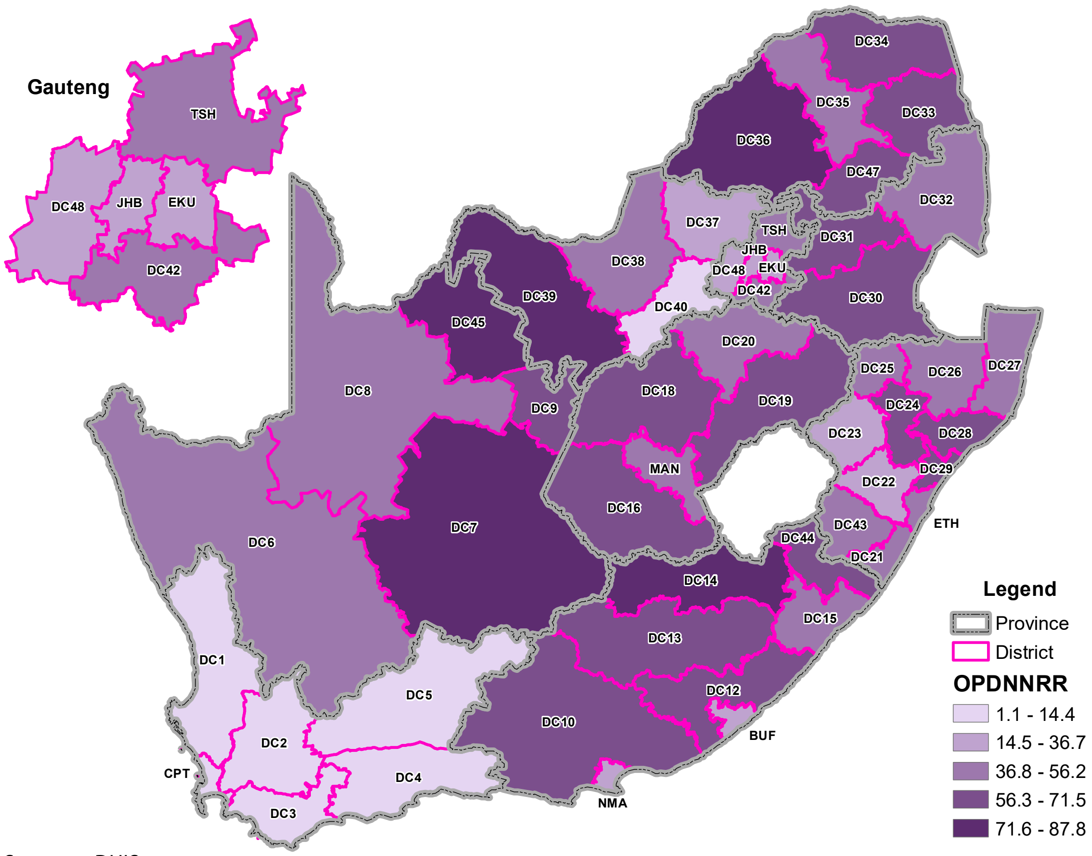
District overview (district hospitals only)

In 2018/19, Central Karoo (WC) had the lowest OPD new client not referred rate for district hospitals at 1.1% (Figure 8 and Map 1). All six districts in the Western Cape were among the 10 districts with the lowest OPD new client not referred rate (district hospitals) in the country. In Frances Baard (NC), 95.1% of OPD clients seen at district hospitals bypassed the PHC system and accessed hospitals directly for PHC services or treatment of minor ailments. Three of the five districts in the Northern Cape were among the 10 districts with the highest OPD new client not referred rate for district hospitals. It is interesting to contrast the not-referred rate in the Western Cape (with four of six districts below 10%) with Gauteng (with four of five districts above 60%).

Figure 8: OPD new client not referred rate (district hospitals) by district, 2018/19



Map 1: OPD new client not referred rate by district (district hospitals), 2018/19



Source: DHIS.

Table 5 shows a comparison between inpatient bed utilisation rate and OPD new client not referred rate. In 2018/19 the inpatient bed utilisation rate in the Eastern Cape varied between 63.2% and 47.3%, and the OPD new client not referred rate for all districts except Nelson Mandela Bay ranged between 75.6% and 49.6%. Nelson Mandela Bay had an OPD new client not referred rate of 11.9%, with an inpatient bed utilisation rate of 60.0%. In Gauteng, Johannesburg, Tshwane and West Rand had higher OPD new client not referred rates and lower inpatient bed utilisation rates. Ekurhuleni and Sedibeng, with the highest inpatient bed utilisation rate of 73.6% and 74.9% respectively, had the lowest OPD new client not referred rates at 53.2% and 65.0% respectively. In KwaZulu-Natal, the four districts with the lowest OPD new client not referred rate (below 45%) had the highest inpatient bed utilisation rate (above 61%). In the Northern Cape, Frances Baard had the highest OPD new client not referred rate at 95.1%, and an inpatient bed utilisation rate of only 5.9%. The three districts with a relatively higher OPD new client not referred rate (Frances Baard, John Taolo Gaetsewe and Pixley Ka Seme) had relatively lower inpatient bed utilisation rates.

In North West, two of the four districts with the lowest OPD new client not referred rates (Bojanala Platinum and Dr Kenneth Kaunda) had the highest inpatient bed utilisation rates, and the other two districts, with the highest OPD new client not referred rates, had the lowest inpatient bed utilisation rates. The Western Cape had the highest inpatient bed utilisation rate and the lowest OPD new client not referred rate in 2018/19. It appears, therefore, that there was not a definite overall link between OPD new client not referred rates and inpatient bed utilisation rates, as these varied between provinces. Table 5 also shows that in the majority of districts the district hospital services were not rendered efficiently; there were relatively low inpatient bed utilisation rates, and the hospitals were used to render PHC services.

Table 5: Comparison between inpatient bed utilisation rate and OPD new client not referred rate, 2018/19 (district hospitals)

		Inpatient bed utilisation rate (%)	OPD new client not referred rate (%)
Eastern Cape	Alfred Nzo	63.2	58.3
	Amathole	52.6	59.3
	Buffalo City	54.8	49.6
	Chris Hani	47.3	75.3
	Joe Gqabi	55.5	75.6
	Nelson Mandela Bay	60.0	11.9
	OR Tambo	54.0	52.8
	Sarah Baartman	61.1	65.3
	Total	54.7	63.0
Free State	Fezile Dabi	67.5	60.9
	Lejweleputswa	57.1	62.3
	Mangaung	65.7	68.7
	Thabo Mofutsanyana	54.1	69.0
	Xhariep	56.8	64.9
	Total	60.2	66.3
Gauteng	Ekurhuleni	73.6	53.2
	Johannesburg	67.8	83.1
	Sedibeng	74.9	65.0
	Tshwane	67.2	74.2
	West Rand	61.5	75.5
	Total	66.9	71.1
KwaZulu-Natal	Amajuba	65.4	64.6
	eThekwini	61.4	35.1
	Harry Gwala	62.4	49.4
	iLembe	48.2	59.2
	King Cetshwayo	46.4	77.2
	Ugu	67.7	44.2
	uMgungundlovu	77.1	30.1
	uMkhanyakude	60.7	48.4
	uMzinyathi	53.7	67.8
	uThukela	66.1	31.2
	Zululand	61.2	53.9
	Total	57.0	52.4
Limpopo	Capricorn	76.2	78.9
	Mopani	80.5	71.0
	Sekhukhune	68.2	78.4
	Vhembe	74.7	65.4
	Waterberg	62.9	79.0
	Total	72.7	73.6
Mpumalanga	Ehlanzeni	71.5	66.8
	Gert Sibande	68.4	59.2
	Nkangala	68.9	70.3
	Total	69.5	65.3
Northern Cape	Frances Baard	35.9	95.1
	John Taolo Gaetsewe	56.2	79.5
	Namakwa	73.5	50.5
	Pixley Ka Seme	60.0	78.0
	Zwelentlanga Fatman Mgcawu	45.5	51.9
	Total	54.6	70.2
North West	Bojanala Platinum	71.4	39.5
	Dr Kenneth Kaunda	67.6	27.4
	Ngaka Modiri Molema	49.4	63.3
	Dr Ruth Segomotsi Mompati	60.7	54.3
	Total	63.0	55.9
Western Cape	Cape Town	98.7	14.1
	Cape Winelands	79.4	26.1
	Central Karoo	73.2	1.1
	Garden Route	84.9	7.1
	Overberg	76.6	5.4
	West Coast	87.5	8.4
	Total	**88.3**	**12.6**

Source: DHIS.

Annual trends between 2016/17 and 2018/19 for the OPD new client not referred rate in district hospitals show that the rate remained relatively stable for the majority of the districts, irrespective of whether the rate in the district was low or high. The only exceptions were in Buffalo City (EC) where the rate dropped from 67.5% in 2017/18 to 49.6% in 2018/19, and in Zwelentlanga Fatman Mgcawu where it dropped from 66.1% to 51.9% over the same period (Table 6). In Thabo Mofutsanyana (FS) the rate declined from 80.9% in 2016/17 to 69.0% in 2018/19, and in Namakwa (NC) from 60.2% to 50.5% over the same period. Between 2016/17 and 2018/19, the rate increased in Johannesburg (GP) from 53.8% to 83.1%, in Amajuba (KZ) from 48.2% to 64.6%, in Capricorn (LP) from 68.3% to 78.9%, and in Frances Baard (NC) from 86.5% to 95.1%.

The rate remained low between 2016/17 and 2018/19 in all districts in the Western Cape and in Nelson Mandela Bay in the Eastern Cape. The rate in Nelson Mandela Bay was around five times lower than the provincial average in the three-year period and needs to be investigated.

Table 6: Annual trends: OPD new client not referred rate (district hospitals), 2016/17 - 2018/19 (%)

		2016/17	2017/18	2018/19
Eastern Cape	Alfred Nzo	52.1	56.9	58.3
	Amathole	64.6	60.6	59.3
	Buffalo City	65.3	67.5	49.6
	Chris Hani	71.5	72.7	75.3
	Joe Gqabi	73.9	74.6	75.6
	Nelson Mandela Bay	16.9	9.3	11.9
	OR Tambo	56.4	53.9	52.8
	Sarah Baartman	62.1	62.8	65.3
	Total	63.3	63.1	63.0
Free State	Fezile Dabi	68.5	67.3	60.9
	Lejweleputswa	57.4	59.3	62.3
	Mangaung	64.1	64.8	68.7
	Thabo Mofutsanyana	80.9	80.5	69.0
	Xhariep	57.9	70.4	64.9
	Total	71.2	71.3	66.3
Gauteng	Ekurhuleni	47.9	47.2	53.2
	Johannesburg	53.8	67.9	83.1
	Sedibeng	70.9	71.1	65.0
	Tshwane	39.3	75.6	74.2
	West Rand	70.0	72.9	75.5
	Total	52.5	66.7	71.1
KwaZulu-Natal	Amajuba	48.2	51.2	64.6
	eThekwini	31.4	34.6	35.1
	Harry Gwala	74.9	52.3	49.4
	iLembe	66.1	61.8	59.2
	King Cetshwayo	75.2	72.1	77.2
	Ugu DM	44.9	43.5	44.2
	uMgungundlovu	25.8	28.5	30.1
	uMkhanyakude	50.2	45.7	48.4
	uMzinyathi	63.9	69.7	67.8
	uThukela	41.0	36.6	31.2
	Zululand	33.8	50.5	53.9
	Total	49.4	50.4	52.4
Limpopo	Capricorn	68.3	71.0	78.9
	Mopani	71.0	69.3	71.0
	Sekhukhune	80.5	81.1	78.4
	Vhembe	70.2	64.8	65.4
	Waterberg	91.0	83.6	79.0
	Total	75.3	72.4	73.6
Mpumalanga	Ehlanzeni	66.5	68.9	66.8
	Gert Sibande	57.2	63.9	59.2
	Nkangala	66.4	69.1	70.3
	Total	64.1	67.5	65.3
Northern Cape	Frances Baard	86.5	81.7	95.1
	John Taolo Gaetsewe	35.4	74.4	79.5
	Namakwa	60.2	60.5	50.5
	Pixley Ka Seme	73.3	75.5	78.0
	Zwelentlanga Fatman Mgcawu	59.3	66.1	51.9
	Total	67.8	71.7	70.2

		2016/17	2017/18	2018/19
North West	Bojanala Platinum	46.3	40.9	39.5
	Dr Kenneth Kaunda	10.5	30.9	27.4
	Ngaka Modiri Molema	62.3	62.0	63.3
	Dr Ruth Segomotsi Mompati	56.3	55.9	54.3
	Total	56.4	55.9	55.9
Western Cape	Cape Town	18.9	14.6	14.1
	Cape Winelands	27.1	23.9	26.1
	Central Karoo	3.3	1.5	1.1
	Garden Route	16.0	9.5	7.1
	Overberg	14.5	4.6	5.4
	West Coast	14.8	11.4	8.4
	Total	18.2	13.6	12.6

Source: DHIS.

Key findings

- In 2018/19, the OPD new client not referred rate for all hospitals (district, regional, provincial tertiary and national central hospitals) was 47.0%, compared with the OPD new client not referred rate for district hospitals at 60.8%.
- More than 33% of the total OPD new clients not referred were seen at regional, provincial tertiary or national central hospitals.
- In 2018/19, the Western Cape had the lowest OPD new client not referred rate and Limpopo the highest rate.
- In 2018/19, all six districts in the Western Cape were among the 10 districts with the lowest OPD new client not referred rate for district hospitals in the country, and three of the five districts in the Northern Cape were among the 10 districts with the highest OPD new client not referred rate for district hospitals.
- In Frances Baard (NC), 95.1% of OPD clients seen at district hospitals bypassed the PHC system and accessed hospitals directly for PHC services or treatment of minor ailments in 2018/19.
- It appears that there was not a definite overall link between the OPD new client not referred rate and the inpatient bed utilisation rate as this varied between provinces.
- The rate in Nelson Mandela Bay was around five times lower than the Eastern Cape provincial average over the three-year period, and this needs to be investigated.

Conclusions

- Too many patients still bypass the PHC system and access hospitals directly for PHC services or treatment of minor ailments. Clearly the referral system is not working adequately, and it is likely that there are unnecessary inefficiencies and loss of quality in the system as a result. This could be changed relatively easily by management implementing policy.
- In four districts, the OPD new client not referred rate in district hospitals increased by more than 10 percentage points, indicating that PHC re-engineering implementation appears to be unsuccessful. This could have a negative effect on implementation of the NHI system.
- In the majority of districts, district hospital services were not rendered efficiently, with relatively low inpatient bed utilisation rates and patients using hospitals for PHC services.

Recommendations

- The referral system should be implemented and patients who by-pass it should be educated and then dissuaded in the form of added waiting time (going to the back of the queue if not an emergency), and possibly being subjected to a by-pass fee.
- A clear communication strategy in each province, district and hospital should be developed to inform patients at hospitals regarding the referral structure between hospitals and clinics. This could be done by means of big notices informing people that if they bypass a PHC facility and visit a hospital without a referral letter they will have to pay a penalty at the hospital. The communication should also state that patients not referred by PHC facilities will only be seen after all referred patients have been seen.
- The communication strategy should also make provision for education of patients in waiting areas of PHC facilities, using pamphlets or television information sessions to educate them about the penalty fee for bypassing the system, and the increased waiting time.
- The District Health System must be strengthened to enable all patients to first receive primary care at a clinic or health centre where initial diagnosis and treatment are conducted.

- District Health Management Offices must work with district hospital management on plans to discourage use of OPD and emergency units for PHC services and treatment of minor ailments.
- District hospitals must do outreach services to support local PHC facilities. This can be done by working together with District Clinical Specialist Teams where these are available.

Inpatient crude death rate (all hospitals)

The inpatient crude death rate is defined as clients who died during hospital stay as a proportion of total inpatient separations.[h] This indicator monitors trends in inpatient deaths and provides an indication of the quality of inpatient care.

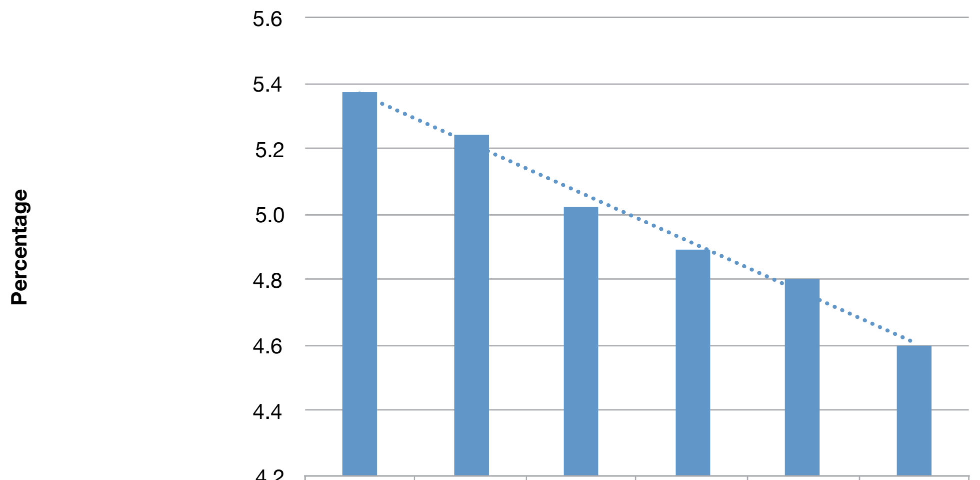
Goodacre S, et al.[j] indicate that hospital mortality rates could be useful indicators of quality of care, but careful statistical analysis is required to avoid erroneously attributing variation in mortality to differences in health care when it is actually due to differences in case mix.

All hospitals are supposed to have monthly mortality and morbidity review meetings that should review at least maternal deaths, neonatal deaths, wrong-site surgery and anaesthetic deaths.

National overview

The inpatient crude death rate (all hospitals) declined annually, from 5.4% in 2013/14 to 4.6% in 2018/19 (Figure 9). The rate for district hospitals was 4.7% (Figure 11).

Figure 9: National inpatient crude death rate (all hospitals), 2013/14 - 2018/19



	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Inpatient crude death rate	5.4	5.2	5.0	4.9	4.8	4.6

Source: DHIS.

Provincial overview

In 2018/19, the inpatient crude death rate (all hospitals) was lowest in the Western Cape, at 2.9%. The rate in North West was almost double the rate in the Western Cape at 5.9% (Figure 10). For district hospitals only, the inpatient crude death rate was 4.7%. Figure 11 shows that in 2018/19 the inpatient crude death rates for all hospitals and district hospitals only were close, except in the Free State where the rate for district hospitals was 5.8% compared with the inpatient crude death rate for all hospitals at 4.3%. This was due to a 3.2 percentage point difference in the inpatient crude death rate for all hospitals and district hospitals only in Mangaung, a situation that needs to be investigated.

j Goodacre S, Campbell M, Carter A. What do hospital mortality rates tell us about quality of care? Emerg Med J. 2015;32:244-7. doi:10.1136/emermed-2013-203022.

Figure 10: Inpatient crude death rate (all hospitals) by province, 2018/19

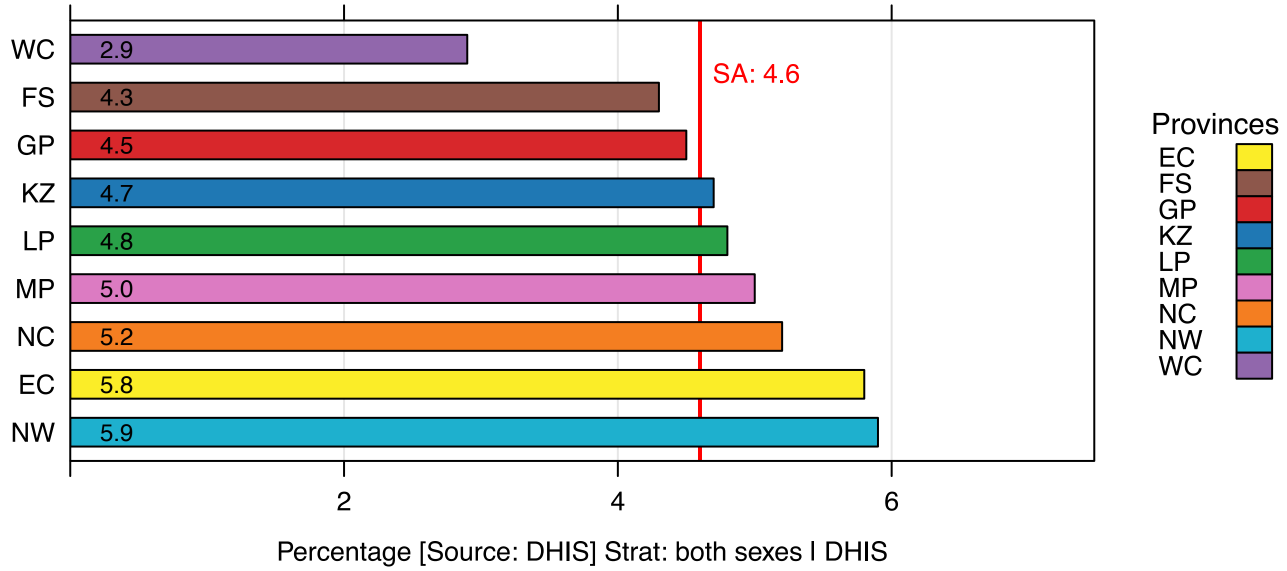
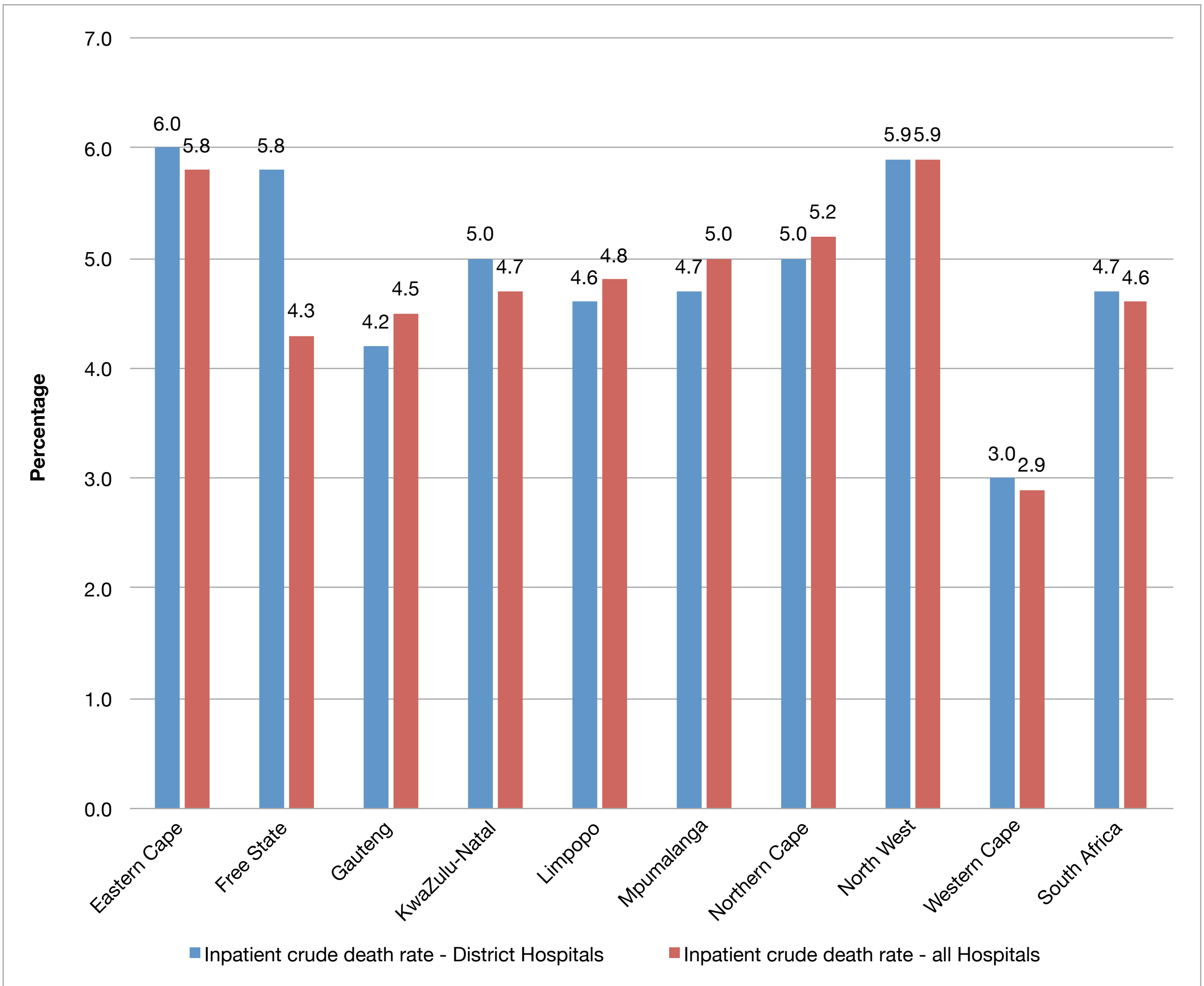


Figure 11: Inpatient crude death rate (district and all hospitals) by province, 2018/19

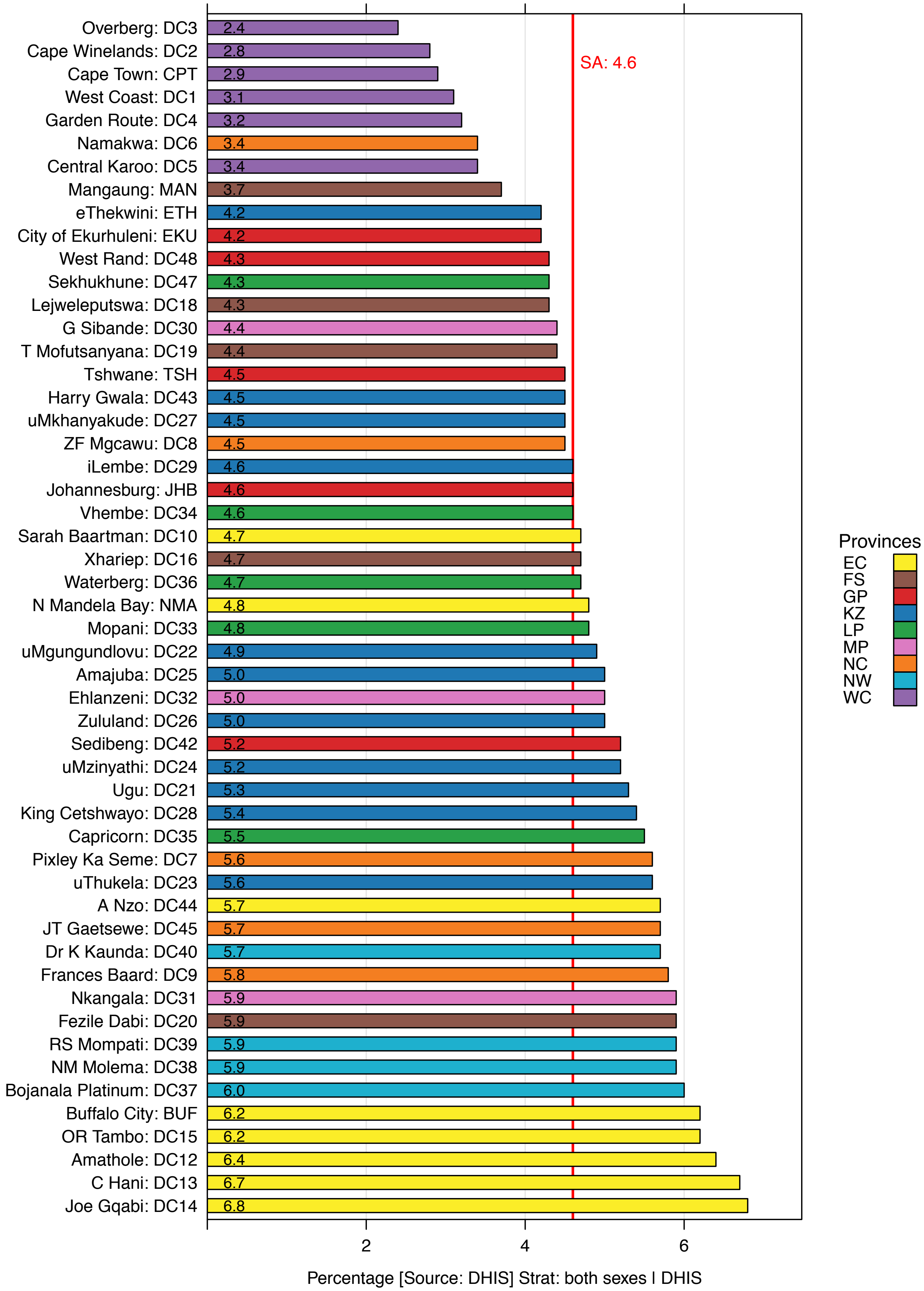


Source: DHIS.

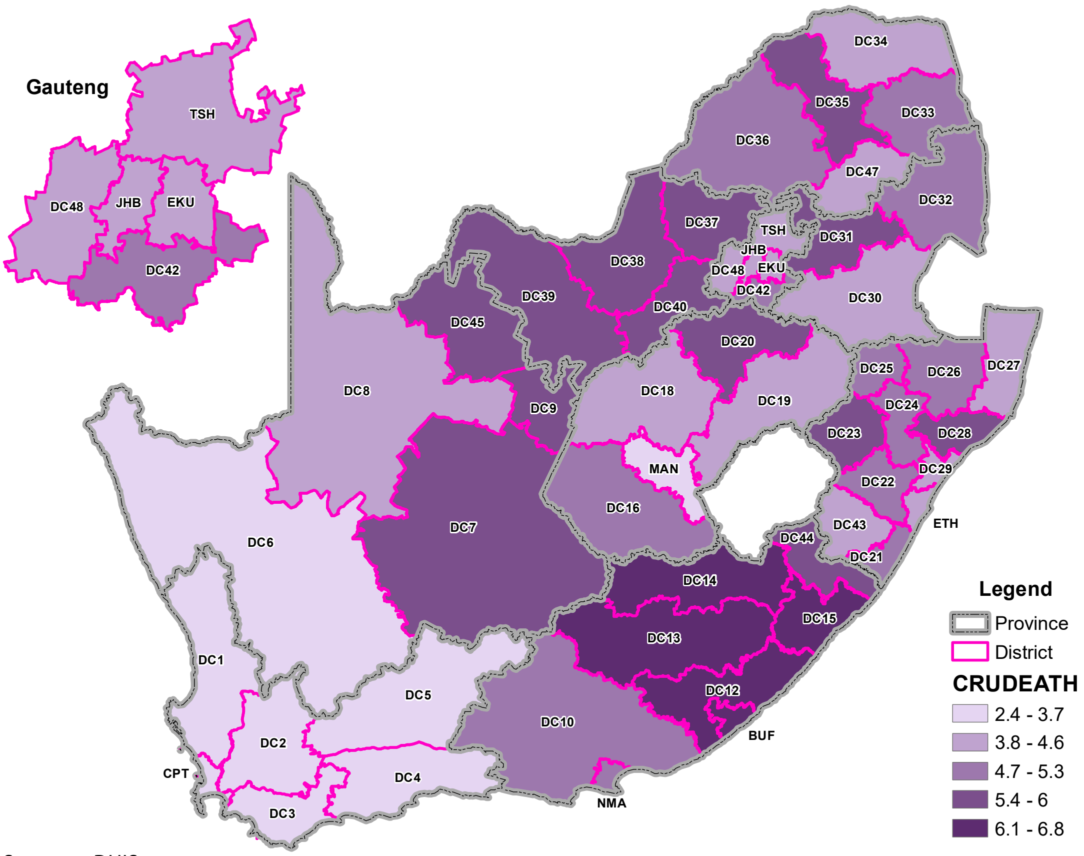
District overview

All six districts in the Western Cape were among the 10 districts with the lowest inpatient crude death rate (all hospitals) in 2018/19. Overberg had the lowest rate at 2.4% (Figure 12 and Map 2). Five of the eight districts in the Eastern Cape were among the 10 districts with the highest inpatient crude death rate. Joe Gqabi had the highest rate in the country at 6.8%.

Figure 12: Inpatient crude death rate by district (all hospitals), 2018/19



Map 2: Inpatient crude death rate by district (all hospitals), 2018/19



Source: DHIS.

Annual trends between 2016/17 and 2018/19 for inpatient crude death rate (all hospitals) show that in three districts the rate declined by two or more percentage points between 2016/17 and 2018/19. These districts were Lejweleputswa (FS) from 6.9% to 4.3%, Xhariep (FS) from 6.7% to 4.7%, and Zululand (KZ) from 7.4% to 5.0%. Three districts had an increase of one percentage point or more over the same period, namely Buffalo City (EC) from 5.3% to 6.2%, John Taolo Gaetsewe (NC) from 4.7% to 5.7%, and Central Karoo (WC) from 2.9% to 3.4%.

Table 7 shows that the inpatient crude death rate for district hospitals and all hospitals in most districts were more or less the same in 2018/19. However, in four districts the rates differed by more than two percentage points, namely in Buffalo City (EC) (8.2% for district hospitals versus 6.2% for all hospitals), Mangaung (FS) (6.9% for district hospitals versus 3.7% for all hospitals), Johannesburg (GP) (2.7% for district hospitals versus 4.6% for all hospitals), and Amajuba (KZ) (8.0% for district hospitals versus 5.0% for all hospitals).

Table 7: Inpatient crude death rate for district hospitals and all hospitals by district, 2018/19

	Inpatient crude death rate	
	District hospitals (%)	All hospitals (%)
Alfred Nzo	5.6	5.7
Amathole	6.4	6.4
Buffalo City	8.2	6.2
Chris Hani	6.9	6.7
Joe Gqabi	6.8	6.8
Nelson Mandela Bay	4.6	4.8
OR Tambo	5.7	6.2
Sarah Baartman	4.6	4.7
Eastern Cape	**6.0**	**5.8**
Fezile Dabi	5.9	5.9
Lejweleputswa	4.9	4.3
Mangaung	6.9	3.7
Thabo Mofutsanyana	5.6	4.4
Xhariep	4.7	4.7
Free State	**5.8**	**4.3**
Johannesburg	2.7	4.6

	Inpatient crude death rate	
	District hospitals (%)	All hospitals (%)
Tshwane	4.7	4.5
Ekurhuleni	4.4	4.2
Sedibeng	5.2	5.2
West Rand	3.9	4.3
Gauteng	**4.2**	**4.5**
Amajuba	8.0	5.0
eThekwini	4.5	4.2
Harry Gwala	4.6	4.5
iLembe	5.7	4.6
King Cetshwayo	5.0	5.4
Ugu DM	5.8	5.3
uMgungundlovu	4.8	4.9
uMkhanyakude	4.6	4.5
uMzinyathi	5.4	5.2
uThukela	5.0	5.6
Zululand	5.1	5.0
KwaZulu-Natal	**5.0**	**4.7**
Capricorn	5.0	5.5
Mopani	4.6	4.8
Sekhukhune	3.7	4.3
Vhembe	4.7	4.6
Waterberg	4.5	4.7
Limpopo	**4.6**	**4.8**
Ehlanzeni	4.4	5.0
Gert Sibande	4.6	4.4
Nkangala	5.4	5.9
Mpumalanga	**4.7**	**5.0**
Frances Baard	6.5	5.8
John Taolo Gaetsewe	5.7	5.7
Namakwa	3.3	3.4
Pixley Ka Seme	5.8	5.6
Zwelentlanga Fatman Mgcawu	3.6	4.5
Northern Cape	**5.0**	**5.2**
Bojanala Platinum	6.5	6.0
Dr Kenneth Kaunda	5.0	5.7
Dr Ruth Segomotsi Mompati	5.8	5.9
Ngaka Modiri Molema	5.7	5.9
North West	**5.9**	**5.9**
Cape Winelands	3.2	2.8
Central Karoo	3.4	3.4
Cape Town	3.1	2.9
Garden Route	3.1	3.2
Overberg	2.5	2.4
West Coast	2.9	3.1
Western Cape	**3.0**	**2.9**
South Africa	**4.7**	**4.6**

Source: DHIS.

Key findings

- In 2018/19, the inpatient crude death rate (all hospitals) in North West was 5.9%, more than double the rate in the Western Cape at 2.9%.
- All six districts in the Western Cape were among the 10 districts with the lowest inpatient crude death rate (all hospitals) in 2018/19. Overberg had the lowest rate at 2.4%.
- Five of the eight districts in the Eastern Cape were among the 10 districts with the highest inpatient crude death rate (all hospitals). Joe Gqabi had the highest rate in the country at 6.8%.
- In 2018/19, the inpatient crude death rates for all hospitals and district hospitals only were close in all provinces except the Free State, where the rate for district hospitals was 5.8% compared with the inpatient crude death rate for all hospitals of 4.3%. This was due to a 3.2 percentage point difference in the inpatient crude death rate for all

hospitals and district hospitals only in Mangaung. Amajuba (KZ) had a 3.0 percentage point difference between the inpatient crude death rate for district hospitals and all hospitals.

Conclusions

- The national inpatient crude death rate (all hospitals) declined annually, from 5.4% in 2013/14 to 4.6% in 2018/19.

Recommendations

- The relatively high inpatient crude death rate in some districts should be investigated.
- All hospitals should have monthly mortality and morbidity review meetings that should review at least maternal deaths, neonatal deaths, wrong-site surgery, and anaesthetic deaths.

5.3 Environmental health and port health

Daniel Nkuna, Mashudu Mangainye, Pam Masilela, Aneliswa Cele

The service capacity and access category of the universal health coverage (UHC) index[a] covers four health service areas, namely hospital access, healthcare worker density, access to essential medicines, and health security. Environmental health and port health form part of the service capacity and access category and cover two indicators, namely:

- Environmental health services compliance rate (proxy indicator for health security)
- Port health services compliance rate.

Environmental health services (EHS) is a function rendered by all three spheres of government, namely national, provincial and local. Municipal health services (MHS) include EHS rendered in district and metropolitan municipalities in South Africa. Section 32(1) of the National Health Act 2003 (Act No. 61 of 2003),[b] as amended, stipulates that, every metropolitan and district municipality must ensure that appropriate MHS are effectively and equitably provided in their respective areas and is responsible for the following services:

- Water-quality monitoring
- Food control
- Environmental pollution control
- Vector control
- Surveillance and prevention of communicable diseases
- Health surveillance of premises
- Waste management and general hygiene monitoring
- Disposal of the dead
- Chemical safety management.

Sustainable Development Goal 3.9[c] states that by 2030, there should be a substantial reduction in the number of deaths and illnesses from hazardous chemicals, and air, water and soil pollution and contamination.

The National Department of Health (NDoH) set national environmental health norms and standards[d] in 2015, which municipalities should adhere to in rendering EHS. The norms and standards define service-delivery standards for effective delivery of EHS by municipalities, and acceptable monitoring standards for environmental health practitioners (EHPs) in performing their functions. The quality of EHS rendered is measured using these norms and standards. The NDoH developed and uses a tool to assess municipal compliance with the norms and standards. The tool was used for the 2015/16 and 2016/17 assessments, and minor changes were made to the tool for the 2017/18 assessments.

A set of minimum service-delivery standards must be met for a municipality to be deemed compliant with the set national norms and standards of 2015. A municipality must have systems to:

- Communicate about EHS, monitor client service experience, manage complaints, enable responsive client service, and have infrastructure to communicate internally and externally.
- Ensure the required human resource capacity to respond to service requirements, and a communication system for improved quality of service delivery.
- Function as an integral part of a district health system, and collaborate and co-operate with stakeholders on issues of environmental health.
- Implement programmes for the management of vectors, environmental pollution control, waste management, water-quality monitoring, health surveillance of premises, community awareness, and disaster preparedness and response.

The assessment tool is divided into five domains: clients' rights, operational management, facility and infrastructure, leadership and corporate governance, and operations. The five domains are divided into 11 components, and the components are further divided into 19 sub-components. The sub-components in the original tool used in 2015/16 and 2016/17 included a total of 246 elements. The revised tool used in 2017/18 assessed municipalities on five domains, 11 components, 19 sub-components, and 244 elements (Table 1).

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a Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b National Department of Health. National Health Act, 2003 as amended. Pretoria: NDoH; 2003.

c Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available from: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf.

d National Department of Health. Environmental Health Norms and Standards for premises and acceptable monitoring standards for Environmental Health Practitioners, GG No. 39561 of 24 December 2015. Pretoria: NDoH; 2015.

Table 1: Environmental health services domains, components and sub-components, 2017/18

Domains	Components	Sub-components	Number of elements
Client rights	1. Administration	1. Signage 2. Client experience of care 3. Client organisation	11
Operational management	2. Human resources	4. Staff allocation and use 5. Professional standard and staff identity 6. Internal communication	11
Facility and infrastructure	3. Infrastructure	7. Disaster management	7
		8. Information and communications technology infrastructure	
Leadership and corporate governance	4. District health system support	9. District heath information systems	11
		10. District health support	
		11. Multi-sectoral collaboration	
Operations	5. Vector control	12. Vector/rodent/pest control	5
	6. Environmental pollution control	13. Environmental pollution control	7
	7. Waste management	14. Waste management	6
	8. Water-quality monitoring	15. Water-quality monitoring	7
	9. Law enforcement	16. Law enforcement	6
	10. Health surveillance of premises	17. Health surveillance of premises	167
	11. Miscellaneous	18. Complaints handling	6
		19. Community health awareness	

Source: Municipal audit/assessment tool.

The compliance of a municipality is determined by scoring the municipality against the elements in the audit tool. Performance on each element is scored as either achieved or not achieved. In the case of achieved elements, a portfolio of evidence is produced by the municipality which is assessed to verify achievement on the element. All elements are allocated a weight depending on the significance of the element and the extent of its role in rendering EHS. Extracts of the tools are shown in the District Health Barometer (DHB) of 2017/18.[e]

Environmental health services compliance rate

In 2016/17, all 52 municipalities were assessed using the standardised monitoring tool to measure quality of EHS during the period from January to September 2016. An ideal compliance rate target was 80%; however, municipalities were expected to score at least 51% as a minimum acceptable compliance rate. The minimum score was increased to 60% in 2017/18.

In 2017/18, 20 municipalities were assessed and eight municipalities scored below 60%. In 2018/19, 22 municipalities were assessed by the NDoH. Five of the 22 municipalities assessed in 2018/19 scored below 60% (Table 2). Four of these five municipalities were among the eight, highlighted in red, which also scored below 60% in 2017/18, namely uMkhanyakude in KwaZulu-Natal, Mopani and Waterberg in Limpopo, and Dr Ruth Segomotsi Mompati in North West.

e Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; January 2019.

Table 2: Element total scores and compliance rates for Environmental Health Services in 22 districts assessed in 2018/19

Province	Municipality	Element total score, 2018/19	Percentage, 2018/19
Eastern Cape	Amathole	158	69
Eastern Cape	Chris Hani	131	61
Eastern Cape	Joe Gqabi	207	85
Eastern Cape	Nelson Mandela Bay	180	74
Eastern Cape	OR Tambo	175	72
KwaZulu-Natal	Amajuba	143	63
KwaZulu-Natal	iLembe	159	65
KwaZulu-Natal	King Cetshwayo	147	60
KwaZulu-Natal	uMkhanyakude	108	44
KwaZulu-Natal	uMzinyathi	123	51
KwaZulu-Natal	Zululand	167	68
Limpopo	Mopani	144	59
Limpopo	Vhembe	173	71
Limpopo	Waterberg	117	48
Mpumalanga	Gert Sibande	200	81
North West	Dr Ruth Segomotsi Mompati	91	37
Northern Cape	Frances Baard	144	64
Northern Cape	Namaqua	188	87
Northern Cape	Zwelentlanga Fatman Mgcawu	167	77
Western Cape	Cape Winelands	200	82
Western Cape	Eden	194	80
Western Cape	Overberg	171	79

Source: EHS database.

Key findings

- Five of the 22 municipalities assessed in 2018/19 scored below 60%.
- Eight municipalities that scored below 60% in 2017/18 were assessed again in 2018/19, and of these municipalities, four again scored below 60% in 2018/19.

Conclusions

- Municipalities in the country have generally shown improvement in EHS compliance rate since the assessment was started in 2015/16. However, EHS should be strengthened to ensure effective rendering of services and the ability to respond to current and future environmental health challenges for protection of public health.
- The biggest challenge that municipalities face is meeting their obligations in terms of providing resources to EHS. These audits revealed that priority was not given to this service. As a result of this, EHS provision was compromised, evident in that none of the 52 municipalities were able to meet their staffing need as provided for in the National Environmental Health Policy of 2013.[f]

Recommendations

- Municipalities need to plan and budget sufficiently to ensure that EHS are provided throughout the district.
- Municipalities must review and develop human resource plans to address staff shortages and progressively meet the staffing World Health Organization and National Environmental Health Policy, 2013 norms of 1:10 000 EHPs per population.
- Provinces should provide platforms to ensure that best practices are shared and that standardisation of EHS provision is encouraged.
- Provinces should strengthen monitoring of the service against allocated resources.

Port health services compliance rate

Port health services (PHS) in South Africa is the domain of the NDoH.[d] This service is rendered at the points of entry (PoEs) to the country by EHPs supported by other health professionals and auxiliary staff, such as doctors and nurses among others. Port health service is defined as the first line of defence to protect citizens of South Africa and visitors against the health risks associated with cross-border movement of people, conveyances, baggage, cargo, shipments and other imported consignments. The PHS is divided into regions for efficient management of the service, namely the central

f National Department of Health. National Environmental Health Policy. Government Gazette No. 37112 of 4 December 2013.

region including the Northern Cape, Free State and Gauteng; the northern region including Limpopo, Mpumalanga and North West; and the coastal region including the Western Cape, Eastern Cape and KwaZulu-Natal. Each region is managed by a regional director. A total of 72 PoEs in South Africa render PHS.

As a member state of the WHO, South Africa is required to ensure full implementation of the International Health Regulations (IHR, 2005)[g] at its PoEs. The IHR 2005 is a generic set of internationally adopted Regulations of the World Health Assembly of the WHO, used to manage and regulate port health activities at PoEs. In terms of the IHR, countries should at all times have the capacity to, among other things, ensure a safe environment for travellers using PoE facilities; this includes potable water supplies, flight-catering facilities, public washrooms, appropriate solid and liquid waste disposal services, and safety measures covering any other potential risk areas.

The PHS compliance rate is measured using the core capacity assessment tool developed under the IHR to assess level of performance in PoEs. The NDoH has committed to improving PHS in the country and to ensuring that the services rendered are in line with the requirements stated under the IHR.

The NDoH utilises the core capacity assessment tool[h] developed under the IHR to assess PoEs on the level of compliance with the requirement set under the IHR. Extracts of the tool are shown in the *DHB* of 2017/18.[e]

The core capacity assessment tool is divided into three categories, namely: core capacities for communication and co-ordination; ore capacities at all times; and core capacities for public health emergencies of international concern.

In 2018/19, the NDoH identified 18 PoEs for PHS compliance assessment and assessment of progress in implementing action plans. In 2018/19, a compliance rate target of 80% was set for the core capacity assessment, and 60% for the Environmental Health Norms and Standards.[i]

Table 3 shows the scores for the core capacity and Environmental Norms and Standards assessments done in the 18 PoEs in 2018/19. Six PoEs scored below the target of 80% in the core capacity assessment. Nine PoEs scored below the target of 60% for the Environmental Health Norms and Standards. Five PoEs scored below both the targets for both elements; these were Vioolsdrift Border, Cape Town International Airport, Cape Town Harbour, East London Harbour and Qasha's Nek Border.

Table 3: International Health Regulations 2005 core capacity assessment and Environmental Norms and Standards assessment scores by point of entry, 2018/19

Name of point of entry	Core capacity assessment score (%)	Norms and Standards assessment score (%)
Central region		
Van Rooyenshek Border	83	85
Bramfisher International Airport	81	92
Vioolsdrift Border	68	36
Upington International Airport	80	76
Nakop Border	81	88
Northern region		
Jeppe's Reef Border	80	57
Oshoek Border	81	51
Polokwane International Airport	85	85
Ramatlabama Border	75	69
Beit Bridge Border	82	73
Coastal region		
Cape Town International Airport	58	46
Cape Town Harbour	67	54
Port of Ngqura	83	73
Port Elizabeth Harbour	82	54
East London Harbour	65	57
Richards Bay harbour	81	53
Qasha's Nek Border	69	57
Durban Harbour	86	96

Source: PHS data base.

g World Health Organization. International Health Regulations 2005. Geneva: WHO; May 2005.

h World Health Organization. Assessment Tool for Core Capacity Requirements at Designated Airports, Ports and Ground Crossings. Geneva: WHO; 2009.

i National Department of Health. Annual Performance Plan, 2016/17-2018/19. Pretoria: NDoH; 2016.

Key findings

- Of the 18 PoEs assessed in 2018/19, six scored below 80% for the core capacity assessment target of 80%, and nine scored below the target of 60% for the Environmental Health Norms and Standards.
- Five PoEs scored below both the targets for both elements.

Conclusions

- Lack of memorandums of understanding/documented arrangements with the nearest health facilities and Emergency Health Services required by IHR 2005 was one of the cross-cutting challenges identified during assessment of the PoEs.
- Most PoEs did not have a public health emergency contingency plan in place as required by IHR 2005, and where these were available, the plans did not include all stakeholders and were not updated.
- Lack of collaboration between municipal health services and port health services was a challenge, and this impacted on level of compliances at PoEs.
- One of the biggest challenges at the PoEs was shortage of resources, e.g. infrastructure, information and communication technology connectivity (mainly at the land borders), and human resources to cover all the operational hours of the PoEs.
- Lack of signage on port health offices was another challenge, making it difficult for the public to access port health services.

Recommendations

- Ports of entry should update action plans developed in line with their assessments, and ensure implementation of recommendations made on the assessment reports.
- Peer-review assessment is recommended to promote benchmarking and sharing of information by PoEs for the next assessment going forward.

5.4 Finance

Jonatan Davén, Noxolo Madela, Aisha Khoele, Jodi Wishnia, Mark Blecher

Spending on primary health care (PHC) continues to rise in real terms, with costs reaching R1 206 per capita uninsured and R495 per visit in 2018/19. These costs and their distribution between districts and different service areas, are useful to inform a possible capitation formula for South Africa. Headcount numbers at public health facilities have declined over the past three years, from 126 million to 119 million visits, resulting in costs per headcount increasing on average 7.3% per annum over the past three years in real terms. This has been driven (approximately 50:50) by changing case mix, with increasing numbers of clients on antiretroviral therapy (ART) treatment (4.6 million by March 2019), and partly by other factors such as the Centralised Chronic Medicines Dispensing and Distribution (CCMDD) programme, largely aimed at getting stable chronic patients decanted from facilities and able to get medicines at their pick-up points of choice.

In 2018/19, spending on PHC services per uninsured person in Namakwa (Northern Cape (NC)) was 2.6 times that in Alfred Nzo (Eastern Cape (EC)), reflecting ongoing inequity between districts and potentially the need for a district resource allocation formula. There were also wide disparities between districts in expenditure per patient day equivalent (PDE). This was driven partly by differences in bed utilisation rates, as districts with higher expenditure per PDE tend to have lower bed utilisation rates.

Financing is one of the six building blocks for health systems identified by the World Health Organization (WHO). It is a fundamental necessity to ensure equity so that people can access quality healthcare services according to their need without suffering financial hardship, a goal commonly known as Universal Health Coverage (UHC). South Africa is pursuing UHC through National Health Insurance (NHI),[a] and the achievement and affordability of UHC hangs largely on the effectiveness of the PHC system. Prioritisation of PHC services enable countries to expand access to healthcare services in a timely and affordable manner. As part of its PHC re-engineering strategy, South Africa avowed a move towards a largely preventive rather than curative PHC model of service delivery, with improved quality and access to care for a wide range of common health conditions. Primary health care in South Africa is predominantly financed by domestic funding at provincial and local government (LG) levels, and to a lesser extent also by donors such as The Global Fund to Fight AIDS, Tuberculosis and Malaria, and the President's Emergency Plan for AIDS Relief (PEPFAR).

The PHC service platform is guided by the principles of universal access to health care, equitable coverage, emphasis on disease prevention, health promotion, and cost-effective use of available resources.[b] Health systems should be designed to promote these principles, and ensure financial protection of the community against healthcare expenses.[a,c] It is pivotal that South Africa allocates adequate resources towards health spending and improve spending efficiencies, which is essential for the achievement of UHC.[d,e] Although there is no magic number for health-spending targets, a key to UHC progress is prioritisation of health expenditure in government spending and equitable distribution of financial resources.[f] In the same spirit, it is important to recognise that while provinces and districts are often compared with the national average in this chapter, these averages should also not be considered norms, but are useful as measures to benchmark individual provinces and districts against one another for comparative purposes. It cannot be expected that all 52 districts will have the same population or risk profile, and therefore it cannot be expected that the districts have the exact same funding needs.

This chapter focuses mainly on four key indicators:

- Provincial and local government district health services (DHS) expenditure per capita (uninsured population)
- Provincial and local government PHC expenditure per capita (uninsured population)
- Provincial and local government PHC expenditure per PHC headcount
- Expenditure per patient day equivalent (district hospitals).

Analysis of these indicators provides an overview of the patterns of spending and the degree to which financial resources are equitably distributed. An analysis was also done of expenditure against service delivery indicators, such as inpatient bed utilisation rate (IBUR) in hospitals and PHC headcounts. This is an important lens to understand what the funding is buying and the effectiveness of this purchasing for the population.

a Matsoso MP, Hunter JR, Brijlal V. Embedding quality at the core of universal health coverage in South Africa. Lancet Glob Health. 2018;6(11):e1153-4. Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30323-1/fulltext.

b Sander D, Nandi S, Labonté R, Vance C, Van Damme W. From primary health care to universal health coverage - one step forward and two steps back. Lancet. 2019;394(10199):611-708. Available from: https://www.thelancet.com/action/showPdf?pii=S0140-6736%2819%2931831-8.

c Kazemi-Galougahi MH, Dadgar E, Kavosi Z, Majdzadeh R. Increase of catastrophic health expenditure while it does not have socio-economic anymore; findings from a district in Tehran after recent extensive health sector reform. BMC Health Serv Res. 2019;19(1):569.

d World Health Organization. Health systems financing: the path to universal coverage. World Health Report 2010. Geneva: WHO; 2010.

e World Health Organization. Public financing for health in Africa: from Abuja to the SDGs. Geneva: WHO; 2016.

f Jowett M, Brunal MP, Flores G, Cylus J. Spending targets for health: no magic number. WHO Financing Working Paper 1. Geneva: WHO; 2016.

The introductory section of this publication describes the methodology used to calculate the indicators in greater detail. In summary, provincial health expenditure up to 2018/19 was extracted from the National Treasury's Basic Accounting System (BAS) database. Expenditure allocated to specific health facilities under the 'Responsibility' segment was coded to the latest District Health Information Software (DHIS) facility information in order to identify the district where the expenditure was incurred. All other expenditure that could not be explicitly assigned to a particular district was distributed to each district in proportion to the population share of the areas concerned. Unless otherwise stated, all changes in expenditure are presented in real 2018/19 prices. Statistics South Africa's (Stats SA) Consumer Price Index (CPIX) was used to convert expenditure for all years to real 2018/19 prices. Presenting expenditure in real prices means that changes over time reflect changes in actual resource use rather than inflationary changes in costs.

District health services has its own budget programme in Provincial Departments of Health (PDoHs). The programme is further divided into nine sub-programmes, described in Box 1.

Box 1: District health services, sub-programme objectives

District management: Planning and administration of services; managing personnel and financial administration; co-ordination and management of the day hospital organisation and community health services rendered by local authorities and non-governmental organisations within the metro; determining work methods and procedures; and exercising district control.

Community health clinics: Rendering a nurse-driven PHC service at clinic level, including visiting points, mobile clinics and local authority clinics.

Community health centres: Rendering a primary health service, with full-time medical officers, in respect of mother and child health, health promotion, geriatrics, occupational therapy, physiotherapy, psychiatry, speech therapy, communicable diseases, mental health, etc.

Community-based services: Rendering a community-based health service at non-health facilities in respect of home-based care, abuse victim care, mental health and chronic care, school health, etc.

Other community services: Rendering environmental and part-time district surgeon services, etc.

HIV and AIDS: Rendering a PHC service in respect of HIV and AIDS campaigns and special projects.

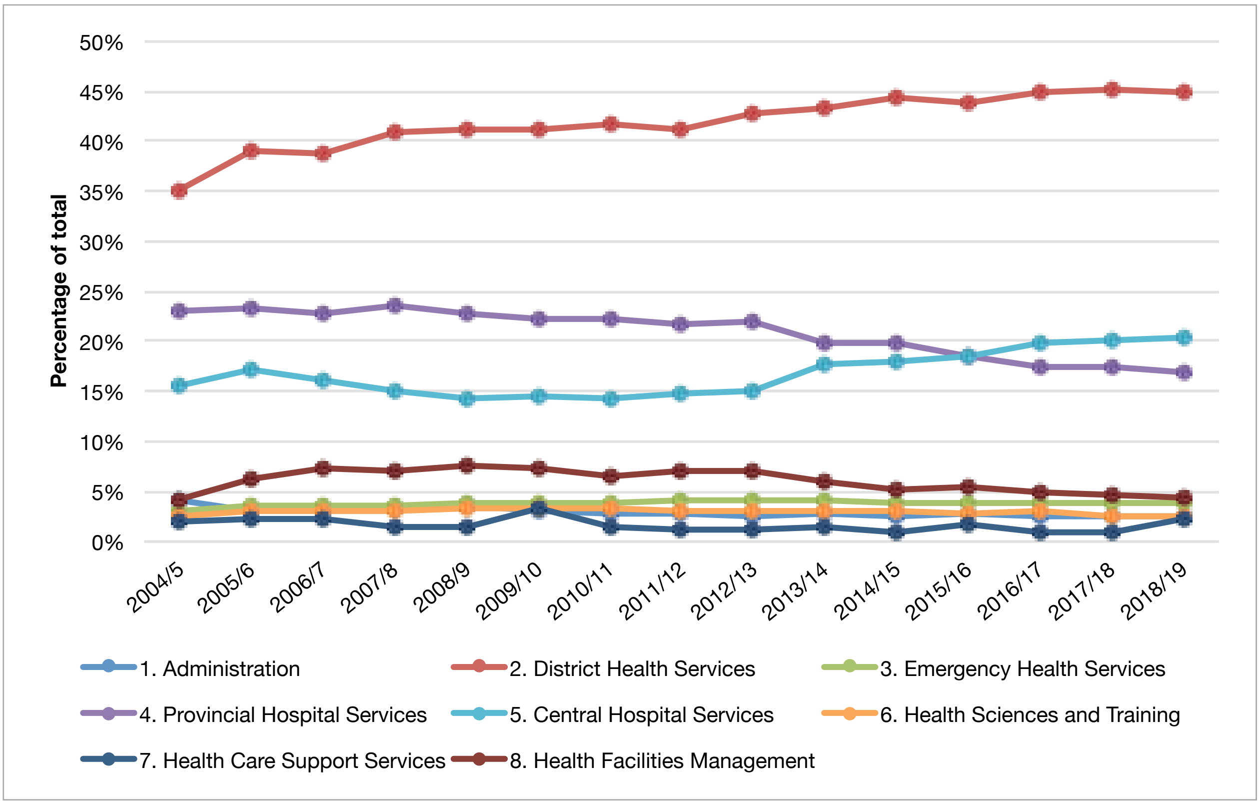
Nutrition: Rendering a nutrition service aimed at specific target groups, and combining direct and indirect nutrition interventions to address malnutrition.

Coroner services: Rendering forensic and medico-legal services in order to establish the circumstances and causes surrounding unnatural death.

District hospitals: Rendering of a hospital service at district level.

Figure 1 shows the proportion of provincial health expenditure by budget programme, and illustrates the importance of the DHS to the health system. This excludes local government own revenue spent on health, which in 2018/19 was R4.9 billion. Expenditure for DHS has remained relatively stable as a percentage of provincial health expenditure from 2014/15, but seen over a longer time period, it increased considerably from 35% in 2004/05 to 45% in 2018/19.

Figure 1: Proportion of provincial health expenditure by programme, 2004/05 - 2018/19



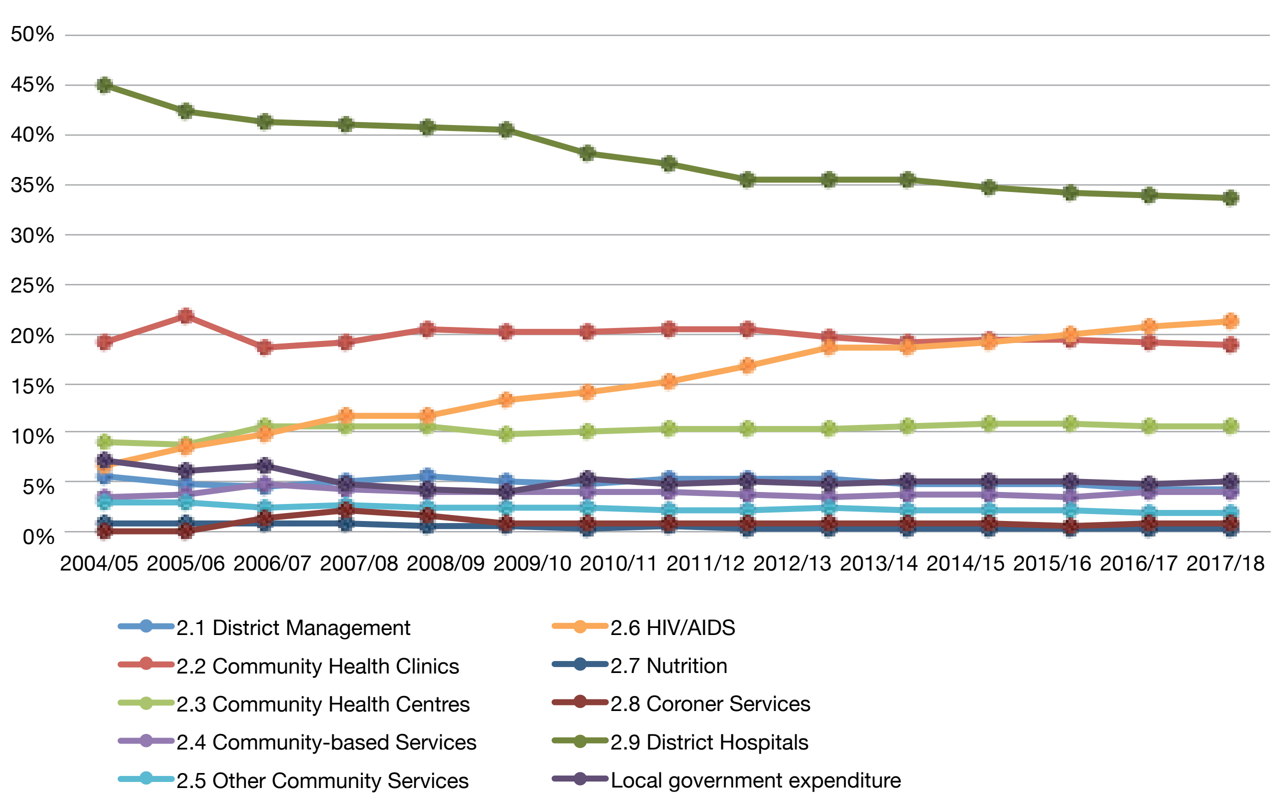
Source: National Treasury.

Figure 2 shows trends in DHS expenditure by sub-programme. As can be seen, expenditure on human immunodeficiency virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) increased from 18.5% in 2013/14 to 21.1% in 2018/19. This is largely attributed to growth of the ART programme, which has expanded progressively over the years. The country has adopted the United Nations Programme on HIV/AIDS 90-90-90 targets, and is now implementing Universal Test and Treat policy, making ART available to all people living with HIV regardless of CD4 count. South Africa now has the largest ART programme in the world, with just over 4.6 million[g] patients receiving treatment in March 2019. The highest-spending sub-programme in the DHS programme is district hospitals, 35.2% of the budget of the DHS allocation, but showing a declining trend, from 35.6% in 2013/14 to 33.0% in 2018/19. Expenditure on the community health clinics sub-programme decreased from 19.1% in 2017/18 to 18.9% in 2018/19. It is important to note, however, that even the sub-programmes showing a decrease as a percentage of the total have grown in absolute terms. However, it is of concern that the PHC sub-programmes are showing a decline in funding despite the ramp up in expected coverage as per the NHI policy papers and draft Bill.[h]

g National Department of Health. 2018/19 National Department of Health Annual Report. Pretoria: NDoH; 2019.

h National Department of Health. Green Paper (2012), Draft White Paper (2015), White Paper (2017), and NHI Draft Bills (2018 and 2019).

Figure 2: Provincial and local government DHS expenditure by sub-programme, 2005/06 - 2018/19



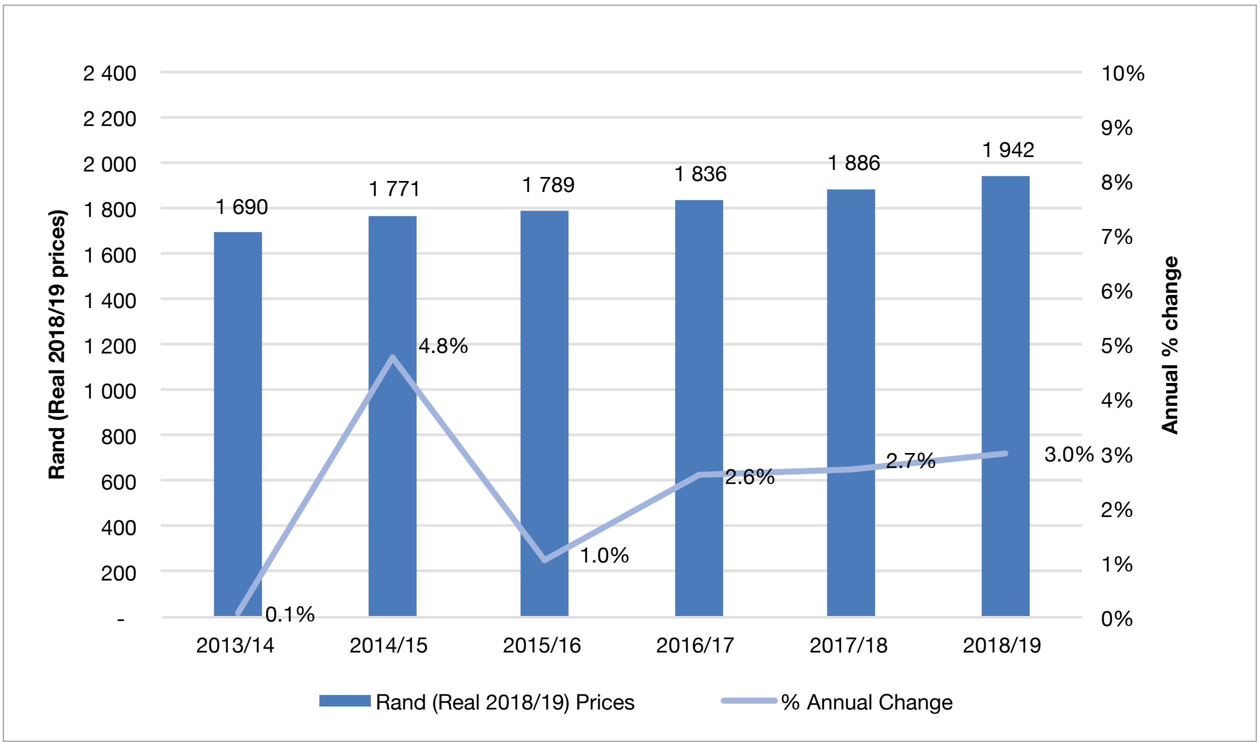
Source: National Treasury.

Provincial and local government DHS expenditure per capita (uninsured population)

Provincial and LG expenditure per capita (uninsured) on DHS is the total amount spent per uninsured person (i.e. excluding medical scheme members and beneficiaries). The numerator for this indicator is the sum of the provincial expenditure under the DHS programme (with the exception of the Coroner Services sub-programme, which is excluded) and LG PHC expenditure. The denominator is the estimated uninsured population in each district. While all South Africans have access to public healthcare services, it is generally the population without medical aid that seeks health care at public facilities. Approximately 16% of South Africans are members or beneficiaries of medical schemes, although this percentage differs significantly across provinces and districts. The methodology used to estimate the uninsured population is described in detail in the 'Introduction and overview' section.

District health services expenditure per capita (uninsured) increased by 3.0% in real prices from R1 886 in 2017/18 to R1 942 in 2018/19 (Figure 3), and has increased by an average of 3.2% over the past five years.

Figure 3: Provincial and local government DHS expenditure per capita (uninsured population), 2013/14 - 2018/19



Source: National Treasury.

National, provincial and district overview

As shown in Figures 4 and 5, there was a considerable spread in DHS expenditure per capita in 2018/19, with provinces ranging from a low of R1 620 in Gauteng (GP) to R2 344 in Limpopo (LP), and by district from a low of R1 308 in Johannesburg (GP) to a high of R3 724 in Central Karoo (Western Cape (WC)). Three districts showed a real decrease in spending per capita from 2017/18. Two of the districts were in Gauteng (West Rand and Ekurhuleni) and one in KwaZulu-Natal (KZ) (Harry Gwala). The average national DHS expenditure per capita (uninsured population) in 2018/19 was R1 942.

Figure 4: Provincial and local government DHS expenditure per capita (uninsured population) by province, 2018/19 (Rand, real prices)

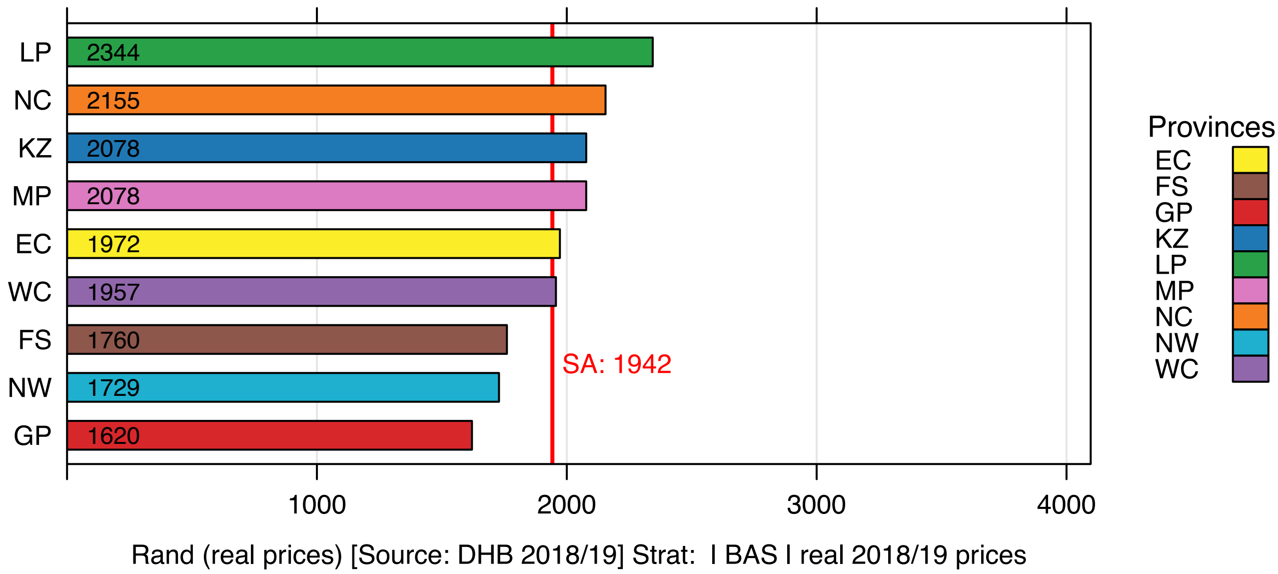
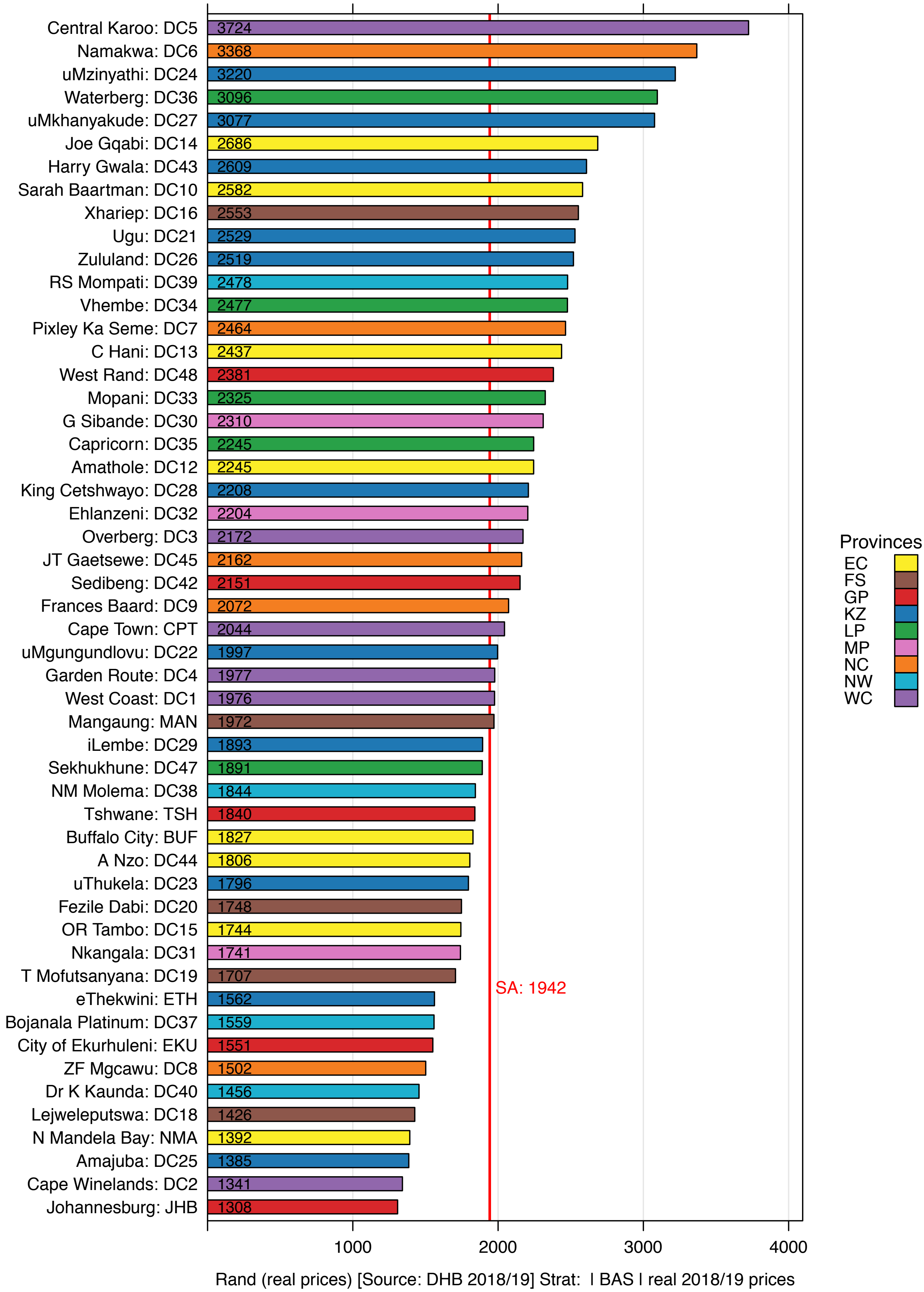


Figure 5: Provincial and local government DHS expenditure per capita (uninsured population) by district, 2018/19 (Rand, real prices)



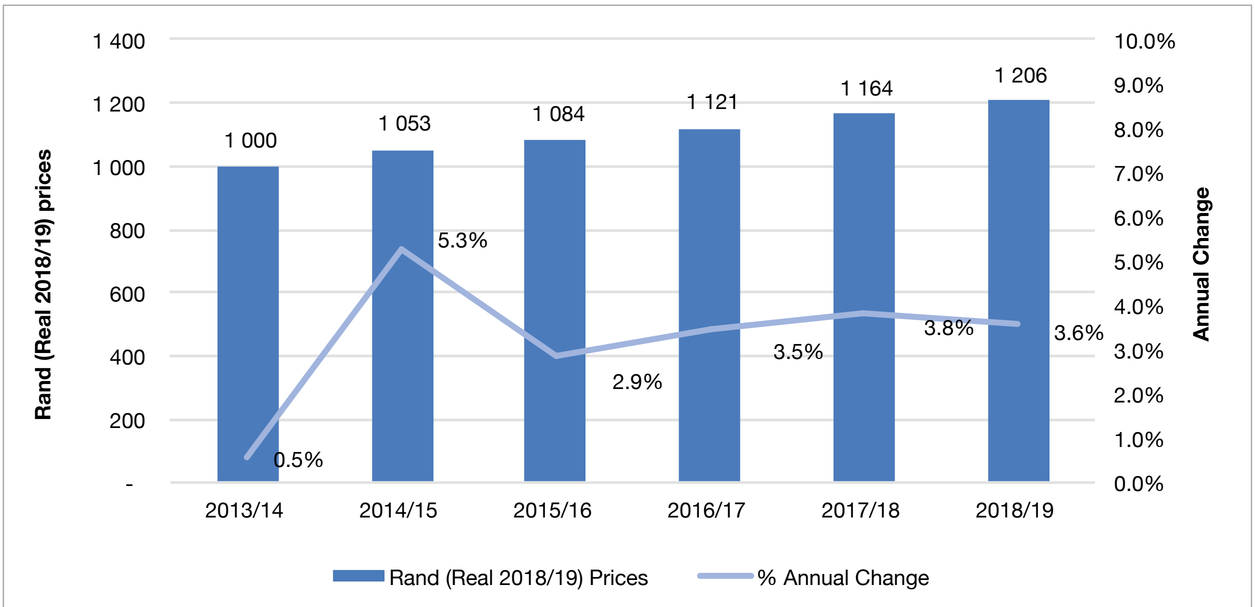
Although it is important to monitor the level of expenditure on DHS given that it is the largest provincial budget programme, it is difficult to use the DHS for comparison across geographical areas as it is skewed by an uneven distribution of districts hospitals, which is the highest spending sub-programme. The number of district hospitals and district hospital beds is influenced by many factors, including the number of higher-level hospitals (as most regional and even tertiary, hospitals also provide some district hospital services) and the number and size of district hospitals in neighbouring districts. For example, Gauteng has few district hospitals, but a high concentration of national central and provincial tertiary hospitals, while the opposite is true for several other provinces, for example Limpopo. The contrast in these provinces suggests a lack of uniformity in healthcare provision as well as possible inefficiencies. In general, Gauteng has low levels of utilisation of both primary care and district hospitals, and high levels of utilisation of tertiary and central hospitals. This puts strain on higher levels of hospitals and results in higher cost structures. Limpopo has high utilisation of PHC services and district hospitals, resulting in lower cost structures, but has a low access to tertiary specialist care.

Provincial and local government PHC expenditure per capita (uninsured population

Provincial and LG PHC expenditure per capita (uninsured) is calculated the same way as the previous indicator, but excludes the sub-programmes 'District Management' and 'District Hospitals'. The numerator is therefore made up of community health clinics, community health centres (CHCs), community-based services, other community services, HIV/AIDS, nutrition, and LG PHC expenditure, and the denominator is the uninsured population.

Figure 6 shows that PHC expenditure per capita for South Africa was R1 206 in 2018/19, which is an increase in real terms of 3.6% from 2017/18, and a total real increase of 20.6% from 2013/14.

Figure 6: Provincial and local government PHC expenditure per capita (uninsured), 2013/14 - 2018/19 (Rand, real prices)



Source: National Treasury.

National, provincial and district overview

Provincial and LG PHC expenditure per capita (uninsured) in 2018/19 was R1 206 (Figure 7). The Northern Cape had the highest PHC expenditure per capita at R1 383, followed by KwaZulu-Natal and Gauteng. The Northern Cape's expenditure was the second-highest in 2017/18, and has since increased by 5.1% in real terms. While Limpopo was the highest-spending province on DHS per capita in 2018/19 (Figure 4), it was the second-lowest on PHC spending (Figure 8). This could be explained by high spending on district hospitals and reliance on these hospitals to provide health services (sometimes even PHC services) to its population. For further details on this, see the proportion of patients who by-passed PHC facilities to go directly to district hospitals (section 5.2). Mpumalanga's (MP) PHC expenditure per capita showed the highest year-on-year increase for this indicator at 7.6%. The Western Cape had the lowest year-on-year growth (0.4%) in 2018/19. KwaZulu-Natal's year-on-year growth increased from 1.3% in 2017/18 to 5.4% in 2018/19, moving its ranking from third in 2017/18 to second in 2018/19. The difference between the highest- and lowest-spending provinces increased slightly, from R324 in 2017/18 to R351 in 2018/19.

Figure 7: Provincial and local government PHC expenditure per capita (uninsured) by province, 2018/19 (Rand, real prices)

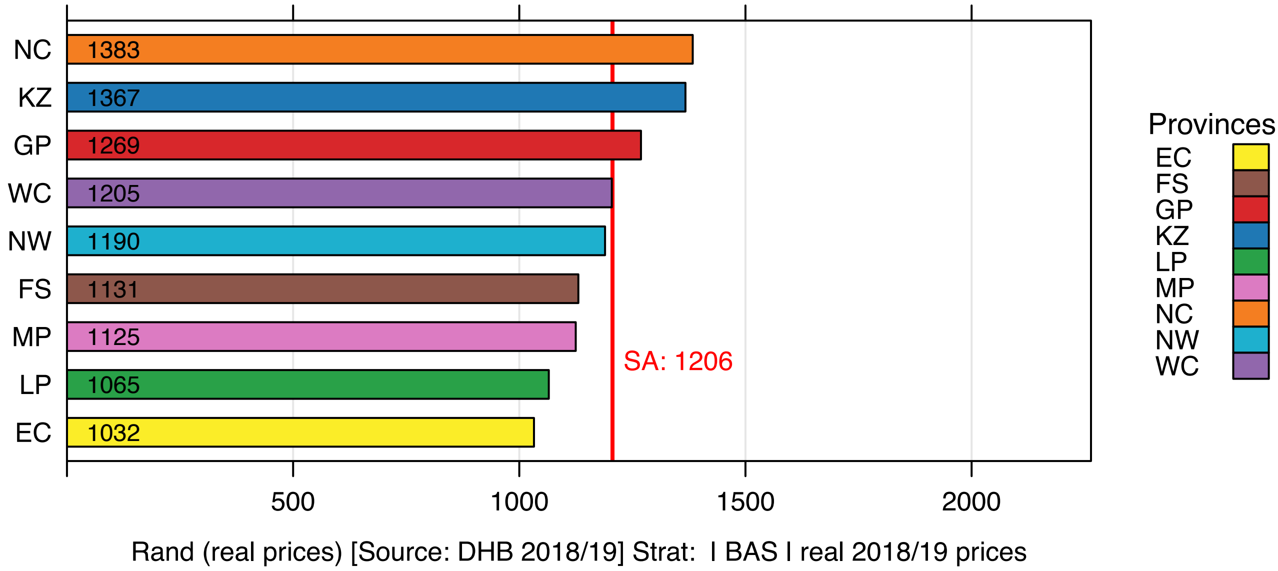
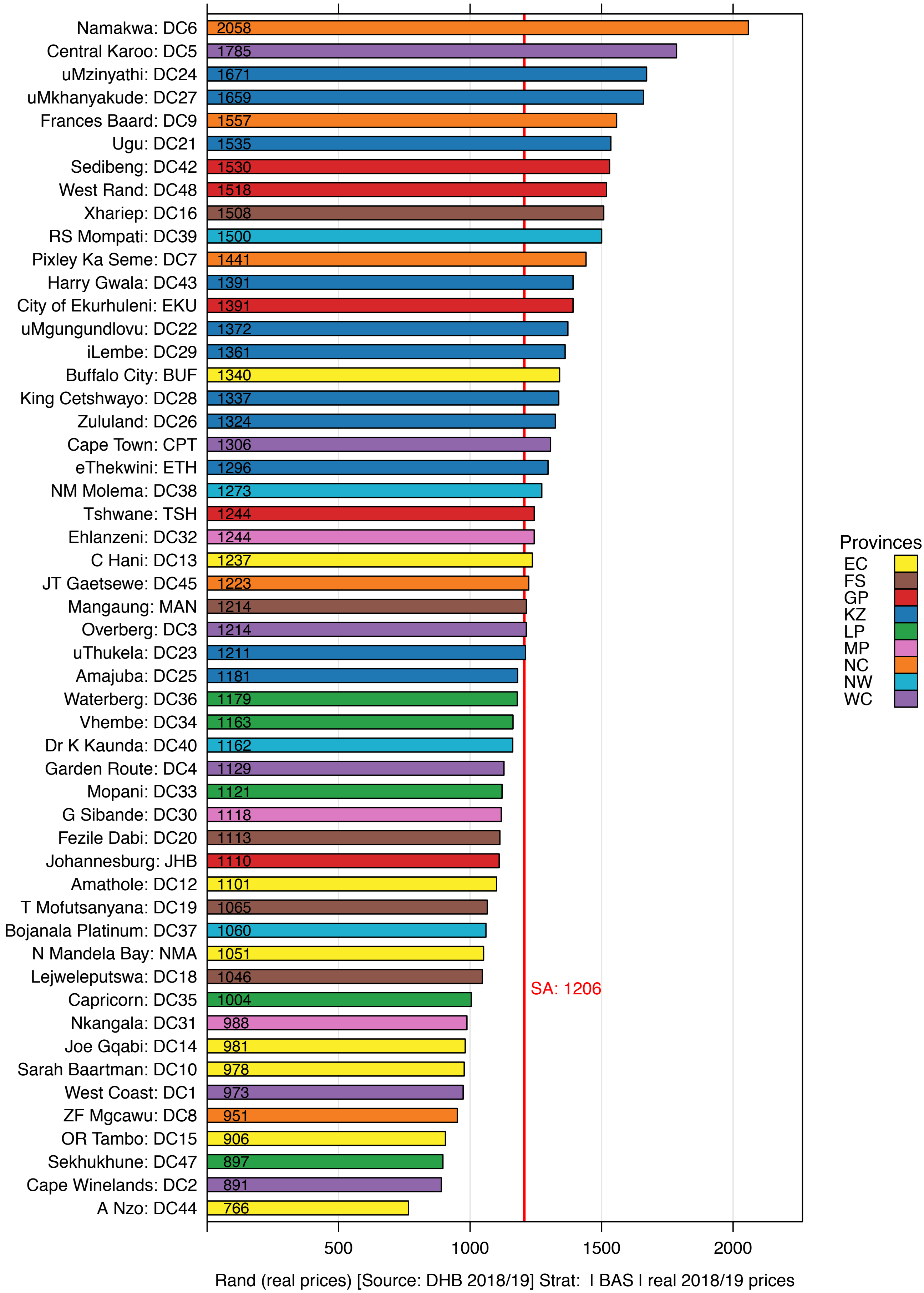


Figure 8 shows a significant spread in PHC expenditure per capita across districts. This needs to be interrogated alongside the risk profile of each district to ascertain whether the differences were driven by different needs (although there are unlikely to be such big variations required for PHC services), or whether they were due to historical budgeting practices that have maintained the inequitable status quo. The highest-spending district in 2018/19 was Namakwa (NC) at R2 058 (also the highest in 2017/18), and the lowest-spending district was Alfred Nzo (EC) at R766 in 2018/19 (the same district was the lowest in 2017/18). Spending in Namakwa was 2.6 times that of Alfred Nzo, a slightly narrower gap than in 2017/18 when the same ratio was 3.0. All except seven districts had a positive real growth in this indicator, with the highest being uMzinyathi (KZ) at 12.9%. Seen over a five-year period, only one district (Nelson Mandela Bay (EC)) had a negative growth (on average 1.8% per year). Some metros, for example Ekurhuleni (GP) and Cape Town (WC), derive a significant proportion of revenue for PHC services from own local government revenue streams. This is discussed further in later sections.

Figure 8: Provincial and local government PHC expenditure per capita (uninsured) by district, 2018/19 (Rand, real prices)



Previous editions of the *District Health Barometer (DHB)* have discussed the need to address the wide geographical disparities in PHC expenditure per capita and have recommended greater use of needs-based resource allocation methodologies and formulae to achieve greater equity. This remains an important next step for responsive public financial management.

Growth in PHC expenditure excluding HIV/AIDS

As shown in Figure 2, the HIV/AIDS sub-programme has increased considerably as a percentage of DHS expenditure over the past decade, although it stabilised at 21% in 2017/18 and 2018/19. It is therefore one of the key drivers of the increase in PHC expenditure per capita and per headcount. Given that this funding is dedicated to prevention and treatment of mainly one specific condition, it is of interest to look also at trends in expenditure of general PHC services. Table 1 below shows PHC expenditure per capita (uninsured) excluding the HIV/AIDS sub-programme. The total growth rate from 2017/18 to 2018/19 was 3.1%, which was lower than the growth rate including the HIV/AIDS funding. Mpumalanga's PHC expenditure per capita (excluding HIV/AIDS) decreased by 2.9% from 2017/18, and the Northern Cape only grew by 0.8%. Looking at the growth over a five-year period, Limpopo saw the highest growth at 3.8%, which is positive given its low expenditure per capita, followed by Gauteng at 3.3%, while the Northern Cape saw the lowest growth of 0.4%, followed by the Eastern Cape.

Table 1: PHC expenditure per capita (uninsured) excluding HIV/AIDS, by province, 2014/15 - 2018/19 (Rand, real prices)

	2014/15	2015/16	2016/17	2017/18	2018/19	Annual growth 2017/18 - 2018/19 (%)	Annual growth 2014/15 - 2018/19 (%)
Eastern Cape	683	627	675	673	713	5.9	1.1
Free State	594	633	642	616	643	4.3	2.0
Gauteng	777	832	819	864	883	2.2	3.3
KwaZulu-Natal	735	754	748	774	804	3.8	2.3
Limpopo	672	691	692	740	782	5.6	3.8
Mpumalanga	609	643	632	660	642	-2.9	1.3
Northern Cape	847	813	829	853	860	0.8	0.4
North West	739	748	756	754	796	5.6	1.9
Western Cape	815	843	880	875	896	2.3	2.4
South Africa	723	741	756	771	795	3.1	2.4

Source: National Treasury.

Provincial and local government PHC expenditure per headcount

The PHC expenditure per capita indicator in the previous section can be used to monitor equity in resource allocations and the extent to which PHC is being prioritised in budgeting, to enable access to such services. Primary health care expenditure per headcount is a better measure to evaluate efficiency and productivity, as it explores how much was spent compared with how many people made use of the services.

The numerator for this indicator is the same as for the previous indicator (community health clinics, CHCs, community-based services, other community services, HIV/AIDS, nutrition, and LG PHC expenditure), while the denominator is the PHC headcount.

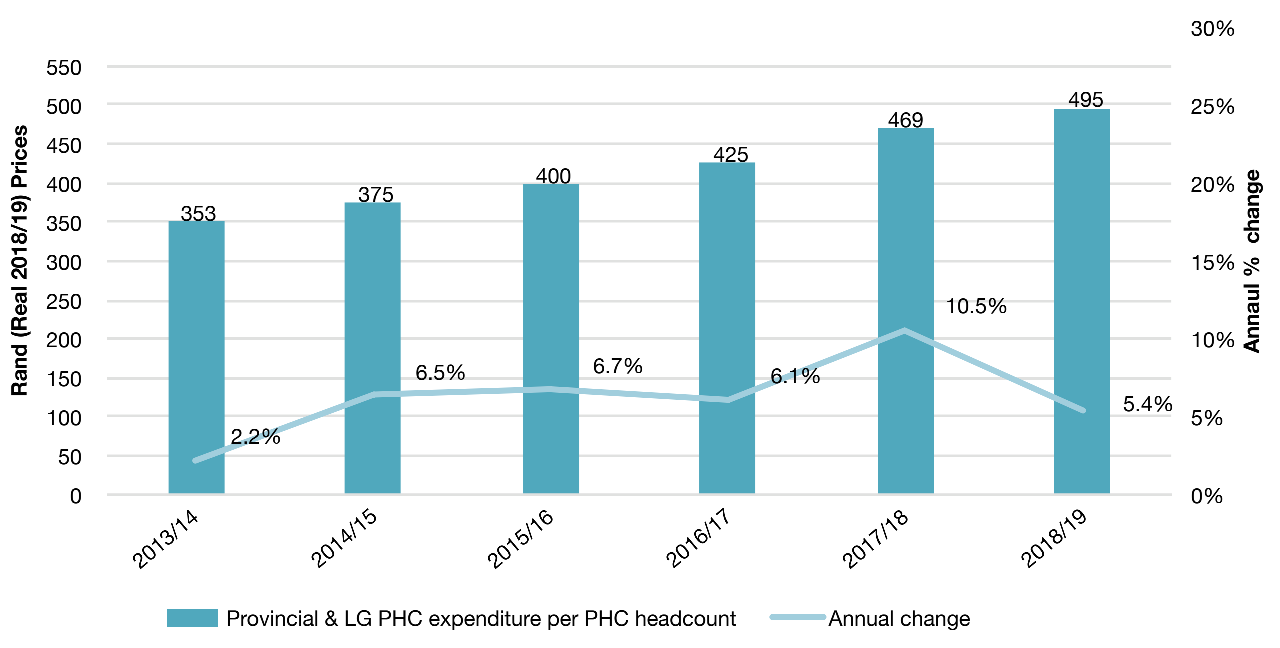
National, provincial and district overview

Expenditure per headcount in the country as a whole was R495 in 2018/19, and has increased considerably over time in real prices (Figure 9). In 2013/14, this amount was R353, indicating a real average annual growth of 7.0% and a total growth of 40.3%.

This increase is not only driven by higher PHC expenditure, but also to a large extent by a decrease in registered PHC headcount numbers, which have declined by an average of 2% per year from 2015/16 to 2018/19. This decrease levelled off somewhat at -0.3% in 2018/19. Previous DHBs reviewed these trends in greater detail and suggested that a possible reason for this was that an increased number of chronic patients (mainly ART patients) now collect their medicines at alternative pick-up points through CCMDD and/or other initiatives, enabling people to access PHC services outside of facilities. Another potential reason is the rationalisation of registers, which has taken place in PHC facilities in recent years and possibly reduced double-counting. Given reports on often inadequate quality in the public health system, it may also indicate an unwillingness to use PHC services. A changing case mix, e.g. more patients on ART, also contributes significantly to average cost per patient.

It is therefore imperative that outreach headcounts and the patients using the CCMDD are collected routinely for inclusion in this indicator, to ensure that it is still possible to assess efficiency across districts and overall utilisation of the public PHC system.

Figure 9: Provincial and local government PHC expenditure per headcount, 2013/14 - 2017/18 (Rand, real prices)



Source: National Treasury.

There were considerable differences across provinces with regard to expenditure per PHC headcount, with the Eastern Cape (R406), KwaZulu-Natal (R486), Limpopo (R412), Mpumalanga (R474) and the Western Cape (R445) falling below the national average of R495 (Figure 10). Gauteng remained a clear outlier, with the highest cost per visit exceeding R639 and the lowest PHC utilisation per capita, which may signal inefficiency and lack of access to PHC services. In contrast, the Eastern Cape's cost per headcount was the lowest among all the provinces, and the province had the three districts with the lowest cost per headcount, which may represent under-resourcing of these districts. Expenditure per PHC headcount was 57%, or R233, higher in Gauteng than in the Eastern Cape. Limpopo (12.0%), KwaZulu-Natal (6.3%), and Mpumalanga (8.0%), showed significant increases in expenditure per PHC headcount from the previous financial year. However, looking at actual headcounts, Limpopo showed a 3.5% decrease in headcount, KwaZulu-Natal only a 0.4% increase, and Mpumalanga a 1.0% increase. This is likely contributing to the increase in expenditure per headcount. Limpopo's expenditure per headcount had the highest increase, which may be warranted given that it is among the lowest-funded provinces, both per capita and per headcount. Without the outreach data, it cannot be said with confidence that the reduction in headcount is reflecting declining performance; however, the relationship between patient satisfaction, quality standards, and access is widely accepted and the relationship needs to be interrogated in these provinces.

Figure 10: Provincial and local government PHC expenditure per PHC headcount by province, 2018/19

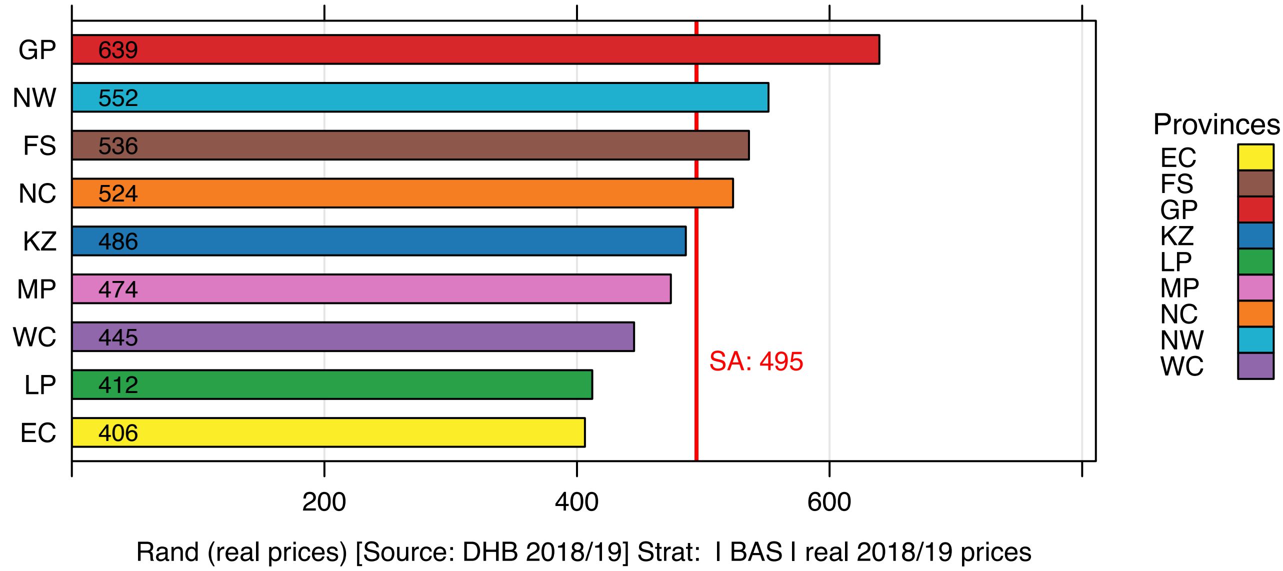
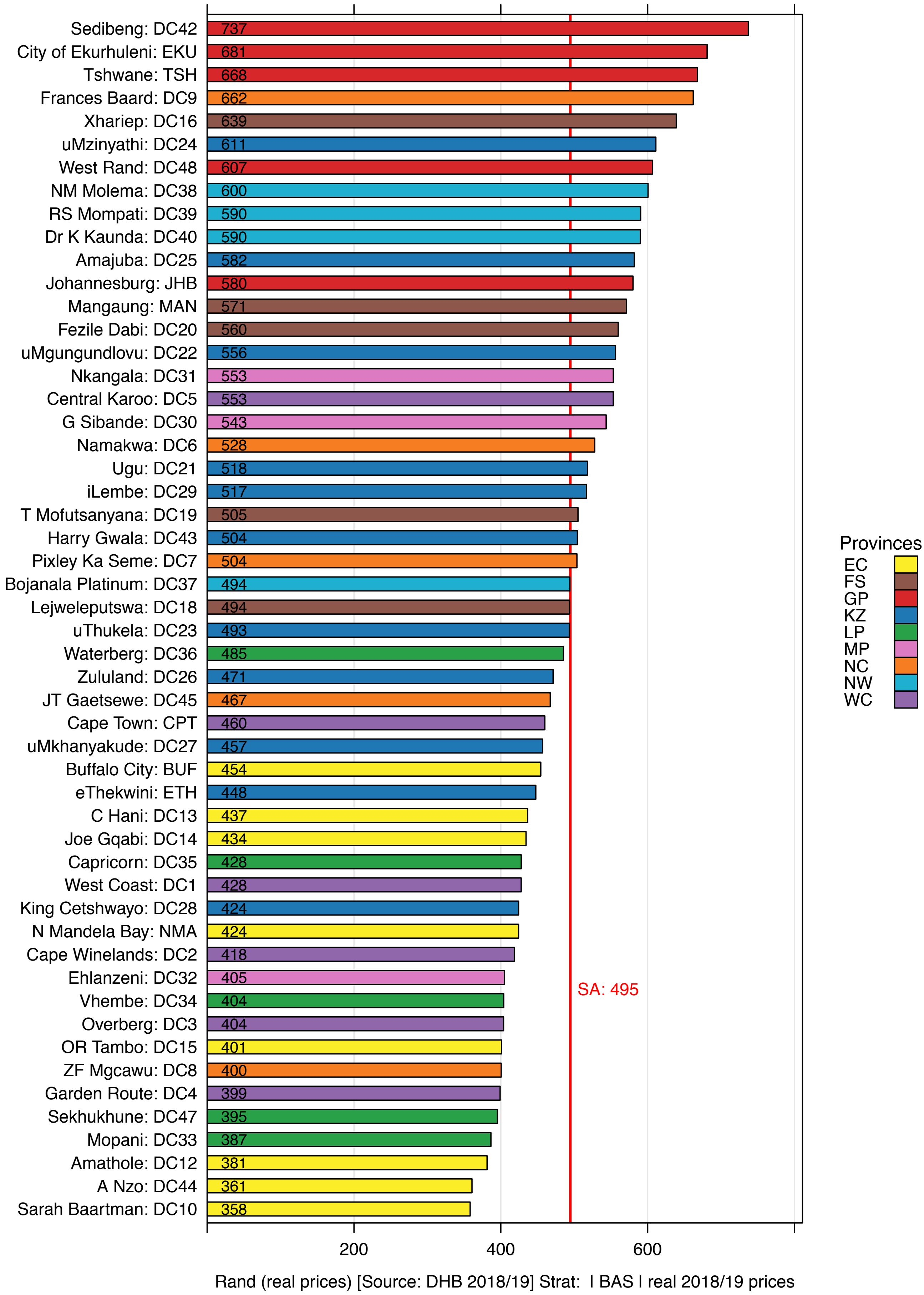


Figure 11 shows PHC expenditure per headcount by district. While spending improved slightly in the Eastern Cape, from R317 in 2015/16 to R406 in 2018/19, most Eastern Cape districts were in the bottom half of the lowest-spending districts, with Buffalo City showing a better level of expenditure at R454. Sedibeng (GP) was the highest-spending district (3rd highest in 2017/18) at R737, more than double Sarah Baartman's (EC) spending of R358. Such a high expenditure for Sedibeng is not necessarily indicative of better services. While average spend gives a good indication of equity, a normative study on PHC spend versus PHC outcomes is needed to determine what level of spend per capita is predictive of better health outcomes. All the districts in Gauteng were above the national average, a trend that has been consistent from 2015/16. On the other hand, the Eastern Cape had all its districts below the national average. Overall, the picture has not changed much from previous years. The question still remains as to whether some provinces are inefficient, or whether utilisation is really low and managers are not responding accordingly to changing needs. Some provinces showed significant variations in expenditure per headcount, such as in KwaZulu-Natal (from R424 in King Cetshwayo to R611 in uMzinyathi); the Northern Cape (from R400 in Zwelentlanga Fatman Mgcawu to a high of R662 in Frances Baard) and the Western Cape (from R399 in the Garden Route to R553 in Central Karoo).

Figure 11: Provincial and local government expenditure per PHC headcount by district, 2018/19



Expenditure per patient day equivalent (district hospitals)

District hospitals are an essential component of the service delivery platform. This level of hospital care has the widest footprint and is the most accessible to the population, particularly in rural areas. The proportional expenditure of district hospitals in DHS shows a declining trend, from 35.2% in 2013/14 to 33.4% in 2018/19, although expenditure grew in real terms by 3.2% per year over the same period.

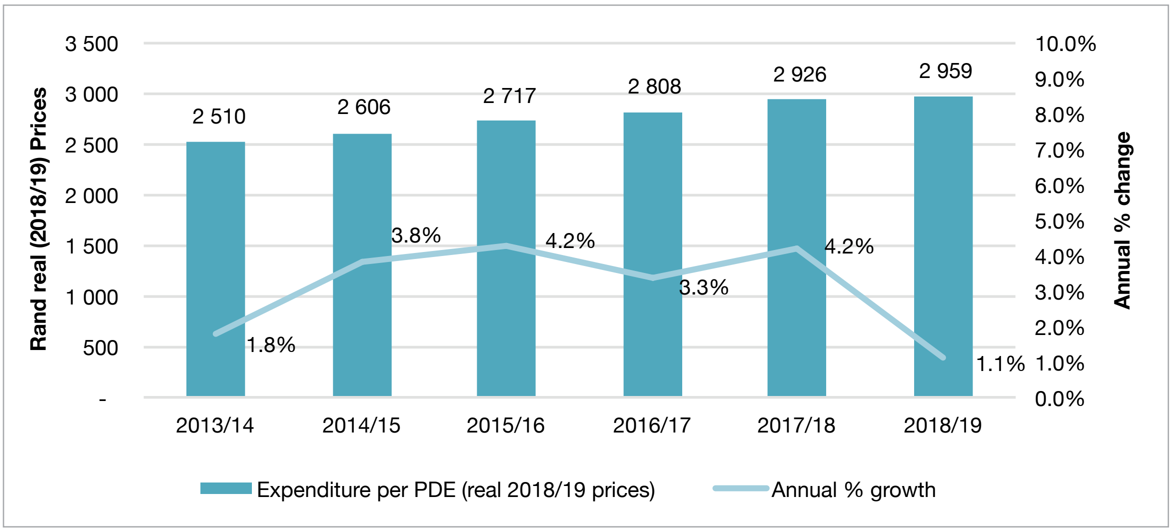
A patient day equivalent (PDE) is a weighted measure of hospital workload, calculated by adding the number of inpatient days, half the number of day patients, and one-third the number of outpatient department (OPD) visits and emergency room visits. The rationale for this is that day patients are estimated on average to require half the resources of an inpatient day, and OPD visits and emergency room visits to require one-third of the resources. Expenditure per PDE is thus the average expenditure per such weighted measure and can be seen as an indicator of hospital efficiency and productivity.

The number of PDEs is influenced by demand for health care as well as access. It is also influenced greatly by the quality of the referral system, in that a weak PHC platform likely results in a higher number of OPD visits at district hospitals. Changes to expenditure per PDE can be the result of either changes in expenditure (numerator) or in the number of PDEs (denominator). Similar to PHC expenditure per headcount, if the number of PDEs decreases and expenditure is constant, this will result in higher expenditure per PDE. It is, therefore, always important to look at the service delivery indicators alongside the financial ones to ensure that the financial analysis does not hide the realities of service delivery challenges.

Expenditure per PDE is only one measure of efficiency. A fuller analysis would also include disease burden and case mix, in addition to basic measures such as bed occupancy levels and average length of stay.

The overall expenditure per PDE in district hospitals in South Africa was R2 959 in 2018/19 (Figure 12), a slight increase from 2017/18 (R2 926). Over a longer period, from 2013/14, there was an average annual real increase of 3.3%. The relatively small increase in the 2018/19 expenditure per PDE was the result of a slight increase in the number of PDEs, while expenditure remained virtually constant.

Figure 12: National expenditure per patient day equivalent (district hospitals) (real 2018/19 prices)



Source: DHIS, BAS.

As seen in Figure 13, spending in the Western Cape was R2 502 in 2018/19, compared with R3 465 in Gauteng. The average growth in 2015/16 - 2018/19 was linked partly to a decline in district hospital utilisation rates for provinces (except Limpopo). However, Gauteng, with the highest decline in district hospital PDEs per capita (8.5%), had not adjusted its expenditure accordingly to follow the same trend, resulting in expenditure per PDE increasing from R3 051 in 2015/16 to R3 465 in 2018/19. Furthermore, Gauteng has very few district hospitals, and so the decline in utilisation is concerning, highlighting that users may be bypassing these facilities for higher-level, more expensive hospitals. This type of bypassing can drive up costs in the province unnecessarily. Redirecting hospital funding to PHC services may help to improve the quality of PHC and therefore encourage its use. Limpopo was the only province that showed increased utilisation of district hospitals but a decline in expenditure over the same period. The Western Cape's district hospital PDEs were almost twice those of Gauteng, despite Gauteng having a larger population.

Figure 13: Expenditure per patient day equivalent (district hospitals) by province, 2018/19

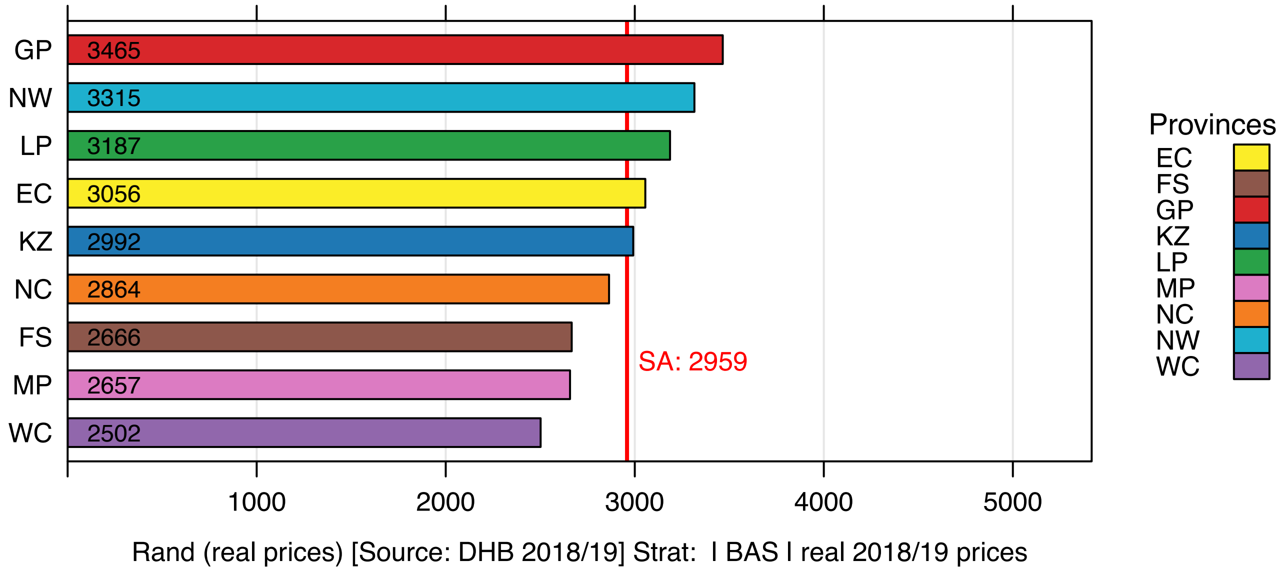
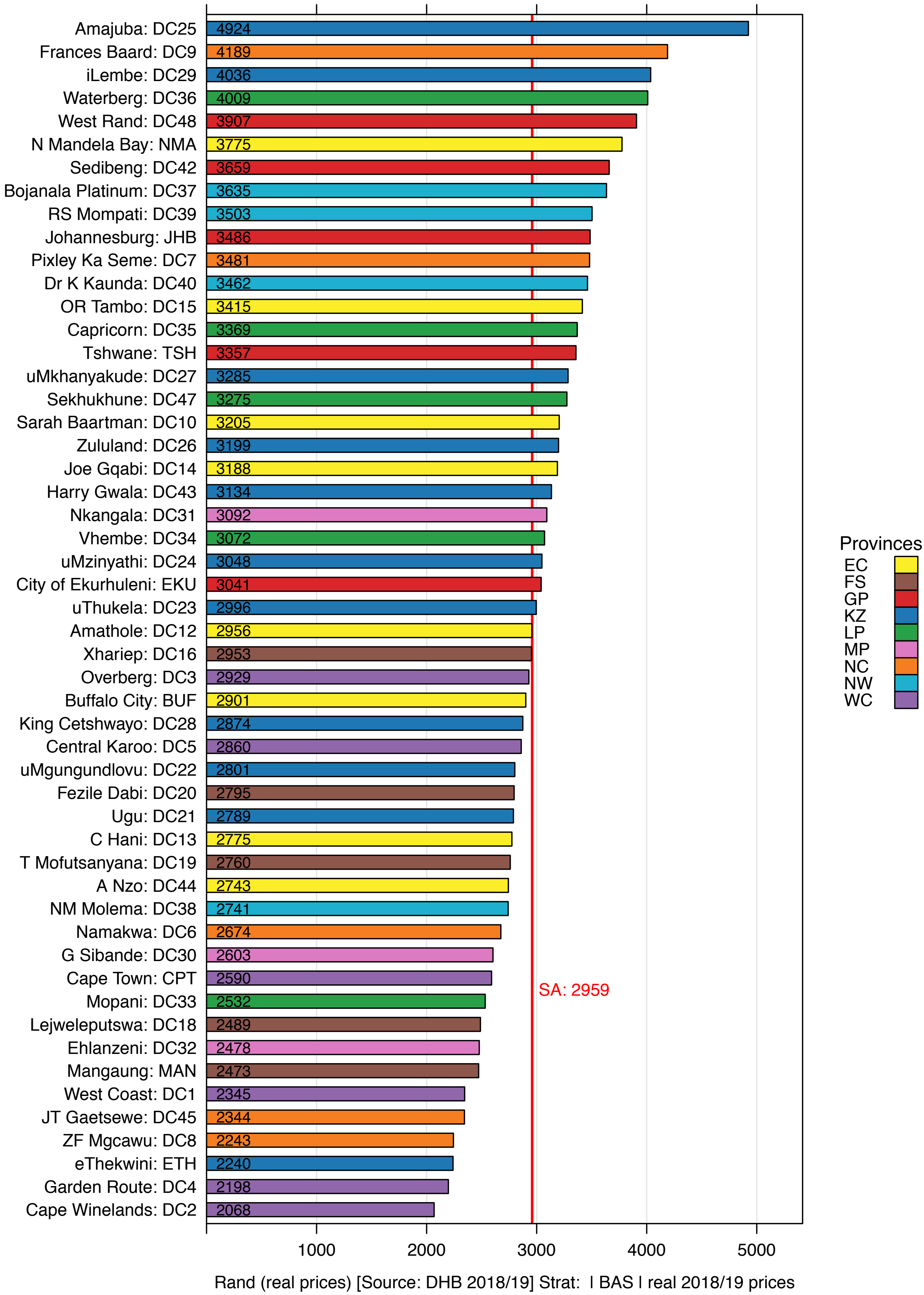


Figure 14 shows that spending across districts varied widely in 2018/19, ranging from R2 068 in the Cape Winelands (WC) to R4 924 in Amajuba (KZ). Some provinces had extreme differences in expenditure per PDE between districts, e.g. in KwaZulu-Natal, Amajuba had the highest expenditure at R4 924 per PDE, while eThekwini had the lowest at only R2 394, and in the Northern Cape the highest expenditure (Frances Baard) was R4 189, while the lowest expenditure (Zwelentlanga Fatman Mgcawu) was R2 243.

Figure 14: Expenditure per patient day equivalent (district hospitals) by district, 2018/19



Trends in district hospital expenditure per patient-day equivalent

In the 2016/17[i] and 2017/18[j] DHBs, the growth in expenditure per PHC headcount was analysed in a fair amount of detail. In 2018/19, this growth continued. This will not be discussed at length given that readers can refer to previous publications. A similar although somewhat more moderate pattern can be seen in district hospital expenditure per PDE, which increased considerably above inflation over the past five years, by R353 (13.5%) (see Table 2). More was spent per PDE in district hospitals in 2018/19 (in real 2018/19 prices) than in 2014/15. As with PHC expenditure per capita, this increase was driven by both real expenditure growth and a decrease in utilisation. Real expenditure on district hospitals increased by an annual average of 1.9%, from R28.8 billion in 2014/15 to R31.3 billion in 2018/19. At the same time, district hospitals noted 409 000 fewer PDEs in 2018/19 than in 2014/15, an average decrease of 0.9%, or 102 000 PDEs, per year. These trends (both the decline in PDEs and increase in expenditure) levelled off in 2018/19, but may nevertheless warrant further research.

Reasons for the decline in PDEs should be investigated, as it is not known whether this resulted from a decrease in demand, from constrained supply due to resource shortages (e.g. human resources) or poor data quality. Expenditure levels alone, which have been increasing, do not seem to be the main constraint for utilisation, although it could be that rising input costs, such as above-inflation salary increases, and increased costs of imported medicines due to Rand depreciation, may have eroded some of these increases. On the demand side, it may be that users do not feel the quality or availability of services is appropriate at district hospitals and are rather bypassing them in favour of higher levels of care. It may also be that the progressively expanding coverage of ART and other interventions, which have contributed to a considerable extension of the average lifespan of South Africans,[k] have reduced the need for hospitalisation in the country. However, such effect may be partly offset by the rising burden of non-communicable diseases and diseases related to old age, which increasingly place a burden on our service delivery platform. It is important to keep in mind that healthcare needs do not always fully reflect in utilisation statistics, as there may also be supply-side constraints and/or a reluctance to seek care at public facilities.

Table 2: Patient-day equivalent, district hospital expenditure (total and per patient-day equivalent), 2014/15 - 2018/19

	Patient-day equivalent			Expenditure (real prices)		Expenditure per PDE	
	'000'	Number change '000'	% Change	'000'	% Change	'000'	% Change
2014/15	11 059			28 824 826		2 606	
2015/16	10 915	-144	-1.3	29 656 356	2.9	2 717	4.3
2016/17	10 782	-134	-1.2	30 273 935	2.1	2 808	3.3
2017/18	10 609	-173	-1.6	31 045 926	2.6	2 926	4.2
2018/19	10 579	-30	-0.3	31 303 667	0.8	2 959	1.1
Average change over 5 years		-114	-1.1		2.1		3.2

Source: National Treasury.

Relationship between expenditure per patient-day equivalent, average length of stay, inpatient bed utilisation rate, and hospital bed density

In this last section, consideration is given to the relationship between efficiency indicators, the service delivery platform, and expenditure for district hospitals. The given norms for South Africa are an inpatient bed utilisation rate (IBUR) of 75 - 80%, and an average length of stay (ALOS) of 3.5 - 4.5 days for district hospitals. These norms have been used for several years and we recommend that new research be done to ascertain their reasonability and how they link to quality and health outcomes.

District hospitals should be used for patients who require services not available at PHC level (such as overnight monitoring and care), but whose condition is not severe enough to require extensive specialist medical services. Therefore, the complexity of the case mix is relatively low and comparable across different hospitals. An IBUR within the range mentioned would allow for all hospital beds to be used – a match between the patient load (demand) and supply (available beds). Given that the IBUR is an average value, if it is increased above 80%, then there is a risk of insufficient beds being available during peak workloads. A high IBUR can indicate that the supply was insufficient and/or that patients were staying in the beds either for too short a time (being turned out quickly to make room for others), or for too long a time (e.g. delays in care, availability of goods and services, long turnaround times for critical laboratory results). A low IBUR signals inefficient use of available resources, and that the supply of beds may be too high in relation to health needs. Which scenario is more likely can be determined by analysing IBUR alongside ALOS. A shorter ALOS may be a sign of efficiency but can also

i Massyn N, Padarath A, Peer N, Day C, editors. District Health Barometer 2016/17. Durban: Health Systems Trust; 2017.

j Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; January 2019.

k Dorrington RE, Bradshaw D, Laubscher R, Nannan N. Rapid mortality surveillance report 2017. Cape Town: South African Medical Research Council; 2019.

indicate an overloaded service, while a longer ALOS can indicate health system weaknesses and inefficiencies, leaving patients in hospital for longer than necessary. Both outcomes may indicate quality concerns.

Lastly, when these indicators are matched to expenditure per PDE, a fuller picture emerges of the performance of the district hospital platform. Bed density per 10 000 uninsured population is also used to comment on equity of district hospital resources across the country.

Table 3 shows the district hospital expenditure per PDE, IBUR, ALOS and beds per 10 000 population for all districts. District hospitals have been notoriously underused in South Africa, and often display low efficiency indicators as a result. The average IBUR in the country was 64.6% in 2018/19, considerably below the desired range. Part of the concern relates to quality, the availability of human resources, and bypassing of district hospitals, particularly in larger urban areas. Only one district (Capricorn (LP)) had an IBUR and ALOS within the range described above. Capricorn had an expenditure per PDE of R3 369, which is R329 (10.8%) higher than the average.

The 10 districts with the highest expenditure per PDE ranged from R4 924 (Amajuba (KZ)) to R3 486 in Johannesburg (GP). The IBUR in these 10 districts was below the desired range, and particularly low in Frances Baard (NC) and iLembe (KZ). Sedibeng (GP) was the only district with an IBUR within the acceptable range. The ALOS was somewhat low in Frances Baard (NC) (2.9 days) and high in iLembe (KZ) (5.5 days). Bed density was below average (7.7 per 10 000 population) in eight of these 10 districts, and slightly above average in Dr Ruth Segomotsi Mompati (NW) and Waterberg (LP). It is important to note that bed density can vary depending on the needs of the catchment population. Nelson Mandela Bay (EC) had an ALOS within the acceptable range, but their IBUR remained low at 60%. Given the low IBUR in most of these districts, it is suggested that the provinces and districts investigate the reasons for the lower utilisation, focusing on questions such as:

- The strength of the gatekeeping mechanism (is bypassing to higher levels of hospitals easy?).
- The appropriateness of the supply versus the demand.
- The appropriateness of the allocated funding in maintaining a high-functioning, high-quality district hospital.

Among the 10 districts with the lowest expenditure per PDE, figures ranged from R2 532 (Mopani (LP)) to R2 068 (Cape Winelands (WC)). The bed density per 10 000 target population in these 10 districts ranged from 11 (John Taolo Gaetsewe (NC)) to 2.2 (eThekwini (KZ)). Three Western Cape districts showed large variation in availability of district hospital beds, with West Coast (WC) the highest (8.3 per 10 000 population), and Cape Winelands (WC) the lowest (3.2 per 10 000 population). The wide variation in bed density within one province suggests that the supply is potentially inequitable across the province and perhaps not linked to the needs.

Similar patterns can be seen in most provinces, with KwaZulu-Natal's districts in fact including both the highest and lowest bed density per 10 000 target population (20.8 per 10 00 population in uMzinyathi and 1.0 per 10 000 population in Amajuba). While it cannot be expected that all areas will have exactly the same bed density (as explained above), such dramatic variation is unexpected, especially within one province. Part of the reason for this could be linked to the legacy of apartheid, and how and where facilities were built. Twenty-five years on, the country has not managed to reconfigure its health system successfully to more accurately match supply and demand. Rural areas like uMzinyathi and Amajuba, within the same province, should generally show similar bed density for district hospitals, which is the lowest level of hospital care. However, if these beds are not available, patients will make use of higher-level, more expensive hospital care that may be unnecessary given their health needs, and result in unnecessary indirect costs to the patient, while potentially delaying access to care. However, these variabilities may sometimes relate to inter-district flows where hospitals are located close to district boundaries, and a closer review of these districts may be required to draw firm conclusions.

Table 3: District hospital expenditure per patient day equivalent, average length of stay, inpatient bed utilisation rate and number of beds per 10 000 population, by district, 2018/19[l]

Province	District	Expenditure per patient day equivalent (district hospitals) (Rand)	Average length of stay (district hospitals) (Days)	Inpatient bed utilisation rate (district hospitals) (%)	Hospital beds per 10 000 target population (district hospitals) (Number)
KwaZulu-Natal	Amajuba	4 924	4.3	65.4	1.0
Northern Cape	Frances Baard	4 189	2.9	35.9	2.9
KwaZulu-Natal	iLembe	4 036	5.5	48.2	5.8
Limpopo	Waterberg	4 009	4.0	62.9	11.0
Gauteng	West Rand	3 907	3.8	61.5	6.9
Eastern Cape	Nelson Mandela Bay	3 775	3.5	60.0	2.3
Gauteng	Sedibeng	3 659	4.1	74.9	4.3
North West	Bojanala Platinum	3 635	4.6	71.4	3.0
North West	RS Mompati	3 503	4.1	60.7	8.0
Gauteng	Johannesburg	3 486	4.1	67.8	1.3
Northern Cape	Pixley Ka Seme	3 481	3.5	60.0	6.2
North West	Dr K Kaunda	3 462	3.4	67.6	1.3
Eastern Cape	OR Tambo	3 415	5.2	54.0	7.6
Limpopo	Capricorn	3 369	4.2	76.2	6.2
Gauteng	Tshwane	3 357	4.2	67.2	4.1
KwaZulu-Natal	uMkhanyakude	3 285	5.5	60.7	16.6
Limpopo	Sekhukhune	3 275	4.1	68.2	5.7
Eastern Cape	Sarah Baartman	3 205	4.0	61.1	12.4
KwaZulu-Natal	Zululand	3 199	5.3	61.2	13.9
Eastern Cape	Joe Gqabi	3 188	5.4	55.5	15.9
KwaZulu-Natal	Harry Gwala	3,134	4.7	62.4	14.1
Mpumalanga	Nkangala	3 092	4.4	68.9	3.2
Limpopo	Vhembe	3 072	4.5	74.7	8.6
KwaZulu-Natal	uMzinyathi	3 048	5.8	53.7	20.8
Gauteng	Ekurhuleni	3 041	4.3	73.6	1.1
KwaZulu-Natal	uThukela	2 996	5.5	66.1	6.3
Eastern Cape	Amathole	2 956	4.9	52.6	13.2
Free State	Xhariep	2 953	4.2	56.8	11.1
Western Cape	Overberg	2 929	2.8	76.6	8.1
Eastern Cape	Buffalo City	2 901	5.2	54.8	4.0
KwaZulu-Natal	King Cetshwayo	2 874	6.0	46.4	13.1
Western Cape	Central Karoo	2 860	3.2	73.2	17.1
KwaZulu-Natal	uMgungundlovu	2 801	5.5	77.1	5.4
Free State	Fezile Dabi	2 795	3.7	67.5	6.1
KwaZulu-Natal	Ugu	2 789	5.3	67.7	8.1
Eastern Cape	Chris Hani	2 775	4.5	47.3	14.9
Free State	Thabo Mofutsanyana	2 760	3.0	54.1	6.0
Eastern Cape	Alfred Nzo	2 743	4.9	63.2	10.2
NW	Ngaka Modiri Molema	2 741	4.3	49.4	5.8
Northern Cape	Namakwa	2 674	2.4	73.5	7.8
Mpumalanga	Gert Sibande	2 603	4.2	68.4	9.0
Western Cape	Cape Town	2 590	3.9	98.7	5.2
Limpopo	Mopani	2 532	4.6	80.5	7.6
Free State	Lejweleputswa	2 489	2.7	57.1	4.8
Mpumalanga	Ehlanzeni	2 478	4.6	71.5	8.0
Free State	Mangaung	2 473	4.0	65.7	7.7
Western Cape	West Coast	2 345	2.9	87.5	8.3
Northern Cape	John Taolo Gaetsewe	2 344	4.1	56.2	11.0
Northern Cape	Zwelentlanga Fatman Mgcawu	2 243	2.8	45.5	4.1
KwaZulu-Natal	eThekwini	2 240	4.6	61.4	2.2
Western Cape	Garden Route	2 198	2.8	84.9	7.5
Western Cape	Cape Winelands	2 068	2.7	79.4	3.2

Source: BAS, DHIS.

l Red highlights denote the top 10 districts for that indicator. Yellow highlights denote the bottom 10 districts for that indicator.

Table 4 compares average values for these indicators for the highest and lowest 10 and 20 districts in terms of expenditure per PDE. On average, the highest-spending districts (per PDE) had a lower IBUR (60% average) than the lower-spending ones (69% average). This supports the argument that maintaining a higher IBUR reduces the costs per PDE, possibly through better economies of scale, although health outcome data are required to make a definitive statement on whether the IBUR and spending are effective or efficient. Average length of stay was on average longer in the groups of districts with higher expenditure per PDE (4.1 versus 3.6). However, both the top and bottom 10 showed ALOS within the acceptable range, but IBUR lower than the accepted range. This points to the current under-utilisation of the district hospital platform in the country and the need to ensure that resources are following patients. The relationships identified through this comparison should be seen as indicative, and some practical comparative case studies looking into these relationships would likely give a more comprehensive understanding.

Table 4: Average expenditure per patient day equivalent, average lengths of stay, inpatient bed utilisation rate, and number of beds per 10 000 uninsured population by highest- and lowest-spending districts, 2018/19

	Expenditure per patient day equivalent (Rand)	Average length of stay (days)	Inpatient bed utilisation rate (%)	Number of beds per 10 000 population
Simple average	3 056	4.2	64.6	7.7
Top 10 districts average (by expenditure per PDE)	3 912	4.1	60.9	4.7
Bottom 10 districts average	2 341	3.6	69.0	6.4
Top 20 districts average	3 618	4.3	62.0	6.8
Bottom 20 districts average	2 534	3.9	67.8	7.1

Source: BAS, DHIS.

It is crucial to analyse expenditure data alongside service delivery data to get a nuanced picture of performance in a district. Given that normative data are not available for how much should be spent at the different levels of care, supporting data on utilisation (and hopefully in future, health outcomes as a result of the interaction) become critical for a sound analysis.

Towards case-based payments for hospital services

A key aspect of NHI is reconfiguring the way in which healthcare providers and facilities are reimbursed for the services they provide. In previous DHBs, the case was made for increased use of needs-based resource allocation formulae for PHC services, in light of plans to pay for PHC using risk-adjusted capitation under NHI. In future, hospital services will be paid for using diagnosis related groups (DRGs), whereby a hospital is paid a tariff per patient treated based on the complexity of the diagnosis and intervention. The wide differences in expenditure per PDE across the country, and even within provinces, support the argument for case-based hospital reimbursement mechanisms such as DRGs.

Breakdown of district health expenditure by sub-programme

Figure 15 shows per capita expenditure on DHS by sub-programme. Expenditure on district hospitals differed considerably, both per capita and as a percentage of total DHS expenditure. Expenditure ranged from R121 per capita in Ekurhuleni (GP), to R1 778 in Central Karoo (WC), closely followed by Waterberg (LP).

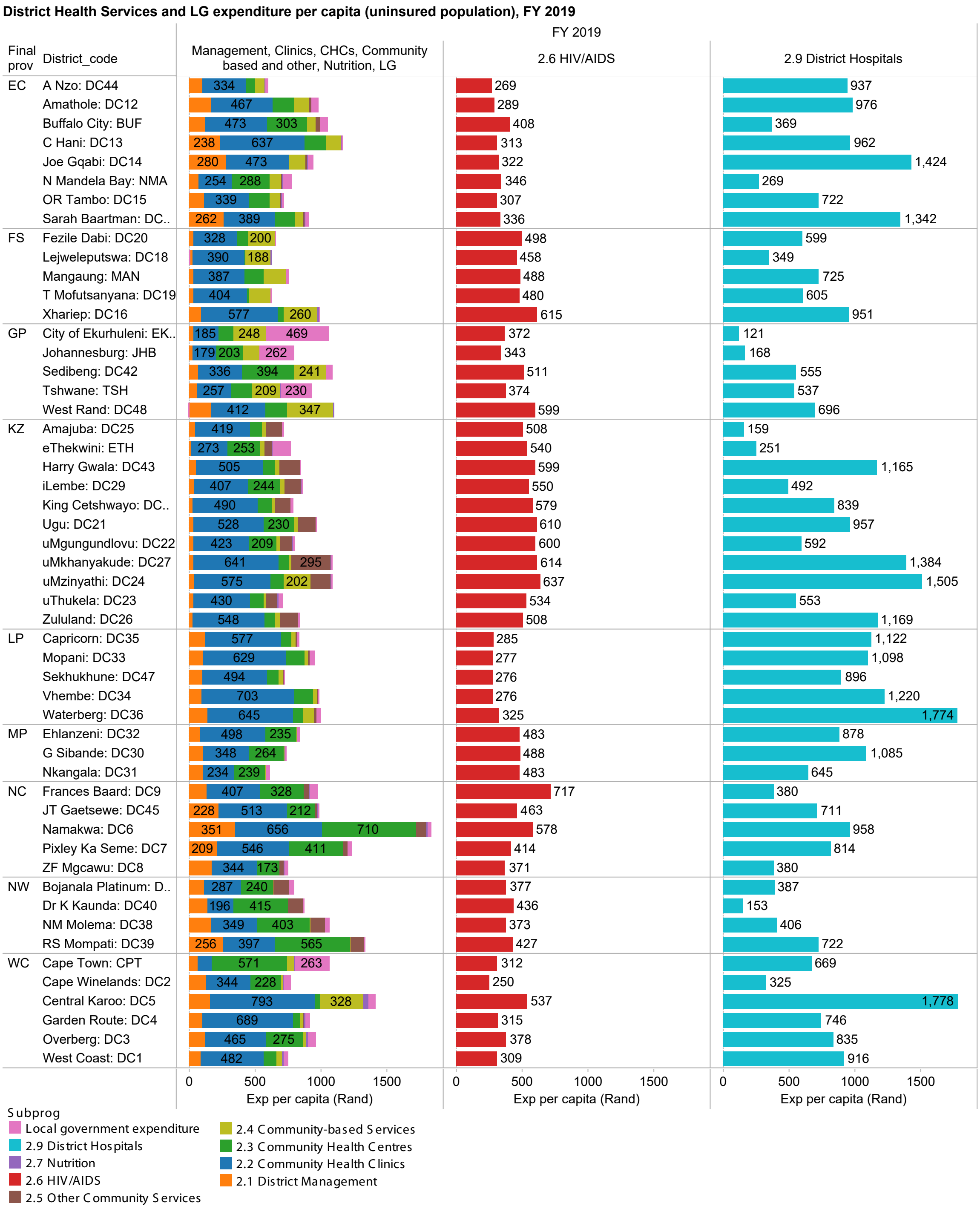
Local government funding makes up a substantial proportion of DHS spending only in metropolitan municipalities. This is mainly because the ability of LGs to collect revenue is generally greater in metropolitan municipalities. However, even among the metropolitan municipalities there was great variation, as LG funding made up a very small share in Mangaung (FS), Nelson Mandela Bay (EC), and Buffalo City (EC), while the contribution of Ekurhuleni (GP) was R469 per capita (30.2% of total DHS expenditure). Provinces such as Gauteng and the Western Cape had high expenditure contributions from LG compared with other provinces. In 2018/19, Gauteng's LG expenditure on PHC was 16.7% (an increase from 15.9% in 2017/18) of the total PHC expenditure, and major contributors to this high LG expenditure were Johannesburg and Ekurhuleni. However, this does not fully explain variations in PHC expenditure between districts. Johannesburg, with high LG contributions, had PHC expenditure per capita below the national average, while Sedibeng and West Rand were way above the national average on PHC expenditure per capita, although their LG contributions were very low. Johannesburg was the only district below the national average. It is possible that the provincial allocations have been set to a minimal level, based on an assumption that LG will augment this expenditure, which is not necessarily happening. Gauteng may consider looking into the allocations of Sedibeng and West Rand to eliminate inequity that currently exists.

The above is similar to the situation in the Eastern Cape, where Nelson Mandela Bay has a significant contribution of LG expenditure (4.6%) to PHC expenditure per capita, but it still fell below the national average, while Buffalo City was slightly above the national average with a lesser LG expenditure contribution (3.0%). One would expect that metros would have a higher expenditure per capita than other districts; however, while this can be true, it is not always the case.

The Finance chapter in the 2016/17 DHB[i] noted that HIV/AIDS expenditure per capita did not seem to be entirely correlated with HIV prevalence. For example, it was noted that all districts in Mpumalanga had per capita HIV expenditure below the national average, despite the fact that the province has the second-highest HIV prevalence in the country. This included Gert Sibande (LP), which, has reflected the highest antenatal prevalence in recent years. In 2018/19, this analysis was not done to the same level of detail, but it appears that HIV expenditure per capita increased considerably in all Mpumalanga districts, which are now above the national average. This is a positive finding, and the province is encouraged to analyse how this has impacted on the number accessing treatment, incidence and adherence rates.

Finally, there was considerable variation in spending on district management. KwaZulu-Natal only spent 1.4% of its DHS expenditure on district management, while the Northern Cape spent 9.0% on this sub-programme, followed by North West (NW) (8.6%) and the Eastern Cape (7.6%). While this may be partly explained by higher travel costs for managers in rural districts and incorrectly classifying services expenditure under district management, it may also indicate excessive administrative costs and lack of cost containment in this area in favour of front-line service delivery. In some cases, however, district management teams may need to be strengthened for the districts to be able to function more competently.

Figure 15: Per capita expenditure on DHS by sub-programme, 2017/18 (Rand, real prices)



Key findings by province

The section below discusses key findings and implications by province.

Eastern Cape

Although there were significant improvements in DHS expenditure in the Eastern Cape (with the province now slightly above average for DHS expenditure), PHC expenditure remained low. Primary health care spending per capita increased from R1 003 in 2017/18 to R1 032 in 2018/19, and per headcount from R395 to R406, but the province was still the lowest in the country on both these indicators. Alfred Nzo remained the lowest-spending district per capita at R766, and the three lowest-spending districts per headcount were in the Eastern Cape (Sarah Baartman, Alfred Nzo and Amathole). Expenditure per PDE was R3 056 (among the highest-spending provinces), an increase of 12.2% from R2 724 in 2017/18. This growth is very high, noting that the PDE only increased by 1.8% from 2017/18 to 2018/19. The Eastern Cape is generally known to have a high number of district hospitals with relatively low utilisation (all Eastern Cape districts had district hospital IBURs below the national average) and should consider consolidating its hospital services to fewer hospitals to improve efficiency. It has been clear for several years that there is a need for district hospital restructuring in the Eastern Cape, and this is an unfinished agenda that could potentially create both higher-quality, more efficient hospital services, and better-resourced PHC services. However, this may also require some level of guidance from the NDoH with regard to setting norms and standards.

Free State

Expenditure per capita on DHS still remained below the national average, with an increase of 1.8% from 2017/18, while the national average increased by 3.8% over the same period. Xhariep remained an outlier within the province, and its expenditure per capita increased by 9.6% from 2017/18. Primary health care expenditure per capita in the province increased by 2.5%, but remained slightly below the national average. Primary health care expenditure per headcount was very high for the province, as all districts exceeded the national average, except Lejweleputswa which fell just R1 below. This is partly explained by a declining trend in provincial PHC headcount (3.0%), from 5.5 million in 2017/18 to 5.3 million in 2018/19, a continuation of six consecutive years of declining headcounts (a total real reduction of 29.0% since 2012/13). This warrants urgent attention from the province. Expenditure per PDE on district hospitals declined by 3.5% following a decline in utilisation (PDE decreased by 8.9%). It seems as if the province has been partially able to adjust expenditure according to the levels of utilisation in the district hospitals, while this has not happened at PHC facilities (as discussed).

Gauteng

Gauteng had the highest PHC expenditure per headcount in the country at R639, 29.1% more than the national average and 57% higher than in the lowest province (Eastern Cape). Gauteng's PHC headcount decreased by 0.2% from 2017/18, and the province had the lowest PHC utilisation rate per capita in the country, which contributed to the high expenditure per PHC headcount. Gauteng's OPD client not referred rate in district hospitals (refer to section 5.2 on inpatient management) was exceptionally high, at 71.1% for 2018/19 (an increase from 66.7% in 2017/18), indicating a very weak referral system (users bypassing PHC services). The three highest-spending districts were in Gauteng (Sedibeng at R737, Ekurhuleni at R681, and Tshwane at R668). A significant portion of PHC funding in Ekurhuleni was sourced from LG revenue, and such funding was also relatively high in the other two metropolitan municipalities, namely Johannesburg and Tshwane. Expenditure in district hospitals decreased; however, the utilisation also decreased considerably, causing expenditure per PDE to increase slightly. This was particularly the case for Johannesburg and Tshwane, and the reasons for this should be looked into (it could be that district hospitals were closed down or reclassified in both metropolitan municipalities). Expenditure per PDE was the highest in the country, and it is recommended that Gauteng look closely at the reasons why unit costs for both PHC and district hospitals were so high compared with the rest of the country. Gauteng had a comparatively low number of district hospitals, and reconfiguration of hospitals to increase the number of district hospital beds may also be needed. However, there is also a need to understand why patients are bypassing the existing district hospitals, as the trend of declining utilisation rates at PHC facilities and district hospitals suggests that the population is seeking health care in facilities providing higher levels of care. The IBUR for district hospitals in Gauteng was only 68% in 2018/19. Further work is required to determine optimal bed distribution in the province.

KwaZulu-Natal

KwaZulu-Natal was among the three highest-spending provinces on DHS per capita, spending R2 078 in 2018/19; it was also the second highest-spending province per capita on PHC. This is way above the national average. Districts that showed very high spending included uMzinyathi, uMkhanyakude, Ugu, Zululand and uMgungundlovu. The province receives the largest proportional budget allocation for the HIV/AIDS programme as it has the highest HIV prevalence in the country. This contributes partially to the high DHS per capita. eThekwini spent the least in the province for DHS per capita, and above national average for PHC expenditure per capita, while utilisation shows that the district's expenditure per PDE was the third lowest, also below the national average for PHC expenditure per headcount. This may be an indication that the district is under-resourced, therefore the province may consider looking into rearranging resources to ensure equitable distribution of allocations. Amajuba spent the most in the country per PDE at R4 924, compared with R2 240 spent by eThekwini, while showing the same pattern in PHC expenditure per headcount. It is difficult to interpret what informs these variations; perhaps CCMDD and the outreach services programmes play a significant role in Amajuba, given that it was one of the NHI pilot districts where these programmes were first implemented. It is recommended that the province investigate further into this matter, to consider whether such significant variations are justified.

Limpopo

Limpopo showed a 6.7% increase in PHC expenditure per capita in 2018/19, but expenditure remained comparably low (second lowest in the country). However, headcounts declined by 3.5%, which resulted in expenditure per headcount increasing by 12.0% in 2018/19, indicating that resource allocation did not follow the trend of declining utilisation rates. There was very little growth (0.7%) in expenditure per PDE in 2018/19 year-on-year, a slight growth in PDE (0.9%), while expenditure in district hospitals grew by just 1.6%. Limpopo was among the four provinces with a decline in district hospital utilisation per capita. This is of concern, considering that the province also had the highest decline in PHC utilisation per capita in 2018/19. This also raises questions as to whether the community outreach programmes are effective or whether the PHC services and district hospitals are not easily accessible. The province may want to consider reprioritisation of funds from district hospitals towards PHC.

Mpumalanga

District health services expenditure per capita for the province was slightly above the national average by R136, but slightly below on PHC expenditure per capita. The province had the second-highest real year-on-year growth in DHS expenditure over the same period. The HIV/AIDS sub-programme increased by 27.3% from 2017/18, and patients remaining on ARV treatment increased by 12.7% in 2018/19.[m] Given high HIV prevalence in Mpumalanga, previous DHBs have recommended that the HIV budget be increased, and it is positive that government has made efforts to address this. However, the increase in HIV/AIDS expenditure was partially offset by the 87.2% decrease in the community-based services sub-programme, which may indicate that some of the increase reflects a realignment of budgets (possibly paying community health workers from the HIV sub-programme instead of community-based services). The province had the second-highest PHC expenditure per headcount, with a year-on-year growth of 8.0% in 2018/19, but a PHC expenditure per capita (R1 125) below the national average. However, there were notable improvements in PHC expenditure per capita in some districts, such as in Ehlanzeni, which is now above the national average, and in Nkangala, which improved from second-lowest spending district in the country in 2016/17.

Northern Cape

The Northern Cape was the second highest-spending province on DHS per capita in 2018/19, taking the Western Cape's position from 2017/18. However, variations in DHS per capita within districts continued, with Namakwa maintaining its place as the second highest-spending district in the country, with expenditure of R3 368, and Zwelentlanga Fatman Mgcawu district spending less than half of that, at R1 502 (although this was a notable improvement from the previous year). Expenditure per headcount was above the national average, while expenditure per district hospital PDE was below the national average. There may be a need to investigate possible inefficiencies in Frances Baard in both expenditure per district hospital PDE and PHC expenditure per headcount. High expenditure can sometimes be associated with low population density (e.g. in Namakwa), but Frances Baard is in fact the district with the highest population density in the province. The province may want to consider whether the wide differences across districts (for all indicators dealt with in this chapter) are warranted by disease burden, socio-economic factors, demographic or other factors, or whether there is a need to improve equity in resource allocation.

North West

Expenditure on DHS per capita was the second-lowest in the country. Primary health care expenditure per capita was also below average. However, both PHC expenditure per headcount and district hospital expenditure per PDE were the second highest in the country, following Gauteng. Primary health care expenditure per headcount grew by 4.9% in 2018/19, and in Dr Ruth Segomotsi Mompati and Dr K Kaunda, it increased by 10% and 18% respectively. The province also showed a decline in PHC utilisation per capita of 1.4% year-on-year in 2018/19 (but increasing expenditure). The actual PHC headcount numbers remained almost the same from 2017/18 (7 442 403) to 2018/19 (7 445 963), indicating that PHC headcount has not kept up with population growth. Over the same period, the district hospital PDEs in the province showed an increase of 17.9% and outstripped the expenditure growth of 7.1%; as a result, expenditure per PDE declined by 9.1%. This increase

m National Department of Health. 2018/19 Conditional Grants Annual Evaluation Report. Pretoria: NDoH; 2019.

in district hospital productivity is a positive sign, but the concurrent decrease in PHC utilisation per capita may warrant further investigation to assess whether PHC services are adequately accessible to the population.

Western Cape

The Western Cape's DHS expenditure per capita was slightly above the national average, and the province maintained a similar level of spending to 2017/18. It is possibly of concern that the fastest-growing sub-programme was district management, which grew by 7.9% year-on-year in real terms in 2018/19, while all other sub-programmes grew below 2%, except for district hospitals which grew by 2.8% and LG expenditure which grew by 8.4%. The province's district hospital expenditure per PDE (R2 502) was the lowest in the country, and the province was third lowest in expenditure per PHC headcount (R445). Compared with 2018/19 expenditure per PHC headcount, the Western Cape's PHC utilisation rate was the second highest in the country at 2.7 visits per uninsured person per year. District hospital expenditure per PDE was the lowest in the country and has remained so for several years.

Conclusions

District health services and PHC expenditure continued to grow in 2018/19, in absolute numbers as well as per capita and PHC headcount. This was despite the fact that government budgets, including health budgets, were increasingly constrained as a result of the country's slow economic growth and the need to contain government's debt levels. As in previous years, the increase was to a large extent driven by growth in the HIV/AIDS sub-programme, but even when looking at PHC expenditure per capita excluding this sub-programme, there was positive real growth in all provinces except Mpumalanga.

For several consecutive years, expenditure per PHC headcount has been driven upwards by a steady and considerable decline in the number of PHC headcounts. In 2018/19, this trend slowed down considerably as the headcounts only decreased by 0.3%, and the increase in expenditure per headcount was thus mainly a result of a real increase in absolute PHC expenditure.

Expenditure per PDE increased slightly in 2018/19 as a result of a small decrease in the number of PDEs, combined with slight increase in real expenditure. However, this follows several years of considerable annual growth in this indicator. There appears to be a correlation between expenditure per PDE and other hospital efficiency indicators, particularly IBUR, as high expenditure per PDE was on average associated with a low IBUR, indicating that running fewer beds at higher capacity may increase hospital outputs in relation to expenditure.

The spread across provinces and districts remained very wide for all the indicators considered, which is of concern from both an equity and an efficiency point of view.

Recommendations

The analysis in this chapter was done at a relatively high level and with limited knowledge of local context-specific factors that influence the values reflected against the indicators reviewed. Some of the findings and recommendations should therefore be seen as indicative, and require further investigation.

- Moving from incremental budgeting towards strategic purchasing: Increased use of alternative provider payment mechanisms does not have to wait until NHI is fully established. Much can be done to improve equity and efficiency through gradually implementing systematic, data-driven approaches to resource allocation, such as risk-based capitation models for allocating PHC funding. Similarly, payments to hospitals should be informed by workload, and adjusted for the complexity of the case mix, for example using DRGs, which is the envisaged provider payment mechanism for hospitals under NHI.
- Containing unwarranted increases in unit costs: Both expenditure per PHC headcount and expenditure per district hospital PDE have increased considerably in recent years, although they stabilised partly in 2018/19. While this may be warranted in some provinces and districts where the growth is from a low base, the overall trend is of concern from an efficiency perspective. Gauteng and North West in particular need to look into improving their service volumes in relation to expenditure, given that they were the two highest-spending provinces for both these indicators.
- Measuring and publishing volumes of non-facility-based services: As raised in previous DHB publications, there is a need to better monitor volumes of services rendered outside fixed health facilities, such as CCMDD and ward-based outreach teams. This would clarify whether or not the decrease in PHC headcounts seen over time is a result of deteriorating access to services.
- Further research into the relationship between hospital efficiency indicators: Analysis in this chapter indicates that expenditure per PDE may in part be a product of other hospital efficiency factors, such as IBUR and ALOS. Further and more robust statistical analysis is needed to establish these relationships more solidly, and in-depth case studies would give more comprehensive understanding.

- Linking expenditure to health outcomes: Research is encouraged into the correlation between expenditure levels and health outcomes. This would add further depth to the expenditure analysis, and could potentially improve knowledge about the effectiveness and efficiency of spending.

5.5 Human resources

Gcinile Buthelezi, Naomi Massyn

This section covers healthcare worker density as part of the service capacity and access section of the universal health coverage (UHC) index.[a] The UHC indicator measures the number of health professionals per person; comprising physicians, psychiatrists and surgeons. However, the following indicators are included in this section:

- Medical practitioners (public sector) per 100 000 uninsured population
- Professional nurses (public sector) per 100 000 uninsured population
- Pharmacists (public sector) per 100 000 uninsured population.

Sustainable Development Goal (SDG) 3 indicators include health worker density under Goal 3c, as follows: "substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States".[b]

This section provides an overview of health workforce density relative to the uninsured population served in health facilities in the South African public health sector. It excludes private sector healthcare workers. The data source for the number of health professionals was the personnel and salary (PERSAL) system used in the public sector. Analysis of health worker density assists managers with developing health plans informed by data or evidence, and with developing targeted interventions to improve equity, address challenges in the health system, and improve service quality.

Health worker density is defined by the World Health Organization as the number of health workers per 10 000 population.[c] Health worker density can be measured by health worker category to establish the level of concentration of that category in a defined population. In this section health worker density is expressed as per 100 000 uninsured population. As observed by Hogan et al.,[a] it can be difficult to interpret population density as a measure of service capacity and access unless there are established norms or a defined optimal level for the indicator. Notwithstanding this fact, according to Hogan et al.[a] low population density levels tend to be indicative of poor access to health services. In turn, monitoring of health system capacity and access is useful for tracking UHC progress.

The health professional density indicators (relating to medical practitioners, professional nurses and pharmacists in the public sector per capita) are used as a proxy for service coverage. The indicators were selected because of data availability and because these health professionals are central in the provision of health care at district level in South Africa.

Workforce planning for health services is challenging and complex. Some challenges in the South African public sector over the last two decades have been stagnant to negative growth in public sector clinical posts; lack of sufficient planning and budgeting for clinical posts; insufficient retention of community service professionals; insufficient growth in health sector education and training to meet health needs and health system requirements; and issues relating to the working environment of the health workforce.[d] In 2008, the National Department of Health (NDoH) developed a Workforce Model to identify 'gaps' in health professional service coverage, and the model was used to develop initial human resource requirements for the health professions.

Medical practitioners (public sector) per 100 000 uninsured population

This indicator measures the number of medical practitioners (doctors) in the public sector as a ratio of the population (per 100 000). The population used in the denominator is adjusted to the population assumed to be dependent on the service provided by these doctors. The numerator is the total number of medical practitioners employed in the public sector, and the denominator is the uninsured population (total population less those covered by medical scheme insurance).

National overview

At national level, the number of medical practitioners per 100 000 uninsured population grew from 26.0 in 2008 to 32.0 in March 2019 (Figure 1).

In an effort to measure progress on selected health-related SGD indicators, Global Health Metrics estimated the health-related SDG index for 195 countries for the period from 1990 to 2017.[e] As part of this analytical work, ratio values were determined for health worker density based on minimum values observed across the Organization for Economic Co-

a Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. Lancet Glob Health. 2018;6(2);e152-68. Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/.

b Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. A/RES/71/313.

c Available from: http://www.who.int/healthinfo/universal_health_coverage/en/.

d National Department of Health. Human Resources for Health South Africa. HRH Strategy for the Health Sector 2012/13-2016/17. Pretoria: NDoH; January 2012.

e Global Health Metrics. Measuring Progress from 1990 to 2017 and projecting attainment to 2030 of the health-related Sustainable Development Goals for 195 countries and territories: a systematic analysis for the Global Burden of Disease Study 2017.

operation and Development countries. The ratio value was determined to be 30 physicians per 10 000 population,[c] contrasting starkly with South Africa's density of 32.0 medical practitioners per 100 000 population (3.2 per 10 000).

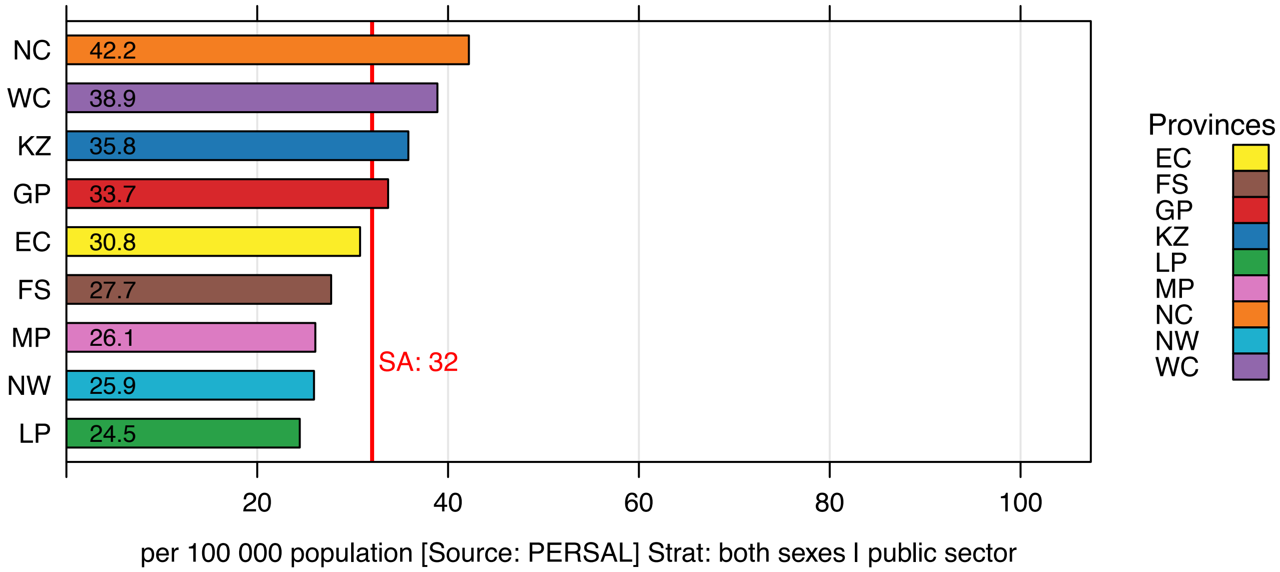
Provincial overview

The Northern Cape (NC) had the highest number of medical practitioners per 100 000 uninsured population (42.2) in March 2019, followed closely by the Western Cape (WC) (38.9), KwaZulu-Natal (KZ) (35.8), and Gauteng (GP) (33.7). Although the Northern Cape appeared to be better resourced than the other provinces, this was not a true reflection of the situation in the province; rather it was an outlier effect arising from Francis Baard having 97.6 medical practitioners per 100 000 population, while all the other districts in the province were below the national average. The Northern Cape is a vast province, yet it has the smallest population, at around 1.2 million in mid-2018. This situation has also contributed to a relatively higher health worker density.

Limpopo (LP) (24.5), North West (NW) (25.9), Mpumalanga (MP) (26.1), Free State (FS) (27.7) and the Eastern Cape (EC) (30.8) were the most poorly resourced in this regard and were below the country average of 32 medical practitioners per 100 000 uninsured population.

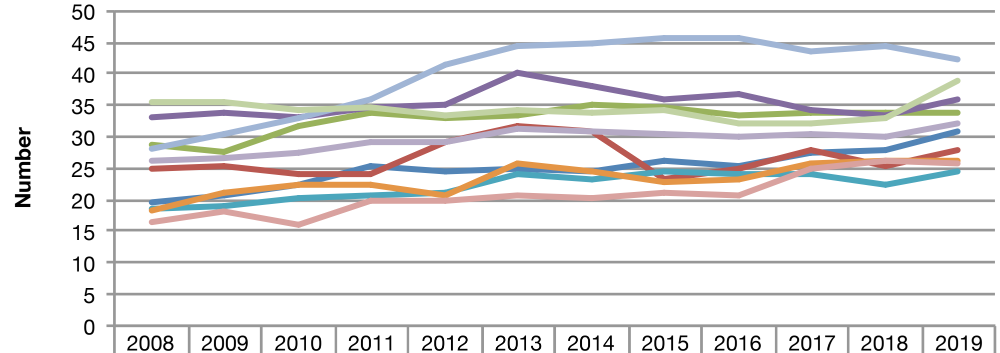
Notably, provinces with an above-average number of medical practitioners per 100 000 population (the Western Cape, KwaZulu-Natal and Gauteng) are characterised by a high concentration of urban and metropolitan areas with provincial tertiary and national central hospitals as well as medical schools.

Figure 1: Medical practitioners (public sector) per 100 000 uninsured population by province, March 2019



Growth in the number of medical practitioners per 100 000 uninsured population varied from one province to the other, with the Northern Cape showing the highest growth (from 28.1 in 2008 to 42.2 per 100 000 in 2019), and KwaZulu-Natal the least growth over the same period (from 33.1 to 35.8) (Figure 2). The Eastern Cape had the second-highest growth, increasing from 19.6 to 30.8 per 100 000 uninsured population.

Figure 2: Annual trends of the number of medical practitioners (public sector) per 100 000 uninsured population by province, 2008 - 2019



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
EC	19,6	20,9	22,4	25,4	24,7	24,8	24,5	26,1	25,2	27,6	27,9	30,8
FS	24,9	25,4	24,1	24,1	29,3	31,5	31	23,3	25	27,7	25,3	27,7
GP	28,9	27,6	31,5	33,7	32,8	33,4	34,9	34,6	33,5	33,8	33,7	33,7
KZ	33,1	33,7	33,1	34,6	35	40	38,1	35,9	36,6	34,4	33,3	35,8
LP	18,5	18,8	20,1	20,7	21,1	24	23,1	24,4	24,2	23,9	22,5	24,5
MP	18,3	21,3	22,5	22,5	20,8	25,7	24,5	22,9	23,3	25,7	26	26,1
NC	28,1	30,3	32,9	36,1	41,6	44,2	45	45,5	45,6	43,5	44,2	42,2
NW	16,6	18,3	16	19,9	19,9	20,9	20,2	21,3	20,9	24,9	26,1	25,9
WC	35,7	35,5	34,2	34,8	33,2	34,4	33,9	34,2	32	32,3	33	38,9
ZA	26	26,5	27,3	29	29	31,3	30,8	30,3	30	30,5	30,2	32

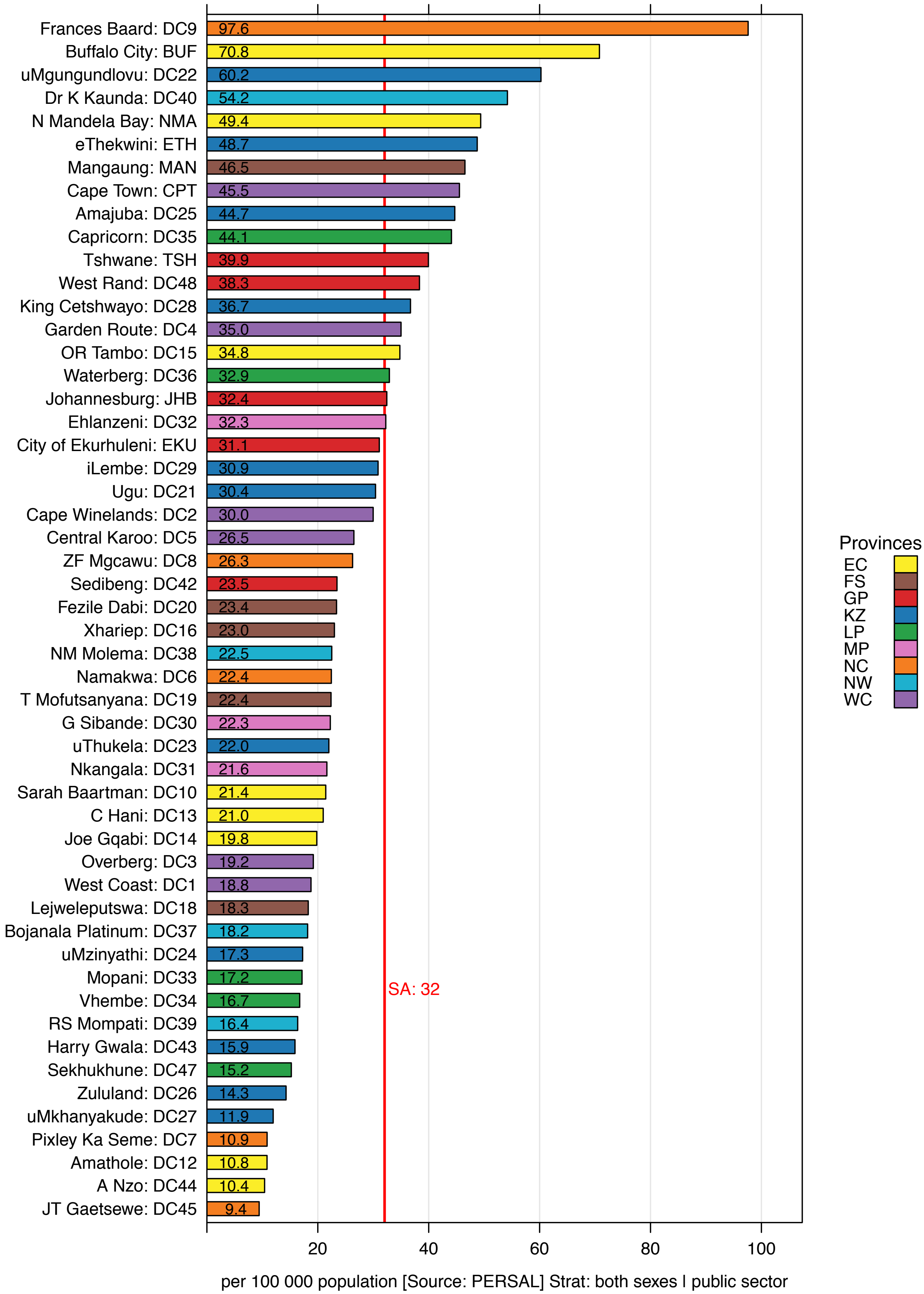
Source: PERSAL.

District overview

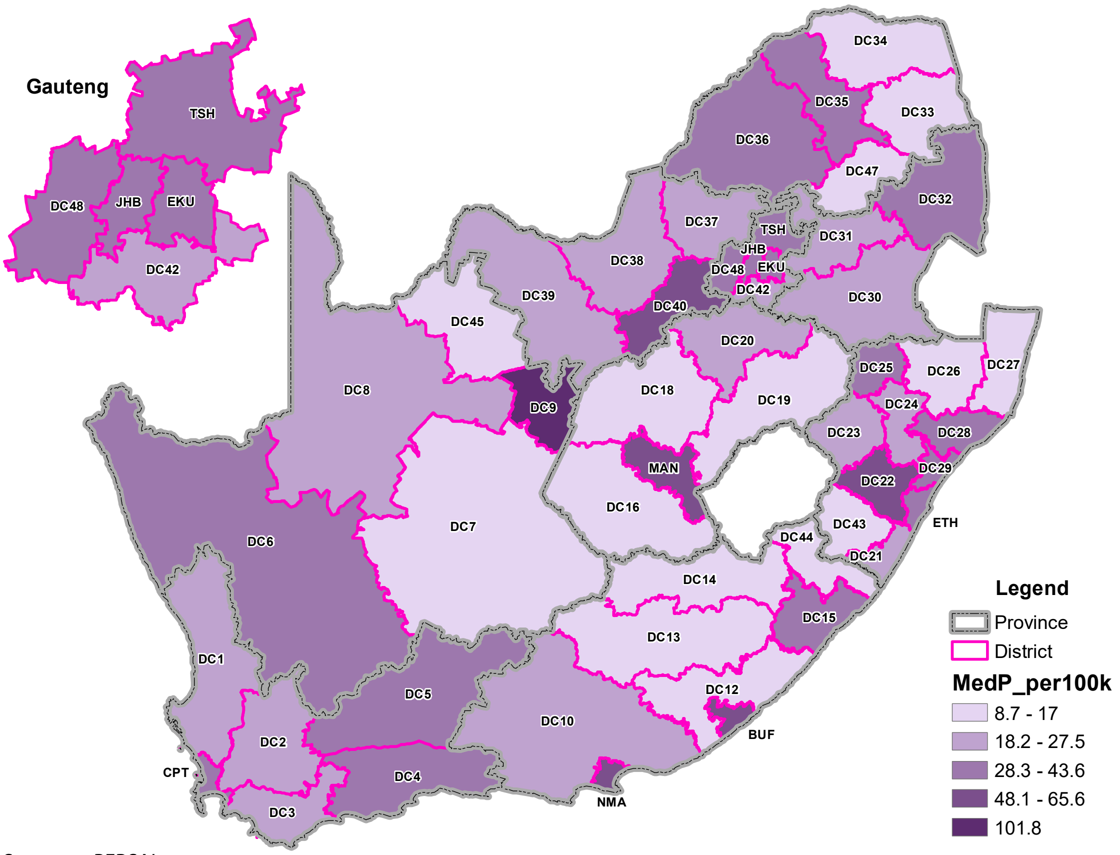
Across the 52 districts, the density of medical practitioners per 100 000 uninsured population ranged from 97.6 in Francis Baard to 9.4 in John Taolo Gaetsewe (both NC), a ratio difference of 10.4 (Figure 3 and Map 1).

Overall, the number of medical practitioners per 100 000 was above the national average in all the metropolitan districts, except Ekurhuleni (GP). The reasons may have been that these districts are generally better resourced and provide better opportunities for career development and also because the big central and tertiary hospitals where many doctors are employed are located in the metropolitan districts (with the exception of Ekurhuleni).

Figure 3: Medical practitioners (public sector) per 100 000 uninsured population by district, March 2019



Map 1: Medical practitioners (public sector) per 100 000 uninsured population by district, March 2019



Source: PERSAL.

Professional nurses (public sector) per 100 000 uninsured population

This indicator measures the number of professional nurses in the public sector as a ratio of the uninsured population (per 100 000). The numerator is the total number of professional nurses registered to practice, and the denominator is the uninsured population.

National overview

In March 2019, the national ratio for professional nurses per 100 000 uninsured population was 144.8 (Figure 4). The number of professional nurses per 100 000 population has grown steadily over time, from 116.7 in 2008 to 144.8 in March 2019. Outliers of 151.4 and 151.3 per 100 000 were observed in 2014 and 2015 respectively.

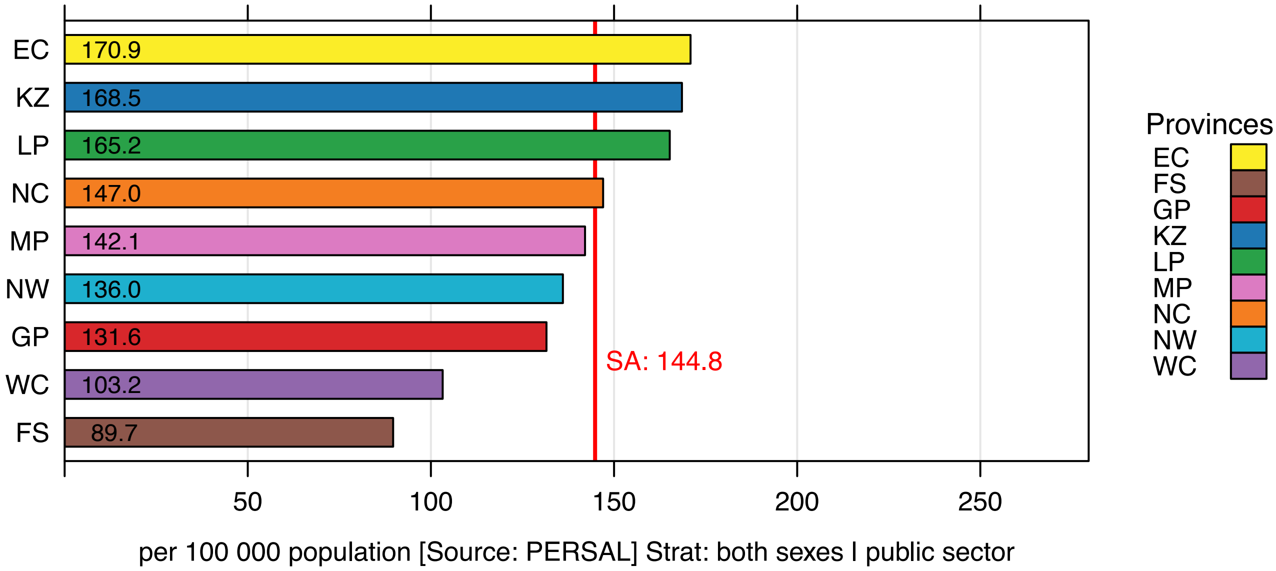
A global ratio value of 100 nurses and midwives per 10 000 was determined, using a similar methodology as for medical practitioners.[e] Thus the South African ratio of 144.8 professional nurses per 100 000 uninsured population (14.5 per 10 000) is once again below the ratio.

Provincial overview

In March 2019, the Eastern Cape had the highest number of professional nurses at 170.9 per 100 000 population, followed closely by KwaZulu-Natal (168.5) and Limpopo (165.2). These provinces are predominantly rural. The higher concentration of professional nurses in these provinces is a reflection of the central role that nurses play in the provision of healthcare services in the country, particularly in underserved parts of the country. Together with the Northern Cape (147.0 per 100 000), these three provinces were above the national average of 144.8 per 100 000 uninsured population.

The Free State was the most poorly resourced province with regard to provisioning of professional nurses, at 89.7 per 100 000 uninsured population. The density of professional nurses in the Western Cape, Gauteng, North West and Mpumalanga was also below the national average. While this may suggest under-resourcing in provinces such as the Free State, Mpumalanga and North West, it is also a reflection of the broader skills mix available in the more urban provinces, particularly medical practitioners and allied health professionals. Predominantly urban provinces attract a much wider range of health workers, resulting in a broader team of health workers in facilities to provide health services, and less dependence on professional nurses.

Figure 4: Professional nurses (public sector) per 100 000 uninsured population by province, March 2019



The number of professional nurses per 100 000 population remained relatively stable between 2012 and March 2019, other than in Mpumalanga (Table 1). Over this period the number increased in Mpumalanga from 119.7 to 142.1 per 100 000. In March 2019, the number of professional nurses per 100 000 was lower than in 2012 in two provinces, namely the Free State and Western Cape. Questions must be asked as to why the Free State had the lowest ratio in each year over this period, and a decrease of 9.2% over this time.

Table 1: Annual trends of the number of professional nurses (public sector) per 100 000 uninsured population by province, 2012 - 2019

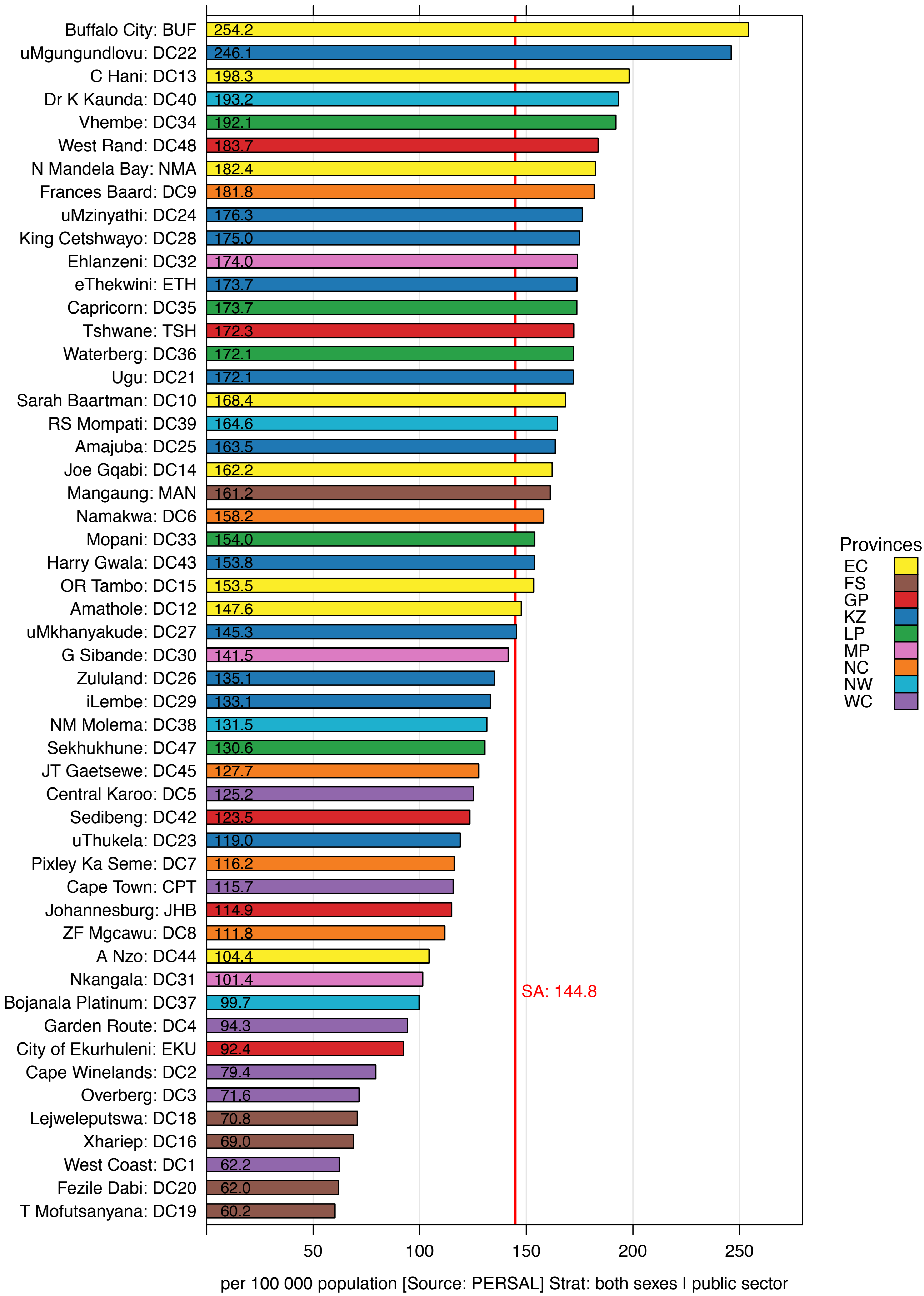
	2012	2013	2014	2015	2016	2017	2018	2019
Eastern Cape	161.8	162.9	164.8	166.0	162.0	160.1	168.5	170.9
Free State	98.9	106.5	105.4	101.7	92.8	90.9	91.3	89.7
Gauteng	126.2	131.5	133.3	133.7	127.4	137.0	133.8	131.6
KwaZulu-Natal	160.2	173.0	173.9	172.6	169.6	170.3	169.4	168.5
Limpopo	168.2	170.4	177.5	178.7	179.0	172.1	169.9	165.2
Mpumalanga	119.7	128.7	141.4	142.5	138.0	142.4	140.1	142.1
Northern Cape	140.7	142.9	143.1	143.6	143.9	143.3	147.8	147.0
North West	121.9	130.6	144.8	137.3	128.8	124.6	130.7	136.0
Western Cape	109.4	111.8	112.9	115.3	103.6	104.0	102.1	103.2
South Africa	139.5	147.6	151.4	151.3	144.0	145.1	145.2	144.8

Source: PERSAL.

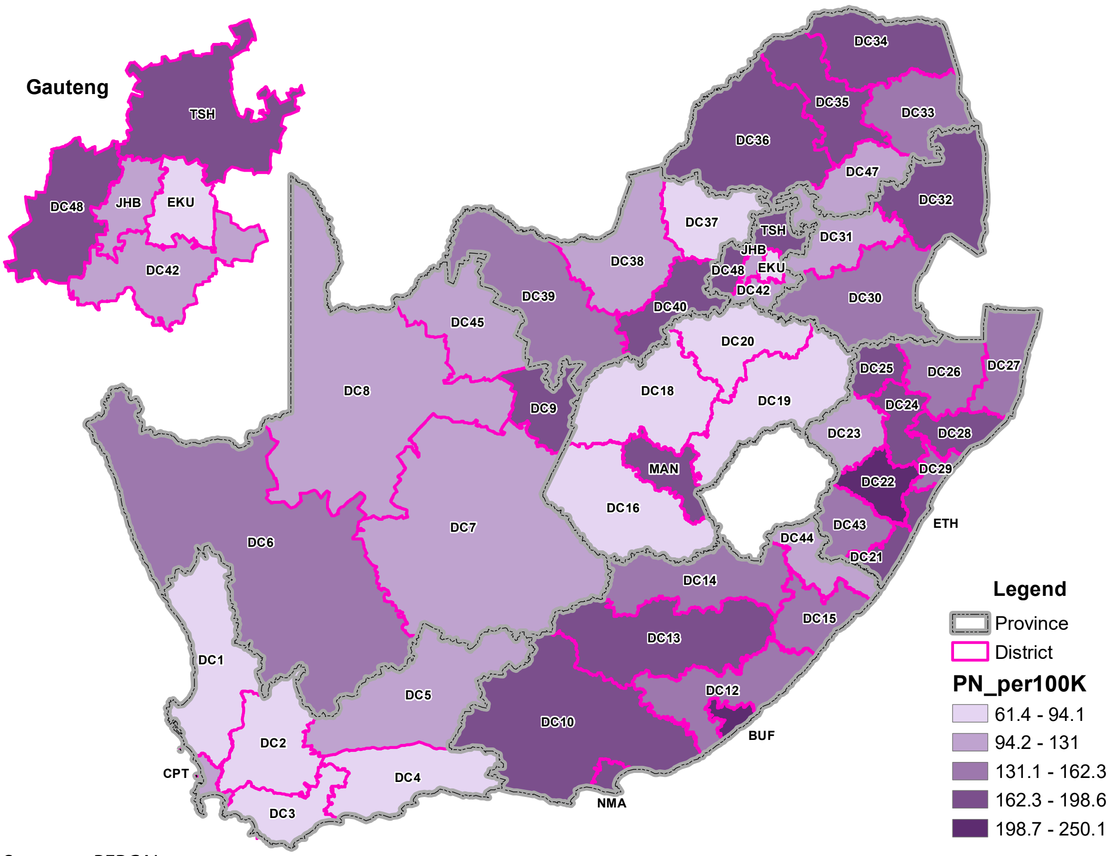
District overview

In March 2019, the number of professional nurses per 100 000 uninsured population across districts ranged from 254.2 in Buffalo City (EC) to 60.2 in Thabo Mofutsanyana (FS) (Figure 5 and Map 2). uMgungundlovu (KZ) had the second-highest number of professional nurses, at 246.1 per 100 000 uninsured population. Seven districts in the Eastern Cape had professional nurses per 100 000 uninsured population above the national ratio. Four of the five districts in the Free State ranked among the five districts with the lowest number of professional nurses per 100 000, well below the national ratio. However, only Mangaung had a density above the national ratio because the district has a provincial tertiary and national central hospital.

Figure 5: Professional nurses (public sector) per 100 000 uninsured population by district, March 2019



Map 2: Professional nurses (public sector) per 100 000 uninsured population by district, March 2019



Source: PERCAL.

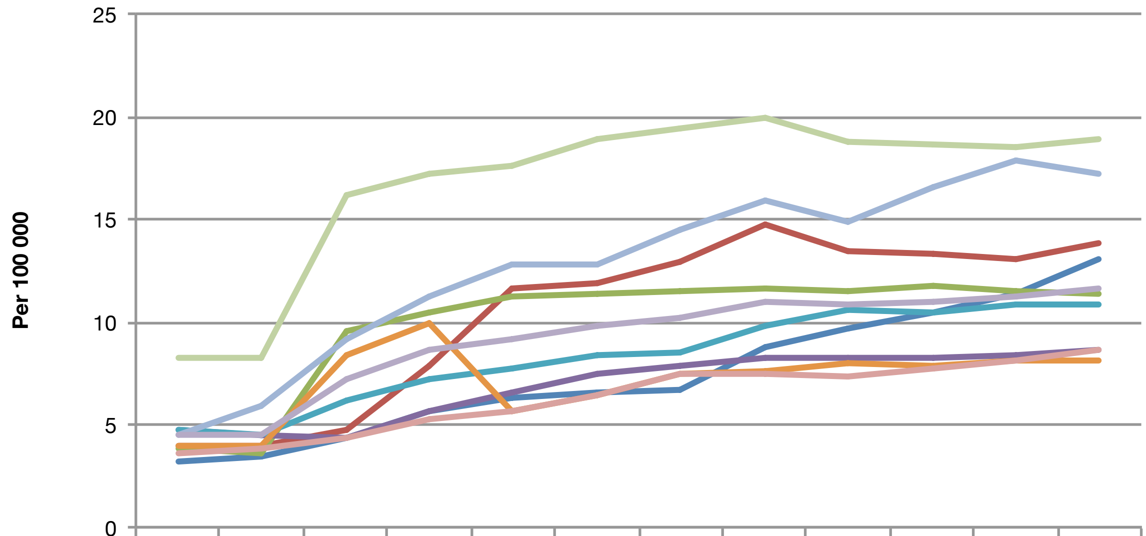
Pharmacists (public sector) per 100 000 uninsured population

This indicator measures the number of pharmacists in the public sector as a ratio of the population (per 100 000). The numerator is the total number of pharmacists registered to practice, and the denominator is the uninsured population.

National overview

The national ratio of pharmacists per 100 000 uninsured population grew steadily from 4.5 in 2008 to 11.6 in March 2019 (Figure 6). This represents an increase of 258%. A global ratio value of five pharmacists per 10 000 was determined using a similar methodology as for medical practitioners.[e] A South African ratio of 11.6 pharmacists per 100 000 uninsured population (1.2 per 10 000) is once again below the ratio of five per 10 000 determined in the UHC framework to ensure that the country is on track to meet SDG targets.

Figure 6: Annual trends of the number of pharmacists (public sector) per 100 000 uninsured by province, 2008 - 2019



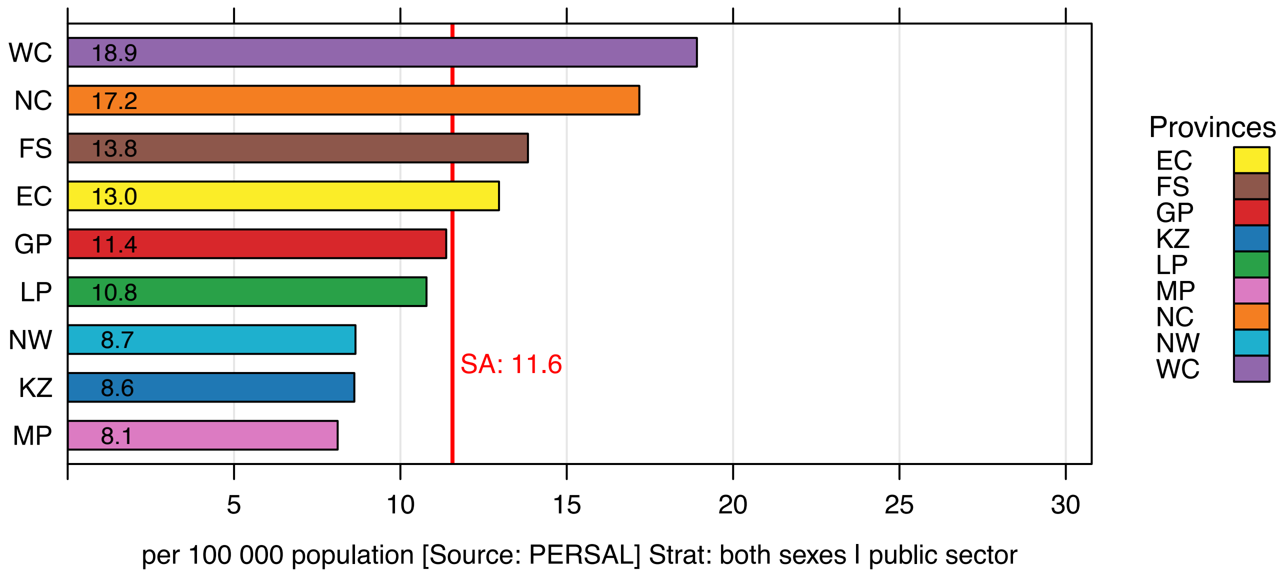
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
EC	3,2	3,5	4,3	5,7	6,3	6,5	6,7	8,8	9,7	10,4	11,4	13
FS	4	3,9	4,7	7,9	11,6	11,9	12,9	14,8	13,4	13,3	13	13,8
GP	3,8	3,6	9,5	10,5	11,2	11,3	11,5	11,6	11,5	11,8	11,5	11,4
KZ	4,8	4,5	4,3	5,7	6,6	7,5	7,8	8,3	8,3	8,2	8,4	8,6
LP	4,8	4,5	6,2	7,2	7,7	8,4	8,5	9,8	10,6	10,4	10,9	10,8
MP	4	3,9	8,4	10	5,7	6,4	7,5	7,6	8	7,9	8,1	8,1
NC	4,5	5,9	9,1	11,2	12,8	12,8	14,5	15,9	14,9	16,6	17,9	17,2
NW	3,6	3,8	4,3	5,3	5,7	6,4	7,5	7,5	7,4	7,7	8,1	8,7
WC	8,2	8,3	16,2	17,2	17,6	18,9	19,4	20	18,8	18,6	18,5	18,9
ZA	4,5	4,5	7,2	8,6	9,1	9,8	10,2	11	10,9	11	11,2	11,6

Source: PERSAL.

Provincial overview

In March 2019, the Western Cape had the highest ratio for number of pharmacists per 100 000 uninsured population at 18.9, followed by the Northern Cape at 17.2 per 100 000 (Figure 7). There was a 2.3-fold difference between the province with the highest ratio and the province with the lowest ratio, namely Mpumalanga at 8.1 per 100 000 uninsured population. Figure 8 shows that between 2008 and March 2019, the most growth in the number of pharmacists per 100 000 population was in the Northern Cape (from 4.5 to 17.2), followed by the Western Cape (from 8.2 to 18.1). The least growth was in KwaZulu-Natal (from 4.8 to 8.6) and Mpumalanga (from 4.0 to 8.1 per 100 000).

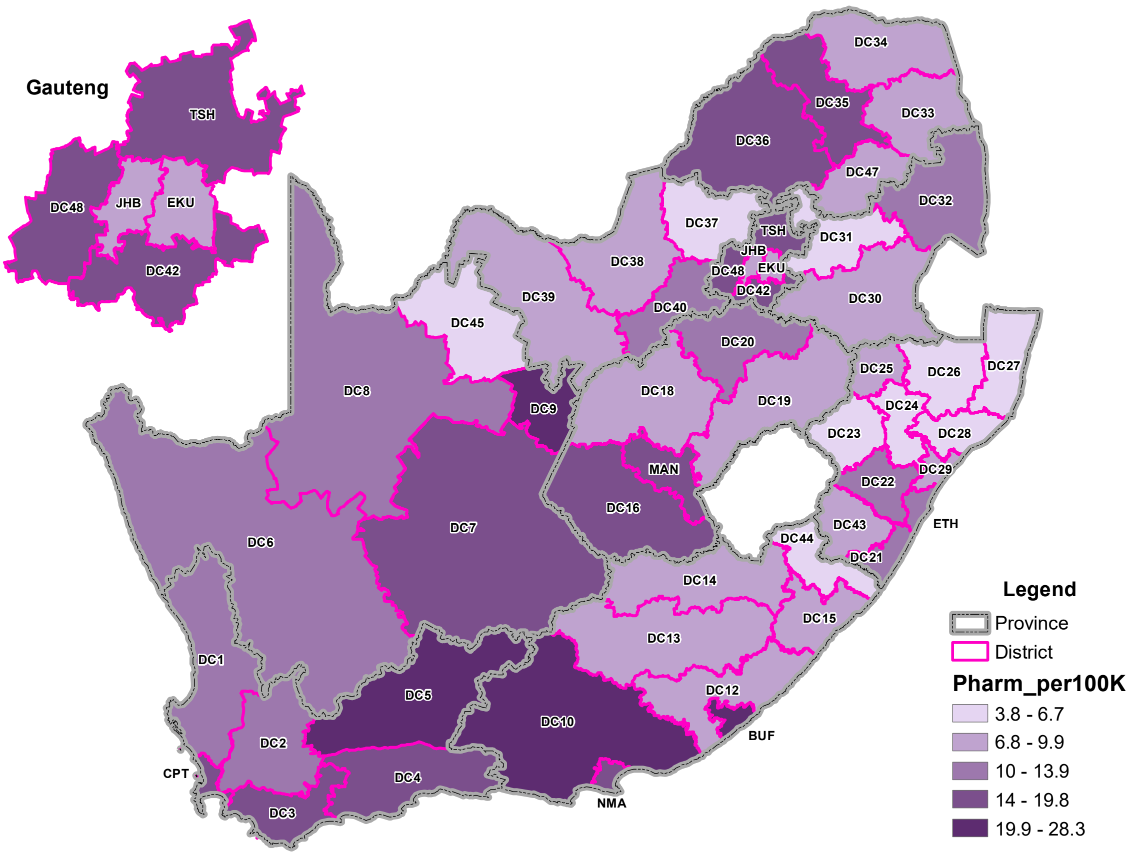
Figure 7: Pharmacists (public sector) per 100 000 uninsured population by province, March 2019



District overview

In March 2019, the Central Karoo (WC) had the highest ratio of pharmacists per 100 000 uninsured population among the districts at 28.0, and Alfred Nzo (EC) the lowest ratio at only 4.1 (Figure 8 and Map 3). There was a 6.8-fold difference between the districts, much higher than the provincial ratio difference of 2.3 between the highest and lowest provincial ratios. Only 22 districts (42.3% of the districts) exceeded the national ratio for pharmacists per 100 000 of 11.6.

Map 3: Pharmacists (public sector) per 100 000 uninsured population by district, March 2019



Source: PERSAL.

Figure 8: Pharmacists (public sector) per 100 000 uninsured population by district, March 2019

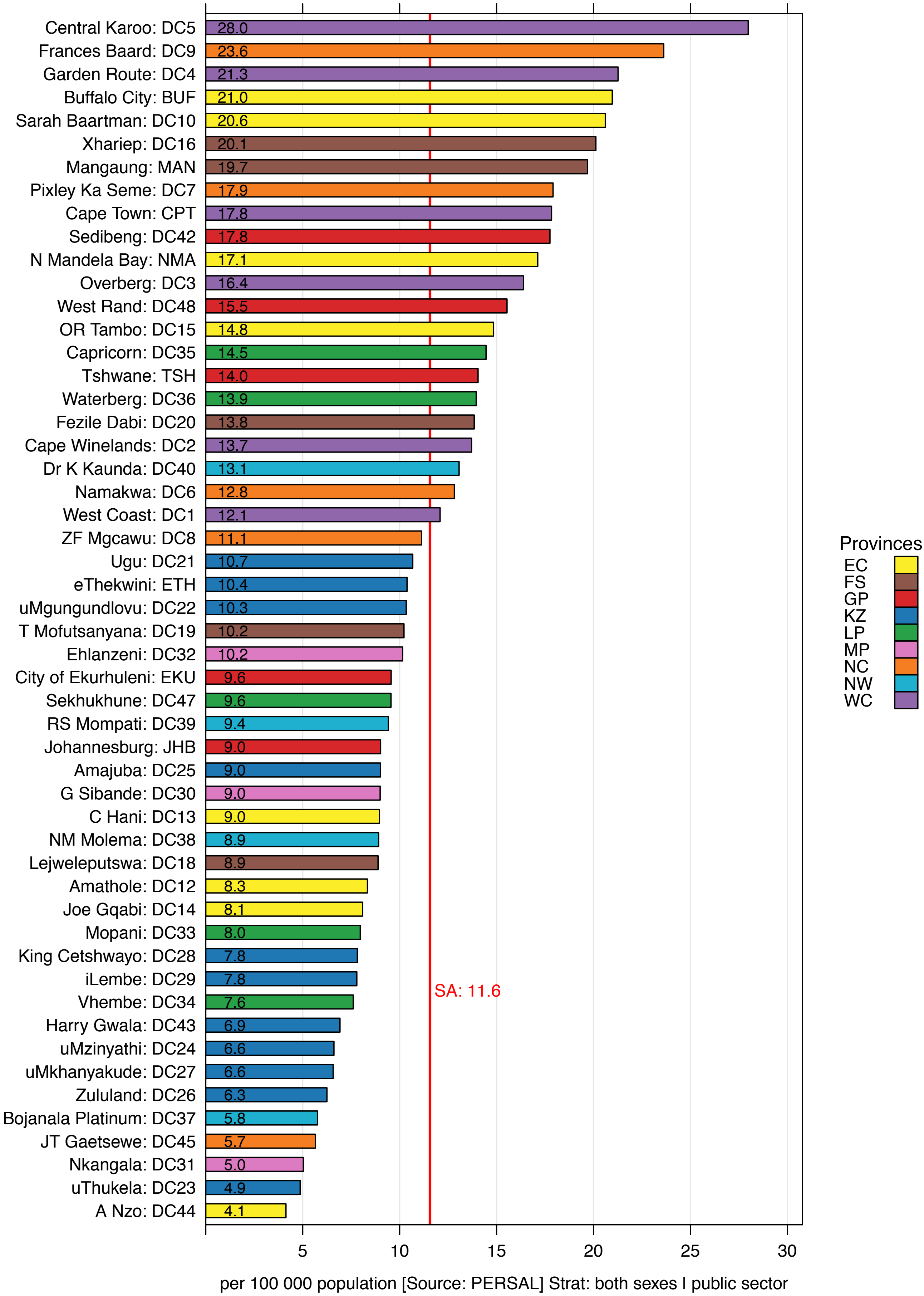
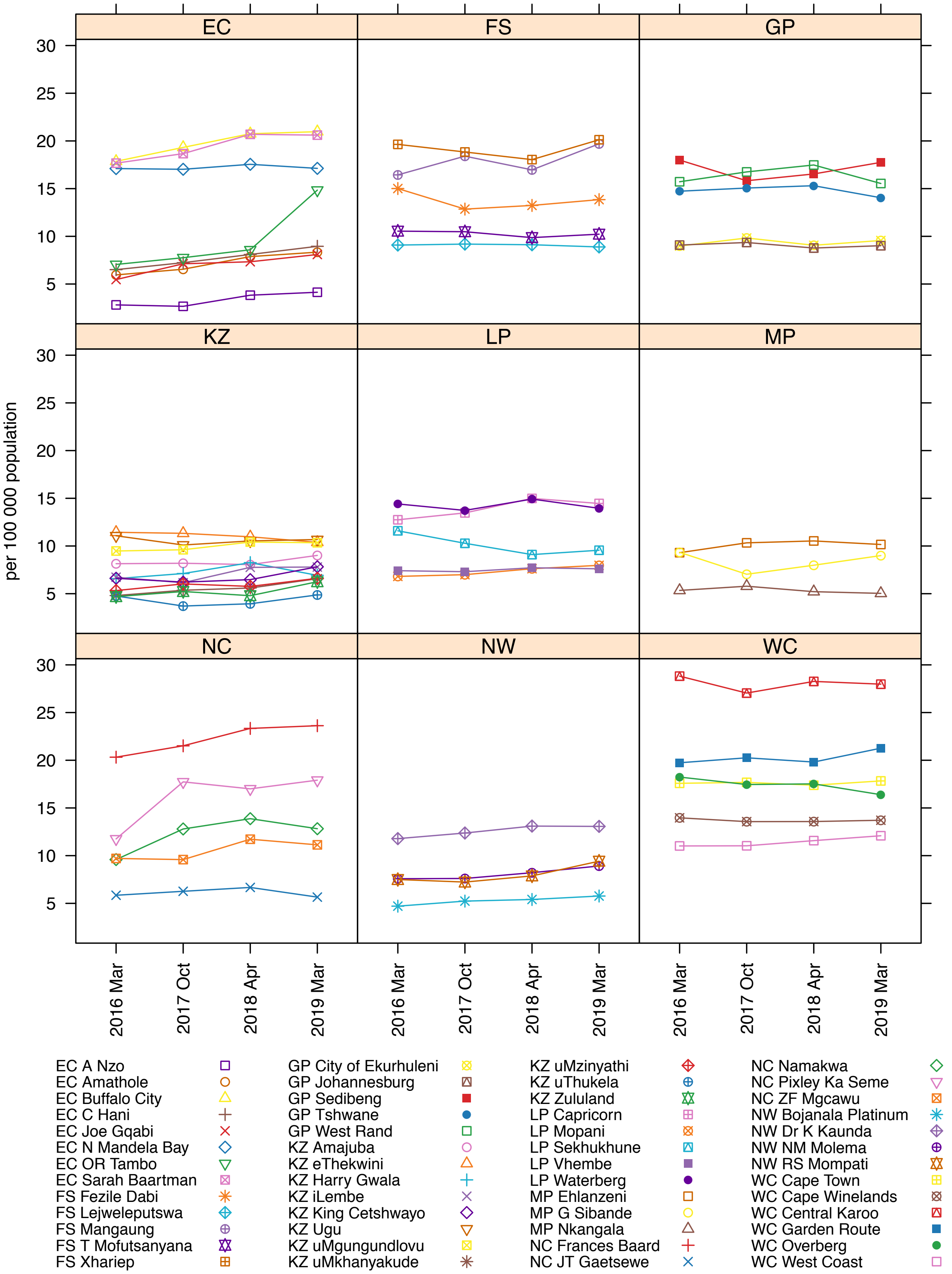


Figure 9 shows the annual trends by district for pharmacists per 100 000 uninsured population between 2016 and 2019. OR Tambo (EC) showed an increase in ratio from 8.6 in 2018 to 14.8 in March 2019. As with medical practitioners and professional nurses, there were intra-provincial deviations, but ratios remained relative stable for the majority of the districts, with the exception of OR Tambo.

Figure 9: Annual trends of the number of pharmacists (public sector) per 100 000 uninsured population by district, 2016 - 2019



Source: PERSAL.

Key findings

- The ratio values for medical practitioners, professional nurses, and pharmacists in South Africa fall short compared with the ratio values in the UHC framework needed to ensure that countries are on track to meet SDG targets.[c]
- At national level, the number of medical practitioners per 100 000 uninsured population grew from 26.0 in 2008 to 32.0 in March 2019, while the number of professional nurses grew from 116.7 to 144.8, and the number of pharmacists increased from 4.5 to 11.6 over the same period.
- Growth in the number of medical practitioners per 100 000 uninsured population varied from one province to the other, with the Northern Cape showing the highest growth (from 28.1 in 2008 to 42.2 per 100 000), and KwaZulu-Natal the least growth (from 33.1 to 35.8).
- Across the 52 districts, the density of medical practitioners per 100 000 uninsured population ranged from 97.6 in Francis Baard to 9.4 in John Taolo Gaetsewe (both NC), a 10.4-fold difference.
- In March 2019, the national ratio for professional nurses per 100 000 uninsured population was 144.8; this figure has grown steadily over time, from 116.7 in 2008 to 144.8 in March 2019. Outliers of 151.4 and 151.3 per 100 000 were observed in 2014 and 2015 respectively.
- The Eastern Cape had the highest number of professional nurses at 170.9 per 100 000 uninsured population, followed closely by KwaZulu-Natal (168.5) and Limpopo (165.2). These provinces are predominantly rural. The Free State was the most poorly resourced province with regard to provisioning of professional nurses, at 89.7 per 100 000 uninsured population.
- Except for Mpumalanga, the number of professional nurses per 100 000 uninsured population remained relatively stable between 2012 and March 2019. Over this period the ratio in Mpumalanga increased from 119.7 to 142.1 per 100 000. In March 2019, the number of professional nurses per 100 000 was lower than in 2012 in two provinces, namely the Free State and Western Cape.
- In March 2019, the number of professional nurses per 100 000 uninsured population across districts ranged from 254.2 in Buffalo City (EC) to 60.2 in Thabo Mofutsanyana (FS).
- The national ratio for pharmacists per 100 000 uninsured population has grown steadily, from 4.5 in 2008 to 11.6 in March 2019.
- In March 2019, the Western Cape had the highest number of pharmacists per 100 000 uninsured population at 18.9 per 100 000. There was a 2.3-fold difference between the province with the highest ratio and the province with the lowest ratio, namely Mpumalanga at 8.1 per 100 000 uninsured population.
- In March 2019, the Central Karoo (WC) had the highest ratio of pharmacists per 100 000 uninsured population among the districts (28.0), and Alfred Nzo (EC) had the lowest ratio at only 4.1, resulting in a 6.8-fold difference. This is much higher than the 2.3-fold difference provincially.
- As with medical practitioners and professional nurses, there were intra-provincial deviations but the ratio per district remained relatively stable, except in OR Tambo (EC) where there was an increase in the pharmacist per 100 000 uninsured population from 8.6 in 2018 to 14.8 in March 2019.

Conclusions

- Ensuring an adequate health workforce is a critical requirement in the achievement of UHC. For National Health Insurance to succeed, weaknesses in health workforce policy planning, management, and development must be addressed, and there must be strategic investment in this area. Gradual increase in health worker densities for the abovementioned health worker categories serving the uninsured population over the past 10 years is commendable, but insufficient.
- Based on the above appraisal, there is ongoing need for investment in the production and deployment of health workers, including medical practitioners, professional nurses and pharmacists, to improve availability and access to services and achieve SDG and UHC goals by 2030.

Recommendations

- Several challenges remain critical, namely mechanisms to increase the number of health workers produced; implementation of effective retention strategies; and ensuring a more equitable distribution of this resource across provinces and districts.
- In-depth analyses of health workforce trends are needed to obtain greater understanding of the extent of health worker requirements in the country and supply-and-demand forces at play, informed by evidence. For instance, it would be useful to consider the growth in number of these categories over time against population growth. Inclusion of other health workforce categories in the analyses would also be important to provide a more complete picture of health provisioning in the sector.

- Current limitations in the availability of good-quality health workforce data must be addressed urgently.
- Variations continue to manifest across provinces and districts, reflecting the need to focus deliberately on improving geographical inequalities in HR planning and investment.
- The long-term recommendations of the Human Resources for Health Strategy should be implemented.[d]

6. Universal health coverage index at district level

Noluthando Ndlovu, Candy Day, Andy Gray, Annibale Cois

A key health-related component of the 2030 Sustainable Development Goals (SDGs) is the delivery of universal health coverage (UHC), which requires that all people receive quality, effective health services without significant financial strain.[a] Delivering UHC has therefore become a key global health priority,[b] underscoring the commitment to the right to health as grounded in international human rights laws.[c] Monitoring progress towards the attainment of SDG 3.8 is based on two high-level indicators:[d]

- Indicator 3.8.1: Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health (RMNCH); infectious diseases; non-communicable diseases; and service capacity and access; among the general and the most disadvantaged population).
- Indicator 3.8.2: Proportion of population with large household expenditure on health as a share of total household expenditure or income.

Hogan et al.[e] have developed a UHC service coverage index to monitor the extent of essential health services coverage, based on 16 tracer measures (some of which are proxies of service coverage). Advice on application of the proposed index has also been provided by the World Health Organization (WHO).[f] Importantly, Hogan et al. state that the chosen tracer indicators are not a comprehensive measure of service coverage, but are a useful summary, in that they deliver a single numerical value to depict the extent of the coverage of essential health and health-related services.[e] Development of the index was based on four guiding principles:

- The index should cover the main health areas listed in SDG 3.8.1.
- Where possible, measures of effective service coverage (see Box 1) should be selected.
- The index should encompass the full spectrum of essential health interventions, including prevention, promotion, treatment, rehabilitation and palliative care.
- The index should enable disaggregation by key dimensions of inequality.

However, it was acknowledged that because of lack of data, it is not always possible to calculate the UHC service coverage index across all key dimensions of inequality. Furthermore, unless health interventions are designed in ways that promote health equity, efforts to achieve UHC may lead to improvements in the national average of service coverage while inequalities persist or even worsen in parallel.[g]

a World Health Organization. Primary Health Care on the Road to Universal Health Coverage: 2019 Global Monitoring Report. Geneva: WHO; 2019.

b Barasa E, Nguhiu P, McIntyre D. Measuring progress towards Sustainable Development Goal 3.8 on universal health coverage in Kenya. BMJ Glob Health. 2018;3(3):e000904.

c Abiiro GA, De Allegri M. Universal health coverage from multiple perspectives: a synthesis of conceptual literature and global debates. BMC Int Health Hum Rights. 2015;15:17.

d Boerma JT, Evans D, Kieny M-P, Eozenou P, Evans T, Wagstaff A. Monitoring progress towards universal health coverage at country and global levels. Framework, measures and targets. Geneva: World Health Organization and The World Bank; 2014.

e Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. December 2017. Available from: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30472-2/..

f World Health Organization. SDG Indicators: Metadata repository 3.8.1: United Nations; 2019 [updated May 2018]. Available from: https://unstats.un.org/sdgs/metadata/.

g World Health Organization, International Bank for Reconstruction and Development/World Bank. Tracking Universal Health Coverage: 2017 Global Monitoring Report. Geneva: WHO and International Bank for Reconstruction and Development/World Bank; 2017.

Box 1: Key measurement concepts for effective service coverage

- **Tracer indicators** are a subset of indicators chosen to represent overall coverage. They are not necessarily fully representative of a recommended basket of services but enable the breadth of health services to be captured in a measurable way.
- **Proxy indicators** are used where data on indicators of effective service coverage or service coverage are unavailable. However, they are not direct measures of service coverage, effective or otherwise, e.g. the prevalence of non-smoking of tobacco is a proxy for effective coverage measures to reduce tobacco use.
- **Service coverage** refers to the proportion of people in need of a service who receive it, regardless of the quality of that service.
- **Effective service coverage** is defined as the proportion of people in need of services who receive services of sufficient quality to obtain potential health gains.

Source: WHO/World Bank.[g]

Data sources

As part of a broader effort to explore trends in the UHC service coverage index over time at sub-national level in South Africa, an extensive database was compiled using suggested and alternative indicators from multiple data sources. The data were extracted from a variety of sources that included periodic surveys conducted between 1998 and 2018, routine health service delivery data captured between the 2000/01 and 2018/19 financial years, and modelled data, as shown in Table 1. Tables 2 and 3 provide detail on how the South African index was constructed, and the rescaling or adjustment methods applied. A district-level index was calculated for 2016/17, as this was the only time period for which data were available across the whole basket of indicators. Consequently, although more recent data are available for some indicators, they could not be included in the index calculation. In order to calculate the index, the maximum value was taken for each data point between 2016 and 2017.

Table 1: Data sources used for the South African UHC service coverage index calculation

Major periodic surveys	Routine data	Modelled data
Census	District Health Information Software (DHIS)	Thembisa model of the South African HIV epidemic (Thembisa 4.2)
South Africa Demographic and Health Survey (SADHS)	Public personnel and salary (PERSAL) system	South African National Health and Nutrition Examination Survey (SANHANES)
Community survey (CS)	National Department of Health (NDoH) records	SADHS
General Household Survey (GHS)	Electronic Tuberculosis and HIV Register (TIER.Net)	DHIS
South African National HIV Prevalence, Incidence, Behaviour and Communication Surveys (SABSSM)		
National Income Dynamics Study (NiDS)		
SANHANES		

Calculation of the UHC service coverage index

The 16 tracer indicators included in the UHC service coverage index proposed by Hogan et al. cover the four categories listed in SDG 3.8.1, namely RMNCH; infectious diseases; non-communicable diseases (NCDs); and service capacity and access. The geometric mean of the indicators is calculated for each category. The final UHC service coverage index is the geometric mean of the values for each category score. The UHC service coverage index is presented on a scale of 0-100, with 100 being the optimal value.[h] Where possible, the index measures quality through the estimation of effective coverage.

h The Lancet. Ensuring and measuring universality in UHC. Lancet. 2019;393(10166):1.

Table 2 shows the 15 indicators incorporated into the South African UHC service coverage index. The malaria service coverage indicator was excluded, as bed-nets are not provided in South Africa, so no measure of service coverage could be calculated.

Table 2: Calculating the South African UHC service coverage index

Service area category	Tracer area	Tracer indicator	Type	Index calculation
RMNCH	UHC1: Family planning (FP)	Couple year protection rate (%)	Effective service coverage	RMNCH = (FP * PDC * Imm * CT)$^{1/4}$
	UHC2: Pregnancy and delivery care (PDC)	Antenatal 1st visit coverage before 20 weeks (%)	Service coverage	
	UHC3: Child immunisation (Imm)	Immunisation under 1 year coverage (%)	Service coverage	
	UHC4: Child treatment (CT -Pneumonia)	Pneumonia case fatality under 5 years rate (%)	Service coverage	
Infectious diseases	UHC5: Tuberculosis (TB) treatment	TB effective treatment coverage (%)	Effective service coverage	Infectious = (TB * HIV * WASH)$^{1/3}$
	UHC6: Human immunodeficiency virus (HIV) treatment	Antiretroviral effective coverage (%)	Service coverage	
	UHC7: Malaria (excluded)	-	-	
	UHC8: Water and sanitation (WASH)	% of households with access to improved sanitation	Service coverage	
NCDs	UHC9: Prevention of cardiovascular disease (Blood pressure (BP)	Prevalence of non-raised blood pressure regardless of treatment status	Proxy	NCD = (BP * Diab * CervCA * Tobacco)$^{1/4}$
	UHC10: Management of diabetes (Diab)	Percentage of people with diabetes receiving treatment	Proxy	
	UHC11: Cancer detection (Cervical cancer (CervCA)	Cervical cancer screening coverage (%)	Service coverage	
	UHC12: Tobacco control (Tobacco)	Adults aged at least 15 years who had not smoked tobacco in the previous 30 days	Proxy	
Capacity	UHC13: Facility access (Beds)	Hospital beds per 10 000 target population	Proxy	Capacity = (Beds * HWD * Meds * IHR)$^{1/4}$
	UHC14: Health worker density (HWD)	Health worker density	Proxy	
	UHC15: Access to essential medicines (Meds)	Proportion of health facilities with essential medicines	Proxy	
	UHC16: Health security (International Health Regulations (IHR)	Environmental health services compliance rate	Proxy	
Index	UHC service coverage index	-	-	UHC index = (RMNCH * Infectious * NCD * Capacity)1/4

Source: Adapted from Hogan et al.[e] * = multiply, $^{1/4}$ is the exponent - i.e. the four indicators multiplied together, raised to the power of a quarter (or 0.25), $^{1/3}$ is the exponent i.e. the three indicators multiplied together, raised to the power of a third (or 0.33).

Although most tracer indicators could be used directly in their natural scale, some indicators required that the data be transformed before the index could be calculated. Table 3 lists the data sources used to compute the district level UHC service coverage index, as well as the transformations that were used to arrive at the value for each tracer indicator. Specifically, Table 3 shows the difference between the indicators proposed by Hogan et al. and the alternatives relied on in South Africa, which allowed disaggregation to district level. Where possible, effective service coverage alternatives were used. The data sources relied on are listed in square brackets.

Table 3: Indicator and data source options for a sub-national South African UHC index

	Index indicator (global)	Alternative for regular sub-national (district level) indicators
UHC1	Demand satisfied with modern methods in women aged 15 - 49 years who are married or in a union (%)	Couple year protection rate [DHIS] Rescaled to cap values at 100. Missing values set to 1. Calculated as: sum of (oral contraceptive pill cycles /15), (medroxyprogesterone injection /4), (norethisterone enanthate injection /6), (intrauterine contraceptive device x 4.5), (sub-dermal implant x 2.5), (male condoms distributed /120), (female condoms distributed /120), (male sterilisation x 10) and (female sterilisation x 10).
UHC2	Four or more visits to antenatal care (ANC) (%)	Antenatal 1st visit before 20 weeks rate [DHIS] Index calculated using ANC 1st visit coverage (cap values at 100%) multiplied by the 1st visits before 20 weeks' gestation rate (equivalent to ANC 1st visits before 20 weeks divided by the estimated number of pregnant women (for which the proxy is the population under 1 year x factor of 1.15)).
UHC3	Children aged 1 year who have received three doses of a diphtheria, tetanus, and pertussis vaccine (%)	Immunisation under 1 year coverage [DHIS] Rescaled to cap values at 100. Missing values set to 1.
UHC4	Care-seeking behaviour for children with suspected pneumonia (%)	Pneumonia case fatality under 5-years rate (index) [DHIS] After removing four outlier values in four different districts, a smoothed estimate of the pneumonia case fatality rate (CFR) under 5-years was computed using a generalised additive model with thin-plate splines. The WHO advice on rescaling a continuous measure is to apply the formula: index = (max risk value - original value)/(max risk - min risk) x 100.
UHC5	Tuberculosis effective treatment coverage (%)	TB effective treatment coverage calculated using: Case detection rate (all forms): national figure only Drug-sensitive TB treatment success rate (TIER.Net).
UHC6	People with HIV receiving antiretroviral therapy (%)	Antiretroviral effective coverage (people living with HIV (PLHIV), on treatment and virally suppressed) calculated using these two data elements: Total number living with HIV, on treatment, with viral load suppressed at 12 months (TIER.Net) Total PLHIV Estimates for PLHIV were derived by a modelling and triangulation methodology described in DHB 2017/18.[g]
UHC7	Population at risk who sleep under insecticide-treated bed-nets (%)	Not measured in South Africa (as insecticide-treated bed-nets are not routinely provided), so excluded.
UHC8	Households with access to at least basic sanitation (%)	Households with access to improved sanitation [Census, CS] This includes the number of households with access to: flush to piped sewer system, flush to septic tank, flush/pour flush to pit, flush/pour flush to elsewhere.
UHC9	Prevalence of non-raised blood pressure regardless of treatment status (%)	Prevalence of non-raised blood pressure regardless of treatment status, age-standardised [NiDS] The prevalence values were age-standardised using Statistics South Africa's (Stats SA) population estimates from Census 2011. The index was rescaled to obtain finer resolution across districts, using the formula: index = (original value - minimum)/(100 - minimum) x 100.
UHC10	Mean fasting plasma glucose (mmol/l) / age-standardised mean fasting plasma glucose for adults aged 25 years and older	Diabetes treatment coverage [NiDS, using predictor information of diabetes prevalence from SADHS, SANHANES] Estimates were generated using a machine learning model that was trained with SADHS 2016 data to predict individual probability of being diabetic using demographic data (age, gender, race), bio-behavioural characteristics (body mass index, waist circumference, current smoking), self-reported previous diagnosis, and use of medication. The model was then applied to data from each NiDS 'wave' to estimate the prevalence at sub-national level by averaging the predicted probabilities of being diabetic for the individuals in each district and adjusting for the imperfect sensitivity and specificity of the predictive model. The sampling design of the survey was taken into account in the procedure. The proportion of patients with diabetes receiving treatment was directly estimated from self-reported data, and treatment coverage was calculated as the ratio between the population proportion of treated cases and diabetes prevalence. A smooth variation over time was assumed for both prevalence of diabetes and treatment coverage within each district, and final yearly estimates were generated by fitting a series of generalised linear models.
UHC11	Cervical cancer screening in women aged 30 - 49 years (%)	Cervical cancer screening coverage [DHIS] Rescaled to cap values at 100. Missing values set to 1.
UHC12	Adults aged at least 15 years who had not smoked tobacco in the previous 30 days (%)	Adults aged at least 15 years who had not smoked tobacco in the previous 30 days [NiDS]

	Index indicator (global)	Alternative for regular sub-national (district level) indicators
UHC13	Number of hospital beds per person	Hospital bed density (beds per 10 000 target population) [DHIS, uninsured population estimates] Uninsured population estimates were generated using a small area model based on the 2011 Census and 2016 Community Survey, and scaled using the 2018 General Household Survey and the Council for Medical Schemes data.[i] The total number of public sector hospital beds per district was used. Rescaled using the proposed target of 18 beds per 10 000 population, as x/18 x 100, >18 per 10 000 = 100, cap index at 100.
UHC14	Number of health professionals per person: comprising physicians, psychiatrists, and surgeons	Health worker density [PERSAL, uninsured population estimates] PERSAL data were used to calculate the index values based on the number of medical practitioners, professional nurses and pharmacists employed in the public sector using the methodology proposed by the Global Burden of Disease 2017 SDG Collaborators.[j] Their method calculates health worker density using the geometric mean of scaled scores for each cadre, with thresholds of 30 physicians, 100 nurses and midwives, and 5 pharmacists per 10 000 population.
UHC15	Proportion of health facilities with availability of the WHO-recommended core list of essential medicines	Proportion of health facilities with essential medicines [DHIS] Rescaled as the inverse of the tracer items stock-out rate in fixed clinics/community health centres (CHCs) or community day centres (CDCs): (100-tracer stock-out). Values <0 set to 1 tracer items stock-out rate (fixed clinic/CHC/CDC).
UHC16	International Health Regulations core capacity index	Environmental health services compliance rate [NDoH] The NDoH has set national environmental health services (EHS) norms and standards that municipalities should adhere to in rendering EHS. The quality of EHS rendered is measured using these norms and standards.

This chapter provides the South African UHC service coverage categories and the resultant index per district for 2016/17, based on the methodology proposed by Hogan et al.[e] and adapted using the alternative approaches listed above.

Reproductive, maternal, newborn and child health indicators

UHC1: Family planning

The first indicator for the UHC service coverage index covers family planning; it was initially proposed that this indicator measure the percentage of family planning demand satisfied with a modern method among women aged 15 - 49 years who are married or in a union. In the DHIS, a more sensitive measure of the contraceptive prevalence rate is provided by the couple year protection rate (CYPR). It is important, though, to note that the CYPR cannot distinguish between single method and dual method use. Condoms are therefore assumed to be used alone, and not in combination with another method, leading to a possible over-estimation of the proportion of couples protected.

In 2016/17, Limpopo (LP) had the highest CYPR in South Africa, followed by the Western Cape (WC) and KwaZulu-Natal (KZ), while the Northern Cape (NC), North West (NW) and Gauteng (GP) had the lowest rates. The five best-performing districts were located across the provinces, namely Waterberg (LP), Sedibeng (GP), Fezile Dabi (Free State (FS)), uMzinyathi (KZ) and Central Karoo (WC). Notably, most of the districts in the Western Cape were among the 10 top-performing districts for this indicator, with the sole exceptions of West Coast and Cape Town. The worst-performing district for this indicator was Alfred Nzo in the Eastern Cape (EC).

UHC2: Pregnancy and delivery care

The initial measure proposed for this indicator was the percentage of births attended by skilled health personnel. However, due to differences in the measurement of this indicator across countries, Hogan et al. used the percentage of women attending four or more ANC visits instead. The proxy measure that can be calculated from DHIS data, which incorporates a measure of quality of care, is the index of pregnant women who attend ANC before 20 weeks' gestation. Other alternative measures available from the DHIS for this indicator are ANC 1st visit coverage, and delivery in facility rate; however these indicators are less sensitive to considerations of quality.

Nationally, only half of pregnant women attended their first ANC visit before 20 weeks' gestation at public health facilities, which potentially indicates that pregnant women are still experiencing barriers in accessing antenatal care.

i Modelling done by Daniel Shapiro, Insight Actuaries.

j Lozano R, Fullman N, Abate D, et al. Measuring progress from 1990 to 2017 and projecting attainment to 2030 of the health-related Sustainable Development Goals for 195 countries and territories: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2018;392(10159):2091-138.

Mpumalanga (MP), Northern Cape and Western Cape had the highest coverage of pregnant women accessing ANC before 20 weeks' gestation, while the Eastern Cape had the poorest coverage.

Overberg (WC), Ehlanzeni (MP) and Xhariep (FS) were the best-performing districts for this indicator. It was also interesting to note that Waterberg (LP) was among the top five best-performing districts, even though it is located in Limpopo where 80% of people live in rural areas and have to travel long distances, at significant expense, to reach treatment and care.[k] Alfred Nzo (EC) was the worst-performing district. Generally, the Eastern Cape districts were the worst-performing districts, which is alarming considering that ANC visits provide an opportunity for pregnant mothers to access care for other conditions that could have an adverse impact on their health and that of their unborn babies. Late attendance for ANC also contributes to increased foetal, maternal and infant morbidity and mortality,[l] which could be a contributing factor in the poor RMNCH outcomes recorded in the Eastern Cape.

UHC3: Child immunisation

As a measure of child immunisation coverage, Hogan et al. used the percentage of children aged under 1 year who had received three doses of diphtheria, tetanus and pertussis (DTP) vaccine, whether administered as such or as part of a polyvalent vaccine. However, it was decided to calculate the South African index on the basis of the immunisation coverage under 1 year with the full Expanded Programme on Immunisation (EPI) regimen in place at that point in time. This option was relied on in line with the global trend towards tracking multiple antigens.[e,j] This option also eliminated the challenge of tracking DPT3 coverage using routine data, as changes in vaccine composition can lead to different data elements being collected in facilities over time.[m]

The highest immunisation coverage for children under 1 was in the Northern Cape, followed closely by Mpumalanga. The two provinces with the lowest coverage were the Eastern Cape and North West. Coverage for children under 1 was highest in two Northern Cape districts (Zwelentlanga Fatman Mgcawu and John Taolo Gaetsewe), two KwaZulu-Natal districts (eThekwini and uMzinyathi), and one in Mpumalanga (Ehlanzeni). Although immunisation coverage was lowest in most districts in the Eastern Cape (with Sarah Baartman, Nelson Mandela Bay and Amathole the worst-performing districts), coverage was relatively good in OR Tambo and, surprisingly, in Alfred Nzo district. The latter was the worst-performing district in the preceding RMNCH indicators.

UHC4: Child treatment

It was proposed that the initial measure of child treatment be care-seeking behaviour for children with suspected pneumonia.[e] Pneumonia is a leading cause of child illness and death. However, the chosen measure for inclusion in the South African index was the rescaled pneumonia case fatality rate (CFR) for children under 5 years of age, as this is a routine data alternative that is a proxy for pneumonia treatment access in children. The pneumonia CFR under 5 years is defined as the number of pneumonia deaths in children under 5 years as a proportion of pneumonia separations under 5 years in health facilities. Pneumonia separations refers to the sum of inpatient deaths, inpatient discharges and inpatient transfers among children under 5 years of age diagnosed with pneumonia. Consequently, it is only a measure of deaths in children admitted to a health facility. Any children who succumb to pneumonia outside of health facilities will not be included. Nonetheless, this measure is a proxy for the measure initially proposed, and incorporates a quality element in that it measures the ultimate endpoint of access to treatment.

The rescaled pneumonia case fatality under 5 years rate ranged from a high value of 98.8 in the Western Cape to a low of 89.3 in the Eastern Cape. Despite being rescaled in relation to the maximum recorded value, there was little variability in this indicator between provinces in 2016/17, since CFRs have decreased dramatically across most of the country over the past 15 years or so that this measure has been tracked. The performance of this indicator is quite sensitive to the dataset selection as this determines the maximum risk value used for rescaling. The Western Cape districts (West Coast, Overberg, Cape Winelands, Cape Town and Garden Route) were among the top five best-performing districts for this indicator. Capricorn (LP), OR Tambo (EC) and Fezile Dabi (FS) were among the worst performers.

UHC service coverage index for the RMNCH category

Figure 1 shows that overall, the five top-performing districts for the RMNCH category were: Overberg (WC), Ehlanzeni (MP), uMzinyathi (KZ), Xhariep (KZ) and Waterberg (LP). The majority of poor-performing districts overall were from the Eastern Cape (Alfred Nzo, Nelson Mandela Bay, Joe Gqabi, Amathole and Buffalo City). Two other metropolitan areas among the worst-performing districts were Tshwane (GP) and Mangaung (FS). Generally, the Eastern Cape has been noted for poor performance in RMNCH, so these results were not surprising. One of the key drivers of poor health outcomes in the RMNCH

k Treatment Action Campaign. State of Provincial Healthcare System: Spotlight on Limpopo. Johannesburg: TAC; 2018.

l Kaswa R, Rupesinghe GFD, Longo-Mbenza B. Exploring the pregnant women's perspective of late booking of antenatal care services at Mbekweni Health Centre in Eastern Cape, South Africa. Afr J Prim Health Care Fam Med. 2018;10(1):e1-9.

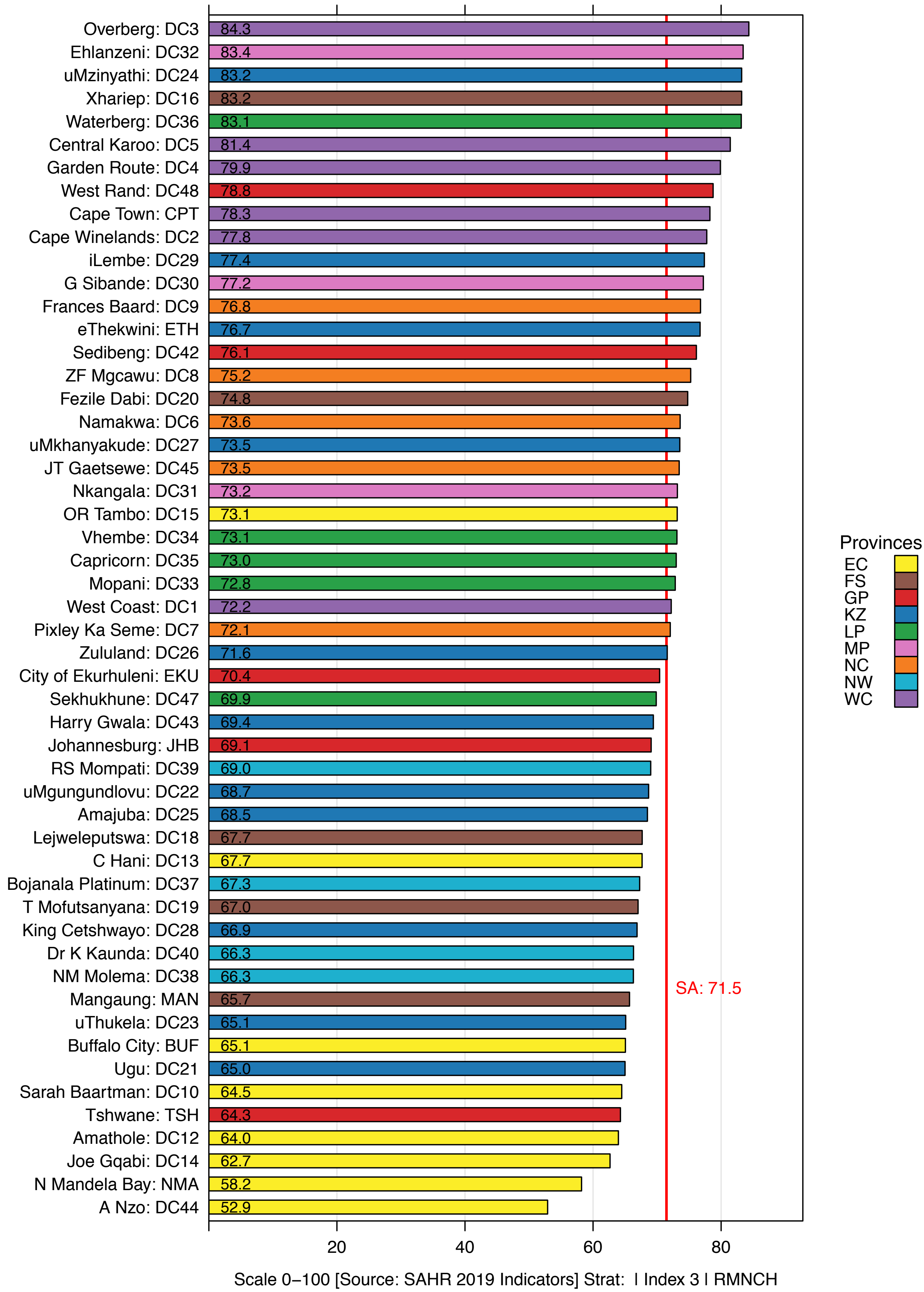
m Dlamini NR. Immunisation. In: Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; 2018.

indicators in the Eastern Cape has been poor quality of care, which leads to late presentation of pregnant women at health facilities.[n] In addition to poor quality care, other drivers of maternal deaths in the Eastern Cape have been linked to lack of transport to get to facilities and also the long distances required to reach transport or the facility, which leads to late or delayed presentation at the health facility. The additional costs of transportation to the facility that many women cannot afford have also been noted as a contributing factor, especially in the rural areas where the roads are in poor condition and there are also high levels of poverty and poor infrastructure.[o]

n Lembani M, de Pinho H, Delobelle P, Zarowsky C, Mathole T, Ager A. Understanding key drivers of performance in the provision of maternal health services in Eastern Cape, South Africa: a systems analysis using group model building. BMC Health Serv Res. 2018;18(1):912.

o Available from: http://muhaz.org/the-26th-conference-on-priorities-in-perinatal-care-in-south-a.html.

Figure 1: UHC service coverage index by district for the RMNCH category, 2016 - 2017



Infectious diseases

UHC5: TB treatment

The 5th UHC indicator measures TB effective treatment coverage by combining the case detection rate and the treatment success rate to estimate the proportion of TB cases that are detected and successfully treated. However, the case detection rate cannot be measured routinely from patient data. There is currently only a single national estimate of the case detection rate (68%), based largely on expert opinion.[p] The treatment success rate captured on the electronic TB register for drug-sensitive TB was used. Drug-resistant TB treatment outcomes should ideally be considered too, but were excluded from the current index, as different treatment periods and regimens make it problematic to combine data from separate treatment cohorts.

There was very little variation between the provinces in terms of TB effective treatment coverage, with the index value for all provinces being in the 50s. The best performance was evident in Gauteng, followed by the Eastern Cape, while the poorest performances were recorded in the Northern Cape and North West.

uMgungundlovu (KZ) was the best-performing district for this indicator, followed by OR Tambo (EC), uMzinyathi (KZ), West Rand (GP) and Chris Hani (EC). The best-performing metro, which was among the 10 top-performing districts, was Johannesburg (GP). However, the two worst-performing districts (uThukela and Amajuba) were also in KwaZulu-Natal, indicating considerable differences in TB treatment outcomes in this province.

UHC6: HIV treatment

The indicator proposed by Hogan et al. for UHC6 was the percentage of PLHIV who are receiving antiretroviral therapy (ART). For the South African index, a better indicator of effective service coverage is the percentage of PLHIV on ART who are virally suppressed.

Although a positive upward trend has been observed for this indicator in South Africa, indicative of the vast resources and efforts that have been put into the world's largest national ART programme, the number of PLHIV who are on ART and virally suppressed is still below target values. Limpopo was the best-performing province, followed closely by Mpumalanga, while the poorest performances were recorded in Gauteng and North West. The 2017 South African National HIV Prevalence, Incidence, Behaviour and Communication Survey reported that of all PLHIV in the country, 62.3% were on ART, which translates to 4.4 million people. In terms of viral load suppression, the viral load results were available for 2 946 PLHIV in this survey, of whom 62.3% were virally suppressed. In terms of the 90-90-90 targets, in the 15 - 65-year age group almost 85% of PLHIV knew their status (first 90) at the time the survey was conducted, and 70.6% of them were on ART as well (second 90). Of those on ART, 87.5% were virally suppressed (third 90).[q] Interestingly, the values presented in this survey are substantially higher than those reported in TIER.Net and Thembisa. Possible reasons for the differences in values with TIER.Net could include the following:

- Although the denominator in TIER.Net is the total PLHIV, the numerator only includes public sector viral suppression records.
- Incomplete reporting, as noted in the study done in Khayelitsha,[r] would affect the numerator as it only reflects patients recorded in the system.
- Viral suppression at 12 months may be more restrictive than a cross-sectional measure in a survey.

Compared with the 2017 South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, the best-performing districts were Overberg (WC), Mopani (LP), Thabo Mofutsanyana (FS), Ehlanzeni (MP) and Namakwa (NC), while the survey recorded that viral load suppression was above 90% in the following five districts: Cape Town (WC), Sedibeng (GP), uMzinyathi (KZ), King Cetshwayo (KZ) and the West Rand (GP).[r]

The three worst-performing districts were Frances Baard (NC), Central Karoo (WC) and Ngaka Modiri Molema (NW), followed by the worst-performing metro, namely Ekurhuleni (GP). The worst-performing districts in the survey were Ehlanzeni (MP), Gert Sibande (MP) and eThekwini (KZ).

UHC7: Malaria prevention

This indicator measures the percentage of the population at risk who sleep under insecticide-treated bed-nets. The indicator cannot be measured in South Africa, as bed-nets are not provided routinely. South Africa has a low incidence and

p World Health Organization. Global Tuberculosis Report 2018. Geneva: WHO; 2018.

q Simbayi L, Zuma K, Zungu N, et al. South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017. Cape Town: HSRC Press; 2019.

r Euvrard J, Schulz T, Hilderbrand K, et al. How accurately do routinely reported HIV viral load suppression proportions reflect progress towards the 90-90-90 target in the population on antiretroviral treatment in Khayelitsha, South Africa? S Afr Med J. 2019;109(3):174-7.

prevalence of malaria. Although only three provinces (KwaZulu-Natal, Limpopo and Mpumalanga) have malaria-endemic areas, imported cases are notified from other provinces.[s]

UHC8: Water and sanitation

The motivation for including this tracer indicator, initially proposed as the percentage of households with access to basic sanitation, is the link between poor water, sanitation and hygiene and increased risk of diarrhoeal diseases.[t] In South Africa, an indicator based on the percentage of households with access to improved sanitation (defined as access to a flush toilet (whether connected to piped sewers, a septic tank or a pit latrine), a ventilated improved pit latrine, a pit latrine with a slab, or a composting toilet) is collected by Stats SA via periodic surveys (Census, intercensal Community Surveys and annual General Household Surveys). The most recent data source for this indicator at district level was available from the intercensal Community Survey conducted in 2016. An upward trend in the number of households using chemical toilets has been observed in South Africa.[u]

The Western Cape had the highest percentage of households with access to improved sanitation, followed by Gauteng. These are also the least-deprived provinces in the country.[v] A higher proportion of toilet facilities are located in formal dwellings than in traditional or informal dwellings,[v] which could be a contributing factor to the lowest access to improved sanitation being observed in the largely rural Limpopo province.

The best-performing districts were predominantly from the Western Cape, with Johannesburg (GP) rounding off the top five. The worst-performing areas were dominated by districts in KwaZulu-Natal (iLembe, uMkhanyakude, Zululand and Harry Gwala). The two worst-performing districts were Sekhukhune (LP) and Ehlanzeni (MP), which have large rural populations. Across Africa, poor access to improved sanitation is a feature of under-developed rural areas.[w]

UHC service coverage index for the infectious diseases category

Overall, the UHC service coverage index for the infectious diseases category was highest in Overberg (WC), as illustrated in Figure 2, and lowest in Sekhukhune (LP). The majority of districts in KwaZulu-Natal performed poorly in this category, with Zululand, Harry Gwala, iLembe, Amajuba and uThukela among the 10 worst-performing districts in the country.

s Raman J, Morris N, Frean J, et al. Reviewing South Africa's malaria elimination strategy (2012-2018): progress, challenges and priorities. Malar J. 2016;15:438. doi: 10.1186/s12936-016-1497-x.

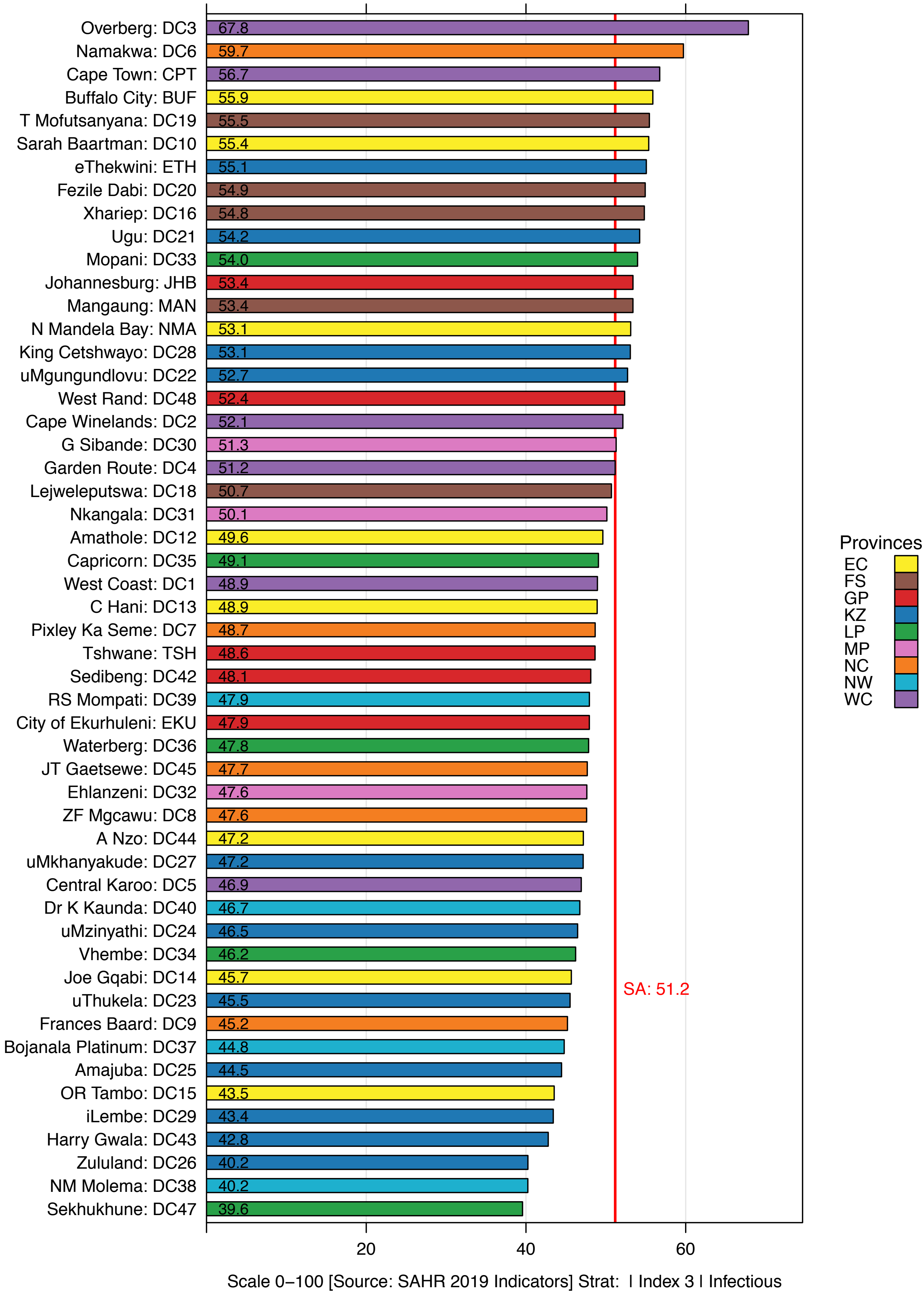
t Winter S, Dzombo MN, Barchi F. Exploring the complex relationship between women's sanitation practices and household diarrhea in the slums of Nairobi: a cross-sectional study. BMC Infect Dis. 2019;19(1):242.

u Statistics South Africa. Community Survey 2016. Statistical Release P0301. Pretoria: Stats SA; 2016.

v Noble M, Zembe W, Wright G, Avenell D. Multiple Deprivation and Income Poverty at Small Area Level in South Africa in 2011. Cape Town: Southern African Social Policy Research Institute and Southern African Social Policy Research Insights (SASPRI); 2013.

w Angoua E, Dongo K, Templeton MR, Zinsstag J, Bonfoh B. Barriers to access improved water and sanitation in poor peri-urban settlements of Abidjan, Côte d'Ivoire. PloS One. 2018;13(8):e0202928. doi:10.1371/journal.pone.0202928.

Figure 2: UHC service coverage index by district for the infectious diseases category, 2016 - 2017



Non-communicable diseases

UHC9: Prevention of cardiovascular disease

One of the leading risk factors for cardiovascular disease is uncontrolled hypertension.[a] The proposed proxy measure of service coverage was therefore the prevalence of non-raised blood pressure, regardless of treatment status, expressed as a percentage. In South Africa, there has been an increase in the prevalence of hypertension, and in addition, too few hypertensive cases are controlled on treatment.[x] The tracer indicator for the South African index was calculated from the only South African source that provides blood pressure measurements at district level, namely the 'waves' of NiDS, age-standardised and then rescaled in relation to the lowest recorded value.

The index value for non-raised blood pressure was highest in Mpumalanga (70) and lowest in the Northern Cape (50). The Western Cape and Free State were among the worst-performing provinces for this indicator. Analysis of the five waves of the NiDS showed that there was an increase in the prevalence of non-raised blood pressure across districts, with the variability between districts enhanced by the rescaled index. The index for non-raised blood pressure was highest in Sedibeng (GP), followed by Ehlanzeni (MP) and Capricorn (LP). The districts in three provinces (Northern Cape, Western Cape and Free State) ranked the worst for this indicator and included Zwelentlanga Fatman Mgcawu (NC), Cape Winelands (WC), Overberg (WC), Namakwa (NC), West Coast (WC), Xhariep (FS) and Mangaung (FS). The only district among the worst-performing districts that was from a different province was Joe Gqabi (EC). The best-performing metro was Tshwane (GP).

UHC10: Management of diabetes

Similarly to hypertension, there has been a dramatic increase in the prevalence of diabetes in sub-Saharan Africa, with an alarmingly high percentage of people with undiagnosed diabetes.[y] A very high percentage of diabetics with unmet need for care has also been demonstrated in the South African population.[z] The proposed tracer indicator for the management of diabetes is calculated from the age-standardised mean fasting plasma glucose value in those aged 25 years and older, which is a proxy for both diabetes prevalence and control. However, the South African index was based on modelled diabetes treatment coverage, based on predicted probabilities of prevalence per district, and the ratio between the population proportion of treated cases and diabetes prevalence.

The index value for diabetes treatment coverage was generally quite low for most provinces, with the highest coverage recorded in the Northern Cape and the lowest coverage observed in the Free State. Diabetes treatment coverage was highest in Sedibeng (GP) and two of the three districts (Nkangala and Ehlanzeni) in Mpumalanga. The best-performing metro was Ekurhuleni (GP), while both Buffalo City and Nelson Mandela Bay in the Eastern Cape were among the worst-performing. West Rand (GP) had the lowest diabetes treatment coverage index, with a number of districts in KwaZulu-Natal (uMzinyathi, iLembe, King Cetshwayo, uMgungundlovu, uMkhanyakude, and Ugu) among the worst performers overall.

UHC11: Cancer detection

Cervical cancer screening coverage is the only indicator included in the core indicator data set of the NCD Global Monitoring Framework.[g] The data used for calculation of this tracer indicator are routinely captured in DHIS as the proportion of women who have had a cervical screening test (regardless of the method used), defined as the number of cervical screening tests performed as a proportion of one-tenth of the female population aged 30 years and older. After the introduction of the Cervical Cancer Prevention and Control Policy[aa] in 2017, which states that women should have three cervical smears done at 10-yearly intervals in a lifetime, starting at the age of 30 years, and three-yearly intervals if they are diagnosed with HIV, the data element definition was amended to accommodate this implementation. Consequently the definition now includes the following smears as part of cervical cancer screening coverage, which could result in the current measure being an inaccurate representation of coverage:

- Smears done on HIV-positive women.
- Smears done during antenatal care.
- Smears done during postnatal care.
- Diagnostic smears.

KwaZulu-Natal's cervical cancer screening coverage was significantly higher than that of the other provinces, with a coverage index of over 90, which is likely to be the result of the high incidence of women with HIV as HIV-positive women are screened more regularly as per the Cervical Cancer Prevention and Control Policy.[aa] The second and third best-performing

x Day C, Groenewald P, Laubscher R, Chaudhry S, Van Schaik N, Bradshaw D. Monitoring of non-communicable diseases such as hypertension in South Africa: challenges for the post-2015 global development agenda. S Afr Med J. 2014;104(10):680-7.

y Hird TR, Pirie FJ, Esterhuizen TM, et al. Burden of diabetes and first evidence for the utility of HbA1c for diagnosis and detection of diabetes in urban Black South Africans: The Durban Diabetes Study. PLoS One. 2016;11(8):e0161966.

z Stokes A, Berry KM, McHiza Z, et al. Prevalence and unmet need for diabetes care across the care continuum in a national sample of South African adults: Evidence from the SANHANES-1, 2011-2012. PLoS One. 2017;12(10):e0184264.

aa Massyn N, Pillay Y, Padarath A, editors. District Health Barometer 2017/18. Durban: Health Systems Trust; 2018.

provinces had a coverage index in the 70s. Among the poor-performing provinces were the Northern Cape, Gauteng and Free State. Eight of the 11 districts in KwaZulu-Natal were among the 10 top-performing districts for this indicator, with the exception of Zululand, uMgungundlovu and eThekwini. The other two districts in the top 10 were Ehlanzeni (MP) and Xhariep (FS). The majority of districts (four of five) in the Northern Cape were among the worst performers in the country, with Frances Baard performing the worst in the country.

UHC12: Tobacco control

The prevention of lung cancer through tobacco control is the final indicator in the NCD category and it is a proxy of the adoption and enforcement of anti-tobacco policies.[g] The proposed indicator is the age-standardised prevalence of adults (15 years and older) who report not having smoked tobacco in the 30 days preceding a survey. Data for this indicator are not available from routine sources. Consequently, the index was calculated from the five waves of NiDS.

The highest percentage of adults who had not smoked in the previous 30 days was recorded in Limpopo (87.9%), followed closely by KwaZulu-Natal (87.2%) and the Eastern Cape (83.4%). These data partially support the finding that the most frequent tobacco users in South Africa are those who live in predominantly urban areas.[bb] The prevalence of non-smoking was lowest among adults in the Northern Cape, Western Cape and Gauteng.

Among the best-performing districts were uMkhanyakude, Zululand, King Cetshwayo and uMzinyathi (all KZ) and Sekhukhune (LP). A large number of districts from the Western Cape were among the worst-performing districts, including Central Karoo, West Coast, Overberg, Garden Route and Cape Winelands. Namakwa (NC) was the worst-performing district for this indicator. Zwelentlanga Fatman Mgcawu (NC), Pixley Ka Seme (NC), and Sarah Baartman (EC) were also among the worst-performing districts.

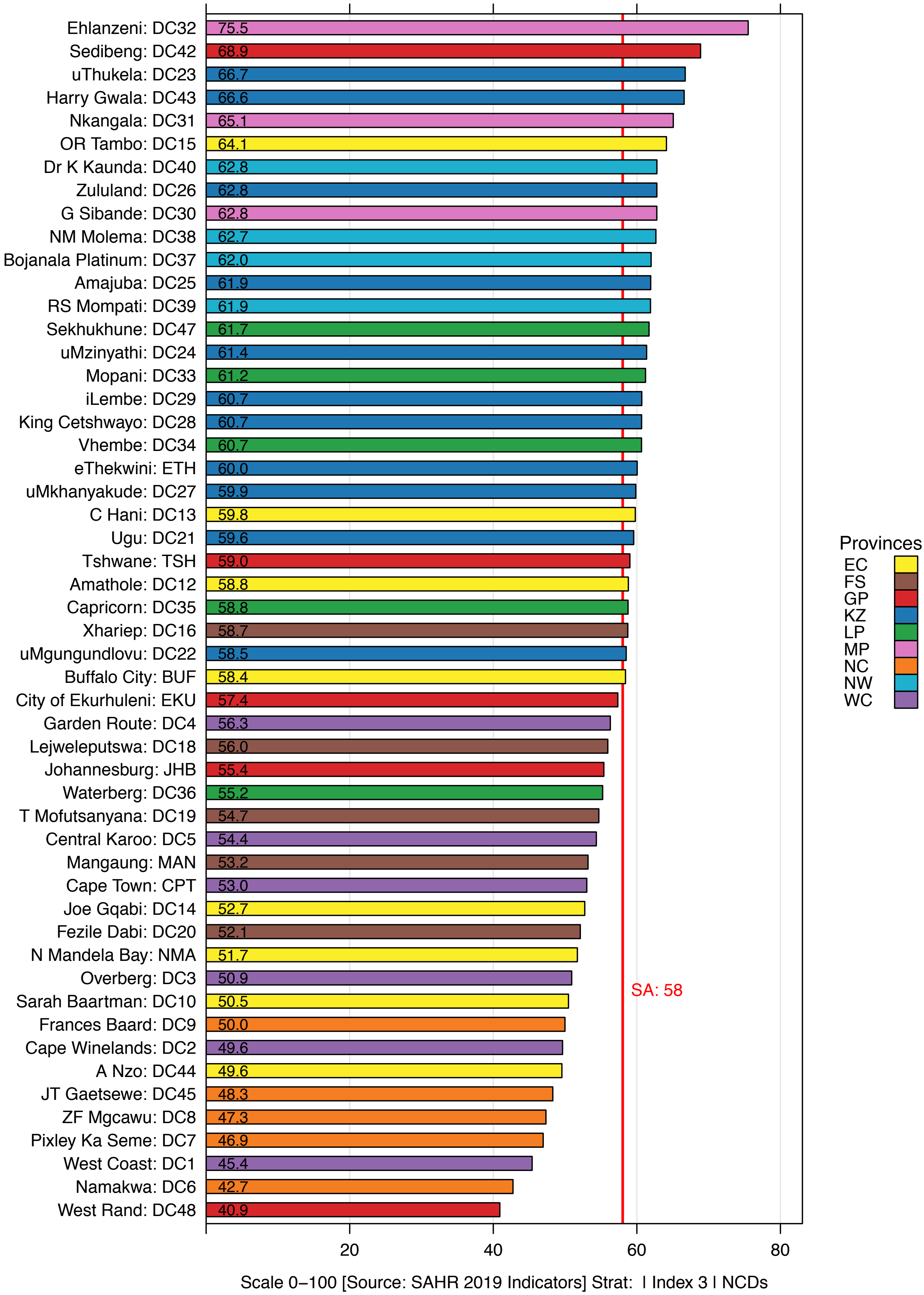
UHC service coverage index for the NCD category

The burden of NCDs has been increasing rapidly, not only globally but specifically in sub-Saharan African countries. South Africa was found to be one of four countries in sub-Saharan Africa with higher age-standardised mortality rates due to NCDs than wealthier countries with a higher income.[cc] Overall, the districts in the Northern Cape were among the worst performers in the NCD category in South Africa (Figure 3). Ehlanzeni (MP), Sedibeng (GP), uThukela (KZ), Harry Gwala (KZ) and Nkangala (MP) were among the five best-performing districts overall in the NCD category. Mpumalanga appears to be doing relatively well at managing NCDs, as all three of its districts were among the top 10 performers. OR Tambo (EC) was the best-performing district, while eThekwini (KZ) was the best-performing metro overall.

bb Teare JA, Naicker N, Albers P, Mathee A. Prevalence of tobacco use in selected Johannesburg suburbs. S Afr Med J. 2017;108(1):40-44. Available from: http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0256-95742018000100013&lng=en. http://dx.doi.org/10.7196/samj.2018.v108i1.12283.

cc Essel V, van Vuuren U, De Sa A, et al. Auditing chronic disease care: Does it make a difference? Afr J Prim Health Care Fam Med. 2015;7(1).

Figure 3: UHC service coverage index by district for the NCD category, 2016 - 2017



Service capacity and access

UHC13: Facility access

The first indicator in the service capacity and access category is a proxy measure, namely the number of hospital beds per 10 000 population. The index is calculated relative to a threshold value of 18 hospital beds per 10 000 population. This measure is likely to be skewed in some districts due to the presence of regional and central hospitals. Although located in a particular district, such hospitals serve patients from many districts or even from different provinces. Additionally, the inclusion of private-sector beds would skew the index, as private hospitals are typically located only in major urban areas. Consequently, for South Africa, a more sensitive measure might be the number of public sector district hospital beds per 10 000 uninsured population. Nonetheless, for the South African index, the total number of public sector hospital beds was used, normalised by a modelled estimate of the uninsured population per district, generated using a small area model based on the 2011 Census and 2016 Community Survey, and scaled using the 2018 General Household Survey and the Council for Medical Schemes data. The threshold of 18 hospital beds per 10 000 population was applied, as proposed by Hogan et al. The ideal clinic facility measures could also be a potentially more discriminating routine data alternative for this tracer indicator in future as they are based on quality-improvement processes, especially once ideal measures are available for hospitals as well as PHC facilities.

The calculated hospital bed density index was 100 (i.e. met or exceeded the threshold of 18 hospital beds per 10 000 population) for six of the nine provinces, and was also 100 for 22 of the 52 districts in South Africa. Furthermore, the hospital bed density was over 90 for 27 districts, which is approximately half of all districts in the country. The three provinces with the lowest hospital bed density indices were Mpumalanga, North West and Limpopo. The worst-performing districts were Bojanala (NW), Xhariep (FS), Nkangala (MP), Overberg (WC), and John Taolo Gaetsewe (NC). All the metropolitan areas apart from Ekurhuleni (GP) had hospital bed density indices of 100.

UHC14: Health worker density

The defined indicator for the second service capacity and access category is the number of health professionals per person, combining the numbers of physicians, psychiatrists and surgeons. It is not possible to calculate this index, as access to the numbers of specific medical specialists is difficult. As a result, it was decided to follow the advice of the GBD 2017 SDG Collaborators, and calculate the index on the basis of the thresholds of 30 physicians, 100 nurses and midwives, and five pharmacists per 10 000 population. Public sector (PERSAL) data were therefore combined with modelled estimates of uninsured population per district, since information on professionals in private practice is not available at district level. Like many countries, South Africa has a reported shortage of skilled health workers. There are also marked differences in the distribution of health workers between the public and private sector, and between rural and urban populations.[dd,ee]

Health worker density index values were highest in the Northern Cape, Western Cape and Gauteng, and lowest in the North West, Mpumalanga and Free State. The two best-performing districts (Frances Baard (NC) and Buffalo City (EC)) and the two worst performers (Alfred Nzo (EC) and John Taolo Gaetsewe (NC)) were all from the Northern Cape and Eastern Cape.

UHC15: Access to essential medicines

The proposed indicator is described as the proportion of health facilities with availability of the WHO-recommended core list of essential medicines. Globally, there are still insufficient data to measure this indicator, with less than 30 countries having the required primary data.[a] The alternative measure for the South African index, which is routinely captured in the DHIS, is defined as the proportion of primary care facilities (fixed clinics, CHC/CDCs) that experienced a stock-out of any tracer item for any time during the period under review. The index is expressed as the rescaled inverse of the stock-out proportion.

Among the provinces, the best-performing province was North West, followed by the Western Cape and KwaZulu-Natal. Among the worst-performing provinces were Limpopo and Free State. The top five best-performing districts were Overberg (WC), Namakwa (NC), Zwelentlanga Fatman Mgcawu (NC), Central Karoo (WC), and Cape Winelands (WC). The best-performing metro was Buffalo City (EC), while the worst-performing metro was Mangaung (FS). The worst-performing districts were from either Limpopo or the Free State. These were Vhembe (LP), Fezile Dabi (FS), Mopani (LP), Lejweleputswa (FS) and Sekhukhune (LP). Vhembe district recorded a very low index value of only 28.7, which was almost half of the next lowest value (54.8) in Fezile Dabi.

dd Anyangwe SC, Mtonga C. Inequities in the global health workforce: the greatest impediment to health in sub-Saharan Africa. Int J Environ Res Public Health. 2007;4(2):93-100. doi:10.3390/ijerph2007040002

ee Essack S. Models for increasing the health workforce. S Afr Med J. 2012;102(11): 830-2. doi:10.7196/SAMJ.5779.

UHC16: Health security

The last UHC service coverage index covers health security, and it is proposed that it be based on the IHR core capacity index. The data for this indicator include 13 core capacities, covering national legislation, policy and financing; co-ordination and National Focal Point communications; surveillance; response; preparedness; risk communication; human resources; laboratory; points of entry; zoonotic events; food safety; chemical events; and radio-nuclear emergencies. However, the data for this indicator are only available at national level. In order to calculate a district-level index, the South African index relied on the environmental health services compliance rate. The environmental health services rate is measured according to a set of minimum service delivery standards that must be met by a municipality in order for it to be deemed to be compliant with the set national norms and standards. The NDoH used an assessment tool divided into five domains related to clients' rights, operational management, facility and infrastructure, leadership and co-operative governance, and operations.[ff]

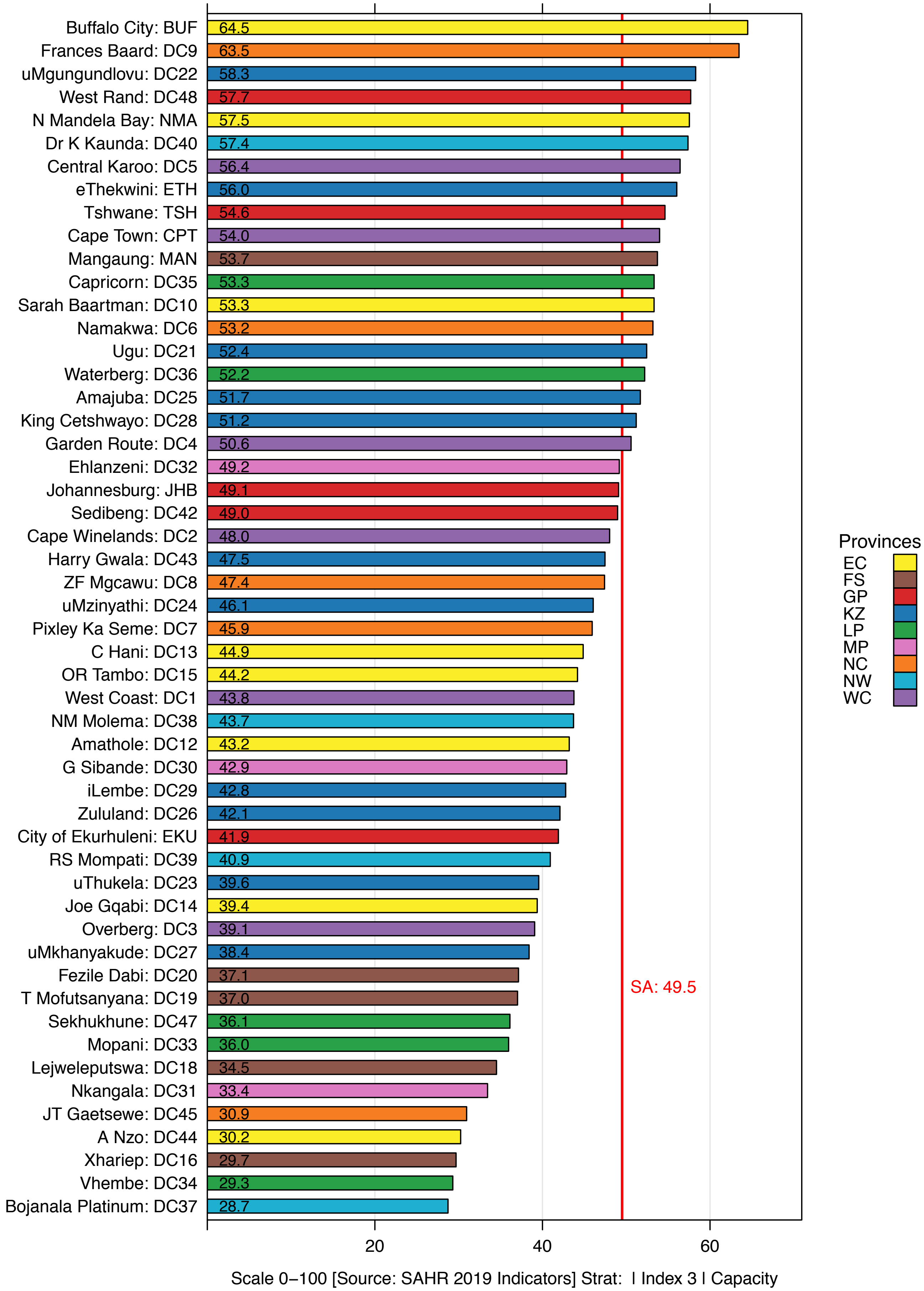
The province with the highest environmental health services compliance rate was the Free State, followed by Gauteng and North West. The worst-performing provinces were Limpopo, the Northern Cape and KwaZulu-Natal. There was quite a high range in the environmental health services compliance rate among the districts, with the best-performing district, Harry Gwala, with a rate of 91, and the worst-performing district, uMkhanyakude, with a rate of only 22 (both KZ). In addition to Harry Gwala, Sedibeng (GP), Pixley Ka Seme (NC), Thabo Mofutsanyana (FS), Dr K Kaunda (NW), Xhariep (FS), Sekhukhune (LP), eThekwini (KZ), West Coast (WC), and Ngaka Modiri Molema (NW) were the best-performing districts. The other poor-performing districts were Frances Baard (NC), Waterberg (LP), Dr Ruth Segomotsi Mompati (NW), Amajuba (KZ), Mopani (LP) and Zwelentlanga Fatman Mgcawu (NC). Nelson Mandela Bay (EC) was the worst-performing metro.

UHC service coverage index for the service capacity and access category

Buffalo City (EC) was the best-performing district overall with regard to the service capacity and access category (Figure 4). Other high-performing districts in this category were Frances Baard (NC), uMgungundlovu (KZ), West Rand (GP), and Nelson Mandela Bay (EC). Bojanala Platinum (NW) was the worst performer, trailed closely by Vhembe (LP), Xhariep (FS), Alfred Nzo (EC) and John Taolo Gaetsewe (NC). The Free State districts were generally among the poorest performers, with the exception of Mangaung.

ff Massyn N, Peer N, Padarath A, Day C, editors. District Health Barometer 2016/17. Durban: Health Systems Trust; 2017.

Figure 4: UHC service coverage index by district for the service capacity and access category, 2016 - 2017



Overall UHC service coverage index

Calculated on the basis of the four category indices as proposed by Hogan et al., the overall UHC service coverage index per country ranged from 22 to 86, with a global median of 65. Hogan et al. reported a value of 67 for South Africa.[e] The adapted South African UHC service coverage index calculated here returned a lower value of 56.9, mostly due to the inclusion of more effective coverage indicators.

The Western Cape and KwaZulu-Natal had the best UHC index value of 58.8 among the provinces, while Limpopo and North West had the worst values, at 53.7 and 53.8 respectively. Among the districts, the best UHC index value of 62.0 was observed in Ehlanzeni (MP) (Figure 5), while the worst index value of 44.0 was measured in Alfred Nzo (EC). The top five best performers were dominated by three metropolitan areas, namely eThekwini (KZ), Buffalo City (EC), and Cape Town (WC), with Sedibeng (GP) completing the top-five list. Among the worst performers were John Taolo Gaetsewe (NC), Bojanala Platinum (NW), Joe Gqabi (EC), Vhembe (LP), and Sekhukhune (LP).

Overall, the following tracer indicators had higher index values, as shown in Table 4, for the UHC service coverage index at both provincial and district level:

- Couple year protection rate.
- Immunisation under 1 year coverage.
- Pneumonia case fatality under 5 years rate (rescaled).
- Tobacco non-smoking prevalence.
- Hospital bed density.
- Proportion of health facilities with essential medicines.

The RMNCH category had higher index values (Table 5), indicating higher service coverage for the interventions in this category, while the service access and capacity category had lower scores overall. This was particularly driven by the very poor health worker density index. The issue of health worker shortages in South Africa is well known, and human resources for health play a critical role in the effective delivery of health services.

Another indicator that demands increased attention is effective antiretroviral coverage (Table 5). Although South Africa has committed considerable resources to the treatment of HIV, many patients are still not virally suppressed.

Diabetes treatment coverage had the lowest index values in the NCD category (Table 5), which is particularly troubling given the disease burden attributable to this condition.[gg] Effective management of diabetes requires sustained clinical care, which has proved difficult in countries with limited capacity that is largely oriented to managing episodic communicable diseases.[hh]

gg Manne-Goehler J, Atun R, Stokes A, et al. Diabetes diagnosis and care in sub-Saharan Africa: pooled analysis of individual data from 12 countries. Lancet Diabetes Endocrinol. 2016;4(11):903-12.

hh Erzse A, Stacey N, Chola L, Tugendhaft A, Freeman M, Hoffman K. The direct medical cost of type 2 diabetes mellitus in South Africa: a cost of illness study. Glob Health Action. 2019;12(1):1636611.

Figure 5: UHC service coverage index at district level

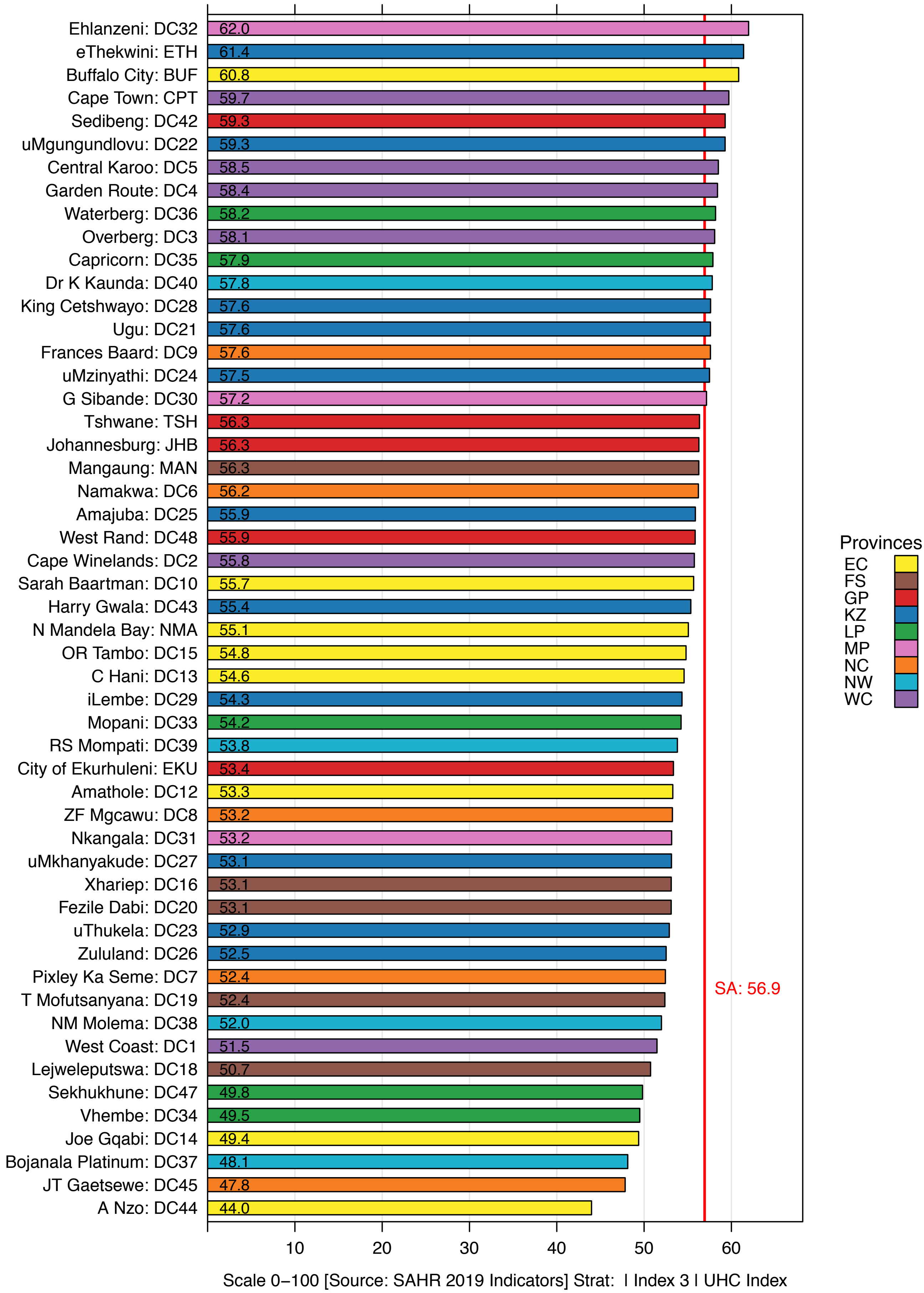


Table 4: UHC service coverage indicators for each tracer indicator

			2016 & 2017														
			RMNCH				Infectious			NCDs				Capacity			
			1	2	3	4	5	6	8	9	10	11	12	13	14	15	16
Geo Level	Prov	Area	Couple y..	Antenat..	Immunis..	Pneumo..	Tubercul..	Antiretr..	Percenta..	Prevalen..	Diabetes..	Cervical ..	Tobacco ..	Hospital ..	Health w..	Proporti..	Environ..
Nat.		ZA : South Africa	70	51	77	94	56	32	76	60	37	64	81	100	15	82	63
Province	EC	EC : Eastern Cape	74	38	68	89	57	30	74	61	36	64	83	100	15	83	62
	FS	FS : Free State	67	49	71	93	55	37	79	54	33	55	80	100	13	65	76
	GP	GP : Gauteng	60	53	77	93	57	25	89	63	38	52	79	100	15	87	71
	KZ	KZ : KwaZulu-Natal	74	51	81	93	56	36	65	57	35	91	87	100	15	88	59
	LP	LP : Limpopo	85	54	70	91	55	39	52	67	33	57	88	81	15	58	55
	MP	MP : Mpumalanga	71	66	90	91	56	38	60	70	40	78	82	73	12	85	64
	NC	NC : Northern Cape	60	63	91	94	52	27	79	50	47	43	67	100	19	88	57
	NW	NW : North West	60	52	69	91	54	26	65	61	45	70	80	80	12	98	66
	WC	WC : Western Cape	81	55	81	99	55	34	94	53	34	58	69	100	16	96	63
District	EC	BUF : Buffalo City MM	72	41	64	96	58	35	86	56	29	92	78	100	27	100	66
		DC10 : Sarah Baartman ..	71	43	57	98	52	39	84	51	35	58	63	100	16	95	70
		DC12 : Amathole DM	92	33	60	93	58	35	60	62	30	76	86	100	9	95	54
		DC13 : C Hani DM	89	36	70	92	60	32	62	60	34	75	83	100	12	77	59
		DC14 : Joe Gqabi DM	71	37	64	92	54	28	64	45	37	56	83	86	11	65	60
		DC15 : OR Tambo DM	82	49	85	83	61	22	61	69	41	67	89	98	13	68	60
		DC44 : A Nzo DM	43	29	74	86	53	27	72	69	26	38	88	65	5	85	71
		NMA : N Mandela Bay MM	68	32	58	90	54	30	93	51	30	57	80	100	21	90	57
	FS	DC16 : Xhariep DM	83	68	87	98	54	35	89	46	34	97	79	30	12	72	84
		DC18 : Lejweleputswa DM	71	49	65	92	54	28	85	56	36	60	80	80	9	60	73
		DC19 : T Mofutsanyana ..	62	48	72	94	55	45	68	62	33	55	82	69	9	78	86
		DC20 : Fezile Dabi DM	100	48	77	83	54	36	84	49	36	53	80	86	11	55	68
		MAN : Mangaung MM	60	46	70	95	55	35	79	46	44	50	79	100	22	70	70
	GP	DC42 : Sedibeng DM	100	49	76	89	55	22	92	86	73	49	74	86	15	93	88
		DC48 : West Rand DM	90	56	82	93	60	27	88	59	10	64	73	100	20	96	61
		EKU : City of Ekurhuleni ..	57	56	81	95	58	22	87	55	49	51	80	75	12	81	73
		JHB : Johannesburg MM	59	53	80	92	59	27	94	58	43	49	77	100	14	87	72
		TSH : Tshwane MM	55	49	67	94	54	26	81	64	40	56	85	100	19	84	63
	KZ	DC21 : Ugu DM	66	43	66	95	59	45	60	54	30	95	81	100	16	89	75
		DC22 : uMgungundlovu ..	86	44	63	94	61	36	66	62	29	79	83	100	22	90	67
		DC23 : uThukela DM	78	37	67	93	48	33	59	63	37	100	86	72	9	91	62
		DC24 : uMzinyathi DM	100	56	90	94	61	26	65	58	27	100	92	100	11	90	51
		DC25 : Amajuba DM	70	41	79	96	50	24	72	57	32	98	83	100	15	90	45
		DC26 : Zululand DM	70	52	83	88	57	24	49	59	32	87	95	99	9	87	52
		DC27 : uMkhanyakude DM	62	59	86	93	59	38	47	49	30	92	97	100	9	64	22
		DC28 : King Cetshwayo D..	60	47	80	88	58	45	57	54	28	95	94	100	14	96	52
		DC29 : iLembe DM	79	55	86	95	53	34	45	58	27	100	86	81	12	82	60
		DC43 : Harry Gwala DM	90	43	64	95	57	28	49	65	35	100	88	100	11	99	91
		ETH : eThekwini MM	64	60	97	92	56	39	77	55	37	74	87	100	19	94	78
	LP	DC33 : Mopani DM	88	53	66	90	56	47	60	65	39	62	89	79	10	58	45
		DC34 : Vhembe DM	81	52	71	94	58	33	51	69	40	57	87	75	12	29	53
		DC35 : Capricorn DM	88	55	73	80	56	40	53	72	38	50	86	98	19	80	63
		DC36 : Waterberg DM	100	64	79	94	54	32	64	59	32	57	86	100	19	75	33
		DC47 : Sekhukhune DM	74	52	67	91	54	38	31	67	37	64	92	65	12	61	80
	MP	DC30 : G Sibande DM	67	64	88	95	54	31	81	70	40	73	78	81	12	84	59
		DC31 : Nkangala DM	60	62	84	91	58	33	65	66	52	68	77	49	9	81	74
		DC32 : Ehlanzeni DM	83	70	95	88	56	45	43	74	50	97	90	86	16	88	60
	NC	DC6 : Namakwa DM	59	61	86	96	53	45	88	43	42	41	44	98	15	100	57
		DC7 : Pixley Ka Seme DM	62	61	74	97	53	26	84	46	33	46	71	84	12	100	87
		DC8 : ZF Mgcawu DM	53	63	100	95	54	26	78	40	39	53	61	90	12	100	49
		DC9 : Frances Baard DM	66	63	89	94	52	20	86	66	35	37	74	100	30	85	29
		DC45 : JT Gaetsewe DM	56	59	97	90	54	35	58	47	36	42	76	62	8	63	61
	NW	DC37 : Bojanala Platinu..	58	54	74	89	54	30	56	65	45	63	81	30	8	98	60
		DC38 : NM Molema DM	59	53	69	90	57	22	53	56	42	76	86	77	11	97	75
		DC39 : RS Mompati DM	65	56	70	89	56	25	79	56	48	77	71	66	10	99	43
		DC40 : Dr K Kaunda DM	67	46	65	96	51	22	91	66	36	83	79	100	19	98	85
	WC	CPT : Cape Town MM	80	55	87	99	54	36	93	58	35	55	71	100	17	92	60
		DC1 : West Coast DM	83	48	69	99	57	22	93	45	34	48	57	89	10	98	76
		DC2 : Cape Winelands DM	93	54	74	99	54	28	96	41	39	56	69	88	13	100	57
		DC3 : Overberg DM	96	71	75	99	59	55	96	43	37	63	66	51	12	100	56
		DC4 : Garden Route DM	91	60	77	98	54	26	95	50	37	79	69	82	16	99	57
		DC5 : Central Karoo DM	100	59	79	95	52	20	97	47	42	85	53	100	18	100	73

Max. Data Value

5 100

Table 5: UHC service coverage by province and district, 2016 - 2017

Recommendations

The amended South African UHC service coverage index described here should be tracked over time in order to measure progress in relation to the key health-related SDGs. Critically, the index needs to be disaggregated for factors such as sex, gender, age group and urban/rural, to uncover the disparities that exist at lower geographic levels. Inequities can be easily recognised in the South African health system if equity is incorporated in the analysis of coverage at the level of health facilities or per catchment area. Data at district level need to be collected routinely, but greater attention needs to be paid to indicators that are reflective of effective service coverage. In time, the amended South African UHC service coverage index could be improved with the inclusion of more effective service coverage indicators that include a quality component. For example, the RMNCH category had the highest index values, yet maternal and child mortality rates are still higher than they should be, reflecting a lack of quality in the interventions delivered. In addition, the inclusion of indicators on mental health and injuries could add value to the index, since these contribute significantly to the disease burden in South Africa, yet they have been poorly represented in the national indicator data set and have therefore remained relatively 'hidden'.

Considering that the effective implementation of UHC relies not only on the presence of adequate infrastructure but also on access to a skilled health workforce capable of providing the necessary screening, accurate and timely diagnostics and continued clinical care, it is imperative that South Africa focus on these elements and the means for their accurate measurement as the country begins to move towards National Health Insurance (NHI).

Section B:

National, Provincial and District Profiles

Naomi Massyn, Candy Day and Noluthando Ndlovu

Contents

7. South Africa

In 2018, South Africa had an estimated population of just over 57.9 million, with a population density of 47.3 people per km^2 and estimated medical scheme coverage of 15.4%. The provincial population estimates, population density and estimated medical scheme coverage are listed in Table 1.

Table 1: Provincial population estimates, population density and estimated medical scheme coverage, 2018

		2018
Total population (number)	Eastern Cape	7 235 448
	Free State	2 905 959
	Gauteng	14 104 252
	KwaZulu-Natal	11 417 132
	Limpopo	5 970 482
	Mpumalanga	4 462 362
	Northern Cape	1 211 736
	North West	3 918 946
	Western Cape	6 515 583
Population density (people per km^2)	Eastern Cape	43.3
	Free State	22.5
	Gauteng	790.0
	KwaZulu-Natal	122.6
	Limpopo	48.1
	Mpumalanga	59.1
	Northern Cape	3.3
	North West	37.9
	Western Cape	51.1
Medical scheme coverage (average) (percentage)	Eastern Cape	9.8
	Free State	13.5
	Gauteng	24.6
	KwaZulu-Natal	11.2
	Limpopo	7.2
	Mpumalanga	12.5
	Northern Cape	15.1
	North West	11.9
	Western Cape	20.1

Source: Stats SA

The national and provincial averages for the period 2013 - 2019[a] are listed in Tables 2 and 3.

a Indicators from the DHIS and the BAS financial system cover the 12 months from April to March, which is the financial year of the NDoH. Indicators for financial years are annotated as 2017/18 or FY 2017. Other sources, such as the TB data from ETR.Net, data cover a calendar year.

Table 2: SA averages, 2013 - 2018

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	50.0	53.8	61.2	65.2	66.6	68.1	
Maternal mortality in facility ratio (per 100 000 live births)	133.3	132.5	115.6	111.5	105.7	105.9	
Neonatal death in facility rate (per 1 000 live births)			13.3	12.4	12.3	12.1	
Antenatal 1st visit coverage (%)	83.3	83.6	74.8	74.9	77.2	80.8	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	3.5	2.9	2.3	2.0	2.4	1.9	
Severe acute malnutrition case fatality under 5 years rate (%)	11.3	11.6	8.9	8.0	7.4	7.1	
Child under 5 years pneumonia incidence (cases per 1 000 children)	53.2	49.3	38.6	34.3	28.8	27.2	
Immunisation							
Immunisation under 1 year coverage (%)	78.1	82.9	79.4	70.9	76.9	81.9	
Measles 2nd dose coverage (%)	75.0	82.8	74.8	83.6	76.4	76.5	
Confirmed measles case incidence (per million population)				0.6	3.6	1.3	0.6
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	87.0	88.7	79.1	76.6	76.6	83.0	
Reproductive health							
Couple year protection rate (%)	49.3	63.0	66.6	70.1	59.2	61.0	
Tuberculosis							
TB DS treatment success rate (%)	77.9	77.2	81.0	81.7	76.3		
TB MDR treatment success rate (%)	47.2	50.5	51.8	53.9	49.6		
TB XDR treatment success rate (%)				58.1	31.3		
TB child under 5 years start on treatment rate (%)						10.2	
TB client 5 years and older start on treatment rate (%)						97.8	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				87.9	86.7	90.6	
Child with viral load suppressed rate 12 months (%)				65.5	63.5	68.0	
Clients remaining on ART rate (%)				55.0	58.9		65.1
Infant PCR test positive around 10 weeks rate (%)			4.3	1.3	0.9	0.7	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	29.2	32.8	36.2	40.9	46.9	53.4	20.6
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			78.7		79.3		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			49.5		48.2		
Diabetes prevalence 15+ years I NiDS modelled) (%)	8.0	8.6	9.3	9.9	10.6		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	39.5	38.6	37.7	36.7	35.8		
Cervical cancer screening coverage (% of women 30 and older /10)	55.9	56.7	58.3	63.6	60.8	65.1	
Adults who had not smoked tobacco in the previous 30 days (%)			92.1		93.1		
Mental disorders treatment rate new (%)						0.4	
Mental health separation rate (%)						2.5	
PHC management							
Percentage Ideal clinics (%)		3.6	9.2	29.8	43.5	55.3	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				78.4	91.9	84.7	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	26.8	24.0	22.8	18.1	25.4	37.4	
Proportion of health facilities with essential medicines (%)	73.2	76.0	77.2	81.9	74.6	62.6	
Inpatient management							
Inpatient crude death rate (%)	5.4	5.2	5.0	4.9	4.8	4.6	
OPD new client not referred rate (district hospitals) (%)	61.5	60.7	58.4	59.3	60.4	60.8	
OPD new client not referred rate (%)				45.6	46.7	47.0	
Hospital beds per 10 000 target population	19.3	18.6	19.1	18.6	19.0	18.1	17.9
Environmental health services							
Environmental health services compliance rate (%)				43.1	63.0	62.3	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 510	2 606	2 717	2 808	2 926	2 939	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 690	1 771	1 789	1 836	1 886	1 942	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	920	964	992	1 027	1 073	1 107	
Provincial & LG PHC expenditure per PHC headcount (Rand)	324	343	367	389	433	454	
Human resources							
Medical practitioners per 100 000 population - public sector	31.3	30.8	30.3	30.0	30.5	30.2	32.0
Health worker density (index) - public sector (%)	14.4	14.7	15.0	14.6	14.8	14.9	15.3
Professional nurses per 100 000 population - public sector	147.6	151.4	151.3	144.0	145.1	145.2	144.8
Pharmacists per 100 000 population - public sector	9.8	10.2	11.0	10.9	11.0	11.2	11.6

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	4.7	4.6	4.5	4.4	4.3	4.3	
Inpatient bed utilisation rate (district hospitals) (%)	66.3	65.8	65.3	63.9	64.1	65.2	
Average length of stay – total (days)	6.5	6.5	6.2	6.2	6.2	6.0	
PHC utilisation rate under 5 years (number)	4.3	4.3	3.8	3.8	3.5	3.5	
Inpatient bed utilisation rate – total (%)	73.2	72.2	72.0	70.6	67.7	71.2	
PHC utilisation rate (number)	2.4	2.4	2.3	2.2	2.1	2.1	
Universal health coverage							
Couple year protection rate (index) (%)	49.3	63.0	66.6	70.1	59.2	61.0	
Cervical cancer screening coverage (index) (%)	55.9	56.7	58.3	63.6	60.8	65.1	
Pneumonia case fatality under 5 years rate (index) (%)	93.0	94.2	95.4	96.0	95.2	96.2	
Antenatal 1st visit coverage before 20 weeks (index) (%)	41.7	45.0	45.8	48.8	51.4	55.0	
Tuberculosis effective treatment coverage (%)	53.0	52.5	55.1	55.6	51.9		
Percentage of households with access to improved sanitation (%)				75.6			
Prevalence of non-raised blood pressure age-standardised (index) (%)			59.0		60.2		
Immunisation under 1 year coverage (index) (%)	78.1	82.9	79.4	70.9	76.9	81.9	
Hospital beds per 10 000 target population (index)	100.0	100.0	100.0	100.0	100.0	100.0	

Ave = Average; ART = Antiretroviral treatment; CDC = Community Day Centre; CHC = Community Health Centre; DS = Drug-susceptible; DTaP-IPV-Hib-HBV = Diphtheria, Tetanus, Inactivated Polio Vaccine, Haemophilus Influenza B, Hepatitis Vaccine; HIV = Human immunodeficiency virus; LG = Local Government; MDR = Mullti-drug-resistant; NiDS = National Income Dynamics Study; OHH = Outreach household; OPD = Outpatient department; PCR = Polymerase chain reaction; PHC = Primary Health Care; PLHIV = People living with HIV; PMTCT = Prevention of mother-to-child transmission of HIV; TB = Tuberculosis; XDR = Extremely drug resistant.

Table 3: Provincial averages, 2013 - 2019

Eastern Cape

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	43.3	48.1	59.7	63.8	64.8	61.7	
Maternal mortality in facility ratio (per 100 000 live births)	156.2	148.3	128.0	127.6	128.3	106.1	
Neonatal death in facility rate (per 1 000 live births)			15.8	13.2	13.8	12.5	
Antenatal 1st visit coverage (%)	75.6	72.1	58.5	56.6	58.6	65.6	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	5.7	4.2	3.7	3.0	3.7	3.2	
Severe acute malnutrition case fatality under 5 years rate (%)	14.0	11.8	10.1	10.2	11.8	8.9	
Child under 5 years pneumonia incidence (cases per 1 000 children)	42.3	32.7	21.6	19.4	13.2	13.8	
Immunisation							
Immunisation under 1 year coverage (%)	66.5	71.9	73.1	63.9	68.4	71.9	
Measles 2nd dose coverage (%)	67.6	73.6	68.6	75.3	65.6	65.1	
Confirmed measles case incidence (per million population)				0.3	0.3	0.3	0.3
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	74.1	75.3	69.5	63.4	63.4	67.1	
Reproductive health							
Couple year protection rate (%)	37.3	52.8	72.0	74.0	48.8	53.2	
Tuberculosis							
TB DS treatment success rate (%)	77.0	76.2	82.5	83.2	77.1		
TB MDR treatment success rate (%)	33.9	44.3	50.9	50.5	48.5		
TB XDR treatment success rate (%)				58.9	30.3		
TB child under 5 years start on treatment rate (%)						9.8	
TB client 5 years and older start on treatment rate (%)						103.1	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				85.7	84.7	86.2	
Child with viral load suppressed rate 12 months (%)				60.7	56.7	63.0	
Clients remaining on ART rate (%)				53.8	57.6		62.9
Infant PCR test positive around 10 weeks rate (%)				1.6	1.2	1.0	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	25.8	28.8	35.0	35.8	53.6	57.9	61.7
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			76.1		79.5		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			48.3		48.1		
Diabetes prevalence 15+ years I NiDS modelled) (%)	9.8	10.4	11.0	11.6	12.2		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	40.1	38.7	37.3	36.0	34.6		
Cervical cancer screening coverage (% of women 30 and older /10)	49.2	60.3	60.3	64.4	63.3	71.6	
Adults who had not smoked tobacco in the previous 30 days (%)			93.8	92.5	94.6		
Mental disorders treatment rate new (%)						0.2	
Mental health separation rate (%)						2.3	
PHC management							
Percentage Ideal clinics (%)		0.7	1.8	18.0	20.4	32.3	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				77.9	93.5	79.6	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	19.0	24.7	21.2	16.9	20.9	26.3	
Proportion of health facilities with essential medicines (%)	81.0	75.3	78.8	83.1	79.1	73.7	
Inpatient management							
Inpatient crude death rate (%)	6.7	6.3	6.3	6.0	6.2	5.8	
OPD new client not referred rate (district hospitals) (%)	65.8	64.3	63.8	63.3	63.1	63.0	
OPD new client not referred rate (%)				49.0	47.3	44.2	
Hospital beds per 10 000 target population	21.5	22.1	21.8	21.4	21.0	20.6	20.6
Environmental health services							
Environmental health services compliance rate (%)				56.0	62.1	66.9	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 468	2 447	2 551	2 624	2 724	3 056	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 812	1 778	1 750	1 803	1 842	1 972	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	926	918	880	928	976	999	
Provincial & LG PHC expenditure per PHC headcount (Rand)	328	320	305	328	384	393	
Human resources							
Medical practitioners per 100 000 population - public sector	24.8	24.5	26.1	25.2	27.6	27.9	30.8
Health worker density (index) - public sector (%)	12.0	12.1	13.6	13.8	14.5	15.3	16.6
Professional nurses per 100 000 population - public sector	162.9	164.8	166.0	162.0	160.1	168.5	170.9
Pharmacists per 100 000 population - public sector	6.5	6.7	8.8	9.8	10.4	11.4	13.0

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	5.8	5.8	5.7	5.4	5.4	5.4	
Inpatient bed utilisation rate (district hospitals) (%)	88.7	89.3	87.5	84.8	88.3	91.4	
Average length of stay – total (days)	5.2	5.0	4.6	5.0	4.6	4.4	
PHC utilisation rate under 5 years (number)	84.4	84.5	85.1	84.1	84.5	74.2	
Inpatient bed utilisation rate – total (%)	3.0	2.9	2.8	2.6	2.5	2.5	
PHC utilisation rate (number)	7.4	7.3	7.2	7.3	7.3	6.9	
Universal health coverage							
Couple year protection rate (index) (%)	37.3	52.8	72.0	74.0	48.8	53.2	
Cervical cancer screening coverage (index) (%)	49.2	60.3	60.3	64.4	63.3	71.6	
Pneumonia case fatality under 5 years rate (index) (%)	88.6	91.6	92.6	94.0	92.6	93.6	
Antenatal 1st visit coverage before 20 weeks (index) (%)	32.7	34.7	34.9	36.1	38.0	40.5	
Tuberculosis effective treatment coverage (%)	52.4	51.8	56.1	56.6	52.4		
Percentage of households with access to improved sanitation (%)	71.2	78.2	81.7	85.1	85.8	88.0	
Prevalence of non-raised blood pressure age-standardised (index) (%)			54.0		60.6		
Immunisation under 1 year coverage (index) (%)	66.5	71.9	73.1	63.9	68.4	71.9	
Hospital beds per 10 000 target population (index)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Free State

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	56.4	58.6	62.9	65.8	65.6	65.2	
Maternal mortality in facility ratio (per 100 000 live births)	143.4	217.8	122.1	148.4	132.9	168.3	
Neonatal death in facility rate (per 1 000 live births)			14.1	14.3	14.1	16.8	
Antenatal 1st visit coverage (%)	78.1	80.2	69.7	72.1	74.2	79.2	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	4.7	4.0	3.3	3.2	2.9	1.7	
Severe acute malnutrition case fatality under 5 years rate (%)	11.9	12.2	8.0	9.6	7.5	6.2	
Child under 5 years pneumonia incidence (cases per 1 000 children)	84.4	81.4	52.6	39.9	29.8	33.5	
Immunisation							
Immunisation under 1 year coverage (%)	77.8	80.8	72.7	68.5	71.2	74.8	
Measles 2nd dose coverage (%)	80.0	81.3	76.6	86.2	69.1	72.1	
Confirmed measles case incidence (per million population)				0.0	0.3	2.1	
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	85.5	87.4	84.4	77.9	77.9	78.6	
Reproductive health							
Couple year protection rate (%)	43.1	57.8	78.7	65.9	66.5	76.6	
Tuberculosis							
TB DS treatment success rate (%)	76.8	78.0	80.1	80.2	70.8		
TB MDR treatment success rate (%)	41.7	45.8	46.9	52.4	49.7		
TB XDR treatment success rate (%)				45.0	25.0		
TB child under 5 years start on treatment rate (%)						2.2	
TB client 5 years and older start on treatment rate (%)						77.1	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				92.8	92.7	92.9	
Child with viral load suppressed rate 12 months (%)				72.6	71.5	73.5	
Clients remaining on ART rate (%)				58.6	66.7		74.1
Infant PCR test positive around 10 weeks rate (%)			0.0	1.3	1.1	0.7	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	29.4	33.3	42.0	42.8	53.5	58.8	63.8
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			78.1		76.0		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			51.4		50.6		
Diabetes prevalence 15+ years I NiDS modelled) (%)	7.2	8.1	9.0	13.8	11.2		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	35.5	34.5	33.6	32.6	31.7		
Cervical cancer screening coverage (% of women 30 and older /10)	53.0	42.0	59.0	55.3	50.6	60.6	
Adults who had not smoked tobacco in the previous 30 days (%)			93.2	92.0	96.3		
Mental disorders treatment rate new (%)						1.2	
Mental health separation rate (%)						8.8	
PHC management							
Percentage Ideal clinics (%)		1.0	10.0	34.8	51.1	75.7	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				78.5	99.1	97.7	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	32.5	31.0	52.8	35.1	35.7	112.8	
Proportion of health facilities with essential medicines (%)	67.5	69.0	47.2	64.9	64.3	1.0	
Inpatient management							
Inpatient crude death rate (%)	6.4	6.1	5.8	5.7	4.9	4.3	
OPD new client not referred rate (district hospitals) (%)	67.4	71.2	67.9	71.2	71.3	66.3	
OPD new client not referred rate (%)				56.9	57.7	47.2	
Hospital beds per 10 000 target population	20.3	19.8	20.1	20.0	19.9	19.5	19.8
Environmental health services							
Environmental health services compliance rate (%)				46.8	76.2	59.4	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 449	2 640	2 652	2 769	2 763	2 666	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 619	1 689	1 724	1 741	1 729	1 760	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	993	1 027	1 081	1 090	1 099	1 126	
Provincial & LG PHC expenditure per PHC headcount (Rand)	349	369	407	438	502	534	
Human resources							
Medical practitioners per 100 000 population - public sector	31.5	31.0	23.3	25.0	27.7	25.3	27.7
Health worker density (index) - public sector (%)	13.8	14.0	13.2	12.8	13.1	12.6	13.2
Professional nurses per 100 000 population - public sector	106.5	105.4	101.7	92.8	90.9	91.3	89.7
Pharmacists per 100 000 population - public sector	11.9	12.9	14.8	13.4	13.3	13.0	13.8

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	3.9	3.2	3.3	3.3	3.3	3.4	
Inpatient bed utilisation rate (district hospitals) (%)	65.1	60.0	61.4	61.0	60.2	60.3	
Average length of stay – total (days)	4.3	4.2	3.4	3.4	3.0	3.1	
PHC utilisation rate under 5 years (number)	73.3	71.2	69.0	66.7	38.6	50.2	
Inpatient bed utilisation rate – total (%)	2.5	2.5	2.3	2.2	1.9	1.8	
PHC utilisation rate (number)	6.6	5.8	5.7	5.6	5.5	5.6	
Universal health coverage							
Couple year protection rate (index) (%)	43.1	57.8	78.7	65.9	66.5	76.6	
Cervical cancer screening coverage (index) (%)	53.0	42.0	59.0	55.3	50.6	60.6	
Pneumonia case fatality under 5 years rate (index) (%)	93.8	93.8	95.2	93.6	94.2	96.6	
Antenatal 1st visit coverage before 20 weeks (index) (%)	44.0	47.0	43.8	47.4	48.7	51.6	
Tuberculosis effective treatment coverage (%)	52.2	53.1	54.4	54.5	48.1		
Percentage of households with access to improved sanitation (%)	83.3	83.8	81.1	83.2	85.2	85.5	
Prevalence of non-raised blood pressure age-standardised (index) (%)			57.9		53.8		
Immunisation under 1 year coverage (index) (%)	77.8	80.8	72.7	68.5	71.2	74.8	
Hospital beds per 10 000 target population (index)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Gauteng

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	43.8	48.2	55.0	58.4	61.4	64.7	
Maternal mortality in facility ratio (per 100 000 live births)	104.5	112.6	103.8	114.7	108.5	122.8	
Neonatal death in facility rate (per 1 000 live births)			12.9	13.6	13.6	13.0	
Antenatal 1st visit coverage (%)	99.1	95.6	86.4	87.5	85.6	88.9	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	2.9	2.6	2.4	2.2	2.6	2.8	
Severe acute malnutrition case fatality under 5 years rate (%)	6.1	9.3	7.5	6.5	6.2	6.8	
Child under 5 years pneumonia incidence (cases per 1 000 children)	37.3	31.7	21.7	23.1	19.8	17.7	
Immunisation							
Immunisation under 1 year coverage (%)	98.2	94.1	86.6	74.7	76.8	84.4	
Measles 2nd dose coverage (%)	85.1	94.9	77.7	85.9	74.7	78.9	
Confirmed measles case incidence (per million population)				1.1	6.8	1.1	0.6
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	102.3	95.9	82.2	80.6	80.6	84.2	
Reproductive health							
Couple year protection rate (%)	31.8	50.5	61.3	59.7	58.8	53.6	
Tuberculosis							
TB DS treatment success rate (%)	82.6	83.4	84.9	84.4	74.5		
TB MDR treatment success rate (%)	41.1	55.6	52.2	52.0	46.0		
TB XDR treatment success rate (%)				66.7	23.9		
TB child under 5 years start on treatment rate (%)						10.5	
TB client 5 years and older start on treatment rate (%)						91.0	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				81.3	77.7	90.0	
Child with viral load suppressed rate 12 months (%)				58.8	55.5	67.6	
Clients remaining on ART rate (%)				45.6	50.1		56.0
Infant PCR test positive around 10 weeks rate (%)			4.5	1.7	1.0	0.7	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	26.8	29.3	32.0	35.0	47.7	50.8	54.9
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			79.8		80.7		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			48.2		47.8		
Diabetes prevalence 15+ years I NiDS modelled) (%)	6.7	7.1	7.5	9.3	8.3		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	42.5	41.1	39.7	38.4	37.0		
Cervical cancer screening coverage (% of women 30 and older /10)	42.9	44.9	46.3	52.2	47.4	52.0	
Adults who had not smoked tobacco in the previous 30 days (%)			92.5	93.5	92.3		
Mental disorders treatment rate new (%)						0.4	
Mental health separation rate (%)						1.1	
PHC management							
Percentage Ideal clinics (%)		6.0	24.3	58.1	78.6	89.4	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				93.7	98.9	97.6	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	15.1	17.0	11.6	13.5	17.0	18.2	
Proportion of health facilities with essential medicines (%)	84.9	83.0	88.4	86.5	83.0	81.8	
Inpatient management							
Inpatient crude death rate (%)	5.4	5.4	4.9	4.6	5.1	4.5	
OPD new client not referred rate (district hospitals) (%)	49.2	46.9	52.5	52.5	66.7	71.1	
OPD new client not referred rate (%)				28.3	30.8	24.3	
Hospital beds per 10 000 target population	18.1	16.9	17.9	18.4	18.3	17.7	
Environmental health services							
Environmental health services compliance rate (%)				59.0	71.4	68.8	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 759	3 178	3 051	3 166	3 408	3 465	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 331	1 422	1 498	1 515	1 609	1 620	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	810	860	903	930	995	994	
Provincial & LG PHC expenditure per PHC headcount (Rand)	329	355	409	431	491	501	
Human resources							
Medical practitioners per 100 000 population - public sector	33.4	34.9	34.6	33.5	33.8	33.7	33.7
Health worker density (index) - public sector (%)	14.8	15.2	15.3	14.8	15.4	15.1	15.0
Professional nurses per 100 000 population - public sector	131.5	133.3	133.7	127.4	137.0	133.8	131.6
Pharmacists per 100 000 population - public sector	11.3	11.5	11.6	11.5	11.8	11.5	11.4

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	4.5	4.3	4.4	4.4	4.4	4.1	
Inpatient bed utilisation rate (district hospitals) (%)	67.8	60.7	65.8	65.1	66.9	68.1	
Average length of stay – total (days)	4.0	4.1	3.4	3.4	2.9	2.9	
PHC utilisation rate under 5 years (number)	79.4	76.9	76.5	77.0	78.8	57.9	
Inpatient bed utilisation rate – total (%)	1.8	1.8	1.7	1.6	1.5	1.5	
PHC utilisation rate (number)	6.3	6.5	5.8	5.8	6.7	6.0	
Universal health coverage							
Couple year protection rate (index) (%)	31.8	50.5	61.3	59.7	58.8	53.6	
Cervical cancer screening coverage (index) (%)	42.9	44.9	46.3	52.2	47.4	52.0	
Pneumonia case fatality under 5 years rate (index) (%)	95.0	95.8	96.2	97.0	94.8	94.4	
Antenatal 1st visit coverage before 20 weeks (index) (%)	43.4	46.1	47.5	51.1	52.6	57.5	
Tuberculosis effective treatment coverage (%)	56.2	56.7	57.7	57.4	50.7		
Percentage of households with access to improved sanitation (%)	90.2	90.9	91.0	90.7	90.7	91.8	
Prevalence of non-raised blood pressure age-standardised (index) (%)			61.2		62.9		
Immunisation under 1 year coverage (index) (%)	98.2	94.1	86.6	74.7	76.8	84.4	
Hospital beds per 10 000 target population (index)	100.0	93.9	99.6	100.0	100.0	98.1	95.1

KwaZulu-Natal

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	56.2	57.4	64.8	70.2	72.1	73.2	
Maternal mortality in facility ratio (per 100 000 live births)	148.4	124.9	121.9	100.2	101.9	88.4	
Neonatal death in facility rate (per 1 000 live births)			14.6	12.4	12.4	11.5	
Antenatal 1st visit coverage (%)	79.8	78.1	70.4	68.1	70.3	74.9	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	3.3	2.9	2.7	2.3	2.5	2.3	
Severe acute malnutrition case fatality under 5 years rate (%)	9.7	10.4	7.7	7.4	7.7	7.8	
Child under 5 years pneumonia incidence (cases per 1 000 children)	92.2	86.1	63.0	48.6	43.2	39.3	
Immunisation							
Immunisation under 1 year coverage (%)	76.2	80.1	74.4	74.0	81.3	90.8	
Measles 2nd dose coverage (%)	77.0	86.3	70.3	84.6	77.4	77.9	
Confirmed measles case incidence (per million population)				0.5	4.7	1.9	0.5
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	81.5	84.2	74.4	75.4	75.4	77.9	
Reproductive health							
Couple year protection rate (%)	61.6	83.3	72.3	74.1	46.3	59.2	
Tuberculosis							
TB DS treatment success rate (%)	81.8	73.8	82.7	82.9	73.2		
TB MDR treatment success rate (%)	57.3	59.6	60.0	58.7	55.6		
TB XDR treatment success rate (%)				62.0	35.2		
TB child under 5 years start on treatment rate (%)						13.9	
TB client 5 years and older start on treatment rate (%)						105.8	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				93.5	93.2	93.2	
Child with viral load suppressed rate 12 months (%)				72.2	70.9	71.0	
Clients remaining on ART rate (%)				61.3	64.6		70.5
Infant PCR test positive around 10 weeks rate (%)				1.0	0.7	0.6	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	33.7	38.6	47.0	49.1	62.7	65.4	67.4
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			79.3		77.5		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			52.2		50.6		
Diabetes prevalence 15+ years I NiDS modelled) (%)	10.8	14.3	11.8	17.1	12.8		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	42.4	40.0	37.6	35.3	33.1		
Cervical cancer screening coverage (% of women 30 and older /10)	79.4	74.2	75.9	90.7	79.2	84.9	
Adults who had not smoked tobacco in the previous 30 days (%)			97.8	97.7	97.1		
Mental disorders treatment rate new (%)						0.0	
Mental health separation rate (%)						2.1	
PHC management							
Percentage Ideal clinics (%)		10.2	23.5	47.8	63.5	76.2	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				90.8	98.2	96.5	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	53.4	8.7	14.0	14.1	12.3	20.3	
Proportion of health facilities with essential medicines (%)	46.6	91.3	86.0	85.9	87.7	79.7	
Inpatient management							
Inpatient crude death rate (%)	5.3	5.1	5.2	5.4	5.0	4.7	
OPD new client not referred rate (district hospitals) (%)	52.7	53.0	47.9	49.4	50.4	52.4	
OPD new client not referred rate (%)				45.0	47.4	23.3	
Hospital beds per 10 000 target population	24.3	22.6	23.6	21.7	24.1	20.9	20.9
Environmental health services							
Environmental health services compliance rate (%)				37.9	58.8	56.4	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 432	2 445	2 630	2 801	3 032	2 992	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 827	1 906	1 912	1 985	2 020	2 078	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	1 017	1 096	1 163	1 234	1 260	1 319	
Provincial & LG PHC expenditure per PHC headcount (Rand)	301	336	366	417	444	469	
Human resources							
Medical practitioners per 100 000 population - public sector	40.0	38.1	35.9	36.6	34.4	33.3	35.8
Health worker density (index) - public sector (%)	15.1	15.1	15.0	15.1	14.8	14.7	15.1
Professional nurses per 100 000 population - public sector	173.0	173.9	172.6	169.6	170.3	169.4	168.5
Pharmacists per 100 000 population - public sector	7.5	7.8	8.3	8.3	8.2	8.4	8.6

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	5.8	5.8	5.7	5.4	5.4	5.4	
Inpatient bed utilisation rate (district hospitals) (%)	64.6	62.8	60.2	56.2	57.0	59.5	
Average length of stay – total (days)	4.4	4.4	3.8	3.7	3.5	3.5	
PHC utilisation rate under 5 years (number)	69.6	67.3	65.4	62.4	63.7	74.2	
Inpatient bed utilisation rate – total (%)	3.0	2.9	2.8	2.6	2.5	2.5	
PHC utilisation rate (number)	7.3	7.1	7.0	7.0	6.8	6.8	
Universal health coverage							
Couple year protection rate (index) (%)	61.6	83.3	72.3	74.1	46.3	59.2	
Cervical cancer screening coverage (index) (%)	79.4	74.2	75.9	90.7	79.2	84.9	
Pneumonia case fatality under 5 years rate (index) (%)	93.8	94.6	94.6	96.4	95.0	95.4	
Antenatal 1st visit coverage before 20 weeks (index) (%)	44.8	44.8	45.6	47.8	50.7	54.8	
Tuberculosis effective treatment coverage (%)	55.6	50.2	56.3	56.4	49.8		
Percentage of households with access to improved sanitation (%)	73.9	75.9	77.3	77.2	81.1	81.4	
Prevalence of non-raised blood pressure age-standardised (index) (%)			60.2		56.7		
Immunisation under 1 year coverage (index) (%)	76.2	80.1	74.4	74.0	81.3	90.8	
Hospital beds per 10 000 target population (index)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Limpopo

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	45.8	50.7	60.7	65.7	63.2	67.2	
Maternal mortality in facility ratio (per 100 000 live births)	152.0	165.2	139.4	125.9	109.2	111.6	
Neonatal death in facility rate (per 1 000 live births)			14.6	12.2	12.4	13.2	
Antenatal 1st visit coverage (%)	81.4	86.3	78.8	82.0	83.4	85.7	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	5.1	4.4	3.8	3.2	3.0	3.3	
Severe acute malnutrition case fatality under 5 years rate (%)	15.3	14.9	11.7	8.3	5.0	6.3	
Child under 5 years pneumonia incidence (cases per 1 000 children)	34.2	27.7	21.8	19.6	15.8	15.9	
Immunisation							
Immunisation under 1 year coverage (%)	68.9	79.7	76.3	60.0	70.4	71.0	
Measles 2nd dose coverage (%)	73.5	83.3	81.9	87.1	84.7	80.5	
Confirmed measles case incidence (per million population)				0.2	0.5	0.8	0.3
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	96.8	92.1	78.1	82.6	82.6	97.5	
Reproductive health							
Couple year protection rate (%)	46.4	61.3	68.6	84.8	70.4	63.3	
Tuberculosis							
TB DS treatment success rate (%)	57.6	71.8	76.1	80.6	81.2		
TB MDR treatment success rate (%)	53.0	58.4	58.4	65.5	42.4		
TB XDR treatment success rate (%)				0.0	25.0		
TB child under 5 years start on treatment rate (%)						5.7	
TB client 5 years and older start on treatment rate (%)						98.6	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				83.3	81.2	85.4	
Child with viral load suppressed rate 12 months (%)				56.1	52.3	59.0	
Clients remaining on ART rate (%)				68.6	72.6		78.7
Infant PCR test positive around 10 weeks rate (%)				1.2	0.8	0.7	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	27.0	30.5	34.2	43.9	68.6	72.8	75.3
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			83.3		82.8		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			47.9		44.7		
Diabetes prevalence 15+ years I NiDS modelled) (%)	2.9	3.8	5.0	14.8	8.3		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	33.5	33.4	33.3	33.1	33.0		
Cervical cancer screening coverage (% of women 30 and older /10)	58.0	49.8	51.9	57.4	55.6	52.3	
Adults who had not smoked tobacco in the previous 30 days (%)			98.1	98.0	98.5		
Mental disorders treatment rate new (%)						1.1	
Mental health separation rate (%)						2.0	
PHC management							
Percentage Ideal clinics (%)		0.6	5.7	10.6	25.2	34.3	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				56.9	76.2	67.8	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	34.4	45.4	40.9	42.2	52.6	65.5	
Proportion of health facilities with essential medicines (%)	65.6	54.6	59.1	57.8	47.4	34.5	
Inpatient management							
Inpatient crude death rate (%)	5.7	5.6	5.4	5.1	4.8	4.8	
OPD new client not referred rate (district hospitals) (%)	78.6	75.2	73.8	75.3	72.4	73.6	
OPD new client not referred rate (%)				67.1	67.4	0.0	
Hospital beds per 10 000 target population	15.3	15.2	14.0	14.2	14.6	14.2	14.2
Environmental health services							
Environmental health services compliance rate (%)				17.0	54.8	64.2	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 890	3 063	3 271	3 266	3 165	3 061	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 946	2 164	2 134	2 232	2 301	2 344	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	833	889	910	918	986	1 050	
Provincial & LG PHC expenditure per PHC headcount (Rand)	302	325	338	325	364	406	
Human resources							
Medical practitioners per 100 000 population - public sector	24.0	23.1	24.4	24.2	23.9	22.5	24.5
Health worker density (index) - public sector (%)	13.1	13.2	14.1	14.5	14.2	14.0	14.3
Professional nurses per 100 000 population - public sector	170.4	177.5	178.7	179.0	172.1	169.9	165.2
Pharmacists per 100 000 population - public sector	8.4	8.5	9.8	10.6	10.4	10.9	10.8

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	4.5	4.2	4.3	4.3	4.3	4.3	
Inpatient bed utilisation rate (district hospitals) (%)	64.2	69.1	70.4	69.6	72.7	73.1	
Average length of stay – total (days)	5.2	5.0	4.6	5.0	4.6	4.4	
PHC utilisation rate under 5 years (number)	67.9	71.0	74.0	71.1	75.1	67.4	
Inpatient bed utilisation rate – total (%)	2.6	2.6	2.5	2.6	2.5	2.4	
PHC utilisation rate (number)	5.9	5.5	5.7	5.5	5.5	5.4	
Universal health coverage							
Couple year protection rate (index) (%)	46.4	61.3	68.6	84.8	70.4	63.3	
Cervical cancer screening coverage (index) (%)	58.0	49.8	51.9	57.4	55.6	52.3	
Pneumonia case fatality under 5 years rate (index) (%)	90.6	91.6	93.8	94.2	94.0	93.4	
Antenatal 1st visit coverage before 20 weeks (index) (%)	37.3	43.8	47.8	53.9	52.7	57.6	
Tuberculosis effective treatment coverage (%)	39.1	48.8	51.7	54.8	55.2		
Percentage of households with access to improved sanitation (%)	50.0	54.0	53.8	57.1	59.3	58.9	
Prevalence of non-raised blood pressure age-standardised (index) (%)			67.9		66.9		
Immunisation under 1 year coverage (index) (%)	68.9	79.7	76.3	60.0	70.4	71.0	
Hospital beds per 10 000 target population (index)	84.9	84.6	77.9	79.1	81.1	79.0	78.8

Mpumalanga

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	49.1	56.6	65.9	71.7	73.8	75.6	
Maternal mortality in facility ratio (per 100 000 live births)	149.1	115.4	119.1	123.0	120.0	92.4	
Neonatal death in facility rate (per 1 000 live births)			10.9	10.9	11.5	11.5	
Antenatal 1st visit coverage (%)	84.8	86.6	81.2	77.6	89.4	88.0	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	5.7	5.2	4.1	3.4	2.8	2.7	
Severe acute malnutrition case fatality under 5 years rate (%)	12.8	19.1	12.5	8.4	9.1	9.1	
Child under 5 years pneumonia incidence (cases per 1 000 children)	18.5	13.5	13.2	13.5	7.1	4.5	
Immunisation							
Immunisation under 1 year coverage (%)	74.4	81.5	85.9	75.6	89.7	96.8	
Measles 2nd dose coverage (%)	69.6	74.6	76.1	82.5	89.2	85.9	
Confirmed measles case incidence (per million population)				0.2	0.2	1.3	0.2
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	89.0	95.1	81.2	79.0	79.0	90.4	
Reproductive health							
Couple year protection rate (%)	47.4	52.7	51.6	70.7	61.9	64.3	
Tuberculosis							
TB DS treatment success rate (%)	76.1	84.0	81.4	82.2	80.3		
TB MDR treatment success rate (%)	45.2	41.9	56.7	55.0	56.5		
TB XDR treatment success rate (%)				81.0	17.6		
TB child under 5 years start on treatment rate (%)						2.8	
TB client 5 years and older start on treatment rate (%)						102.2	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				89.5	89.8	90.9	
Child with viral load suppressed rate 12 months (%)				67.4	66.4	72.6	
Clients remaining on ART rate (%)				56.7	60.3		68.0
Infant PCR test positive around 10 weeks rate (%)			0.0	1.7	1.1	0.9	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	26.0	30.8	35.6	41.3	61.2	66.4	70.2
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			80.8		84.4		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			49.3		44.6		
Diabetes prevalence 15+ years I NiDS modelled) (%)	5.3	5.6	6.0	11.5	6.9		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	39.5	39.6	39.6	39.7	39.7		
Cervical cancer screening coverage (% of women 30 and older /10)	55.6	64.1	67.8	67.2	77.9	89.9	
Adults who had not smoked tobacco in the previous 30 days (%)			96.5	94.0	95.5		
Mental disorders treatment rate new (%)						0.5	
Mental health separation rate (%)						1.3	
PHC management							
Percentage Ideal clinics (%)		0.0	6.6	22.9	30.3	46.2	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				78.4	93.0	88.2	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	18.4	27.0	15.2	15.1	23.6	45.0	
Proportion of health facilities with essential medicines (%)	81.6	73.0	84.8	84.9	76.4	55.0	
Inpatient management							
Inpatient crude death rate (%)	5.8	5.6	5.5	5.2	4.8	5.0	
OPD new client not referred rate (district hospitals) (%)	65.2	67.0	66.0	64.1	67.5	65.3	
OPD new client not referred rate (%)				56.7	57.4	0.0	
Hospital beds per 10 000 target population	12.8	12.5	13.1	13.1	13.0	13.0	12.4
Environmental health services							
Environmental health services compliance rate (%)				50.7	64.3	58.0	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 272	2 448	2 511	2 548	2 577	2 657	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 742	1 831	1 892	1 891	1 969	2 078	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	828	872	932	936	1 023	1 105	
Provincial & LG PHC expenditure per PHC headcount (Rand)	330	339	375	376	430	466	
Human resources							
Medical practitioners per 100 000 population - public sector	25.7	24.5	22.9	23.3	25.7	26.0	26.1
Health worker density (index) - public sector (%)	11.2	12.0	11.8	12.0	12.5	12.5	12.6
Professional nurses per 100 000 population - public sector	128.7	141.4	142.5	138.0	142.4	140.1	142.1
Pharmacists per 100 000 population - public sector	6.4	7.5	7.6	8.0	7.9	8.1	8.1

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	4.3	4.3	4.5	4.8	4.2	4.4	
Inpatient bed utilisation rate (district hospitals) (%)	70.5	71.0	71.4	75.3	69.5	69.9	
Average length of stay – total (days)	4.2	4.3	3.9	4.1	3.9	3.9	
PHC utilisation rate under 5 years (number)	69.9	70.7	71.4	72.3	65.8	67.4	
Inpatient bed utilisation rate – total (%)	2.2	2.3	2.2	2.2	2.1	2.1	
PHC utilisation rate (number)	5.0	4.9	5.0	5.3	4.6	4.9	
Universal health coverage							
Couple year protection rate (index) (%)	47.4	52.7	51.6	70.7	61.9	64.3	
Cervical cancer screening coverage (index) (%)	55.6	64.1	67.8	67.2	77.9	89.9	
Pneumonia case fatality under 5 years rate (index) (%)	88.6	89.6	92.6	93.2	95.4	94.6	
Antenatal 1st visit coverage before 20 weeks (index) (%)	41.6	49.0	53.5	55.6	66.0	66.5	
Tuberculosis effective treatment coverage (%)	51.7	57.1	55.3	55.9	54.6		
Percentage of households with access to improved sanitation (%)	62.7	64.4	65.8	67.5	67.8	68.1	
Prevalence of non-raised blood pressure age-standardised (index) (%)			63.1		70.0		
Immunisation under 1 year coverage (index) (%)	74.4	81.5	85.9	75.6	89.7	96.8	
Hospital beds per 10 000 target population (index)	71.3	69.5	72.7	72.7	72.2	72.1	69.0

Northern Cape

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	55.7	57.7	62.4	64.7	64.0	63.1	
Maternal mortality in facility ratio (per 100 000 live births)	118.9	254.1	103.8	87.5	65.9	71.3	
Neonatal death in facility rate (per 1 000 live births)			16.2	15.8	11.6	11.7	
Antenatal 1st visit coverage (%)	97.7	102.3	91.7	97.1	97.5	107.3	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	3.1	2.9	2.4	2.1	1.9	2.3	
Severe acute malnutrition case fatality under 5 years rate (%)	11.8	10.9	8.3	5.1	6.1	4.3	
Child under 5 years pneumonia incidence (cases per 1 000 children)	67.6	42.5	28.2	20.1	20.6	25.6	
Immunisation							
Immunisation under 1 year coverage (%)	94.3	98.9	96.2	90.8	83.9	87.5	
Measles 2nd dose coverage (%)	75.7	77.1	82.7	105.0	87.8	86.3	
Confirmed measles case incidence (per million population)				0.8	0.0	3.3	3.3
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	98.2	105.9	89.4	95.6	95.6	96.9	
Reproductive health							
Couple year protection rate (%)	37.4	51.7	46.3	47.4	59.6	60.8	
Tuberculosis							
TB DS treatment success rate (%)	71.8	71.2	71.8	77.0	77.1		
TB MDR treatment success rate (%)	39.0	20.8	44.4	41.5	46.0		
TB XDR treatment success rate (%)				41.2	30.6		
TB child under 5 years start on treatment rate (%)						14.2	
TB client 5 years and older start on treatment rate (%)						101.5	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				85.6	85.7	88.2	
Child with viral load suppressed rate 12 months (%)				71.0	73.8	58.7	
Clients remaining on ART rate (%)				69.3	71.1		73.5
Infant PCR test positive around 10 weeks rate (%)				1.7	1.4	1.4	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	26.2	31.5	48.0	44.4	73.1	76.0	76.9
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			71.0		74.0		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			44.4		45.6		
Diabetes prevalence 15+ years I NiDS modelled) (%)	7.7	8.3	8.9	11.7	10.4		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	48.8	48.1	47.5	46.8	46.1		
Cervical cancer screening coverage (% of women 30 and older /10)	32.2	30.8	35.2	42.9	39.7	46.0	
Adults who had not smoked tobacco in the previous 30 days (%)			75.7	78.6	79.0		
Mental disorders treatment rate new (%)						0.4	
Mental health separation rate (%)						1.9	
PHC management							
Percentage Ideal clinics (%)		6.3	1.8	41.1	55.3	57.1	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				84.0	87.6	83.9	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	17.7	16.6	8.9	12.5	46.1	29.7	
Proportion of health facilities with essential medicines (%)	82.3	83.4	91.1	87.5	53.9	70.3	
Inpatient management							
Inpatient crude death rate (%)	5.5	5.0	5.1	5.2	4.9	5.2	
OPD new client not referred rate (district hospitals) (%)	69.0	68.7	69.8	67.8	71.7	70.2	
OPD new client not referred rate (%)				59.0	60.8	15.4	
Hospital beds per 10 000 target population	18.0	16.0	18.4	17.9	20.2	19.3	
Environmental health services							
Environmental health services compliance rate (%)				41.6	56.6	75.2	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 436	2 617	2 538	2 743	2 748	2 864	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 950	2 025	1 975	2 092	2 065	2 155	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	1 249	1 250	1 187	1 247	1 285	1 348	
Provincial & LG PHC expenditure per PHC headcount (Rand)	364	377	399	423	488	510	
Human resources							
Medical practitioners per 100 000 population - public sector	44.2	45.0	45.5	45.6	43.5	44.2	42.2
Health worker density (index) - public sector (%)	17.5	18.3	19.0	18.7	19.1	19.8	19.2
Professional nurses per 100 000 population - public sector	142.9	143.1	143.6	143.9	143.3	147.8	147.0
Pharmacists per 100 000 population - public sector	12.8	14.5	15.9	14.9	16.6	17.9	17.2

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	3.2	3.5	3.3	3.4	3.2	3.3	
Inpatient bed utilisation rate (district hospitals) (%)	64.8	62.4	61.4	58.4	54.6	54.2	
Average length of stay – total (days)	4.6	4.5	4.5	4.8	4.4	4.3	
PHC utilisation rate under 5 years (number)	64.2	66.4	65.7	60.8	58.3	62.9	
Inpatient bed utilisation rate – total (%)	2.9	2.8	2.5	0.4	2.2	2.2	
PHC utilisation rate (number)	4.1	4.7	4.6	4.9	4.7	5.0	
Universal health coverage							
Couple year protection rate (index) (%)	37.4	51.7	46.3	47.4	59.6	60.8	
Cervical cancer screening coverage (index) (%)	32.2	30.8	35.2	42.9	39.7	46.0	
Pneumonia case fatality under 5 years rate (index) (%)	94.2	94.2	97.4	96.8	96.2	95.4	
Antenatal 1st visit coverage before 20 weeks (index) (%)	54.4	57.7	57.2	62.8	62.4	63.1	
Tuberculosis effective treatment coverage (%)	48.8	48.4	48.8	52.4	52.4		
Percentage of households with access to improved sanitation (%)	81.7	83.9	80.7	82.6	88.1	90.0	
Prevalence of non-raised blood pressure age-standardised (index) (%)			44.2		50.0		
Immunisation under 1 year coverage (index) (%)	94.3	98.9	96.2	90.8	83.9	87.5	
Hospital beds per 10 000 target population (index)	100.0	89.1	100.0	99.2	100.0	100.0	98.1

North West

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	50.6	54.3	60.6	63.7	66.2	69.0	
Maternal mortality in facility ratio (per 100 000 live births)	184.9	167.1	141.7	130.1	117.5	137.4	
Neonatal death in facility rate (per 1 000 live births)			12.1	12.1	9.4	10.6	
Antenatal 1st visit coverage (%)	78.4	80.8	72.9	76.8	78.5	78.1	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	4.8	3.9	3.5	3.1	4.3	2.5	
Severe acute malnutrition case fatality under 5 years rate (%)	11.6	12.3	12.3	10.6	8.0	9.3	
Child under 5 years pneumonia incidence (cases per 1 000 children)	25.7	18.7	12.1	11.3	9.6	8.3	
Immunisation							
Immunisation under 1 year coverage (%)	67.3	76.5	76.2	69.0	69.4	68.4	
Measles 2nd dose coverage (%)	66.3	77.7	67.7	74.9	72.4	69.0	
Confirmed measles case incidence (per million population)				0.5	3.1	0.8	0.5
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	75.7	83.4	78.1	75.9	75.9	77.9	
Reproductive health							
Couple year protection rate (%)	43.3	56.4	45.5	59.7	56.5	59.3	
Tuberculosis							
TB DS treatment success rate (%)	65.8	70.2	69.0	78.4	78.8		
TB MDR treatment success rate (%)	60.2	58.4	53.4	51.9	50.3		
TB XDR treatment success rate (%)				63.6	36.4		
TB child under 5 years start on treatment rate (%)						6.9	
TB client 5 years and older start on treatment rate (%)						106.6	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				88.5	85.8	89.6	
Child with viral load suppressed rate 12 months (%)				64.1	61.0	62.6	
Clients remaining on ART rate (%)				46.9	49.1		57.8
Infant PCR test positive around 10 weeks rate (%)				1.5	1.1	0.9	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	26.1	28.9	38.0	35.0	47.8	50.9	55.0
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			79.1		79.5		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			43.8		47.2		
Diabetes prevalence 15+ years I NiDS modelled) (%)	6.6	6.7	6.8	8.6	7.0		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	49.8	48.2	46.6	45.0	43.4		
Cervical cancer screening coverage (% of women 30 and older /10)	61.8	67.2	66.2	70.4	68.5	69.0	
Adults who had not smoked tobacco in the previous 30 days (%)			96.9	95.4	95.6		
Mental disorders treatment rate new (%)						0.2	
Mental health separation rate (%)						1.5	
PHC management							
Percentage Ideal clinics (%)		0.0	2.2	29.3	39.3	45.8	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				74.2	93.5	66.6	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	26.1	40.5	38.1	2.2	31.8	45.0	
Proportion of health facilities with essential medicines (%)	73.9	59.5	61.9	97.8	68.2	55.0	
Inpatient management							
Inpatient crude death rate (%)	6.4	6.6	6.6	6.2	6.1	5.9	
OPD new client not referred rate (district hospitals) (%)	45.9	47.9	43.9	56.4	55.9	55.9	
OPD new client not referred rate (%)				34.6	46.1	0.0	
Hospital beds per 10 000 target population	14.1	13.5	15.6	14.4	13.2	13.6	
Environmental health services							
Environmental health services compliance rate (%)				20.5	65.8	40.5	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 849	2 775	2 911	2 775	3 648	3 315	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 667	1 667	1 644	1 647	1 639	1 729	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	1 069	1 074	1 078	1 101	1 127	1 164	
Provincial & LG PHC expenditure per PHC headcount (Rand)	424	417	431	461	515	540	
Human resources							
Medical practitioners per 100 000 population - public sector	20.9	20.2	21.3	20.9	25.0	26.1	26.0
Health worker density (index) - public sector (%)	10.5	11.3	11.3	11.0	11.7	12.3	12.7
Professional nurses per 100 000 population - public sector	130.6	144.8	137.3	128.8	124.6	130.7	136.0
Pharmacists per 100 000 population - public sector	6.4	7.5	7.5	7.4	7.7	8.1	8.7

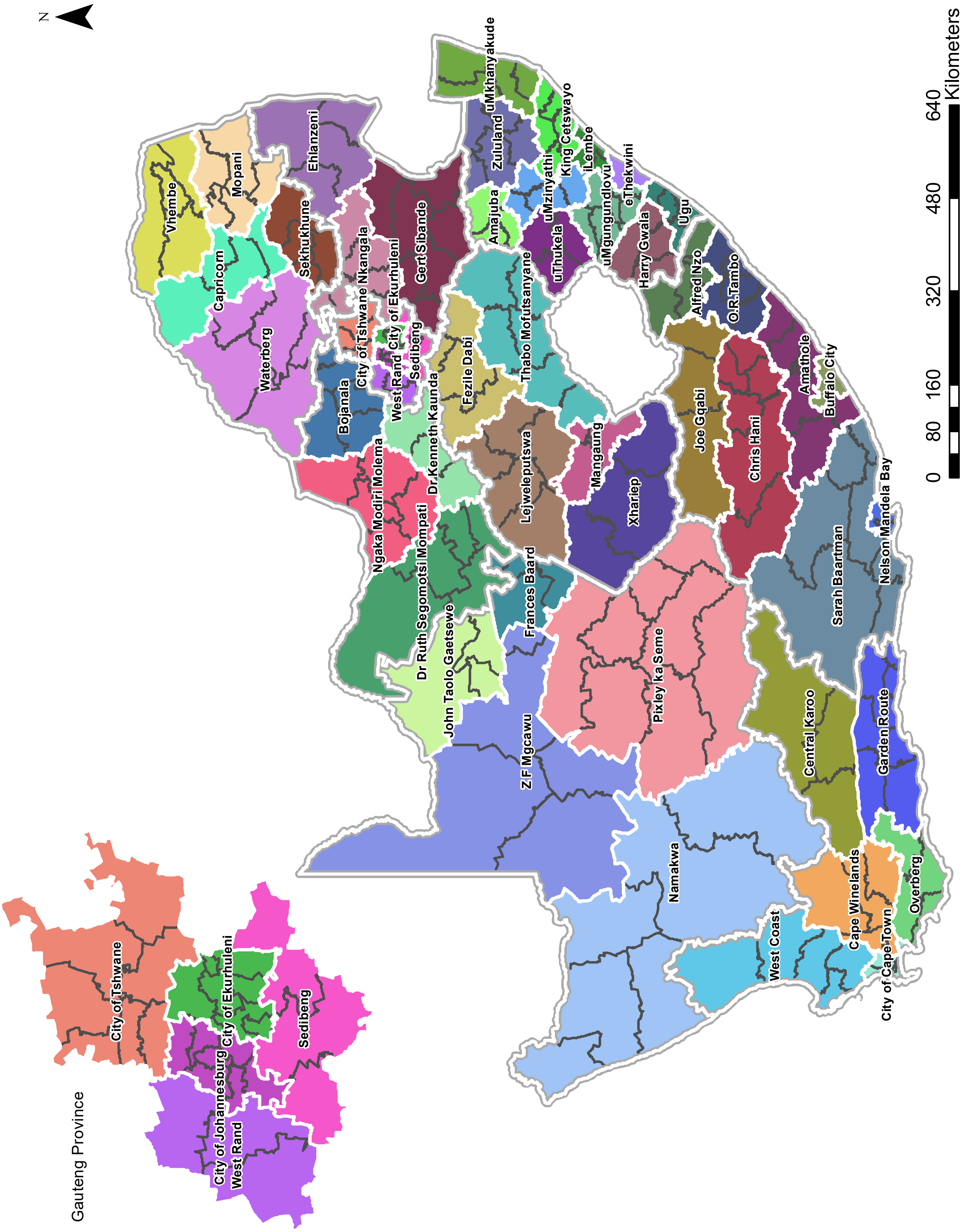
	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	3.9	4.7	4.6	4.7	4.1	4.3	
Inpatient bed utilisation rate (district hospitals) (%)	61.4	64.2	64.0	65.8	63.0	60.3	
Average length of stay – total (days)	4.1	4.1	3.5	3.7	3.3	3.3	
PHC utilisation rate under 5 years (number)	74.6	69.0	74.6	78.0	77.5	46.6	
Inpatient bed utilisation rate – total (%)	2.2	2.3	2.1	2.1	1.9	1.9	
PHC utilisation rate (number)	6.8	7.2	7.2	7.3	7.2	6.9	
Universal health coverage							
Couple year protection rate (index) (%)	43.3	56.4	45.5	59.7	56.5	59.3	
Cervical cancer screening coverage (index) (%)	61.8	67.2	66.2	70.4	68.5	69.0	
Pneumonia case fatality under 5 years rate (index) (%)	90.4	92.8	93.8	95.0	91.4	95.6	
Antenatal 1st visit coverage before 20 weeks (index) (%)	39.7	43.9	44.2	48.9	52.0	53.9	
Tuberculosis effective treatment coverage (%)	44.8	47.7	46.9	53.3	53.6		
Percentage of households with access to improved sanitation (%)	70.0	67.0	66.4	69.0	71.7	70.6	
Prevalence of non-raised blood pressure age-standardised (index) (%)			59.8		60.6		
Immunisation under 1 year coverage (index) (%)	67.3	76.5	76.2	69.0	69.4	68.4	
Hospital beds per 10 000 target population (index)	78.5	75.1	86.5	80.2	73.3	75.7	76.6

Western Cape

	2013	2014	2015	2016	2017	2018	2019
Maternal and neonatal							
Antenatal 1st visit before 20 weeks rate (%)	61.0	65.8	67.7	69.6	69.7	70.3	
Maternal mortality in facility ratio (per 100 000 live births)	68.6	54.4	66.9	57.7	55.1	66.8	
Neonatal death in facility rate (per 1 000 live births)			8.8	8.5	9.0	8.9	
Antenatal 1st visit coverage (%)	77.4	79.2	73.4	75.8	79.1	84.1	
Child health and nutrition							
Pneumonia case fatality under 5 years rate (%)	0.4	0.4	0.4	0.4	0.7	0.4	
Severe acute malnutrition case fatality under 5 years rate (%)	2.2	1.8	0.9	0.6	2.2	1.6	
Child under 5 years pneumonia incidence (cases per 1 000 children)	66.5	89.4	97.9	99.4	86.9	84.1	
Immunisation							
Immunisation under 1 year coverage (%)	80.4	87.1	84.9	74.8	80.9	82.7	
Measles 2nd dose coverage (%)	71.2	76.3	81.8	86.3	78.3	77.6	
Confirmed measles case incidence (per million population)				0.8	5.8	1.4	1.1
DTaP-IPV-Hib-HBV 3rd dose coverage (%)	82.0	92.6	93.1	78.8	78.8	92.9	
Reproductive health							
Couple year protection rate (%)	89.1	83.2	79.8	78.3	81.3	75.6	
Tuberculosis							
TB DS treatment success rate (%)	82.6	81.8	80.4	80.3	79.0		
TB MDR treatment success rate (%)	43.5	41.5	43.6	51.4	40.7		
TB XDR treatment success rate (%)				50.5	36.7		
TB child under 5 years start on treatment rate (%)						32.8	
TB client 5 years and older start on treatment rate (%)						88.6	
HIV/AIDS							
Adult with viral load suppressed rate 12 months (%)				92.2	92.3	92.7	
Child with viral load suppressed rate 12 months (%)				67.0	69.1	73.4	
Clients remaining on ART rate (%)				54.8	58.8		63.7
Infant PCR test positive around 10 weeks rate (%)				0.8	0.5	0.3	
Antiretroviral effective coverage (PLHIV on ART and virally suppressed) (%)	30.7	33.4	40.0	43.2	58.7	62.6	65.1
Non-communicable diseases							
Prevalence of non-raised blood pressure age-standardised (15+yrs / NiDS) (%)			76.1		75.5		
Percentage of adults overweight or obese (15+yrs / NiDS) (%)			54.0		51.4		
Diabetes prevalence 15+ years I NiDS modelled) (%)	12.2	13.4	14.8	16.3	17.8		
Diabetes treatment coverage (15+ years I NiDS modelled) (%)	47.9	43.1	38.4	33.8	29.6		
Cervical cancer screening coverage (% of women 30 and older /10)	57.4	57.2	54.3	54.9	57.8	55.6	
Adults who had not smoked tobacco in the previous 30 days (%)			72.1	73.6	81.6		
Mental disorders treatment rate new (%)						0.0	
Mental health separation rate (%)						3.3	
PHC management							
Percentage Ideal clinics (%)		0.0	0.0	15.2	54.3	68.3	
Percentage of fixed PHC facilities with 90% of tracer medicines available (%)				70.7	85.9	92.1	
Tracer items stock-out rate (fixed clinic/CHC/CDC) (%)	2.8	5.3	5.6	4.8	4.3	9.7	
Proportion of health facilities with essential medicines (%)	97.2	94.7	94.4	95.2	95.7	90.3	
Inpatient management							
Inpatient crude death rate (%)	3.1	3.1	2.9	2.9	3.0	2.9	
OPD new client not referred rate (district hospitals) (%)	40.2	29.5	21.2	18.2	13.6	12.6	
OPD new client not referred rate (%)				15.0	13.0	0.0	
Hospital beds per 10 000 target population	20.5	20.7	20.8	20.5	20.3	20.0	
School Grade 1 screening coverage (%)	0.0	36.6	51.9	52.9	45.7	16.5	
School Grade 8 screening coverage (%)			10.2	12.5	14.0	33.3	
Environmental health services							
Environmental health services compliance rate (%)				53.3	63.2	68.3	
Finance							
Expenditure per patient day equivalent (district hospitals) (Rand)	2 247	2 322	2 414	2 516	2 558	2 502	
Provincial & LG District Health Services expenditure per capita (uninsured) (Rand)	1 669	1 790	1 830	1 888	1 939	1 957	
Provincial & LG PHC expenditure per capita (uninsured) (Rand)	903	956	974	1 007	1 032	1 026	
Provincial & LG PHC expenditure per PHC headcount (Rand)	303	327	341	353	374	379	
Human resources							
Medical practitioners per 100 000 population - public sector	34.4	33.9	34.2	32.0	32.3	33.0	38.9
Health worker density (index) - public sector (%)	16.9	17.0	17.3	16.1	16.1	16.1	17.2
Professional nurses per 100 000 population - public sector	111.8	112.9	115.3	103.6	104.0	102.1	103.2
Pharmacists per 100 000 population - public sector	18.9	19.4	20.0	18.8	18.6	18.5	18.9

	2013	2014	2015	2016	2017	2018	2019
Extra							
Average length of stay (district hospitals) (days)	3.7	3.8	3.3	3.2	3.3	3.4	
Inpatient bed utilisation rate (district hospitals) (%)	88.7	89.3	87.5	84.8	88.3	91.4	
Average length of stay – total (days)	4.0	4.0	3.9	4.0	3.7	3.8	
PHC utilisation rate under 5 years (number)	84.4	84.5	85.1	84.1	84.5	64.8	
Inpatient bed utilisation rate – total (%)	2.4	2.3	2.3	2.3	2.2	2.2	
PHC utilisation rate (number)	6.4	6.4	5.7	5.7	5.6	5.5	
Universal health coverage							
Couple year protection rate (index) (%)	89.1	83.2	79.8	78.3	81.3	75.6	
Cervical cancer screening coverage (index) (%)	57.4	57.2	54.3	54.9	57.8	55.6	
Pneumonia case fatality under 5 years rate (index) (%)	124.1	125.7	127.0	128.0	128.8	129.5	
Antenatal 1st visit coverage before 20 weeks (index) (%)	47.2	52.1	49.7	52.8	55.1	59.1	
Tuberculosis effective treatment coverage (%)	56.2	55.7	54.7	54.6	53.7		
Percentage of households with access to improved sanitation (%)	94.8	94.6	93.3	94.3	94.2	93.8	
Prevalence of non-raised blood pressure age-standardised (index) (%)			54.0		52.9		
Immunisation under 1 year coverage (index) (%)	80.4	87.1	84.9	74.8	80.9	82.7	
Hospital beds per 10 000 target population (index)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Ave = Average; ART = Antiretroviral treatment; CDC = Community Day Centre; CHC = Community Health Centre; DS = Drug-susceptible; DTaP-IPV-Hib-HBV = Diphtheria, Tetanus, Inactivated Polio Vaccine, Haemophilus Influenza B, Hepatitis Vaccine; HIV = Human immunodeficiency virus; LG = Local Government; MDR = Mullti-drug-resistant; NiDS = National Income Dynamics Study; OHH = Outreach household; OPD = Outpatient department; PCR = Polymerase chain reaction; PHC = Primary Health Care; PLHIV = People living with HIV; PMTCT = Prevention of mother-to-child transmission of HIV; TB = Tuberculosis; XDR = Extremely drug resistant.


N
Vhembe
Mopani
Ehlanzeni
Capricorn
Sekhukhune
Nkangala
Gert Sibande
Waterberg
City of Tshwane
City of Ekurhuleni
West Rand
Sedibeng
Bojanala
Dr Kenneth Kaunda
Fezile Dabi
Thabo Mofutsanyane
Amajuba
Zululand
uMkhanyakude
King Cetswayo
uMzinyathi
iLembe
uThukela
uMgungundlovu
eThekwini
Harry Gwala
Ugu
Alfred Nzo
O.R.Tambo
Amathole
Buffalo City
Joe Gqabi
Chris Hani
Mangaung
Xhariep
Lejweleputswa
Ngaka Modiri Molema
Dr Ruth Segomotsi Mompati
John Taolo Gaetsewe
Frances Baard
Z F Mgcawu
Pixley ka Seme
Namakwa
Central Karoo
Sarah Baartman
Nelson Mandela Bay
Garden Route
West Coast
Cape Winelands
City of Cape Town
Overberg
0 80 160 320 480 640
Kilometers
Gauteng Province
City of Tshwane
City of Ekurhuleni
Sedibeng
City of Johannesburg
West Rand

8. Eastern Cape Province

Buffalo City Metropolitan Municipality (BUF)

The Buffalo City Metropolitan Municipality[a] is a Category A municipality situated on the east coast of the Eastern Cape Province.

Population (2018)[b]: 856 897

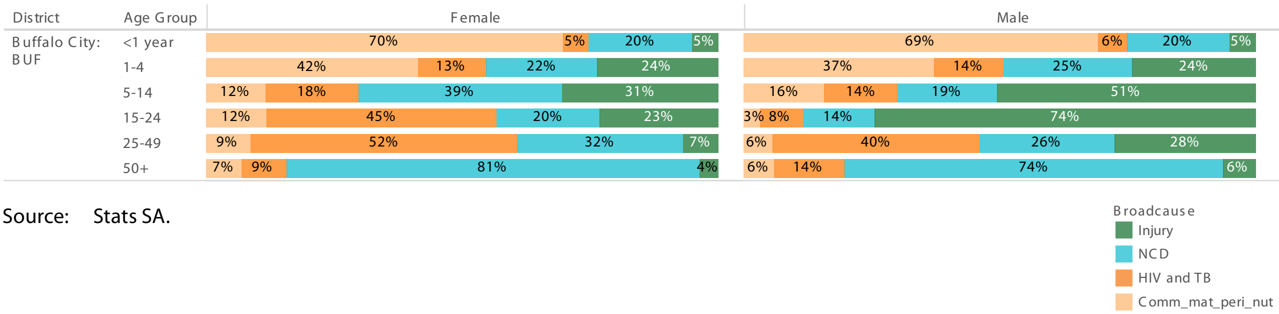
Population density (2019): 311.6 persons per km^2

Estimated medical scheme coverage (2018): 22.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

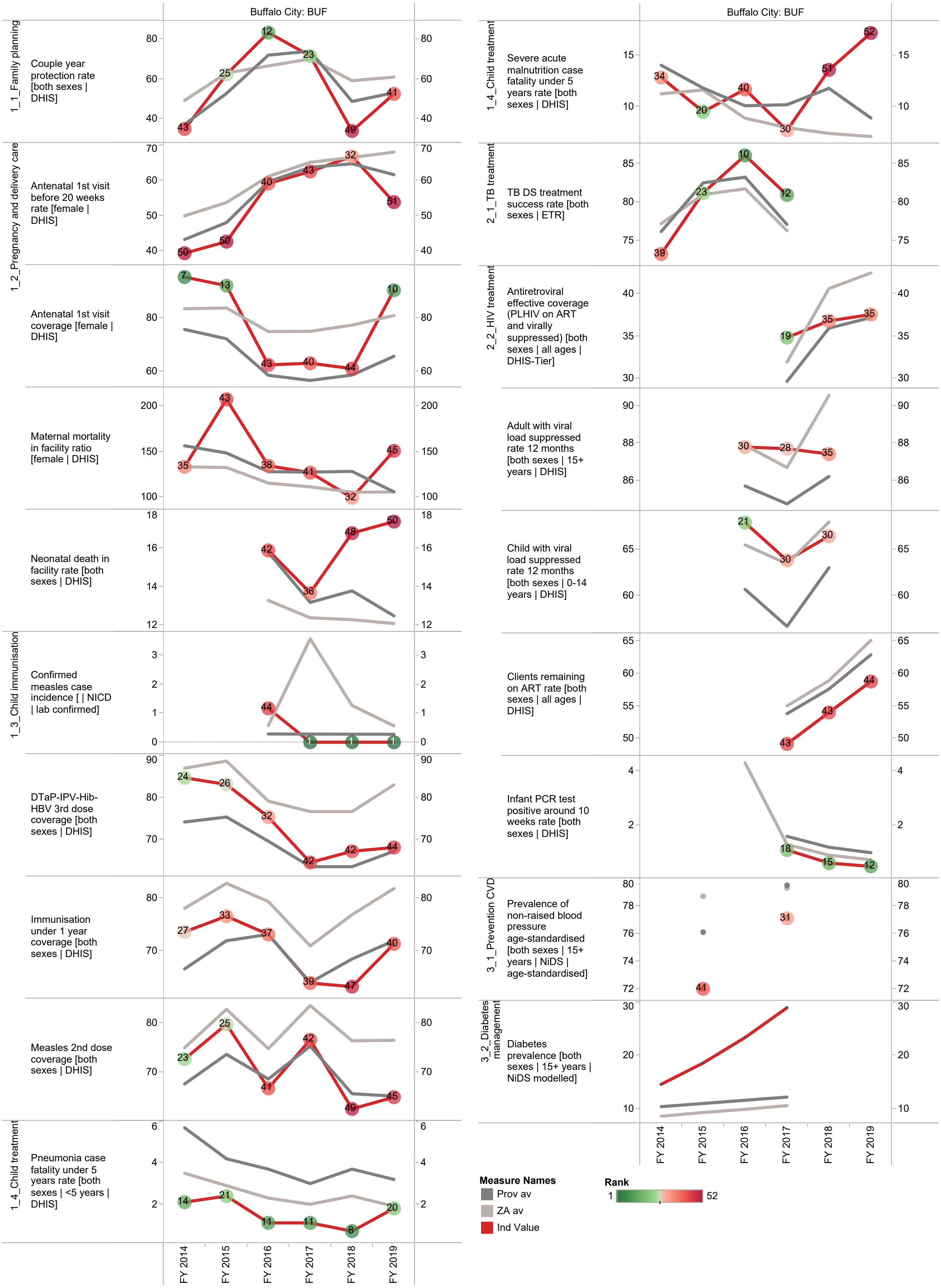


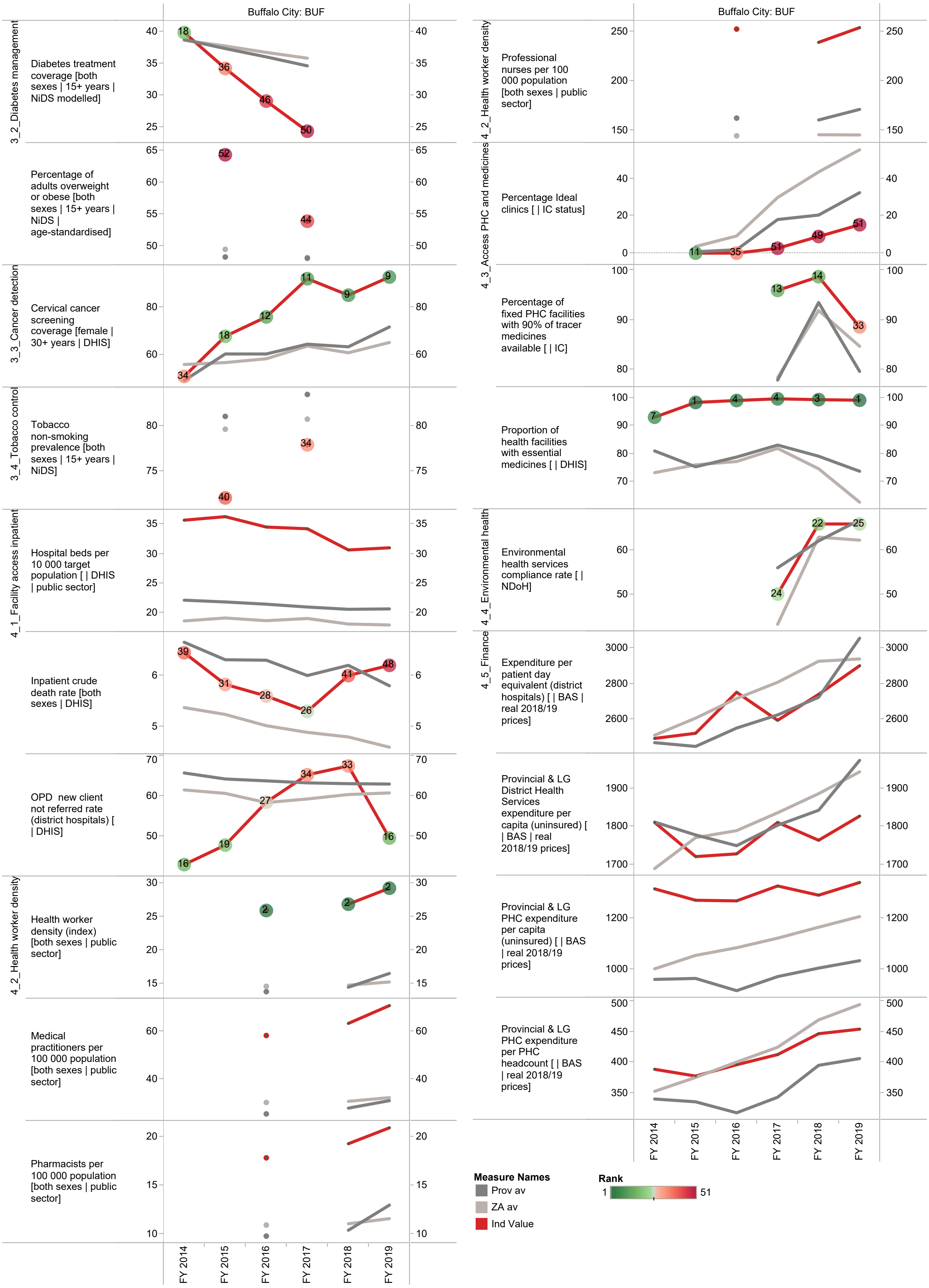
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Buffalo City: BUF
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
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FY 2017
FY 2018
FY 2019
Measure Names
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ZA av
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Rank
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51

Sarah Baartman District Municipality (DC10)

The Sarah Baartman District Municipality[c] is a Category C municipality situated in the Eastern Cape Province. It comprises seven local municipalities: Dr Beyers Naudé, Blue Crane Route, Makana, Ndlambe, Sundays River Valley, Kouga and Koukamma.

Population (2018)[d]: 524 603

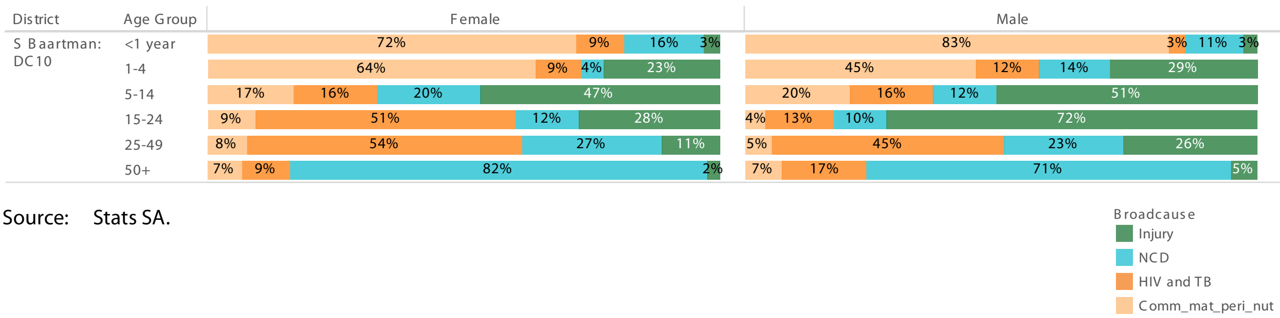
Population density (2019): 9.0 persons per km^2

Estimated medical scheme coverage (2018): 8.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

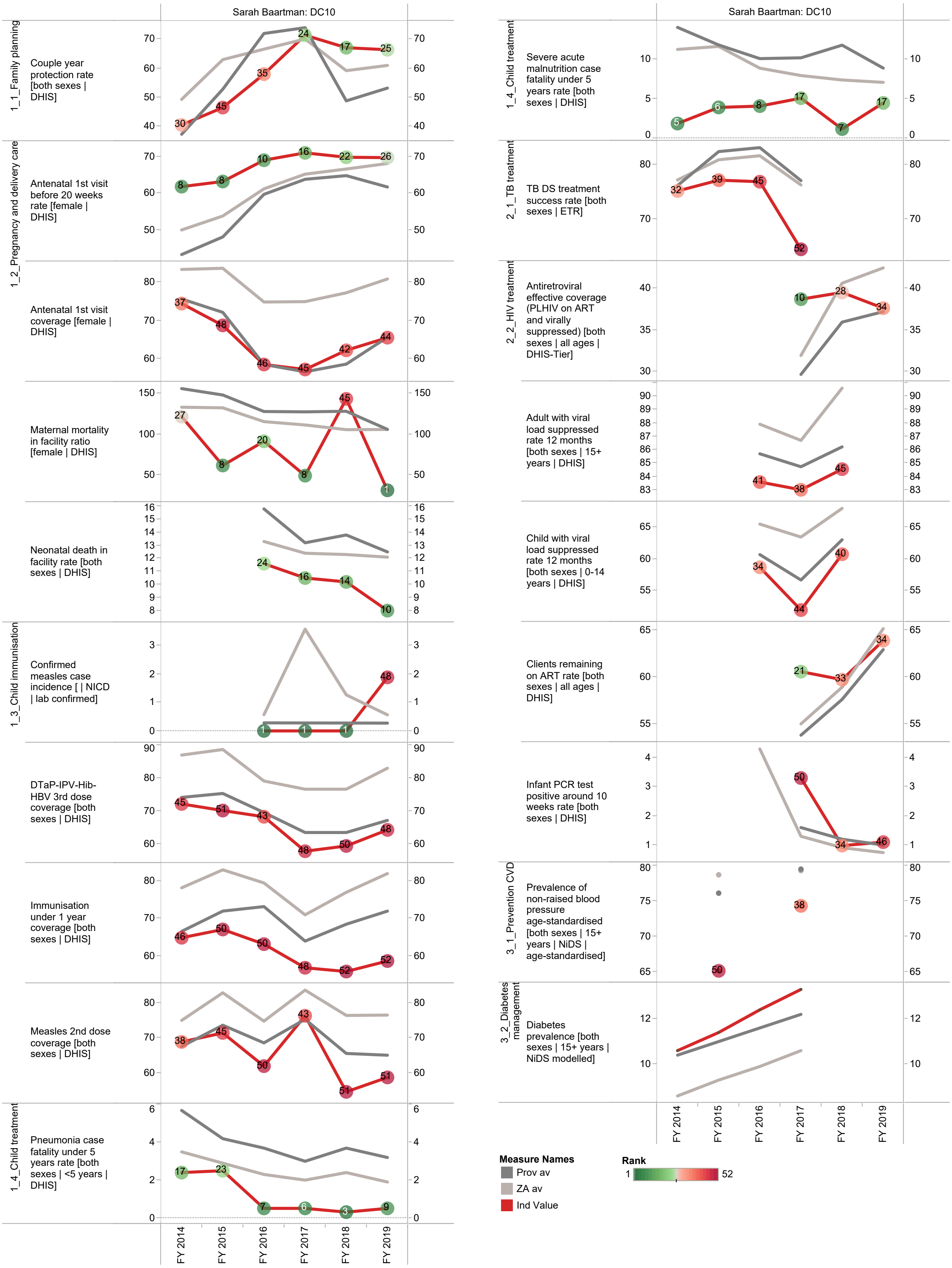


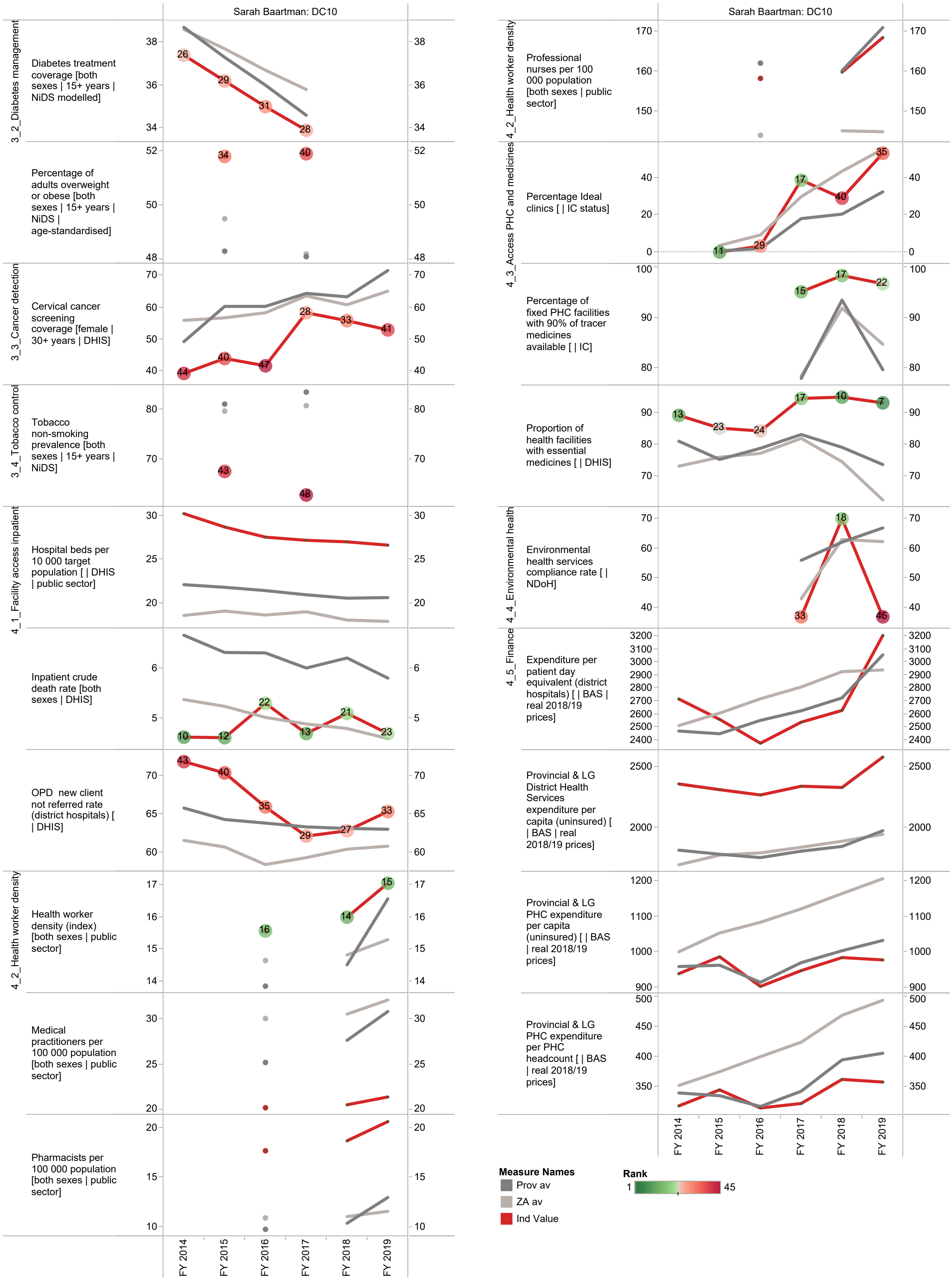
Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Sarah Baartman: DC10
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Sarah Baartman: DC10
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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Measure Names
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45

Amathole District Municipality (DC12)

The Amathole District Municipality[e] is a Category C municipality situated in the central part of the Eastern Cape. The district is comprised of six local municipalities: Mbhashe, Mnquma, Great Kei, Amahlathi, Ngqushwa and Raymond Mhlaba.

Population (2018)[f]: 995 414

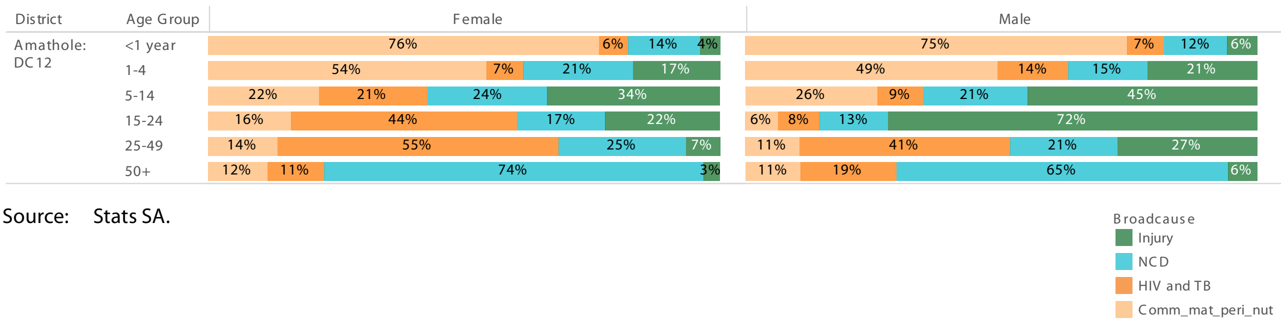
Population density (2019): 47.1 persons per km^2

Estimated medical scheme coverage (2018): 4.3%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

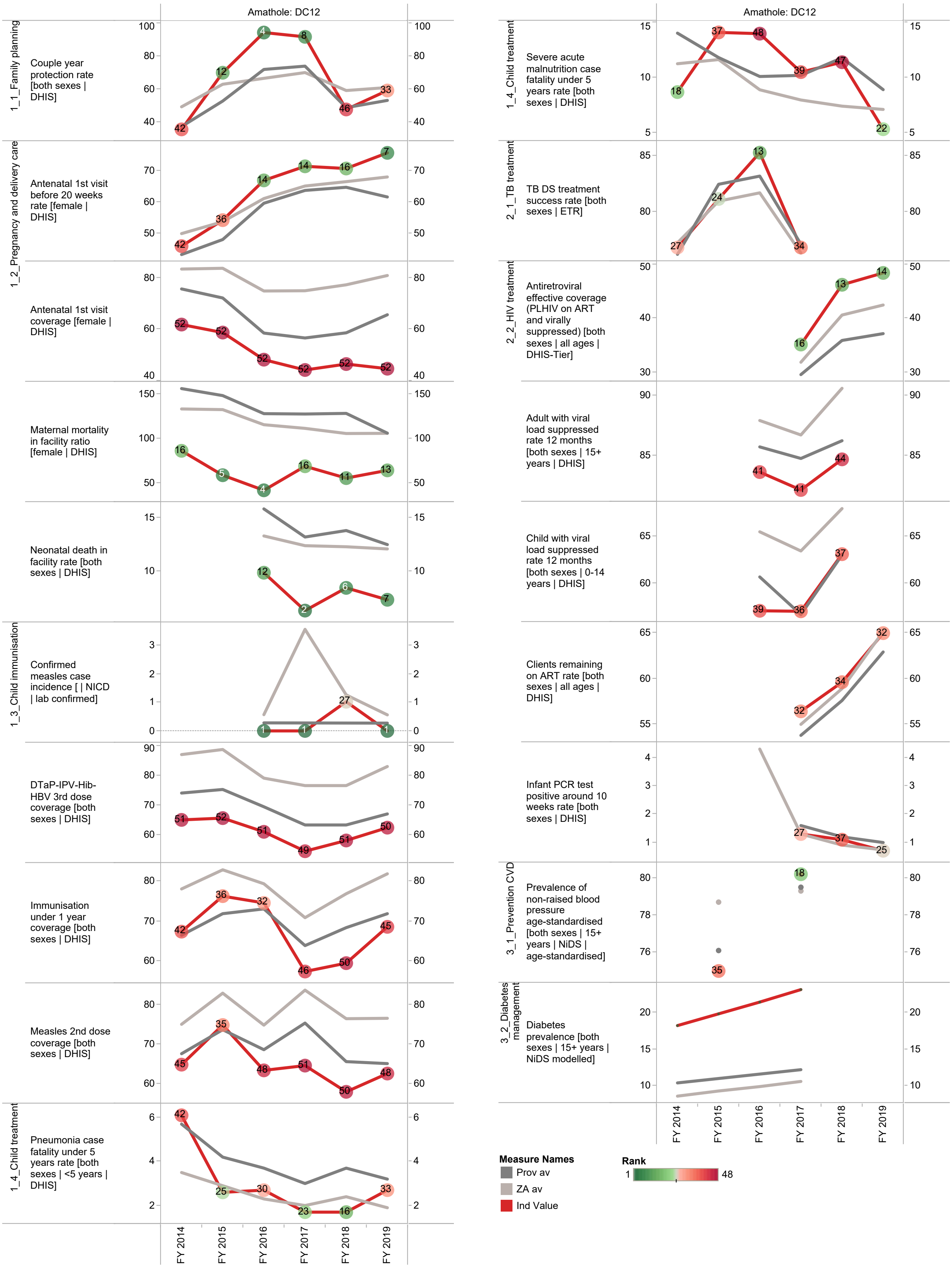


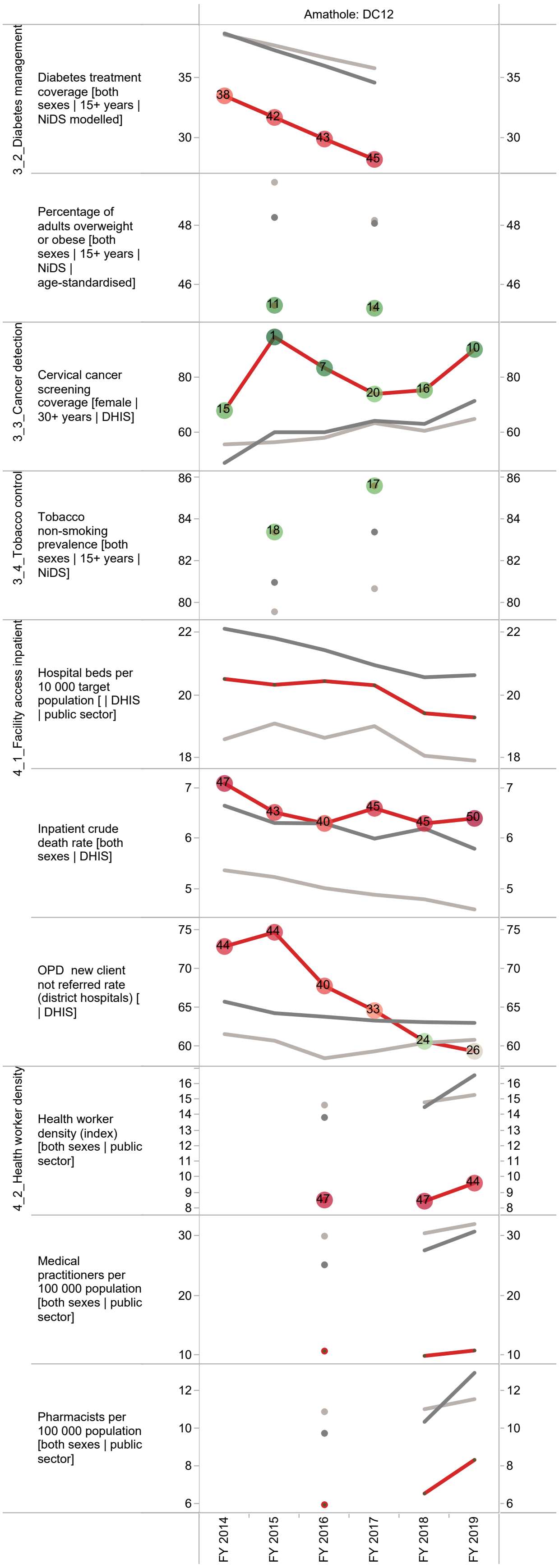
Source: Stats SA.

e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Amathole: DC12
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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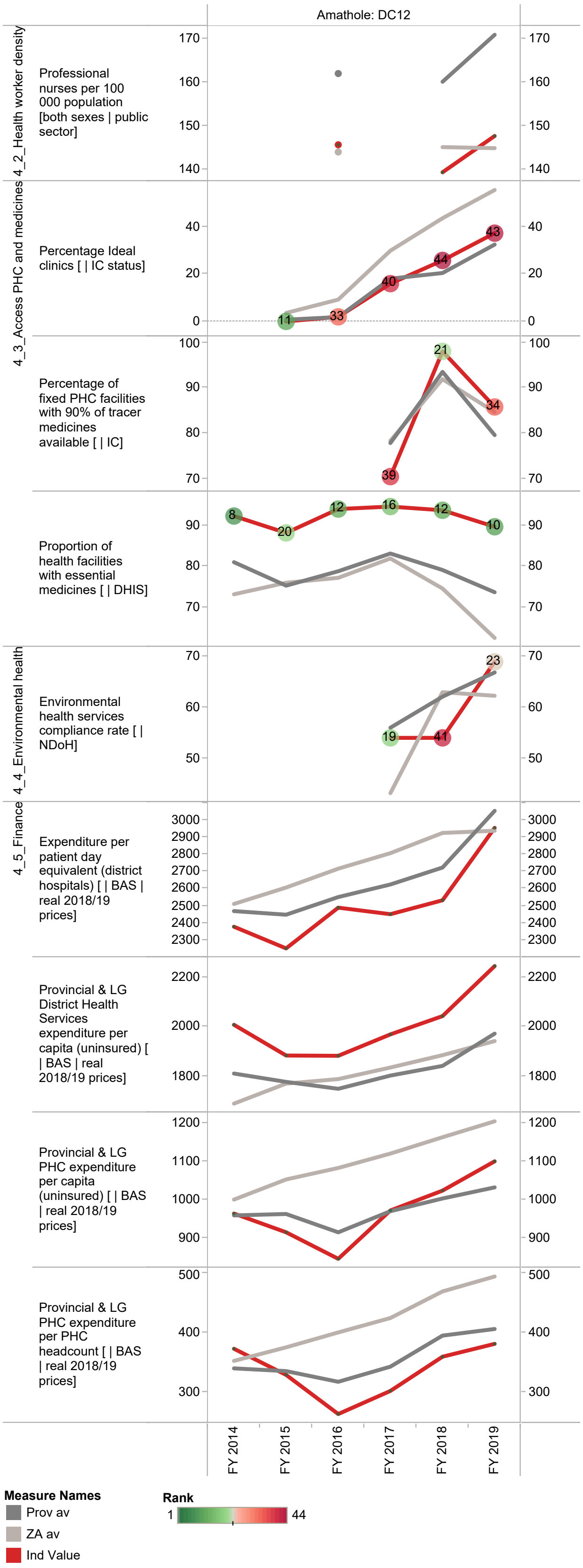
Amathole: DC12
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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Measure Names
Prov av
ZA av
Ind Value
Rank
1
44

Chris Hani District Municipality (DC13)

The Chris Hani District Municipality[g] is a Category C municipality situated in the north-eastern part of the Eastern Cape, a linking node to all regions in the province. The district comprises six local municipalities: Inxuba Yethemba, Enoch Mgijima, Intsika Yethu, Engcobo, Sakhisizwe and Emalahleni.

Population (2018)[h]: 818 150

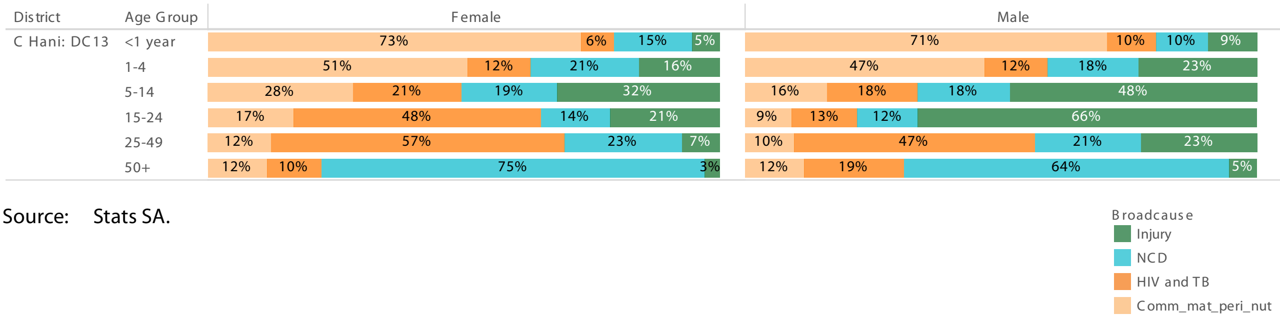
Population density (2019): 22.5 persons per km^2

Estimated medical scheme coverage (2018): 4.9%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

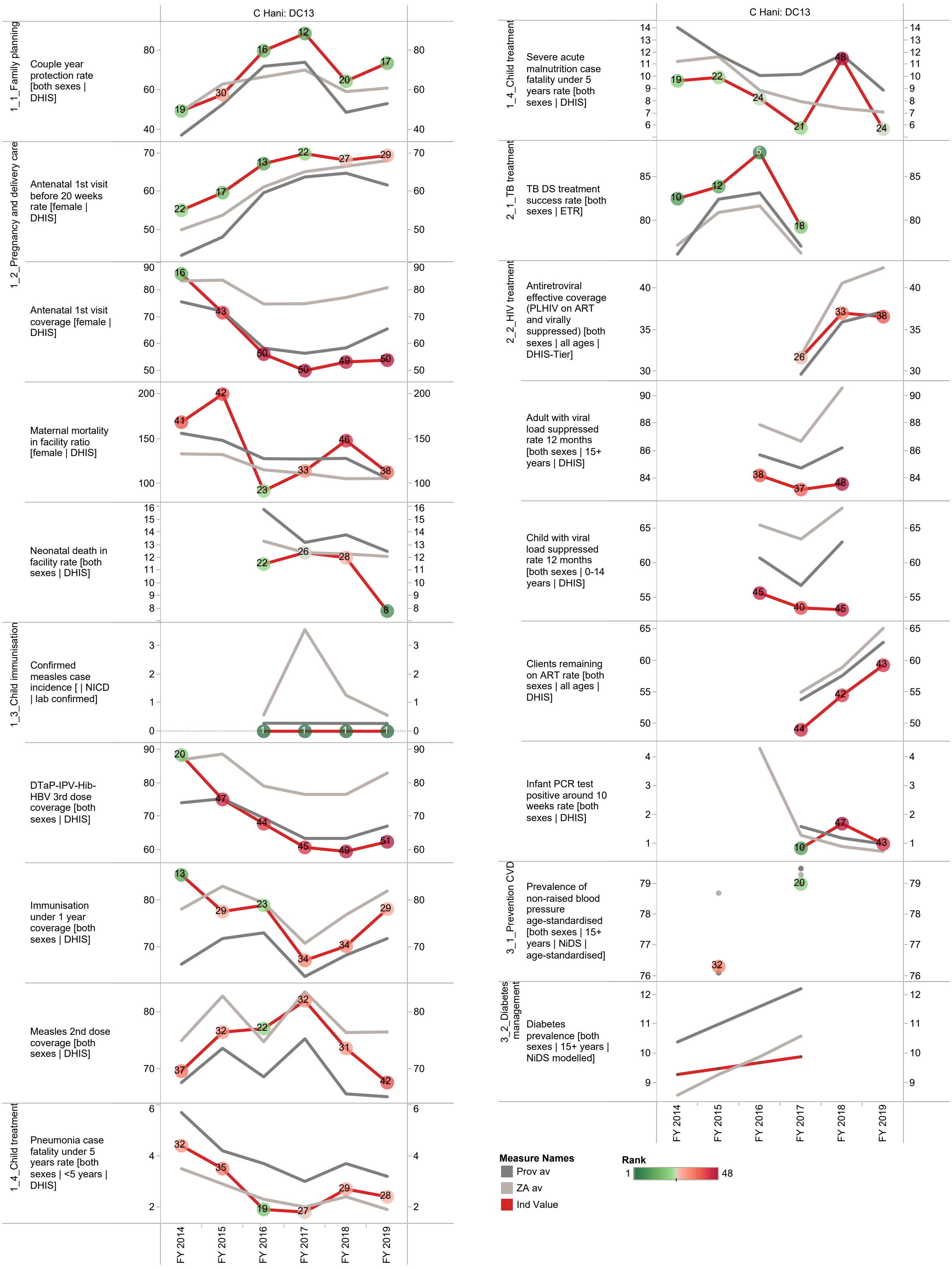


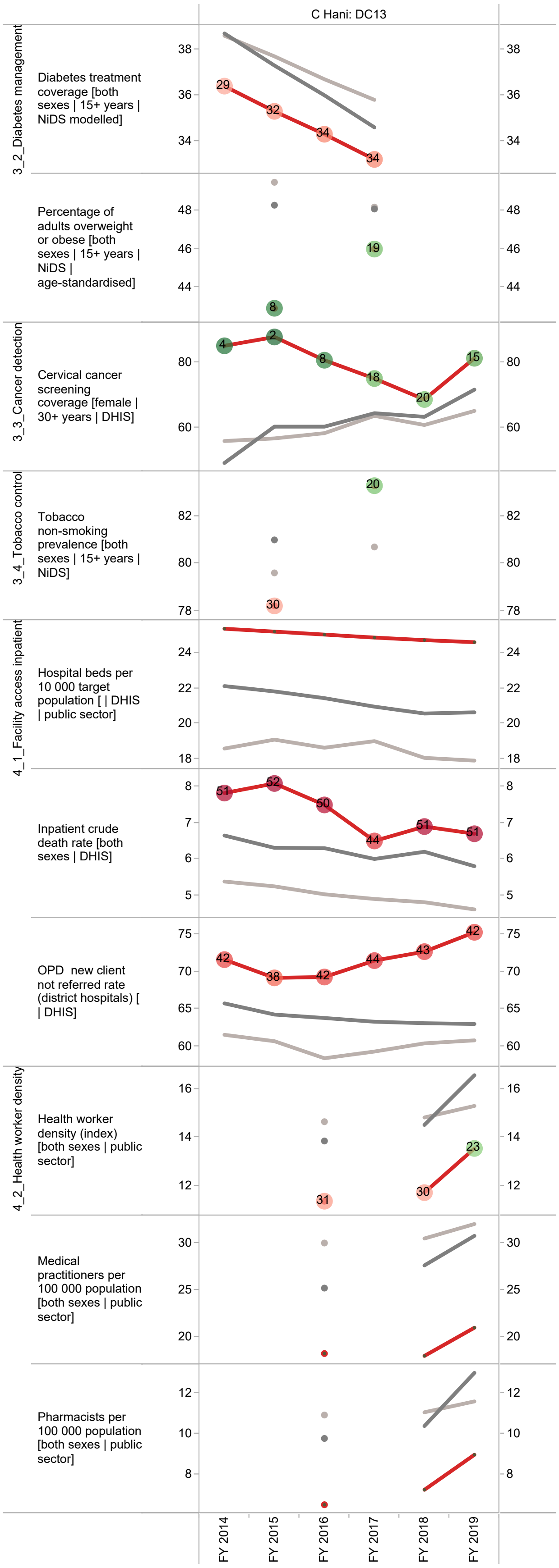
Source: Stats SA.

g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




C Hani: DC13
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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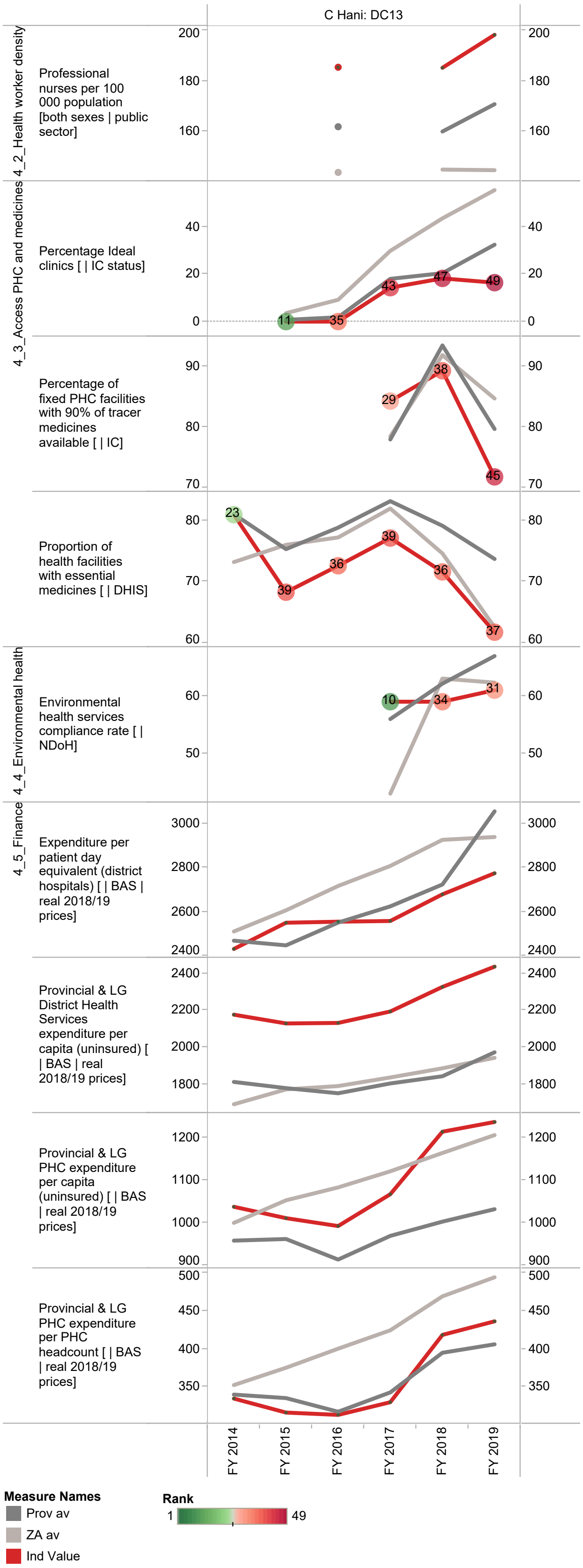
FY 2019


C Hani: DC13
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
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Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
49

Joe Gqabi District Municipality (DC14)

The Joe Gqabi District Municipality[i] is a Category C municipality located within the Eastern Cape. It consists of three local municipalities: Elundini, Walter Sisulu and Senqu.

Population (2018)[j]: 373 266

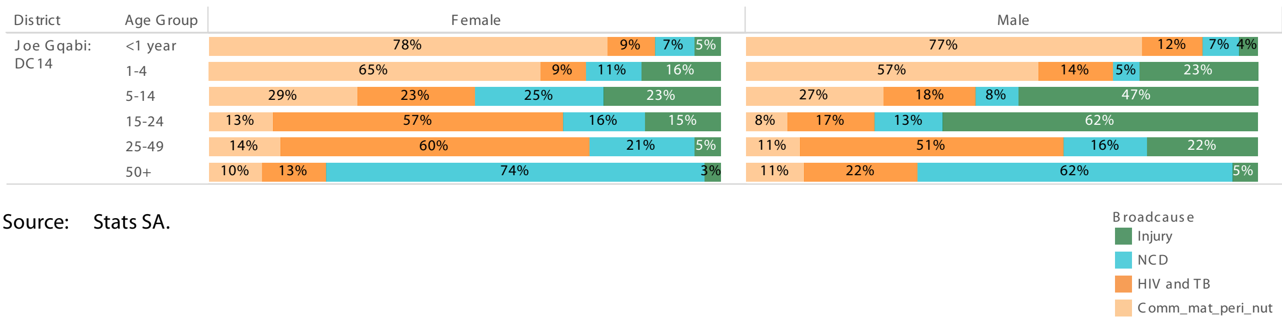
Population density (2019): 14.6 persons per km^2

Estimated medical scheme coverage (2018): 5.0%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

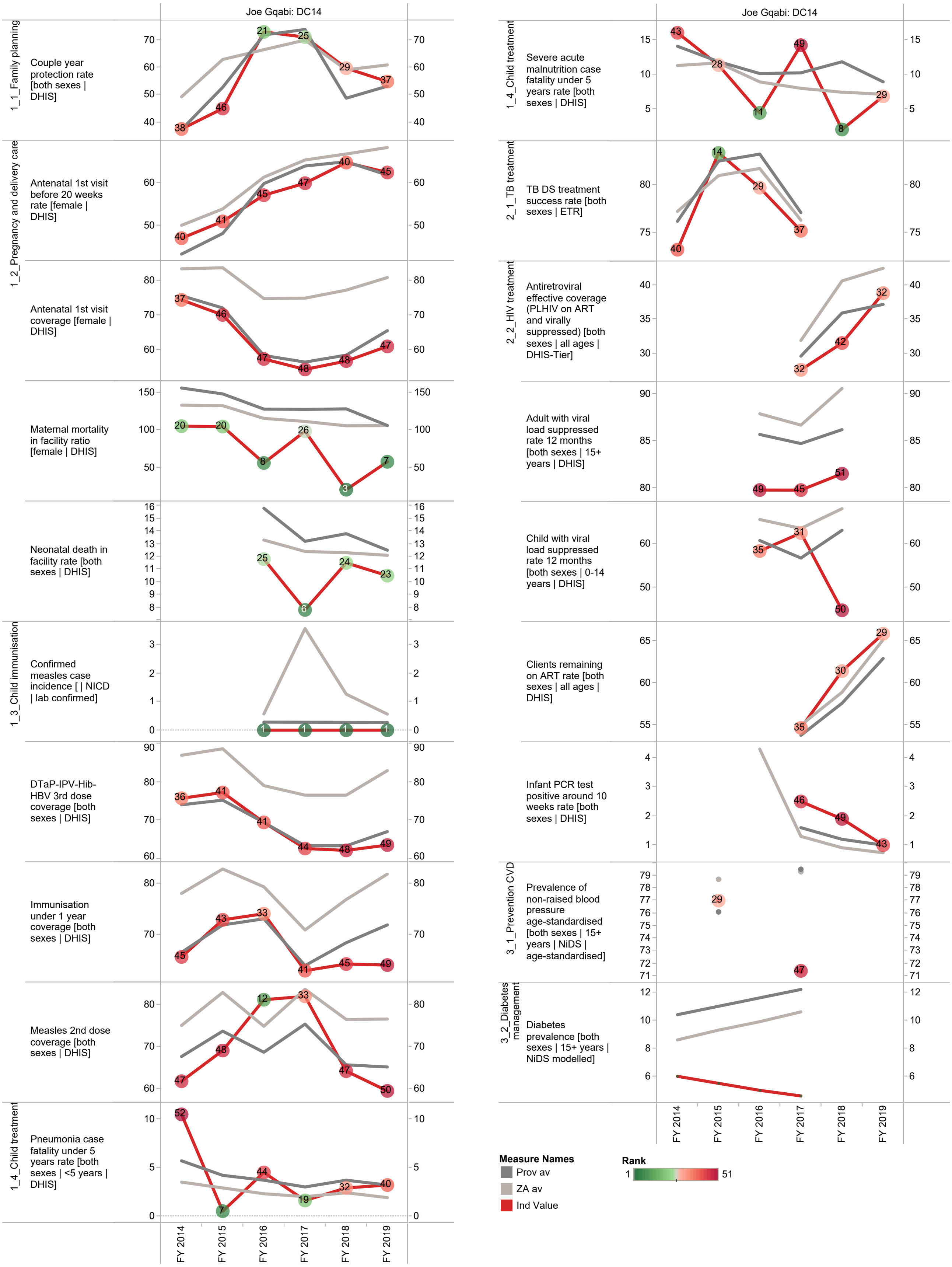


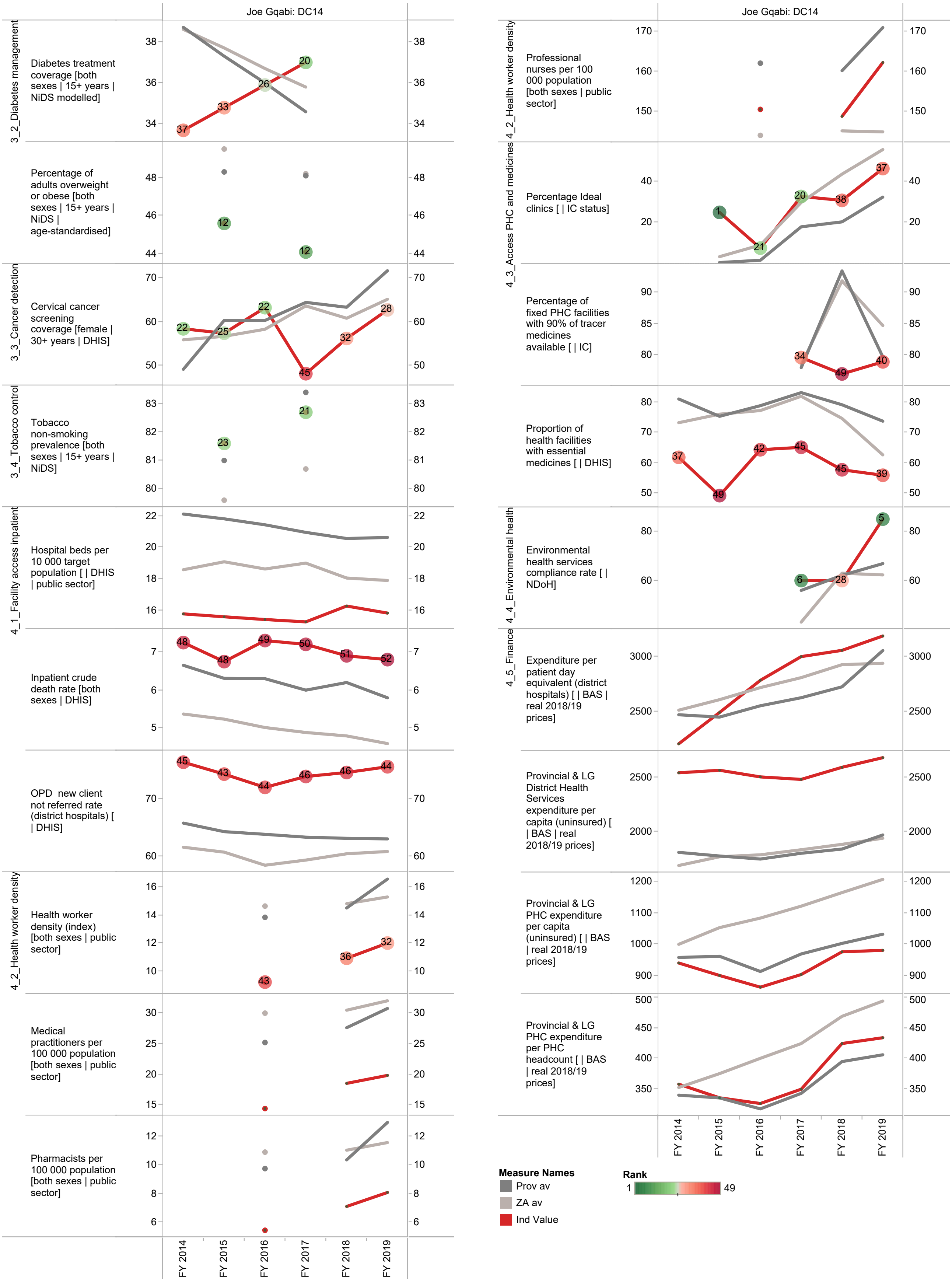
Source: Stats SA.

i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Joe Gqabi: DC14
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
49

OR Tambo District Municipality (DC15)

The OR Tambo District Municipality[k] is a Category C municipality located to the east of the Eastern Cape Province. The district is formed by five local municipalities: King Sabata Dalindyebo, Nyandeni, Mhlontlo, Port St Johns and Ingquza Hill.

Population (2018)[l]: 1 495 055

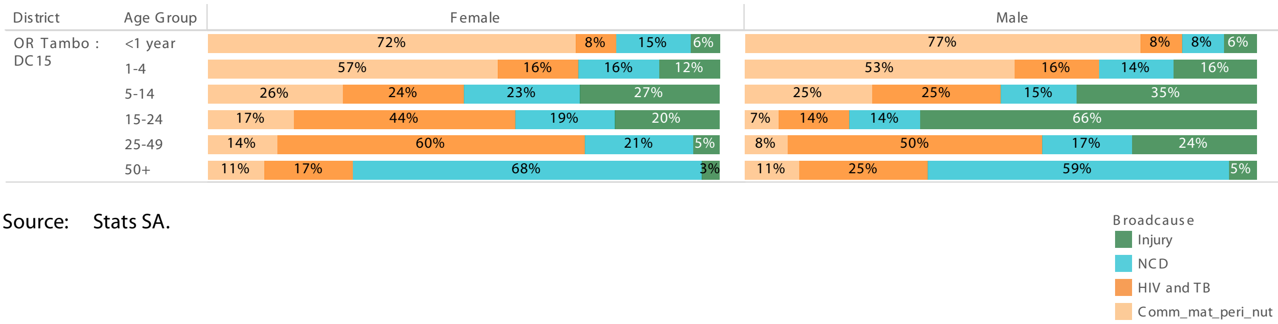
Population density (2019): 123.1 persons per km^2

Estimated medical scheme coverage (2018): 4.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

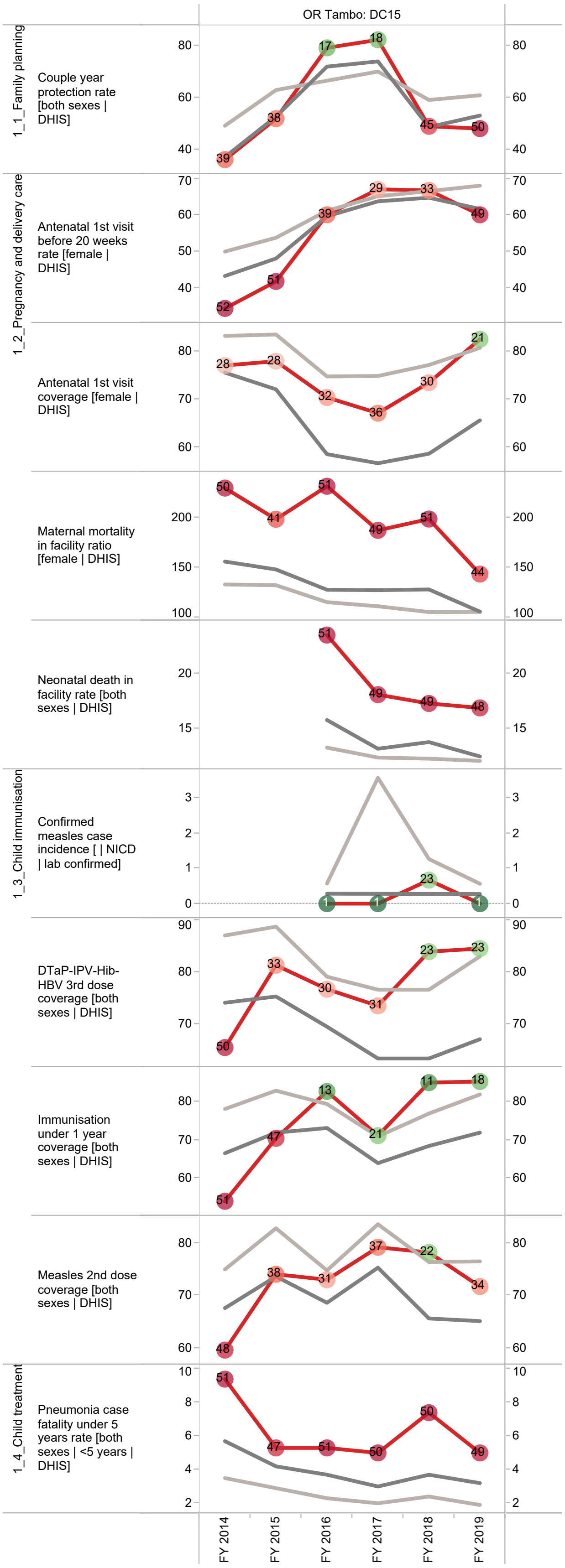


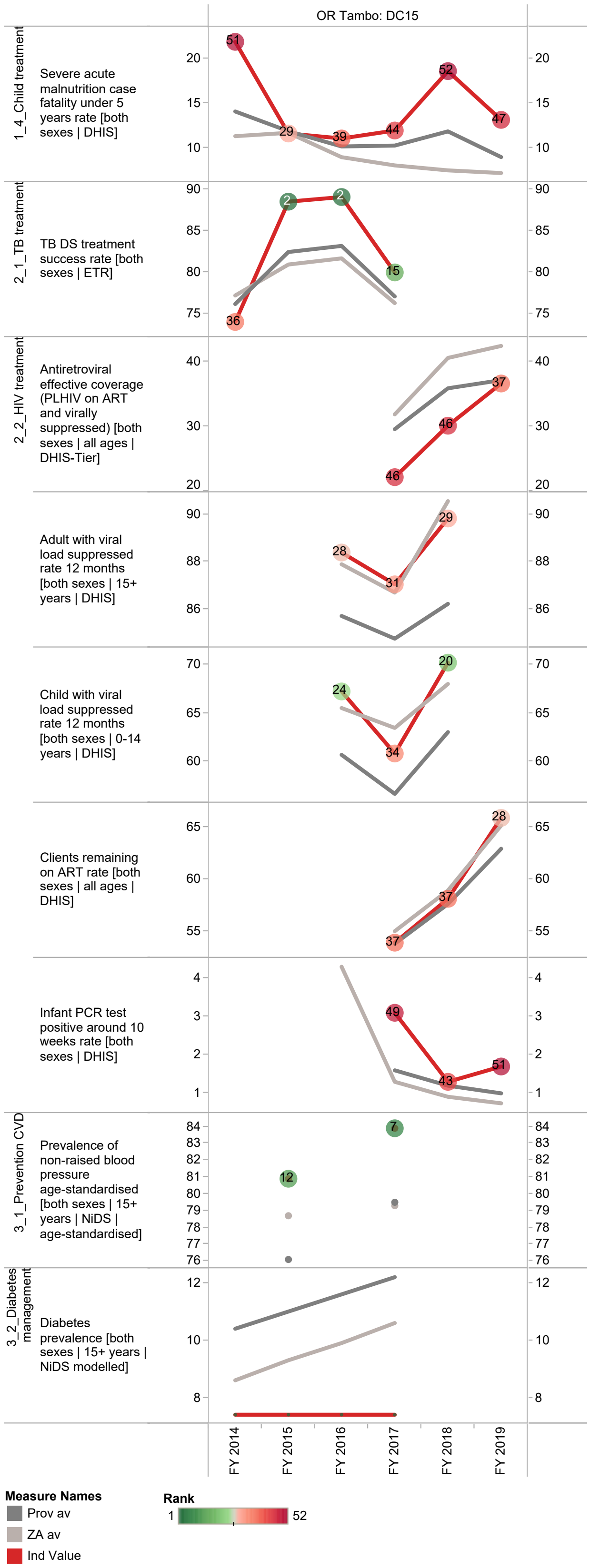
Source: Stats SA.

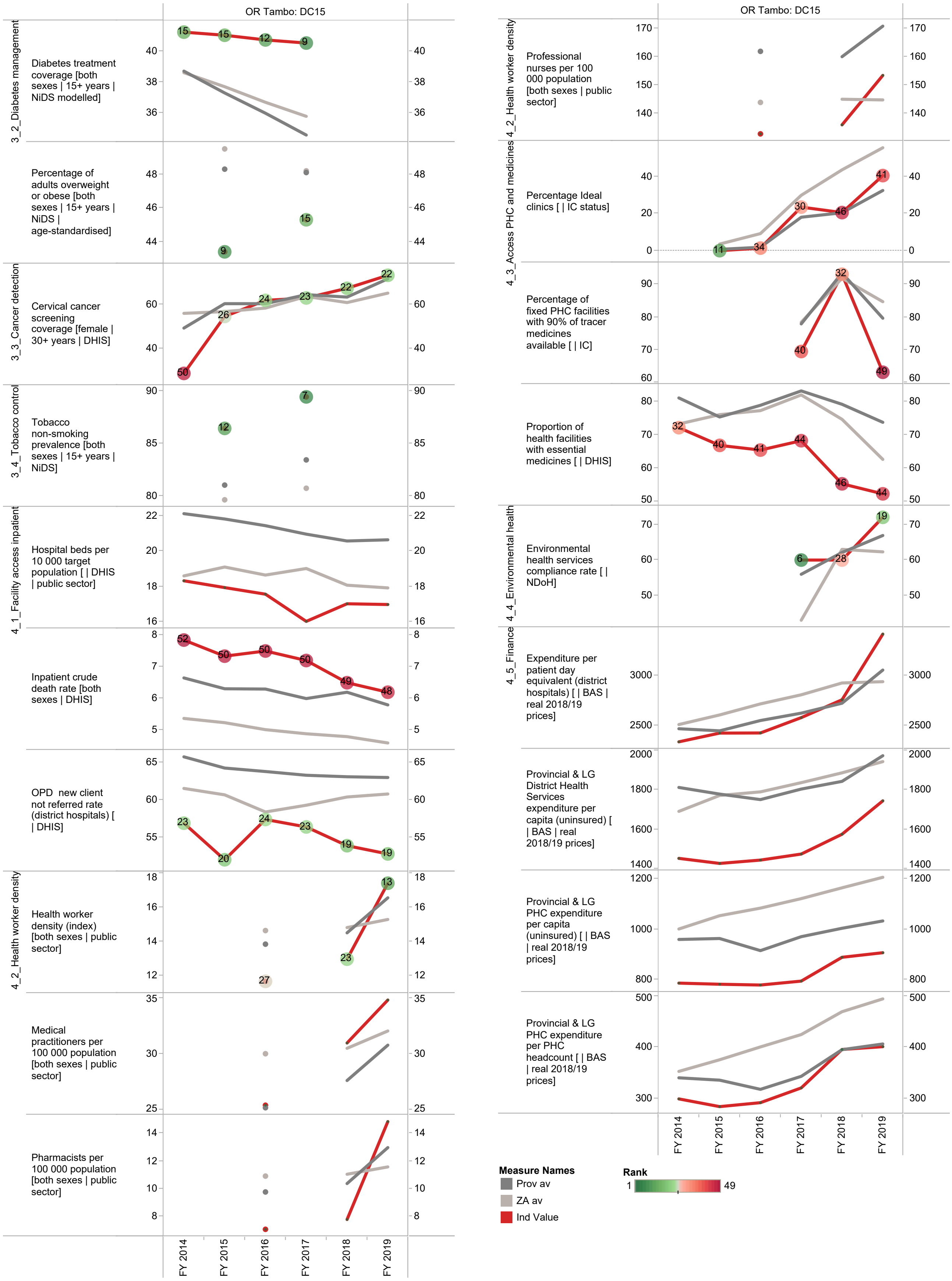
k The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

l Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






OR Tambo: DC15
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
OR Tambo: DC15
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
49

Alfred Nzo District Municipality (DC44)

The Alfred Nzo District Municipality[m] is a Category C municipality located in the north-eastern corner of the Eastern Cape Province. The district is comprised of the Matatiele, Ntabankulu, Mbizana and Umzimvubu Local Municipalities.

Population (2018)[n]: 869 157

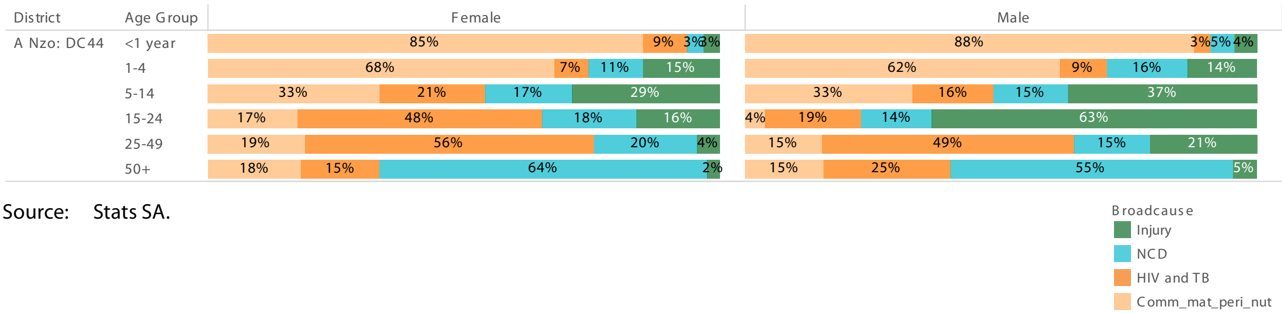
Population density (2019): 81.0 persons per km^2

Estimated medical scheme coverage (2018): 3.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

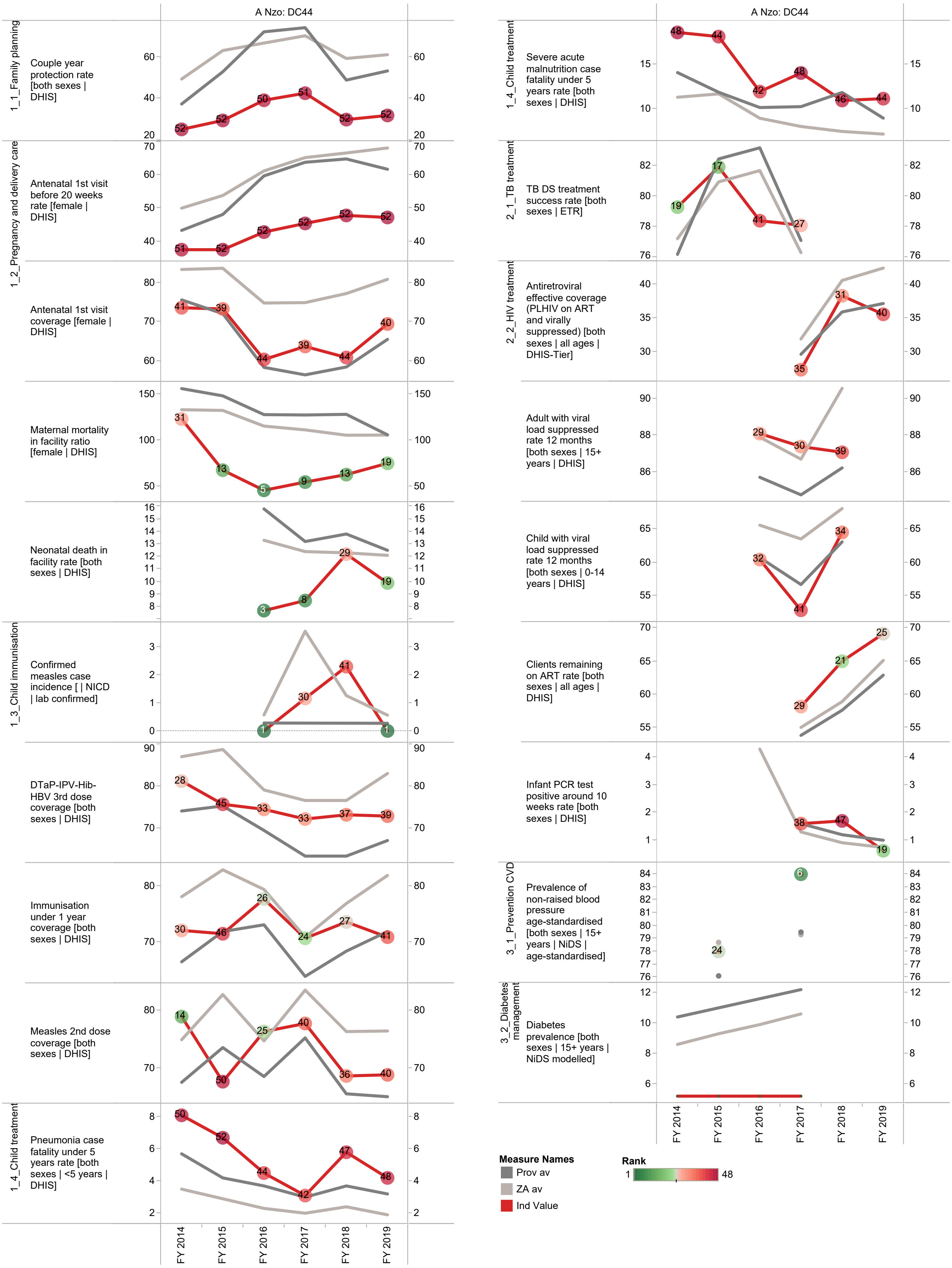


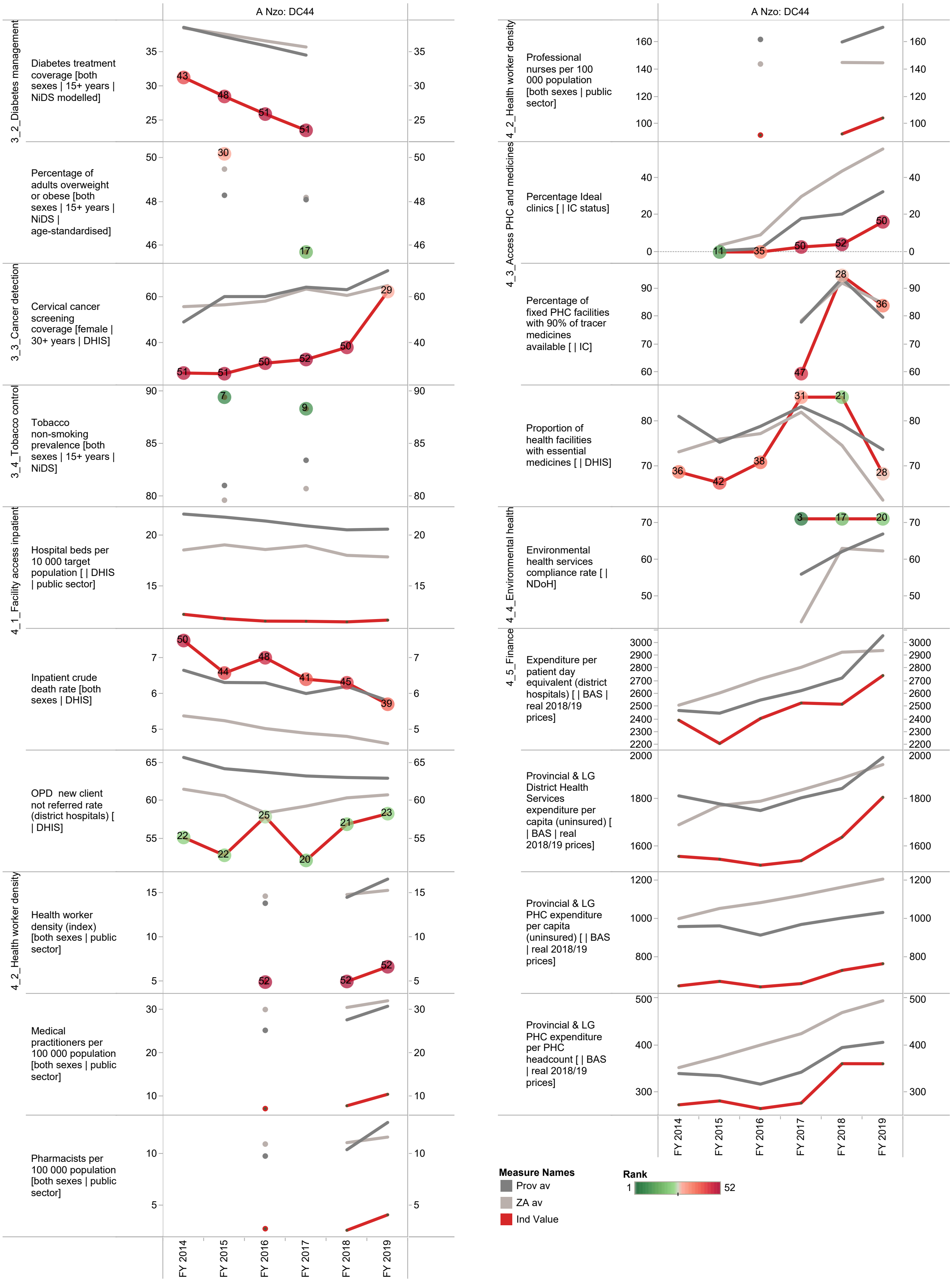
Source: Stats SA.

m The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

n Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




A Nzo: DC44
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
A Nzo: DC44
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
Measure Names
Prov av
ZA av
Ind Value
Rank
1
52

Nelson Mandela Bay Metropolitan (NMA)

The Nelson Mandela Bay Metropolitan Municipality[o] is a Category A municipality. The Metropolitan Municipality comprises three health sub-districts, namely Nelson Mandela A, Nelson Mandela B and Nelson Mandela C.

Population (2018)[p]: 1 302 906

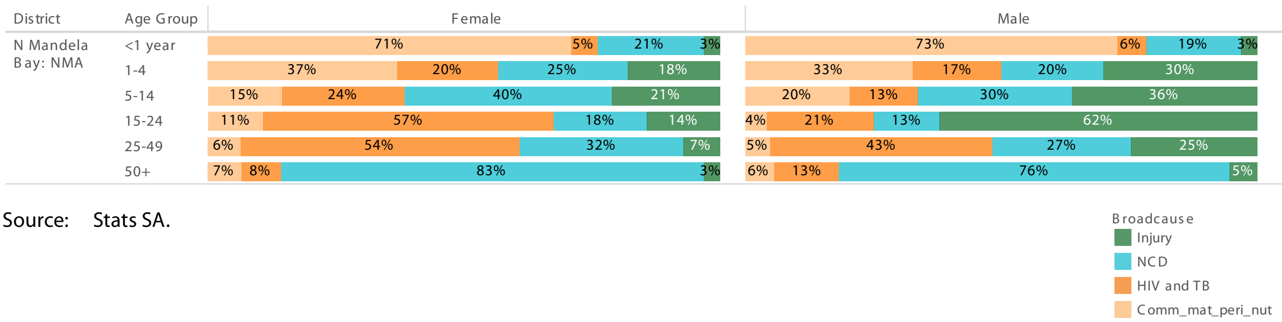
Population density (2019): 665.8 persons per km^2

Estimated medical scheme coverage (2018): 20.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

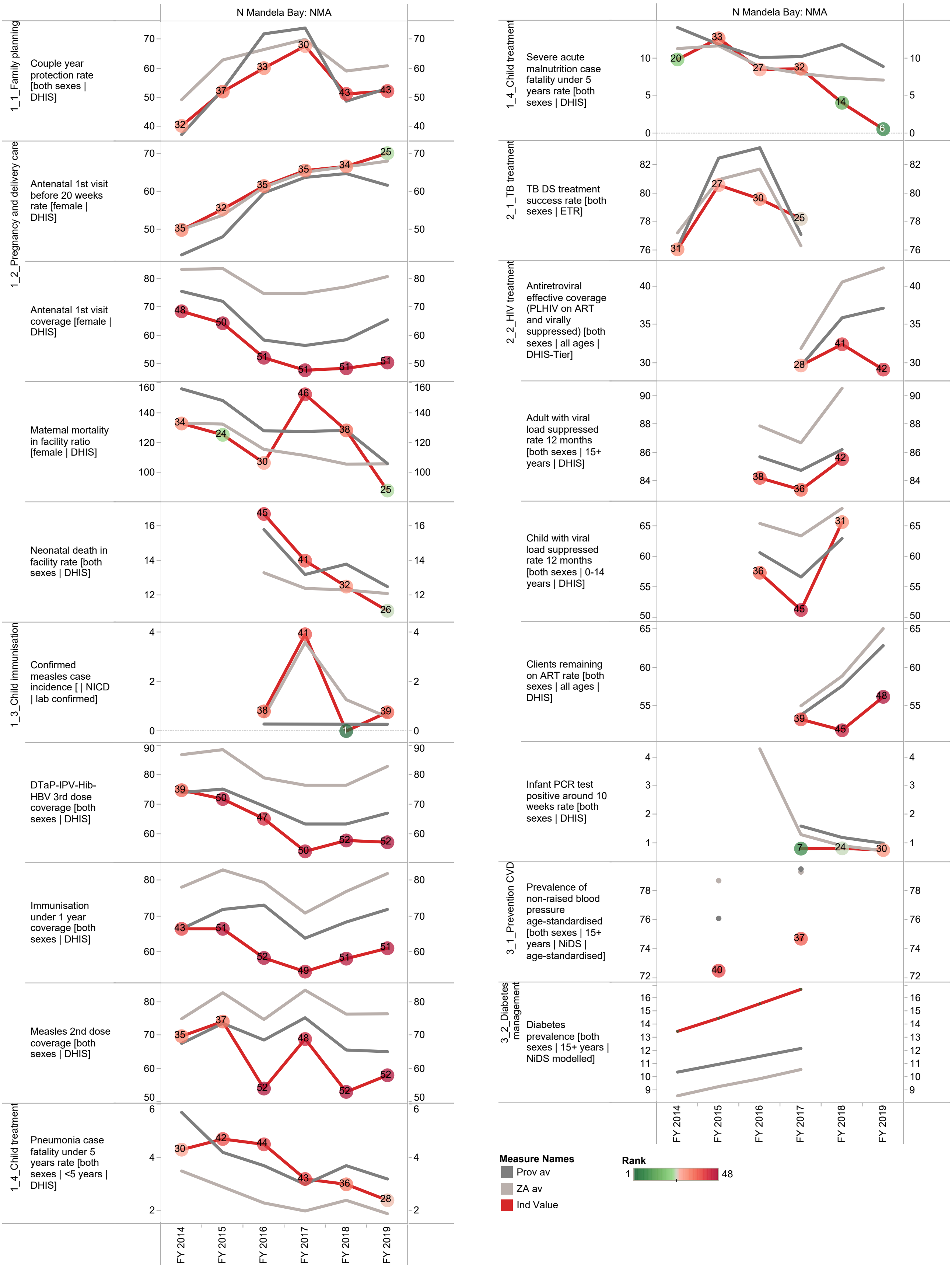


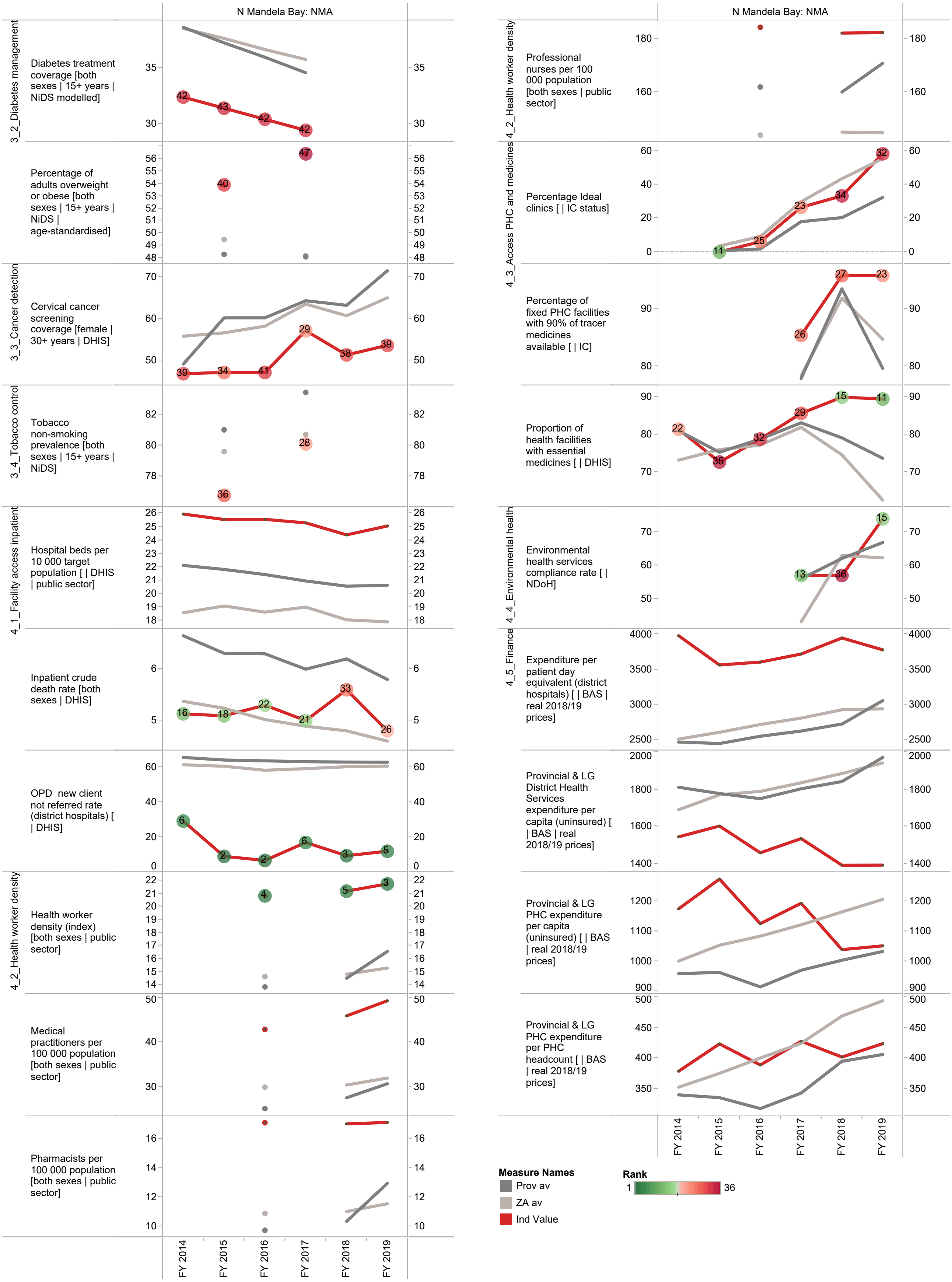
Source: Stats SA.

o The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za

p Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




N Mandela Bay: NMA
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
36

9. Free State Province

Xhariep District Municipality (DC16)

The Xhariep District Municipality[a] is a Category C municipality situated in the southern part of the Free State. It is comprised of three local municipalities: Letsemeng, Kopanong and Mohokare.

Population (2018)[b]: 154 811

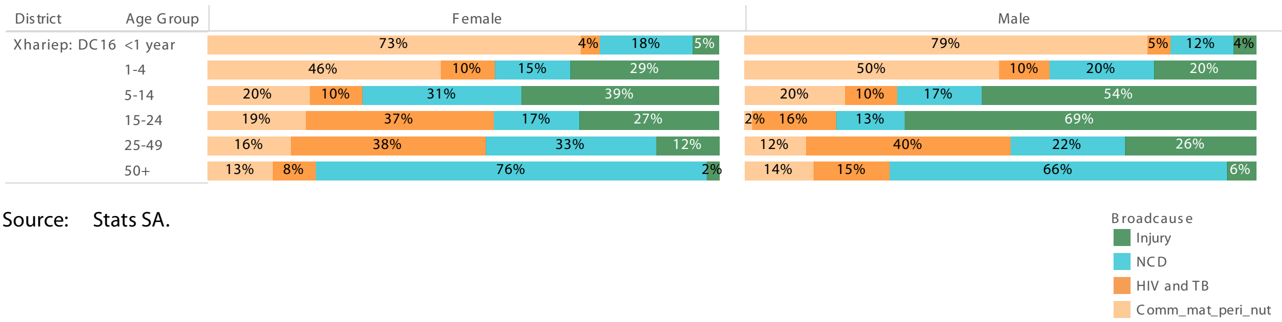
Population density (2018): 4.5 persons per km^2

Estimated medical scheme coverage (2018): 10.5%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

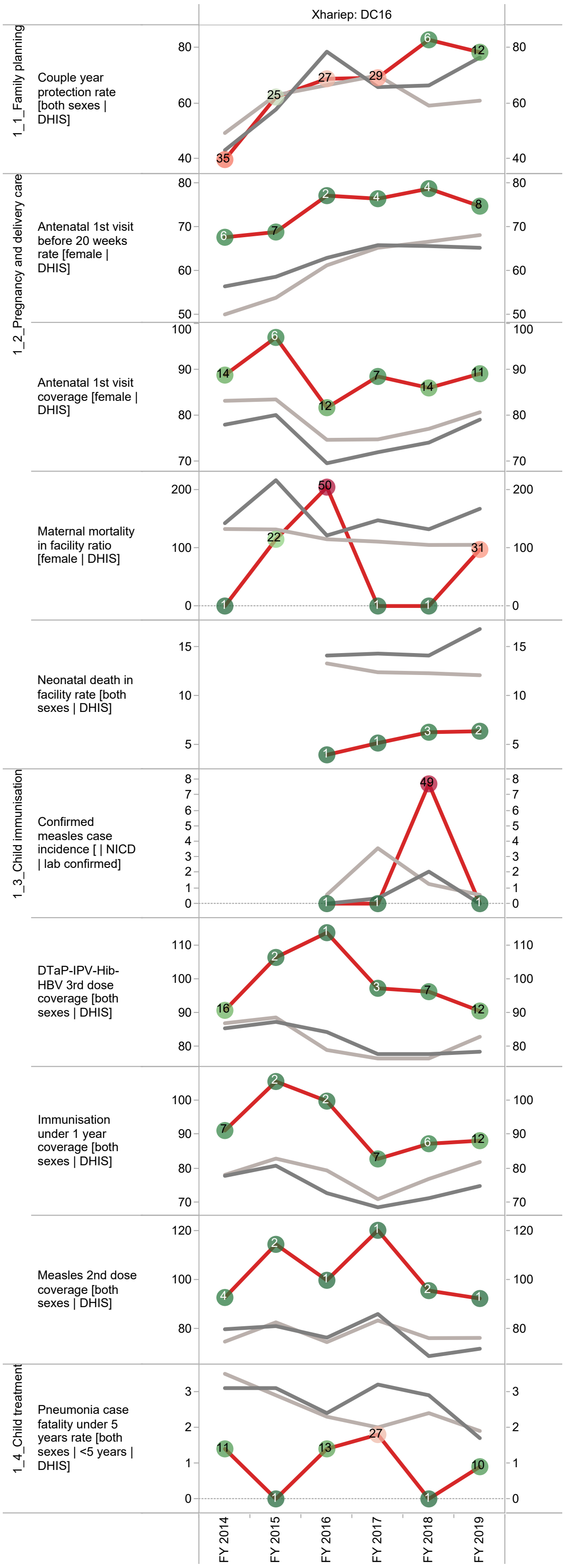


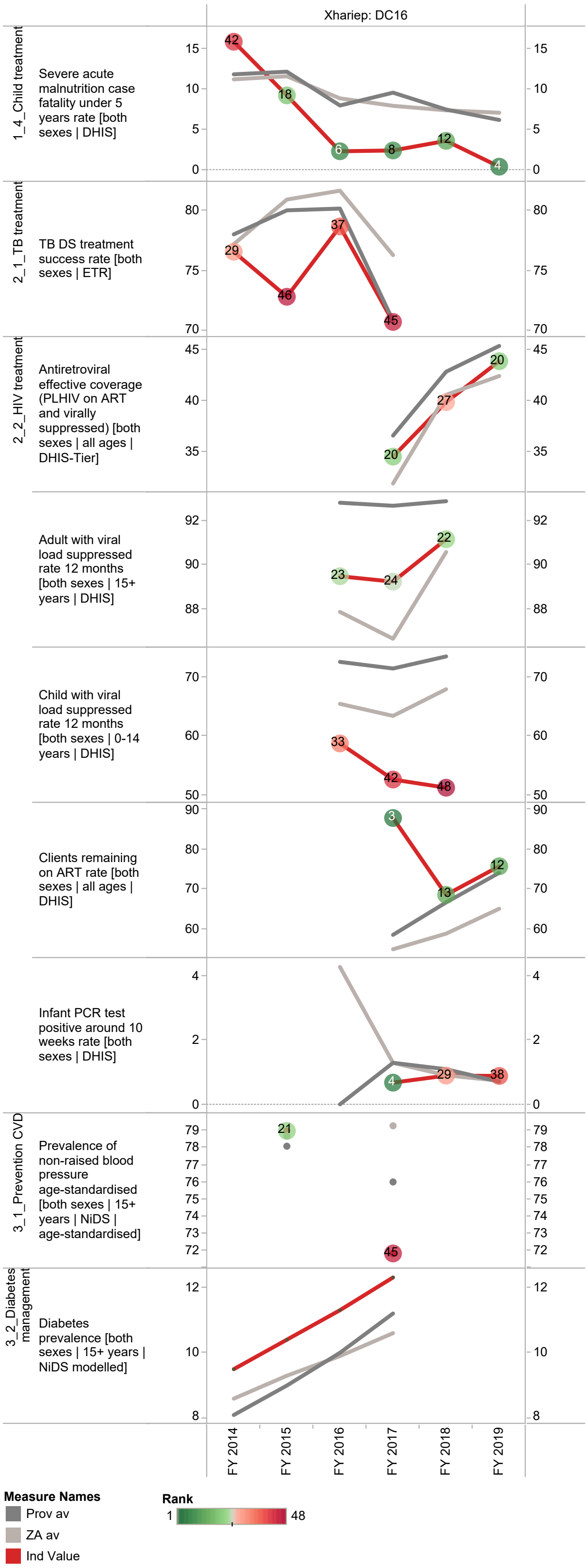
Source: Stats SA.

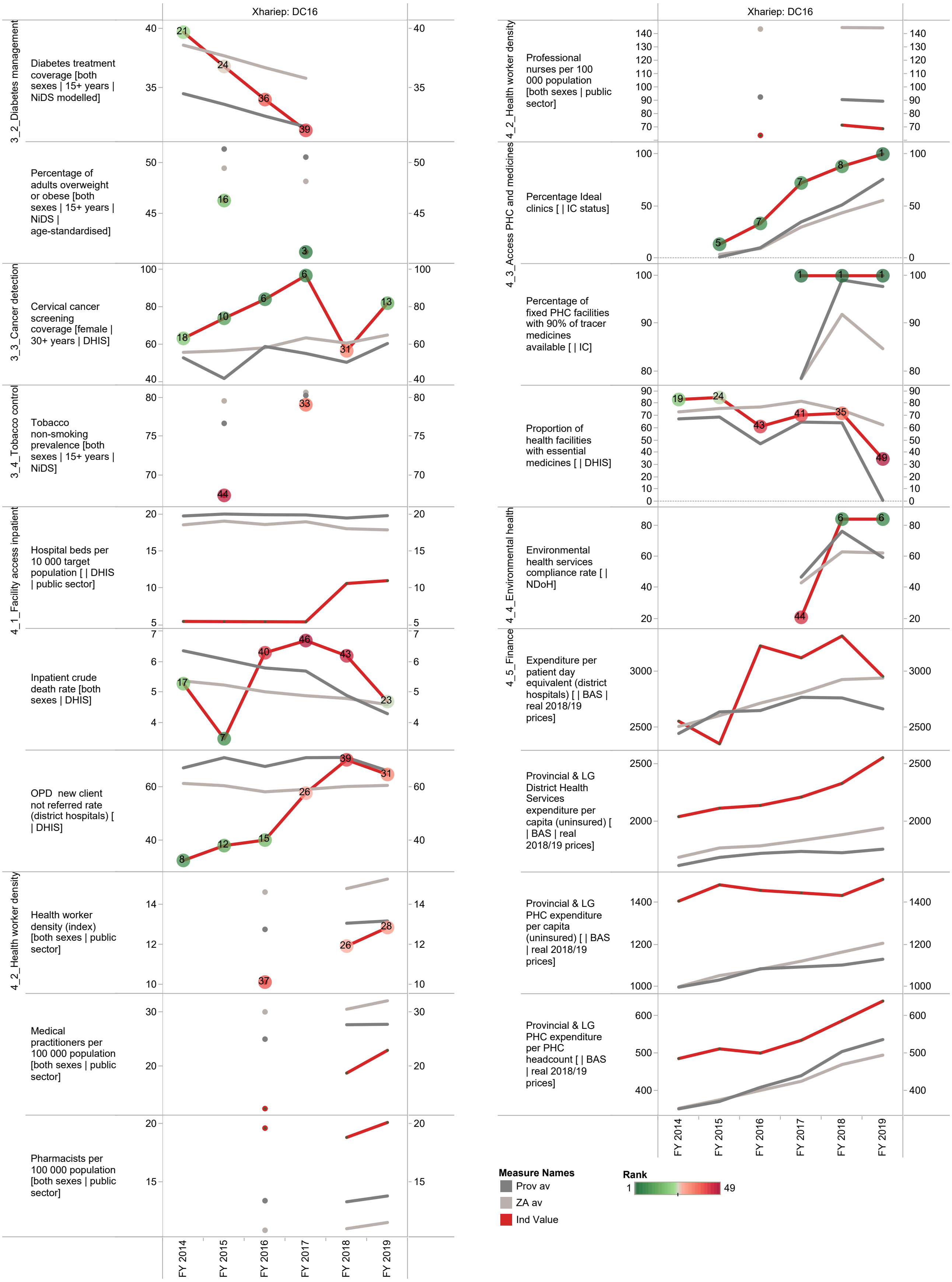
a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






Xhariep: DC16
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Xhariep: DC16
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
49

Lejweleputswa District Municipality (DC18)

The Lejweleputswa District Municipality[c] is a Category C municipality situated in the north-western part of the Free State. It consists of the following five local municipalities: Masilonyana, Tokologo, Tswelopele, Matjhabeng and Nala.

Population (2018)[d]: 673 024

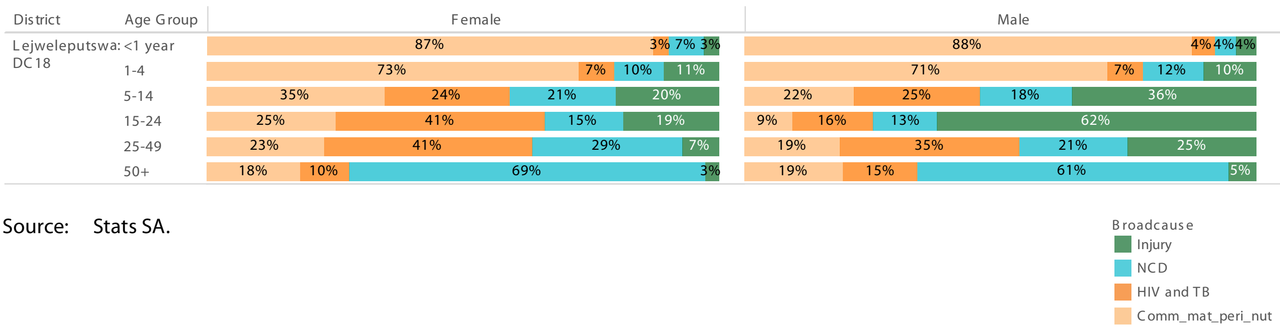
Population density (2018): 20.8 persons per km^2

Estimated medical scheme coverage (2018): 12.0%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

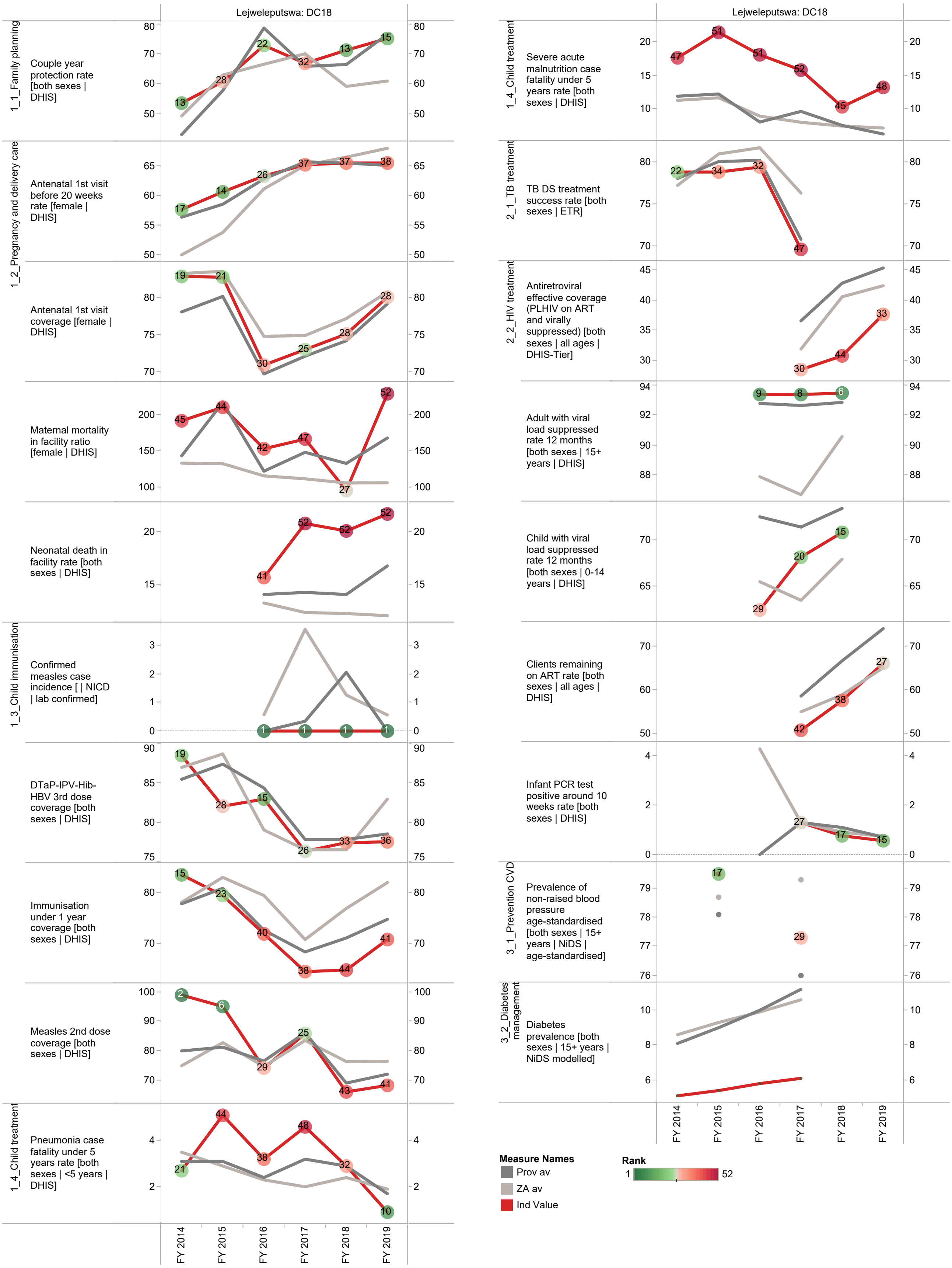


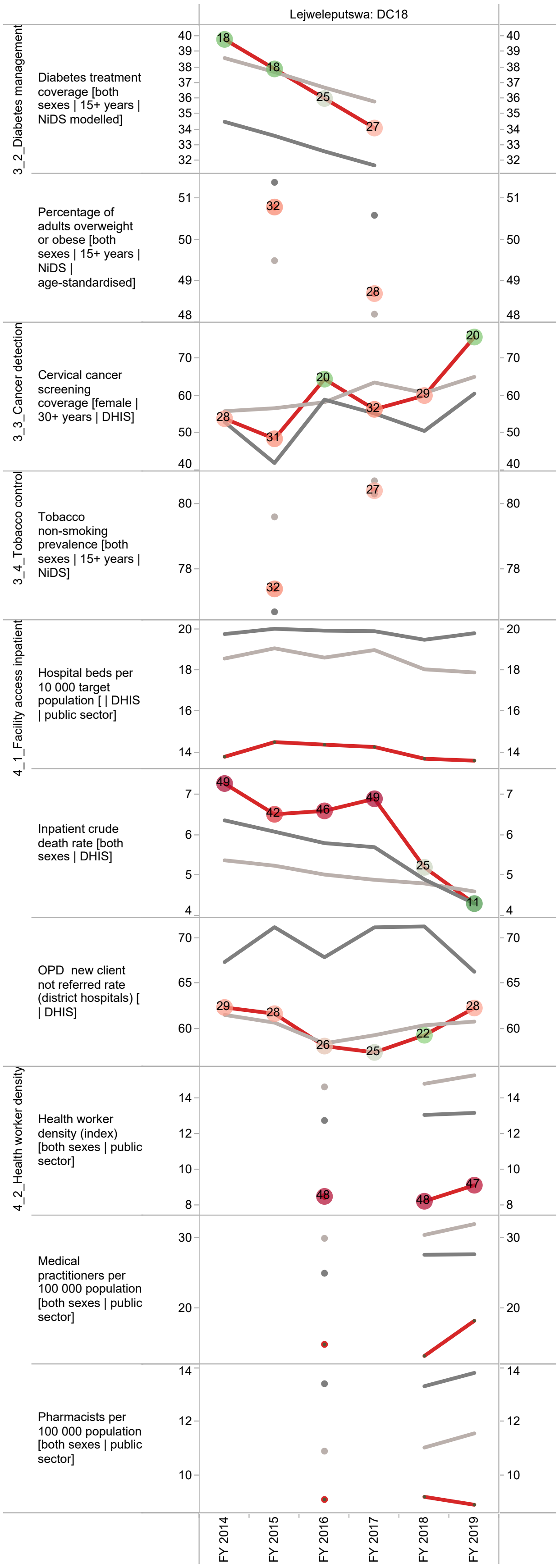
Source: Stats SA.

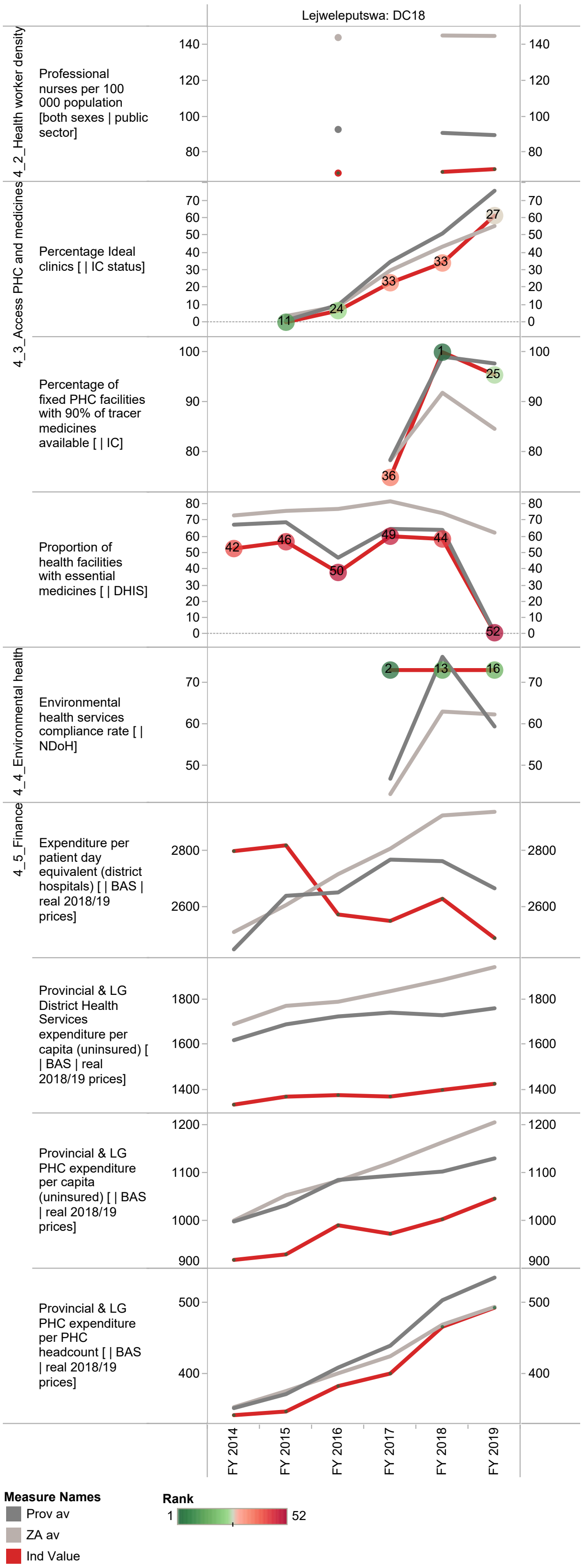
c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Lejweleputswa: DC18
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


Lejweleputswa: DC18
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
52

Thabo Mofutsanyana District Municipality (DC19)

The Thabo Mofutsanyana District Municipality[e] is a Category C municipality located in the eastern Free State Province, and borders on Lesotho. It comprises six local municipalities: Setsoto, Dihlabeng, Nketoana, Maluti-A-Phofung, Phumelela and Mantsopa.

Population (2018)[f]: 792 608

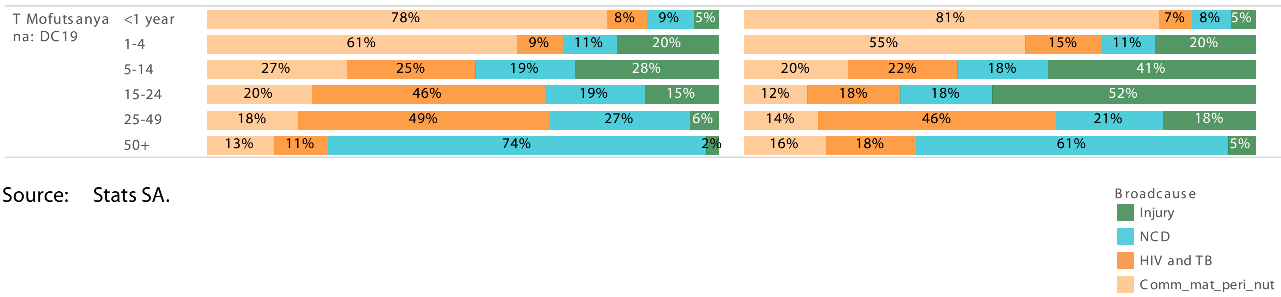
Population density (2018): 24.2 persons per km^2

Estimated medical scheme coverage (2018): 9.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

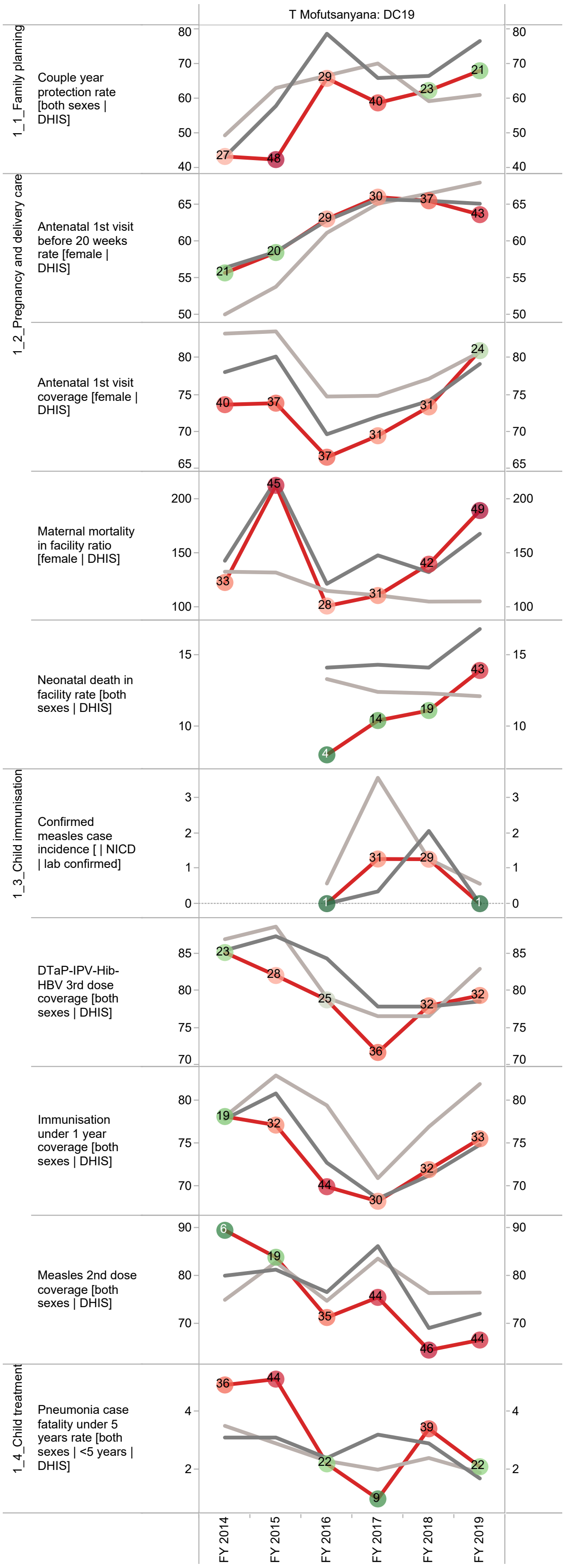


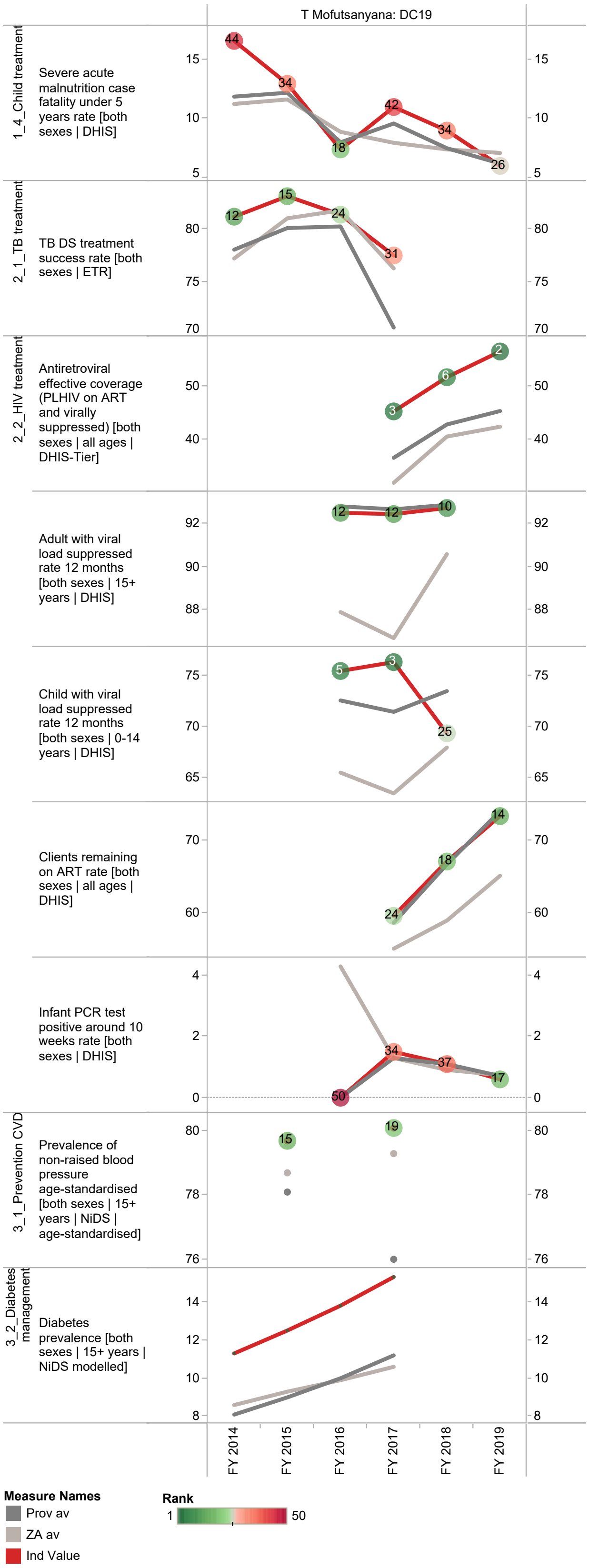
Source: Stats SA.

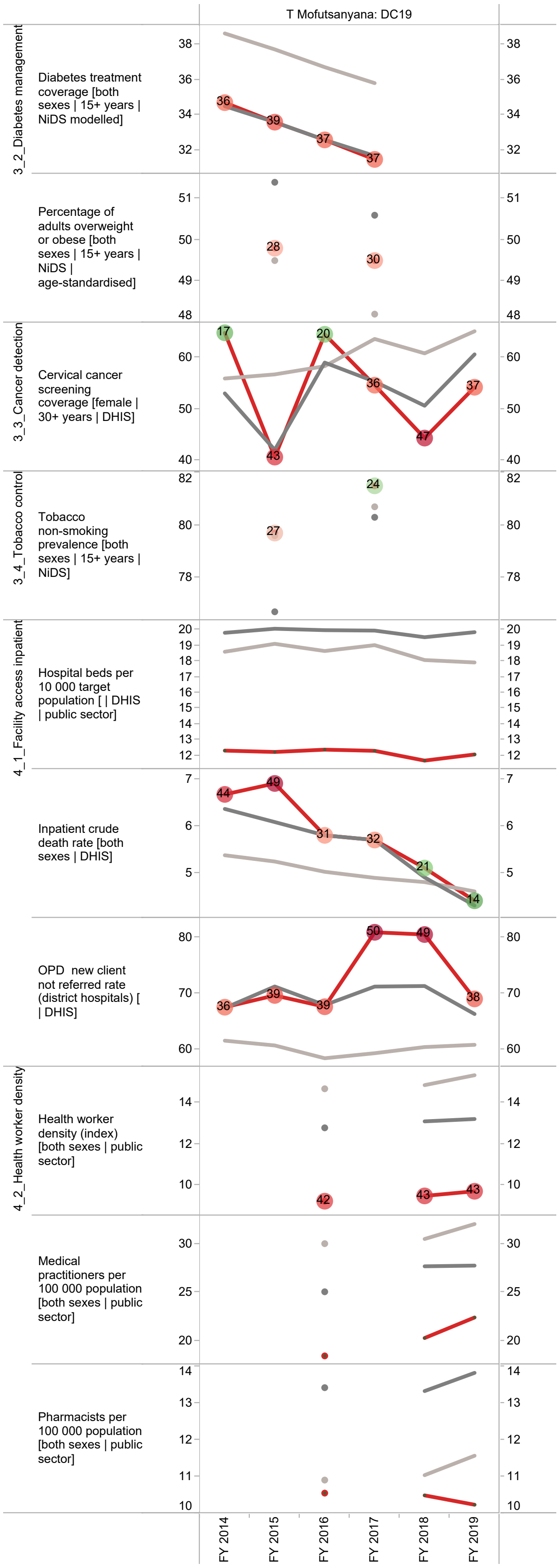
e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

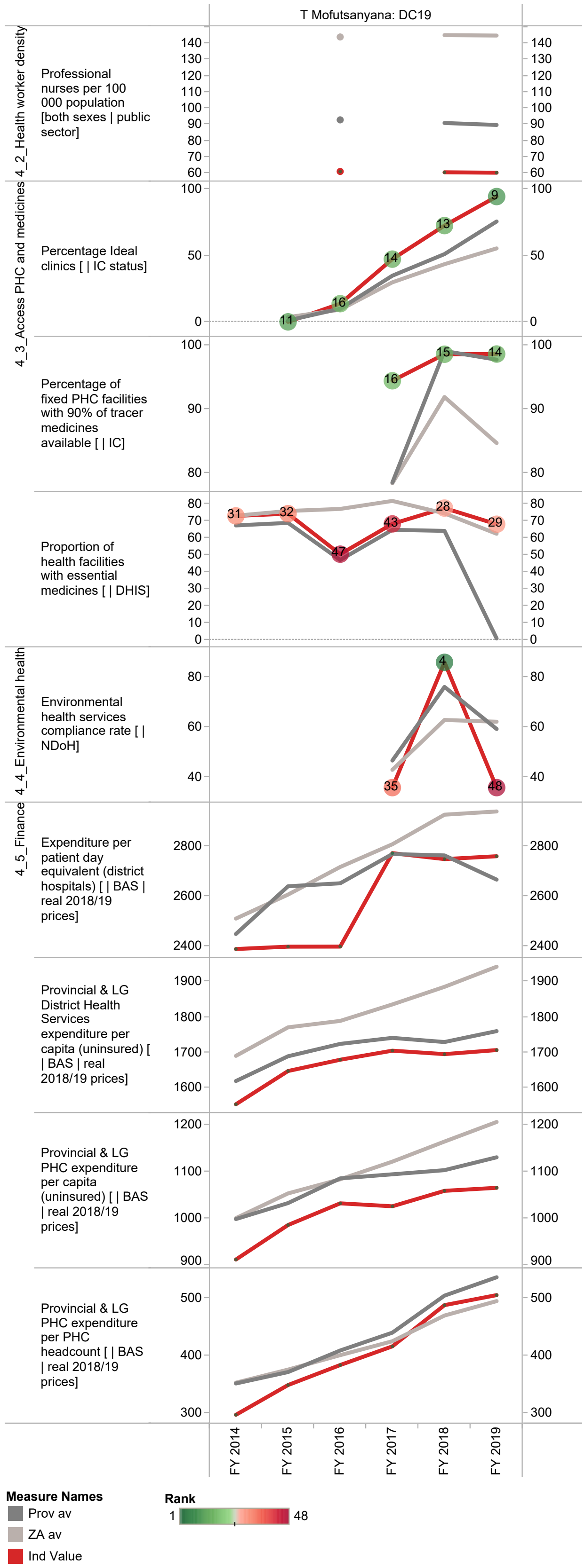
f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






T Mofutsanyana: DC19
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


T Mofutsanyana: DC19
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
48

Fezile Dabi District Municipality (DC20)

The Fezile Dabi District Municipality[g] is a Category C municipality. It consists of four local municipalities: Moqhaka, Metsimaholo, Ngwathe and Mafube.

Population (2018)[h]: 504 761

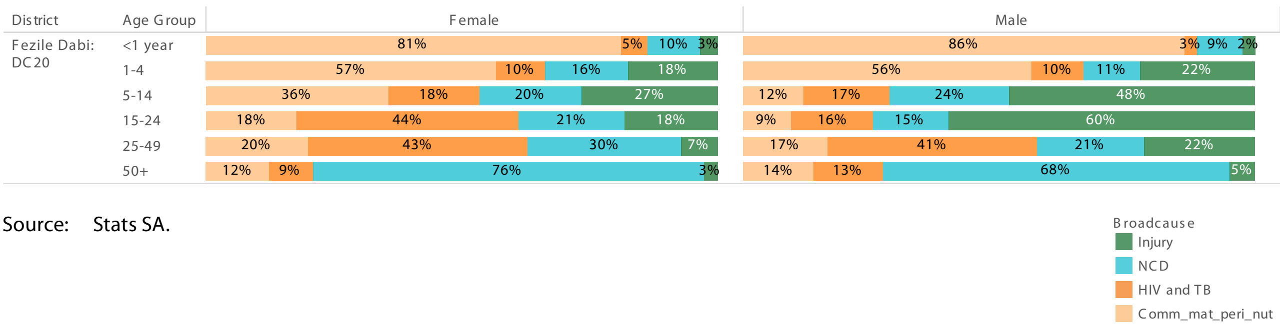
Population density (2018): 24.4 persons per km^2

Estimated medical scheme coverage (2018): 13.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

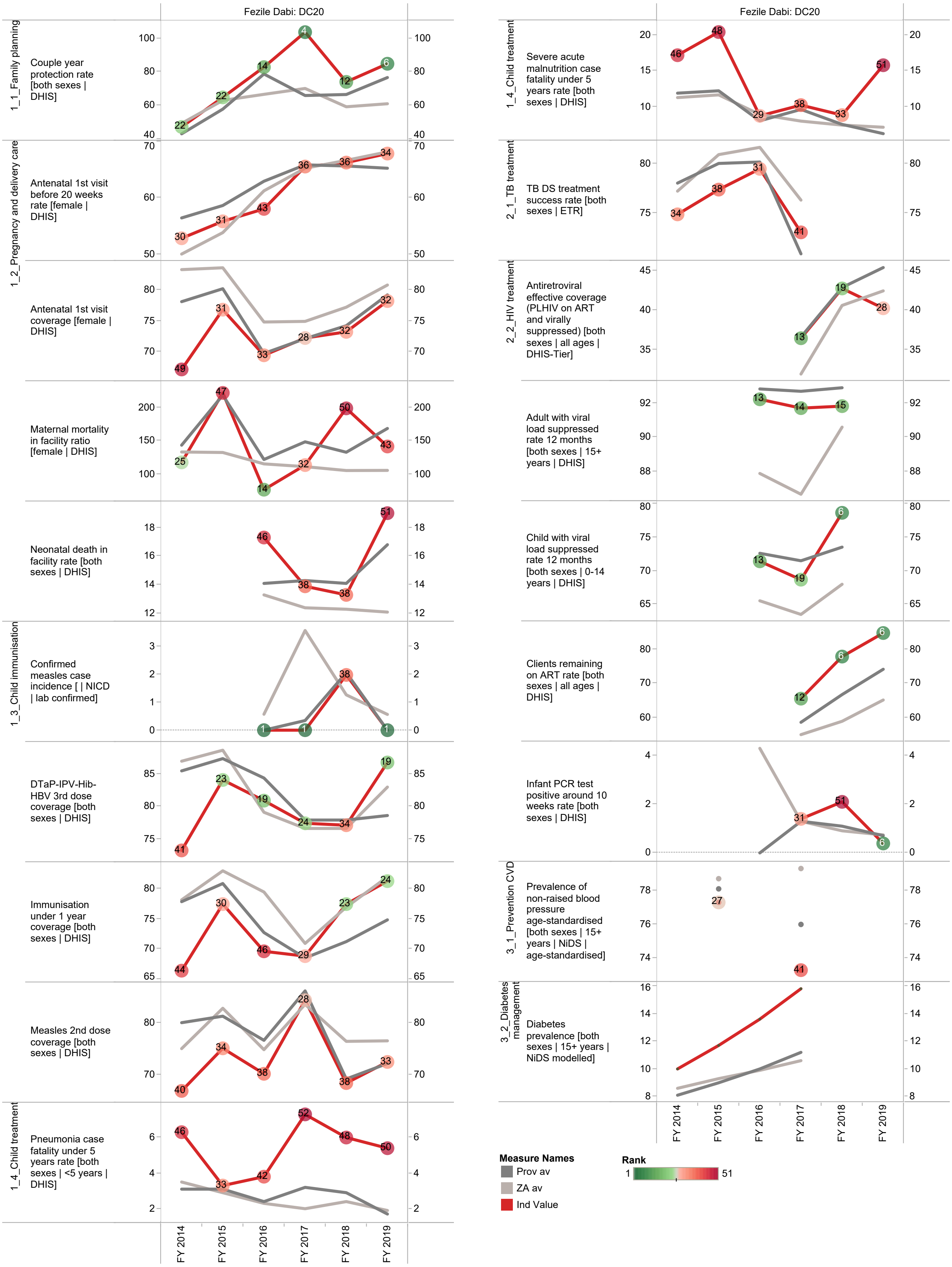


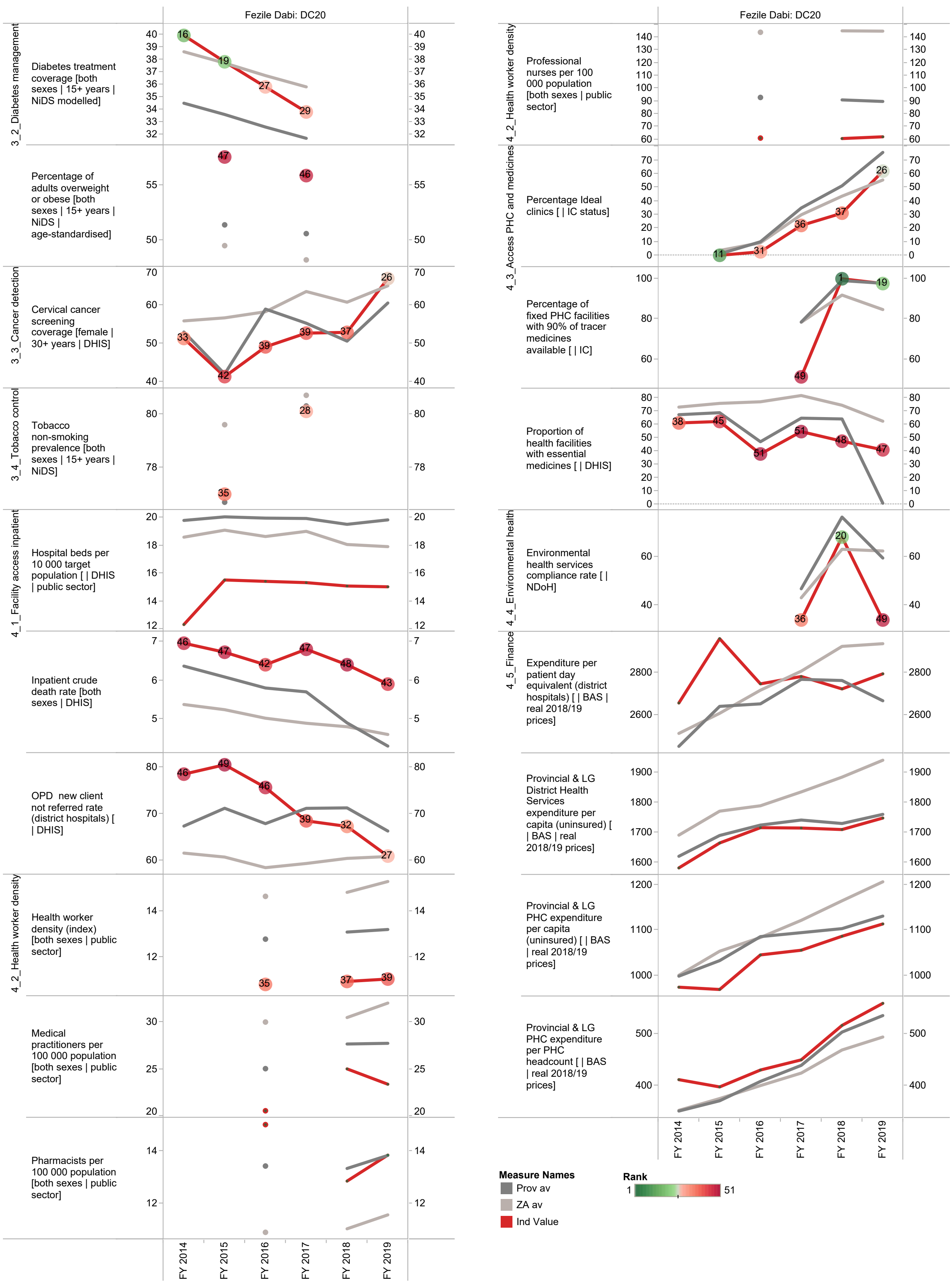
Source: Stats SA.

g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Fezile Dabi: DC20
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
51

Mangaung Metropolitan Municipality (MAN)

The Mangaung Metropolitan Municipality[i] is a Category A municipality. Mangaung Metropolitan Municipality comprises four health sub-districts, namely Bloemfontein, Botshabelo, Naledi and Thaba N'chu.

Population (2018)[j]: 780 755

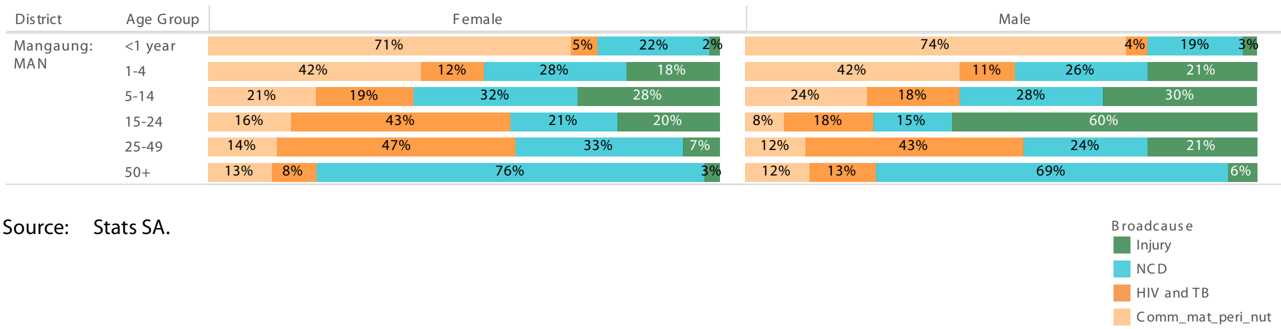
Population density (2018): 79.0 persons per km^2

Estimated medical scheme coverage (2018): 20.0%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

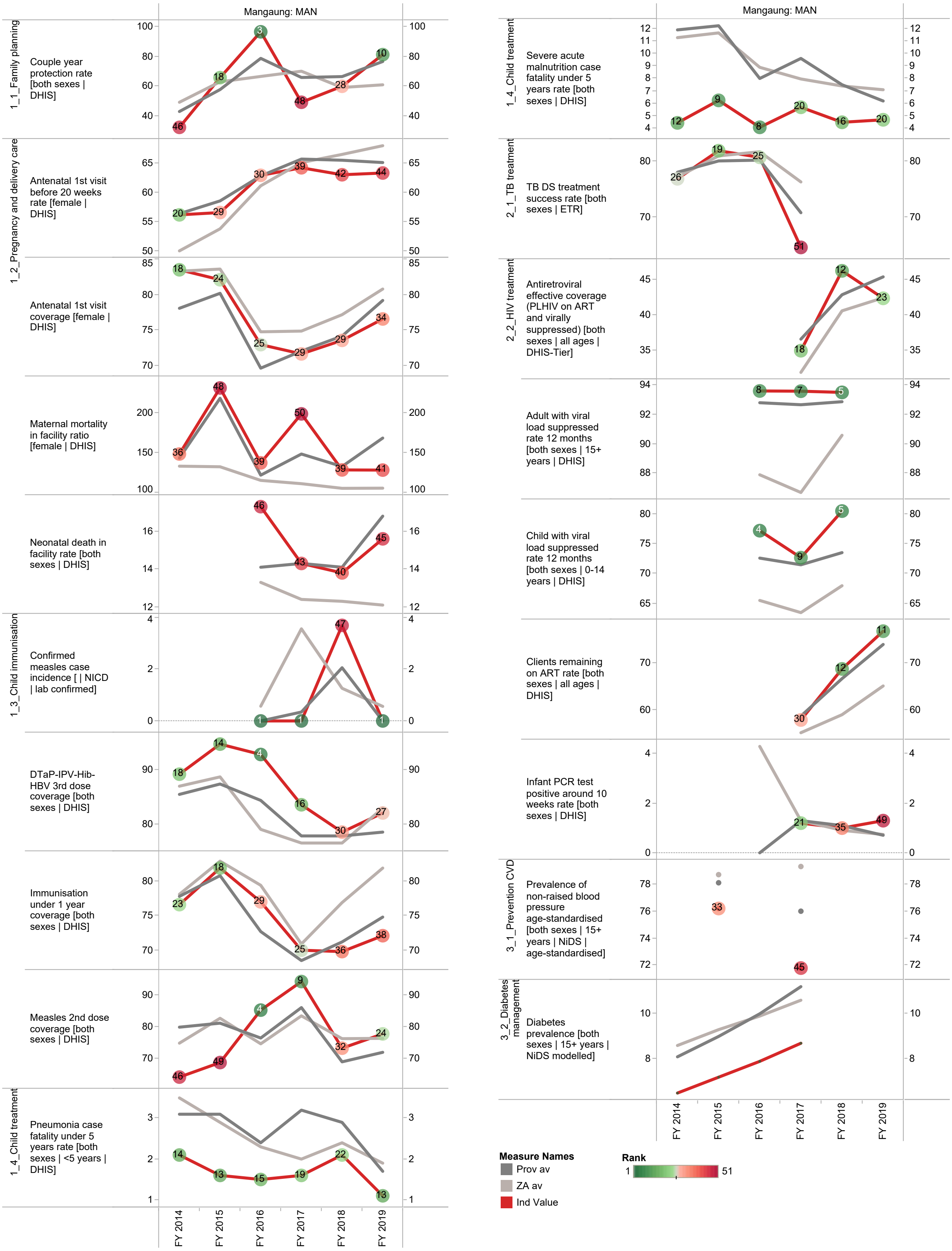


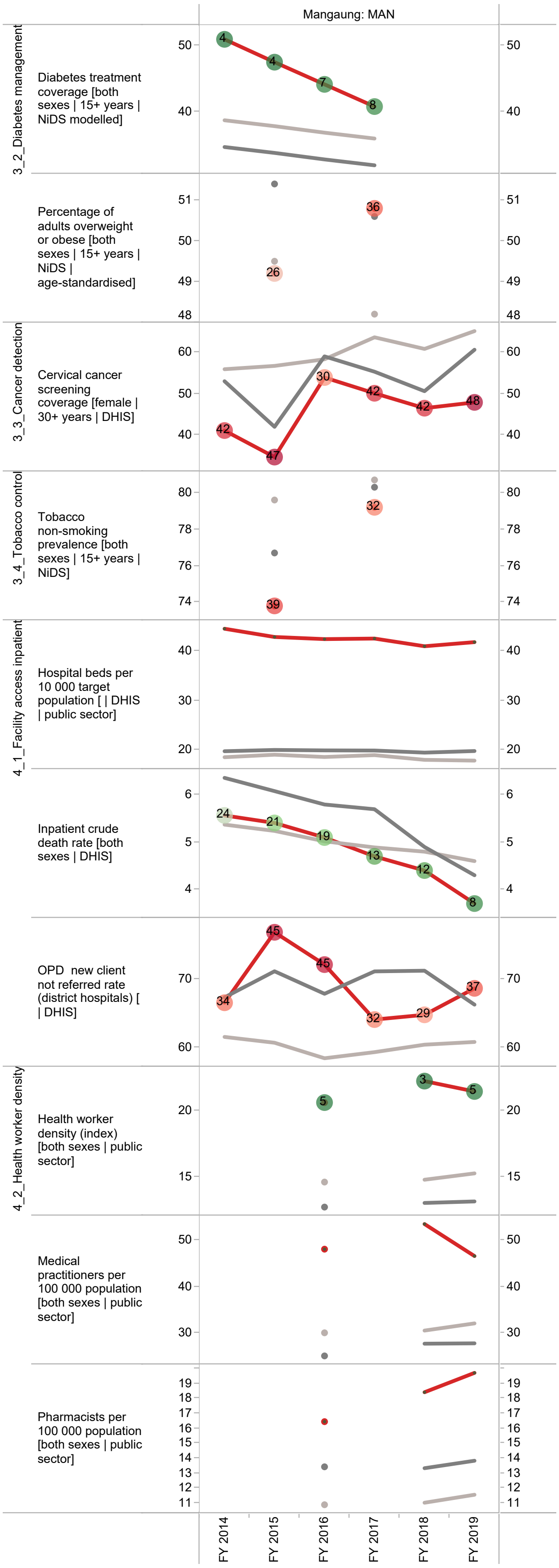
Source: Stats SA.

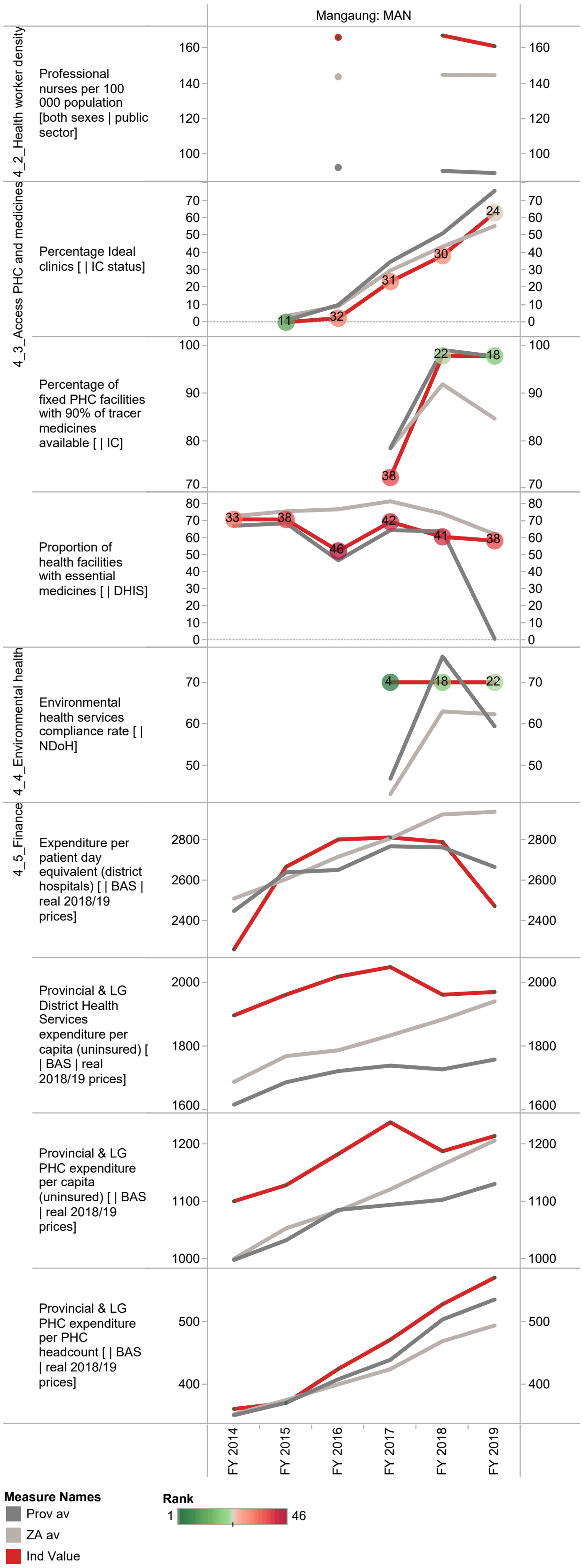
i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Mangaung: MAN
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


Mangaung: MAN
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
46

10. Gauteng Province

Sedibeng District Municipality (DC42)

The Sedibeng District Municipality[a] is a Category C municipality situated on the southern tip of the Gauteng Province and it is comprised of the Emfuleni, Lesedi and Midvaal Local Municipalities.

Population (2018)[b]: 984 810

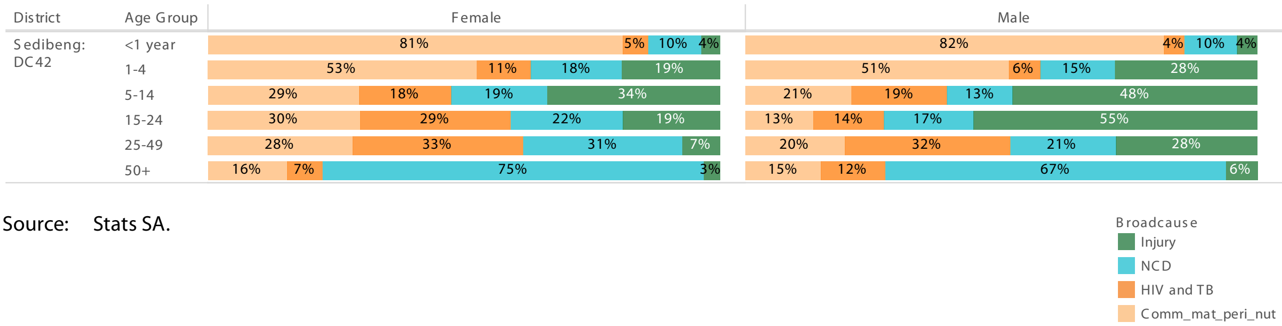
Population density (2018): 236.0 persons per km^2

Estimated medical scheme coverage (2018): 20.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

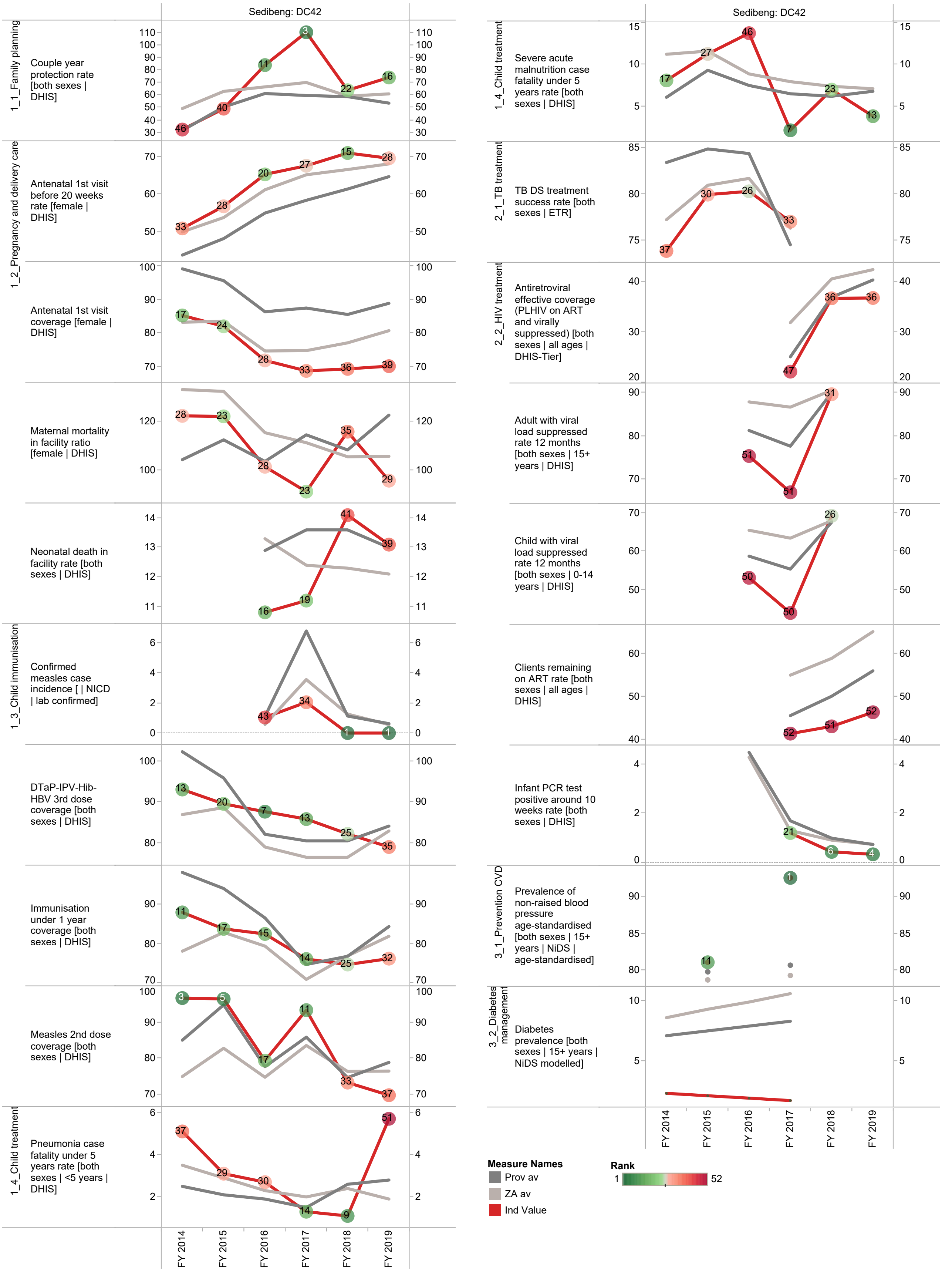


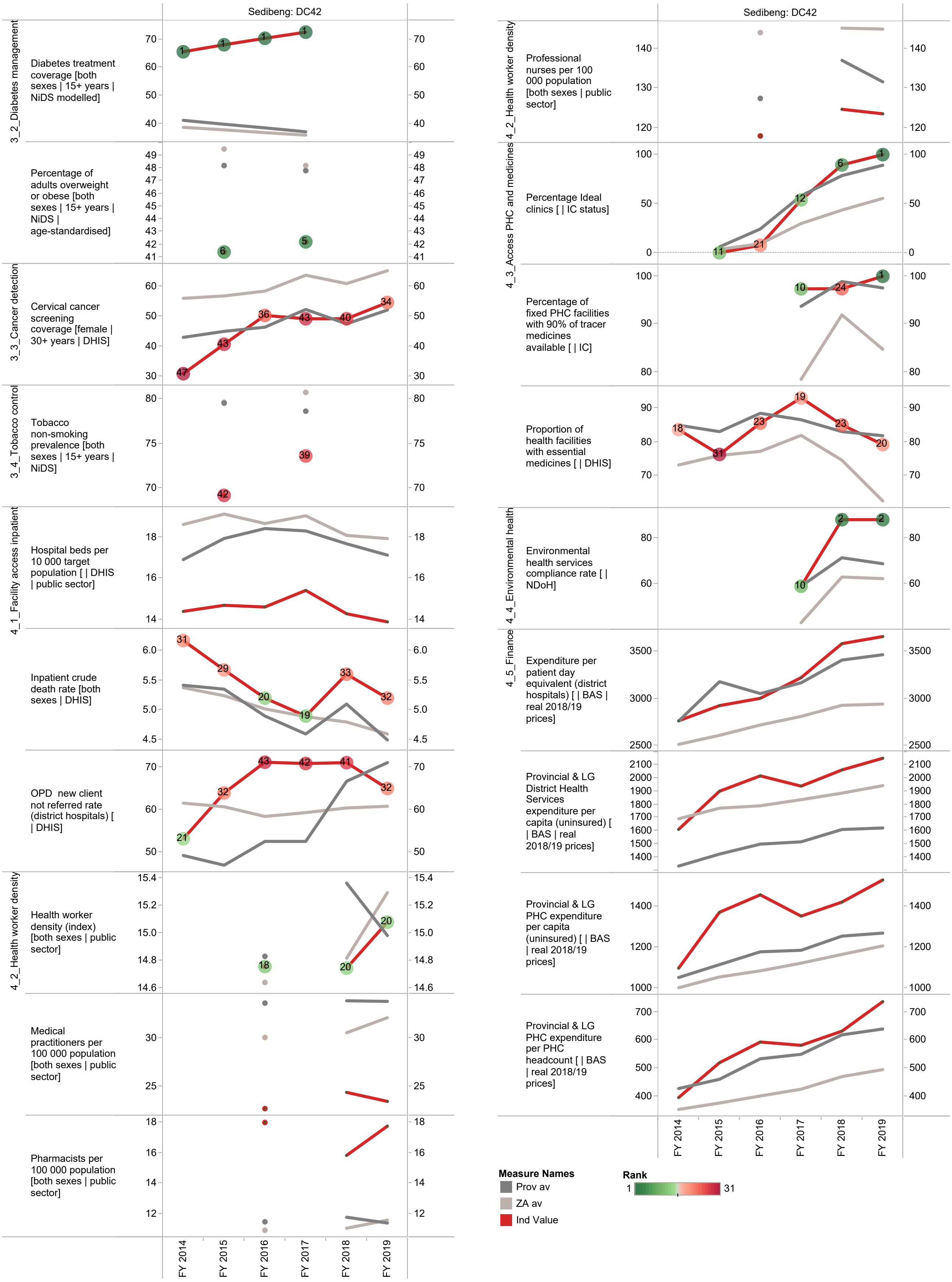
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





Sedibeng: DC42
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Sedibeng: DC42
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
31

West Rand District Municipality (DC48)

The West Rand District Municipality[c] is a Category C municipality located in the west of the Gauteng Province. It comprises three local municipalities: Merafong, Mogale and Rand West Cities.

Population (2018)[d]: 881 918

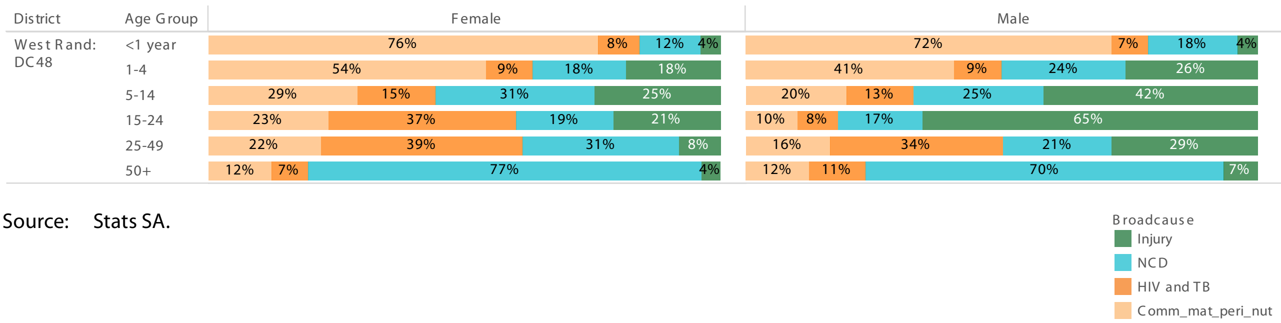
Population density (2018): 215.8 persons per km^2

Estimated medical scheme coverage (2018): 24.1%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

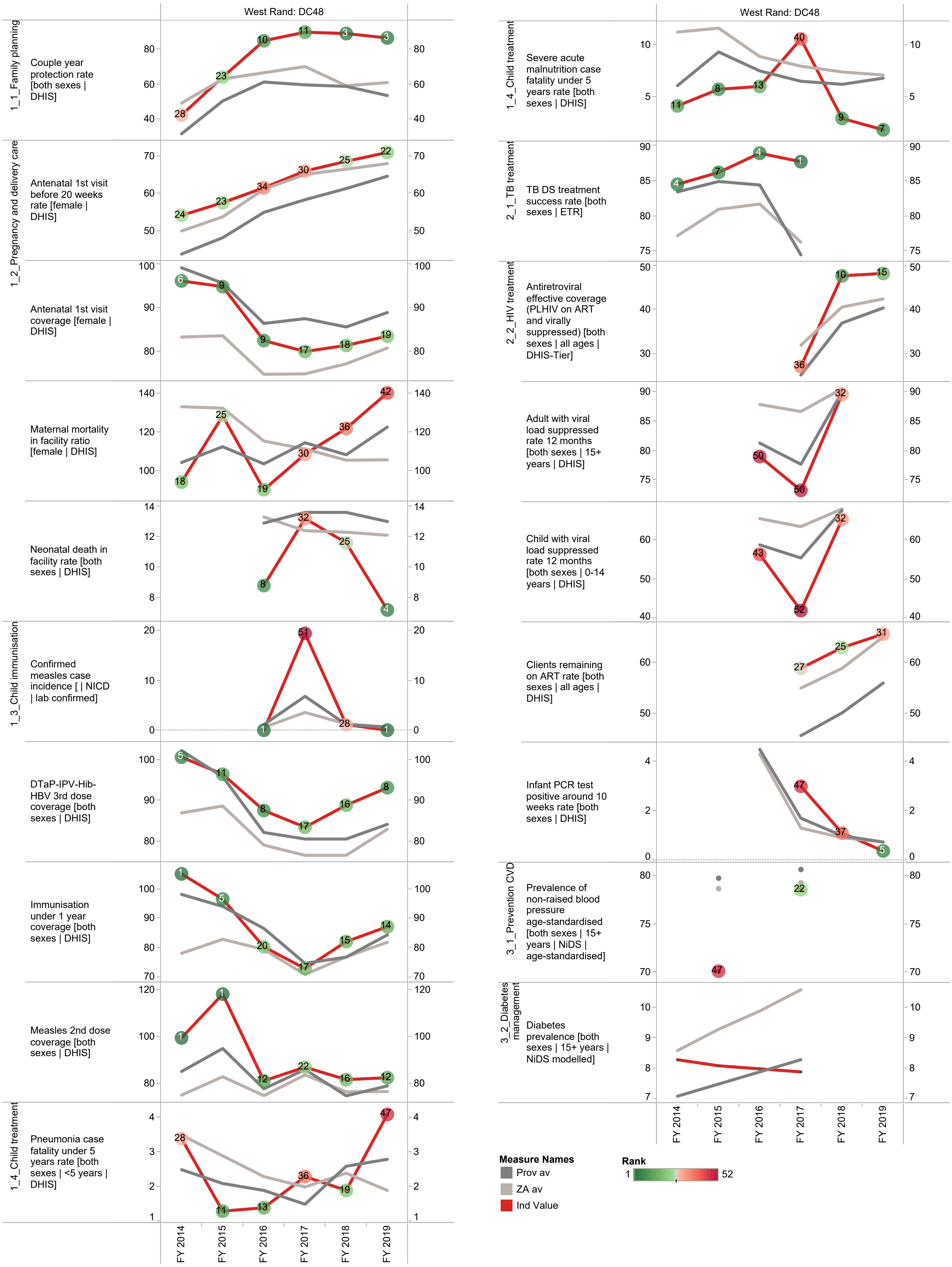


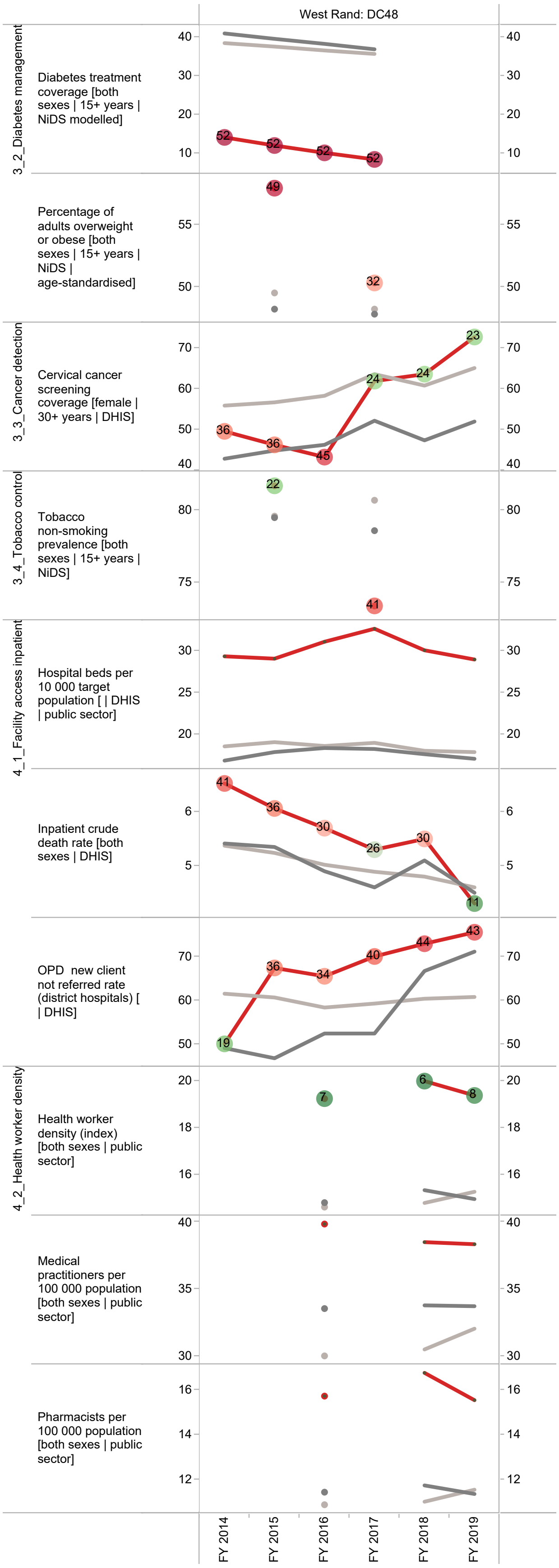
Source: Stats SA.

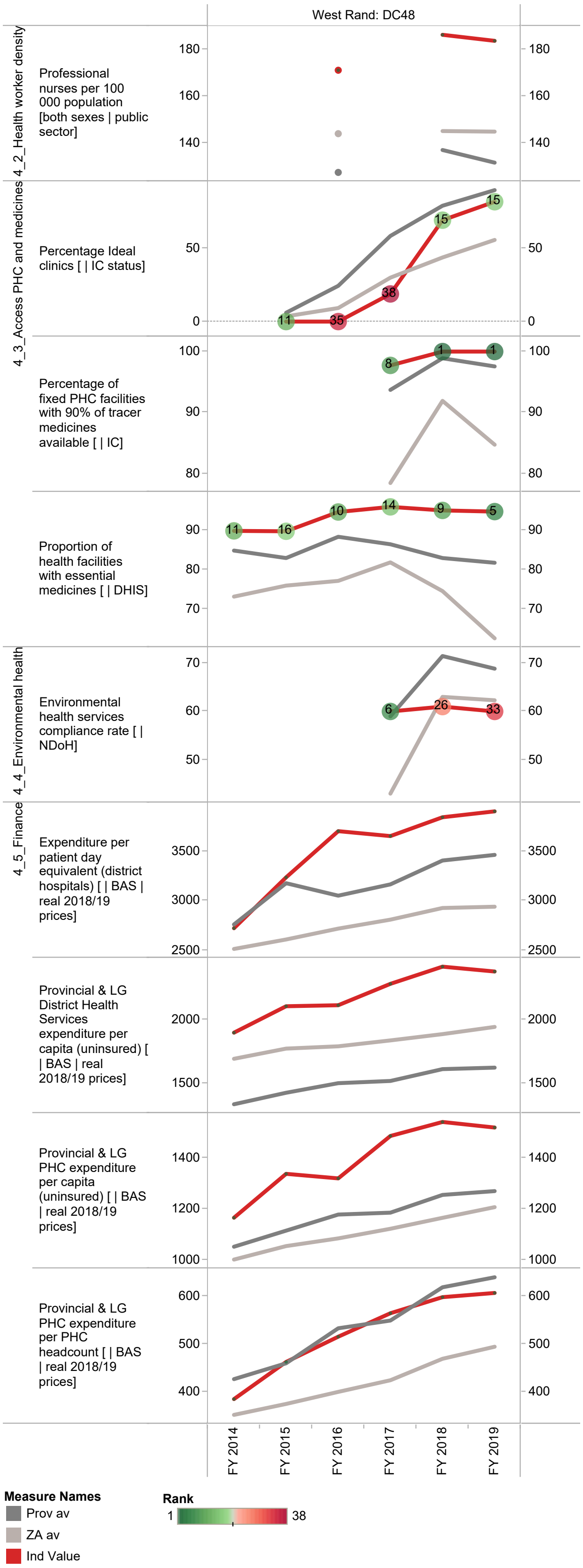
c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




West Rand: DC48
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


West Rand: DC48
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
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FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
38

Ekurhuleni Metropolitan Municipality (EKU)

The City of Ekurhuleni Metropolitan Municipality[e] is a Category A municipality in Gauteng Province. It comprises six health sub-districts, namely Ekurhuleni East 1 and East 2, Ekurhuleni North 1 and North 2, and Ekurhuleni South 1 and South 2.

Population (2018)[f]: 3 561 977

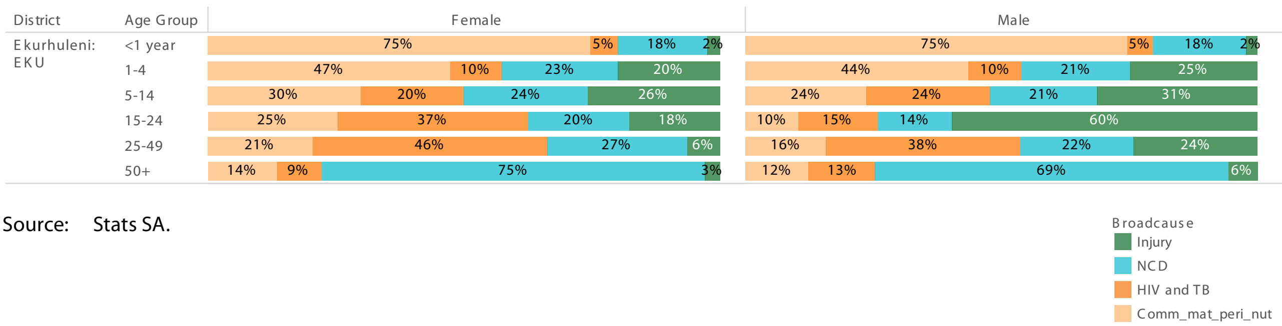
Population density (2018): 1 803.5 persons per km^2

Estimated medical scheme coverage (2018): 23.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

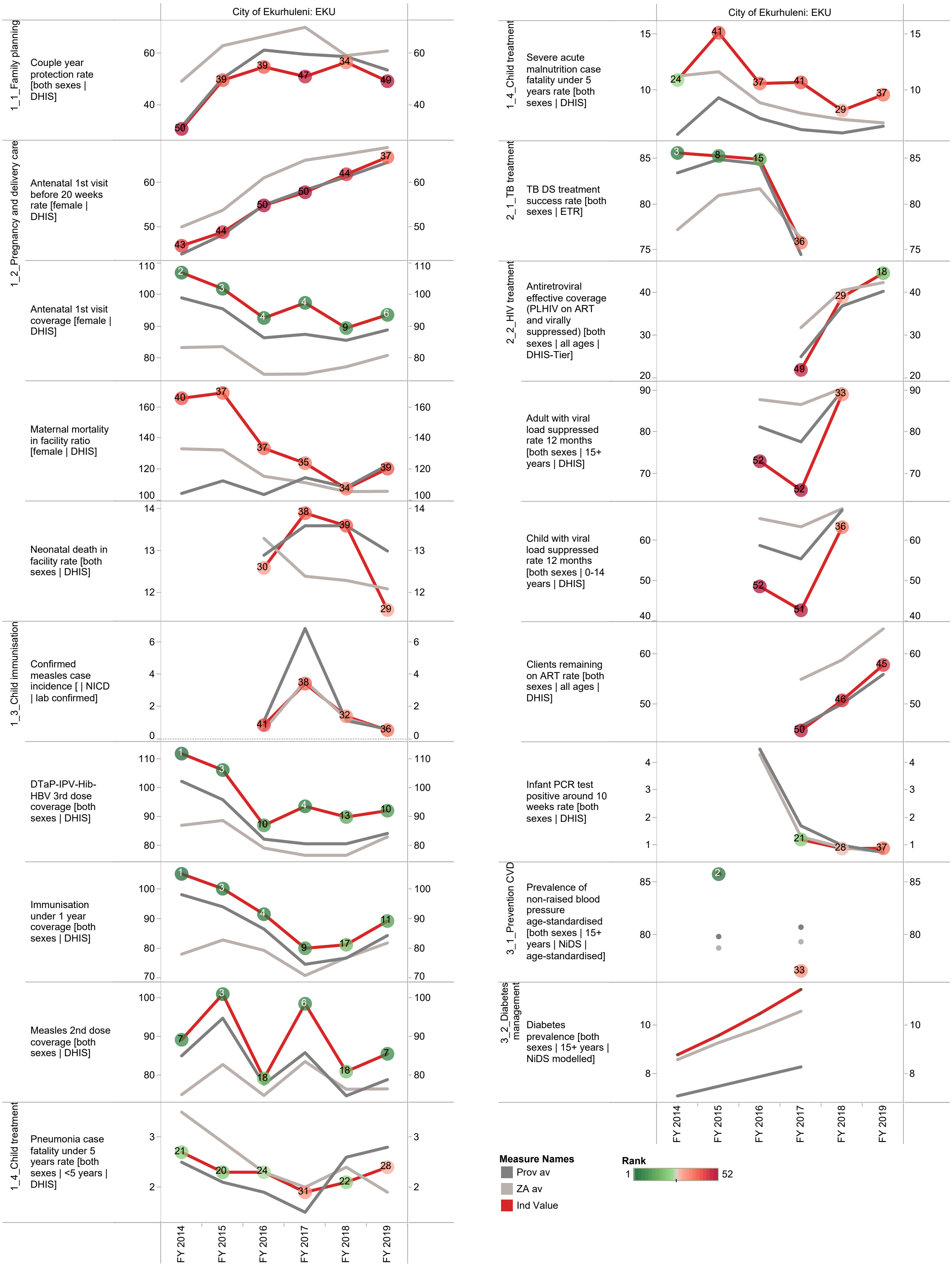


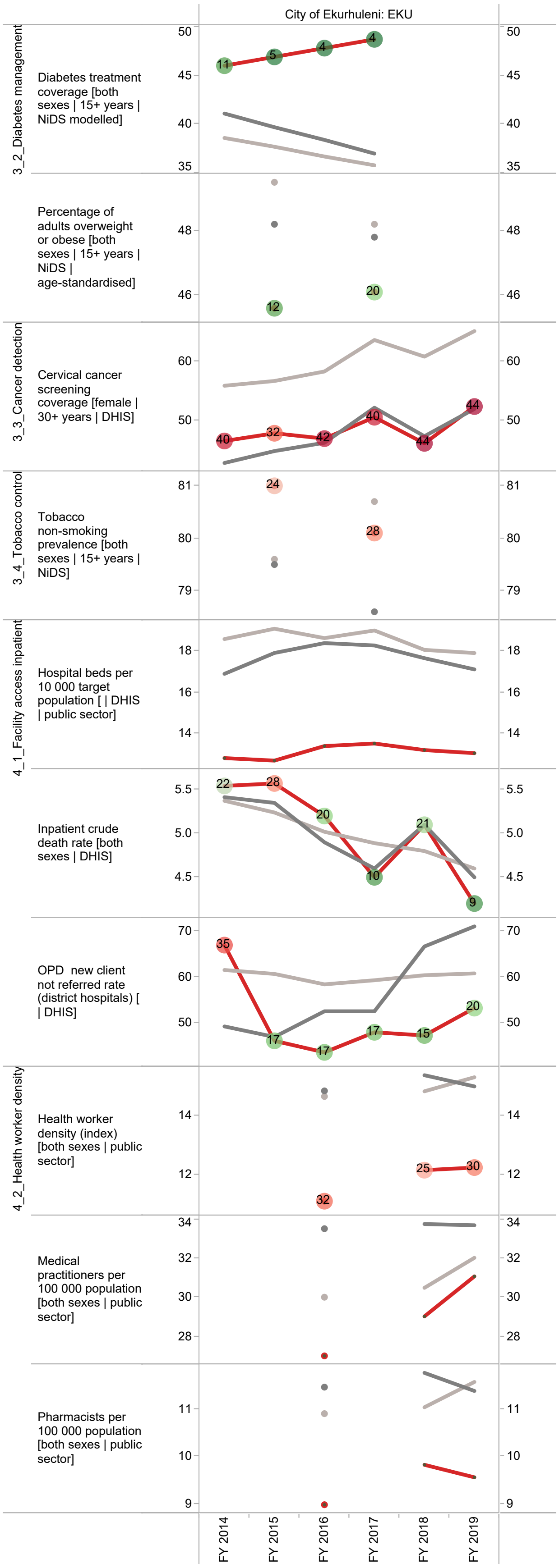
Source: Stats SA.

e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




City of Ekurhuleni: EKU
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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FY 2016
FY 2017
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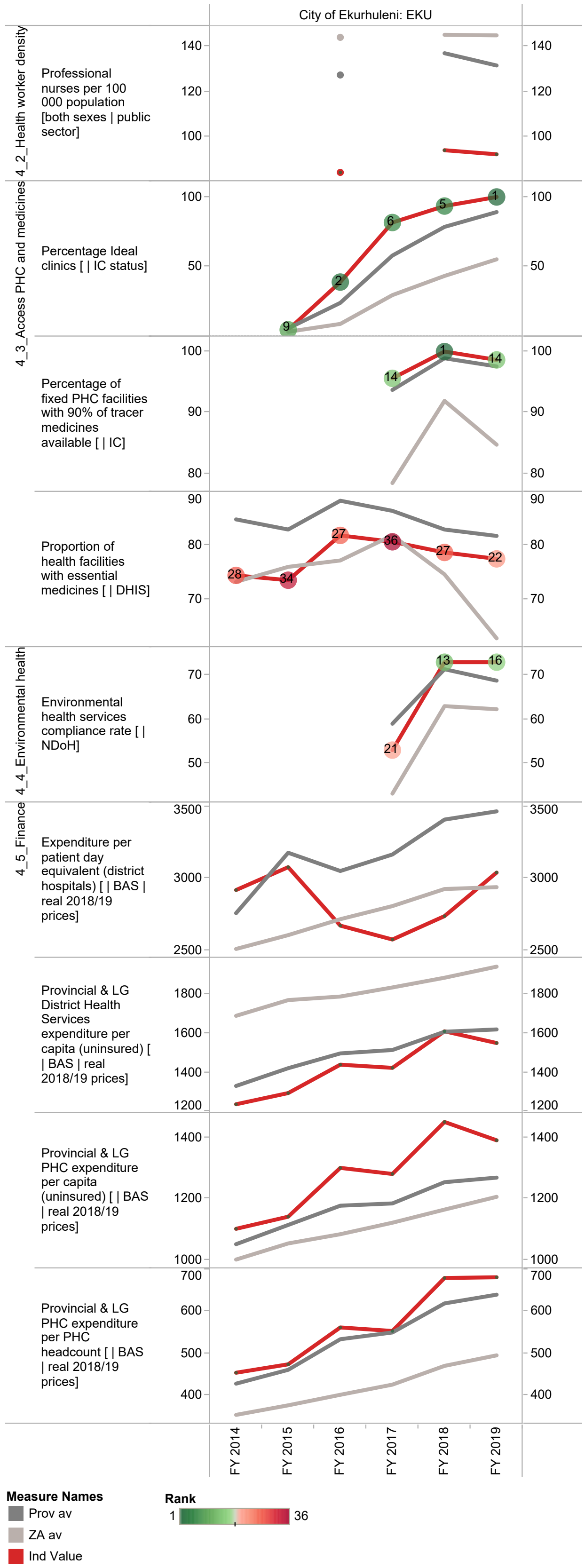
FY 2019


City of Ekurhuleni: EKU
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
36

Johannesburg Metropolitan Municipality (JHB)

The City of Johannesburg Metropolitan Municipality[g] is a Category A municipality in Gauteng Province. It is divided into seven health sub-districts, named Johannesburg Sub-district A to Johannesburg Sub-district G.

Population (2018)[h]: 5 201 673

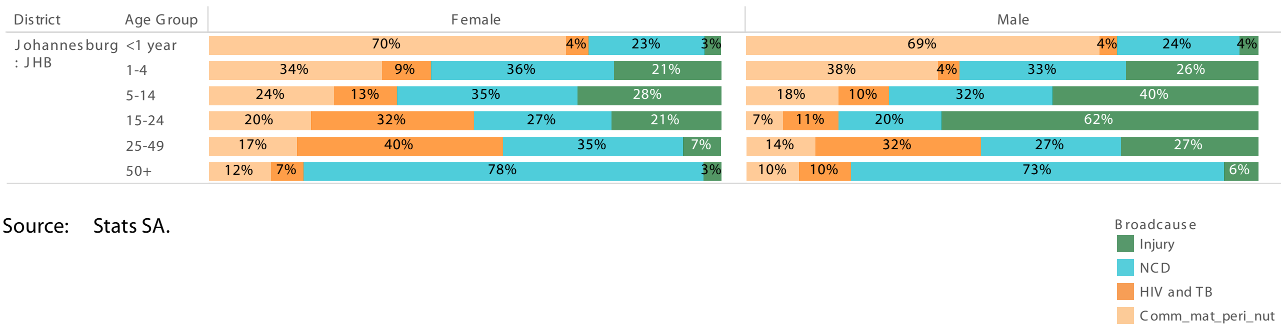
Population density (2018): 3 162.1 persons per km^2

Estimated medical scheme coverage (2018): 22.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

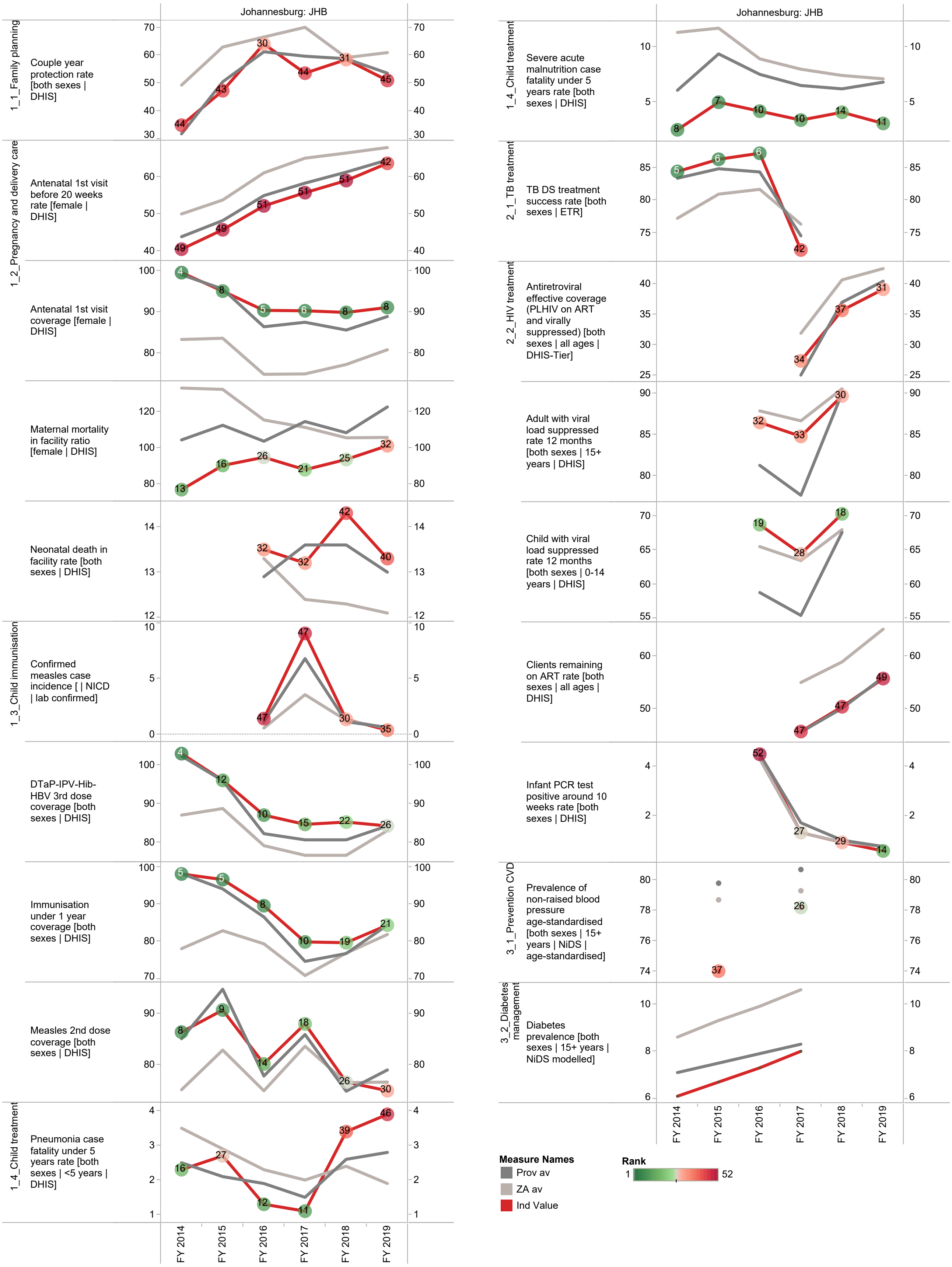


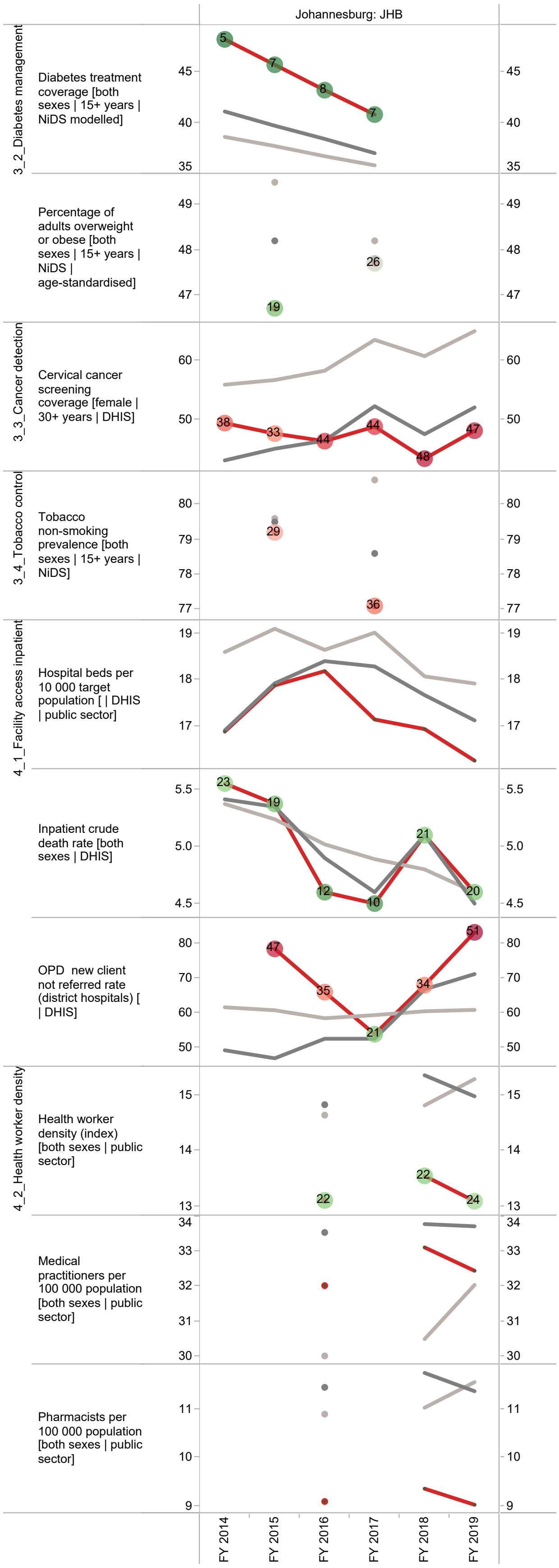
Source: Stats SA.

g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Johannesburg: JHB
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
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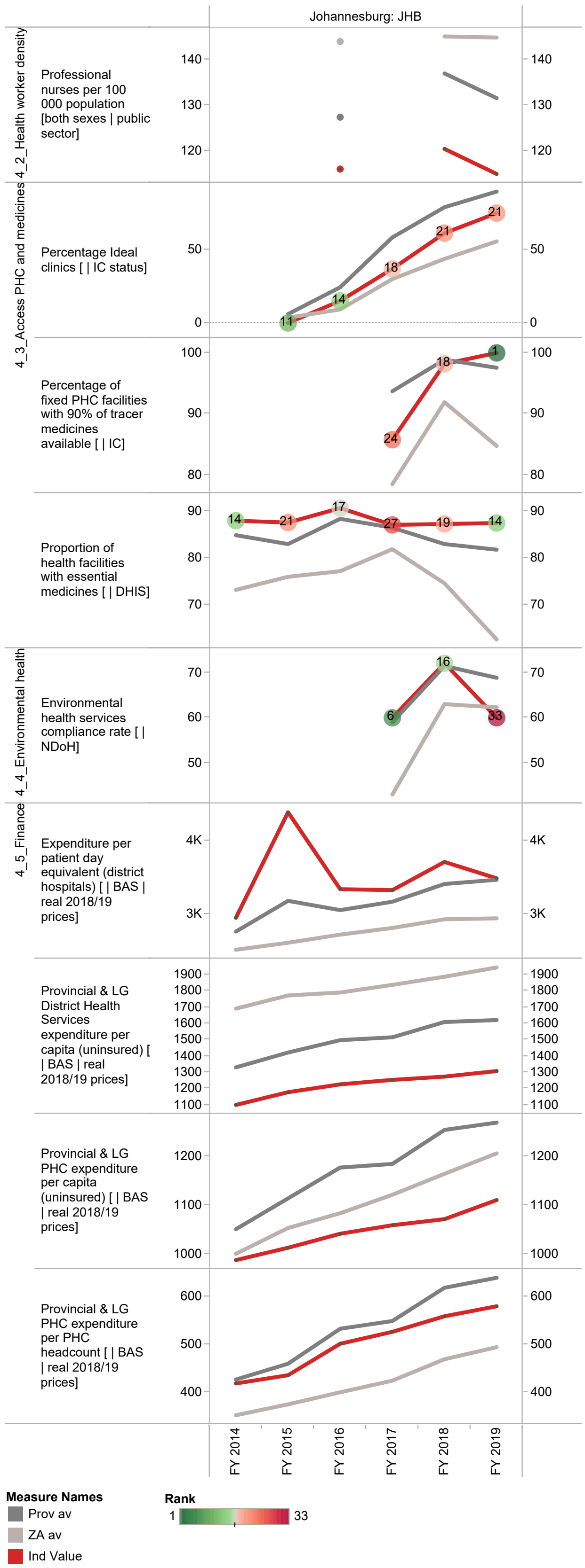
FY 2019


Johannesburg: JHB
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
33

Tshwane Metropolitan Municipality (TSH)

The City of Tshwane Metropolitan Municipality[i] is a Category A municipality situated in the Gauteng Province. It comprises seven health sub-districts, named Tshwane health sub-district 1 to Tshwane health sub-district 7.

Population (2018)[j]: 3 473 874

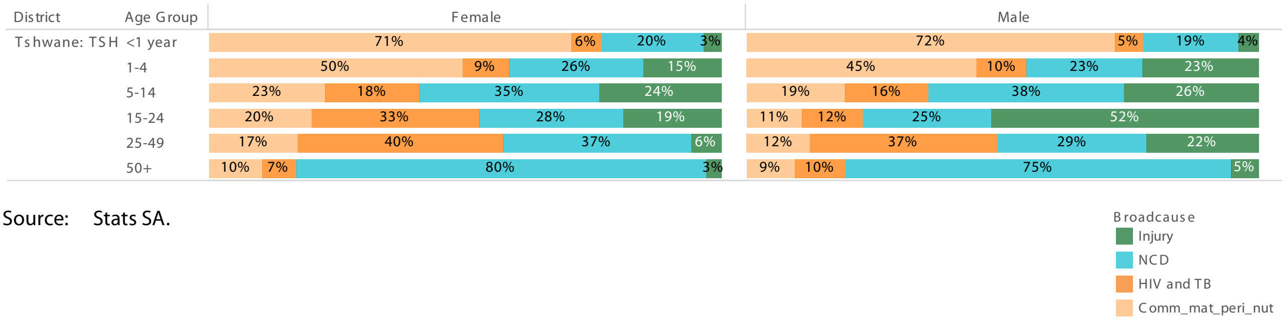
Population density (2018): 551.6 persons per km^2

Estimated medical scheme coverage (2018): 30.6%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

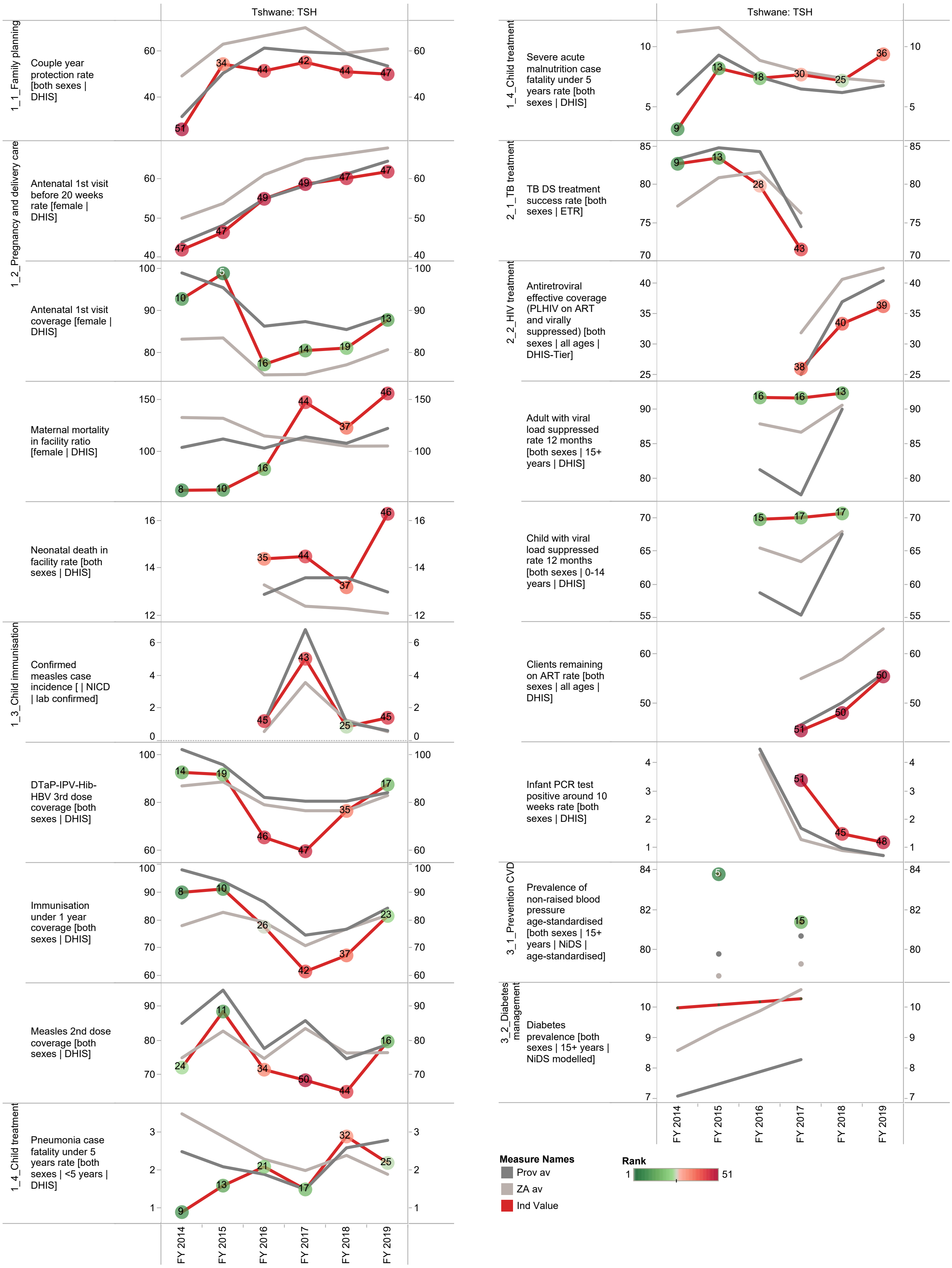


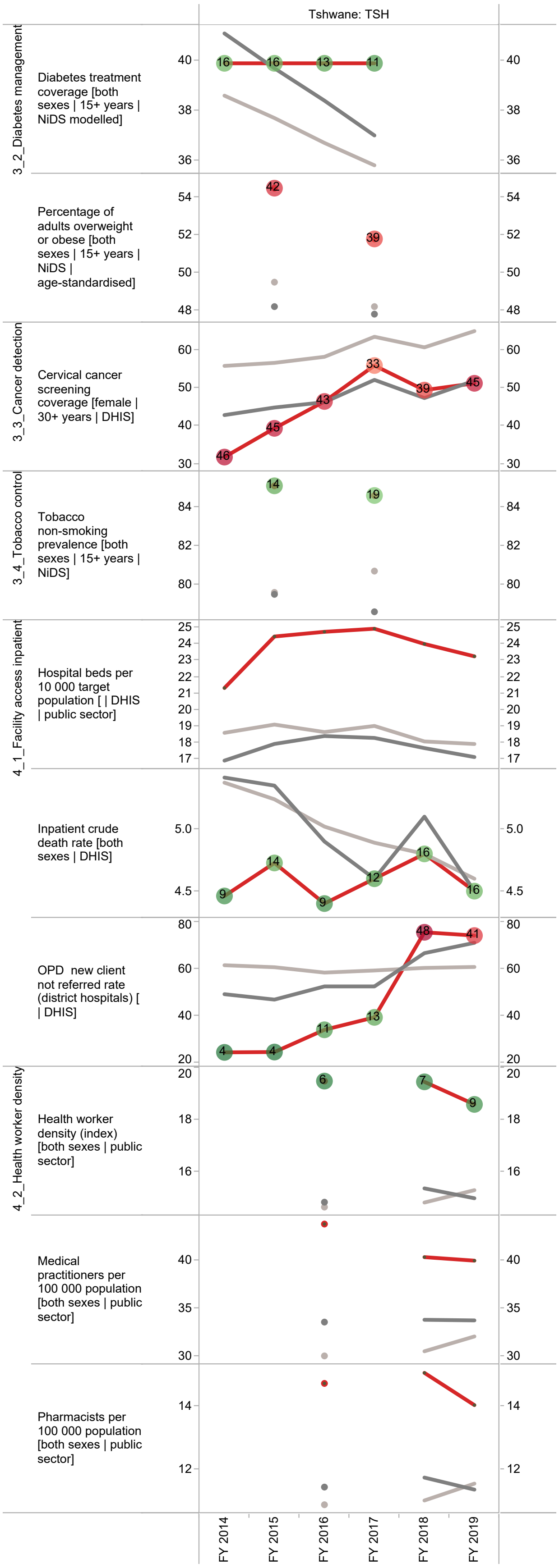
Source: Stats SA.

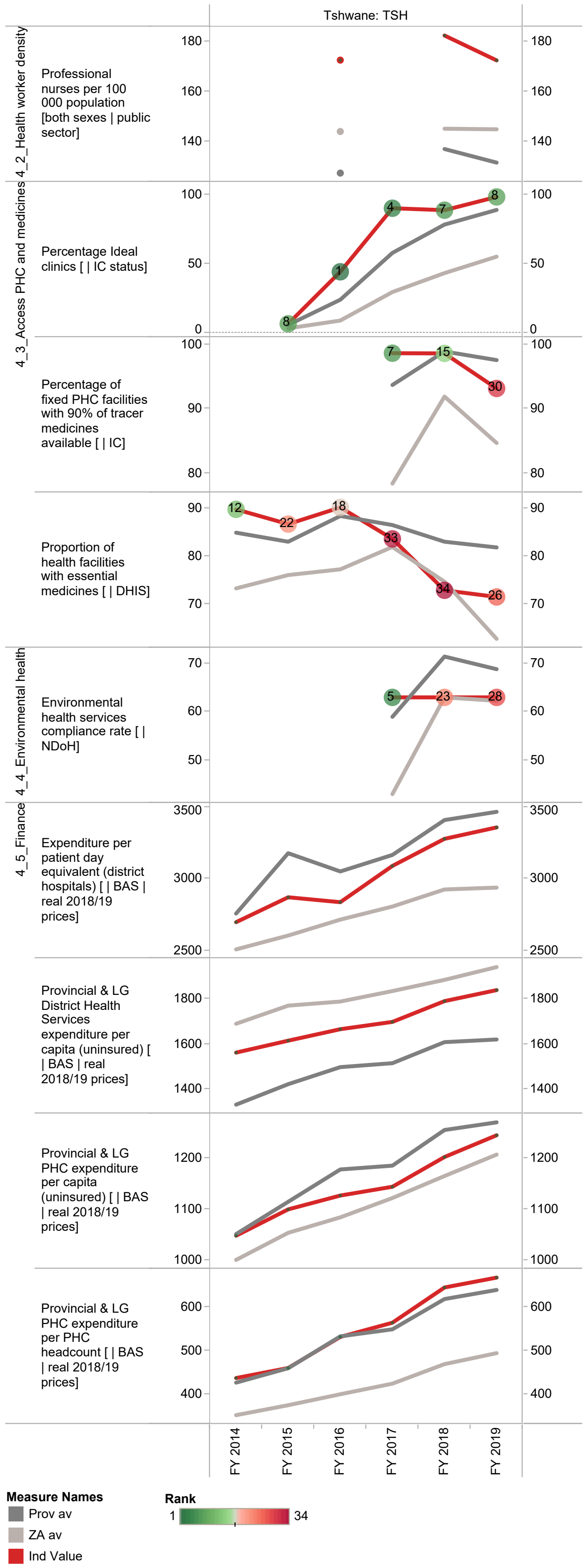
i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Tshwane: TSH
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


Tshwane: TSH
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
34

11. KwaZulu-Natal Province

Ugu District Municipality (DC21)

The Ugu District Municipality[a] is a Category C municipality situated in the far south of KwaZulu-Natal. The district is made up of four local municipalities: Umdoni, uMzumbe, Ray Nkonyeni and Umuziwabantu.

Population (2018)[b]: 787 096

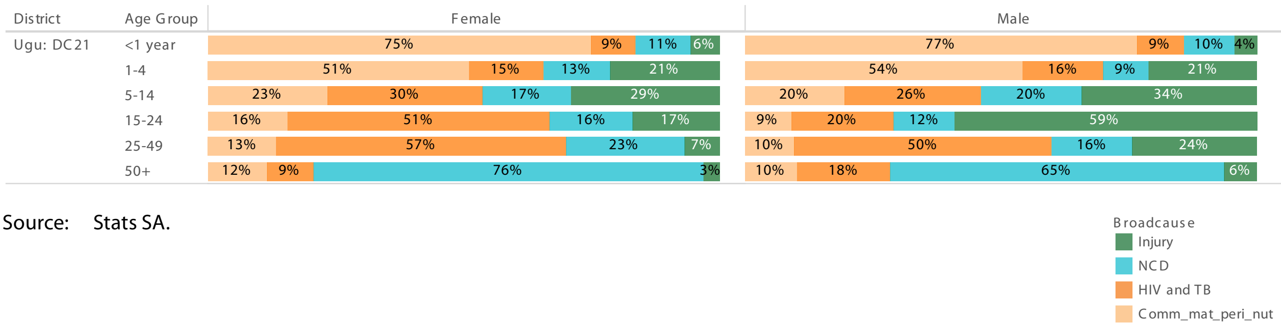
Population density (2018): 164.3 persons per km^2

Estimated medical scheme coverage (2018): 7.1%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

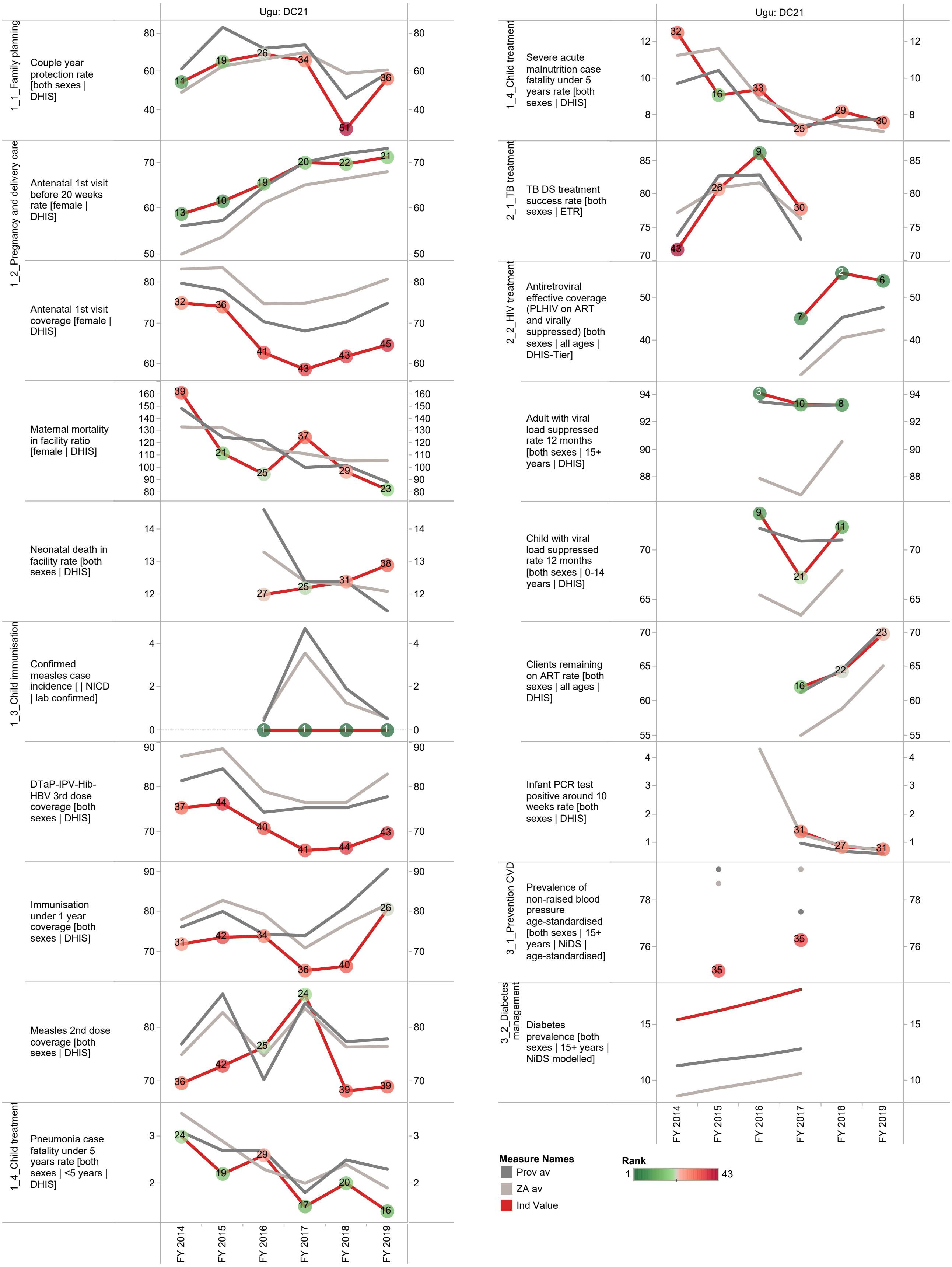


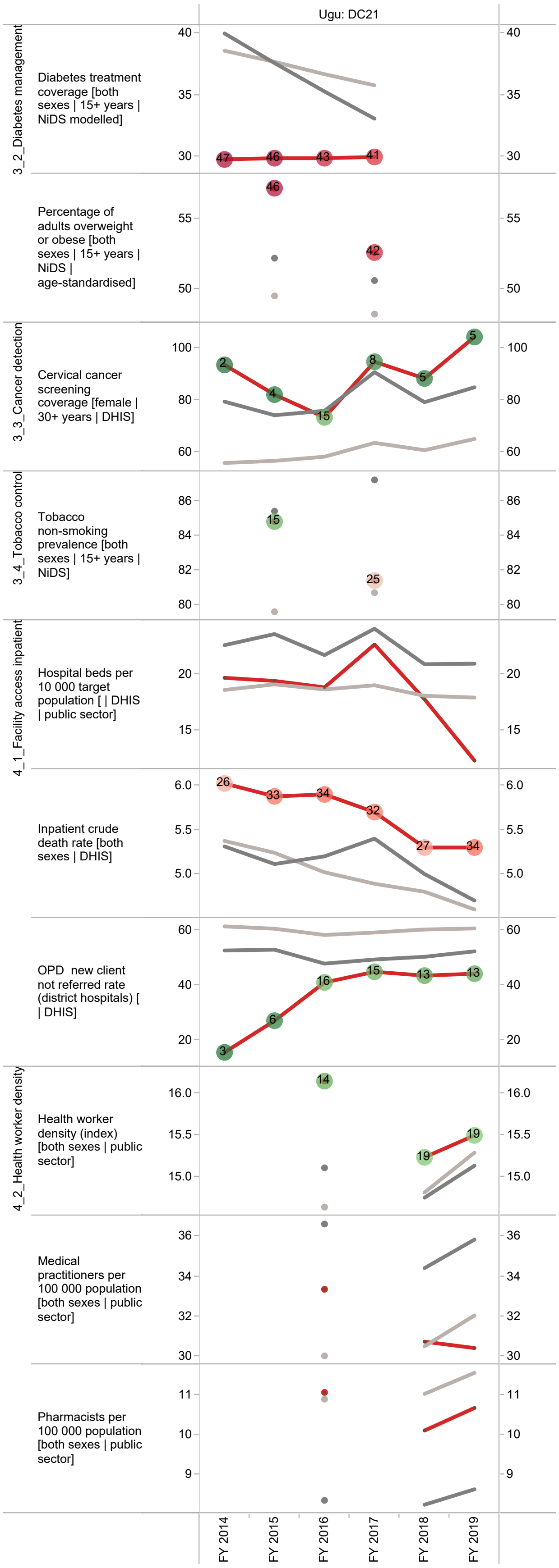
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Ugu: DC21
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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FY 2016
FY 2017
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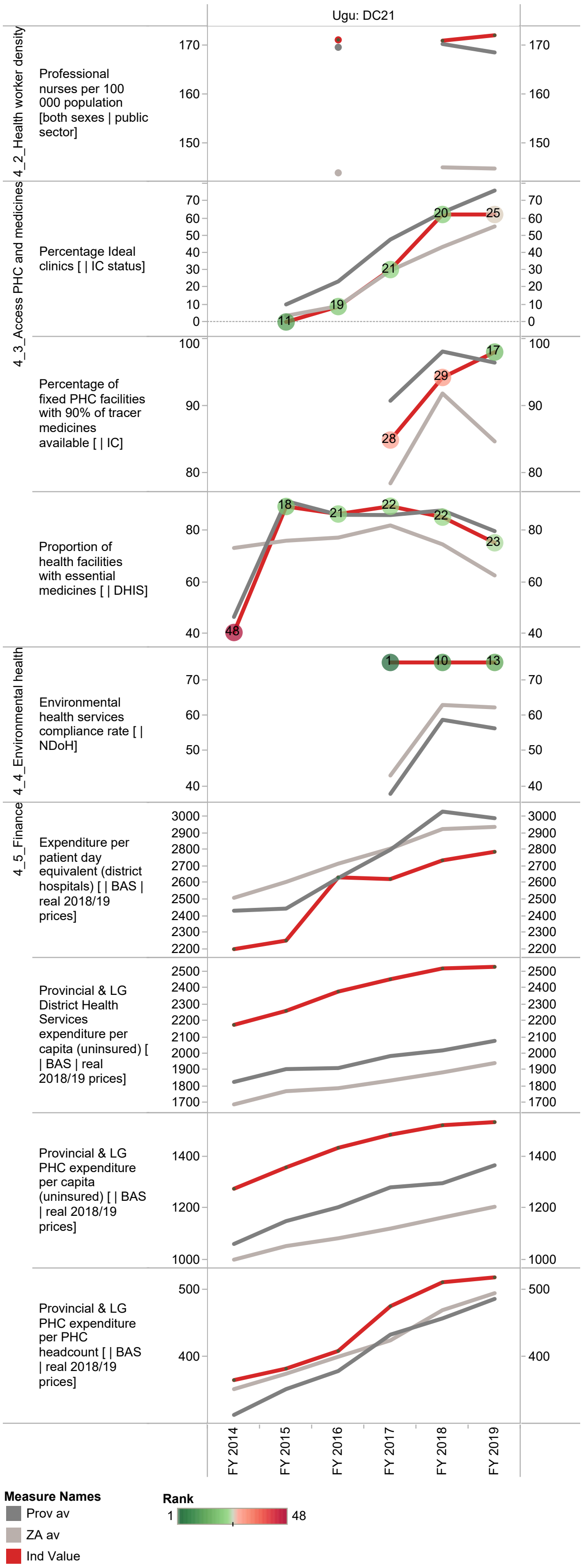

Ugu: DC21
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
48

uMgungundlovu District Municipality (DC22)

The uMgungundlovu District Municipality[c] is a Category C municipality located in the KwaZulu-Natal Midlands. The district is comprised of the following seven local municipalities: Impendle, Mkhambathini, Mpofana, Msunduzi, Richmond, uMngeni, and uMshwathi.

Population (2018)[d]: 1 165 427

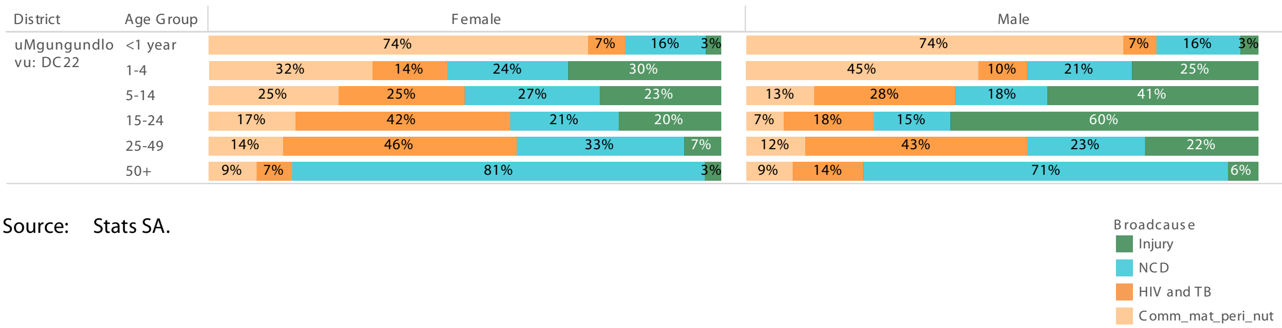
Population density (2018): 121.4 persons per km^2

Estimated medical scheme coverage (2018): 11.0%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

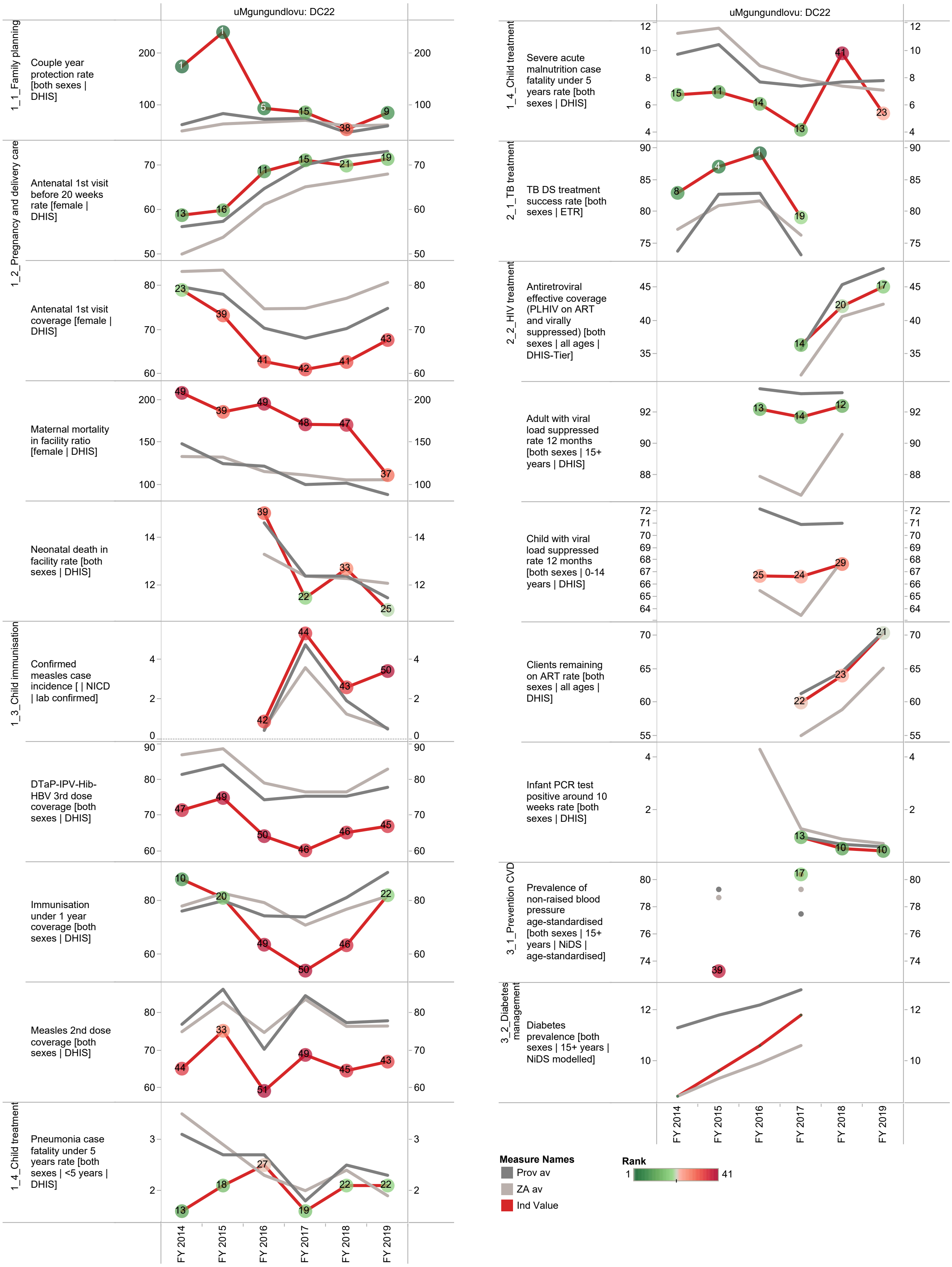


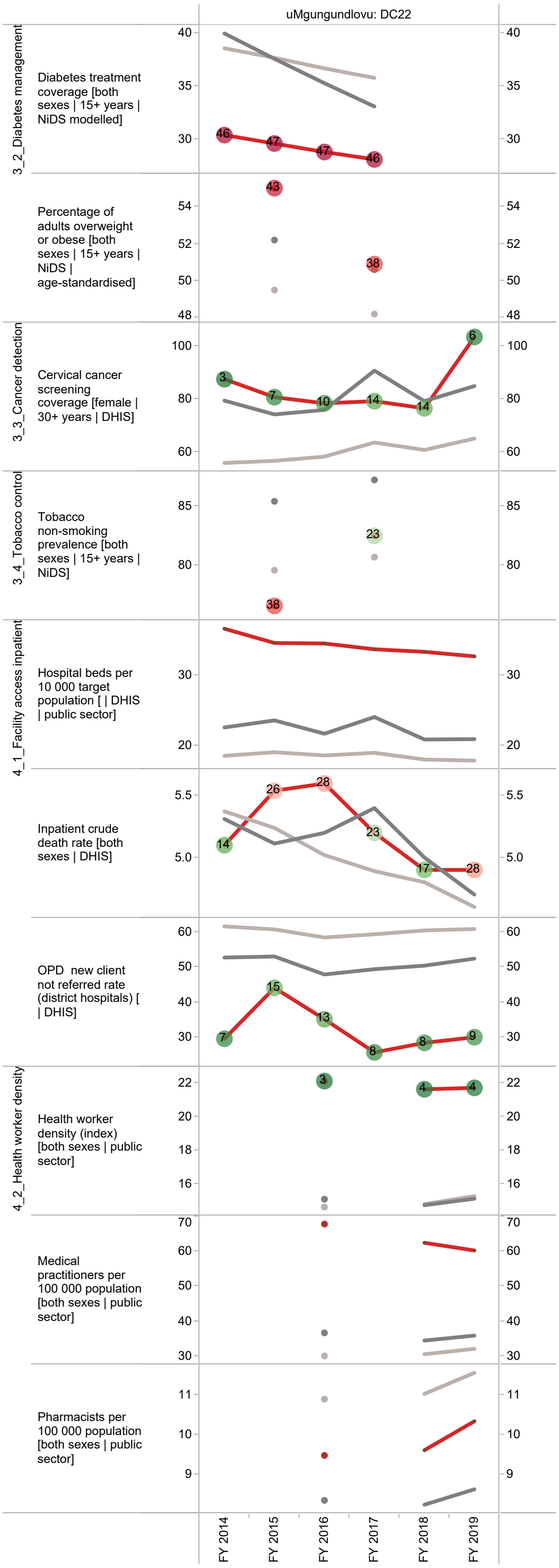
Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




uMgungundlovu: DC22
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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FY 2016
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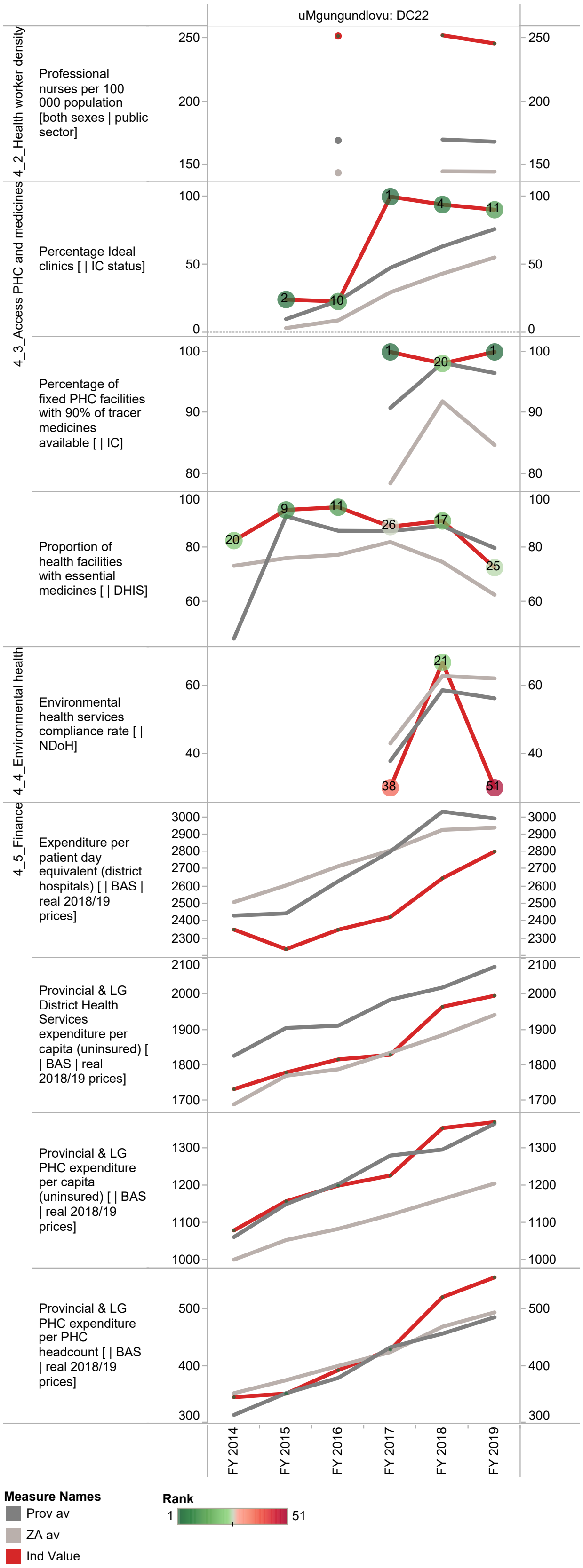

uMgungundlovu: DC22
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
51

uThukela District Municipality (DC23)

The uThukela District Municipality[e] is a Category C municipality and is located on the western boundary of the KwaZulu-Natal Province. It consists of three local municipalities: Okhahlamba, Alfred Duma and Inkosi Langalibalele.

Population (2018)[f]: 758 834

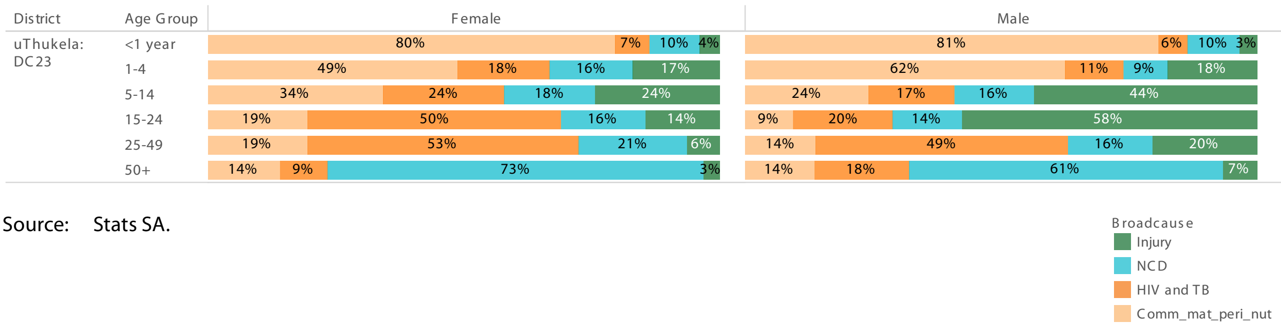
Population density (2018): 68.2 persons per km^2

Estimated medical scheme coverage (2018): 6.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

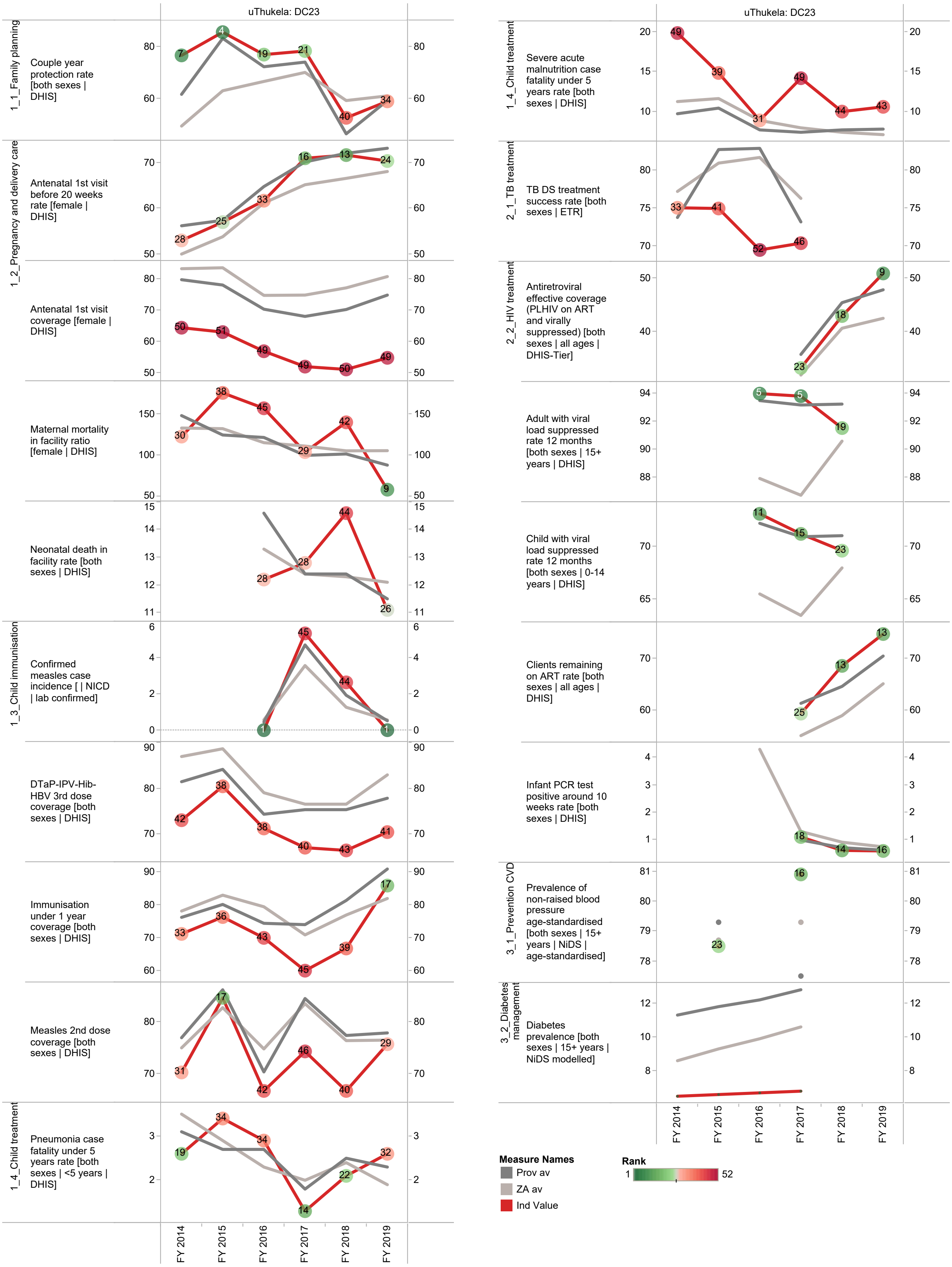


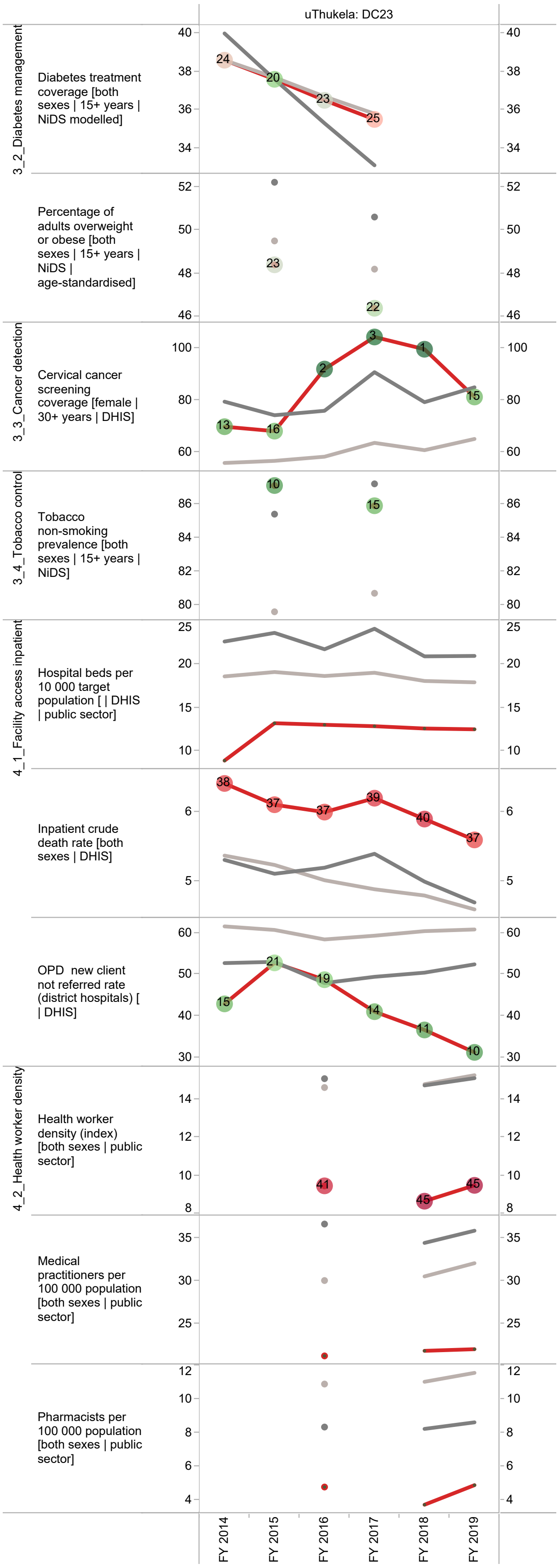
Source: Stats SA.

e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

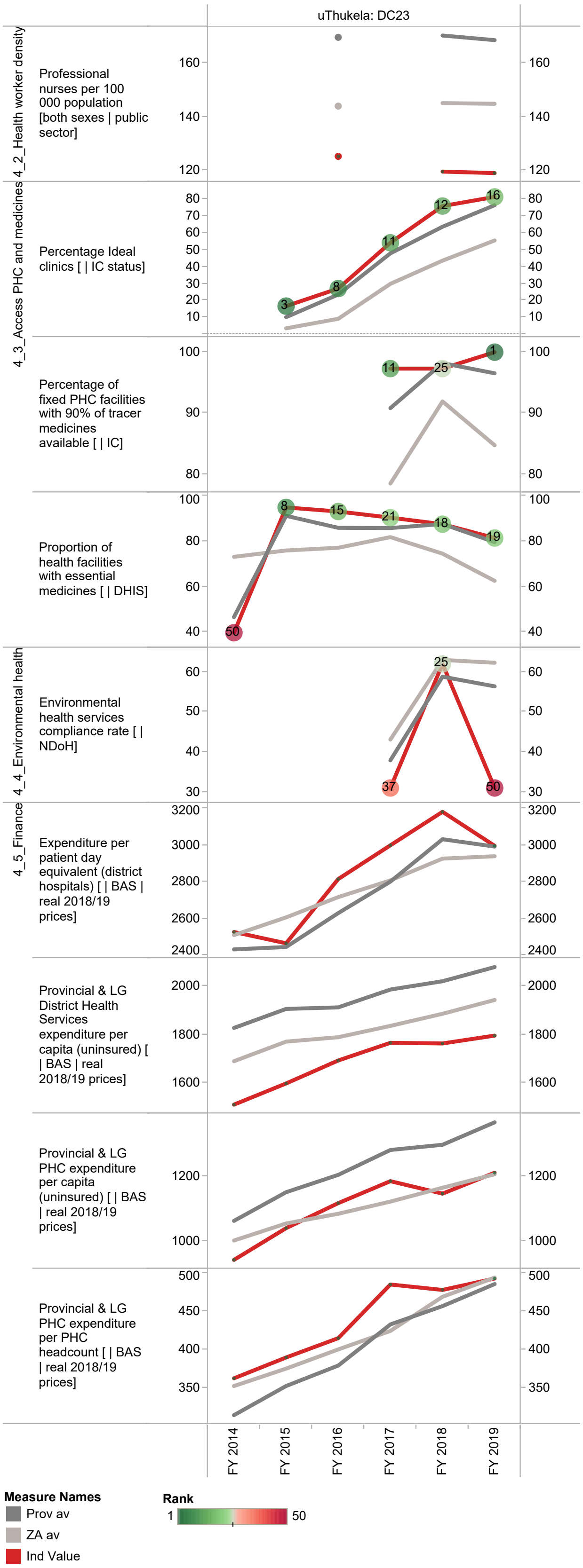
f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





uThukela: DC23
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019



uThukela: DC23
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
50

uMzinyathi District Municipality (DC24)

The uMzinyathi District Municipality[g] is a Category C municipality located in the north and central areas of the KwaZulu-Natal Province. The district consists of four local municipalities: Endumeni, Nquthu, Msinga and Umvoti.

Population (2018)[h]: 568 386

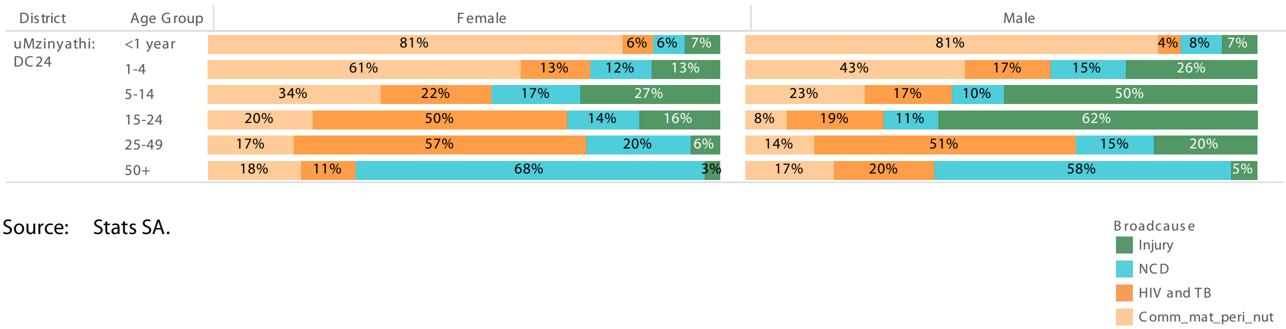
Population density (2018): 65.7 persons per km^2

Estimated medical scheme coverage (2018): 5.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

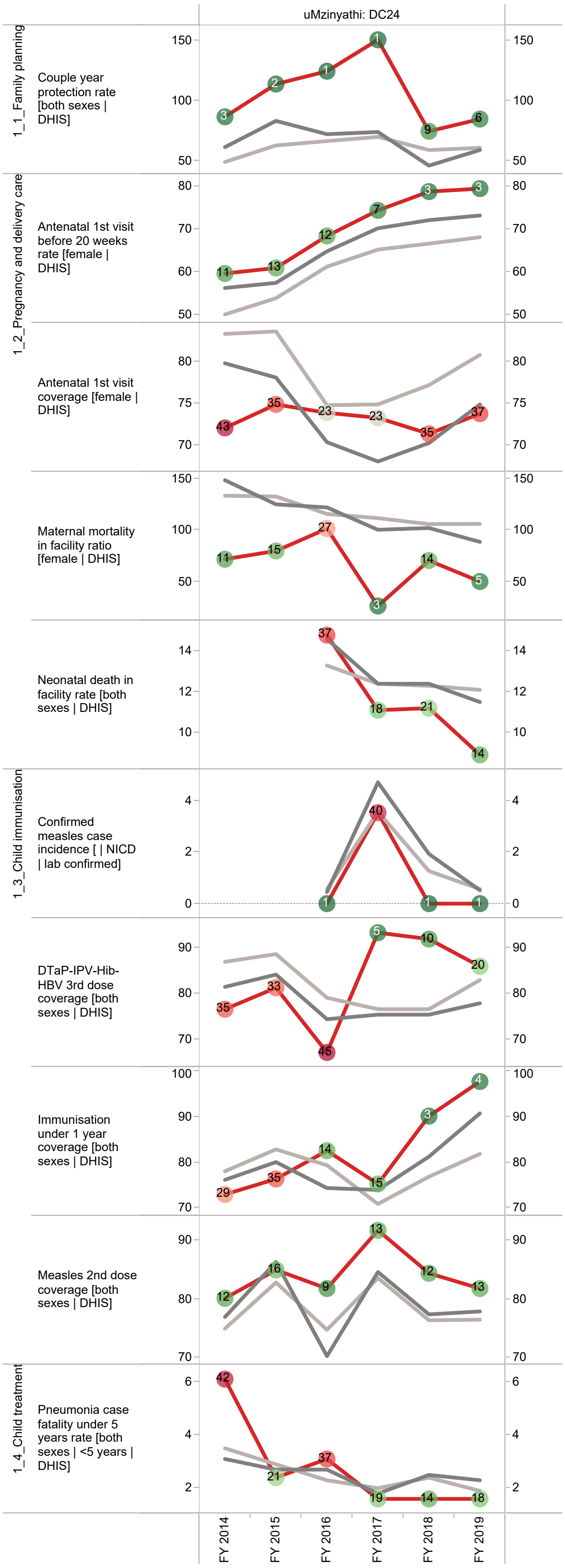


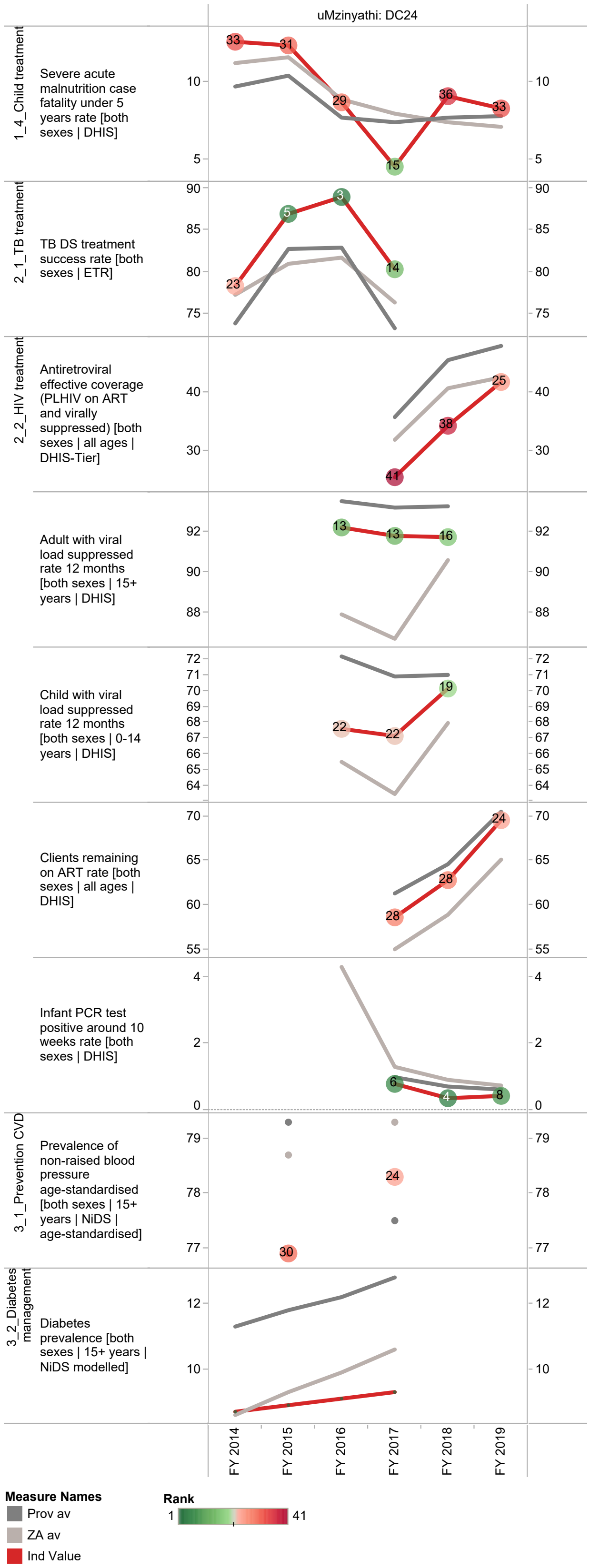
Source: Stats SA.

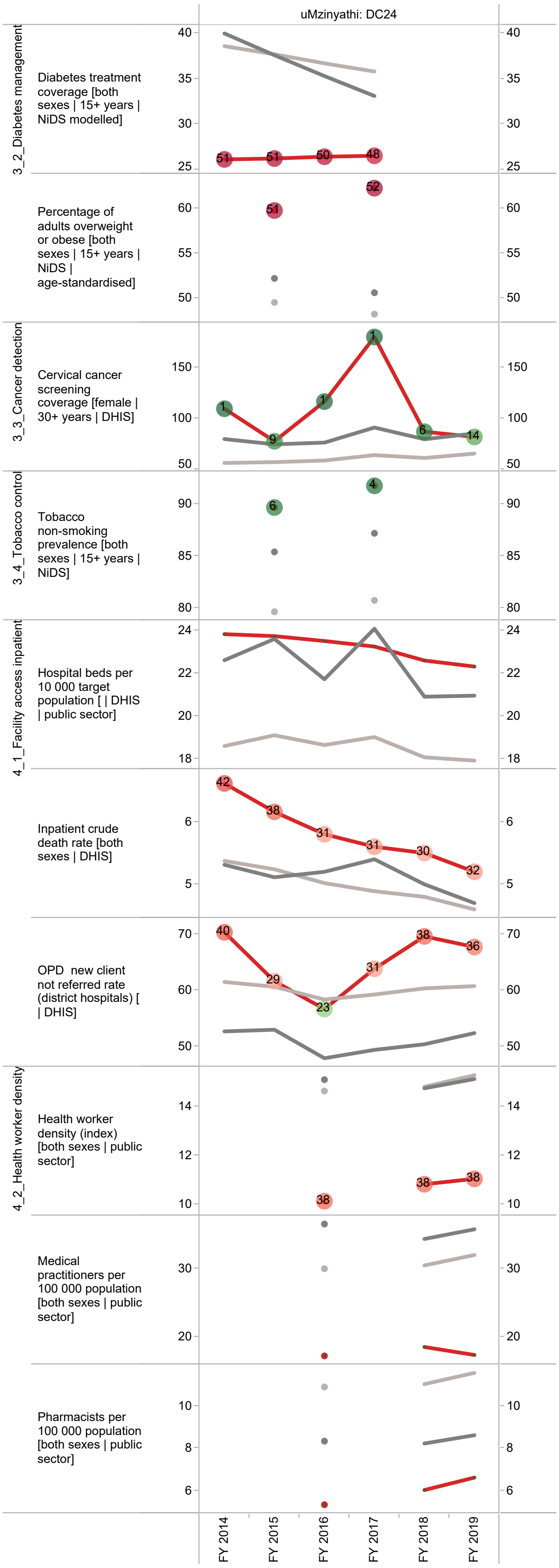
g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19







uMzinyathi: DC24
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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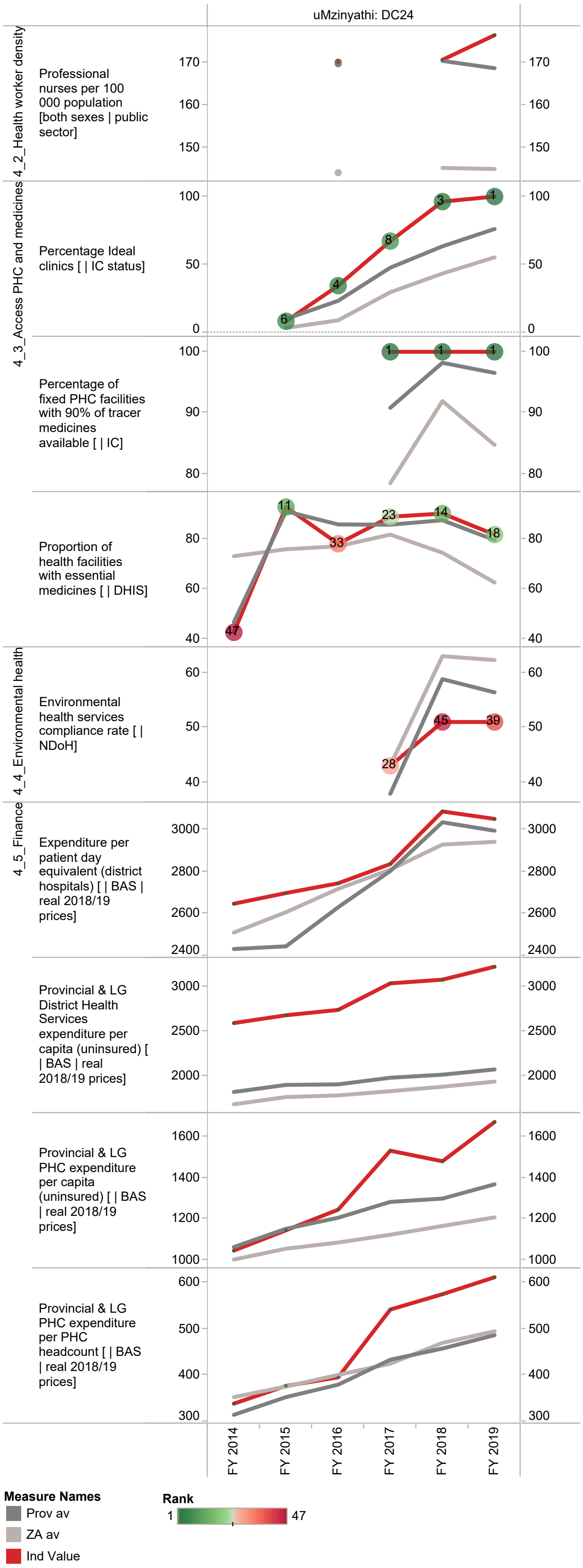
FY 2019



uMzinyathi: DC24
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
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FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
47

Amajuba District Municipality (DC25)

The Amajuba District Municipality[i] is a Category C municipality located in the north-western corner of KwaZulu-Natal. The district comprises three local municipalities: Newcastle, eMadlangeni and Dannhauser.

Population (2018)[j]: 576 908

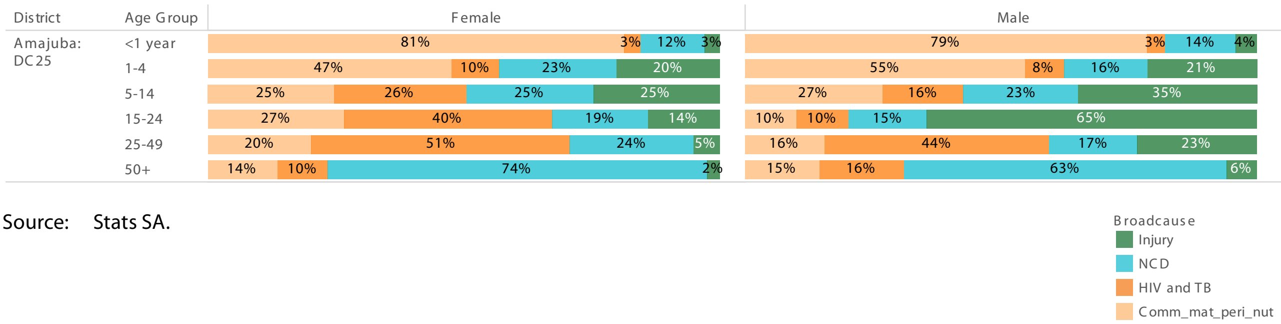
Population density (2018): 81.2 persons per km^2

Estimated medical scheme coverage (2018): 7.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

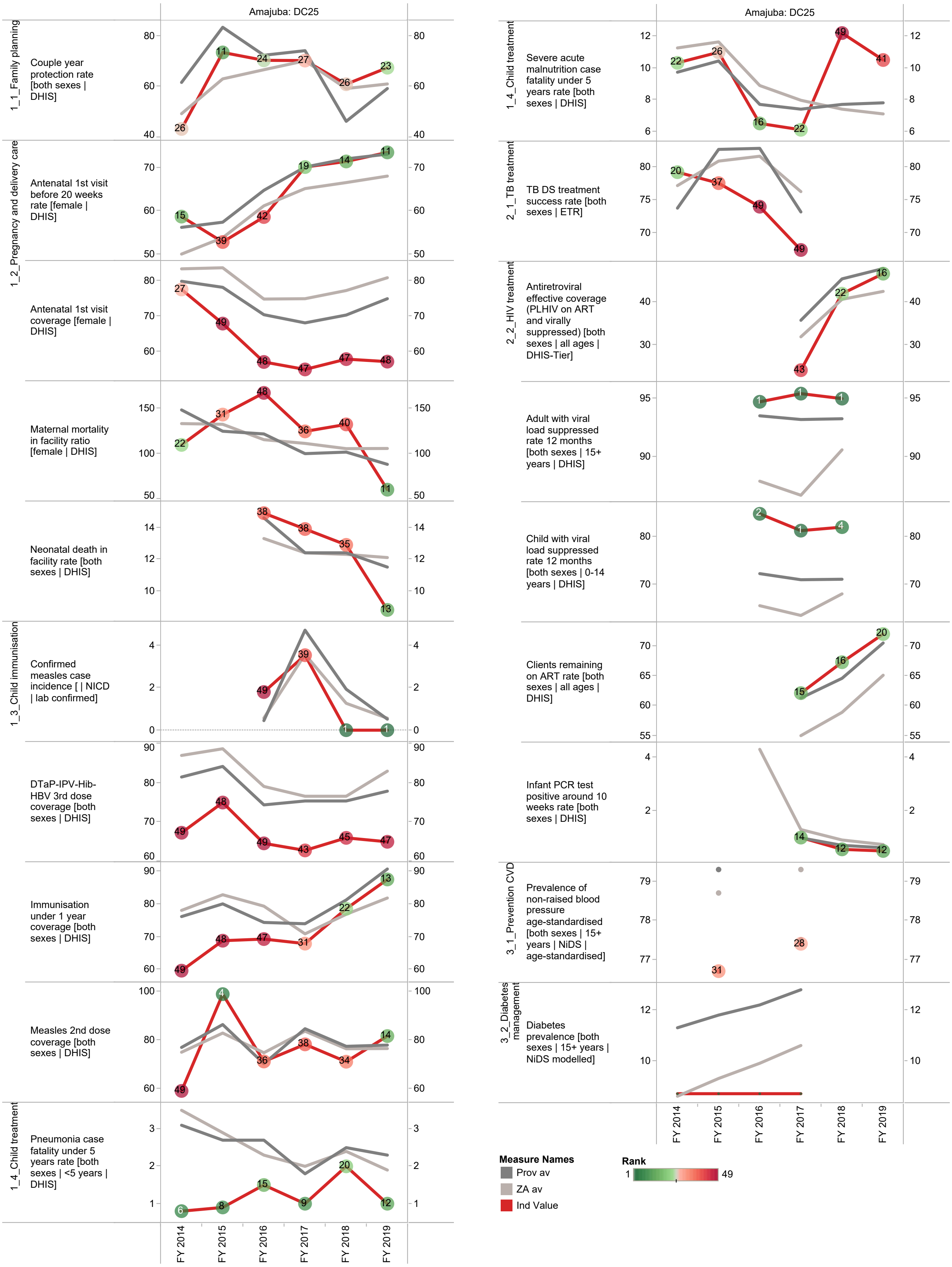


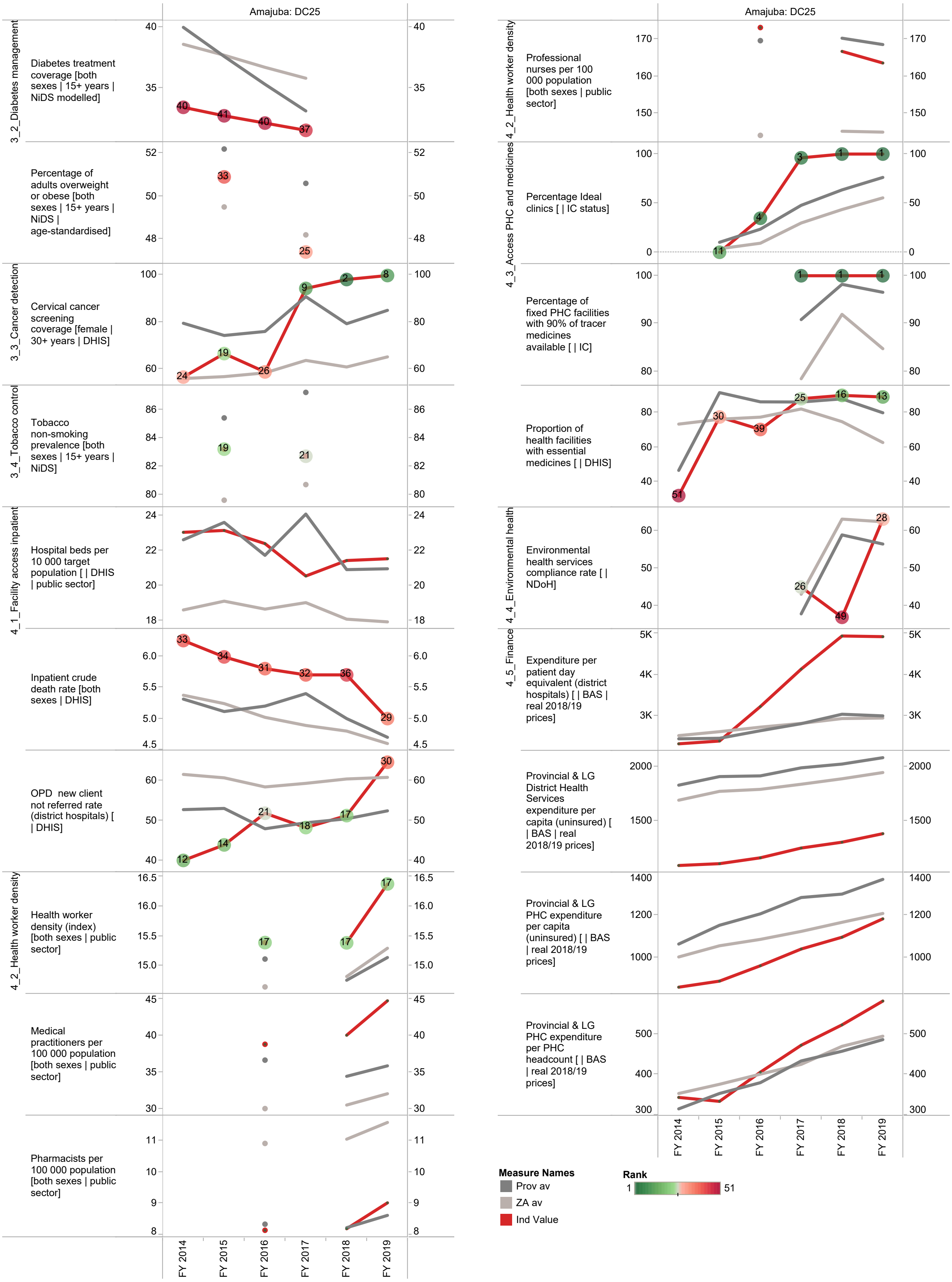
Source: Stats SA.

i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





Amajuba: DC25
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
51

Zululand District Municipality (DC26)

The Zululand District Municipality[k] is a Category C municipality situated in the north-eastern part of KwaZulu-Natal. It comprises five local municipalities: Ulundi, Nongoma, uPhongolo, eDumbe and AbaQulusi.

Population (2018)[l]: 880 638

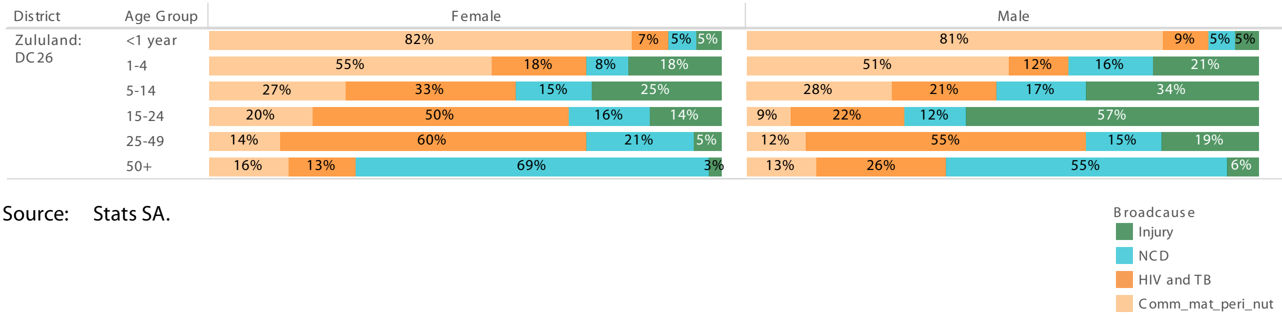
Population density (2018): 59.5 persons per km^2

Estimated medical scheme coverage (2018): 5.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

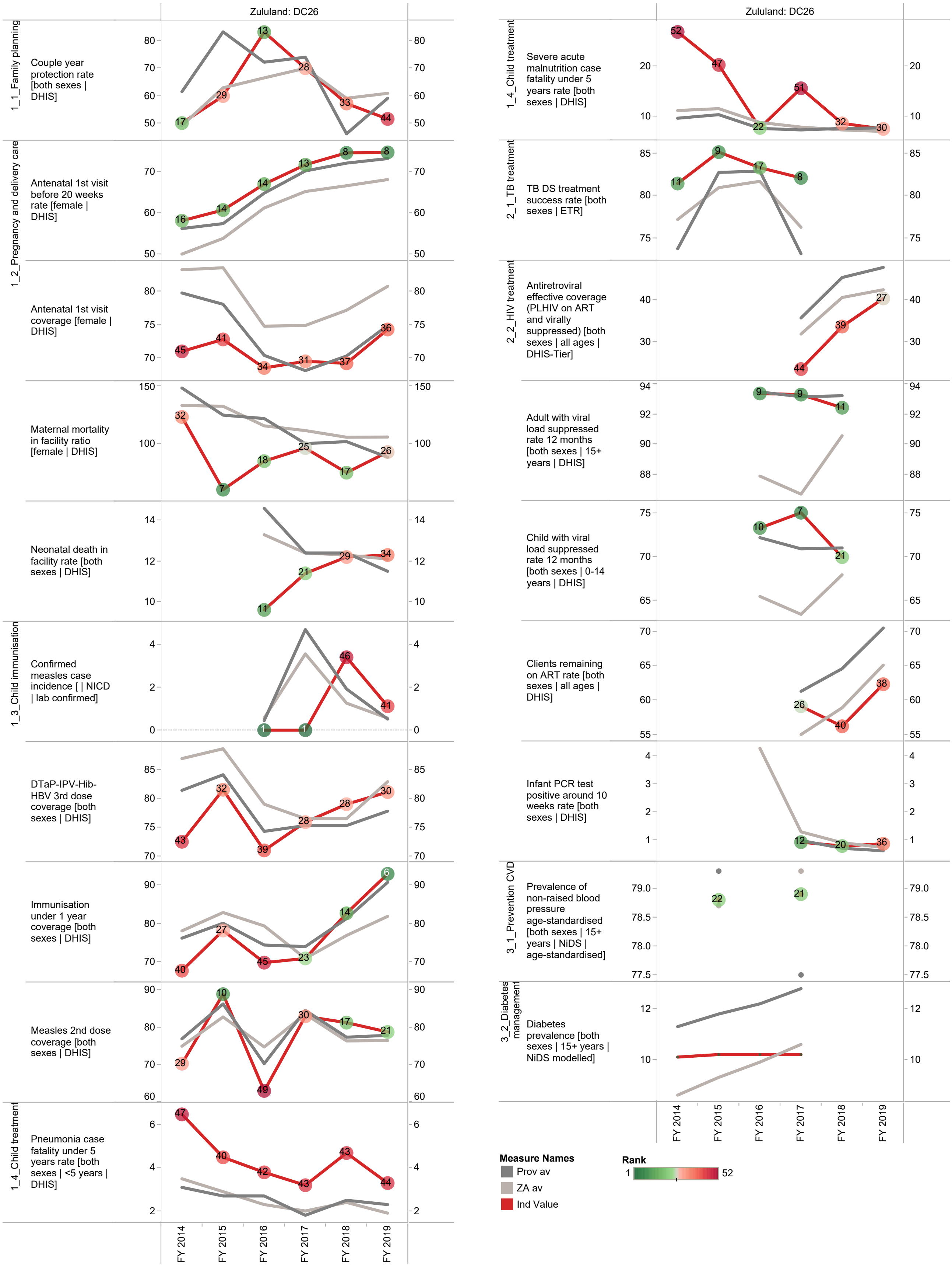


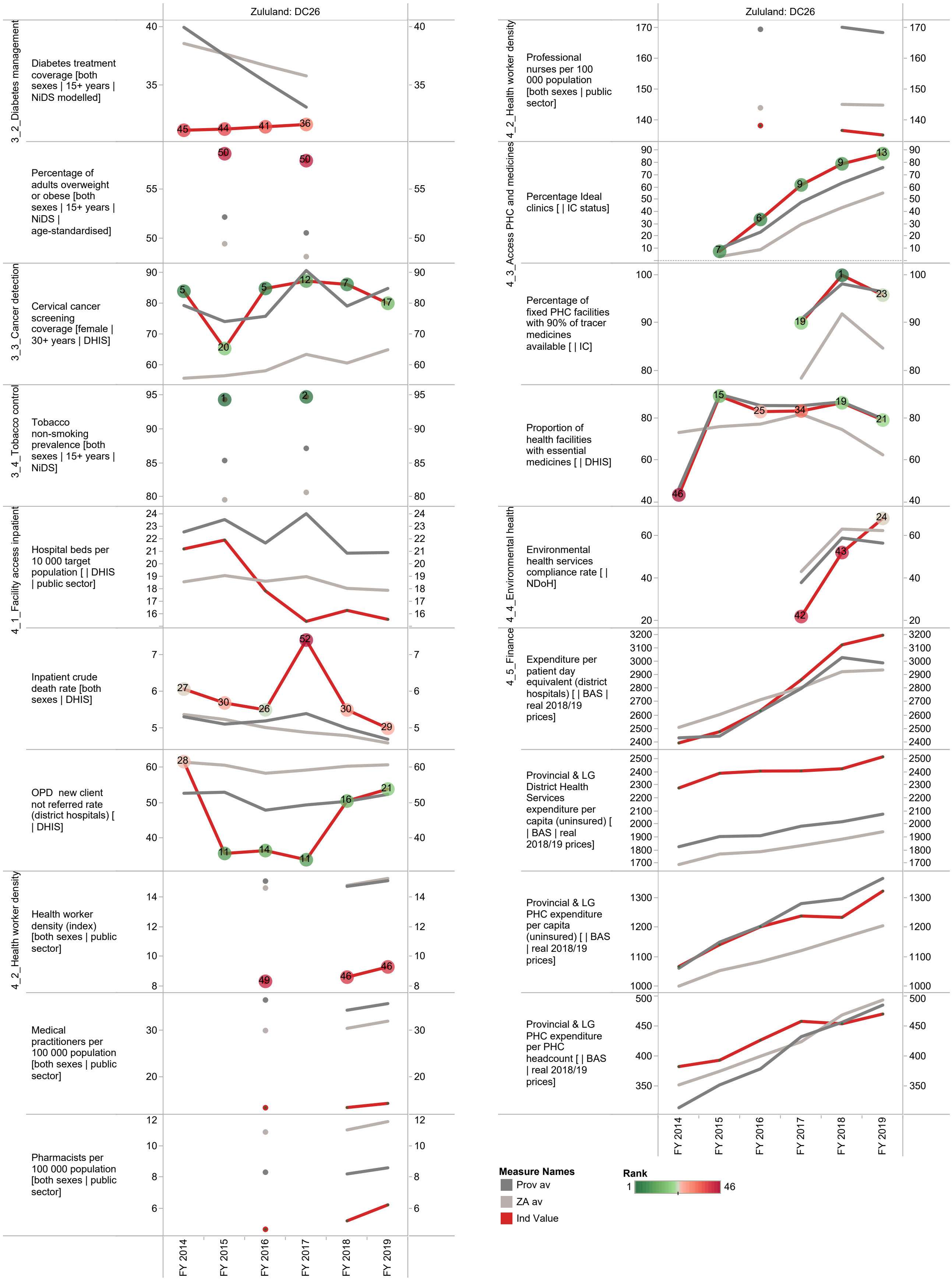
Source: Stats SA.

k The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

l Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Zululand: DC26
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
46

uMkhanyakude District Municipality (DC27)

The uMkhanyakude District Municipality[m] is a Category C municipality located along the coast in the far north of the KwaZulu-Natal Province. It shares its borders with Swaziland and Mozambique. It consists of the following four local municipalities: uMhlabuyalingana, Jozini, Big 5 Hlabisa and Mtubatuba.

Population (2018)[n]: 696 042

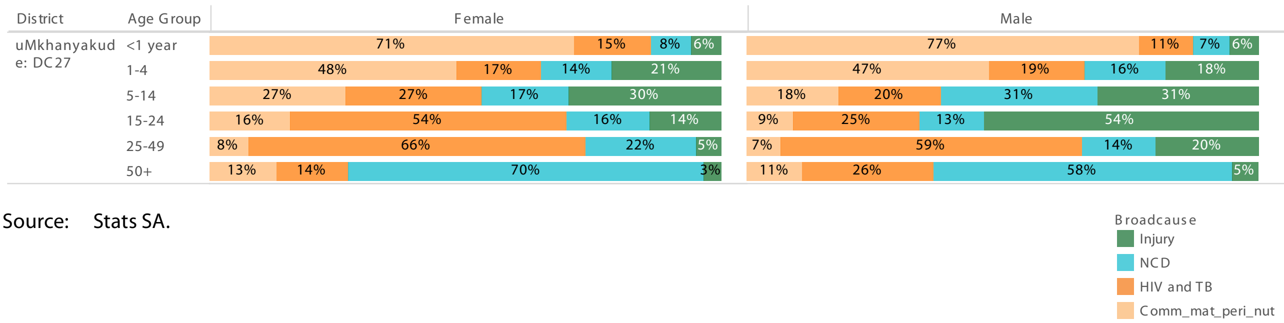
Population density (2018): 50.2 persons per km^2

Estimated medical scheme coverage (2018): 5.0%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

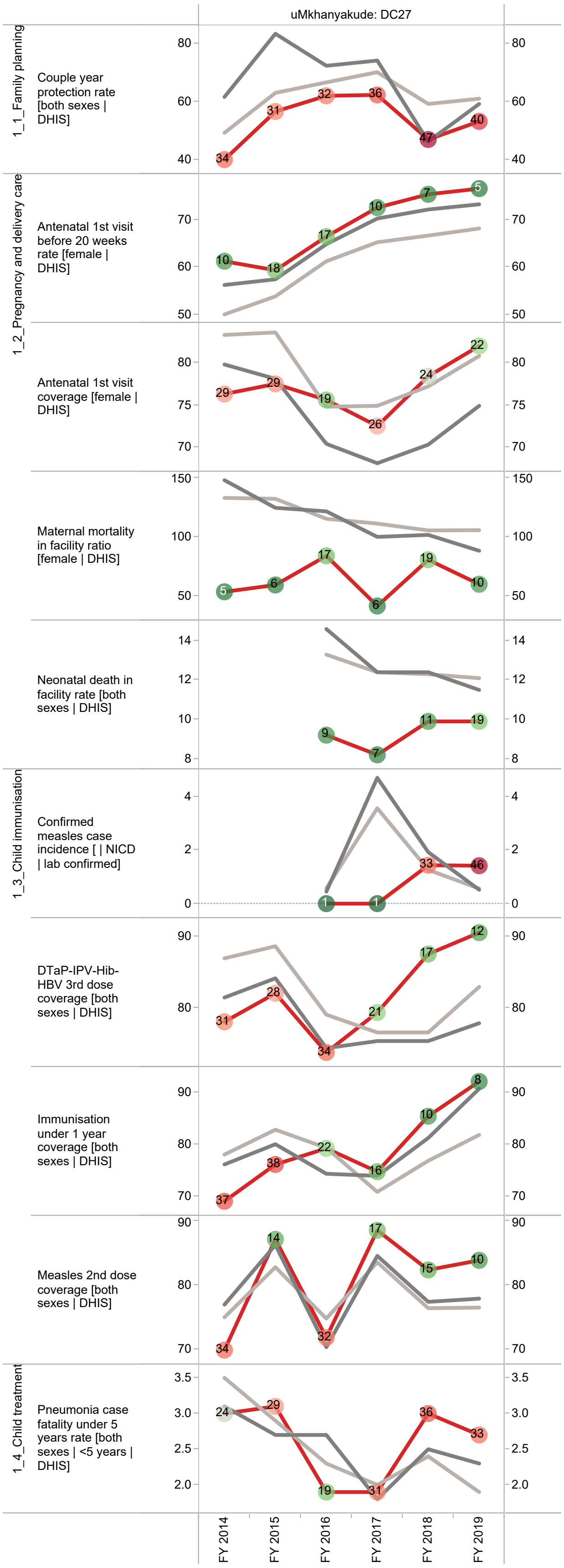


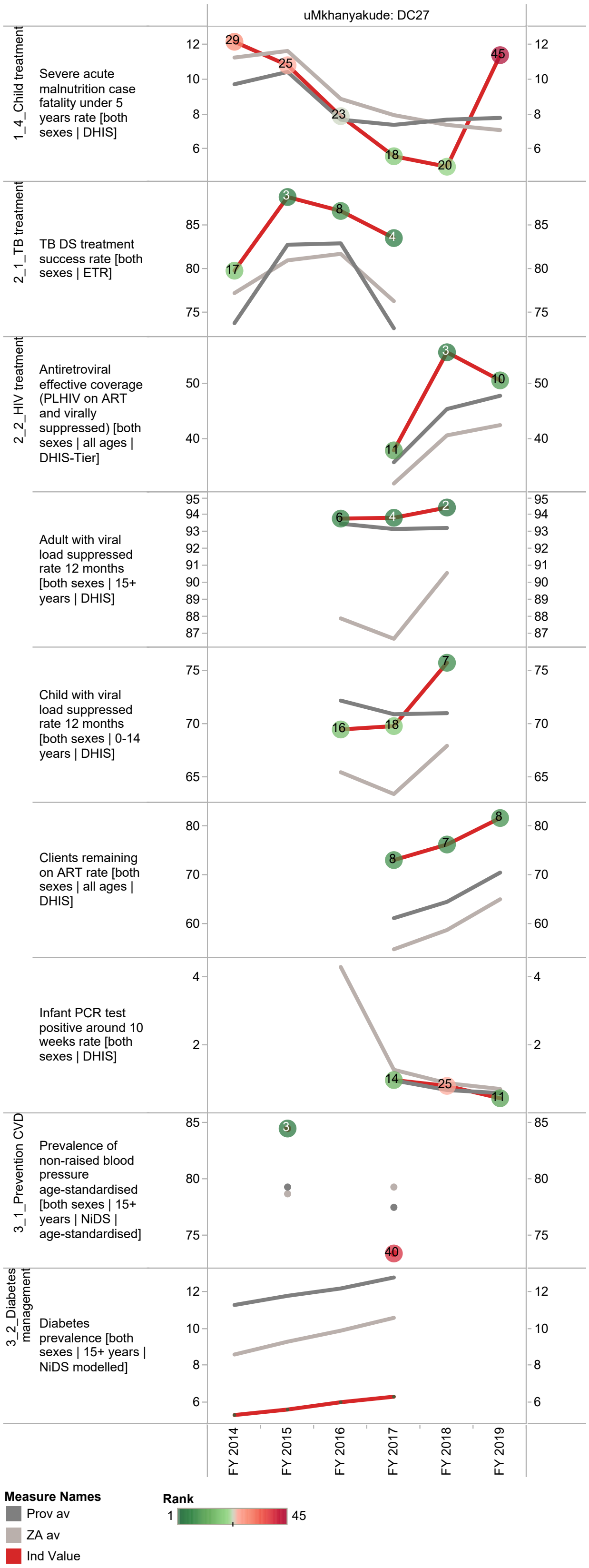
Source: Stats SA.

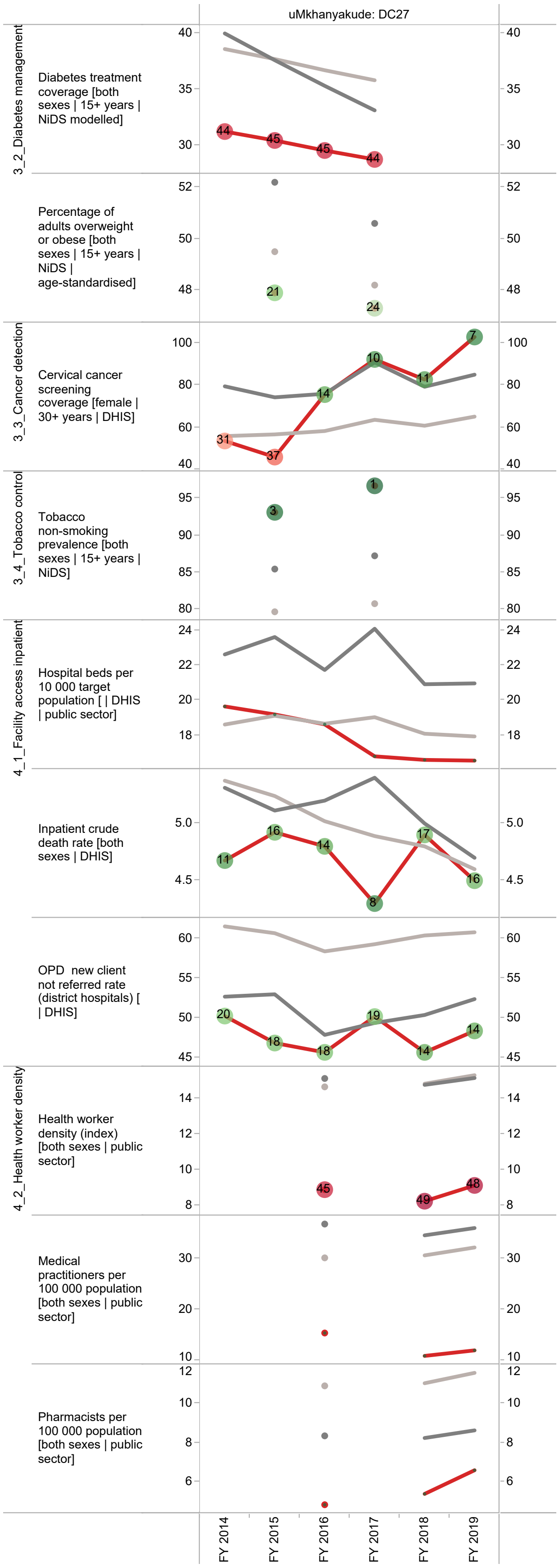
m The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

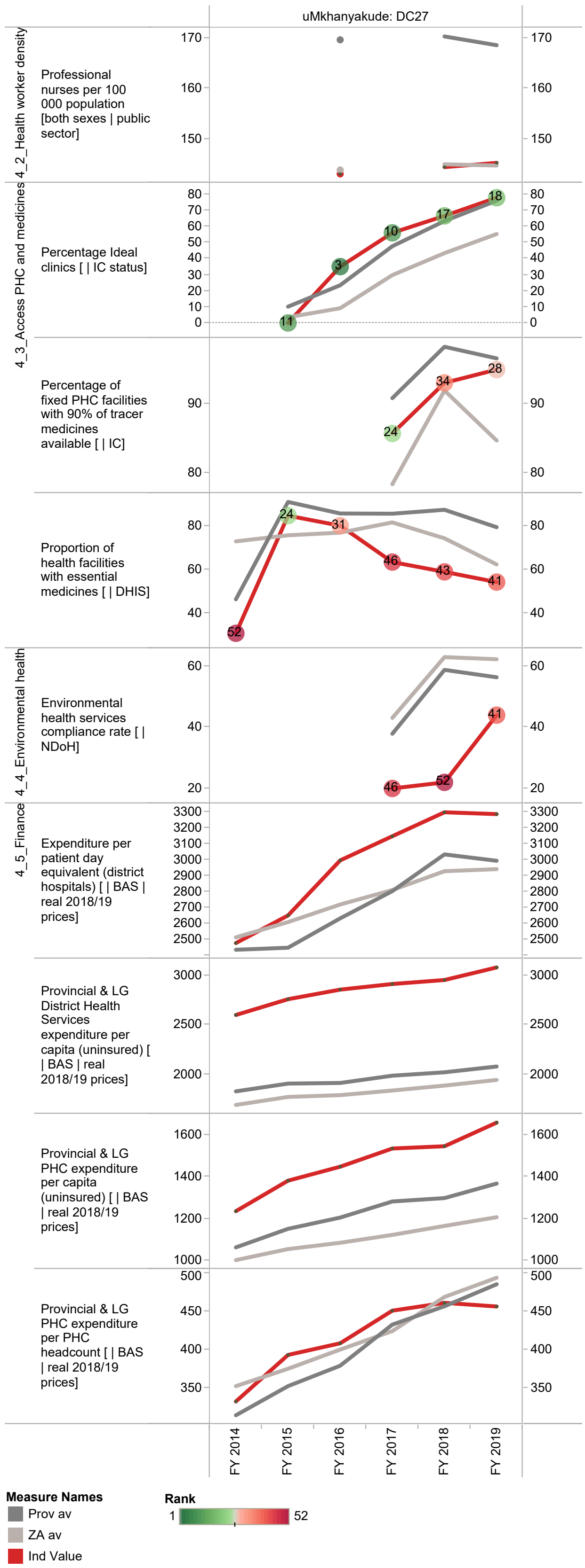
n Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






uMkhanyakude: DC27
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


uMkhanyakude: DC27
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
52

King Cetshwayo District Municipality (DC28)

The King Cetshwayo District Municipality[o] (previously uThungulu District Municipality) is a Category C municipality and is located in the north-eastern region of the KwaZulu-Natal Province. The district is home to five local municipalities: City of uMhlathuze, uMlalazi, Mthonjaneni, Nkandla and uMfolozi.

Population (2018)[p]: 998 053

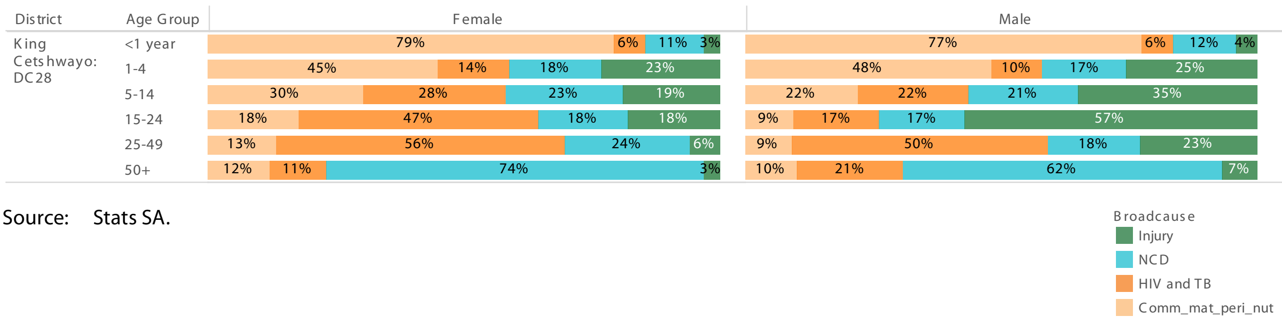
Population density (2018): 121.5 persons per km^2

Estimated medical scheme coverage (2018): 8.7%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

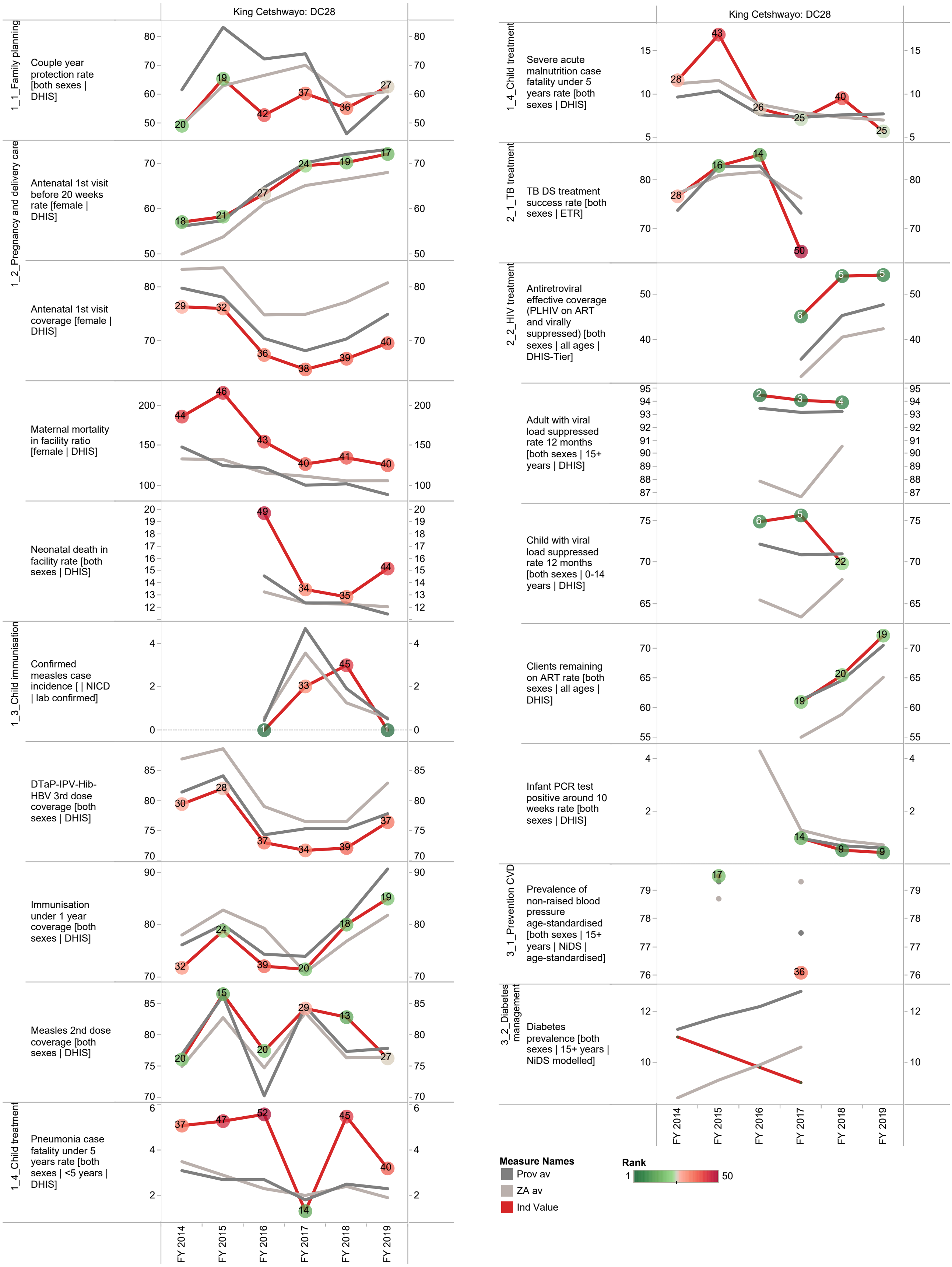


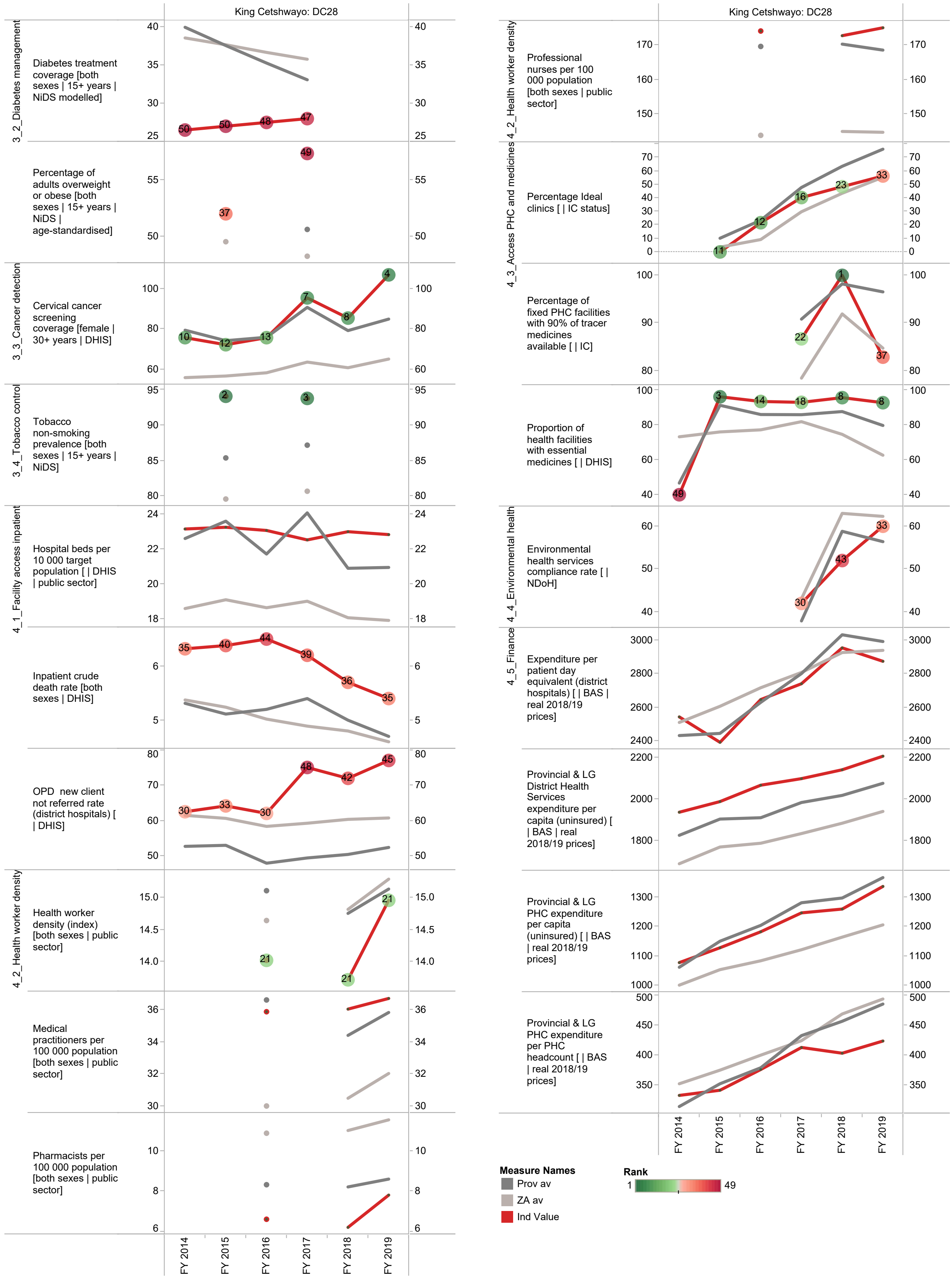
Source: Stats SA.

o The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

p Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




King Cetshwayo: DC28
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
49

iLembe District Municipality (DC29)

The iLembe District Municipality[q] is a Category C municipality situated on the east coast of KwaZulu-Natal. iLembe consists of four local municipalities located between Durban and Richards Bay: Mandeni, KwaDukuza, Maphumulo and Ndwedwe.

Population (2018)[r]: 704 966

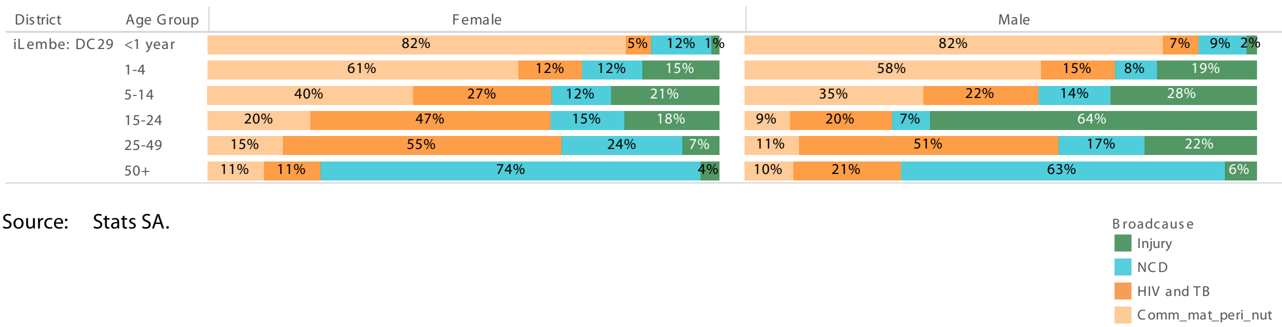
Population density (2018): 215.7 persons per km^2

Estimated medical scheme coverage (2018): 8.6%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

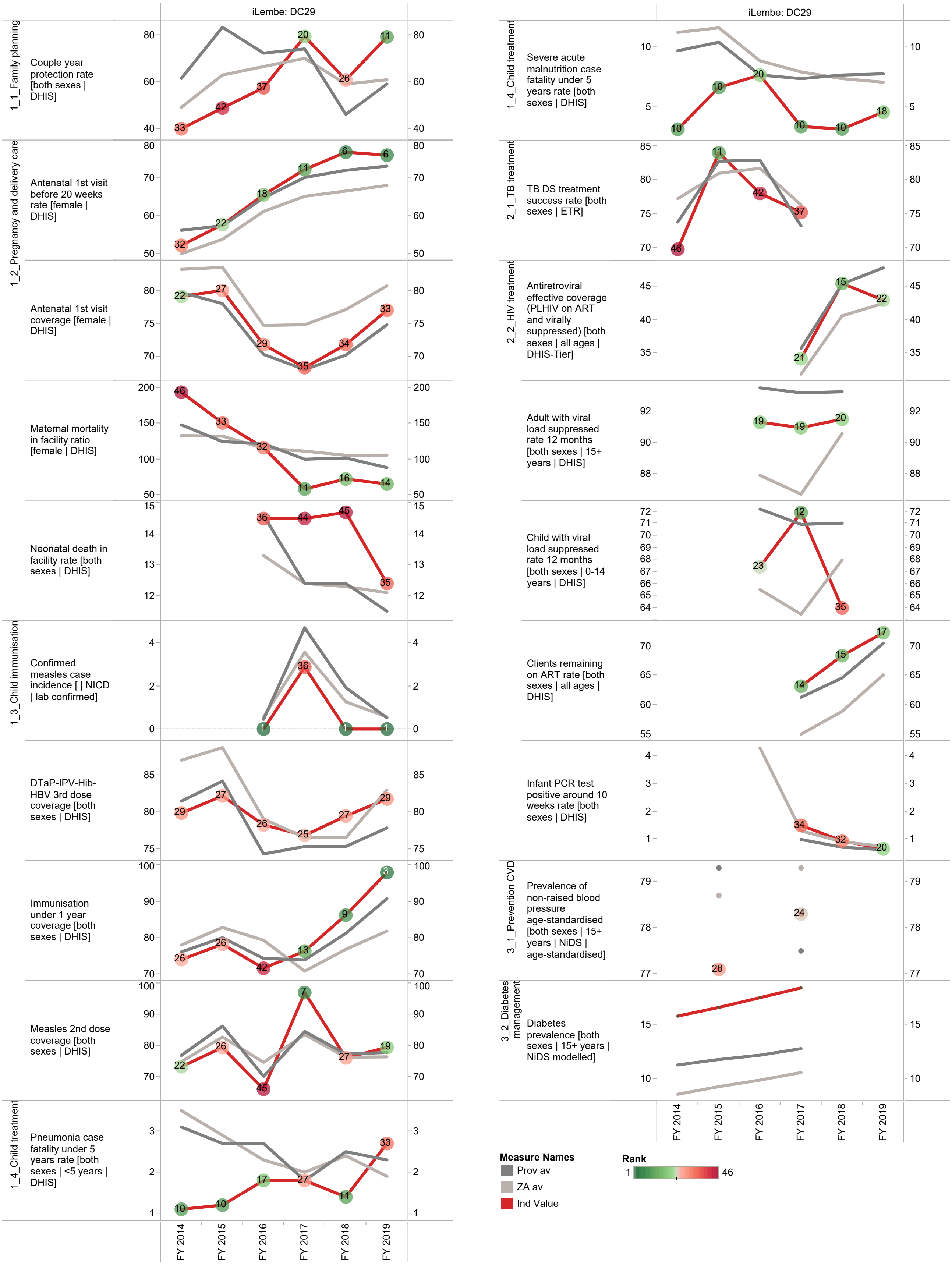


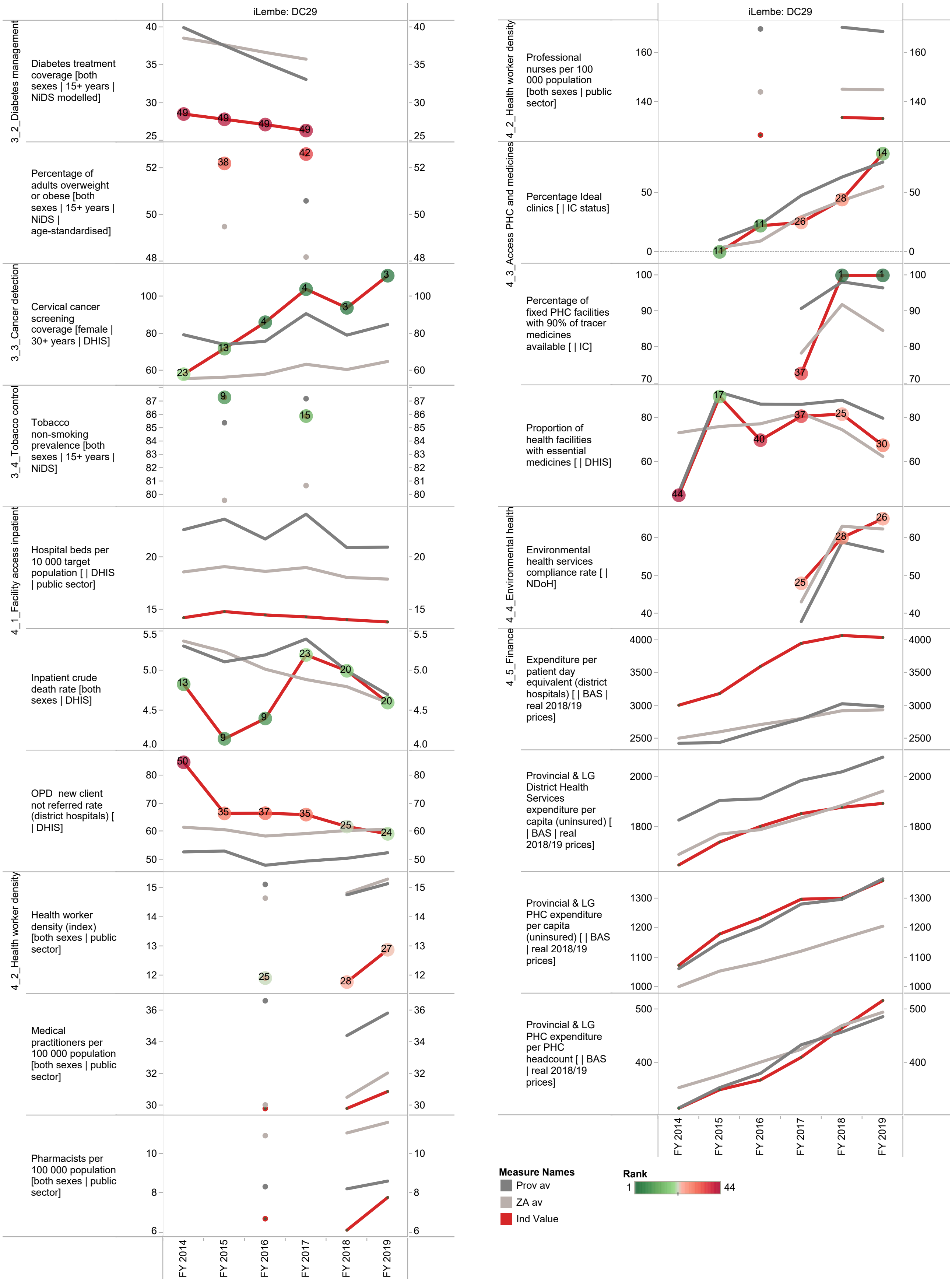
Source: Stats SA.

q The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

r Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





iLembe: DC29
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
44

Harry Gwala District Municipality (DC43)

The Harry Gwala District Municipality[s] (previously Sisonke District Municipality) is a Category C municipality situated south of KwaZulu-Natal. The district is comprised of four local municipalities: Dr Nkosazana Dlamini Zuma, uMzimkhulu, Greater Kokstad and Ubuhlebezwe.

Population (2018)[t]: 513 317

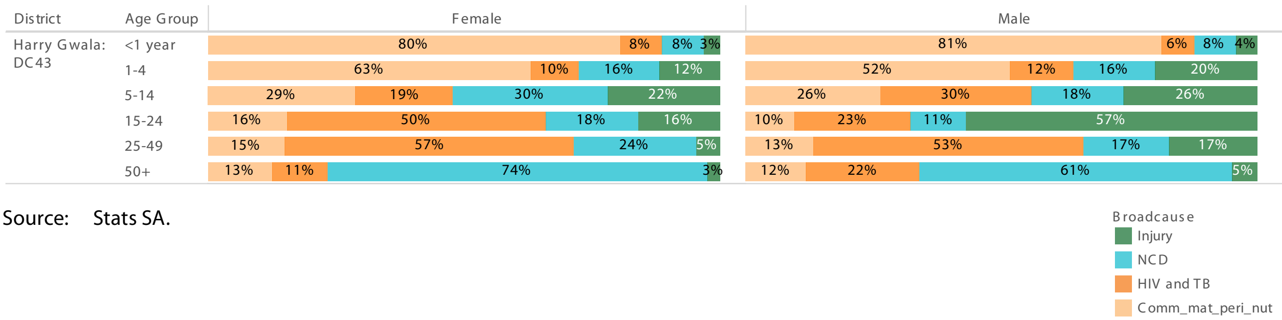
Population density (2018): 49.4 persons per km^2

Estimated medical scheme coverage (2018): 5.6%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

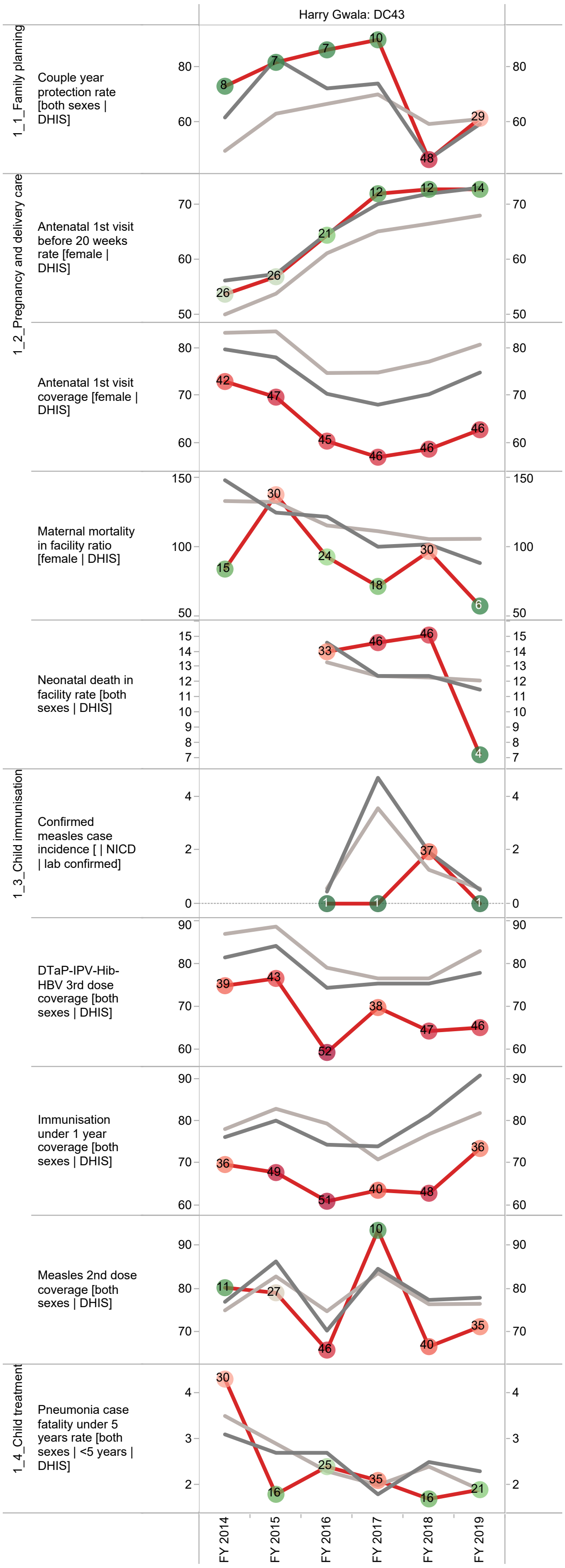


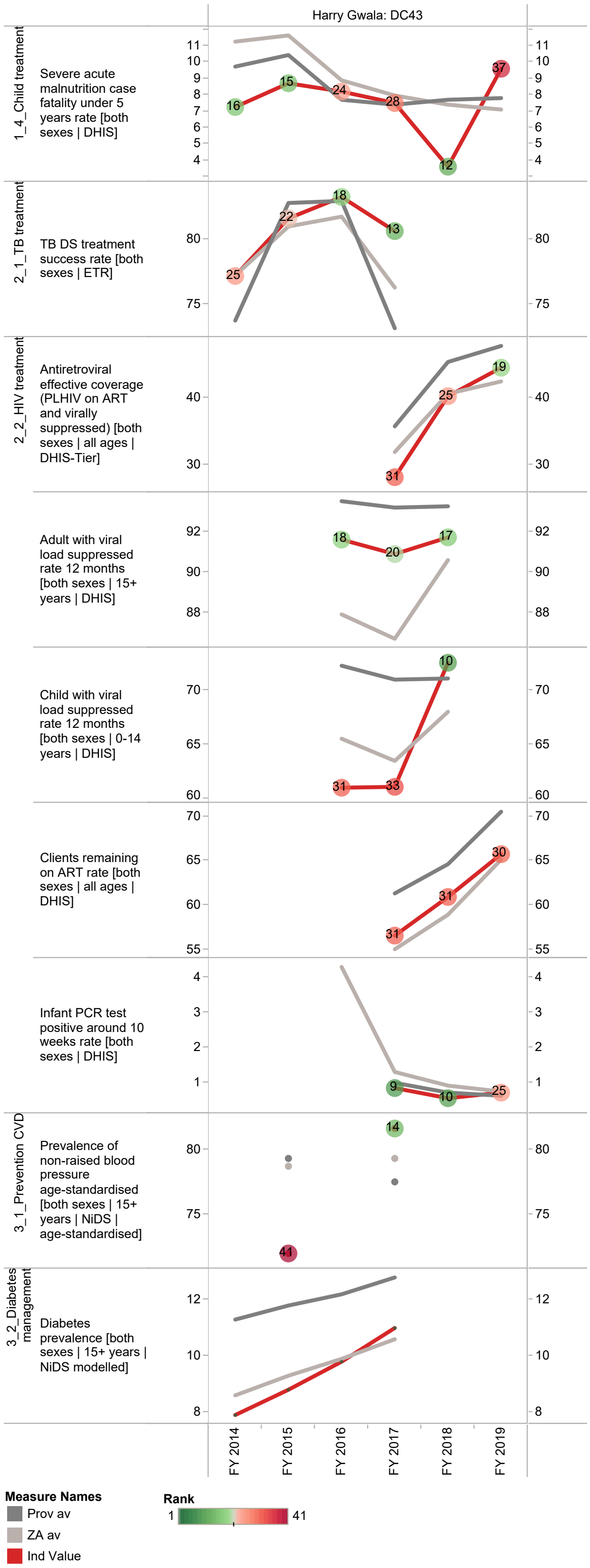
Source: Stats SA.

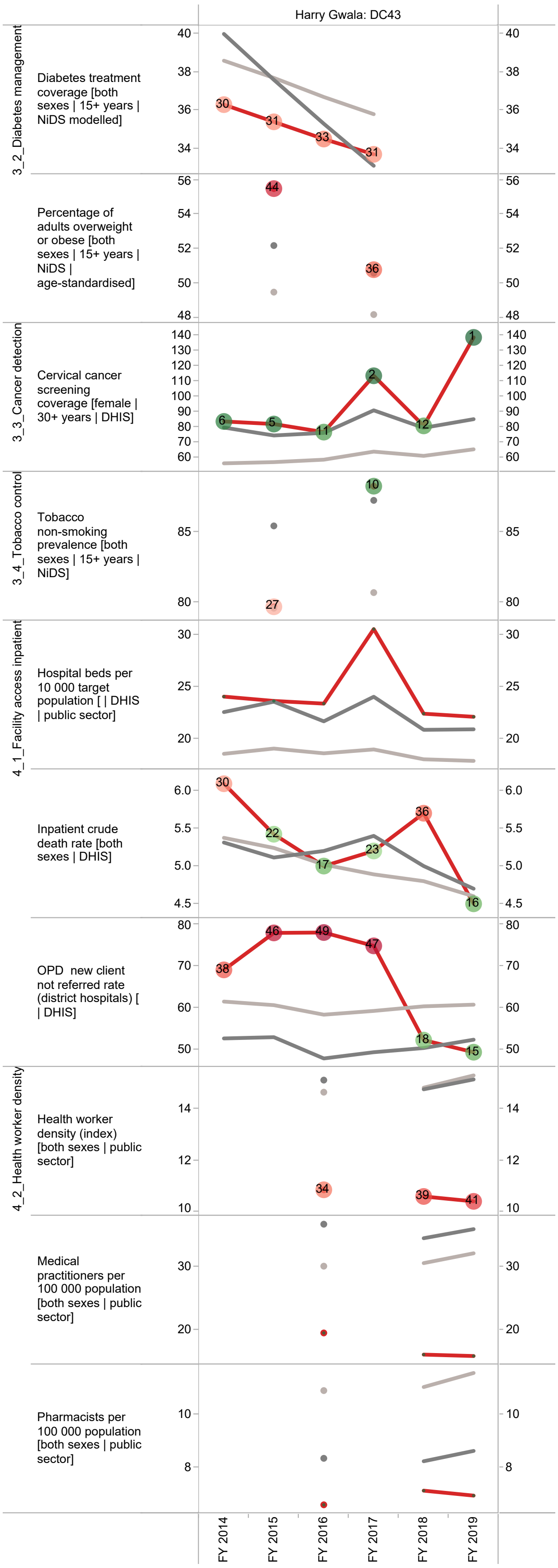
s The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

t Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






Harry Gwala: DC43
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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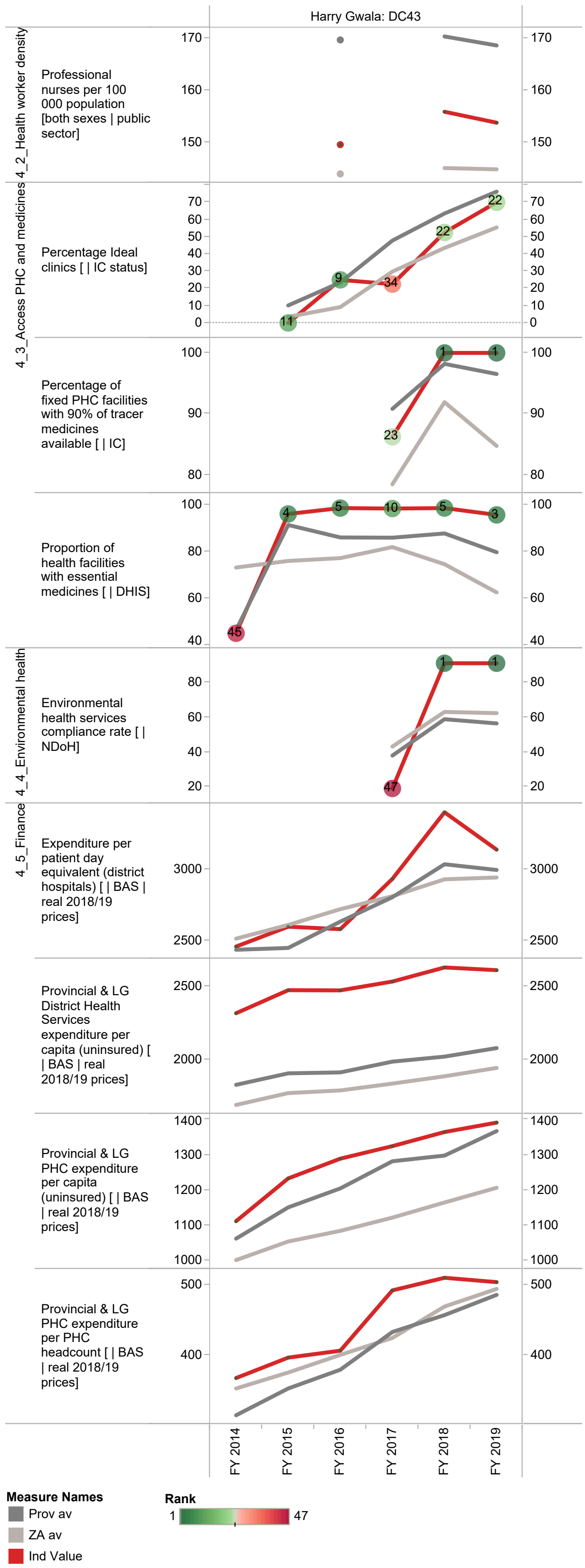
FY 2019


Harry Gwala: DC43
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
47

eThekwini Metropolitan Municipality (ETH)

The eThekwini Metropolitan Municipality[u] is a Category A municipality found in the South African province of KwaZulu-Natal.

Population (2018)[v]: 3 767 465

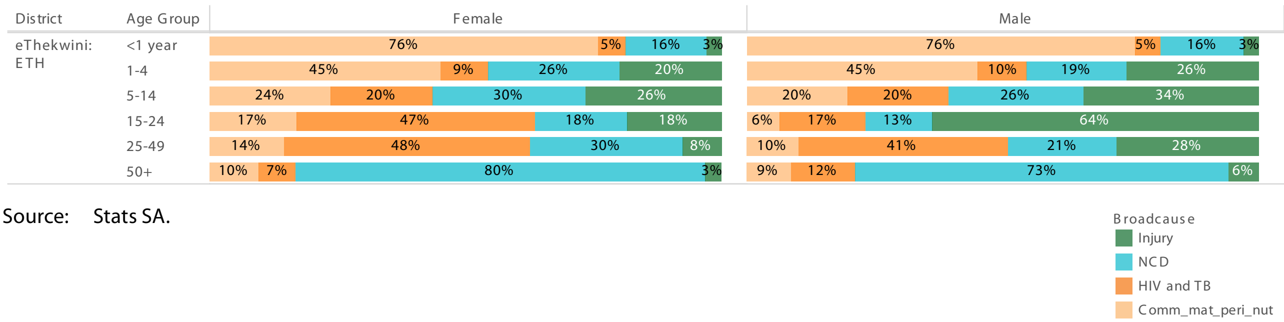
Population density (2018): 1 474.0 persons per km^2

Estimated medical scheme coverage (2018): 18.9%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

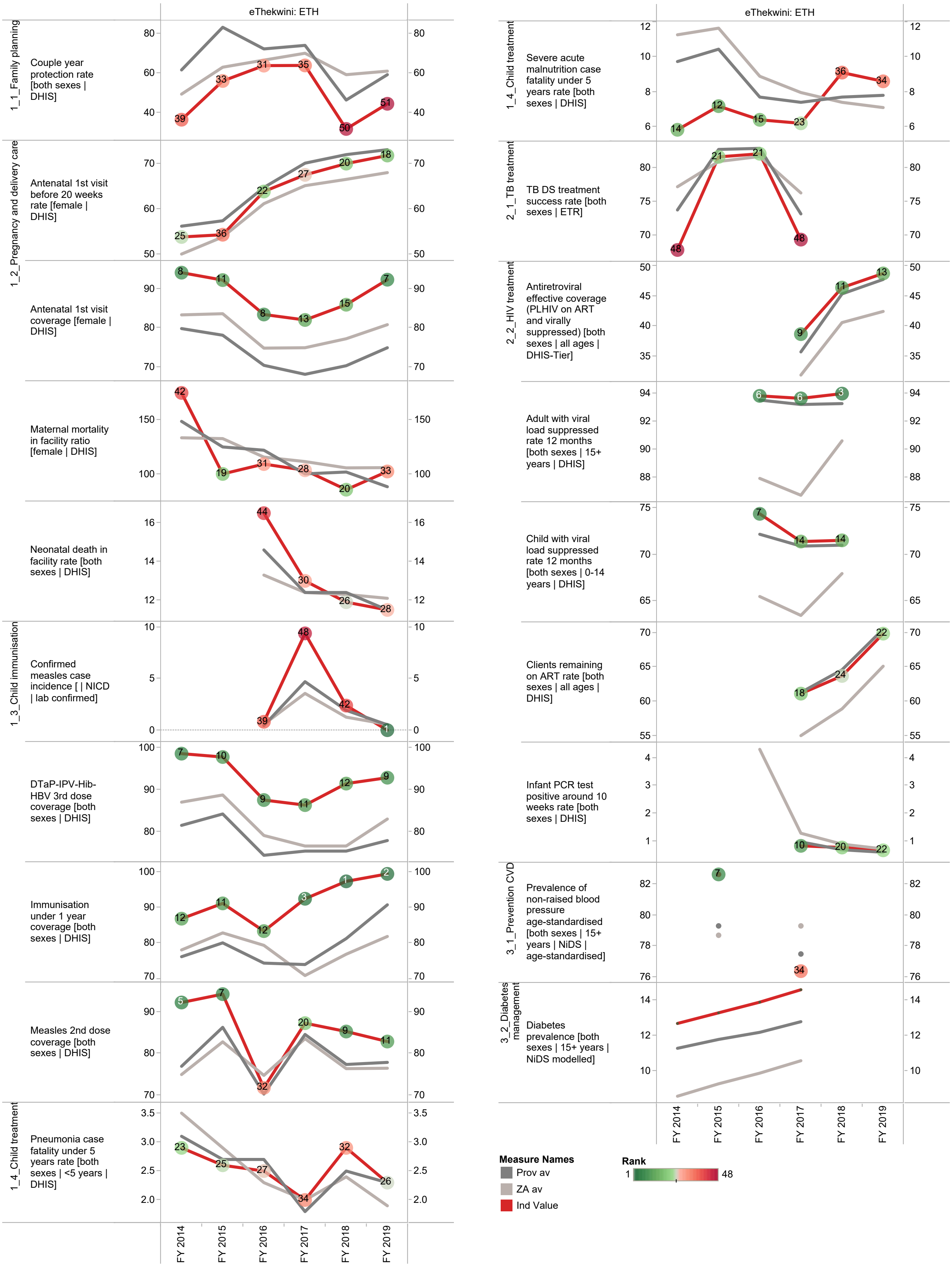


Source: Stats SA.

u The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

v Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




eThekwini: ETH
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
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Health worker density (index) [both sexes | public sector]
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Percentage Ideal clinics [| IC status]
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Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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FY 2018
FY 2019
Measure Names
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Ind Value
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43

12. Limpopo Province

Mopani District Municipality (DC33)

The Mopani District Municipality[a] is a Category C municipality located within the north-eastern quadrant of the Limpopo Province. It is bordered in the north by Zimbabwe and in the east by Mozambique. The district consists of five local municipalities: Ba-Phalaborwa, Greater Giyani, Greater Letaba, Greater Tzaneen and Maruleng.

Population (2018)[b]: 1 225 473

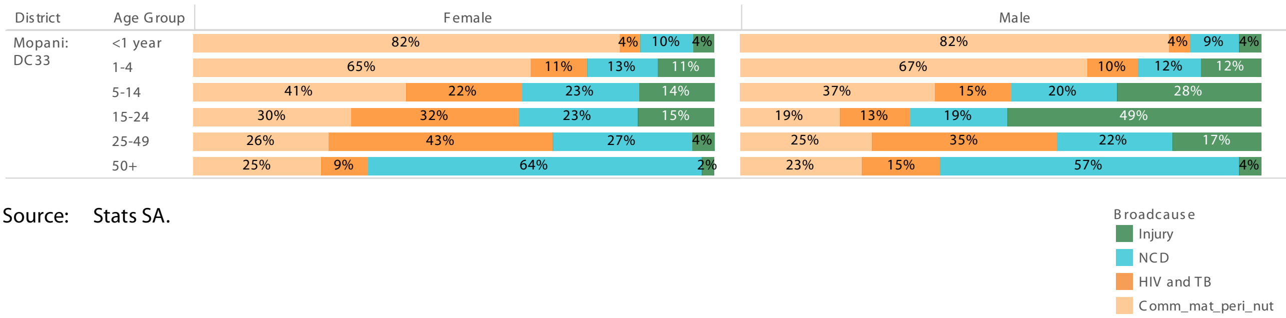
Population density (2018): 61.2 persons per km^2

Estimated medical scheme coverage (2018): 6.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

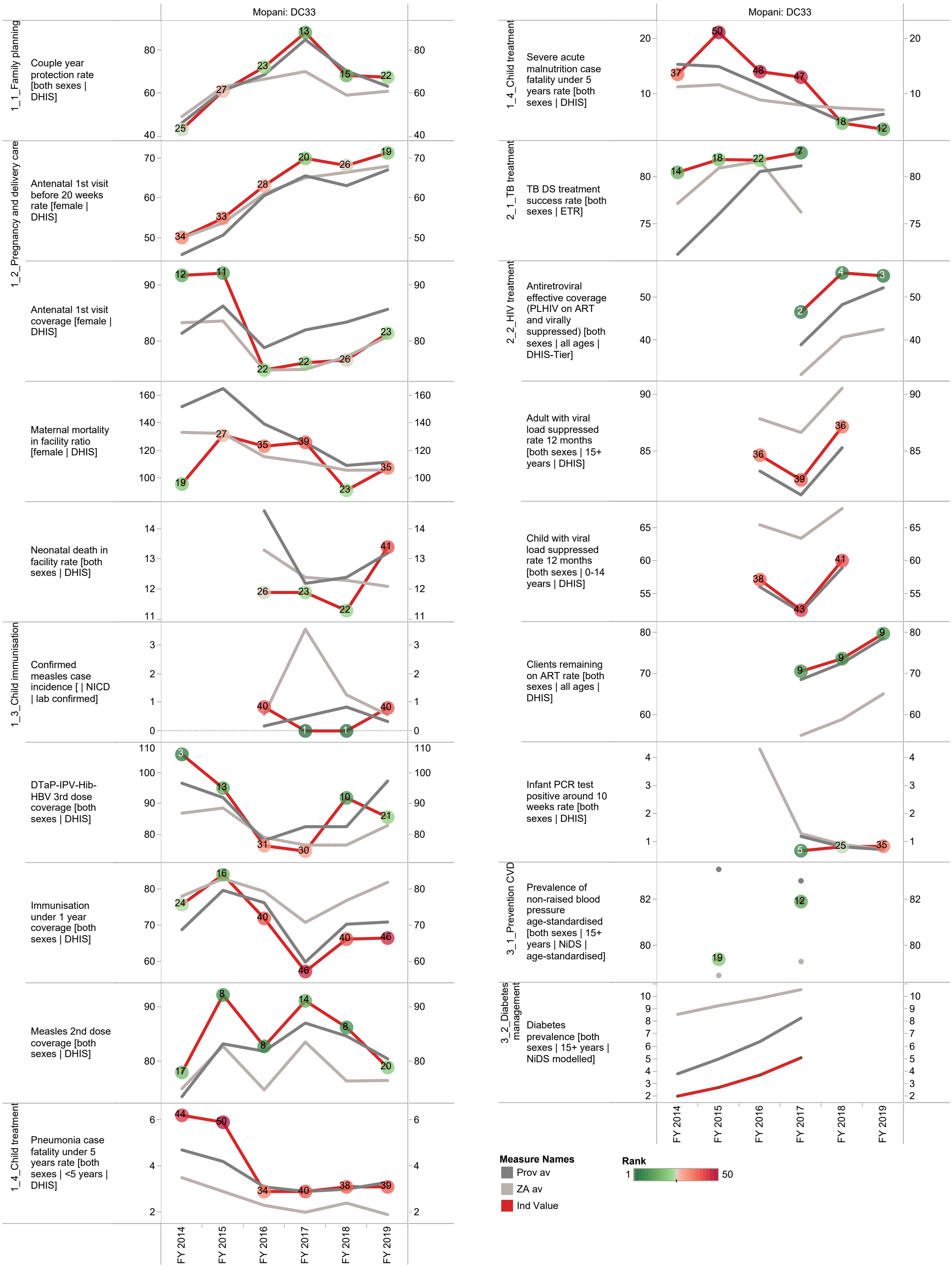


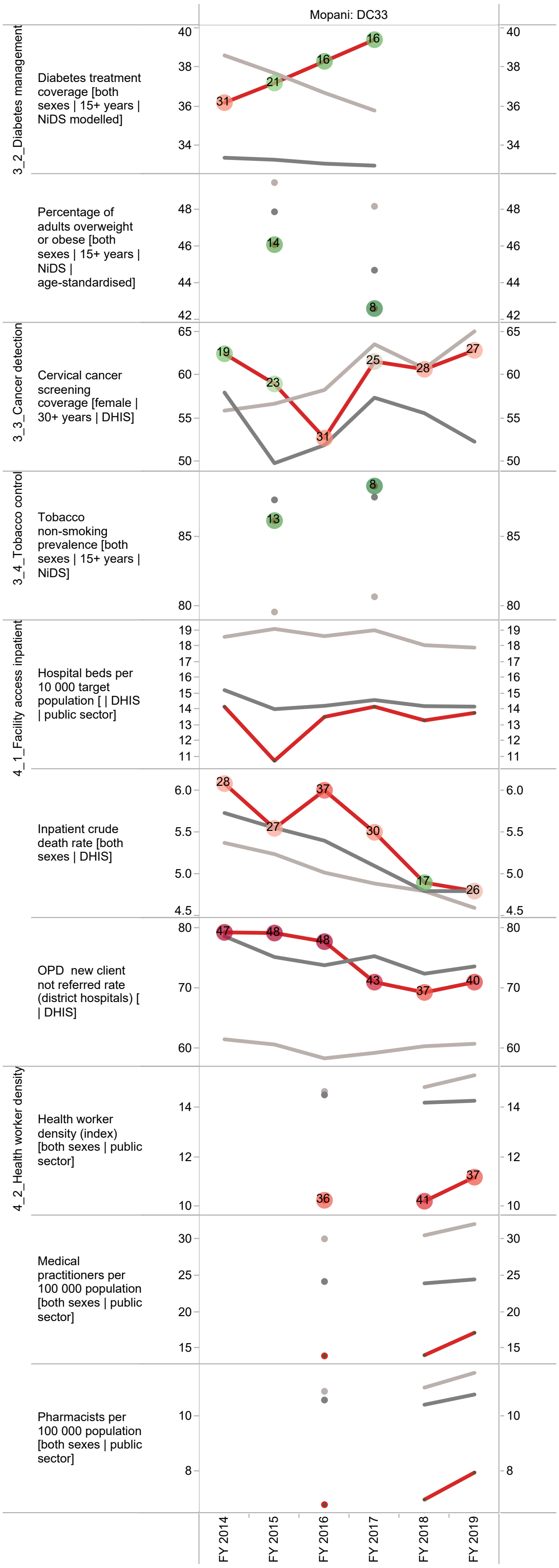
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Mopani: DC33
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
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Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
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OPD new client not referred rate (district hospitals) [| DHIS]
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Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
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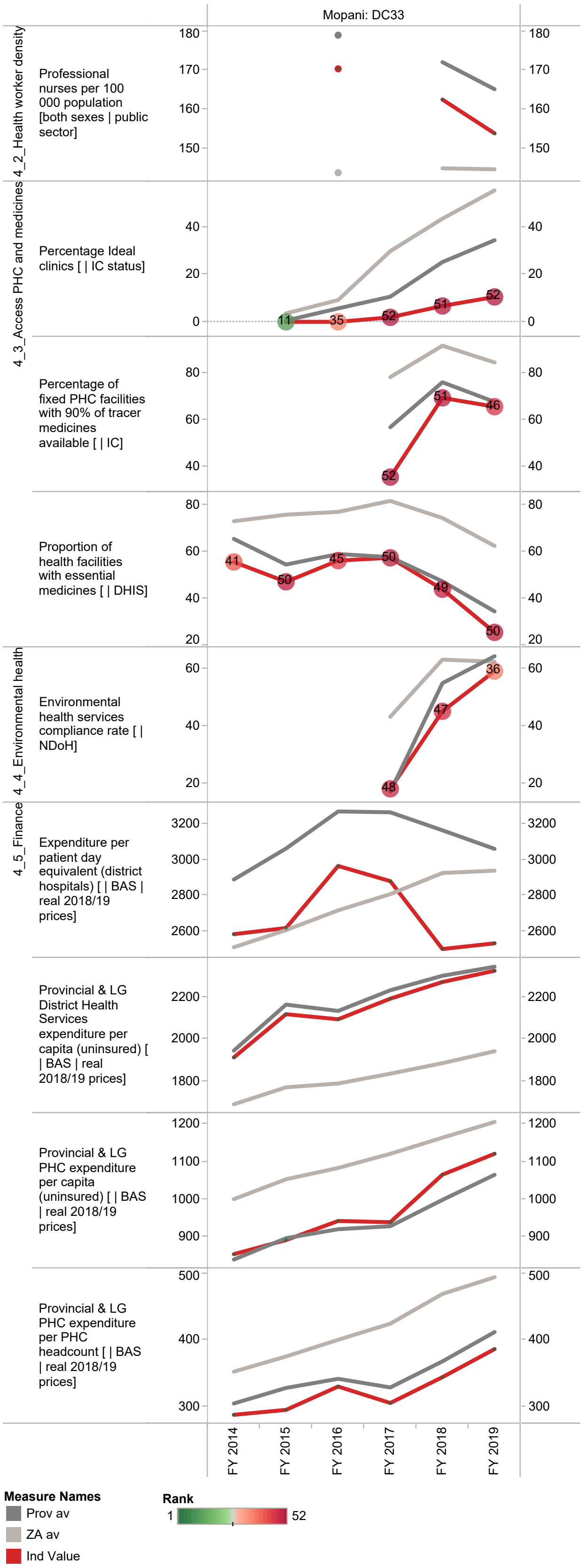
FY 2018
FY 2019


Mopani: DC33
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
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Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
52

Vhembe District Municipality (DC34)

The Vhembe District Municipality[c] is a Category C municipality located in the northern part of the Limpopo Province. It shares borders with Zimbabwe and Botswana in the north-west and Mozambique in the south-east through the Kruger National Park. It is comprised of four local municipalities: Musina, Thulamela, Makhado and Collins Chabane.

Population (2018)[d]: 1 457 007

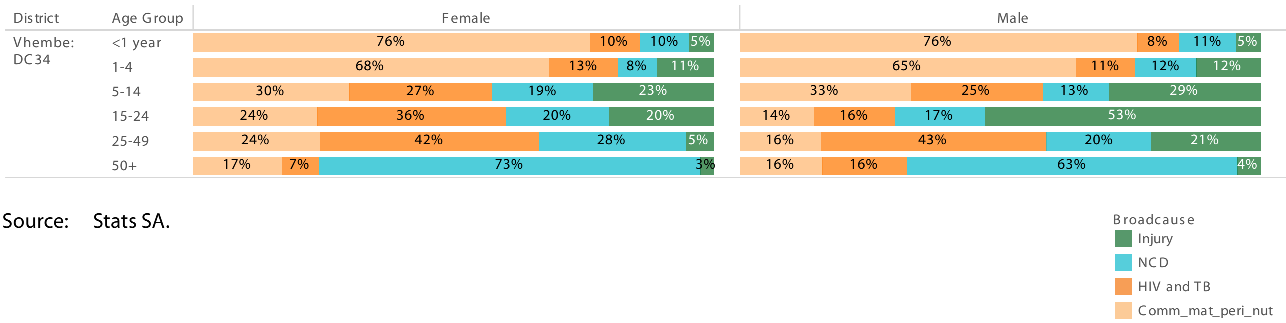
Population density (2018): 56.9 persons per km^2

Estimated medical scheme coverage (2018): 6.6%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

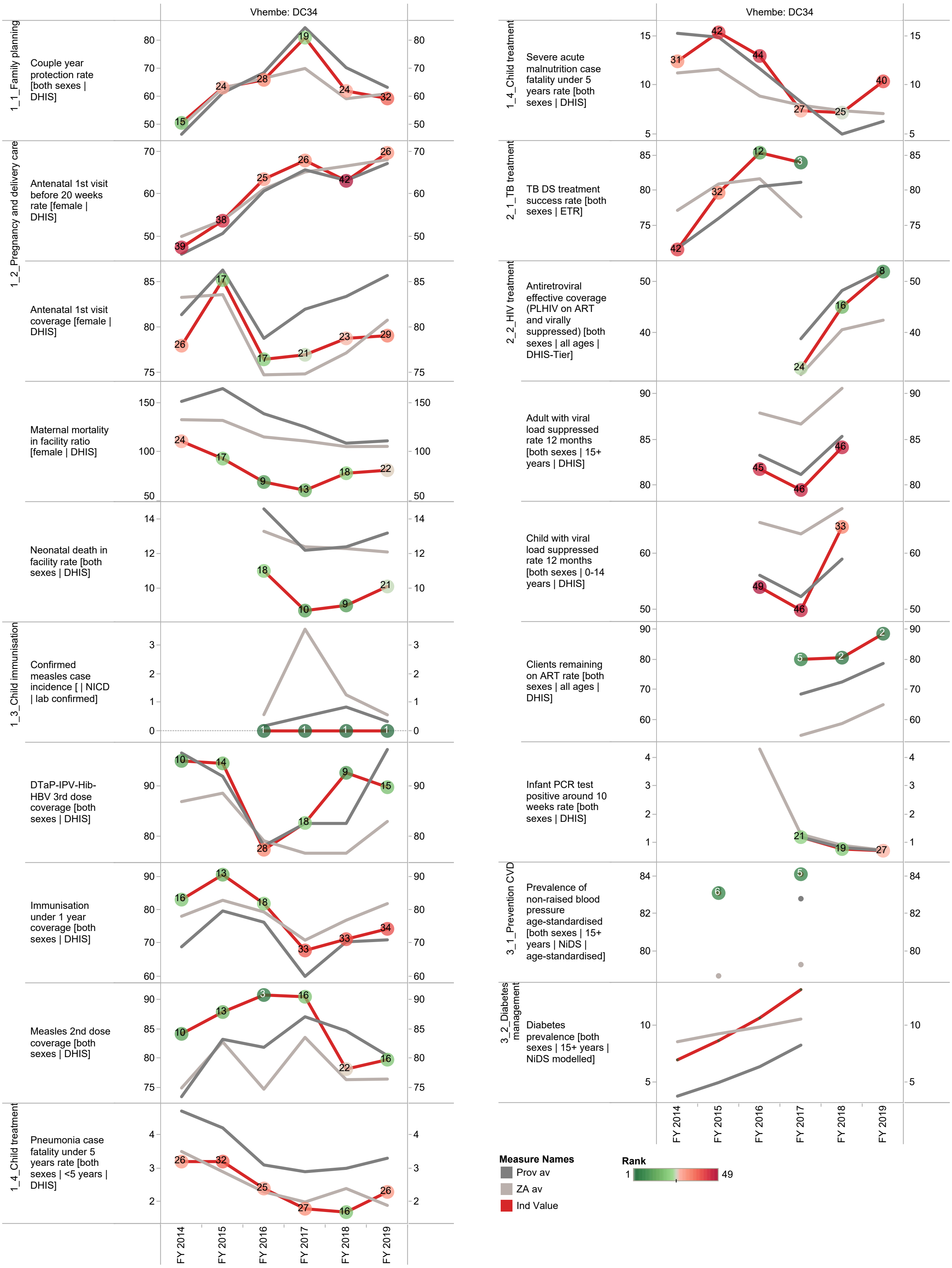


Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Vhembe: DC34
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Vhembe: DC34
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
52

Capricorn District Municipality (DC35)

The Capricorn District Municipality[e] is a Category C municipality situated in the Limpopo Province. It forms a gateway to Botswana, Zimbabwe and Mozambique. It consists of the following four local municipalities: Blouberg, Lepelle-Nkumpi, Molemole and Polokwane.

Population (2018)[f]: 1 338 763

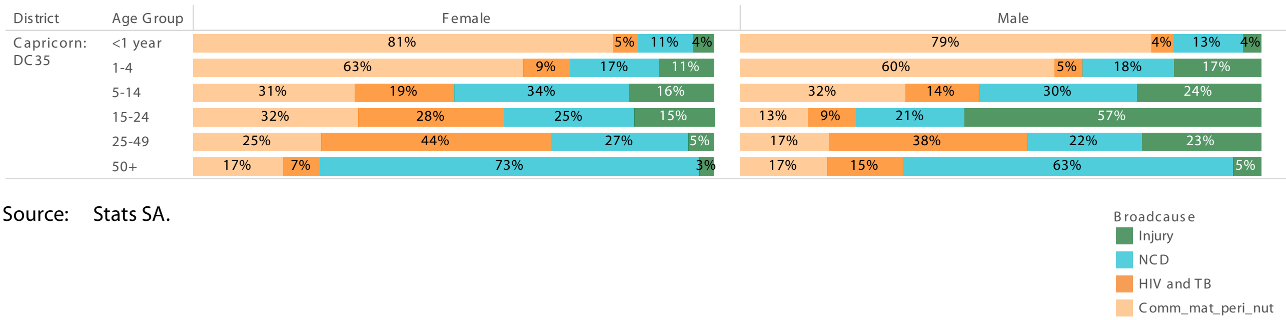
Population density (2018): 61.7 persons per km^2

Estimated medical scheme coverage (2018): 8.3%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

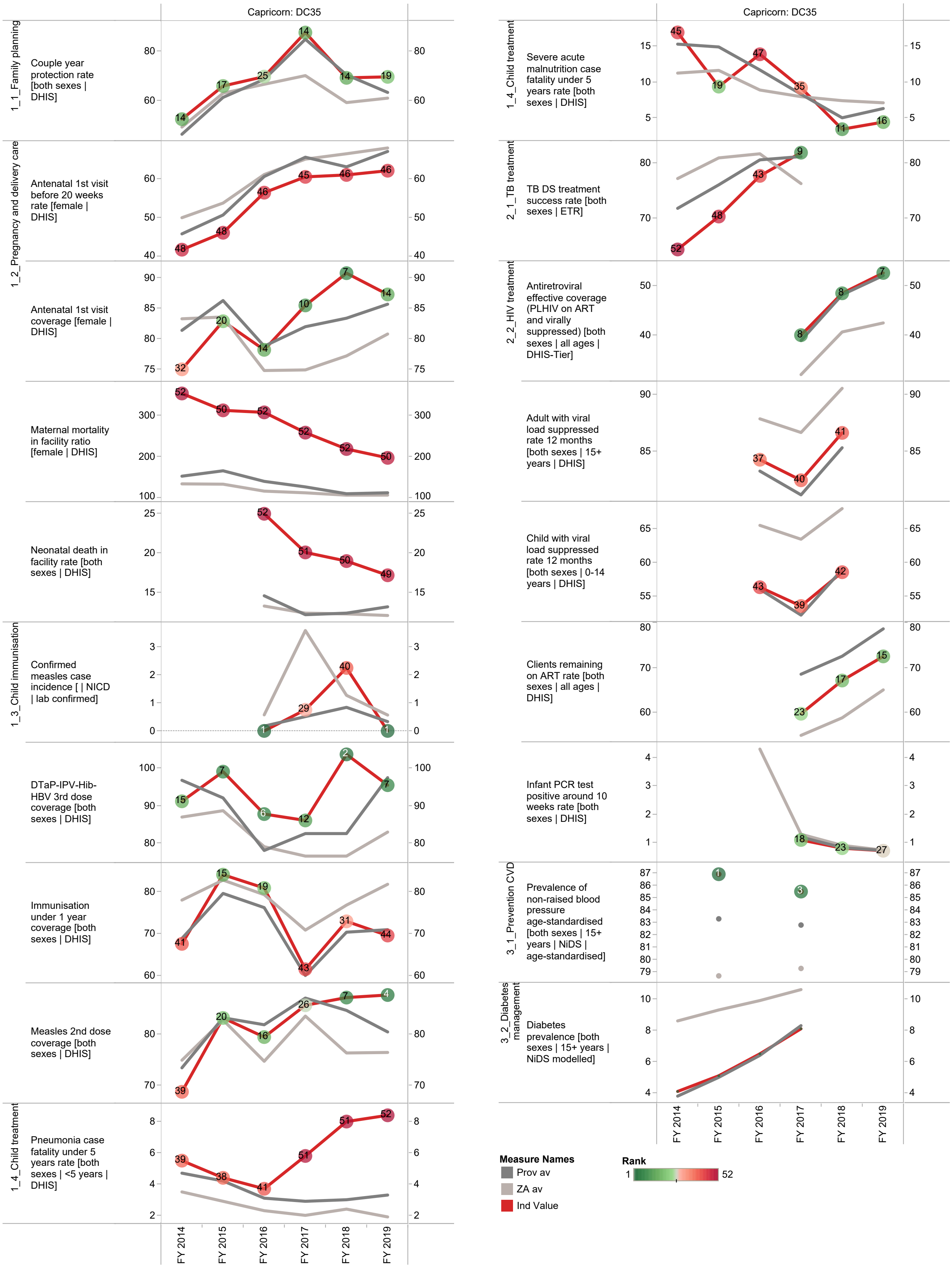


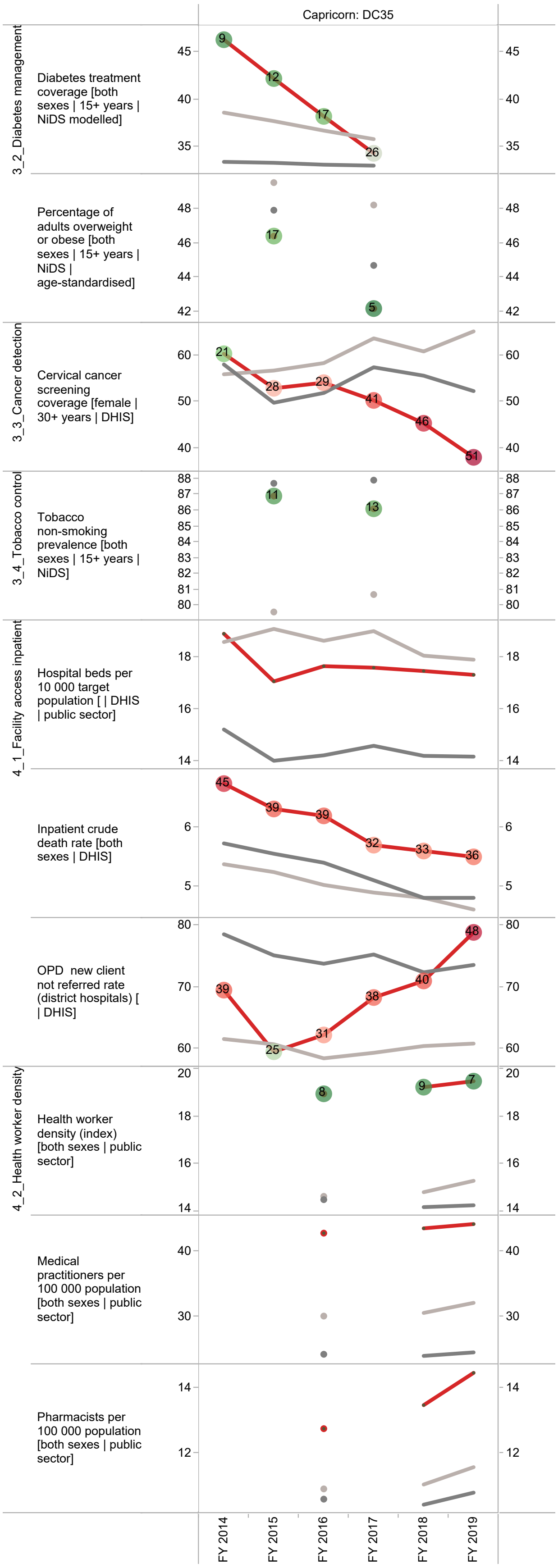
Source: Stats SA.

e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





Capricorn: DC35
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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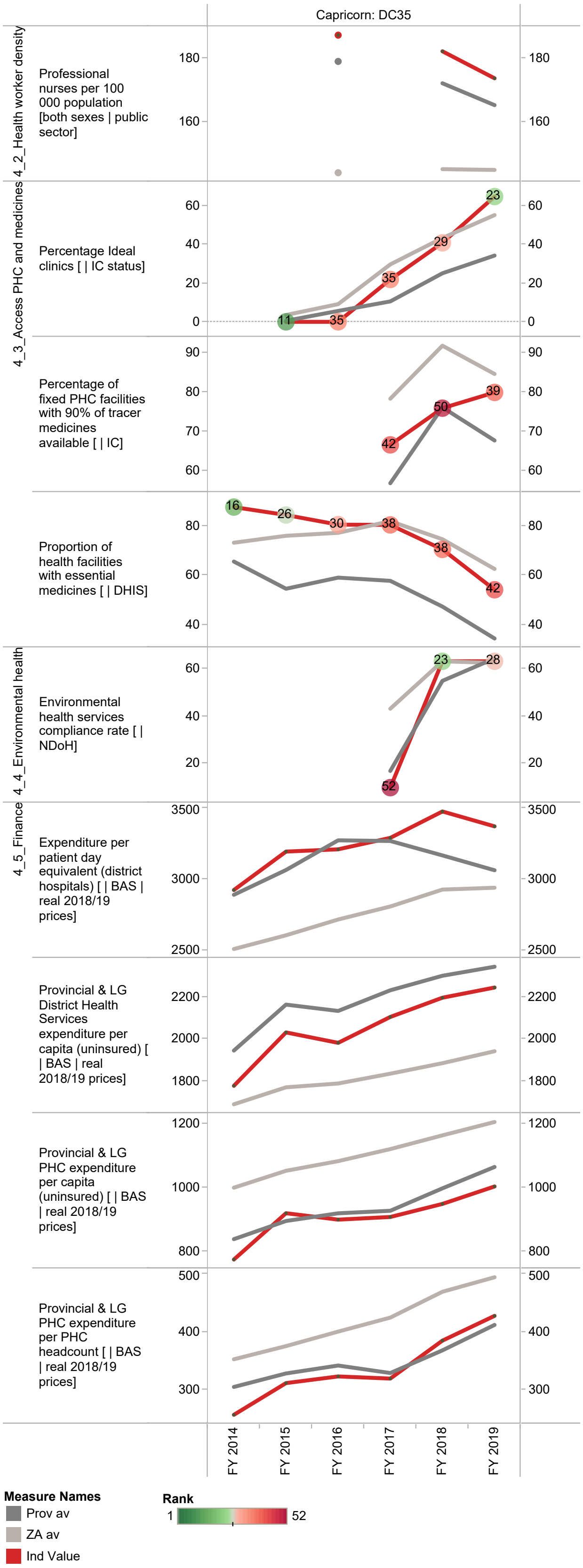

Capricorn: DC35
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
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52

Waterberg District Municipality (DC36)

The Waterberg District Municipality[g] is a Category C municipality located in the western part of the Limpopo Province. It shares its five-border control points with Botswana. It is comprised of five local municipalities: Bela-Bela, Lephalale, Modimolle-Mookgophong, Mogalakwena and Thabazimbi.

Population (2018)[h]: 715 272

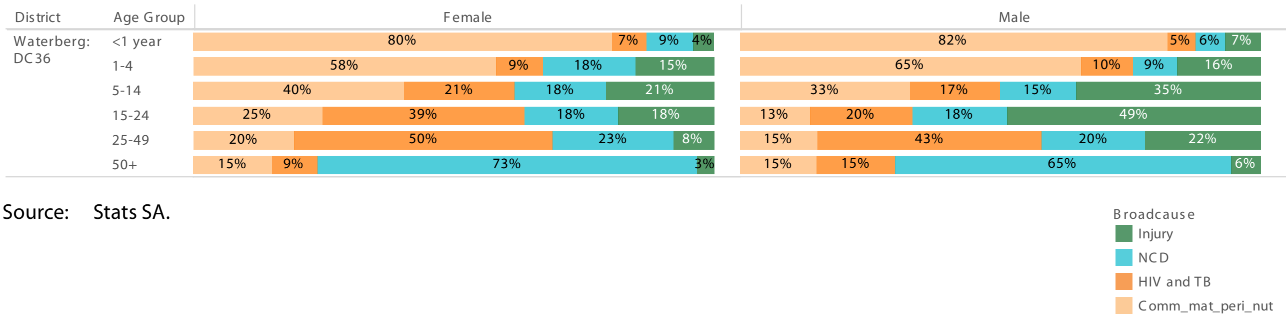
Population density (2018): 15.9 persons per km^2

Estimated medical scheme coverage (2018): 9.1%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

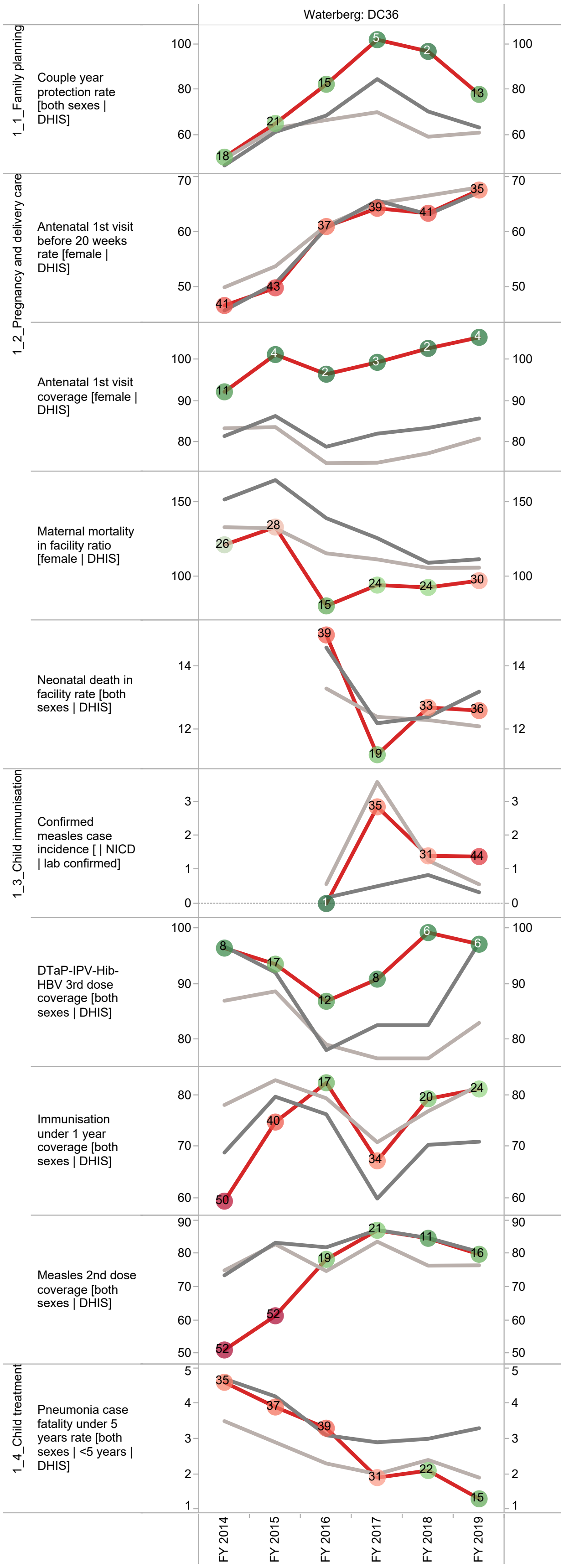


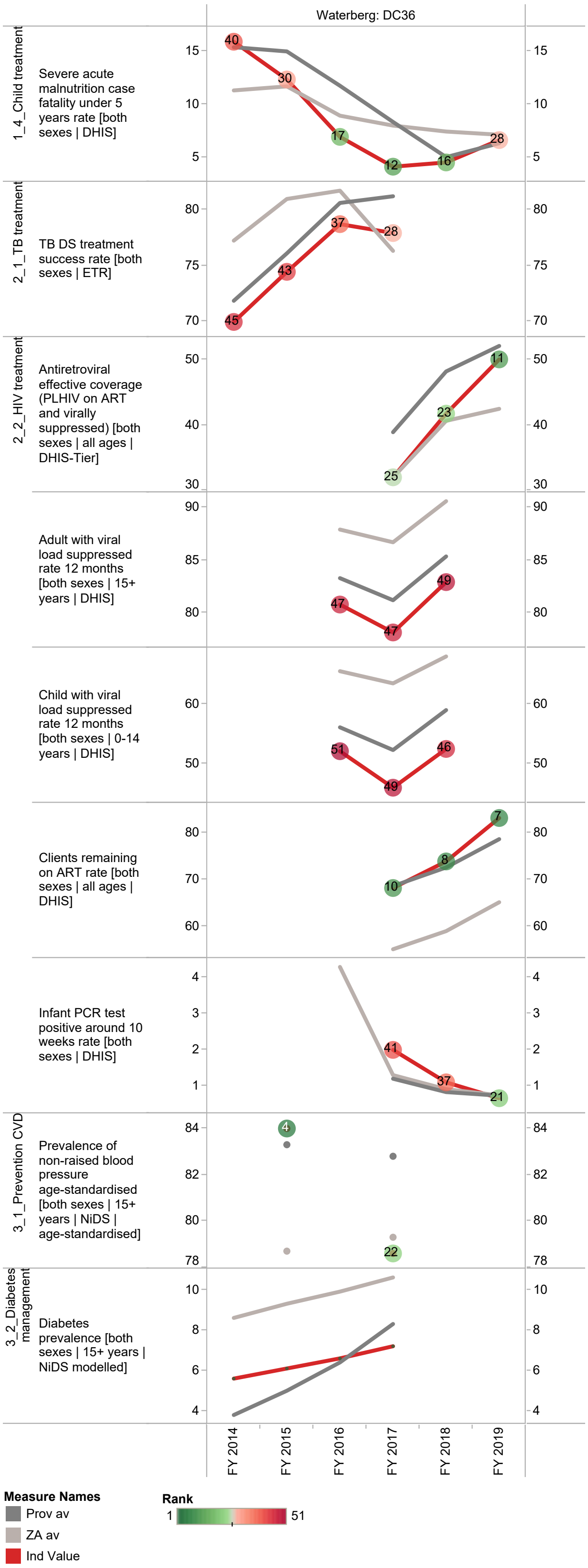
Source: Stats SA.

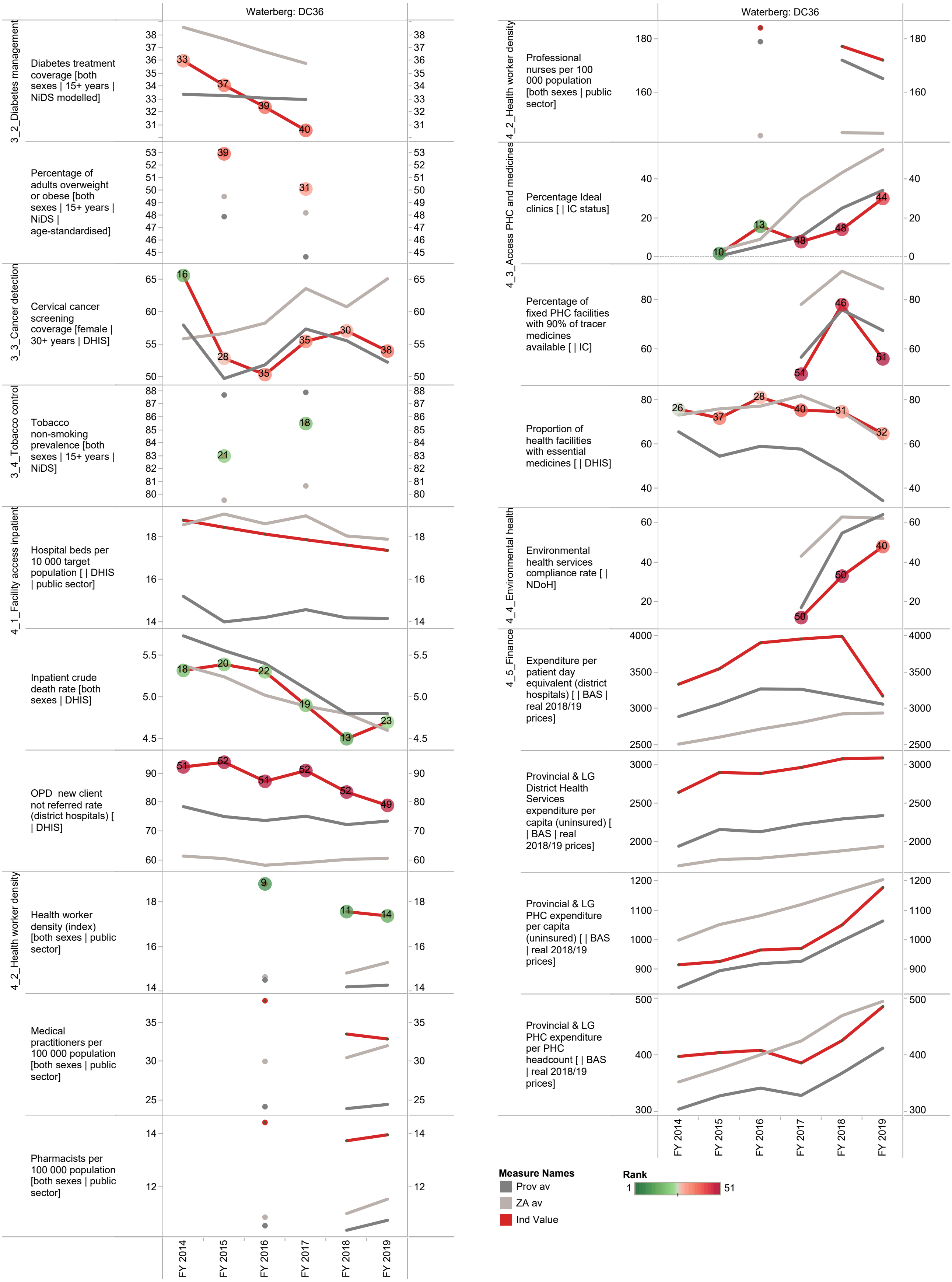
g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






Waterberg: DC36
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
51

Sekhukhune District Municipality (DC47)

The Sekhukhune District Municipality[i] is a Category C municipality and is located in the Limpopo Province, the northernmost part of South Africa. It is comprised of four local municipalities: Elias Motsoaledi, Ephraim Mogale, Makhuduthamaga and Fetakgomo - Greater Tubatse.

Population (2018)[j]: 1 233 967

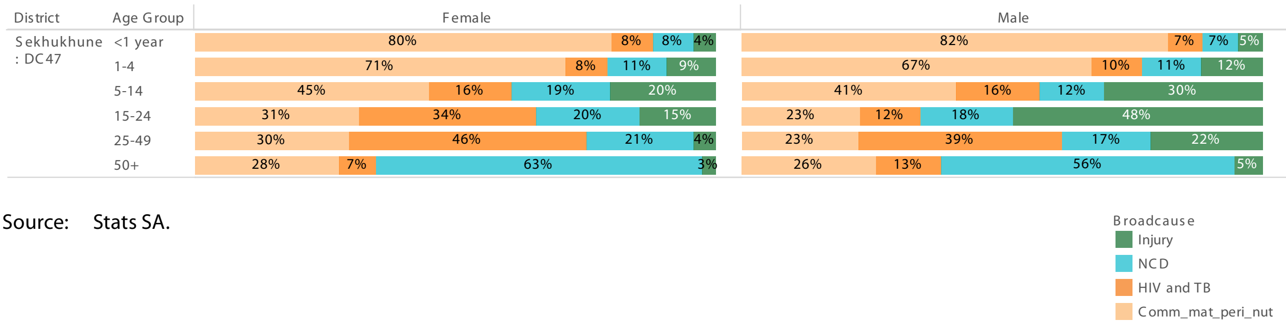
Population density (2018): 91.2 persons per km^2

Estimated medical scheme coverage (2018): 5.6%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

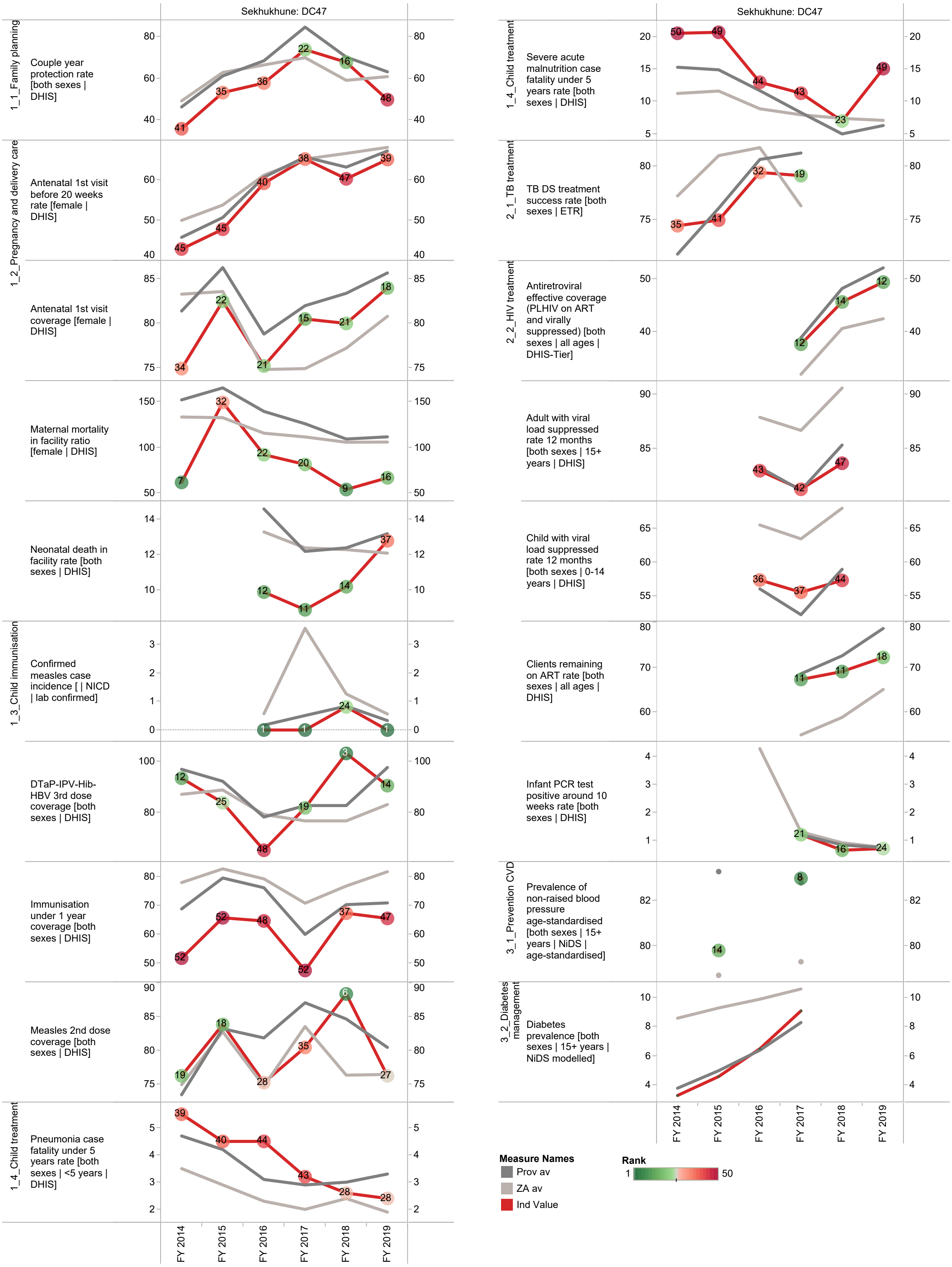


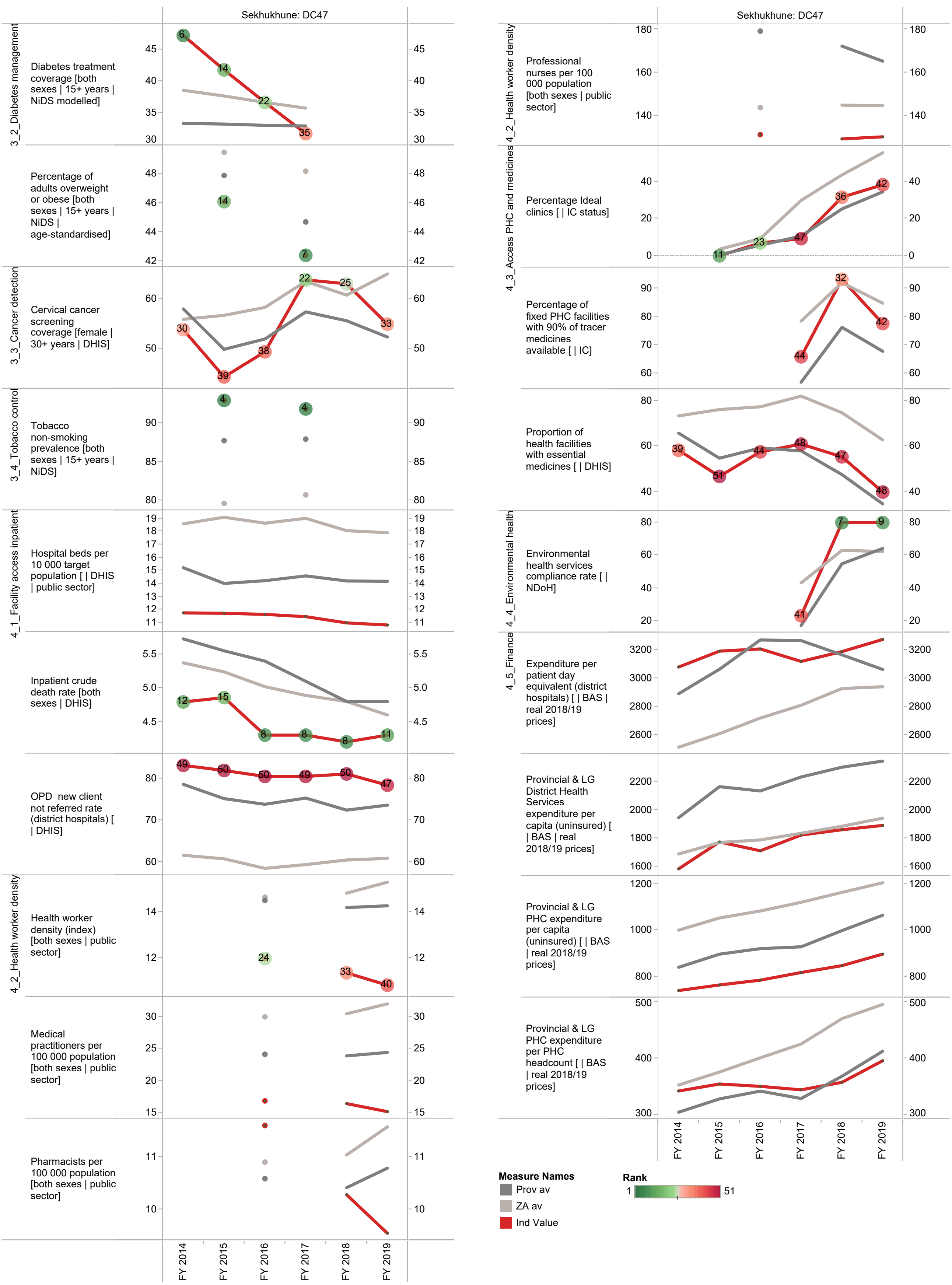
Source: Stats SA.

i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





Sekhukhune: DC47
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Sekhukhune: DC47
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
51

13. Mpumalanga Province

Gert Sibande District Municipality (DC30)

The Gert Sibande District Municipality[a] is a Category C municipality located in the Mpumalanga Province. It is comprised of seven local municipalities: Govan Mbeki, Chief Albert Luthuli, Msukaligwa, Dipaleseng, Mkhondo, Lekwa and Dr Pixley Ka Seme.

Population (2018)[b]: 1 196 425

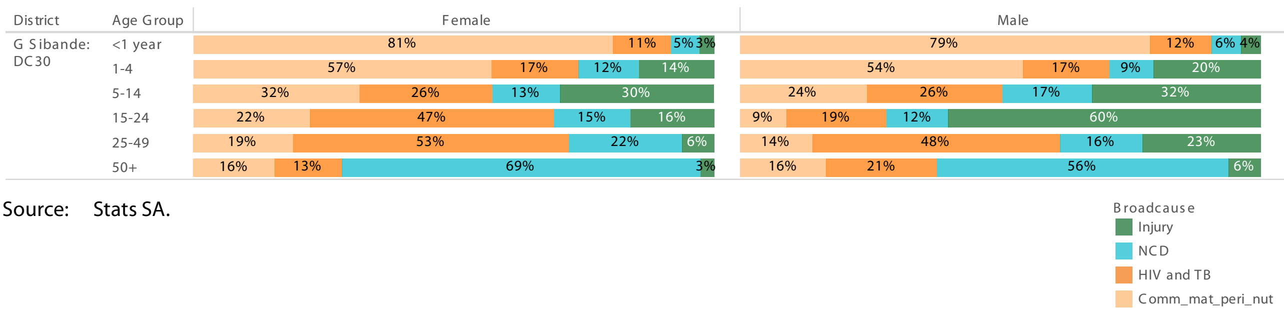
Population density (2018): 37.6 persons per km^2

Estimated medical scheme coverage (2018): 13.1%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

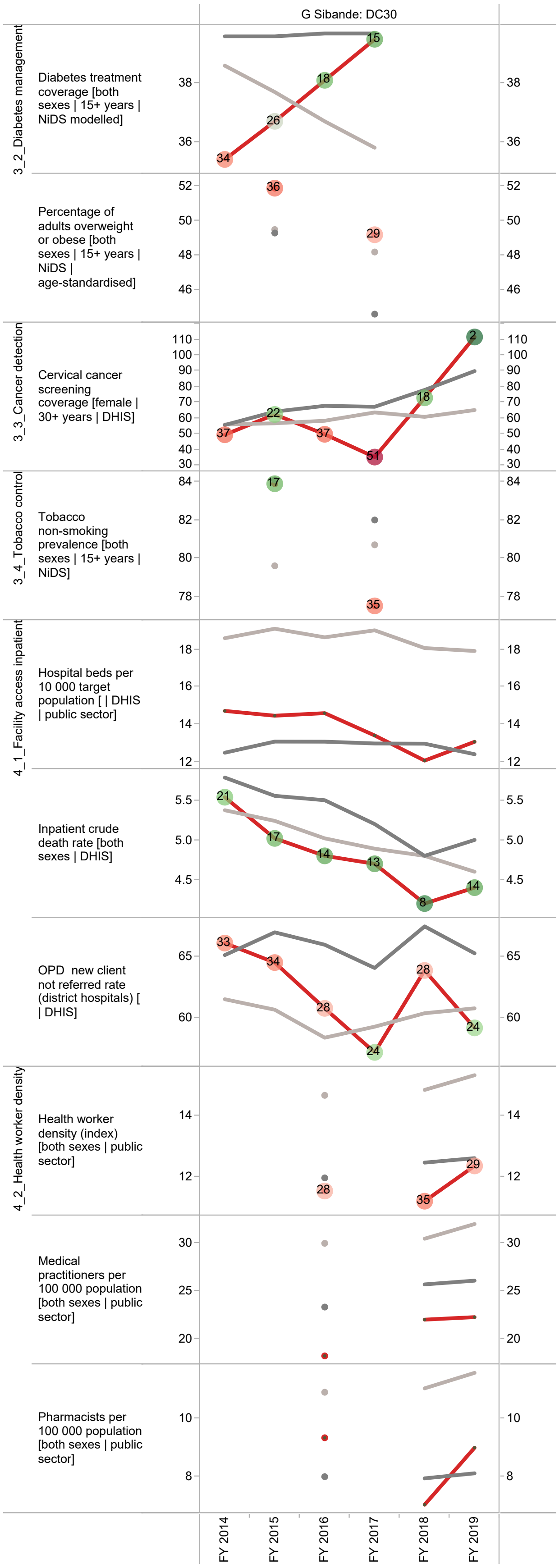


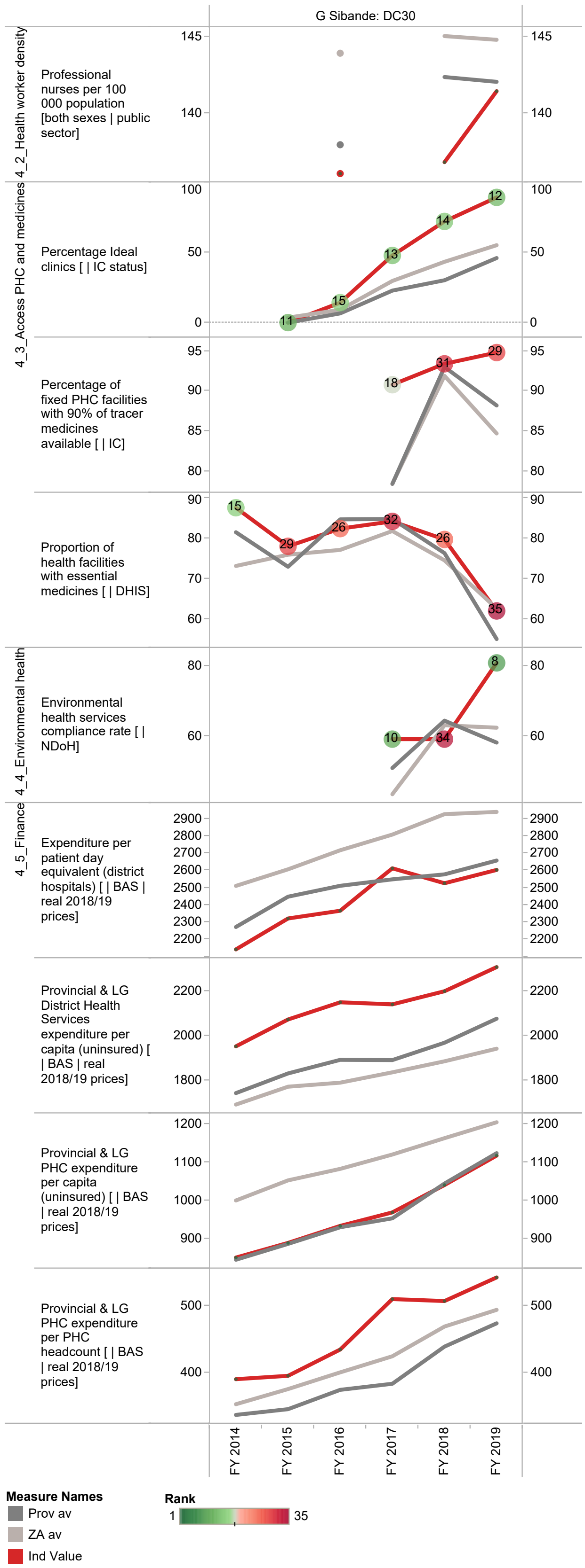
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19


G Sibande: DC30
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


G Sibande: DC30
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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FY 2017
FY 2018
FY 2019
Measure Names
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ZA av
Ind Value
Rank
1
35

Nkangala District Municipality (DC31)

The Nkangala District Municipality[c] is a Category C municipality in the Mpumalanga Province. It is comprised of six local municipalities: Victor Khanye, Emalahleni, Steve Tshwete, Emakhazeni, Thembisile Hani, and Dr JS Moroka.

Population (2018)[d]: 1 531 445

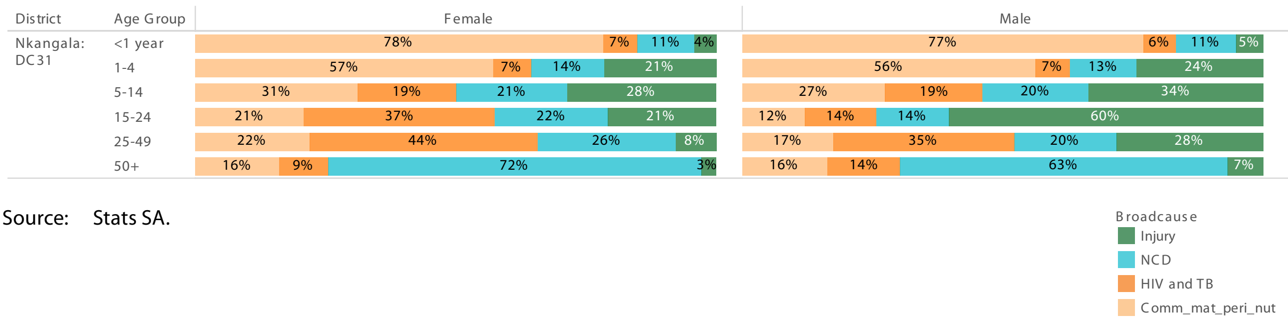
Population density (2018): 91.4 persons per km^2

Estimated medical scheme coverage (2018): 14.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

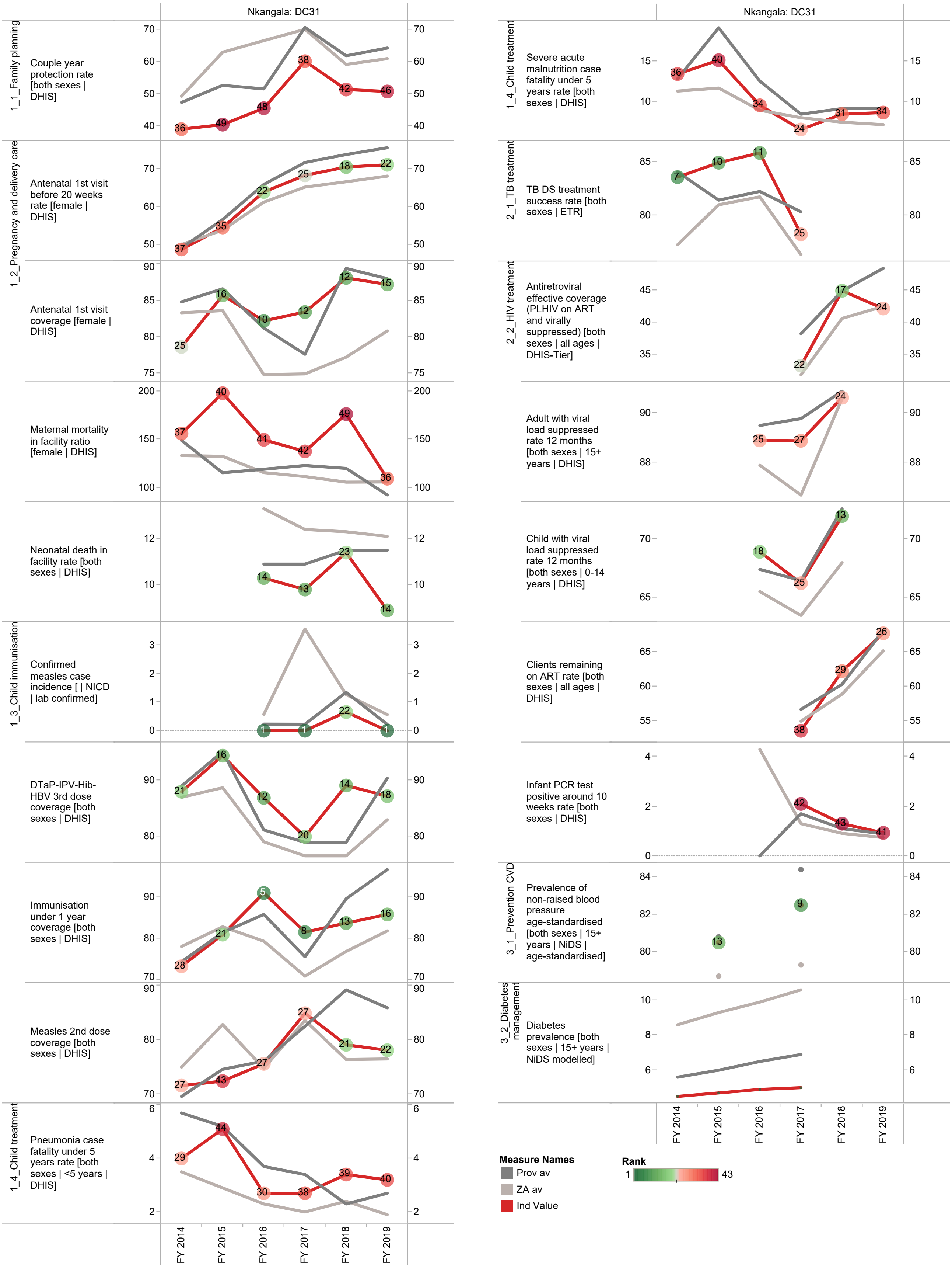


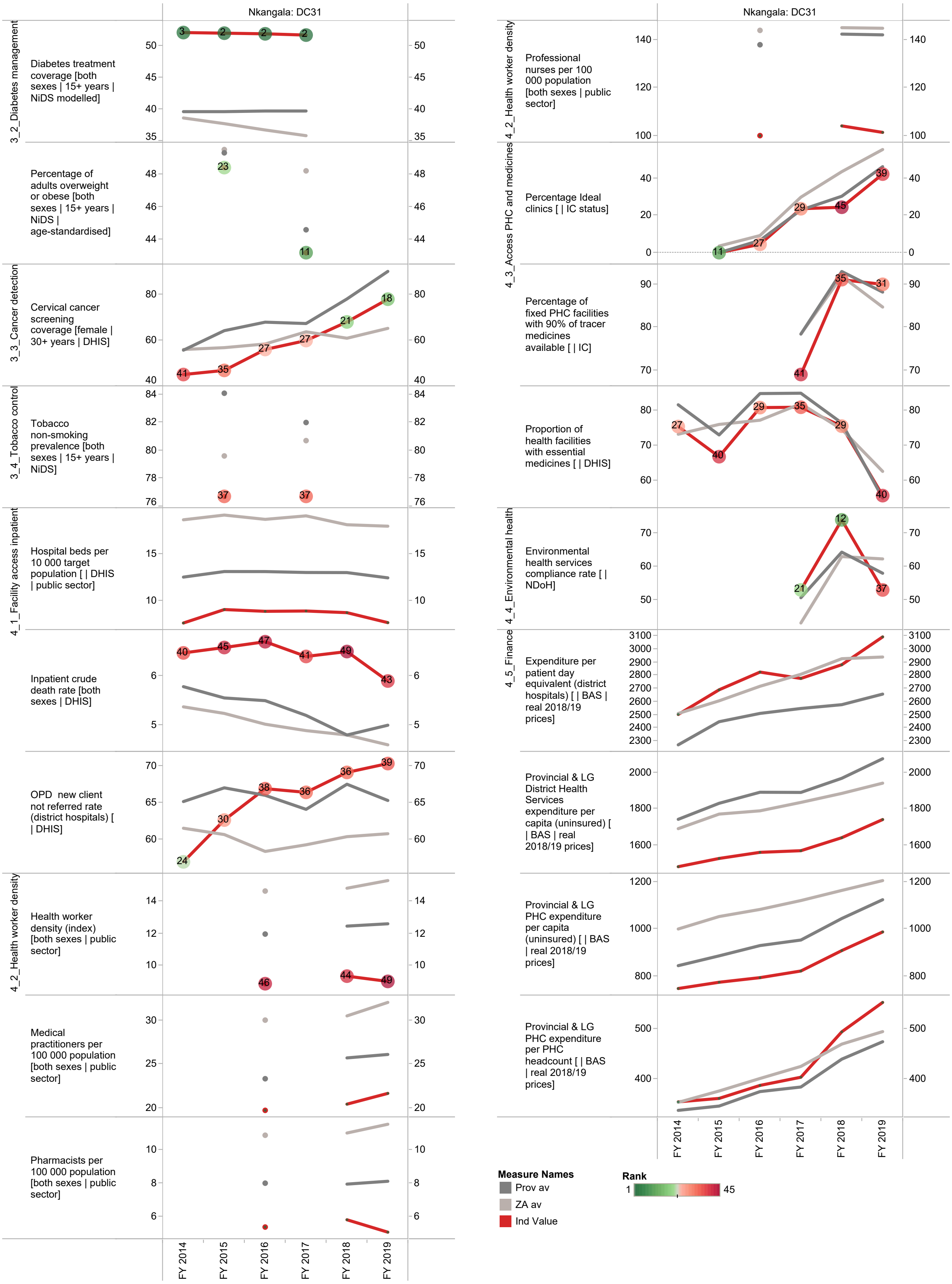
Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Nkangala: DC31
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Nkangala: DC31
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
Measure Names
Prov av
ZA av
Ind Value
Rank
1
45

Ehlanzeni District Municipality (DC32)

The Ehlanzeni District Municipality[e] is a Category C municipality situated in the north-east of the Mpumalanga Province. The district is comprised of four local municipalities: Bushbuckridge, City of Mbombela, Nkomazi and Thaba Chweu.

Population (2018)[f]: 1 734 492

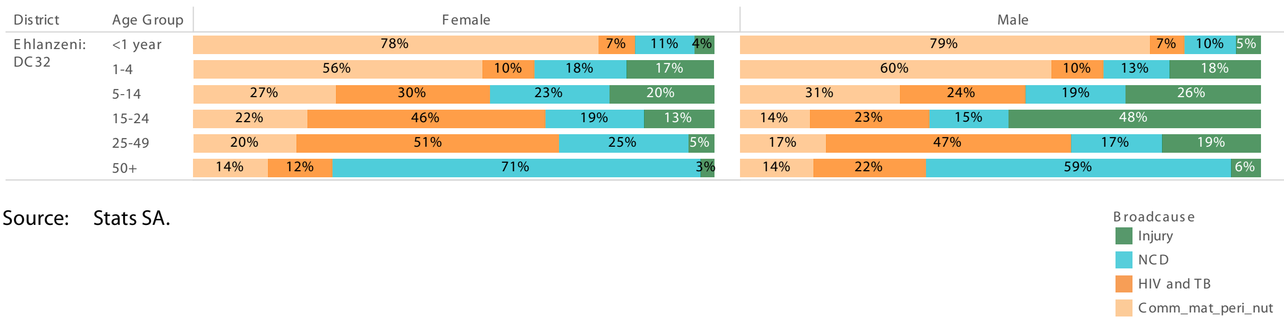
Population density (2018): 62.2 persons per km^2

Estimated medical scheme coverage (2018): 10.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

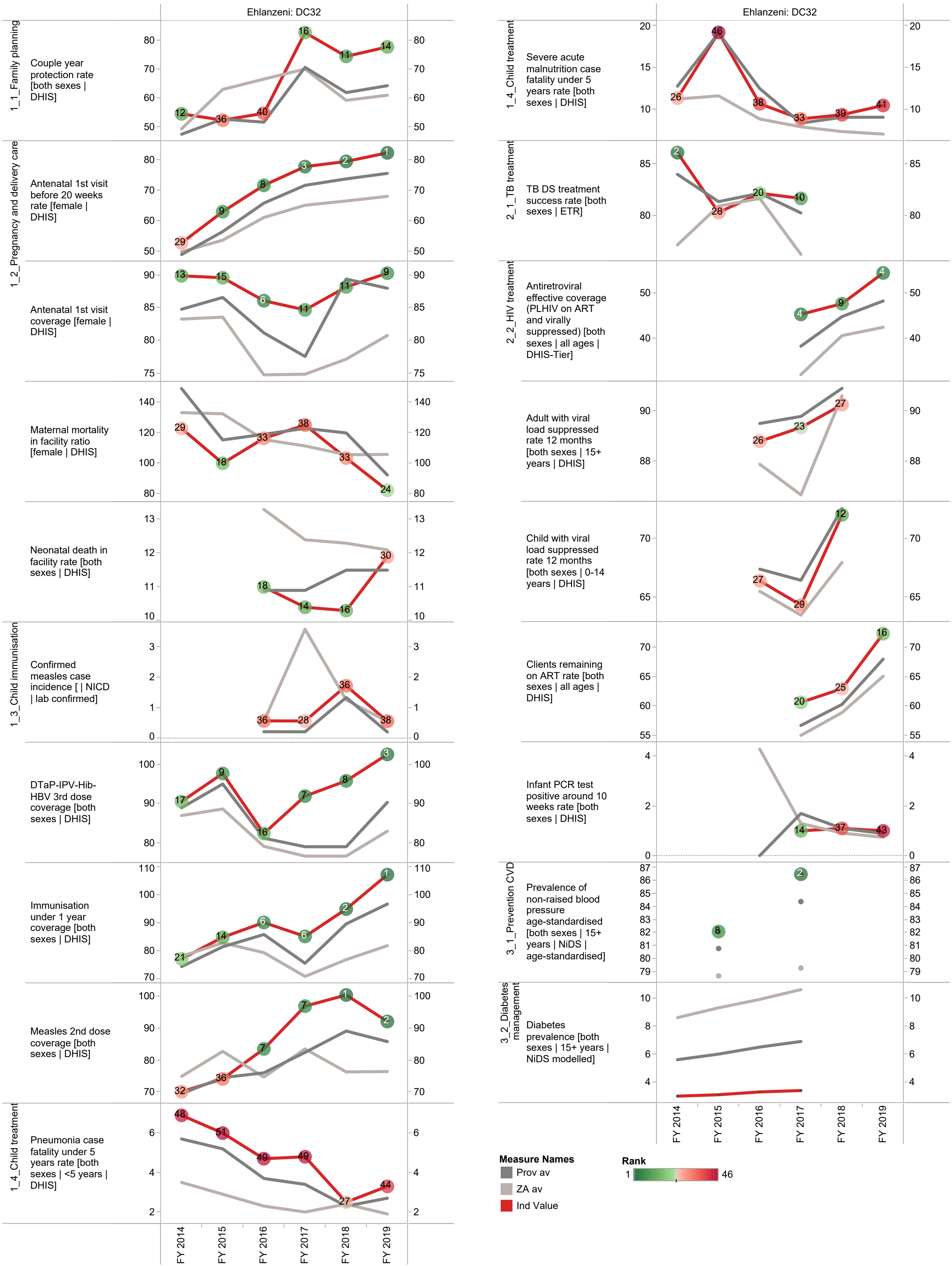


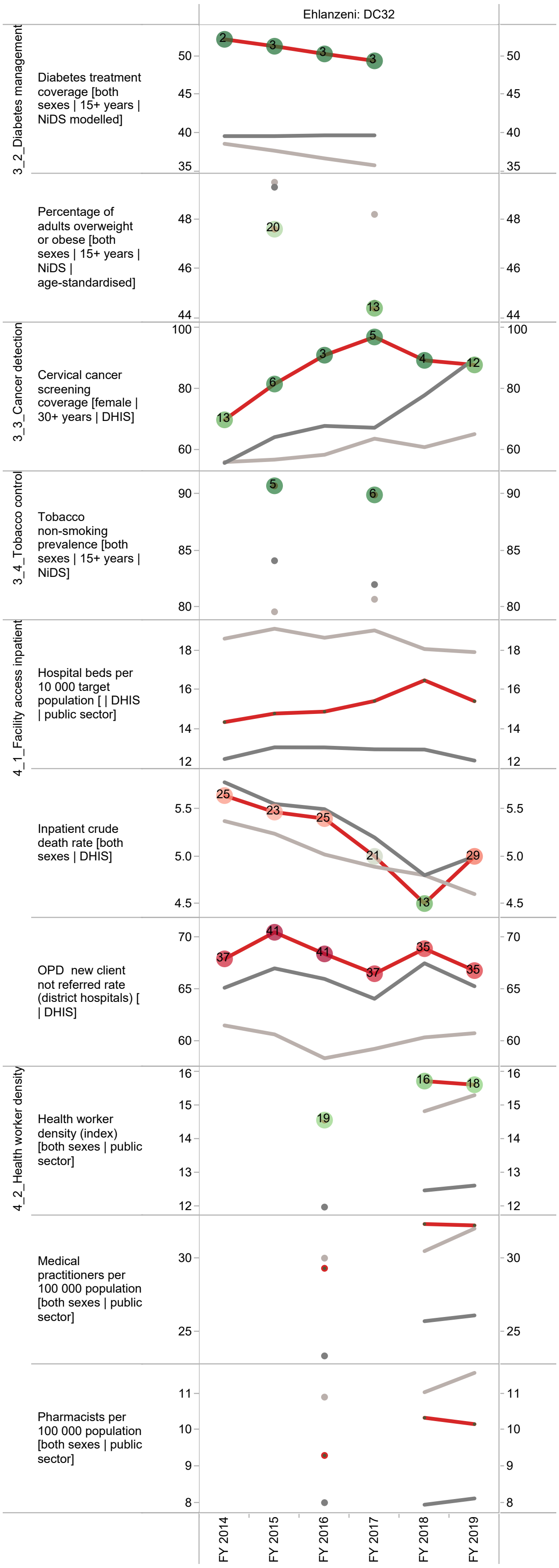
Source: Stats SA.

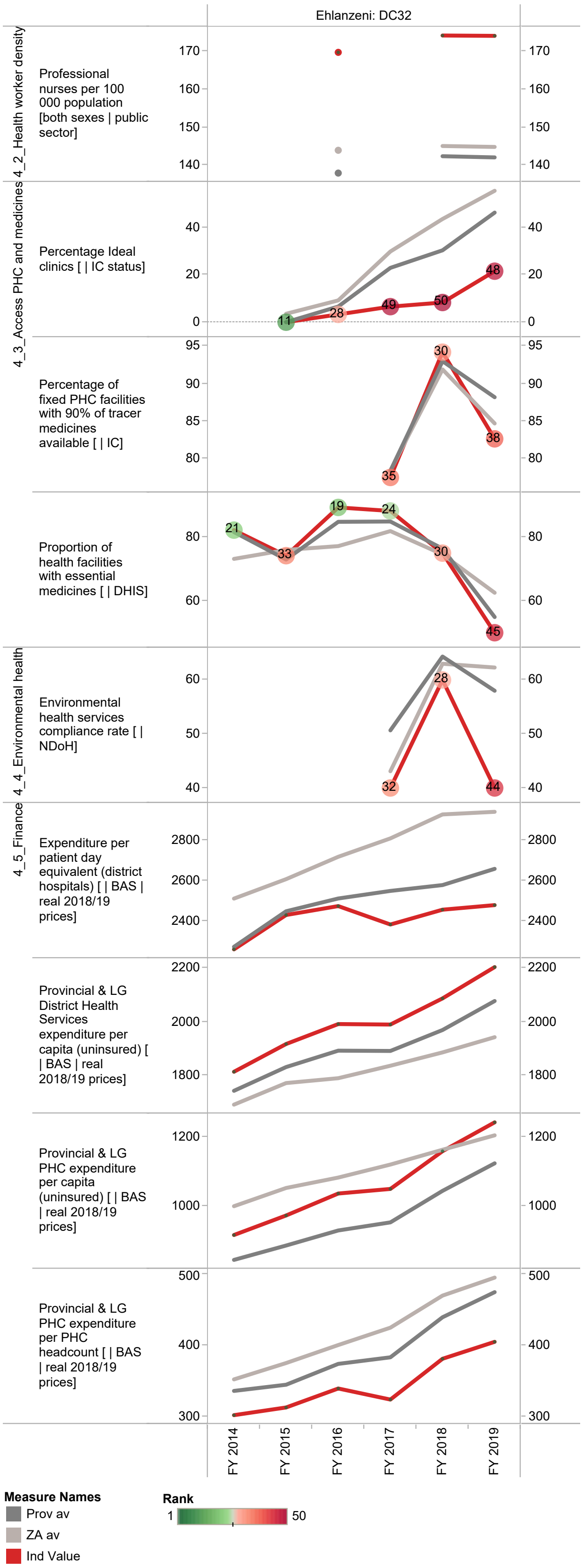
e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Ehlanzeni: DC32
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


Ehlanzeni: DC32
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
50

14. Northern Cape Province

John Taolo Gaetsewe District Municipality (DC45)

The John Taolo Gaetsewe District Municipality[a] (previously Kgalagadi) is a Category C municipality located in the north of the Northern Cape Province, bordering Botswana in the west. It comprises the three local municipalities of Gamagara, Ga-Segonyana and Joe Morolong.

Population (2018)[b]: 243 804

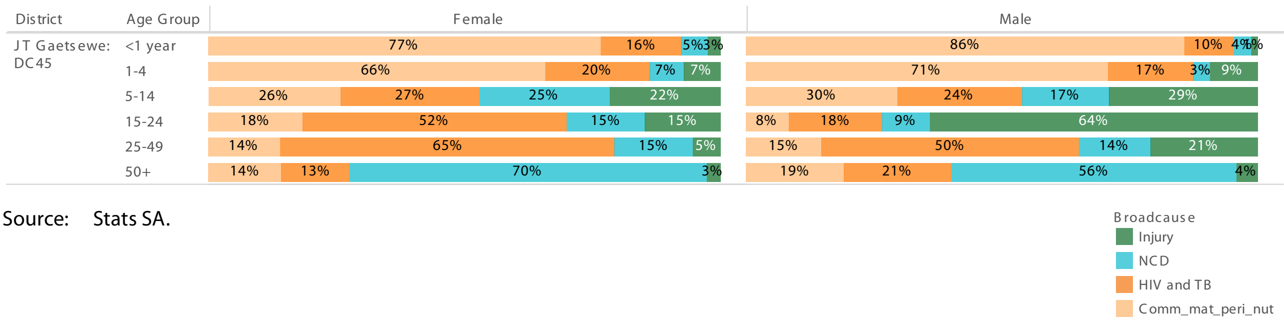
Population density (2018): 8.9 persons per km^2

Estimated medical scheme coverage (2018): 13.9%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

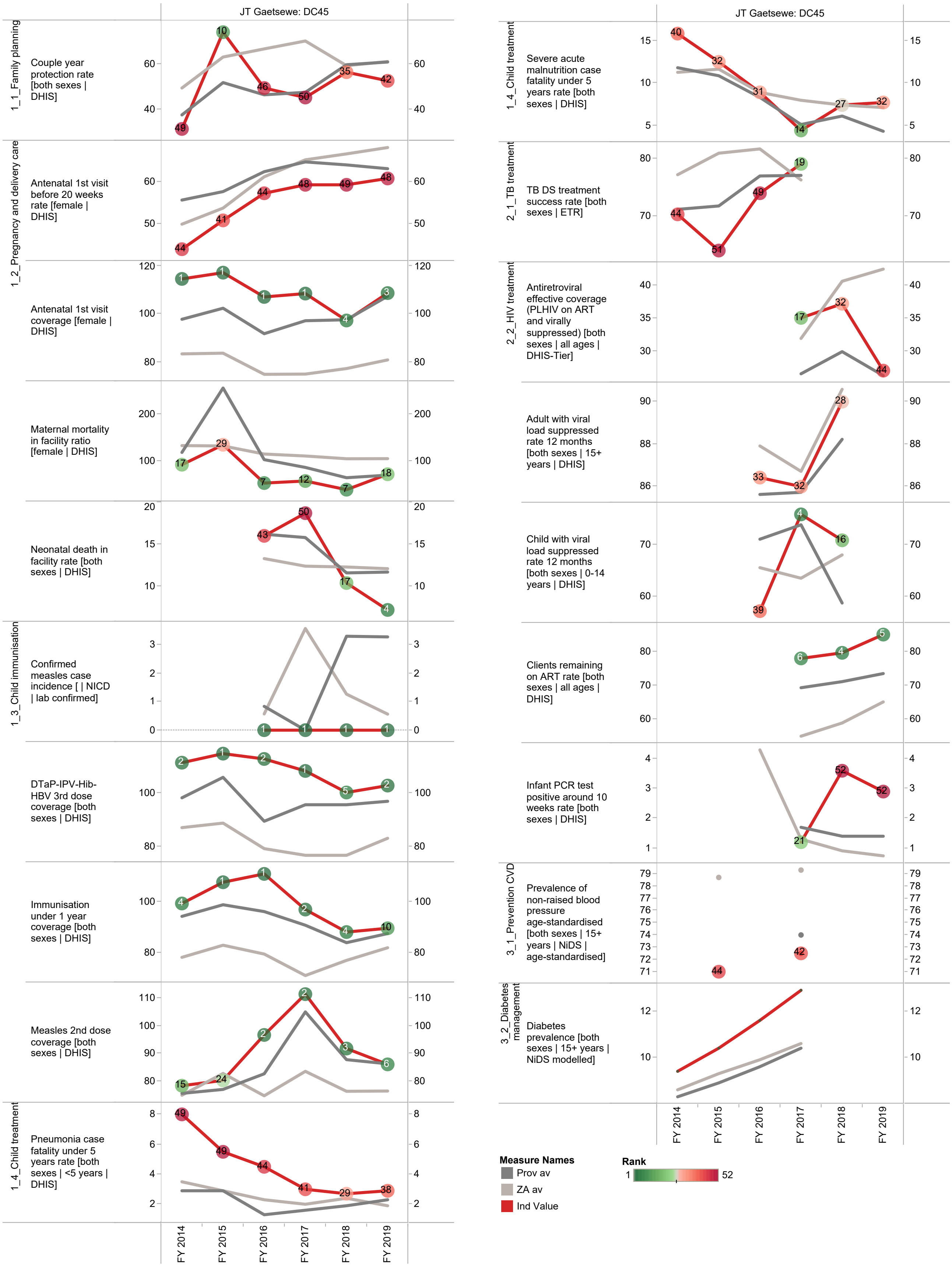


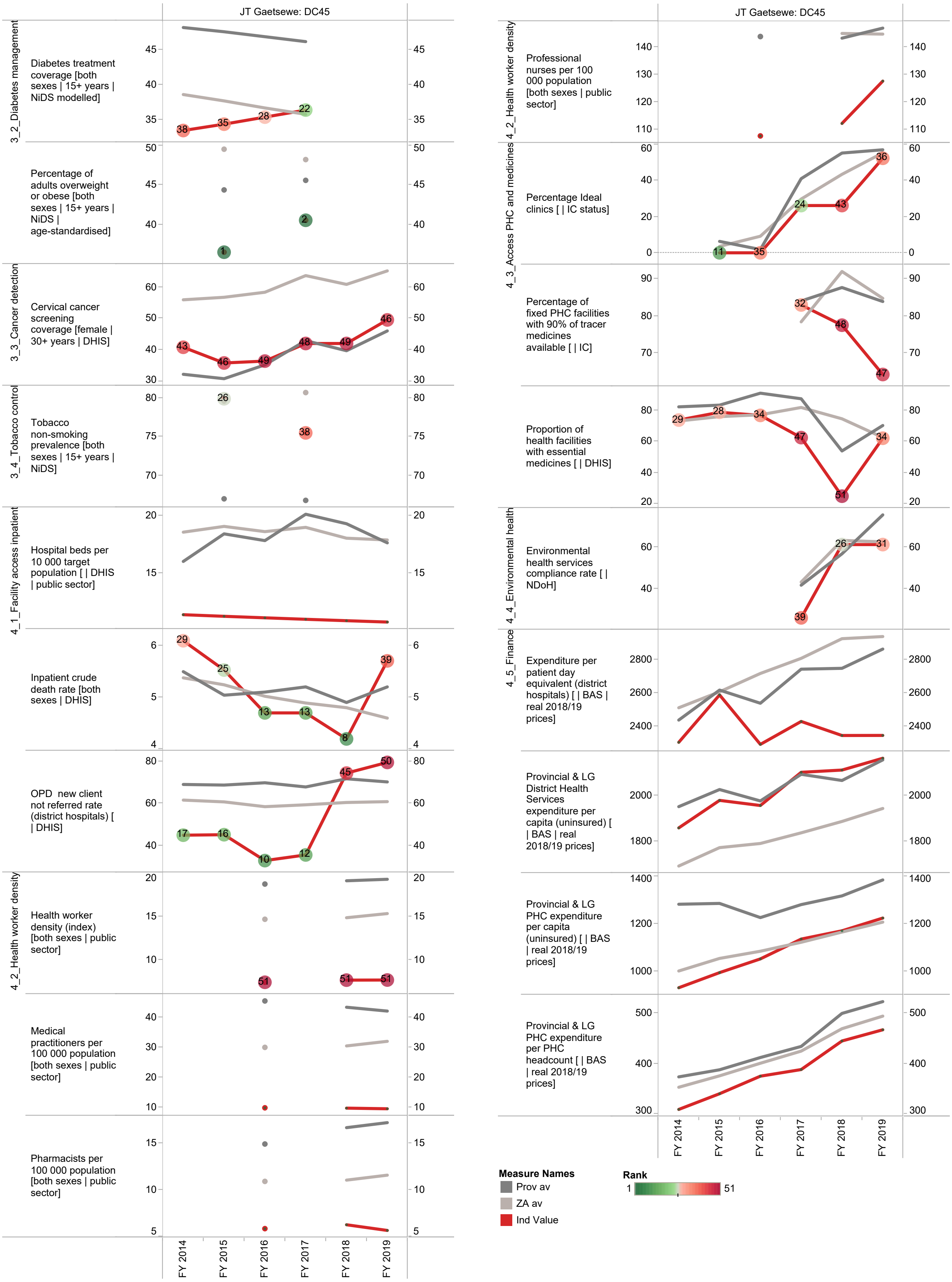
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




JT Gaetsewe: DC45
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
51

Namakwa District Municipality (DC6)

The Namakwa District Municipality[c] is a Category C municipality located in the Northern Cape Province. It is bordered by the republic of Namibia in the north and is comprised of six local municipalities: Nama Khoi, Hantam, Khai-Ma, Kamiesberg, Karoo Hoogland and Richtersveld.

Population (2018)[d]: 113 554

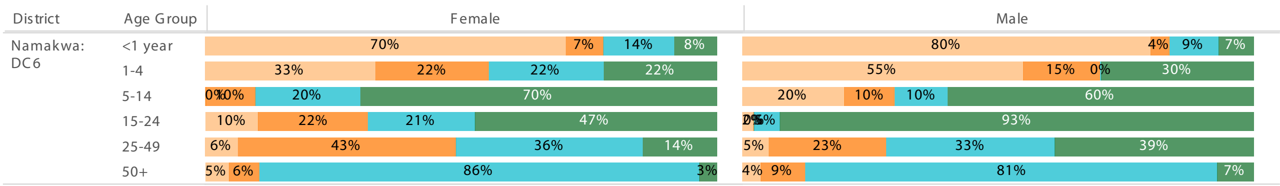
Population density (2018): 0.9 persons per km^2

Estimated medical scheme coverage (2018): 17.5%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

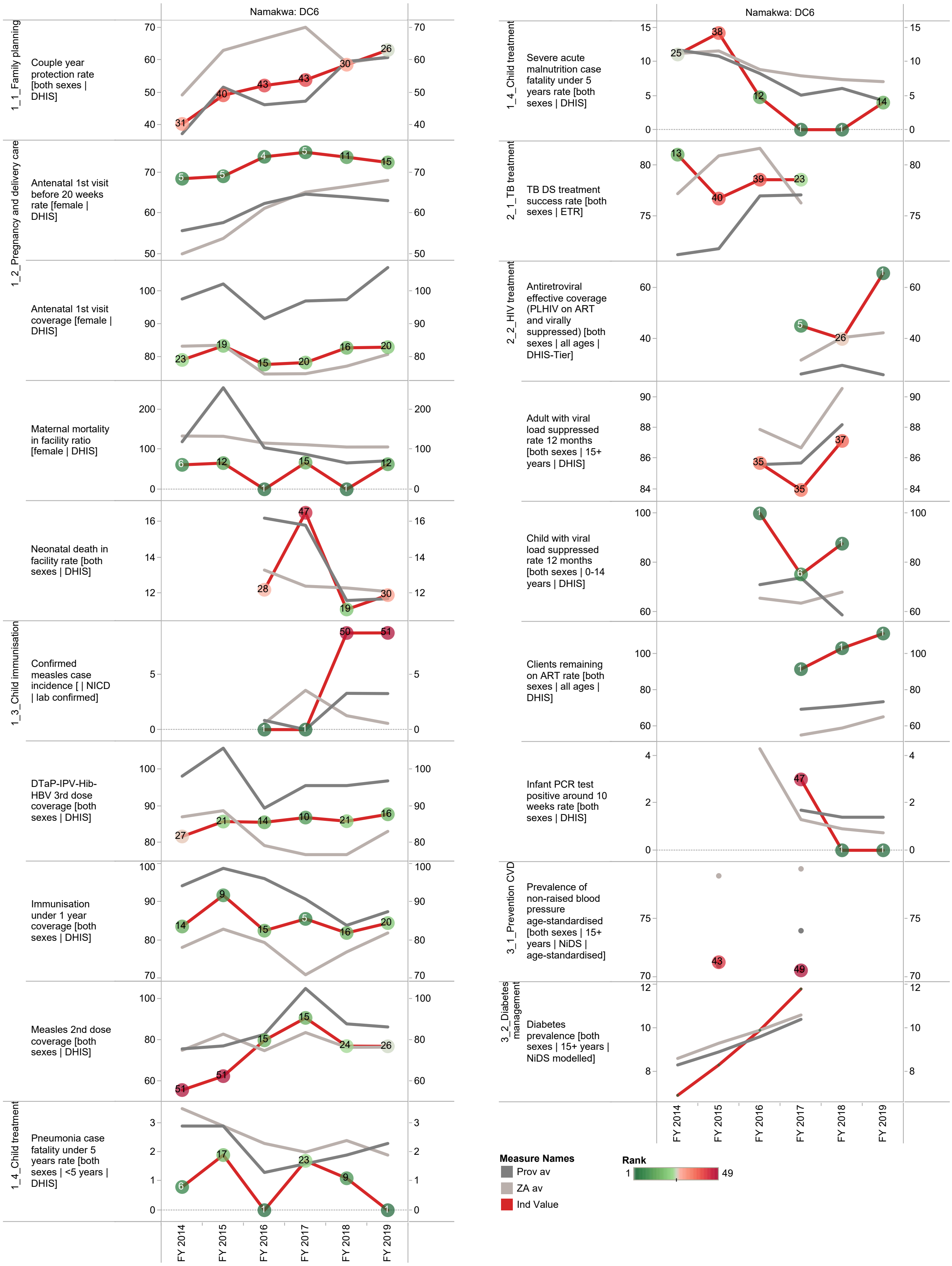


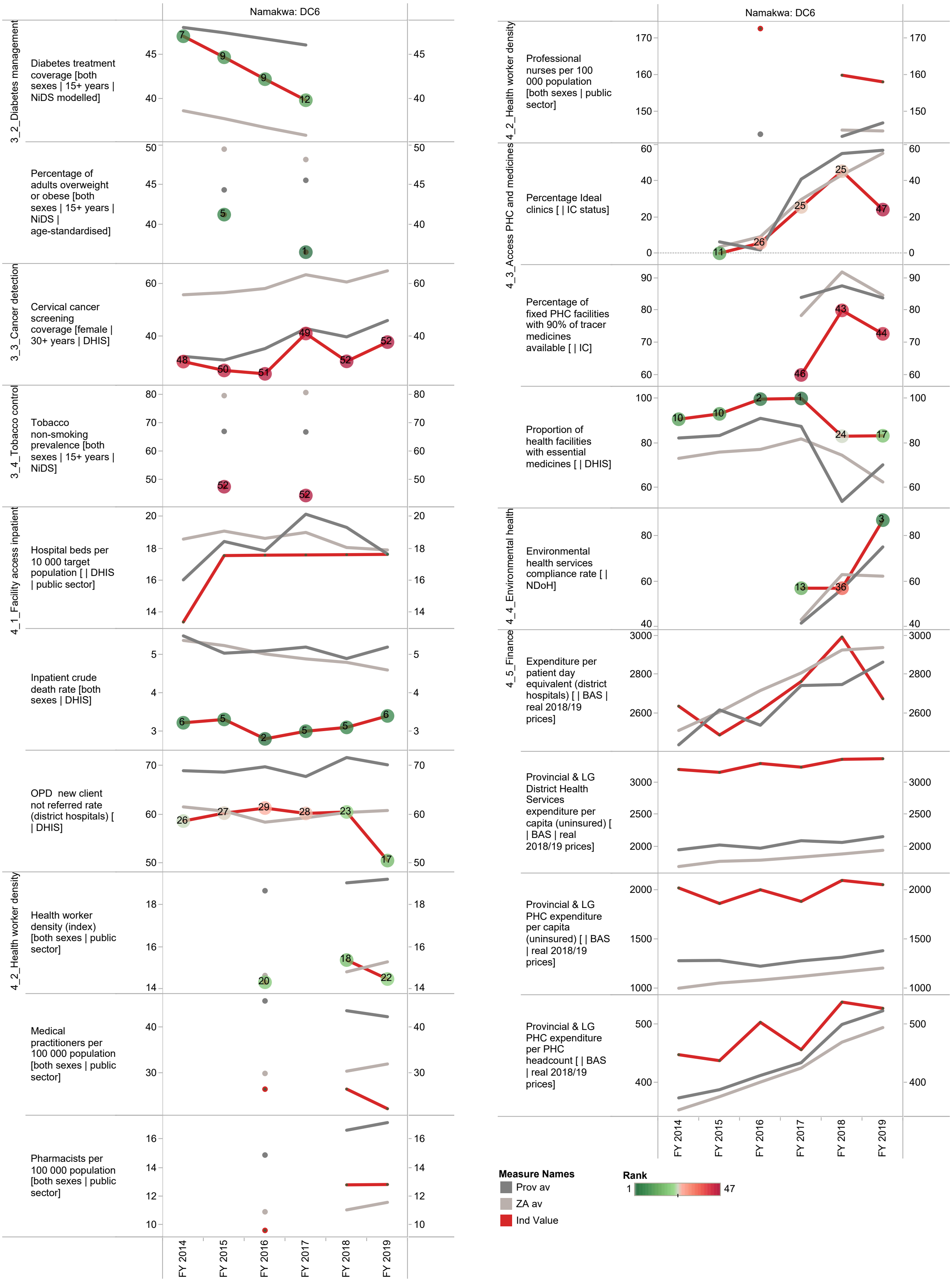
Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





Namakwa: DC6
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Namakwa: DC6
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
47

Pixley Ka Seme District Municipality (DC7)

The Pixley Ka Seme District Municipality[e] is a Category C municipality situated in the south-east of the Northern Cape Province. The district is comprised of eight local municipalities: Ubuntu, Umsobomvu, Emthanjeni, Kareeberg, Renosterberg, Thembelihle, Siyathemba and Siyancuma.

Population (2018)[f]: 209 791

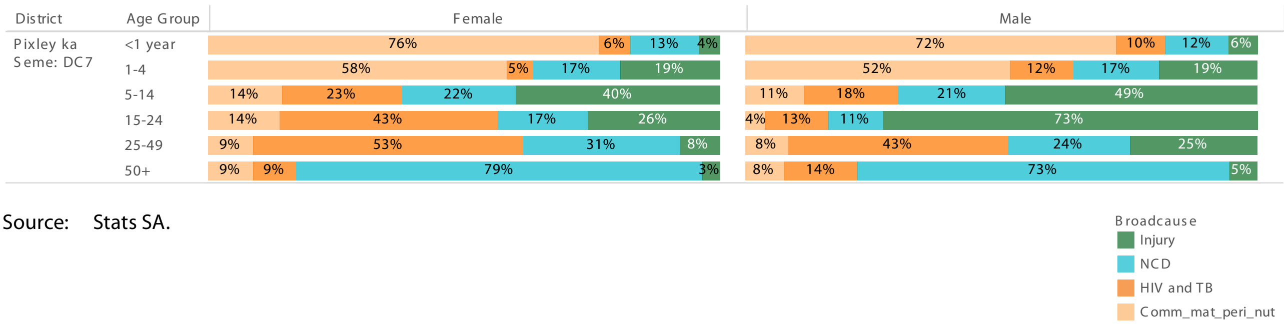
Population density (2018): 2.0 persons per km^2

Estimated medical scheme coverage (2018): 13.1%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

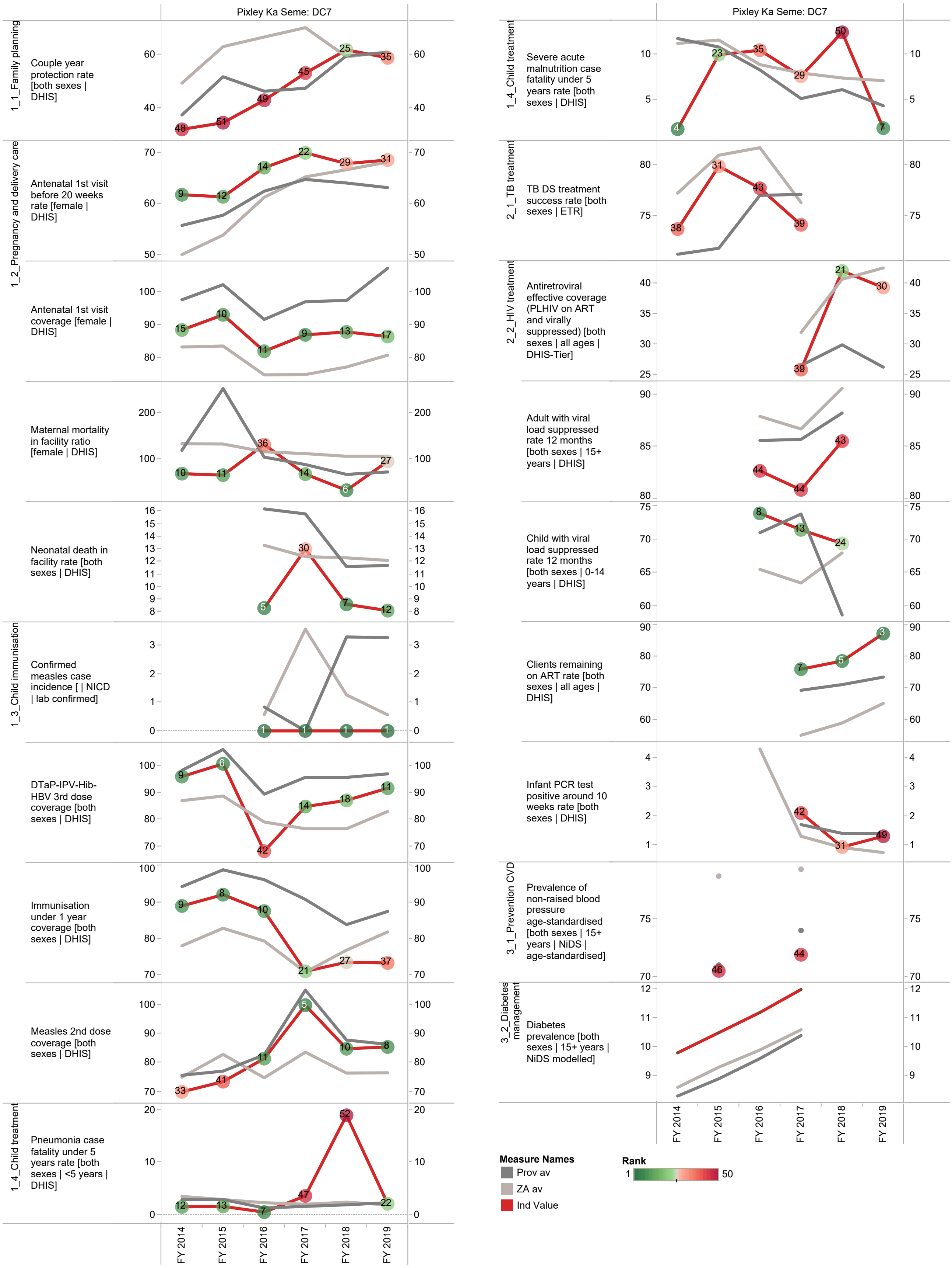


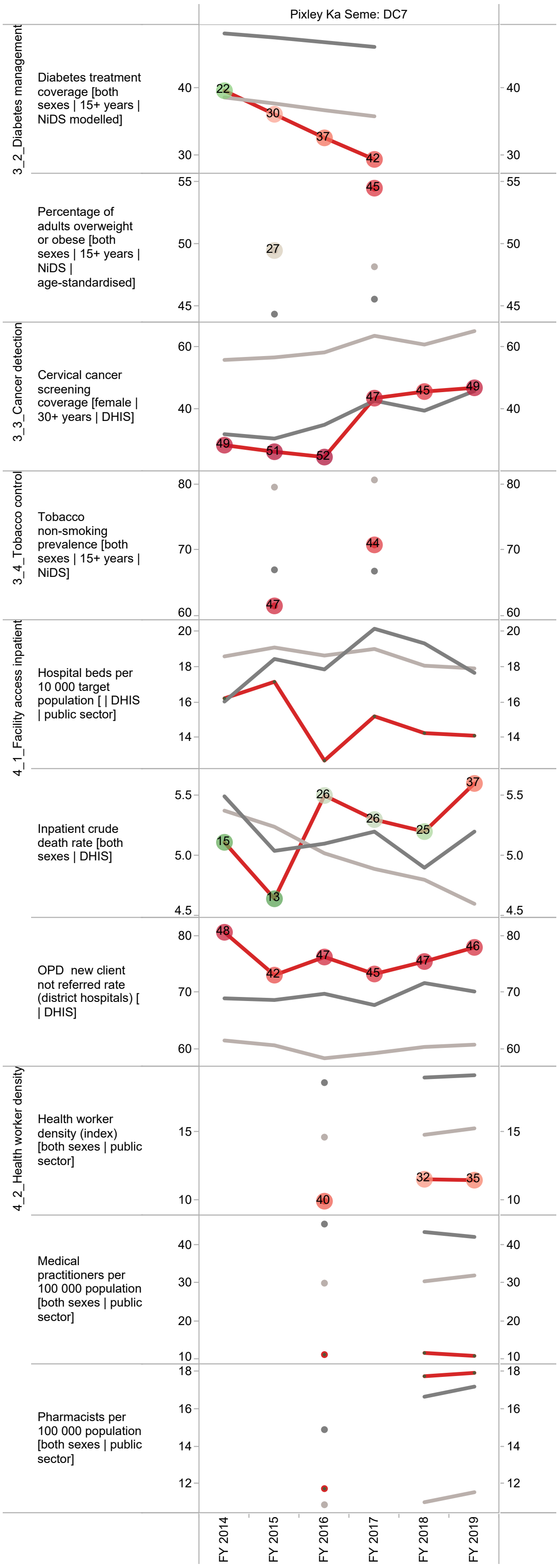
Source: Stats SA.

e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Pixley Ka Seme: DC7
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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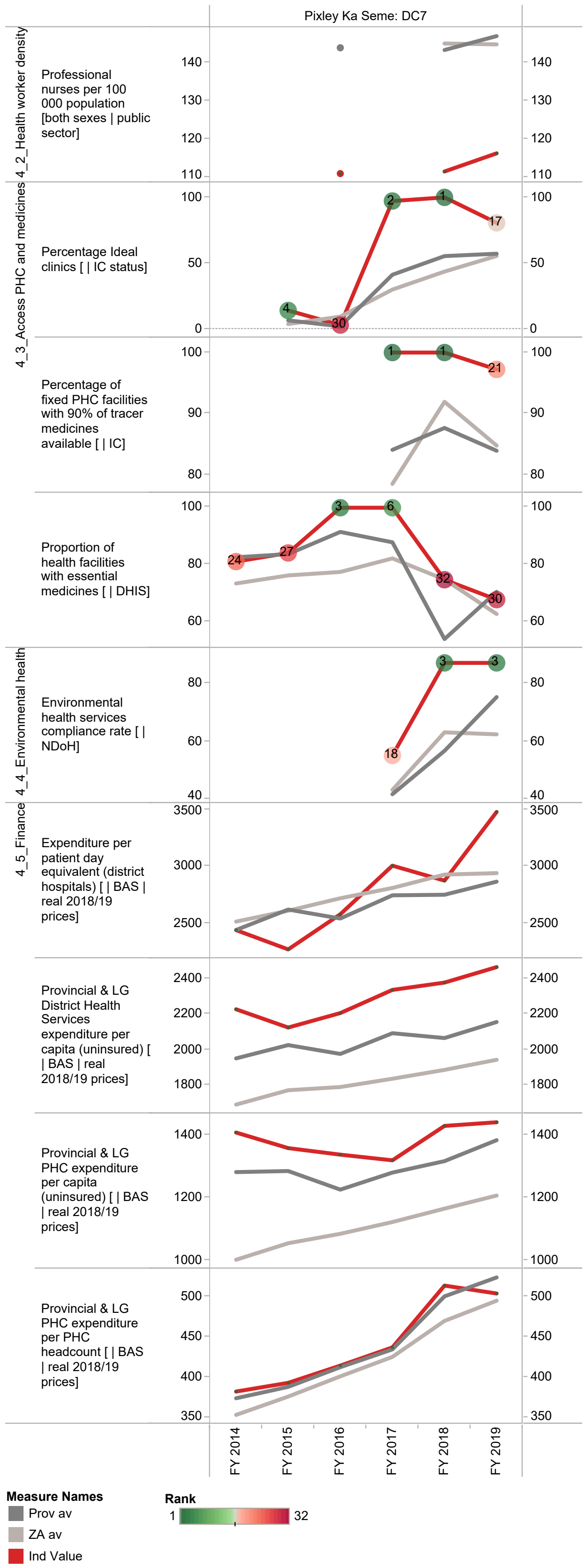
Pixley Ka Seme: DC7
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
32

Zwelentlanga Fatman Mgcawu District Municipality (DC8)

The Zwelentlanga Fatman Mgcawu District Municipality[g] (previously Siyanda District Municipality) is a Category C municipality forming the mid-northern section of the Northern Cape Province, bordering with Botswana in the north and Namibia in the west. This district comprises five local municipalities: Dawid Kruiper, Kai !Garib, Tsantsabane, !Kheis and Kgatelopele. Upington is the district municipal capital, where the municipal government is located.

Population (2018)[h]: 263 401

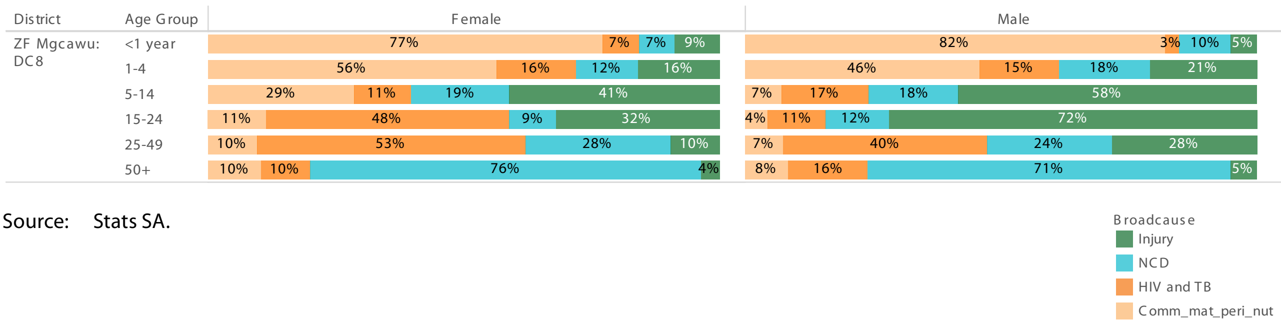
Population density (2018): 2.6 persons per km^2

Estimated medical scheme coverage (2018): 15.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015



Source: Stats SA.

g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19


ZF Mgcawu: DC8
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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Measure Names
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46

Frances Baard District Municipality (DC9)

The Frances Baard District Municipality[i] is a Category C municipality located in the far eastern portion of the Northern Cape Province. It comprises the four local municipalities of Dikgatlong, Magareng, Phokwane and Sol Plaatje.

Population (2018)[j]: 381 186

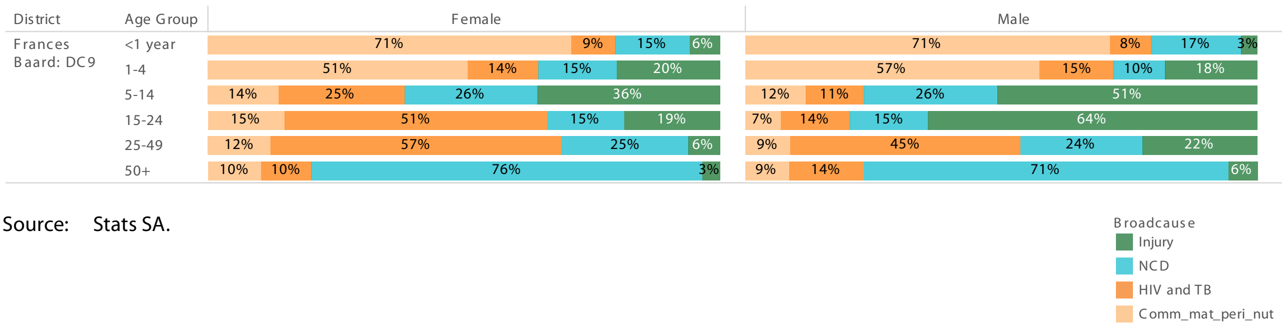
Population density (2018): 29.7 persons per km^2

Estimated medical scheme coverage (2018): 15.7%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

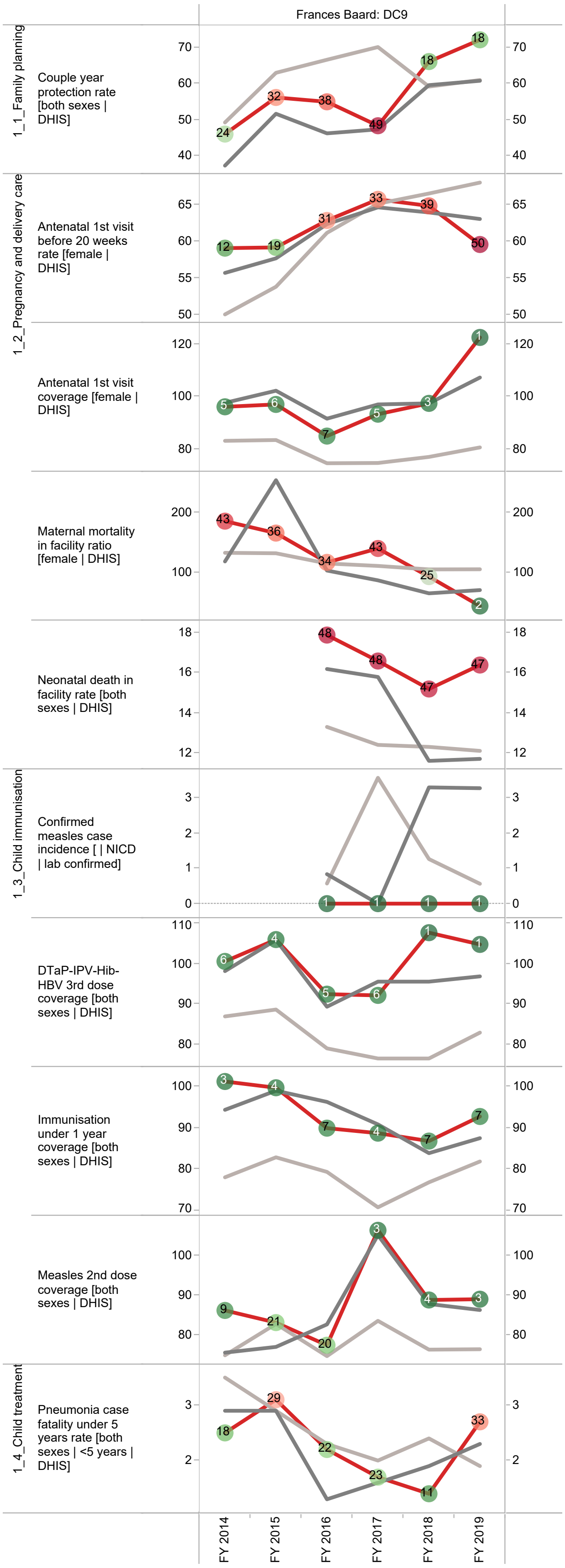


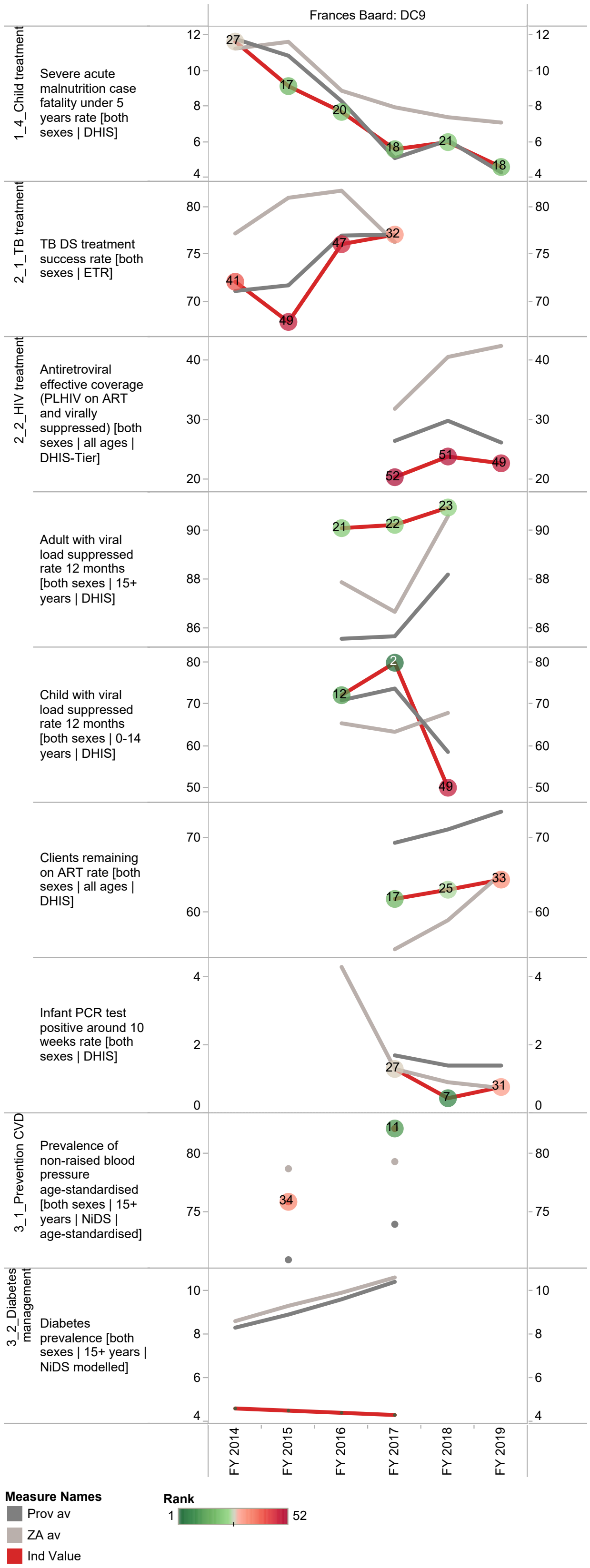
Source: Stats SA.

i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






Frances Baard: DC9
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
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Measure Names
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51

15. North West Province

Bojanala District Municipality (DC37)

The Bojanala Platinum District Municipality[a] is a Category C municipality situated in the North West Province. It comprises five local municipalities: Kgetlengrivier, Madibeng, Moses Kotane, Moretele and Rustenburg.

Population (2018)[b]: 1 720 519

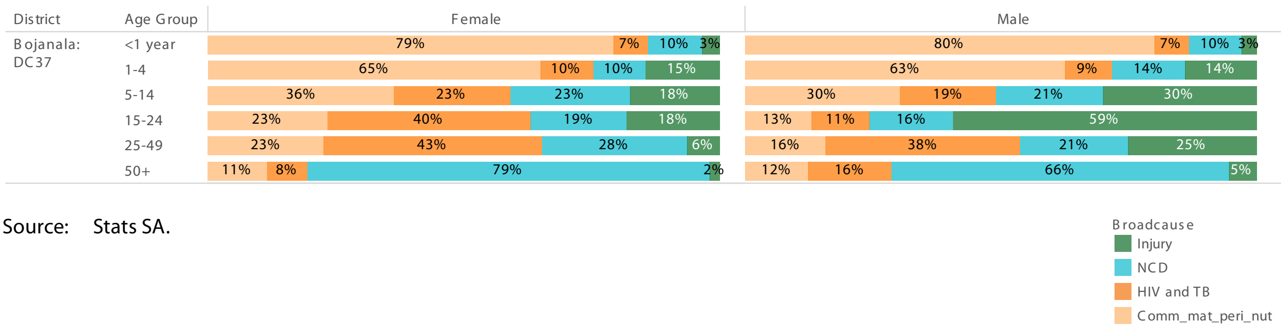
Population density (2018): 93.8 persons per km^2

Estimated medical scheme coverage (2018): 14.0%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

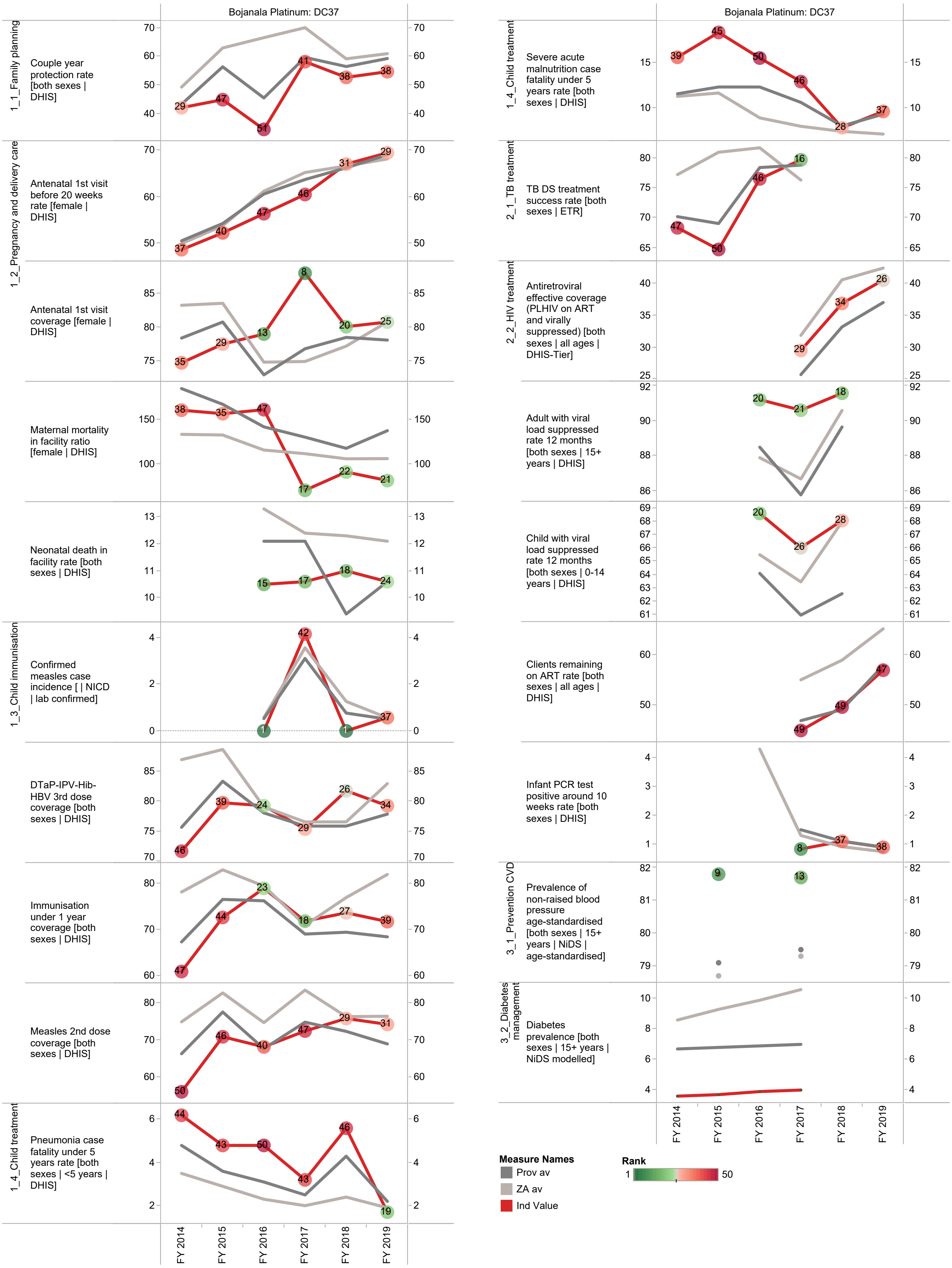


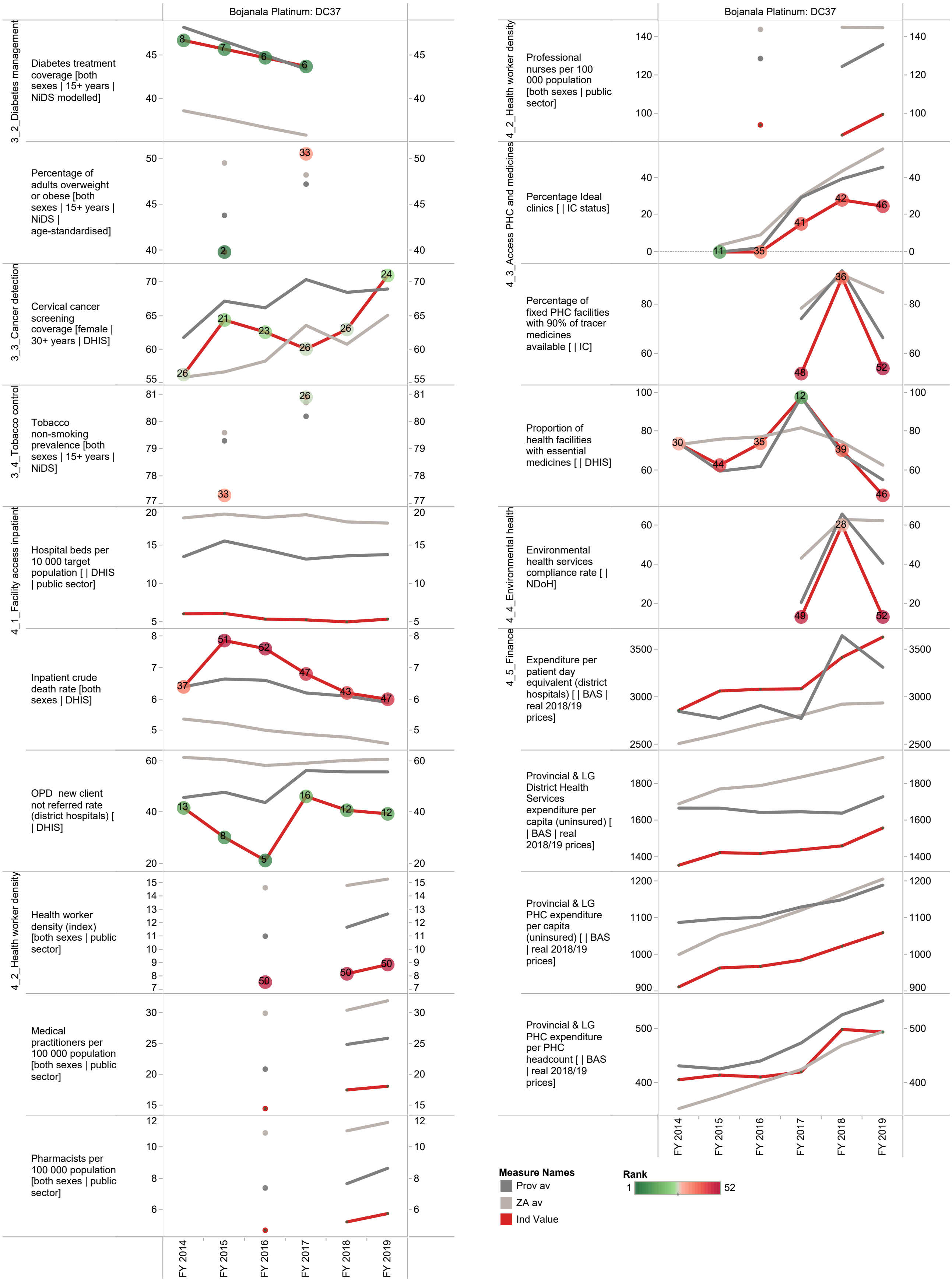
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Bojanala Platinum: DC37
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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FY 2019
Measure Names
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52

Ngaka Modiri Molema District Municipality (DC38)

The Ngaka Modiri Molema District Municipality[c] is a Category C municipality in the North West Province. It is comprised of five local municipalities: Mahikeng, Ratlou, Ramotshere Moiloa, Ditsobotla and Tswaing.

Population (2018)[d]: 957 449

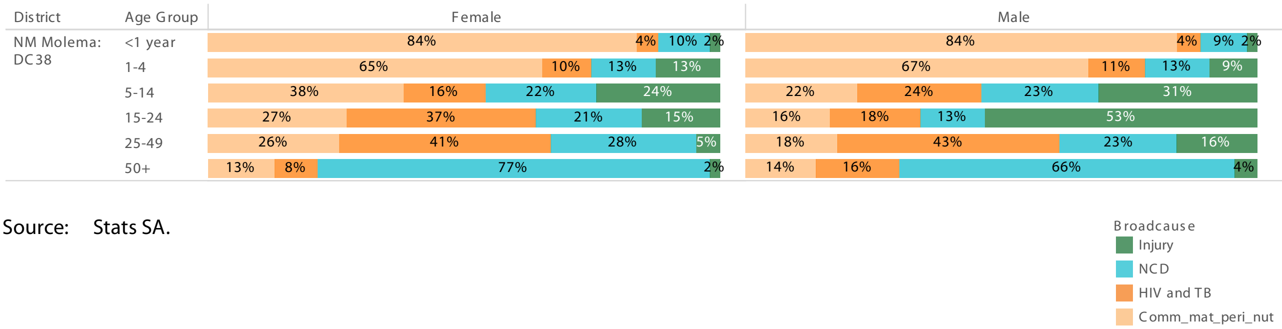
Population density (2018): 34.1 persons per km^2

Estimated medical scheme coverage (2018): 9.7%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

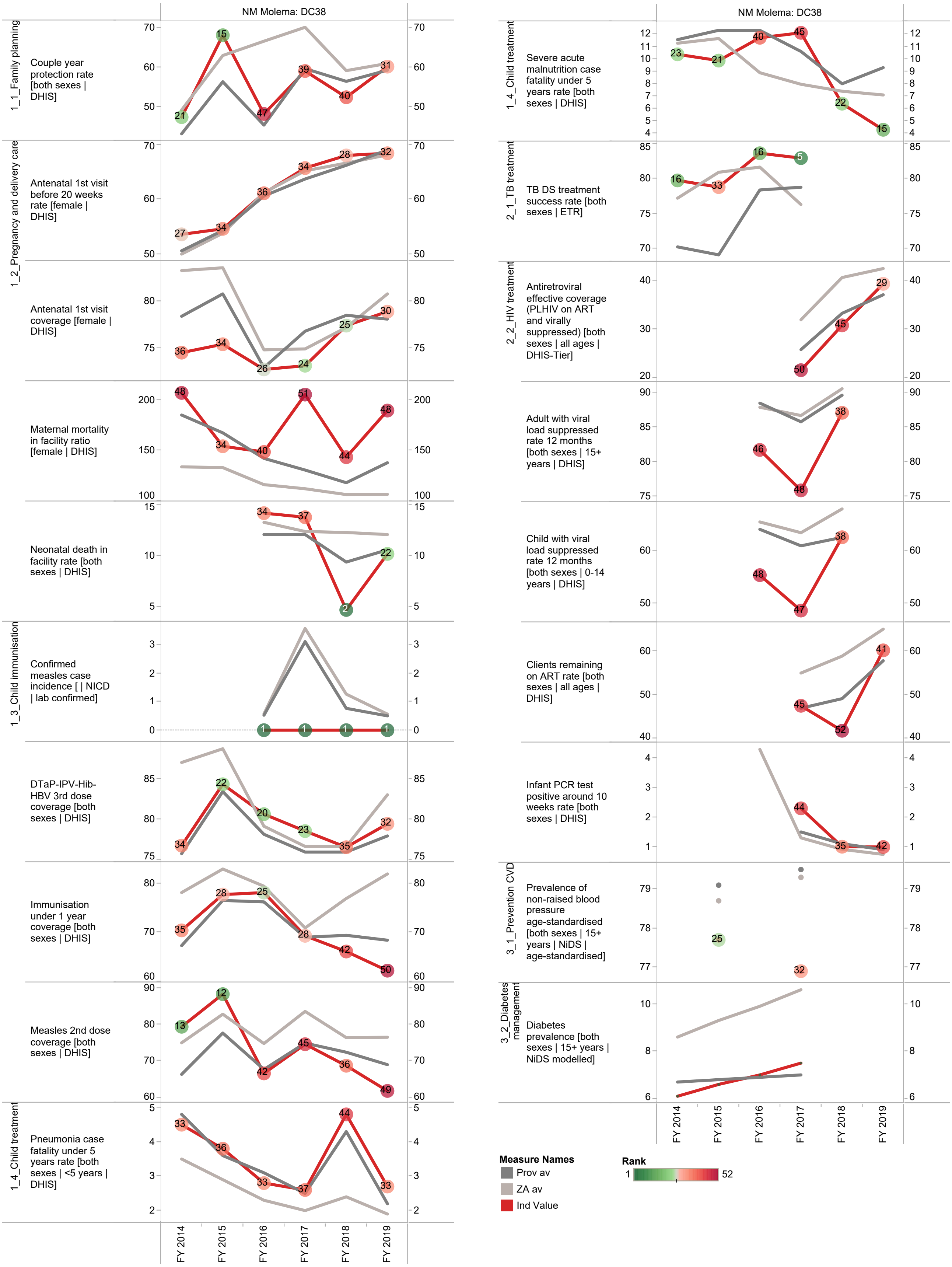


Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




NM Molema: DC38
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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FY 2017
FY 2018
FY 2019
NM Molema: DC38
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
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FY 2019
Measure Names
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48

Dr Ruth Segomotsi Mompati District Municipality (DC39)

The Dr Ruth Segomotsi Mompati District Municipality[e] is a Category C municipality located in the North West Province. The district comprises five local municipalities: Naledi, Greater Taung, Kagisano-Molopo, Mamusa and Lekwa-Teemane.

Population (2018)[f]: 479 326

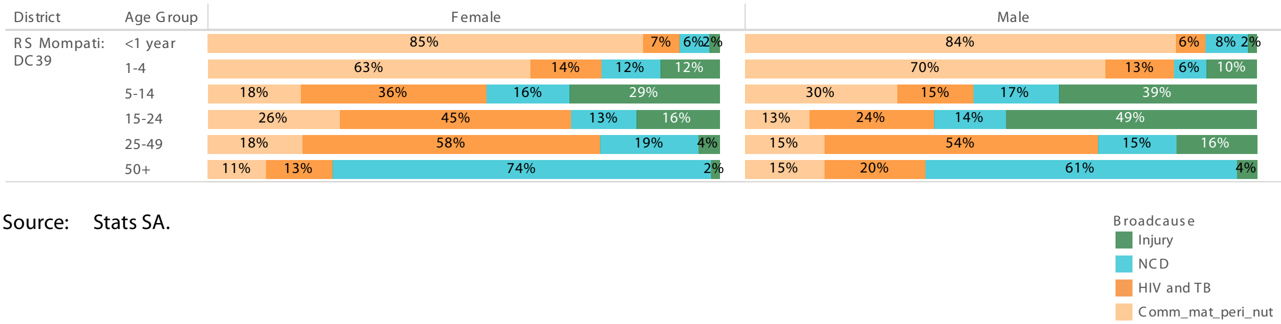
Population density (2018): 11.0 persons per km^2

Estimated medical scheme coverage (2018): 7.3%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

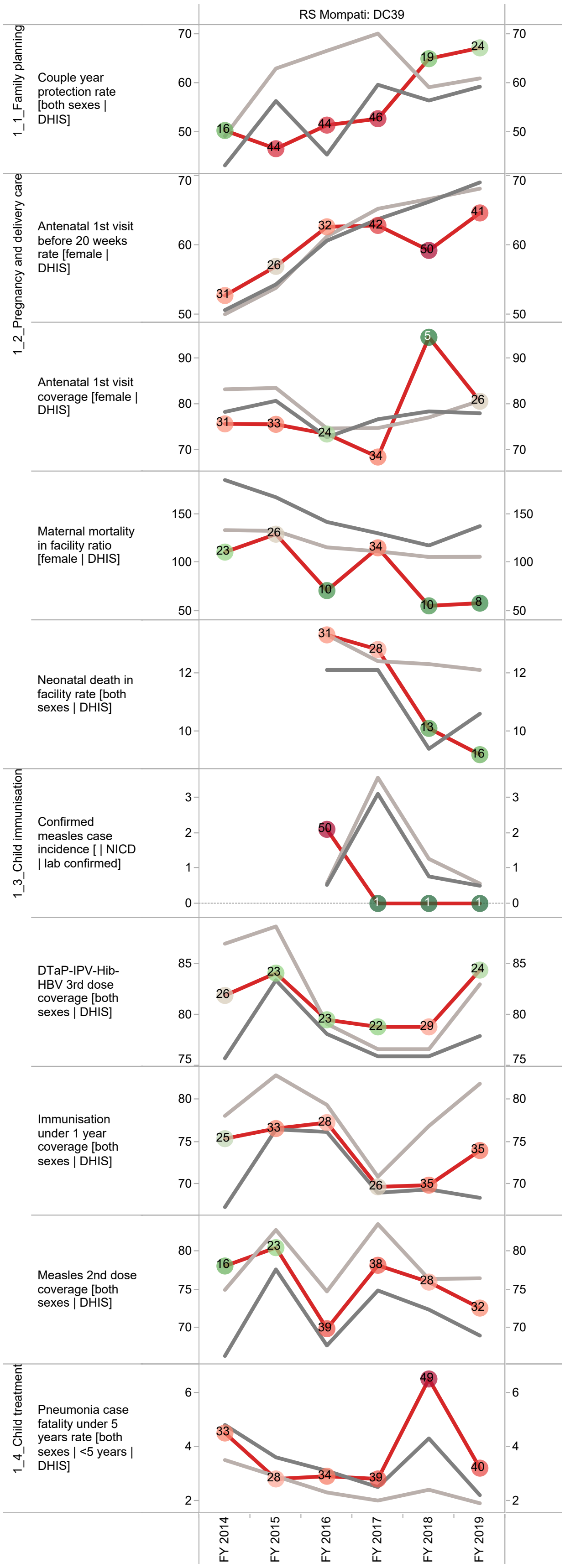


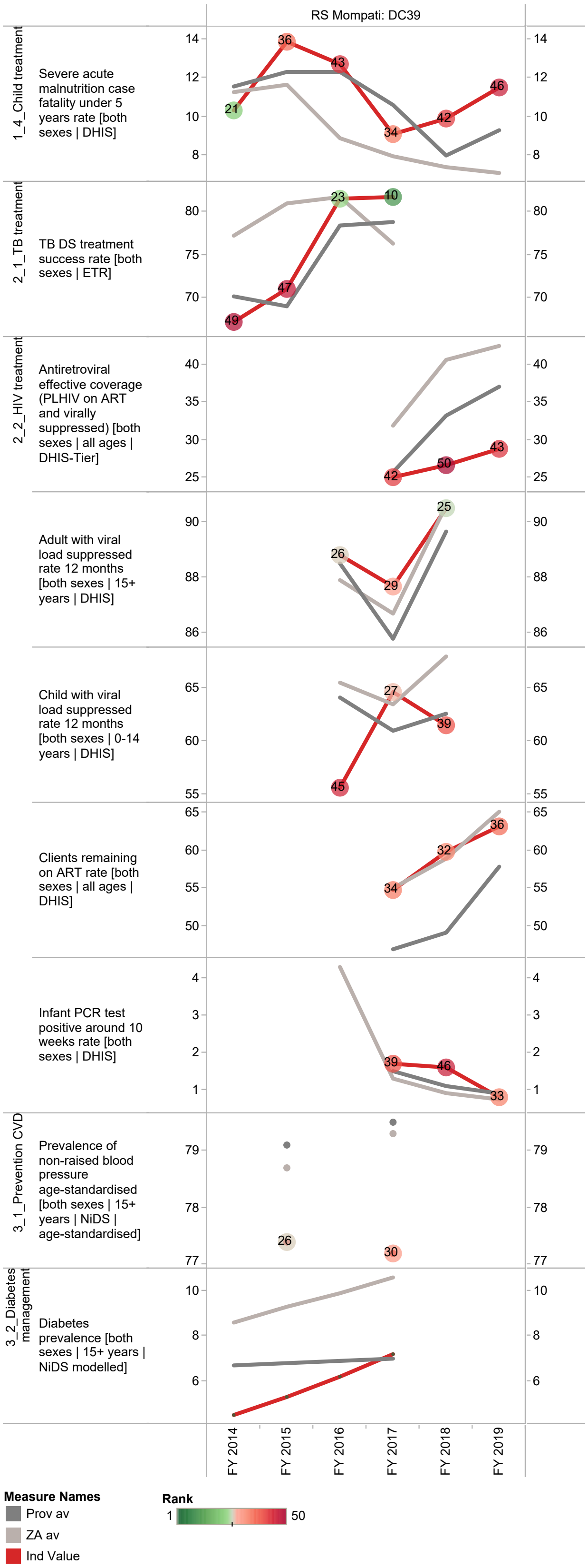
Source: Stats SA.

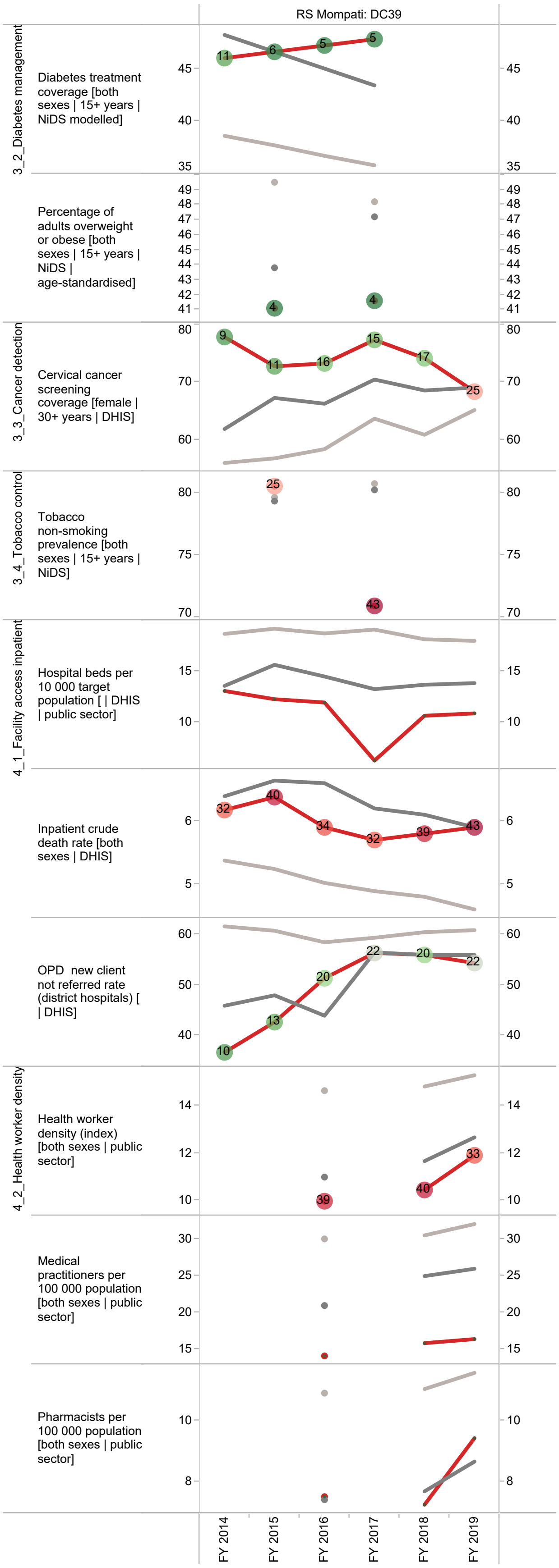
e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






RS Mompati: DC39
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
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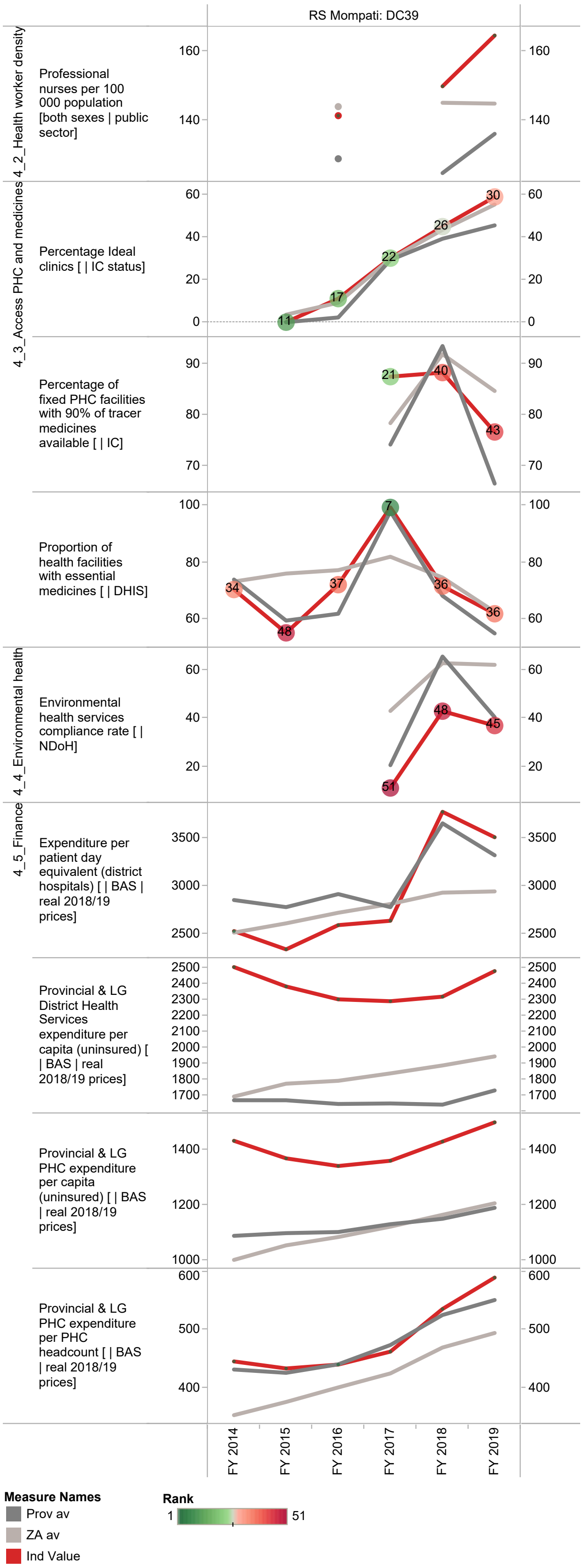
RS Mompati: DC39
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
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FY 2017
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FY 2019
Measure Names
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ZA av
Ind Value
Rank
1
51

Dr Kenneth Kaunda District Municipality (DC40)

The Dr Kenneth Kaunda District Municipality[g] is a Category C municipality in the North West Province. The district consists of three local municipalities: JB Marks, City of Matlosana and Maquassi Hills.

Population (2018)[h]: 761 652

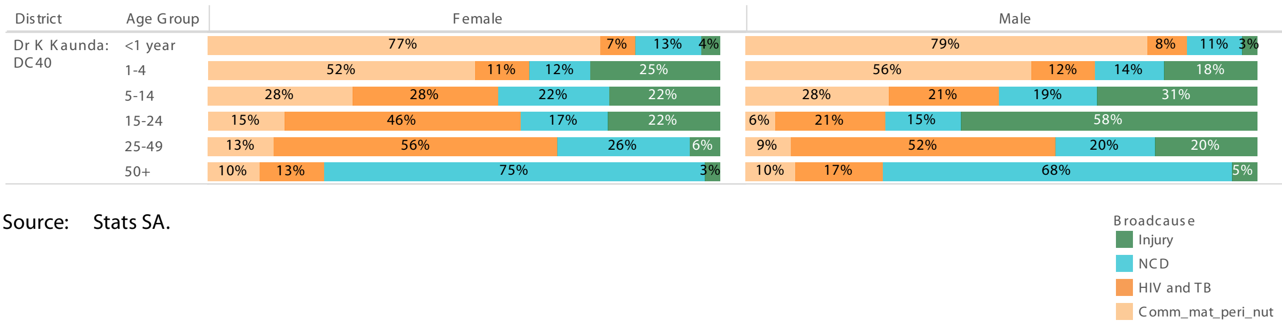
Population density (2018): 51.9 persons per km^2

Estimated medical scheme coverage (2018): 12.8%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

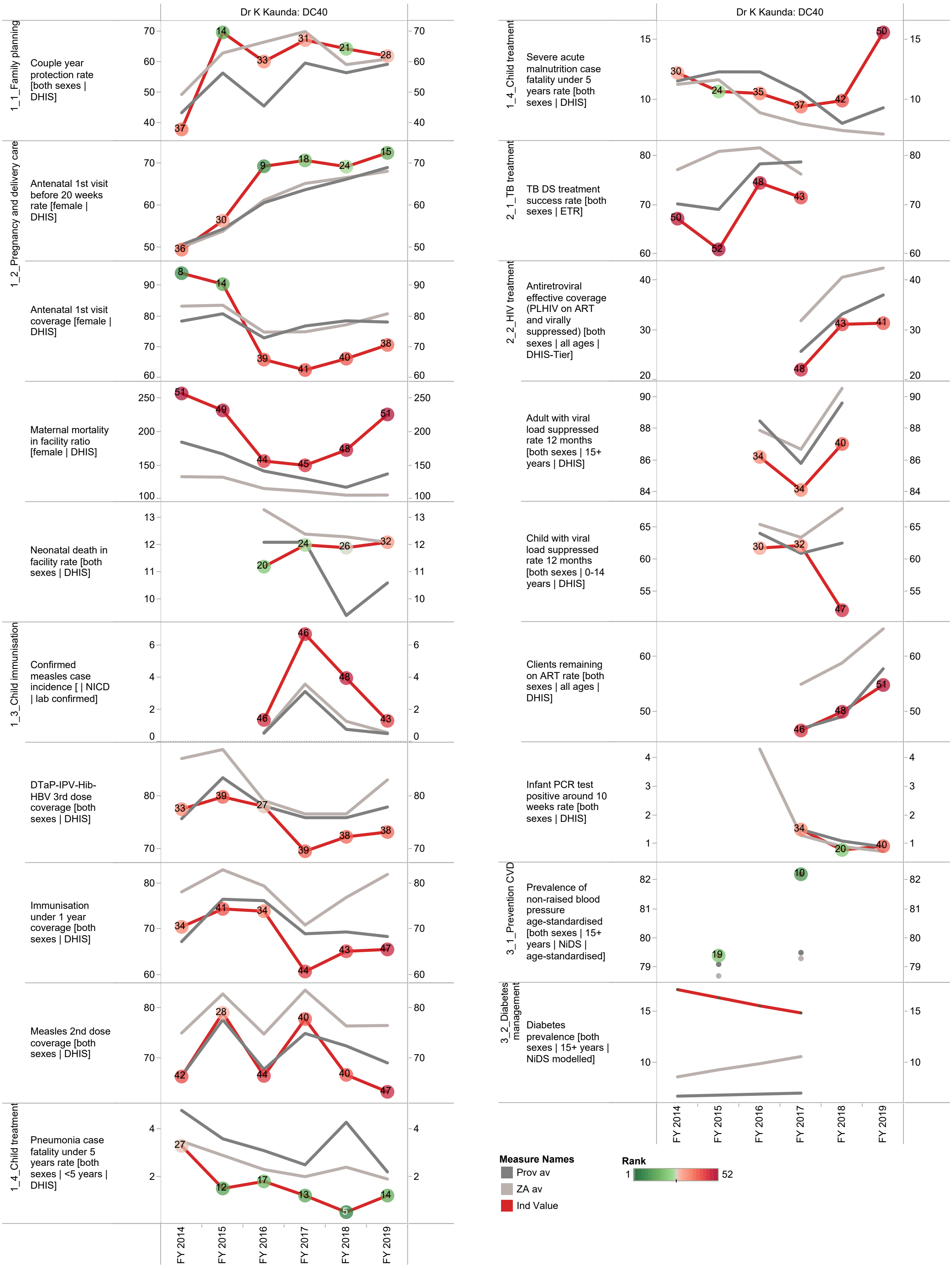


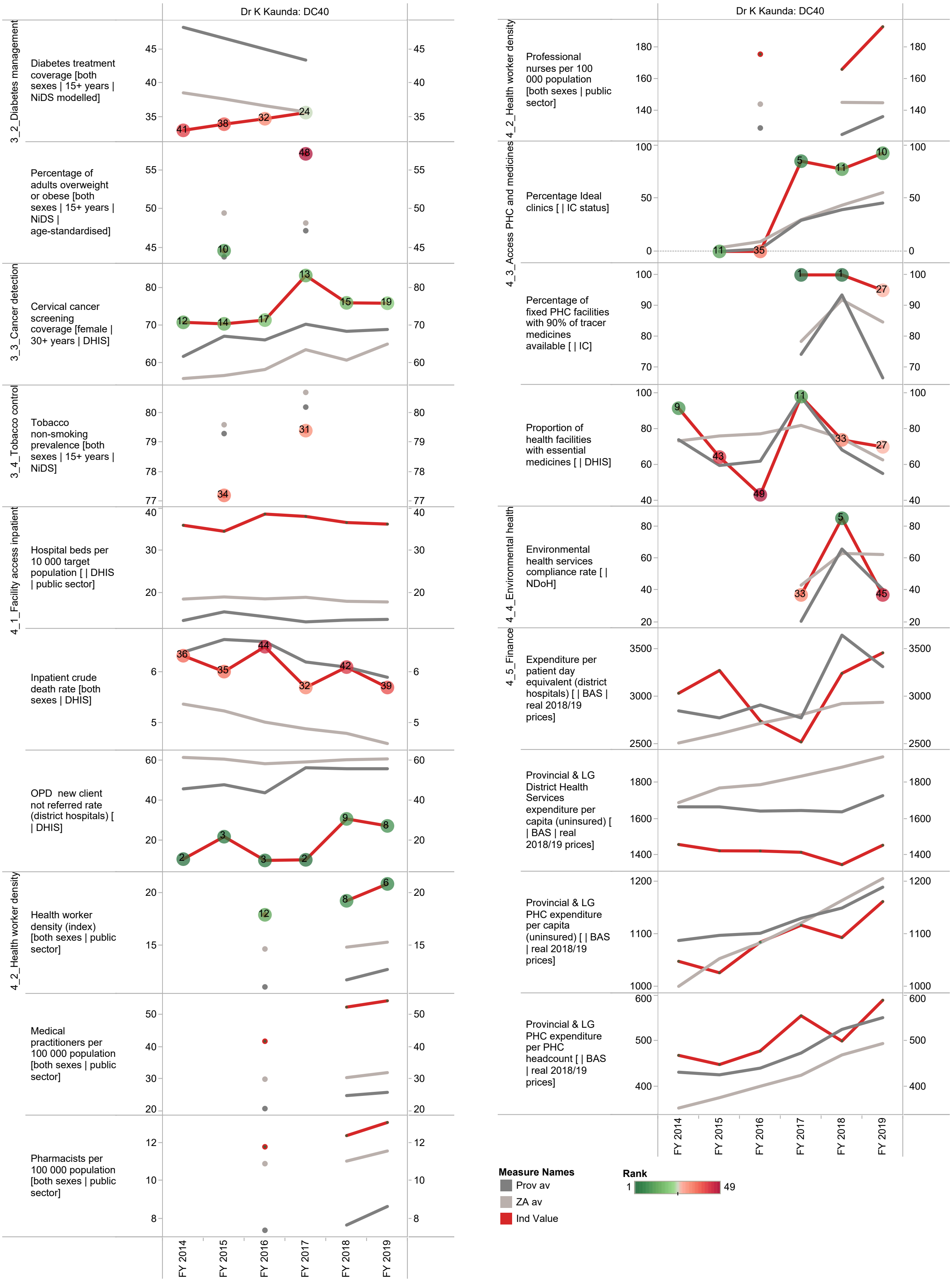
Source: Stats SA.

g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Dr K Kaunda: DC40
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
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FY 2017
FY 2018
FY 2019
Measure Names
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Ind Value
Rank
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49

16. Western Cape Province

Cape Town Metropolitan Municipality (CPT)

The City of Cape Town Metropolitan Municipality[a] is situated on the southern peninsula of the Western Cape Province. The City of Cape Town Metropolitan Municipality incorporates eight health sub-districts, namely, Cape Town Eastern, Cape Town Northern, Cape Town Southern, Cape Town Western, Khayelitsha, Klipfontein, Mitchell's Plain and Tygerberg.

Population (2018)[b]: 4 140 565

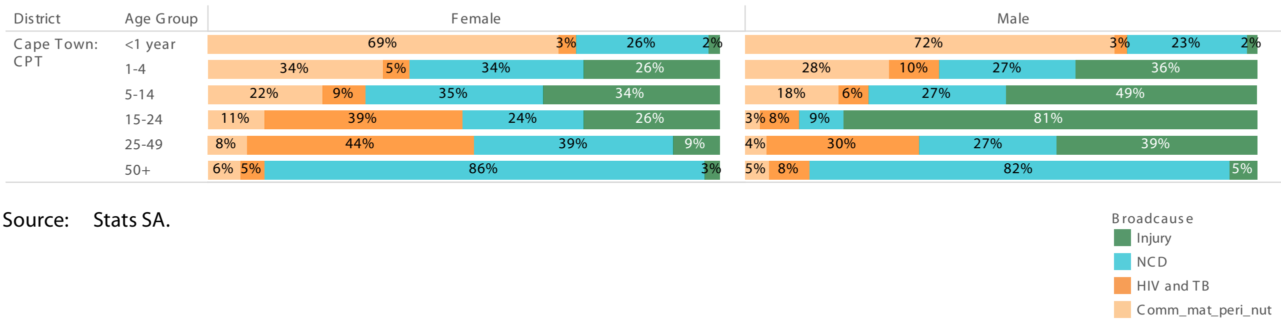
Population density (2018): 1 692.8 persons per km^2

Estimated medical scheme coverage (2018): 22.2%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

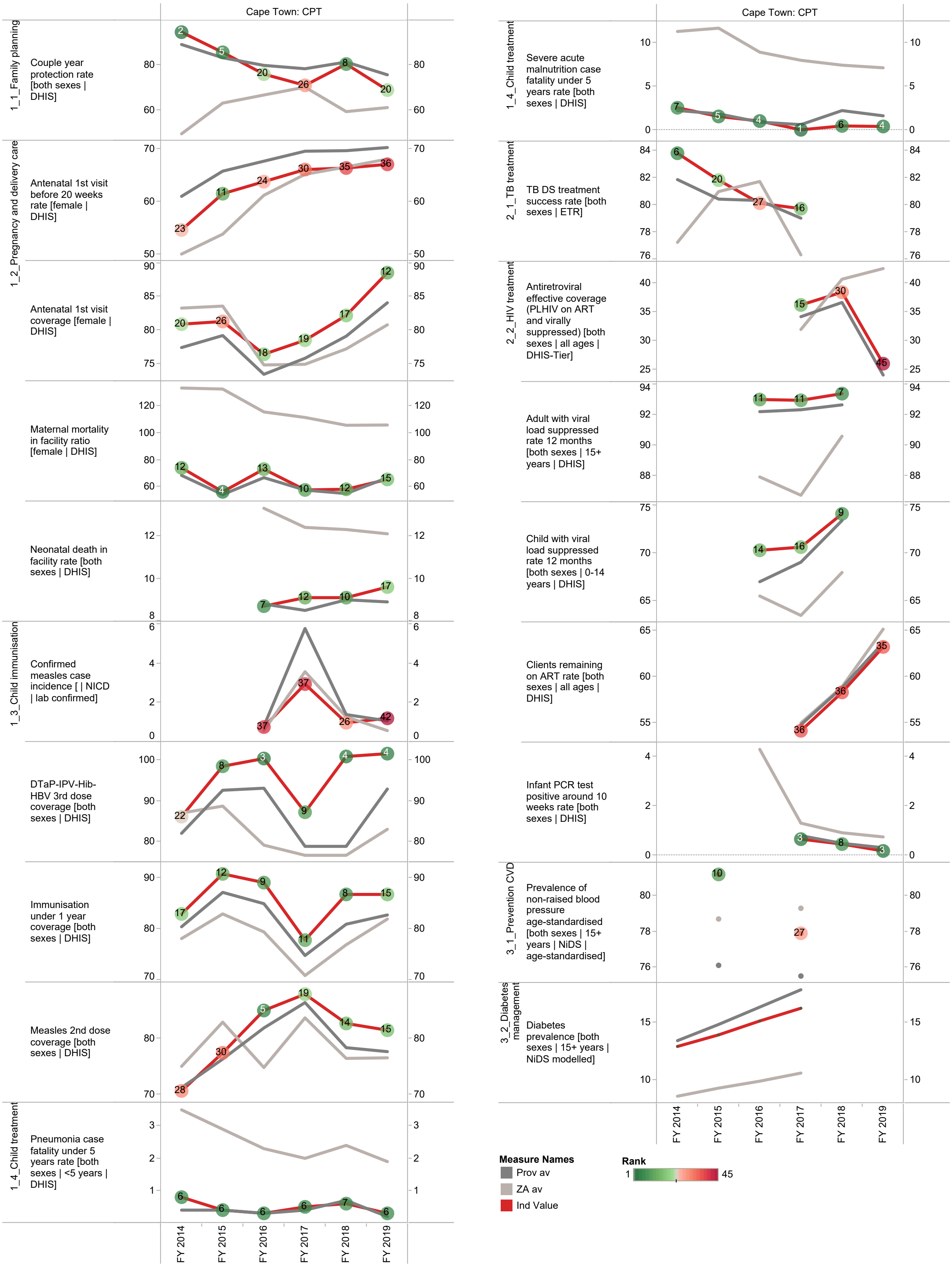


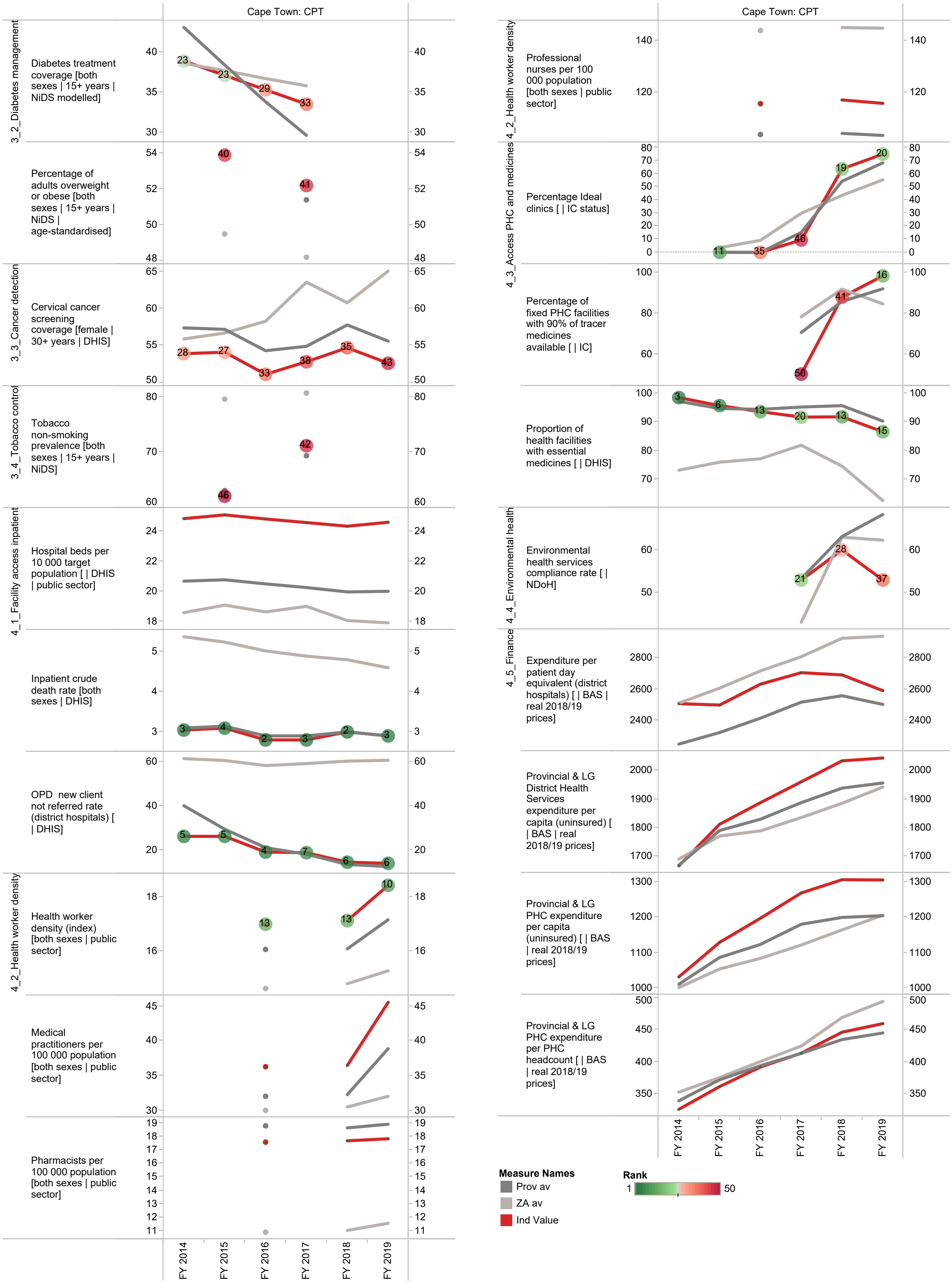
Source: Stats SA.

a The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

b Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19





Cape Town: CPT
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Cape Town: CPT
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
50

West Coast District Municipality (DC1)

The West Coast District Municipality[c] is a Category C municipality located in the Western Cape Province. It is comprised of five local municipalities: Swartland, Bergrivier, Matzikama, Cederberg, and Saldanha Bay.

Population (2018)[d]: 459 686

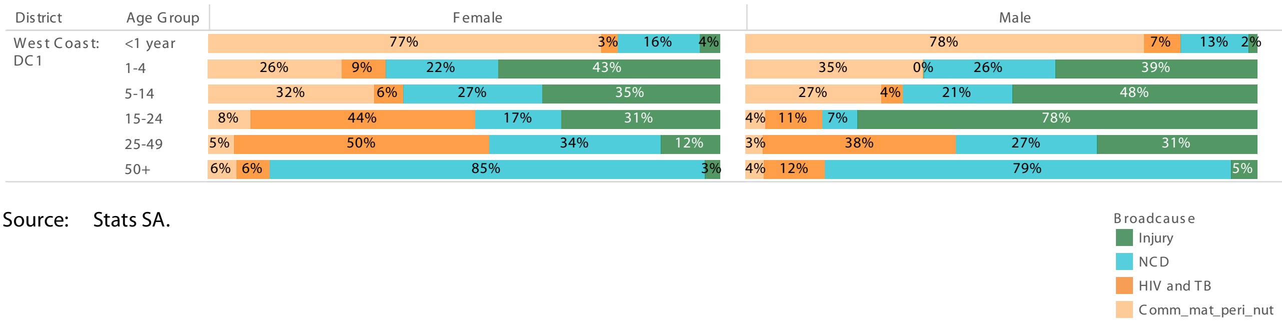
Population density (2018): 14.8 persons per km^2

Estimated medical scheme coverage (2018): 17.3%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

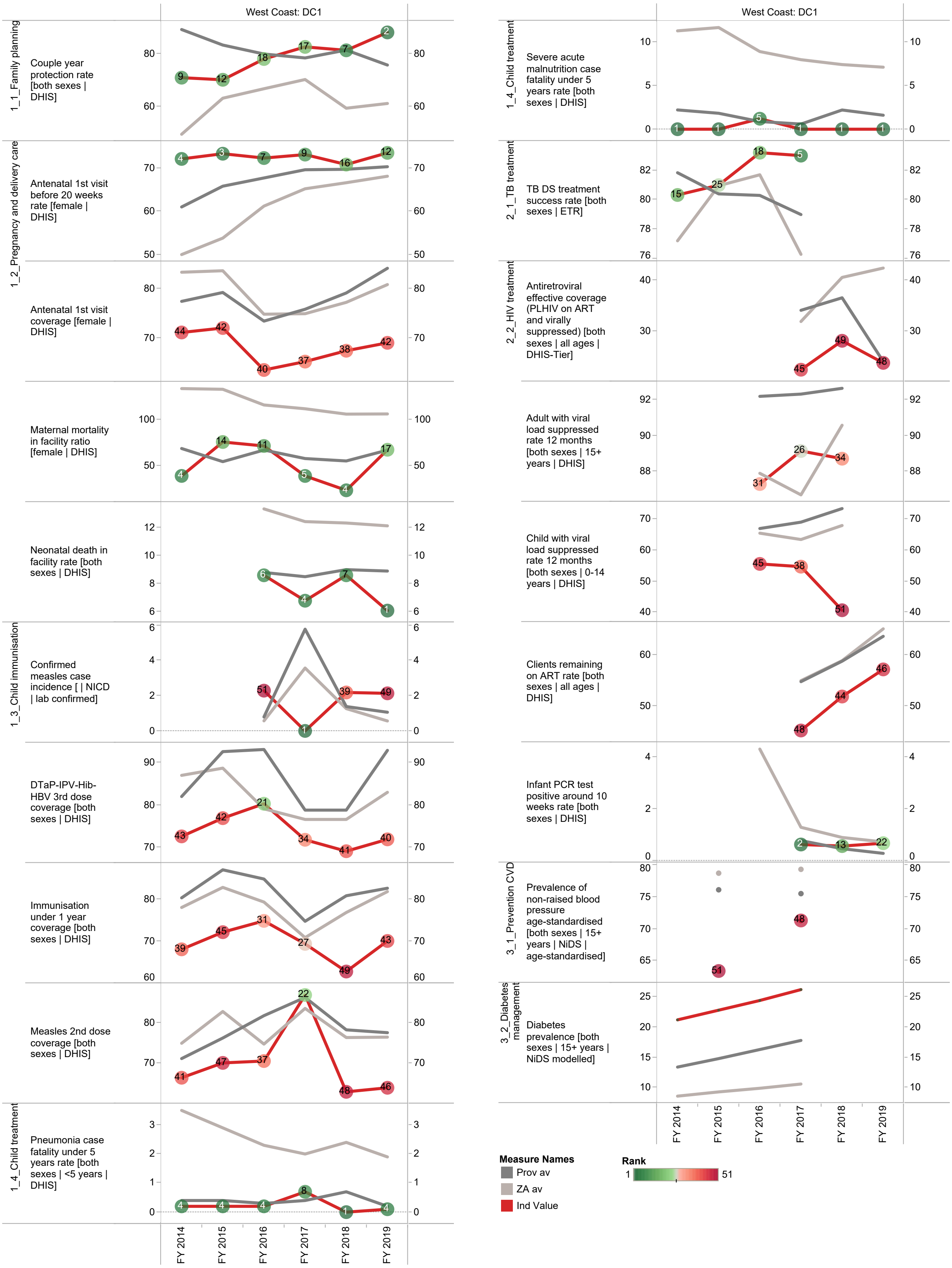


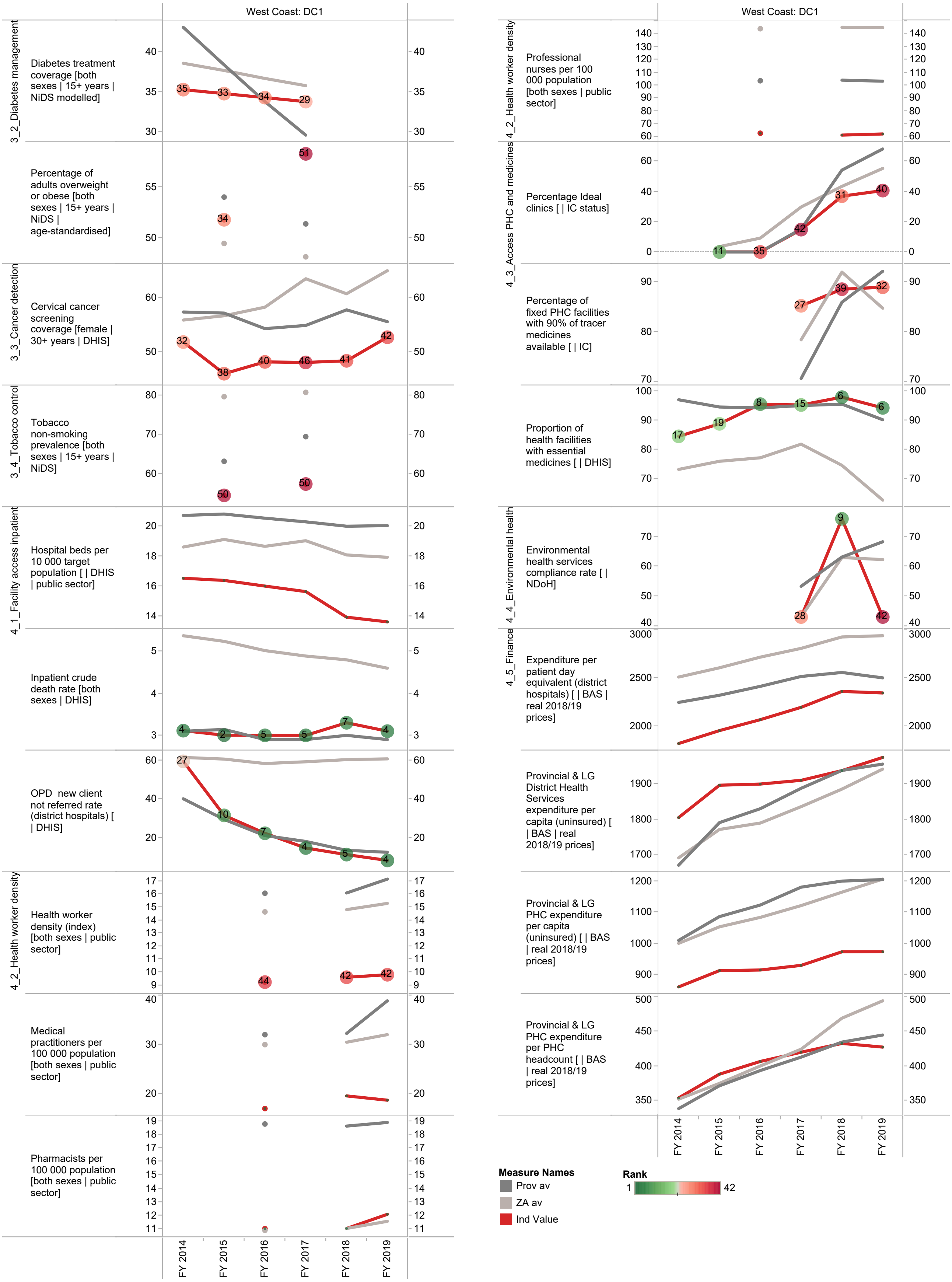
Source: Stats SA.

c The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

d Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




West Coast: DC1
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
42

Cape Winelands District Municipality (DC2)

The Cape Winelands District Municipality[e] is a Category C municipality situated in the Western Cape Province. The district includes five local municipalities, namely: Drakenstein, Stellenbosch, Witzenberg, Breede Valley and Langeberg.

Population (2018)[f]: 916 384

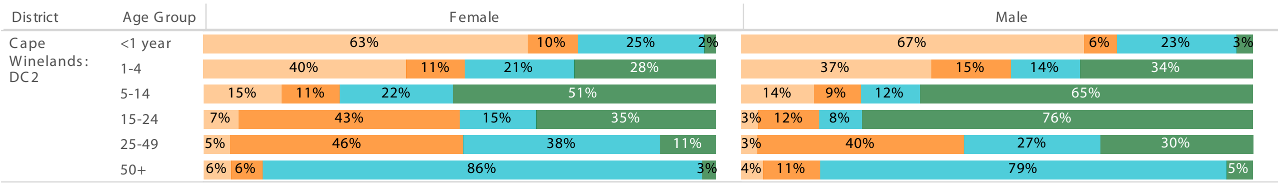
Population density (2018): 42.7 persons per km^2

Estimated medical scheme coverage (2018): 16.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

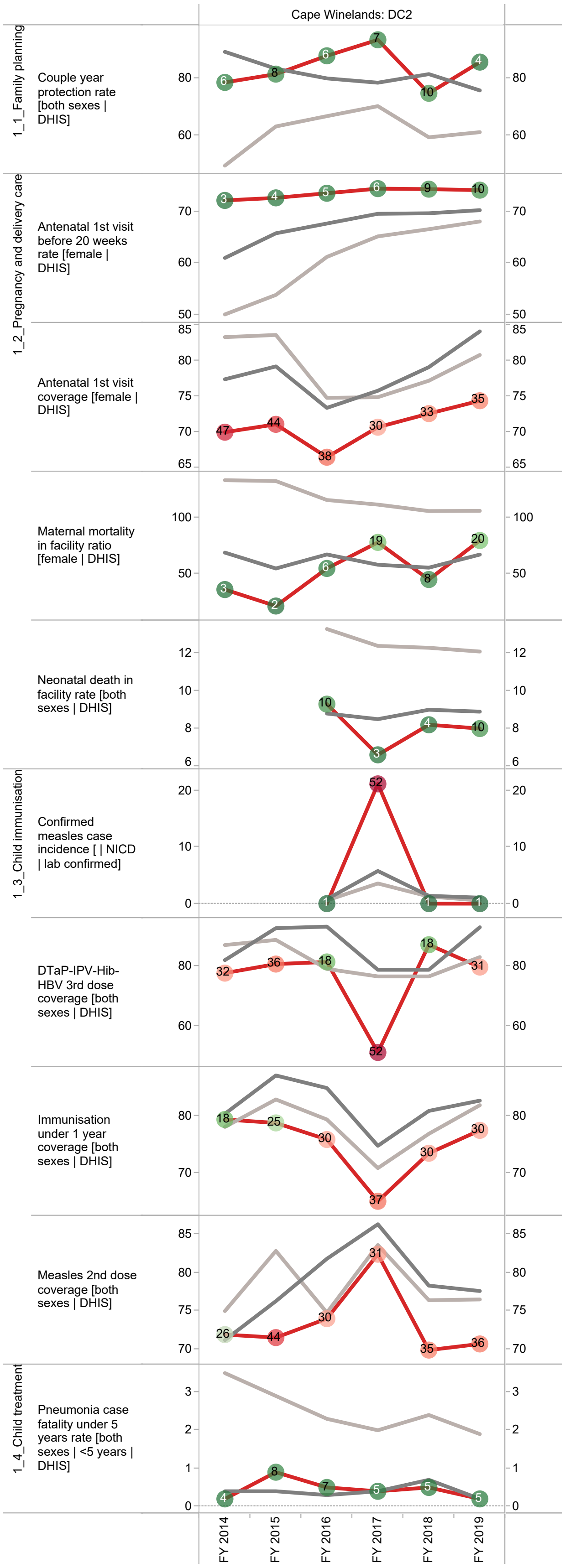


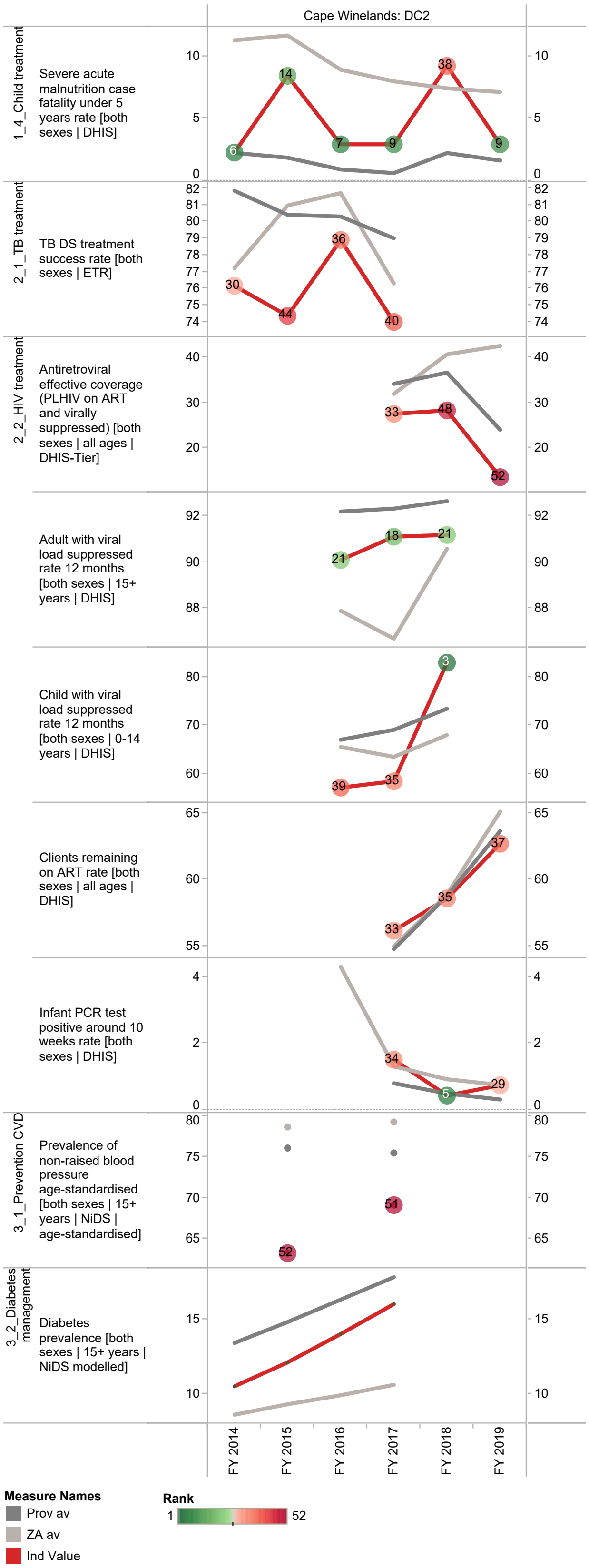
Source: Stats SA.

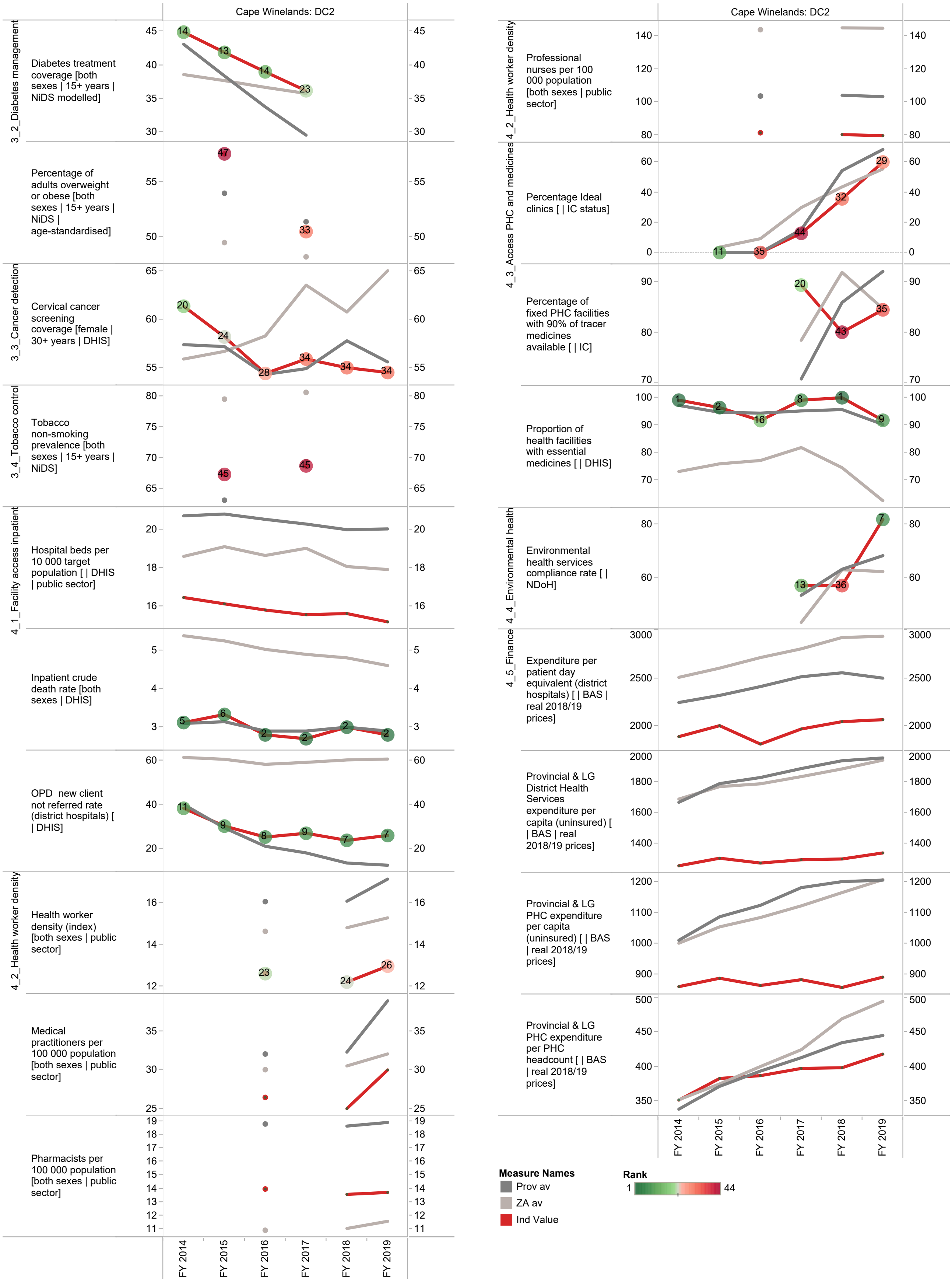
e The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

f Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19






Cape Winelands: DC2
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
Measure Names
Prov av
ZA av
Ind Value
Rank
1
44

Overberg District Municipality (DC3)

The Overberg District Municipality[g] is a Category C municipality situated in the Western Cape Province. The following local municipalities form part of the Overberg district: Theewaterskloof, Swellendam, Overstrand and Cape Agulhas.

Population (2018)[h]: 293 504

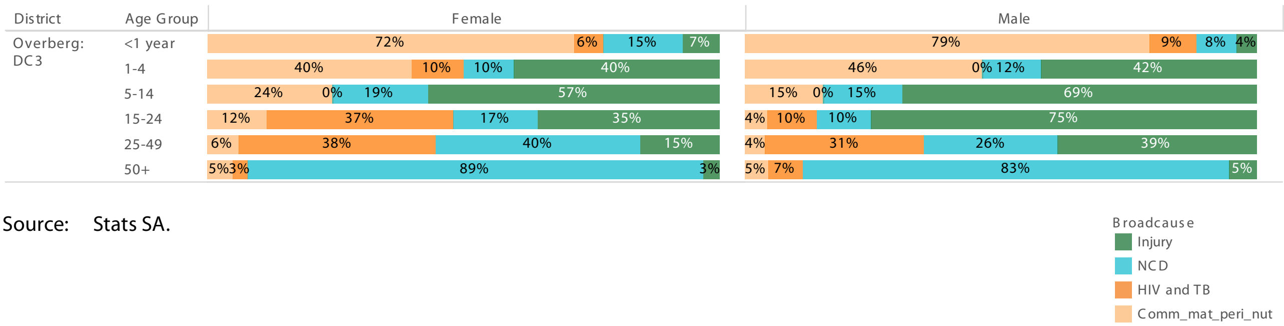
Population density (2018): 24.0 persons per km^2

Estimated medical scheme coverage (2018): 16.4%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

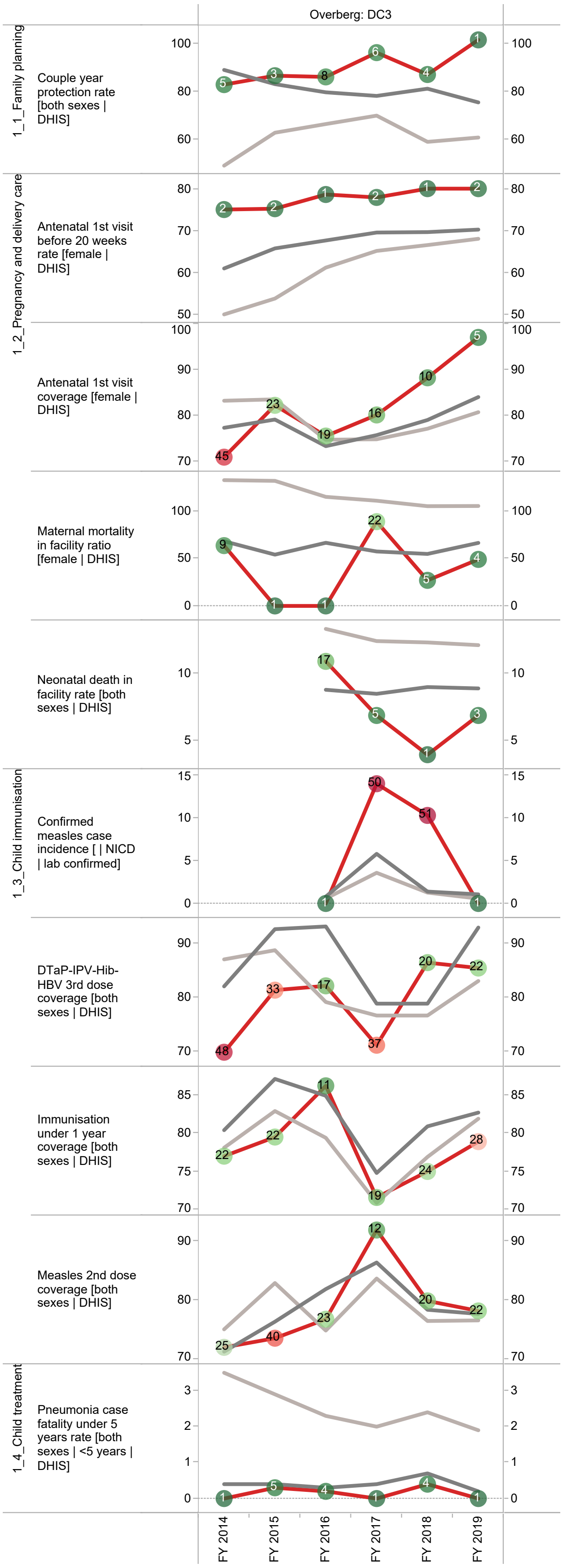


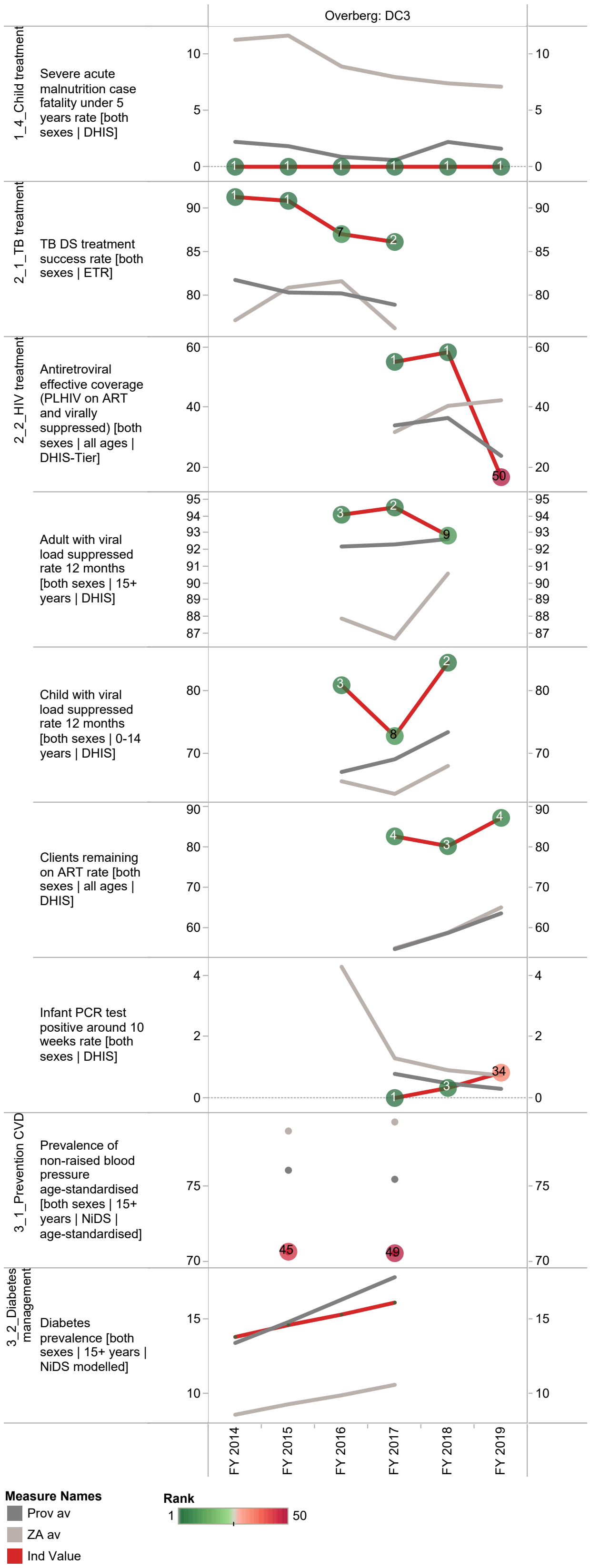
Source: Stats SA.

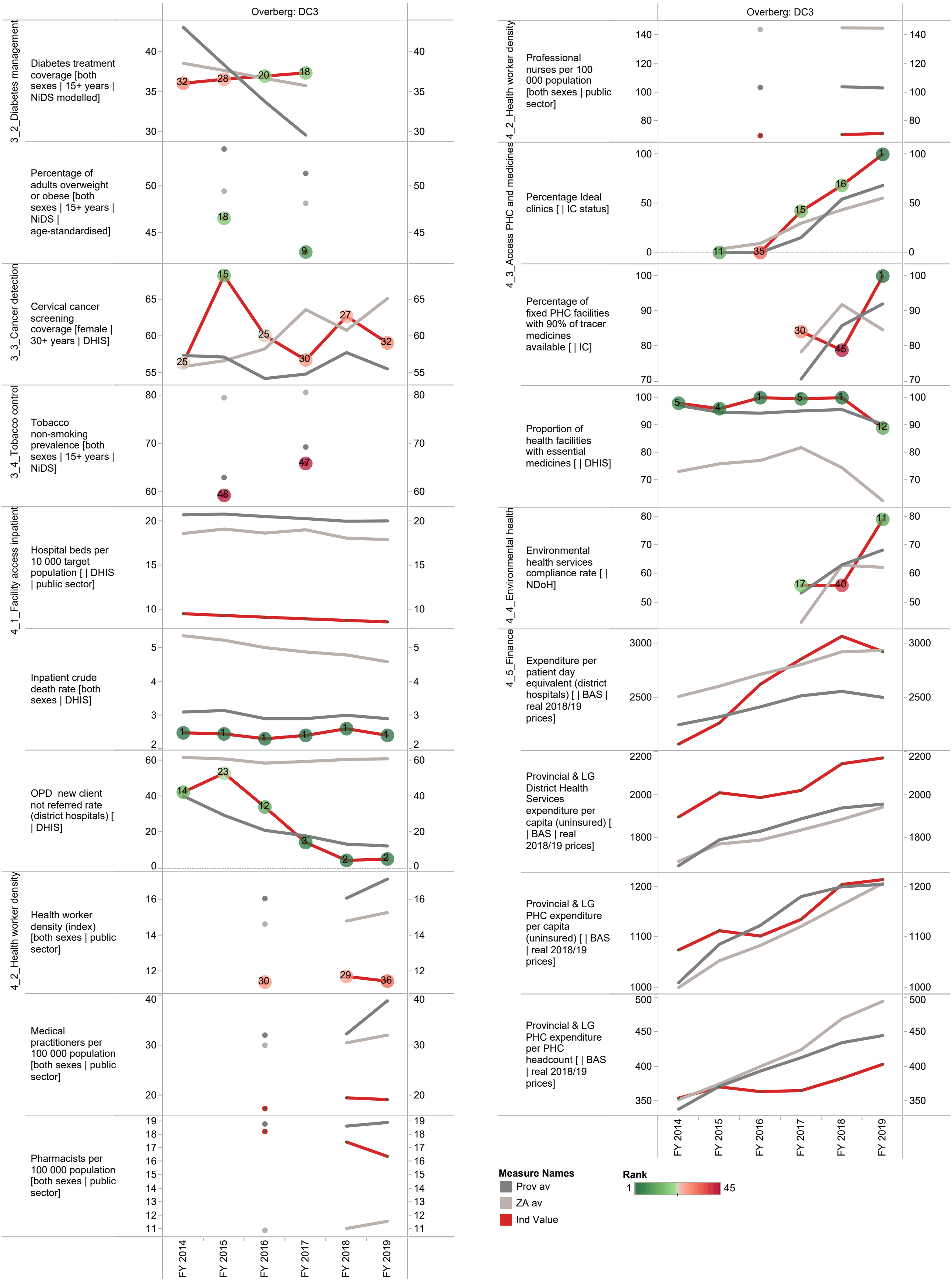
g The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

h Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19







Overberg: DC3
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
45

Garden Route District Municipality (DC4)

The Garden Route District Municipality[i] (previously known as Eden District Municipality) is a Category C municipality situated in the Western Cape Province. The district comprises seven local municipalities: George, Mossel Bay, Knysna, Bitou, Oudtshoorn, Hessequa and Kannaland.

Population (2018)[j]: 628 623

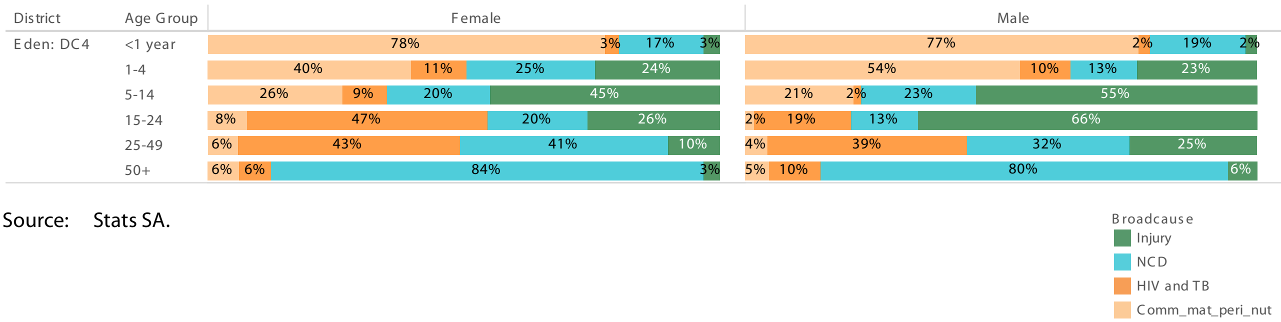
Population density (2018): 26.9 persons per km^2

Estimated medical scheme coverage (2018): 16.5%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

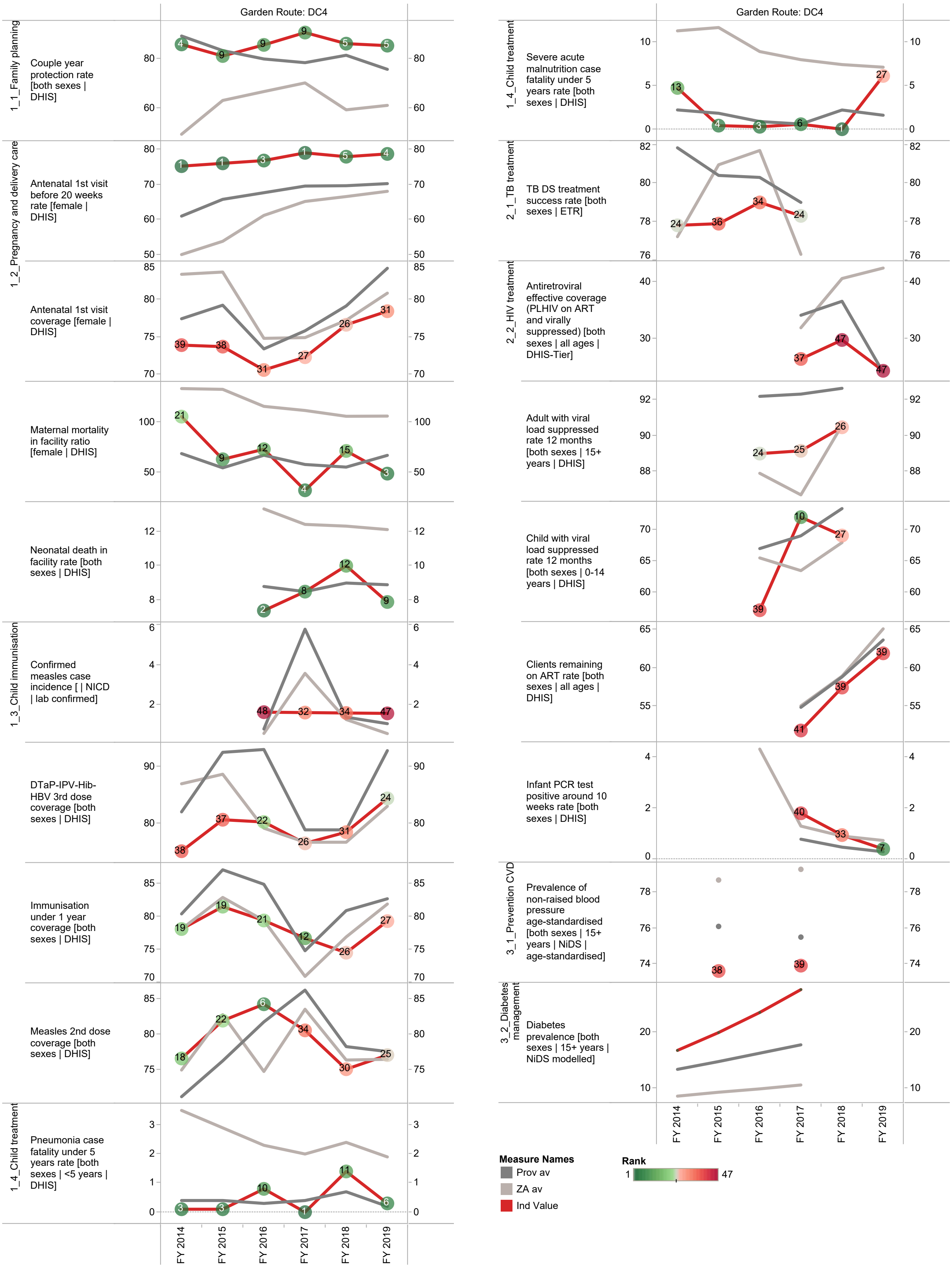


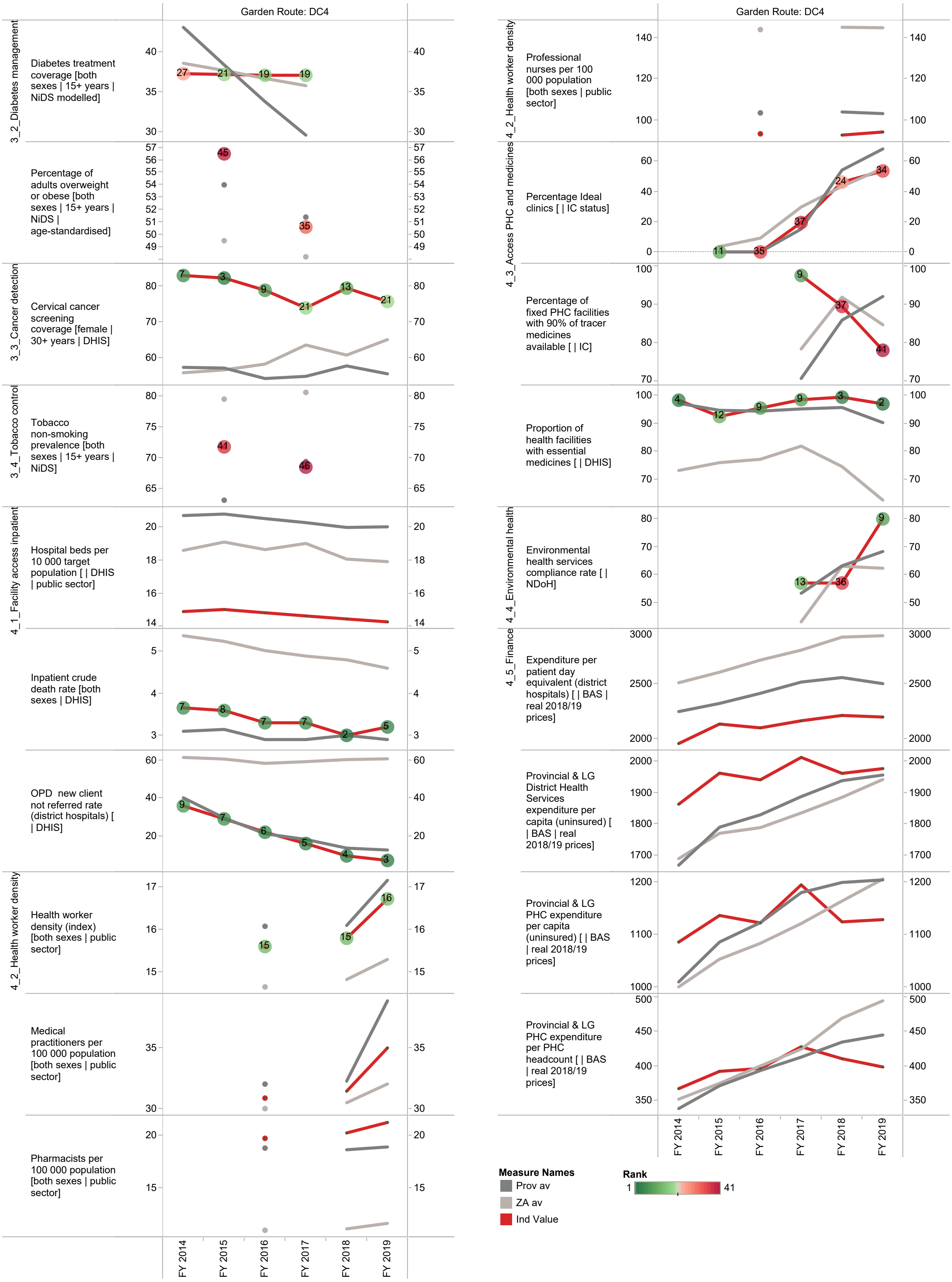
Source: Stats SA.

i The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

j Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Garden Route: DC4
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Garden Route: DC4
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
41

Central Karoo District Municipality (DC5)

The Central Karoo District Municipality[k] is a Category C municipality located in the Western Cape Province. It is comprised of three local municipalities: Laingsburg, Prince Albert and Beaufort West.

Population (2018)[l]: 76 821

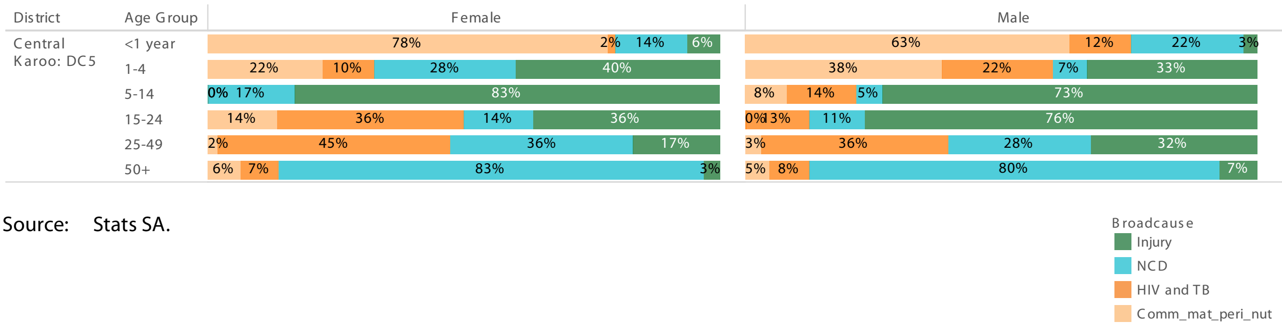
Population density (2018): 2.0 persons per km^2

Estimated medical scheme coverage (2018): 12.5%

Burden of disease profile

For the percentage of deaths by broad cause, deaths are classified into four groups, namely: (i) injuries; (ii) non-communicable diseases; (iii) HIV and TB; and (iv) communicable diseases together with maternal, perinatal and nutritional conditions. Data are given by gender and age group for the period 2013 - 2015.

Percentage of deaths by broad cause, 2013 - 2015

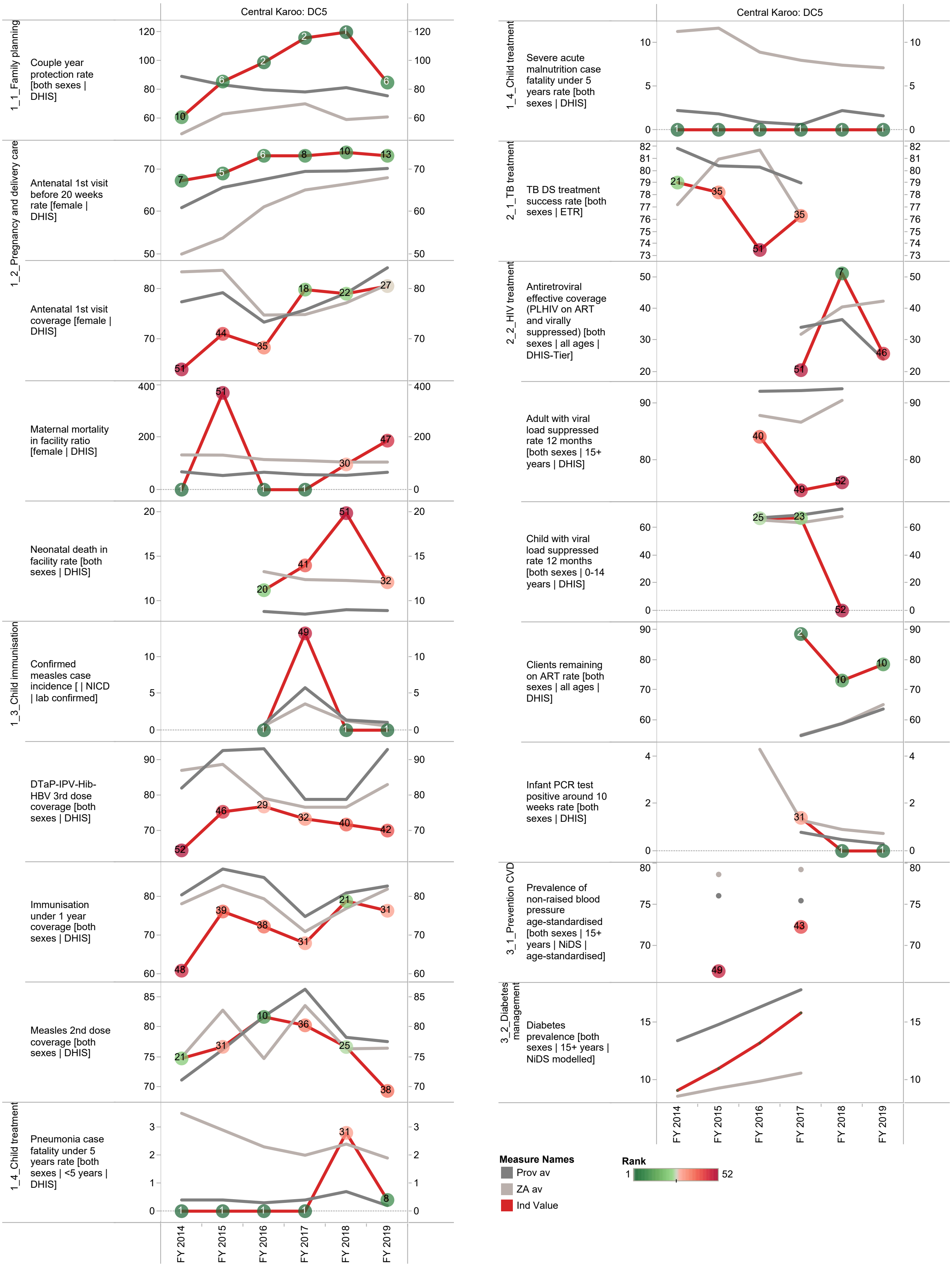


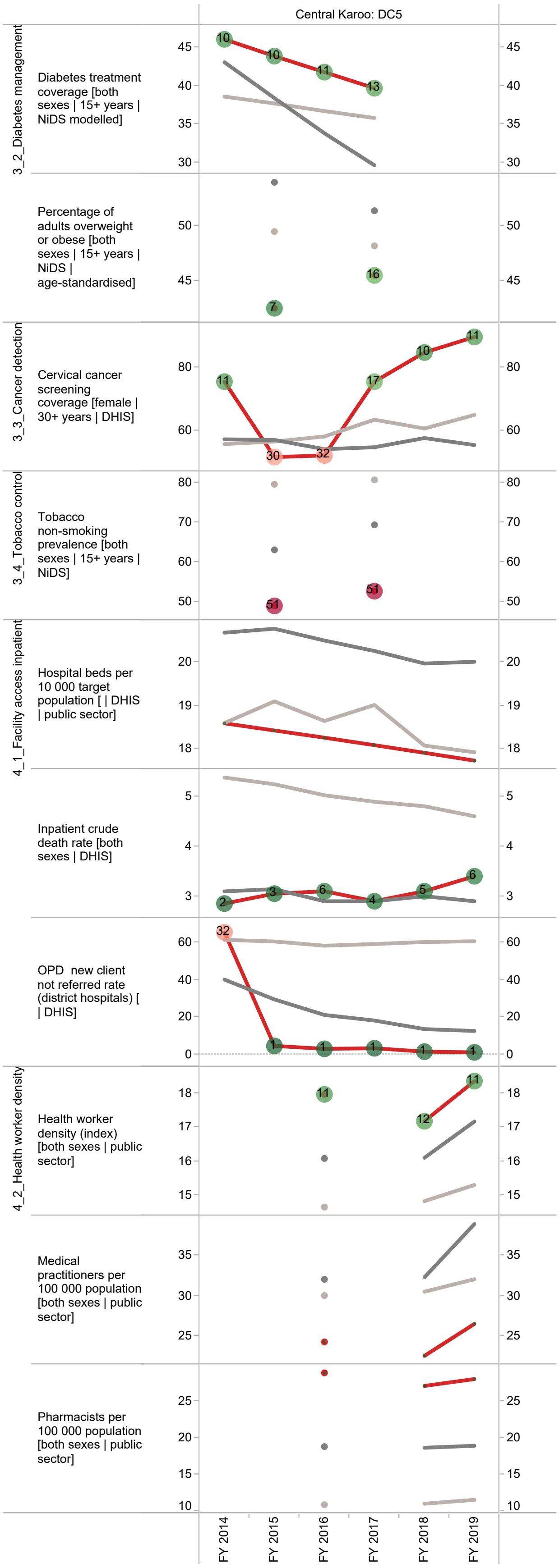
Source: Stats SA.

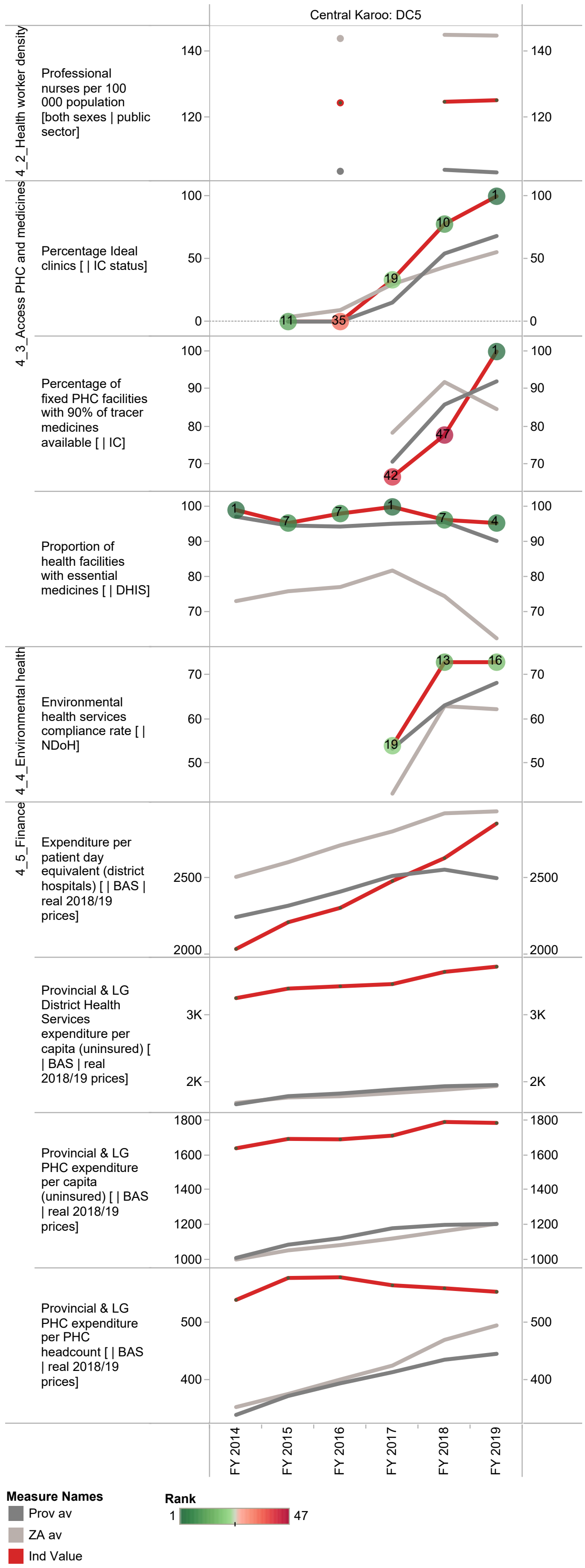
k The Local Government Handbook South Africa 2017. A complete guide to municipalities in South Africa. Seventh edition. Accessible at: www.municipalities.co.za.

l Mid-Year Population Estimates 2018, Stats SA.

Annual trends, 2013/14 - 2018/19




Central Karoo: DC5
3_2_Diabetes management
Diabetes treatment coverage [both sexes | 15+ years | NiDS modelled]
Percentage of adults overweight or obese [both sexes | 15+ years | NiDS | age-standardised]
3_3_Cancer detection
Cervical cancer screening coverage [female | 30+ years | DHIS]
3_4_Tobacco control
Tobacco non-smoking prevalence [both sexes | 15+ years | NiDS]
4_1_Facility access inpatient
Hospital beds per 10 000 target population [| DHIS | public sector]
Inpatient crude death rate [both sexes | DHIS]
OPD new client not referred rate (district hospitals) [| DHIS]
4_2_Health worker density
Health worker density (index) [both sexes | public sector]
Medical practitioners per 100 000 population [both sexes | public sector]
Pharmacists per 100 000 population [both sexes | public sector]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019


Central Karoo: DC5
4_2_Health worker density
Professional nurses per 100 000 population [both sexes | public sector]
4_3_Access PHC and medicines
Percentage Ideal clinics [| IC status]
Percentage of fixed PHC facilities with 90% of tracer medicines available [| IC]
Proportion of health facilities with essential medicines [| DHIS]
4_4_Environmental health
Environmental health services compliance rate [| NDoH]
4_5_Finance
Expenditure per patient day equivalent (district hospitals) [| BAS | real 2018/19 prices]
Provincial & LG District Health Services expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per capita (uninsured) [| BAS | real 2018/19 prices]
Provincial & LG PHC expenditure per PHC headcount [| BAS | real 2018/19 prices]
FY 2014
FY 2015
FY 2016
FY 2017
FY 2018
FY 2019
Measure Names
Prov av
ZA av
Ind Value
Rank
1
47

Definitions and sources (abbreviations given in footnote)

Group	Indicator	Description	Numerator	Denominator	Source
Deprivation	South African Index of Multiple Deprivation Rank (1 = most deprived)	Ranking for composite index of deprivation. Indicators cover the following domains: income and material deprivation, employment deprivation, education deprivation, and living environment deprivation			Southern African Social Policy Research Institute (SASPRI), based on data from Stats SA Census 2011
Maternal and neonatal	Antenatal 1st visit coverage	The proportion of potential antenatal clients coming for at least one (booking) antenatal visit. The census number of children under 1 year factorised by 1.15 is used as a proxy denominator – the extra 0.15 (15%) is a rough estimate to cater for late miscarriages (~10 to 26 weeks), still births (after 26 weeks' gestation) and infant mortality. Pregnant women are regarded as potential antenatal clients from around 10 weeks' gestation, i.e. spontaneous abortions before that as well as termination of pregnancy cases are excluded	Antenatal 1st visit - total	Estimated pregnant women ~10 weeks gestation	WebDHIS
	Antenatal 1st visits before 20 weeks rate	Women who have a booking visit (1st visit) before they are 20 weeks into their pregnancy as a proportion of all antenatal 1st visits	Antenatal 1st visits before 20 weeks	Antenatal 1st visits	WebDHIS
	Maternal mortality in facility ratio	Women who died in hospital as a result of childbearing, during pregnancy or within 42 days of delivery or termination of pregnancy, per 100 000 live births in facility	Maternal deaths in facility	Live births in facility	WebDHIS
	Inpatient neonatal death rate	Infants 0-28 days who died during their stay in the facility as a proportion of live births in facility	Neonatal 0-28 days death in facility	Live birth in facility	WebDHIS
Child health and nutrition	Pneumonia incidence	Children under 5 years newly diagnosed with pneumonia per 1 000 children under 5 years in the population	Pneumonia new in child under 5 years	Population under 5 years	WebDHIS
	Child under 5 years pneumonia case fatality rate	Proportion of children under 5 years admitted with pneumonia who died	Child under 5 years pneumonia death	Child under 5 years pneumonia admitted	WebDHIS
	Child under 5 years severe acute malnutrition case fatality rate	Proportion of children under 5 years admitted with severe acute malnutrition who died	Child under 5 years severe acute malnutrition death	Child under 5 years severe acute malnutrition admitted	WebDHIS
Immunisation	Measles 2nd dose coverage	Proportion of children 1 year (12-23 months) who received measles 2nd dose, normally at 18 months	Measles 2nd dose	Population 1 year	WebDHIS
	Confirmed measles case incidence	Number of laboratory-confirmed measles cases per million population	Laboratory-confirmed measles cases	Population - total	NDoH
	Immunisation coverage under 1 year	Percentage of all children in the target area under 1 year who complete their primary course of immunisation. A primary course includes BCG, OPV1, DTaP-IPV-Hib-HBV 1, 2 and 3, PCV 1, 2 and 3, RV 1 and 2, and measles 1	Children fully immunised under 1 year	Target population under 1 year	WebDHIS
	DTaP-IPV-Hib-HBV 3rd dose coverage	Children under 1 year who received DTaP-IPV-Hib-HBV 3rd dose, normally at 14 weeks, as a proportion of population under 1 year. Both Pentaxim and Hexavalent will form part of the numerator to ensure accurate coverage of historical data	DTaP-IPV/Hib (Pen) 3rd dose plus DTaP-IPV-Hib-HBV (Hex) 3rd dose	Population under 1 year	WebDHIS

Group	Indicator	Description	Numerator	Denominator	Source
Reproductive health	Couple year protection rate	Women protected against pregnancy by using modern contraceptive methods, including sterilisations, as proportion of female population 15-49 years. Contraceptive years are the total of (Oral pill cycles / 15) + (Medroxyprogesterone injection / 4) + (Norethisterone enanthate injection / 6) + (IUCD x 4.5) + (Sub-dermal implant x 2.5) + Male condoms distributed / 120) + (Female condoms distributed / 120) + (Male sterilisation x 10) + (Female sterilisation x 10)	Contraceptive years dispensed (including sterilisations)	Female target population 15-49 years	WebDHIS
	Contraceptive prevalence rate	Percentage of sexually active women of reproductive age who are currently using a modern method of contraception	Number of sexually active women aged 15-49 reporting current contraceptive use	Total population of sexually active women aged 15-49	SADHS
Tuberculosis	TB symptoms 5 years and older screened in facility rate	Children under 5 years screened for TB symptoms as a proportion of PHC headcount under 5 years	Child under 5 years screened for TB symptoms	PHC headcount under 5 years	WebDHIS
	TB sputum 5 years and older test rate	Clients 5 years and older screened for TB symptoms as a proportion of PHC headcount 5 years and older	Client 5 years and older screened for TB	PHC headcount 5 years and older	WebDHIS
	TB child under 5 years start on treatment rate	TB child under 5 years started on treatment as a proportion of all symptomatic children under 5 years	TB child under 5 years start on treatment	TB symptomatic child under 5 years	WebDHIS
	TB client 5 years and older start on treatment rate	TB client 5 years and older start on treatment as a proportion of TB symptomatic client 5 years and older test positive	TB client 5 years and older start on treatment	TB symptomatic client 5 years and older tested positive	WebDHIS
	TB drug-susceptible successful client treatment rate	Proportion of TB clients (all types of TB) cured plus those who completed treatment	TB client cured OR completed treatment	TB client initiated on treatment	NDoH TB Directorate
	TB drug-susceptible client loss to follow-up rate	TB clients who started drug-susceptible TB treatment and who subsequently became loss to follow-up as a proportion of all those in the treatment outcome cohort	All drug-susceptible TB loss to follow-up	All drug-susceptible TB patients in treatment outcome cohort	NDoH TB Directorate
	TB drug-susceptible client death rate	TB clients who started drug-susceptible TB treatment and who subsequently died as a proportion of all those in the treatment outcome cohort	All drug-susceptible TB client died	All drug-susceptible TB patients in treatment outcome cohort	NDoH TB Directorate
	TB multidrug-resistant treatment success rate	TB MDR client successfully completing treatment as a proportion of TB MDR-confirmed clients started on treatment	MDR client successfully complete treatment	TB MDR-confirmed client start on treatment	NDoH TB Directorate
	TB XDR treatment success rate	TB XDR clients successfully completing treatment as a proportion of TB XDR-confirmed clients started on treatment	TB XDR client successfully complete treatment	TB XDR-confirmed client start on treatment	NDoH TB Directorate
HIV/AIDS	Infant PCR test positive around 10 weeks rate	Infants tested PCR-positive for follow-up test as a proportion of infants PCR-tested around 10 weeks	Infant PCR test positive around 10 weeks	Infant PCR test around 10 weeks	WebDHIS
	Clients remaining on ART rate	Percentage of estimated people living with HIV who remain on ART	Total clients remaining on ART at end of the month	Estimated number of people living with HIV	NDoH TB Directorate
	Adult with viral load completion rate at 12 months	Proportion of adult clients still on treatment who had viral load test done at 12 months	ART adult client viral load done at 12 months	ART first-line regimen + ART second-line regimen at intervals at 12 months	WebDHIS
	Child with viral load completion rate at 12 months	Proportion of children still on treatment who had viral load test done at 12 months	ART child viral load done at 12 months	ART first-line regimen + ART second-line regimen at intervals at 12 months	WebDHIS
	Adult with viral load suppressed rate 12 months	Proportion of adult ART clients with viral load suppressed at 12 months	ART client viral load under 400 cps/mL at 12 months	ART viral load done (VLD) at 12 months	WebDHIS
	Child with viral load suppressed rate 12 months	Proportion of child ART clients with viral load suppressed at 12 months	ART client viral load under 400 cps/mL at 12 months	ART viral load done (VLD) at 12 months	WebDHIS

Group	Indicator	Description	Numerator	Denominator	Source
Non-communicable diseases	Cervical cancer screening coverage	Cervical smears in women 30 years and older as a proportion of 10% of the female population 30 years and older	Cervical cancer screening in women 30 years and older	10% of female target population 30 years and older	WebDHIS
	Mental disorders treatment rate new	Clients treated for mental disorders (depression, anxiety, dementia, psychosis, mania, suicide, developmental disorders, behavioural disorders and substance use) as a proportion of total PHC headcount	PHC client treated for mental disorders	PHC headcount - total	WebDHIS
	Mental health separation rate	Proportion of clients admitted for mental health problems. Inpatient separations is the total of inpatient discharges, inpatient deaths and inpatient transfers out	Mental health separations	Inpatient separations - total	WebDHIS
	Prevalence of non-raised blood pressure	Percentage of population 15 years and older with non-raised blood pressure, regardless of treatment status, age-standardised (Census 2011 population)	Number of people with normal blood pressure (SBP <140 and DBP <90 mmHg)	Adult population (15 years and older)	National Income Dynamics Study "modelled"
	Prevalence of obesity/ overweight	Percentage of adults (15+ years) who are either overweight or obese according to standard BMI cut-offs	-	-	National Income Dynamics Study "modelled"
	Prevalence of diabetes	Percentage of people with diabetes. Defined in SANHANES as those with HbA1c >6.5%	-	-	National Income Dynamics Study "modelled"
	Treatment coverage for diabetes	Percentage of people with diabetes receiving treatment	Number of people reporting treatment for diabetes	Estimated number of people with diabetes	National Income Dynamics Study "modelled"
PHC management	Percentage ideal clinics	Percentage of fixed PHC facilities assessed on the ideal clinic dashboard that achieved Ideal Clinic status (silver, gold, platinum or diamond status)	Number of fixed PHC facilities achieving silver, gold, platinum or diamond status on the ideal clinic dashboard	Fixed clinics plus fixed CHCs/ CDCs	WebDHIS, Ideal Clinic review tools
	Percentage of fixed PHC facilities with 90% of tracer medicines available	Percentage of PHC facilities, out of all facilities that have conducted a status determination, with 90% of the tracer medicines available	Number of fixed PHC facilities with 90% of the tracer medicines available	Number of PHC facilities that conducted a status determination	Ideal Clinic review tools
	Tracer items stock-out rate (fixed clinic/CHC/CDC)	The proportion of all fixed clinics, CHCs and CDCs that had stock-out of any tracer item for any period as a proportion of fixed clinics plus fixed CHCs/CDCs	Any tracer item drug stock-out (clinic/CHC/CDC)	Fixed clinics plus fixed CHCs/ CDCs	WebDHIS
	Proportion of health facilities with essential medicines by district	Proportion of health facilities with availability of the WHO-recommended core list of essential medicines	-	-	WebDHIS
	PHC utilisation rate	The rate at which PHC services are utilised by clients of all ages in the catchment population, represented as the average number of PHC visits per client per year in the target population. The denominator is usually Census-derived population	Total PHC headcount	Total population	WebDHIS
	PHC under 5 years utilisation rate	The rate at which PHC services are utilised by clients under 5 years of age in the catchment population, represented as the average number of PHC visits per client per year in the target population. The denominator is usually Census-derived population	PHC headcount under 5 years	Population under 5 years	WebDHIS

Group	Indicator	Description	Numerator	Denominator	Source
Inpatient management	Average length of stay	Average number of patient days that an admitted patient spends in hospital before separation	Inpatient days + 1/2 day patients	Separations = Discharges (including day patients) + Deaths + Transfers out	WebDHIS
	Inpatient bed utilisation rate	Number of patient days during the reporting period, expressed as a percentage of the sum of the daily number of useable beds. (Comment: The calculation here is an approximation. It assumes: (1) a day patient occupies a bed for half a day, (2) there are always 30 days in a month	Total patient days = (Inpatient days + 1/2 day patients) x 100	Total usable bed days = (Inpatient beds - total) x 30.42	WebDHIS
	Patient day equivalent	Weighted data element as proxy for estimating resources for all types of patients in terms of inpatient days	The sum of inpatient days total x 1, day patient total x 0.5, and OPD/ emergency total headcount x 0.33	-	WebDHIS
	OPD new client not referred rate (district hospitals)	Proportion of new OPD clients without a referral letter	OPD headcount not referred new	OPD new clients total	WebDHIS
	Inpatient crude death rate	Proportion of admitted clients/separations who died during hospital stay	Inpatient deaths - total	Separations = Discharges (including day patients) + Deaths + Transfers out	WebDHIS
	Hospital beds per 10 000 target population	Number of inpatient beds per 10 000 target population. For public sector beds, the uninsured population is used as the target	Inpatient beds	Uninsured population (total population less medical scheme coverage x population)	WebDHIS
Environmental health	Environmental health services compliance rate	The compliance of a municipality with national environmental health norms and standards in rendering environmental health services. The compliance is determined by assessing the municipality against elements in the audit tool and providing a subsequent score	Number of audited elements achieved	Number of audited elements	EHS database
	Port health services compliance rate	The compliance is determined by assessing the point of entry against elements in the audit tool and providing a subsequent score	Number of audited elements achieved	Number of audited elements	EHS database
Finance	Provincial and Local Government expenditure on District Health Services per capita (uninsured)	Total amount spent on PHC (DHS) per person without medical scheme coverage	Provincial expenditure on DHS (excluding 2.8 Coroner) plus net LG expenditure on PHC	Uninsured population (total population less medical scheme coverage x population)	BAS, Treasury data on LG expenditure, WebDHIS population and GHS modelled for medical scheme coverage
	Provincial PHC expenditure per capita (uninsured)	Total amount spent on non-hospital PHC health services per person without medical scheme coverage	Provincial expenditure on PR2.2-2.7 of DHS + net LG expenditure	Uninsured population (total population less medical scheme coverage x population)	BAS, Treasury data on LG expenditure, WebDHIS population and GHS modelled for medical scheme coverage
	Provincial expenditure per PHC headcount	Total amount spent on non-hospital PHC health services per headcount	Provincial expenditure on PR2.2-2.7 of DHS + net LG expenditure	Total PHC headcount	BAS, WebDHIS (PHC headcount)
	Expenditure per Patient Day Equivalent	Average cost per patient per day seen in a hospital (expressed as Rand per PDE)	Total expenditure on health per hospital	PDE total	BAS, WebDHIS (PDE)

Group	Indicator	Description	Numerator	Denominator	Source
Human resources	Medical practitioners per 100 000 uninsured population	Ratio of the number of medical practitioners (doctors) to the population (per 100 000). Note that the measure of the number of personnel may differ for the public and private sectors and also that the population may be adjusted to be the population assumed to be dependent on that sector	Medical practitioners registered to practice, total number	Uninsured population (total population less medical scheme coverage x population)	Persal, WebDHIS population and GHS modelled estimates of medical scheme coverage
	Professional nurses per 100 000 uninsured population	Ratio of the number of professional nurses to the population (per 100 000). Note that the measure of the number of personnel may differ for the public and private sectors and also that the population may be adjusted to be the population assumed to be dependent on that sector	Professional nurses registered to practice, total number	Uninsured population (total population less medical scheme coverage x population)	Persal, WebDHIS population and GHS modelled estimates of medical scheme coverage
	Pharmacists per 100 000 uninsured population	Ratio of the number of pharmacists to the population (per 100 000). Note that the measure of the number of personnel may differ for the public and private sectors and also that the population may be adjusted to be the population assumed to be dependent on that sector	Pharmacists registered to practice, total number	Uninsured population (total population less medical scheme coverage x population)	Persal, WebDHIS population and GHS modelled estimates of medical scheme coverage
Extra	Health worker density (index)	An indicator based on SDG indicator 3.c.1 with a modified scaling approach as described by Lozano et al. 2018. Medical practitioners, professional nurses and pharmacists per uninsured population were rescaled from 0-100 against thresholds of 30, 100 and 5 per 10 000. The index was calculated as the geometric mean of the 3 scaled scores	-	-	Persal, WebDHIS population, GHS modelled estimates of medical scheme coverage
	Medical scheme coverage (average)	Percentage of population who have medical scheme insurance	Number of medical scheme beneficiaries	Total population	GHS modelled estimates of medical scheme coverage

AIDS = acquired immune deficiency syndrome; ART = antiretroviral therapy; BAS = National Treasury Basic Accounting System; BCG = Bacille Calmette-Guerin; BP = blood pressure; CDC = community day centre; CHC = community health centre; DHIS = District Health Information Software; DHS = District Health Services; DTaP-IPV-Hib-HBV = diphtheria, tetanus, and pertussis; inactivated polio vaccine; Haemophilus influenzae type B; hepatitis B vaccine; GHS = General Household Survey; HIV = human immunodeficiency virus; LG = local government; MDR= multidrug-resistant; NCDs = non-communicable diseases; NDoH = National Department of Health; OPD = outpatient department; OPV = oral polio vaccine; PCR = polymerase chain reaction; PCV = pneumococcal conjugate vaccine; PDE = patient day equivalent; PHC = primary health care; PR = programme; RV = rotavirus vaccine; SADHS = South Africa Demographic and Health Survey; SANHANES = South African National Health and Nutrition Examination Survey; Stats SA = Statistics South Africa; TB = tuberculosis; WHO = World Health Organization; XDR = extremely drug-resistant.

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