



2022

NATIONAL HEALTH RESEARCH SUMMIT REPORT



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2022 National Health Research Summit Report

Research for Health towards Universal Health Coverage (UHC)

Proceedings and recommendations of the 2022 National Research for Health Summit that took place on 22 to 23 November 2022, The Lakes Hotel, Benoni, Ekurhuleni, Gauteng, South Africa.

Compiled by the National Health Research Committee (NHRC), comprising: Mahmood Ally (Interim Chairperson); Anthony Hawkrige; Panjarasaam Naidoo; Heidi Abrahamse; Gaudina Loots; Angela Mathee; Taryn Young; Nico Gey van Pittius; Joyce Tsoka-Gwegweni; Christo Heunis; Mushi Matjila; Moses Mbewe; Mapitso Molefe and Gail Andrews.

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Contents

Acronyms	4
Abstract	7
Executive summary	7
Rationale	7
Aims and objectives	8
Methods	8
1. Background to the 2022 National Health Research Summit	11
1.2 The National Health Research Committee (NHRC) and its mandate	12
2. Previous National Health Research Summits	12
2.1 2011 Summit	12
2.2 2018 Summit	13
3. Proceedings of the 2022 summit	13
3.1 Rationale for the 2022 National Research for Health Summit	13
3.2 Aim of the 2022 National Research for Health Summit	14
3.3 Objectives of the 2022 National Research for Health Summit	14
4. Session 1: Opening session	16
4.1.1 Nomantu Nkomo-Ralehoko: Gauteng Member of the Executive Committee (MEC) for Health and Wellness	16
4.1.2 Dr Rajesh Narwal: WHO Representative	16
4.1.3 Dr Sandile Buthelezi: Director-General of Health	16
4.2 Session 2	16
4.2.1 Prof Rudo Mathivha (University of the Witwatersrand and Ministerial Advisory Committee on COVID-19)	17
4.2.2 Prof Shital Silal (University of Cape Town)	18
4.2.3 Prof Glenda Gray (SAMRC)	18
4.3 Session 3	19
4.3.1 Prof Andre Kenge (SAMRC)	19
4.3.2 Prof Adrian Puren (National Institute of Communicable Diseases and National Health Laboratory Services)	19
4.3.3 Prof Sue Fawcus (University of Cape Town)	19
4.3.4 Dr Neil McKerrow (University of KwaZulu-Natal and KwaZulu-Natal Department of Health)	20
4.3.5 Prof Ashley van Niekerk (University of South Africa)	20
4.3.6 Dr Aquina Thulare (National Department of Health)	21
4.3.7 Further questions, inputs and comments from delegates	22
4.4 Session 4	22
4.4.1 Prof Helen Schneider (University of the Western Cape)	22
4.4.2 Prof Mathilda Mokgatle (Sefako Makgatho Health Sciences University)	22
4.4.3 Dr Fareed Abdullah (SAMRC and University of Pretoria)	23
4.4.4 Prof Heidi van Rooyen (Human Sciences Research Council)	23
4.4.5 Further questions, inputs and comments from delegates	23
4.5 Session 5	24
4.5.1 Dr Michelle Mulder (SAMRC)	24
4.5.2 Prof Mamello Sekhoacha (Chairperson: NHREC and University of the Free State)	25
4.5.3 Thulile Zondi (National Department of Health)	26
4.5.4 Dr Michael McCaul (Stellenbosch University)	27

4.5.5 Prof Anne von Gottberg (University of the Witwatersrand and National Institute of Communicable Diseases).....	27
4.5.6 Further questions, inputs and comments from delegates	27
5. Closing session.....	28
6. Closure	29
7. Recommendations of the 2022 Summit	29
8. Conclusion and way forward	30
9. Acknowledgements.....	30
10. References	31

Acronyms

4IR	Fourth Industrial Revolution
AFRO	African Region
AI	Artificial Intelligence
BMGF	Bill and Melinda Gates Foundation
BMI	Body Mass Index
CDC	Centers for Disease Control
CHW	Community Health Worker
COPC	Community Orientated Primary Healthcare
COVID-19	Coronavirus disease 2019, the disease caused by the novel coronavirus (SARS-CoV-2)
CSI	Corporate Social Investment
CUPS	Contracting Unit for Primary Healthcare Services
DALY	Disability Adjusted Life-Year
DATCOV	Daily Hospital Surveillance
DHS	District Health System
EDCTP	European and Developing Country Clinical Trials Partnership
EU	European Union
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
GSK	Glaxo Smith Kline
HE	Health Establishment
HEI	Higher Education Institution
HPCSA	Health Professions Council of South Africa
HRH	Human Resources for Health
HSRC	Human Sciences Research Council
HUTS	Health Utilisation and Seroprevalence Survey
iAHO	integrated African Health Observatory
ICU	Intensive Care Unit
KT	Knowledge Translation
MAC	Ministerial Advisory Committee
M and E	Monitoring and Evaluation
MEC	Member of the Executive Committee
mHealth	Mobile Health
MMC	Member of the Municipal Council
MMR	Maternal Mortality Rate
MTA	Material Transfer Agreement
MTSF	Medium Term Strategic Framework
NAPHISA	National Public Health Institute of South Africa
NCCEMD	National Confidential Enquiry into Maternal Deaths
NCD	Non-Communicable Disease
NCEM	National COVID-19 Epi Model
NDoH	National Department of Health
NDP	National Development Plan
NGO	Non-Governmental Organisation
NHIRD	National Health Information Repository and Data warehouse
NHISSA	National Health Information System of South Africa
NHI	National Health Insurance
NHLS	National Health Laboratory Service
NHO	National Health Observatory
NHRC	National Health Research Committee
NHRD	National Health Research Database

NHREC	National Health Research Ethics Committee
NHRS	National Health Research System
NHO	National Health Observatory
NIAID	National Institute of Allergy and Infectious Diseases
NICD	National Institute of Communicable Diseases
NIH	National Institutes of Health (USA)
NMC	Notifiable Medical Condition
NPRI	Non-Pregnancy Related Infections
NRF	National Research Foundation
NSP	National Strategic Plan
OHSC	Office of Health Standards Compliance
pa	Per Annum
PES	Provincial Equitable Share
PHC	Primary Healthcare
PHRC	Provincial Health Research Committee
POPIA	Protection of Personal Information Act, 2013
PPE	Personal Protective Equipment
PPP	Public-Private Partnership
R and D	Research and Development
R and I	Research and Innovation
REC	Research Ethics Committee
RSV	Respiratory Syncytial Virus
SACMC	South African COVID-19 Modelling Consortium
SADC	Southern African Development Community
SADHS	South African Demographic and Health Survey
SAMRC	South African Medical Research Council
SAPRIN	South African Population Research Infrastructure Network
SDG	Sustainable Development Goal
SIDS	Sudden Infant Death Syndrome
SMU	Sefako Makgatho Health Sciences University
SRHR	Sexual and Reproductive Health Rights
SU	Stellenbosch University
TB	Tuberculosis
TOP	Termination of Pregnancy
UCT	University of Cape Town
UFS	University of the Free State
UHC	Universal Health Coverage
UK	United Kingdom
USA	United States of America
USAID	United States Agency for International Development
UWC	University of the Western Cape
VIP	Violence and Injury Prevention
VOC	Variant of Concern
VOI	Variant of Interest
WHO	World Health Organization
WOGA	Whole of Government Approach
WOSA	Whole of Society Approach

Abstract

The National Health Research Committee (NHRC) (2019 – 2022) hosted a National Research for Health Summit in November 2022 in Gauteng. The aim of the 2022 Summit was to review the country's National Health Research System (NHRS); evaluate lessons learned from COVID-19; as well as assess progress related to finances, human and infrastructural resources, priority-setting, monitoring and evaluation (M and E) for research for health, including research translation and ethical frameworks. The 2022 Summit was attended by more than 220 delegates representing various stakeholders for research for health, including health research councils, higher education institutions (HEIs), the national and provincial Departments of Health, statutory research councils and committees, pharmaceutical industry, and members of civil society - to name a few. Following presentations from established leaders representing the breadth of the stakeholder platform, and extensive deliberations amongst the delegates, findings and recommendations were made that:

- a. scientific research, the fourth industrial revolution and digital health are paramount for addressing health system shocks and future pandemic preparedness
- b. health system reforms (including primary healthcare re-engineering and the National Health Insurance (NHI)) towards Universal Health Coverage (UHC) are to be informed by robust research and scientific evidence
- c. COVID-19 has highlighted and inspired the value and contribution of science and innovation
- d. conventional and unconventional (e.g., with mobile networks and waste water services) collaborative partnerships were necessary for strengthening current and future research for health
- e. research priorities for health emergencies should include epidemiological, social and behavioral research, particularly for pandemic preparedness
- f. novel cost-effective health technologies, innovations and evidence-based research should inform policy and practice and should be key components of health system reform
- g. the COVID-19 pandemic emphasised the critical need for investments in genomic surveillance platforms, modelling systems and manufacturing capacity for diagnostics, therapeutics and vaccines
- h. research on the epidemiology, psychological and social impact of a pandemic as well as human behavioral aspects impacting health is lacking
- i. COVID-19 had direct and indirect impacts on the quadruple burden of disease, in particular maternal mortality, under-five-year mortality, non-communicable disease (NCD), as well as gender-based violence
- j. Government investment in research for health remains below previously set national and international targets and novel funding mechanisms and collaboration, including those from the private sector and industry, bespoke funding streams with current international funders, should be explored

Executive summary

Rationale

As set out in Section 69(3) of the National Health Act, 2003 (Act 61 of 2003), one of the key mandates of the NHRC is the regular review of the country's research priorities along with revision of research for health policy and strategy, in line with national plans such as the National Development Plan 2030 (NDP), as well as strategic frameworks such as the Medium Term Strategic Framework (MTSF 2019-2024) and aligned with international vision and guidance such as the Sustainable Development Goals (SDGs). The NHRC utilises its National Research for Health Summits, as critical stakeholder consultative forums and platforms to achieve its mandate. The NHRC (2019-2022) served in the context of one of the most challenging and devastating infectious catastrophes in human history, the coronavirus (COVID-19) pandemic. It was therefore fundamental that the 2022 National Research for Health Summit focused on the impact of the pandemic on the burden of disease and health system, as well as embrace learnings from the pandemic that will advance research and inform health system strengthening and resilience towards future infectious threats and UHC. Critically, the NHRC served at a time of intense focus on health system reform and financing mechanisms towards fortification of district, sub-district and community-based healthcare aimed at the attainment of UHC. The 2022 Summit was therefore appropriately themed "Research for Health – towards Universal Health Coverage".

Aims and objectives

The aim of the 2022 Summit was to cultivate stakeholder discussions on the impact of COVID-19 on health, research for health and health systems, as well as evaluating progress made in aligning the country's research and health status to critical international and national aspirations and strategic goals, including SDG 3 on health and wellness, the NDP 2030, the Presidential Health Compact 2018, the MTSF (2019 – 2024) and the National Department of Health Strategic Plan (2020/2021 – 2024/2025). Additionally, the 2022 Summit aimed to:

- review the status of country's Health Research System
- appraise the lessons learned from the pandemic response – including the role played by science
- evaluate progress and inspire future direction within key strategic pillars of the NHRS (e.g. financing, resources (human and infrastructural), priority-setting, M and E, research translation and ethical frameworks) and focused portfolios within the NHRC

Methods

During the organisation of the 2022 Summit, the NHRC extended invitations to vital stakeholders involved in health and research for health including, members representing the national and provincial health departments, research councils, academic institutions, statutory councils, international developmental agencies, the World Health Organization (WHO), pharmaceutical industry, metropolitan municipalities, non-governmental and civic organisations and members of civil society. The 2022 Summit was held on 22 and 23 November 2022 at The Lakes Hotel in Benoni, Gauteng. Members of the NHRC were delegated as chairpersons and rapporteurs of sessions under the following overarching themes:

- Role of South African Science in Response to COVID-19
- Burden of Disease and Research Priorities Inclusive of Impact on COVID-19
- Key Health Policy and Systems Research
- National Health Research Pillars
- Summary of the Proceedings of the 2022 Summit considering Previous Summit Recommendations

All the information from session rapporteurs and scribes was collated and consolidated into the Summit Report.

Key findings:

- Scientific research (with the embracement of advances in technology, digital health and fourth industrial revolution (4IR)) is a critical tool in mitigating against current and future healthcare challenges, including pandemics.
- The implementation of UHC should be supported by robust scientific evidence.
- The NHI as a financing mechanism will, through solidarity and cross subsidisation, ensure that the most vulnerable and marginalised members of our society can access quality healthcare.
- The COVID-19 pandemic has underscored the importance of research in health, including the critical role of science and innovation in development of vaccines, therapeutics as well as genomic and epidemiological surveillance.
- The collaborative partnerships as demonstrated during the pandemic - including the WHO, local and global funders, universities, private health facilities (including public-private partnerships), mobile companies, civil society, and research communities - should be strengthened to advance research going forward.
- Research priorities for health emergencies should, inter alia, include epidemiological research, research on social and behavioral aspects and health system readiness research.
- The country requires scientific research to generate novel cost-effective health technologies, and evidence-based research to evaluate the impact of policies, interventions and practices on healthcare improvements and outcomes.
- During the pandemic the objectives of SARS CoV-2 genomic surveillance were to detect, monitor and investigate virus variants, to support epidemiological and genomic virological characterisation of variants, to obtain timely and accurate information on the emergence and circulation of variants of concern (VOCs) and variants of interest (VOIs) and to develop robust surveillance systems. The discovery of the omicron variant has highlighted amongst others, the need for national (population-based) surveillance for sequencing, to inform current and long-term strategy, and for planning for future public health challenges and infectious threats. There is an opportunity to utilise and repurpose sentinel genomic surveillance platforms for SARS CoV-2, for Respiratory Syncytial Virus (RSV), Bordetella pertussis, Group B Streptococcus and Influenza genomic epidemiology to comprehend disease trends and inform vaccine development. The country needs to build its sequencing and bioinformatics resources and capacity to prepare for the next pandemic.
- Modelling remains a key component of health and research for health and allowed for rapidity and agility during COVID-19 through production of short-term forecasts, assessment of new variants, wastewater surveillance and budget impact analyses, amongst others. The South African COVID-19 Modelling Consortium (SACMC) and National COVID-19 Epi Model (NCEM) enabled rapid decision-making going forward and should strengthen modelling within the research arena, however, national investments in modelling capacity development should be prioritised to ensure sustainability of the skillset, in tandem with exploration and incorporation of non-traditional models.

- The country needs to invest in research and development as well as manufacturing of diagnostics, therapeutics, and vaccines – including capacity development in basic science and discovery research to drive them.
- Research aimed at understanding the extent of the human toll in a pandemic as well as social drivers and human behaviour contributing to ill-health and vaccine hesitancy, along with pathogenesis of zoonotic disease, regulatory capacity for research, intellectual property and procurement for emergency supplies are often under-researched.
- COVID-19 had direct and indirect effects on the burden of NCDs and accelerated efforts are required to reach SDG 3.4, as the hospital-based model for prevention and control of NCDs is not optimal. Thus, research must address major gaps in implementation research, and research on quantifying and analysing the growing burden of NCDs.
- The National Institute for Communicable Diseases (NICD) and its centres and networks, such as the Emergency Operations Centre and Outbreak Response Unit, the Daily Hospital-based Surveillance (DATCOV) and the Network for Genomic Surveillance in South Africa are key for NCD surveillance and intelligence. Information gathered is critical for evaluating the effectiveness of control and preventative health measures, guiding health planning and the allocation of appropriate resources within the healthcare system and monitoring development of anti-microbial resistance for infectious agents.
- COVID-19 resulted in the loss of improvements achieved in decreasing trends in maternal mortality. The contribution to increased maternal mortality was mainly from a rise in Non-Pregnancy Related Infections (NPRI), largely lower respiratory tract infections. However, indirect effects of the pandemic on maternal mortality included amongst others, a decline in antenatal clinic visits, a decrease in the utility of reproductive healthcare services (contraception and termination of pregnancy (TOP)), lack of emergency transport and decreased access to treatment resulting in untreated hypertension and unsuppressed viral loads. The undermeasured impact of the pandemic includes its effect on respectful maternity care, gender-based violence in pregnancy and bearing on poverty and livelihoods.
- South Africa has manifested a gradual decline in the infant and under five year mortality rate since 2003, and the neonatal mortality has remained constant at around 12/1 000 births. The under five -year childhood mortality rate in Sub-Saharan Africa is amongst the highest in the world and in South Africa it is more than double that of the five to 24-year-olds globally. Infectious and parasitic causes, as well as respiratory, neonatal and nutritional conditions, Sudden Infant Death Syndrome (SIDS) and injury remain important contributors to under five year childhood mortality whereas mental conditions and substance abuse are significant contributors to deaths in older children. COVID-19 had an indirect impact on childhood health, mainly through a deterioration in household finances, reduced access to primary healthcare and maternity services and through withdrawal of support for admitted children.
- The burden of violence and injury in the country is largely driven by homicide, road traffic mortality, GBV, child sexual violence - mostly the effects of alcohol and other intoxicating substances. There is an opportunity to strengthen research on policies and prevention of violence and injuries.
- With the development of the NHI Policy and impending passing of the NHI Bill, strategic purchasing and accreditation by the NHI Fund is going to be critical and the Health Professions Council of South Africa (HPCSA) along with the Office of Health Standards Compliance (OHSC) are to play important regulatory roles. Research questions relating to revenue collection for the NHI Fund, quantification of primary healthcare (PHC) personal care cost and incentivising funding options in Contracting Unit for Primary Services (CUPS) and developing strategic purchasing tools to address inequity, particularly at subdistrict level require particular focus. In terms of certification, system-based standards for certification, along with a comprehensive continuous quality improvement approach will assist in delivering accreditation of service providers and readiness for NHI Contracting.
- Traditional and other Allied Health Practitioners are to be incorporated into the implementation of NHI and Occupational health, in both formal and informal sectors should be part of the broader health research priorities since it has an overall impact on morbidity and mortality.
- In terms of strengthening district and subdistrict health systems and community engagement, not addressing social and structural determinants of ill-health, weak governance and leadership, inadequate public participation and accountability, insufficient financing and resource allocation as well as centralised decision making, poorly developed governance structures, systems, processes, service design and coordination remain great challenges. It is important to formalise district and sub-district learning partnerships between researchers, HEIs and decision makers, guided by the principle of co-production. Priority setting on the district health system (DHS) needs to include research, DHS 'literacy' and capacity development. Further, district level research days could form further platforms for community engagement. The South African Population Research Infrastructure Network (SAPRIN) has a platform for implementation research to assess the NHI models and has population nodes within communities.
- PHC Re-engineering is a key health reform and the policy frameworks, including key healthcare systems policies and guidelines such as those for priority diseases such as HIV and AIDS, tuberculosis (TB), cancer, and metabolic syndrome; maternal and child health policies such as reproductive health policies, policies on HIV transmission control, TB prevention and control, and policy frameworks for combating metabolic syndrome are critical supportive frameworks for attainment of UHC.
- Public-Private Partnerships (PPPs) can be a renewed avenue for funding and supporting collaborative research and innovation, including data collection and research from the private healthcare sector. This was evident during the COVID-19 pandemic and examples include the Solidarity and SPIRE Funds, the Sisonke Vaccine trial, the Hospital Vaccination Feasibility Study as well as utility and analysis of data from medical schemes.

- GBV occurs because of the normative gender role expectations, along with unequal power relationships, within the context of a specific society and was heightened during COVID-19. GBV often manifests in environments of heightened risk, lower agency and poor self-determination and COVID-19 highlighted many structural and social drivers of GBV, including the socioeconomic impact of hard lockdown and substance abuse. There is a need to address social and structural drivers such as harmful gender and sexual norms and associated power disparities, and to strengthen programming and delivery interlinkages between sexual and reproductive health rights (SRHR) and GBV, mental health and GBV and between substance abuse and GBV.
- The government's investment in research for health should have reached 0.075 per cent (R2.7bn) of Gross Domestic Product (GDP) in 2021 and needs to be at least 0.15 per cent (R5.4bn) of GDP by 2030. Further, the total investment in research for health from the aggregated public, private and foreign sectors in South Africa by the South African Medical Research Council (SAMRC) should have been 0.18 per cent (R6.5bn) of GDP in 2021 and needs to increase to 0.4 per cent (R14.4bn) of GDP by 2030. The level of government investment in research for health is well below previously set targets, and up-to-date, comprehensive, and accurate data on health research funding flows in South Africa is urgently required. Health research funding is precariously dependent on external (international) funding sources and runs the risk of the country's research agenda being determined by international funders, and that Strategic Funding Partnerships such as the Sub-Saharan Funders (hosted by the SAMRC) are some of the critical efforts aimed at aligning external research funding with the research priority areas of the country and continent. There is currently an increased global recognition of the need to decolonise research and international funders are becoming more aware of the need to engage and collaborate locally to ensure their investments are relevant to local priorities and are aligned and coordinated with that of other funders. Further, that COVID-19 has resulted in the emergence of new funders in the health research and innovation (R and I) arena, has highlighted the urgent need to establish capacity for the local manufacture of personal protective equipment (PPE) and other medical devices, diagnostics and vaccines and has demonstrated that substantial funds can be rapidly mobilised when urgently needed. Additionally, there is a need to tap into new funding sources and the exploration of innovative models.
- The advisory role of the National Health Research Ethics Committee (NHREC) in the context of the pandemic had been unclear at the start of the pandemic and an opportunity had been missed for the committee to engage with other ministerial task teams. The current South African ethics review model is burdensome in that it requires researchers to obtain multiple ethics approvals. The pandemic revealed the need for a reevaluation and reconsideration of the national ethics review structure.
- One of the priority interventions of the National Digital Health Strategy for South Africa (2019- 2024) is to establish a South African National Health Observatory (NHO), to address fragmented information, information systems, and consequent lack of research data monitoring, in line with the WHO guidance. Observatories under the auspices of the WHO include the WHO Global Health Observatory and the WHO Integrated African Health Observatory (iAHO) multi-country platform. The NHO aims to target, as data sources, routine health information systems, civil registration, health research, surveys/census, surveillances, and mobile health (defined by the WHO as the utilisation of mobile wireless mobile technology for public health). Within the NHO and specific to research needs, the National Health Research Database (NHRD) will host operational research reports (general overview, field of study, health categories and timeline view) and strategic reports (research expenditure per field of study and per health category, field of study and health category per province, unique applications received, studies per research organisation and province, with the ability to download raw data). The NDoH intends to establish a National Health Observatory Technical Group, to work with the NHRC, WHO and other stakeholders to establish an appropriate NHO research module, to adopt South African indicators and data sources for the iAHO and to explore the automation of South African NHO updates.
- Effective Knowledge Translation (KT) requires collaborative efforts and effective working relationships between policymakers and researchers, as well as relevant and good quality research. No research should be funded, commissioned, or conducted if there is no downstream translation into policy or practice.

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1. Background to the 2022 National Health Research Summit

1.2 The National Health Research Committee (NHRC) and its mandate

The NHRC is mandated by the National Health Act (NHA), 2003 (Act 61 of 2003). Section 69(3) of the NHA, states that the NHRC must, determine the health research to be carried out by public health authorities, ensure that health research agendas, focus research resources on priority health problems, develop an integrated national strategy of health research and advise the minister on the application and implementation thereof and co-ordinate the research activities of public health authorities.

Section 70 (1) of the NHA, declares that the NHRC must identify and advise the minister on health research priorities, and in identifying health research priorities, Section 70 (2) of the NHA maintains that the NHRC must take cognisance of burden of disease (BOD), cost-effectiveness of interventions aimed at reducing the BOD, availability of human and institutional resources for implementation of interventions at levels closest to the affected communities, health needs of vulnerable groups (e.g. women, older persons, children and people with disability) as well as health needs of communities.

To aid accomplishment of its mandate, the NHRC has established subcommittees and workstreams to focus on:

- a) Research for Health Policy and Strategy
- b) Research for Health Priority-Setting
- c) Health Research Finances, Human Resources and Infrastructure
- d) Monitoring and Evaluation
- e) Research Translation and Innovation

Further, the NHRC must work together with the Provincial Health Research Committees (PHRCs), whose mandate for research coordination and health research prioritisation are like those of the NHRCs, but within provinces. Specifically, the function of the PHRCs is to coordinate health research by liaising with all research stakeholders conducting research in the provinces, manage the process of research prioritisation and assist in the development of health research priorities within provinces and review preliminary and final reports to provide advice on policy implications of findings from completed research projects.

2. Previous National Health Research Summits

2.1 2011 Summit

A two-day National Health Research Summit was held on 26 and 27 July 2011 in Kempton Park, Gauteng, South Africa. The report was compiled by the NHRC, under the chairpersonship of the late Prof. Bongani Mayosi, and published by the National Department of Health [1].

It contained the following recommendations, the first five for “immediate implementation” and the last two requiring “further work”. The recommendations (summarised) to the national Department of Health were:

2.1.1 ... embark upon a **budgetary process of progressive realisation of the allocation of two per cent of the national health budget to research and development** ... to be achieved over the next three years ... to lift expenditure from 0.38 per cent of the budget, and provide over R2 billion for health research by 2014

(The following three recommendations are for coordination by the NHRC and implementation by the MRC and other science councils)

2.1.2 ...**double the number of health researchers in South Africa over the next five years** ... by creating a **National Health Scholars Programme** under the purview of the NHRC to fund PhD studentships, postdoctoral fellowships, mid-career research posts, and research chairs in all fields of healthcare including medicine, dentistry and nursing ...

2.1.3 ...**develop the health research infrastructure of academic health complexes** ... (including) the creation of **clinical research centers** in the academic health complexes based on a primary healthcare approach and through a competitive process ...

2.1.4 **create a National Priority Health Research Fund** to support research programmes that address research priorities related to the quadruple burden of disease, health systems strengthening, and combating the social determinants of health i.e. that seek to achieve the outcomes of the negotiated service delivery agreement of the Department of Health

2.1.5 ... **address** the issue of the **inhibitory effect of inefficient administrative processes of the Medicines Control Council (now known as South African Health Products Regulatory Authority or SAHPRA) on clinical research**, ... possibly through a national meeting initially convened by the Ministry of Health

2.1.6 Develop a **National Planning, Co-ordination and Translation System for Health Research**, as a function of the NHRC

2.1.7 Develop a **monitoring and evaluation mechanism for the performance of the health research system**, as a function of the NHRC.

2.2 2018 Summit

A two-day National Health Research Summit was held on 13 and 14 September 2018 in Kempton Park, Gauteng, South Africa. The report was compiled by the NHRC, under the chairpersonship of Prof. Edith Madela-Mntla and published by the national Department of Health [2].

It contained the following **recommendations**:

2.2.1 **prioritisation of the social determinants of health**, including the burden of disease, for funding

2.2.2 building capacity of **health human resources**, along a pipeline, and in line with national transformation imperatives

2.2.3 improving health research **funding flows and quantification**

2.2.4 creating a **national system of implementing health research** with a national-provincial alignment of mandates, including funding

2.2.5 creating an evidence-based **system of health research information management** through collation, monitoring, evaluation and translation of health research

2.2.6 improving the provision of and access to **health research infrastructure**, especially in academic health complexes

3. Proceedings of the 2022 summit

3.1 Rationale for the 2022 National Research for Health Summit

The 2022 National Health Research Summit was held in response to the legislative mandate to set priorities for health research and address some of the five-year policies and strategies in the health sector. Goal 3.9 (b) of the NDP will be implemented to address challenges in research and development of prevention and treatment strategies for communicable and non-communicable diseases that contribute to the quadruple burden of disease. Research is needed that addresses the MTSF 2019 – 2024 [3] aim of eliminating avoidable and preventable deaths, promoting wellness, preventing and managing illness and transforming health systems. Furthermore, there was an urgent need to establish a strategy on how the health system should respond to future pandemic(s) by discussing:

- lessons learned from the COVID-19 pandemic
- the impact of COVID-19 on healthcare
- the impact of COVID-19 on the quadruple burden of disease- especially NCDs
- innovation in health research - COVID-19
- best practices in management of future pandemics

3.2 Aim of the 2022 National Research for Health Summit

The overall aim of the 2022 Summit was to determine priorities for research for health, innovation and development in South Africa to achieve UHC - inclusive of resilience with regard to future pandemics.

The aim of the research stakeholders' interaction was further to provide a platform to develop a collaborative research culture to the country's attainment of SDG 3, and the goals of the NDP, the 2019 Presidential Health Compact Pillars, the MTSF 2019 - 2024 and the National Department of Health Strategic Plan 2020/2021 – 2024/2025, viz.:

- 3.2.1 implementation of research in the development of vaccines and medicines for communicable diseases and NCDs
- 3.2.2 identification of research that can contribute towards the achievement of a healthcare system that eliminates avoidable and preventable deaths, promote wellness, prevent and manage illness and transform health systems
- 3.2.3 strengthening of health research system to achieve a healthcare system that is less vulnerable to epidemics/pandemics
- 3.2.4 strengthening of health research system towards UHC

3.3 Objectives of the 2022 National Research for Health Summit

The objectives of the 2022 Summit were to:

- assess the current status of health research system
- examine the lessons learned from the pandemic response in South Africa with specific focus on the role of science in response to COVID-19
- assess the current status, and determine the future direction, of the recognised pillars of the National Health Research System (i.e. financing, human and structural resources, priority-setting, monitoring and evaluation, translation of research for health as well as ethical considerations)

The Summit was held over two days, 22 and 23 November 2022, at The Lakes Hotel in Benoni, Gauteng. Chairpersons and rapporteurs for each session were taken from the NHRC membership, and technical scribes, logistical, administrative and financial support was provided by the NDoH. The theme of the summit was “Research for Health towards Universal Health Coverage”.

Out of 250 invited experts and delegates from diverse organisations, 222 attended the Summit (**Table 1**).

Table 1: Attendance

Organisation type	Number of delegates
National Department of Health	53
Research councils/institutes	44
Universities	33
Provincial health departments	26
Pharmaceutical companies	16
National government departments	13
NHRC	10
Statutory committees/councils	7
International developmental agencies	7
Research ethics committees (RECs)	6
NHREC	4
Non-governmental organisations (NGOs)	1
Civil society	1
Metropolitan municipality	1
Total	222

4. Session 1: Opening session

The session was chaired and introduced by Prof Mahmood Ally, NHRC Interim Chairperson. A short welcome address was delivered by Member of the Municipal Council (MMC) Jennifer Glover, the MMC for Health and Social Development, City of Ekurhuleni Metropolitan Municipality who highlighted that the research community has a common goal of strengthening the healthcare system. She mentioned that “COVID-19 has taught us more lessons and it showed the vulnerability of our health system”. She further mentioned that scientific research will help us mitigate challenges, however, more still needed to be done towards health reforms.” She continued that the “Fourth industrial revolution (4IR) offers opportunities to accelerate service delivery and to ensure that our system is efficient, and that we have high standards to improve the quality of life”. She concluded that we must adopt relevant technological tools to combat the COVID-19 pandemic. This was followed by inputs from the following dignitaries:

4.1.1 Nomantu Nkomo-Ralehoko: Gauteng Member of the Executive Committee (MEC) for Health and Wellness

MEC Nomantu Nkomo-Ralehoko started by showing vocal appreciation to the THEME of the summit, viz “Research for Health towards Universal Health Coverage”, as she said it spoke directly to the NDP vision of ensuring that we have a health system that works for everyone and produces positive health outcomes of a long and healthy life for all without undue financial hardships.

The MEC’s opening address outlined the importance of health research for UHC efforts. She continued that UHC is one of the health sector reforms that are critical for the country, which requires rigorous scientific evidence for its effective execution and sustainability. She continued that “2020 marked the year of unprecedented tragedies but it also demonstrated the resilience and critical role of the research community in supporting policymakers to navigate the uncharted waters brought about by COVID-19”. She continued that numerous scientific insights that were derived during the pandemic from the research communities and partners helped shape the response not only for COVID-19 but also for the vaccination programme. This she said could not have been possible were it not for the partners from mobile companies (supporting the vaccine surveys), WHO funding, Universities, private health facilities and civil society organisations, who were willing to contribute to research and other response areas.

She stated that the Gauteng Department of Health subscribes to the WHO strategy for research, whose aim is to foster the development of a functional health research system that can generate scientific knowledge for developing technologies, as well as systems and services to achieve UHC [4]. Its objectives include research for health governance (maternal neonatal child health; health wellness and happiness; mental health; quality of care; leadership in nursing); building and sustenance of human, physical and institutional capacities on research for health (establishment of the Foundation for Research and Evaluation Training Programme).

She then highlighted the measures that were implemented to curb the spread of COVID-19; which included a multi-sectoral and multi-disciplinary approach which involved significant actors (i.e University volunteers, research and evaluation personnel, WHO support team and PHRC members) within the province in order to deal with the COVID-19 pandemic. The Gauteng Department of Health in collaboration with its hospital employees and partners developed comprehensive protocols addressing the impact of COVID-19 on health service utilisation.

She continued that she would like to see this research summit charter a way forward for the department to build momentum towards strengthening research translation to find solutions to ongoing problems affecting the effectiveness of the Gauteng health performance. She stated that the service platforms have a visible research footprint through their joint appointment and that they are also ideally placed to be a world leader in various fields of medicine. She highlighted as evidence the recent International Award for Steve Biko Academic Hospital. These improvements she said could not have been made possible without research in this area. She concluded by saying “It is my belief that the findings from all of this research should be translated into evidence-based practices, which ultimately improves our clinical outcomes and health system”.

4.1.2 Dr Rajesh Narwal: WHO Representative

Dr Rajesh Narwal, the acting WHO Country Representative, spoke on the recovery of health systems after the COVID-19 pandemic. He highlighted that the pandemic was not officially over yet. As of Friday 18 November 2022, there had been over 633 million confirmed cases and over 6.5 million deaths reported globally. Estimates suggested that the actual number of deaths due to COVID-19 could be up to three times higher. But this could have been much worse if not for our dedicated health workforce, and the use of science, research and innovations throughout the response.

He went on to say that the COVID-19 pandemic had underscored the importance of health and research: Firstly, it showed how health and economic security were intertwined; by not investing in building resilient health systems, this could cost us dearly. Secondly, **the pandemic had highlighted the central role of science, research, and innovation in saving lives and livelihoods**, as well as early collapse of global health and solidarity - that included the hoarding of essential medical products early on, and the vaccines later. But it was the science and research that brought the world together rising above the nationalistic interests such as the rapid development of vaccines, therapeutics and collaborations on genomic and epidemiological surveillance together with operational research across the countries. Thirdly, PPPs and other innovative mechanisms for research were also noteworthy.

He acknowledged the major contributions of the South African scientific community in health research- particularly genomic surveillance and research and development (R and D) of vaccines, collection, analysis and regular dissemination of epidemiological and research data to guide evidence-informed response measures. He mentioned that health research priorities in the African region that were discussed in a recent workshop (17-21 Oct 2022 in Brazzaville) identified several research priorities pertaining to health emergencies in the region, namely; epidemiological and clinical research, research on social and behavioral aspects and health system readiness research. In his key message, he mentioned that as the country recovers from COVID-19, there needs to be a rebuilding of trust in institutions; and that health leadership and science are central to manage infodemic that impacts all facets of health systems performance, including the ongoing health reforms in the countries, such as the NHI in South Africa. This will include research for health which aims to achieve health and equity, build resilient health systems and make incremental progress towards UHC.

He reminded the research community that they operate in an environment of competing demands for limited resources; that health policies and practices must be informed by the best research evidence based on strong, transparent, and sustainable National Health Research System pillars (i.e. stewardship, financing, resources, producing and using research) [5]. Lastly, he reiterated the WHO's commitment to work with the government, scientific community, private sector, and the people to optimise research for health to achieve the UHC goals [6].

4.1.3 Dr Sandile Buthelezi: Director-General of Health

The Director-General of Health, Dr Sandile Buthelezi delivered a keynote address to reflect on the research infrastructure, priorities, capabilities and commitments in view of the NHI Bill consultation process as well as lessons learned from the fight against COVID-19. He reflected on the previous 2011 and 2018 Summits with their recommendations which were implemented over the years. He indicated that there are many more interventions as outlined in the National Research Strategic Framework 2019-2024 [38] which remains the roadmap in driving the health research agenda in the country.

He reminded the delegates that NHI is a health financing system that will pool funds to provide access to quality health services for all South Africans, based on their health needs, irrespective of their socio-economic status. He mentioned that it is a priority to protect the poor, marginalised and most vulnerable population in rendering services and structuring cross subsidisation; including those with medical aids (16 per cent) who are not covered during critical or new/complicated dreaded disease periods (i.e. when medical aids run out of funds or medical aids refuse to pay for certain treatments not covered under prescribed minimum benefits). He further emphasised that NHI-related health system transformation will tackle challenges of rising costs of services, medicines and equipment in the private sector, and inequitable expenditure between the public and private sector in South Africa.

He also mentioned that the country needs to build a strong integrated NHRS to generate evidence that will respond to the health priority challenges (i.e. complex, quadruple burden of disease and improving life expectancy) [7]. He also spoke on the fact that COVID-19 had resulted in diversion of health system resources and that we need to recognise the setbacks, leverage the gains made and move forward to focus on health priorities. He highlighted the importance of scientific research to produce new, cost-effective health technologies, and a need for evidence-based research that intentionally and scientifically evaluates the impact of interventions to improve healthcare policies and practices.

Lastly, he told delegates that research towards UHC will require a research movement that will provide futuristic evidence in time for critical decisions and problem-solving, as we undertake the NHI transformation.

4.2 Session 2

The session was chaired by Prof Mushi Matjila, NHRC Deputy Chairperson and included the following inputs:

4.2.1 Prof Rudo Mathivha (University of the Witwatersrand and Ministerial Advisory Committee on COVID-19)

Prof Mathivha spoke about **“Lessons from the Pandemic in South Africa. The Role of South African Science in the Response to COVID-19”**

Her presentation covered some background and historical perspective of the COVID-19 epidemic, the declaration of the pandemic and the reaction of South Africa. She further provided in-depth insights on the workings of the Ministerial Advisory Committee on COVID-19 (the “MAC COVID 19”) - a multidisciplinary team of experts, its functions, some of the advisories it issued, challenges it faced, and factors influencing its successes. Additionally, she tendered some reflections from the clinical environment, including the profile of COVID-19 as a multisystem disease, and the “nature of the enemy”, and lastly some lessons from the epidemic and continuing challenges.

Two speakers then addressed the role of South African science in response to COVID-19, including:

4.2.2 Prof Shital Silal (University of Cape Town)

Prof Silal's presentation was entitled "*Adaptive modelling for a novel virus COVID-19 in South Africa*" which was given on behalf of the South African COVID-19 Modelling Consortium (SACMC). She spoke about the **importance of modelling in health research** and made the following key points:

She covered the first wave and beyond, the National COVID-19 Epi Model (NCEM), the fact that agility and adaptability were key to remaining useful, the production of a total of 38 updates by SACMC, the production of short-term forecasts, the assessment of new variants, budget impact analyses, the Tekanelo Model [8]. In her summary, she emphasised that modelling had always been a fundamental part of decision-making in health, that COVID-19 had leveraged existing strength in modelling skills to provide a rapid and adaptive response, and that there are still key under-researched areas where modelling is necessary, such as the need to optimise health systems, however that public awareness and involvement is equally fundamental in building trust [9]. She asked whether the SACMC should be dissolved, and said that capacity building is essential to leverage and sustain skills. She described a "pathway to impact", and the need to invest in developing the necessary skillset of a disease modeler to facilitate the "pathway from science to policy". In terms of how to make this happen, she suggested it should be a national priority, that scholarships/bursaries (long-term) and internships should be made available (short-term) and that non-traditional models could be explored.

4.2.3 Prof Glenda Gray (SAMRC)

Prof Gray's presentation was entitled "*How COVID-19 research helped South Africa - the role of South African science in response to COVID-19*". She spoke about **research and development of diagnostics, therapeutics and vaccines** and made the following key points:

She covered the SAMRC's approach to additional guidance during the pandemic, and some lessons from the pandemic, viz.: the importance of surveillance [10], the value of investment in diagnostics, the need for investment in vaccines and therapeutics [11], the imperative to invest in basic science, the need to invest in vaccine manufacturing, the importance of investing in capacity development, the need to invest in understanding the human toll in a pandemic, including understanding human behaviour and vaccine hesitancy. In terms of pandemic preparedness in South Africa she presented a framework which included vaccine capacity, generic medicines, disease modelling, diagnostic capacity, clinical research, the National Public Health Institute of South Africa, laboratory research capacity, zoonotic disease, regulatory capacity, intellectual property, emergency supplies, the health system and policy development.

4.3 Session 3

The third session was focused on the **burden of disease and research priorities inclusive of impact of COVID-19** and was chaired by Prof Nico Gey van Pittius (Stellenbosch University and NHRC). It included the following presentations:

4.3.1 Prof Andre Kenge (SAMRC)

Prof Kenge's presentation was entitled "*The challenge of non-communicable diseases prevention and control in South Africa and other developing countries*". He spoke about **non-communicable diseases** and made the following key points:

He asked where we come from and gave a historical perspective on NCD prevention and control, including the global response to NCDs, some global milestones in the prevention and control of NCDs, policy level actions in Africa, and the policy context of NCDs in South Africa.

He then asked where we are currently and explored some trends in the burden of NCDs, referring to disability adjusted life-years (DALYs), body mass index (BMI), obesity, diabetes, cholesterol, blood pressure and hypertension, cancer, and the "NCD countdown 2030" and progress towards SDG target 3.4, both internationally and in Sub-Saharan Africa and South Africa [12]. He explored the impact of COVID-19 on NCDs in South Africa and Africa [13].

He then examined how research needs to inform action if we are to continue going forward, including some guiding principles, major gaps, the critical importance of implementation research, some research needs, and an assessment of the risk surrounding a "growing and ill-characterised burden" of NCDs, questioning whether existing therapies are effective in South Africans, and whether the hospital-based model of prevention and control is suitable, and asking how NCD prevention and control could be better integrated into other existing health services.

Lastly, he drew some conclusions, including that efforts to prevent and control NCDs are not optimal in the country; that accelerated efforts are needed to reach the SDG target 3.4, that research and adequate data are needed to support the execution of the roadmap (National Strategic Plan for NCD 2022-2027) [14] toward meeting this objective.

4.3.2 Prof Adrian Puren (National Institute of Communicable Diseases and National Health Laboratory Services)

Prof Puren spoke about **communicable diseases** and made the following key points:

He spoke about surveillance, the core functions of the National Institute for Communicable Diseases (NICD), its centres, the Emergency Operations Centre and Outbreak Response Unit, the Notifiable Medical Condition (NMC) Data Mart, the National Health Laboratory Services (NHLS) laboratory systems and networks, surveillance and disease intelligence, the Network for Genomic Surveillance in South Africa, Daily Hospital-based Surveillance (DATCOV), reports and dashboards on the NICD website, South African experiences with wastewater-based epidemiology for SARS-CoV 2 [15] surveillance and disease intelligence: inter-operable systems, the One Health Approach, the Health Utilisation and Seroprevalence Survey (HUTS), the SACMS, GERMS-SA, a national laboratory-based population surveillance program for HIV-associated bacterial and fungal opportunistic infections in South Africa, and the use of this information to evaluate the effectiveness of control and preventative health measures, support health planning and the allocation of appropriate resources within the healthcare system and to monitor changes in infectious agents e.g. trends in development of anti-microbial resistance. He also touched on the Vector Control Reference Laboratory and Insectary.

4.3.3 Prof Sue Fawcus (University of Cape Town and National Committee for the Confidential Enquiry into Maternal Deaths)

Prof Fawcus's presentation was entitled "The Impact of COVID-19 pandemic on Maternal Health in South Africa". She spoke about **maternal health** and she made the following key points:

She examined at some trends in maternal mortality in South Africa up until 2019 (pre-COVID-19 period), and underlying causes of maternal deaths, the production of a clinical guide on managing pregnant women during the COVID-19 epidemic, emergency, essential services that needed to continue at the usual level of care throughout the COVID-19 pandemic, how maternity services fared and how maternal mortality trended in South Africa from April 2020 onwards, and the impact of the pandemic, lockdown and later vaccination availability and effect on utility of maternity and reproductive health services [16, 17]. She summarised the above as (1) an increase of maternal mortality to a maximum of over 150 followed by a decline to 98.8, similar to pre-COVID-19 levels; (2) a marked increase in in-facility births after a decline during lock down; (3) antenatal first visits returning to pre-COVID-19 levels in the third quarter of 2020/2021; and (4) an initial decline in contraceptive prescriptions and TOPs in 2020/2022 recovering to pre-COVID levels by the end of 2021/2022.

She suggested for further in-depth analysis on the causes of deaths, particularly those pertaining to Non-Pregnancy Related Infections (NPRI), by the National Confidential Enquiry into Maternal Deaths (NCCEMD), a consideration for deaths in private or outside health facilities, avoidable factors (collateral effects of the pandemic) and delayed impacts (e.g. HIV/unsuppressed viral loads, uncontrolled hypertension) [18]. Regarding other impacts of the COVID-19 epidemic, she suggested the impact on respectful maternity care, the role of Community Health Workers (CHWs) during COVID-19, and the impact of the epidemic on GBV. She examined the critical role of the available data and made some recommendations.

Prof. Fawcus concluded by saying that the COVID-19 pandemic caused a significant increase in Maternal Mortality Ratio (MMR), reversing the gains previously achieved, possibly stabilising, but further reductions had been set back by two years; that although the deaths from COVID-19 pneumonia contributed largely to the increase, it is suspected that much of the increase was due to the 'collateral' effects of the pandemic; that the pandemic had also impacted on other issues facing women such as contraception and access to TOP services, an elevation in GBV, and declining household income with increasing hunger; that it had raised issues about the role of CHWs, and public private partnerships in times of crisis and that routine data collection processes had been negatively affected by the pandemic.

4.3.4 Dr Neil McKerrow (University of KwaZulu-Natal and KwaZulu-Natal Department of Health)

Dr McKerrow's presentation was entitled "*Child Health*". He spoke about **child health** and made the following key points:

He touched on the under-five mortality rates in different countries around the world and the fact that these are highest in sub-Saharan Africa, where the task is still to ensure survival [19]. In 2020 mortality rates in under-fives were more than double in comparison to the five to 24-year age group, globally. He described some new challenges as being that health requires multi-sectoral participation and that we need to modify the survival focus in under one-year olds and older adolescents and to adopt strategies to ensure thriving, such as a nurturing care framework, quality standards, effective coverage and tracking progress through the use of better monitoring mechanisms, each of these points he expanded upon.

He showed there was a steady decline in child mortality in South Africa since around 2003, including under-five and infant mortality rates, but with neonatal mortality remaining fairly static at around 12/1000. There has also been a steady decline in the $_{10}Q_5$ per 1 000 (the probability of a five-year old dying by age 15). He demonstrated that there was a steady increase in the percentage of child deaths occurring in the health sector from 2013 to 2017 in South Africa and in each province, with an even split between deaths occurring at district, regional and tertiary/central hospitals. He indicated that infectious and parasitic causes, respiratory, neonatal and nutritional conditions, as well as congenital anomalies, SIDS and both unintentional and intentional injury were the most important contributors to under-five morbidity in 2019, whereas in older children some of these were less important, but that mental conditions and substance abuse were important contributors [20].

Dr McKerrow said that COVID-19 had a limited direct impact on children but has had a significant indirect impact, mainly through a deterioration in household finances, reduced access to basic healthcare, including PHC and maternity services and through withdrawal of support for admitted children. He shared some statistics (from December 2021) and showed that under 19s had accounted for 14.8 per cent of COVID-19 tests, 12.5 per cent of cases, 5.1 per cent of admissions, 6 per cent of intensive care unit (ICU) admissions, 2.3 per cent of ventilated persons and 0.7 per cent of deaths.

Lastly, he presented some changing (child health) needs, viz mortality (neonatal conditions, infectious diseases, and trauma), engendering specific service needs (facility-based, in-patient, neonatal and comprehensive), and morbidity (disability, mental health and infectious diseases) requiring different but specific service needs (community-based, ambulatory, holistic and multidisciplinary). He suggested that new priorities for under-five child health should include neonatal services (capacity and movement) and a nurturing care framework within the health sector, and for over-five child health, neurodevelopmental conditions and mental health. In terms of the service platform the focus should be on quality standards and effective coverage, he said.

4.3.5 Prof Ashley van Niekerk (University of South Africa)

Prof van Niekerk's presentation was entitled "*Violence and Injury in South Africa*". He spoke about the **burden of violence and injury** and made the following key points:

He described a persisting injury and violence epidemic in the country, involving injury mortality, homicide, road traffic mortality, GBV, child sexual violence, and the effects of alcohol [21-23]. He elaborated on overall social and policy responses and directions in each of the areas of child abuse, GBV, male interpersonal violence, suicide, and traffic injuries. He spoke about the strengths of the violence and injury prevention research sector, and delineated several areas for improvement, opportunities, threats, and the need for consolidation of the VIP research agenda.

4.3.6 Dr Aquina Thulare (National Department of Health)

The presentation was originally scheduled under key health policy and systems research session.

Dr Thulare's presentation was titled "*National Health Insurance (NHI) and the Accreditation Programme*". She spoke about **research towards supporting UHC implementation focusing on cost of healthcare** and made the following key points:

In her *Introduction* she described what NHI is and what it aims to do. In terms of preparing for NHI, she described the activities that had been undertaken in developing NHI Policy and the NHI Bill since 2011, as well as progress with the Bill's passage [24;25]. She said that the process is anticipated to be concluded in 2023. She spoke about Strategic Purchasing and Accreditation by the NHI Fund. She then spoke about health establishment and provider readiness for NHI accreditation, the roles of the HPCSA and the OHSC, licensure and registration by statutory councils, common findings on OHSC inspections, and the most common non-compliant measures.

She suggested the following research questions for consideration by the South African research community:

Health financing:

- Revenue collection
 - Can the revised provincial equitable share [PES] health component formula be used to distribute the existing PHC personal care budgets equitably at least on paper?
 - Where are other pockets of money in both the public and private sectors that can be moved effectively and efficiently into the NHI Fund including on tax credits (~R34 billion)?
 - How can the movement (occur) without the "hollowing out phenomenon" experienced when other Funds were established?
 - What is the most appropriate way of sequencing the movements of funds into the NHI Fund?
 - What would the gold standard *per capita* spending be, that must be pursued?
- How can the existing resources that are spent on (not just allocated to) PHC personal care be quantified?
 - (This gives us greater insight into not only the current massive disparity between subdistrict resource availability, but also creates a benchmark so that we can see who is above and who is below the benchmark)
- How do we create incentives in our CUPS (Contracting Unit for Primary Services) funding options to address inequity and what are the strategic purchasing tools that we should develop to do so?

Certification:

- What are the possible health system factors that can be used to risk profile health establishments and identify high risk health establishments (HEs) for patient safety incidents?
- How reliable are the trends in complaints reported from health establishments, a reflection of quality challenges in the health system?
- What would the most reliable method be of ensuring the quality of healthcare services post inspection and certification?
- What would the most effective and efficient way be of assessing multi-disciplinary health establishments, such as those envisaged under CUPS (in the NHI Bill)?
- Why are health establishments not complying with the requirements of norms and standards regulations?
- What is the validity and reliability of the inspection tools in assessing/measuring the quality of healthcare services?
- Does compliance with the norms and standards regulations guarantee patient safety and quality healthcare services?
- Can cross-cutting measures and indicators be identified that are good proxies for healthcare quality aspects at a health system level?
- Can key health system inputs be identified (Human Resources, Leadership and Governance, Financial Resources, Health Information System, Health Products) that are predictive of compliance with quality requirements?
- How important is monitoring and analysis of clinical and health outcomes data at health establishment level, as part of quality assurance regulation?
- What has the impact of OHSC guidance and support interventions been to facilitate implementation of norms and standards regulations by health establishments?

Dr Thulare concluded by saying that

- 1) Health financing reforms through NHI are an essential lever for improving quality and to move towards UHC
- 2) Active engagement of the statutory regulatory entities and the OHSC established through the law are important to achieve the objectives of the UHC 2030 Goals and NHI
- 3) Fragmentation can be reduced by using a more comprehensive systems-thinking approach, that will enable quality standards to be met and maintained in existing initiatives in readiness for NHI; e.g. OHSC regulatory standards, Ideal Clinic, Ideal Hospital, disease specific quality initiatives and
- 4) System-based standards for certification, together with a comprehensive continuous quality improvement approach will help to deliver accreditation of service providers in readiness for NHI contracting

4.3.7 Further questions, inputs and comments from delegates

- There were concerns on the type of services that will be offered, especially regarding treatment based on disease profiles and which basic items (i.e pulse oxymeters, detailed requirements for emergency trolleys, etc.) were included under NHI. It was noted that in the country we have limited resources and NHI is trying to make resources available to everyone. Benefits (bouquet of services) will be defined following the establishment of a Benefits Advisory Committee.
- There were also concerns on the compliance inspections on health facilities and that regulatory bodies currently cannot certify properly. But was going to be important to investigate and document the situation and requirements at the facilities properly.
- It was also noted that the Traditional and other Allied Health Practitioners must not be ignored in the implementation of NHI.
- Occupational Health, in both formal and informal sectors should be part of the broader health research priorities since it has an impact on morbidity and mortality. The research community should also consider environmental exposures such as those from the mining sector as well as natural disasters such as floods.

4.4 Session 4

The fourth session was focused on **key health policy and systems research** and was chaired by Prof. Charles Wiysonge (SAMRC). It included the following presentations:

4.4.1 Prof Helen Schneider (University of the Western Cape)

Prof Schneider's presentation was entitled "*Strengthening district health systems and community engagement*". She spoke about **strengthening district health systems and community engagement** and made the following key points:

She asked where we have come from and mentioned the 1986 WHO definition of the DHS, progress with implementing the DHS in South Africa, and why the subdistrict is important [26, 27]. She then asked what is driving the current interest in the DHS and referred to the 2018 Astana Declaration on PHC, PHC re-engineering, community orientated primary healthcare (COPC), NHI pilots, CUPS, the Whole of Society Approach (WOSA), and the District Development Model [28-30]. She then addressed learning health systems, co-production, bottom-up innovation, and implementation (the 'how').

She then asked what the emerging priorities are? She mentioned some key general challenges, such as structural determinants of ill-health, weak governance and leadership, inadequate public participation and accountability as well as financing and resource allocation issues. She then detailed some immediate system challenges with district/sub-district development, such as centralised decision making, poorly developed governance structures, lack of accountability systems and processes, poor service design, coordination and capacity issues. She differentiated between "top-down" and "bottom-up" approaches to thinking about priorities.

In terms of next steps, she shared some recommendations from a recent DHS workshop, viz. clarifying processes of priority-setting, what the priorities for knowledge generation are, how to generate knowledge, and establishing formalised inclusive platforms across HEIs and services. She suggested that district/sub-district learning partnerships between researchers/HEIs and decision makers need to be formalised, premised on co-production; priority setting within the DHS needs to include both research DHS 'literacy' and capacity development; "spaces of engagement" need to be convened and resources and funding mobilised.

4.4.2 Prof Mathilda Mokgatle (Sefako Makgatho Health Sciences University)

Prof Mokgatle's presentation was entitled "*Implementation of Public Health Policy and Determinants of Health towards UHC*". She made the following key points:

She asked the question "Why Public Health Policy?", and then suggested that healthcare services must respond to the needs of the country, that healthcare needs evolve, that health outcomes are determined by several other factors or "determinants" and that communities are often disenfranchised. She said that healthcare needs are not siloed, that "prevention is better than cure", and that health is not only absence of disease [31]. She defined determinants of health, including social determinants. She explored some of the history of public health policy implementation as well as the legislative and policy mandates moving South Africa towards UHC. Prof Mokgatle spoke about PHC Re-engineering as a key health reform and the policy frameworks designed to support this, such as National Health Standards Compliance. She discussed some key healthcare systems policies and guidelines including those for priority diseases such as HIV and AIDS, tuberculosis, cancer, and metabolic syndrome; maternal and child health policies including as reproductive health policies, policies on HIV transmission control, tuberculosis prevention and control, and policy frameworks for combating metabolic syndrome. She suggested some factors which in her opinion were important for the implementation of UHC, and finally raised some concerns around leadership and governance for NHI, specifically regarding National Health Standards Compliance.

4.4.3 Dr Fareed Abdullah (SAMRC and University of Pretoria)

Dr Abdullah's presentation was entitled "*Public Private Partnerships for Health Research*". He spoke about **public-private partnerships to promote research towards UHC** and made the following key points:

He referred to the new GSK M72/ASO1 tuberculosis (TB) Vaccine and the fact that further development of the vaccine has been handed over to the Bill and Melinda Gates Foundation (BMGF). He then spoke about his experience of the COVID-19 epidemic, including support from the Solidarity and SPIRE Funds, the Sisonke Vaccine trials, with private hospitals data and private hospitals research and with medical schemes data analysis, and asked the question whether the private sector might be a new source of funding for health research. He made specific reference to the Hospital Vaccination Feasibility Study, the need to support innovation, the need for "enlightenment in the private sector" around climate change/fossil fuels, social impact, corporate social investment (CSI), public health concerns and quality of healthcare. He spoke about social impact bonds and discussed examples of such.

4.4.4 Prof Heidi van Rooyen (Human Sciences Research Council)

The presentation was originally scheduled under the burden of disease and research priorities inclusive of impact of COVID-19.

Prof. van Rooyen's presentation was entitled "*Gender Based Violence during COVID 19*". She spoke about **violence in the context of COVID-19** and made the following key points:

She started by providing context and emphasised South Africa's high rates of homicide and violent crime, reflected along gender lines as well as in private spaces and intimate relationships [32]. She defined GBV as "violence that occurs as a result of the normative gender role expectations, along unequal power relationships, within the context of a specific society." She emphasised that GBV disproportionately affects women and girls, gender and sexual minorities and is deeply rooted in the fabric of our society [33]. She mentioned that between 25 and 40 per cent of South African women have experienced violence in their lifetime, that GBV often manifests in environments of heightened risk, lower agency and poor self-determination and that COVID-19 highlighted many structural and social drivers of GBV [34].

Prof van Rooyen then went on to describe some of the HSRC's research studies during the epidemic, including the lockdown surveys, a study on "perceptions of GBV among women and men during COVID", and three studies in COVID-19 on Youth Beneficiaries [35, 36]. She shared some of the results of these studies, including that in the initial periods of COVID-19, both men and women reported experience of some form of physical violence; that among those reporting any form of violence in the household, 26 per cent reported less frequently during the lockdown, 19 per cent more frequently and 14 per cent remained at the same. The Youth Beneficiaries Survey yielded similar insights about violence and its impact: across periods, the majority reported witnessing violence often or very often; increases in violence occurred between the two reported time periods. The data highlighted the impact of socioeconomic challenges during the pandemic. Observations were made on the causes of violence, the impact of lockdown as well as the dangers of substance use within families.

Prof van Rooyen concluded by saying that there had been a "shadow pandemic of GBV in South Africa; that violence against women, children, sexual minorities, and older persons had been highlighted; that local support infrastructure needed to be expanded, especially during times of turbulent disruption and that support services should be enabled to provide positive environments and create opportunities to address GBV. in addition, she said that GBV is experienced at individual and interpersonal levels, but is shaped by widespread intersecting inequalities; that we need to address social and structural drivers such as harmful gender and sexual norms and associated power disparities [37]; and that we need to strengthen programming and delivery interlinkages, between SRHR and GBV, mental health and GBV, and between substance abuse and GBV.

4.4.5 Further questions, inputs and comments from delegates

- The delegates expressed that the state of violence experienced in lockdown could be attributed to fear and stress in the community. It should also be noted that there is a difference between violence and trauma.
- That a healthcare system that has a proper balance between preventable and treatable disease including primary, secondary, and tertiary level is needed. Larger districts that typically includes a regional hospital will work well to have health promotion and disease prevention, especially in areas such as diabetes and interpersonal violence.
- That a process that integrates the disease processes with the person and the community will be important, especially post COVID-19. A collective thinking on how to develop an efficient model that breaks silos was needed so that we can manage complexities, for example, a victim of GBV also receives support on maternal health issues. This will require a different and integrated way of thinking both in terms of training and identifying workers with a set of skills that would support the victim holistically.
- The district model presents us with a bit of power and strength, but the sub-districts constraints are still limited. There needs to be a way of thinking of how better to include CUPS for NHI, to avoid a repeat of the mistakes of the past. Governance and leadership are important at hospital level. Managers who are considering conducting hands-on research should focus on strategising how to efficiently translate their findings into practical actions, such as effective delegation, in order to enable on-site personnel to carry out evidence-based tasks.

- The human resources for health (HRH) research agenda is important since we spend upwards of 60 per cent of our budgets on our health workforce. It is an area of research that is lagging, and we need to build a generation of HRH researchers, and there are major issues and problems that need attention. Health systems research will require implementation science in the era of NHI, since we lack a single model in the country that investigates how implementation of the NHI will work in the different contracting arrangements, testing out different models (e.g. China has moved in this direction and had six different sites around the country, testing different aspects and models of implementation to make policy decisions and give direction). Research has a critical role in health and health systems. Researchers must adequately drive the process and build capacity. Funding for building networks would be important as well and the national Department of Health could use some of its funding to bring those networks together.
- Research priorities at national level, are done through a stakeholder consultation processes, and international agenda in terms of relevance to our country. The provincial health research committees conduct their priority settings, however there should be an alignment between provincial and district level priority-setting processes, and most importantly could focus on strengthening health systems including community health.
- The medical schools can consider how Cuba applies a learning health system, it has a responsibility to learn. The aim is to have the entire province as the clinical training platform from the community health worker and first-year medical students supported by family physicians to support districts. This could also be supported by blended learning if the culture of learning delivers the services at a community level. This could be used as a model to strengthen the district health system to make sure learning happens in a blended manner.
- The South African Population Research Infrastructure Network (SAPRIN) has a platform for implementation research to assess the NHI models. It currently has nodes with populations in different geographic areas, both urban and rural, which are good platforms for research.
- NHI will not be a solution for all health system problems and this may present an opportunity to review the health system holistically and use implementation research. It presents an opportunity to review the delivery of health services according to provinces, which is currently fragmented, and how this system can be harmonised into a national health service which could prove to be cost-effective.
- Research days are hosted at district levels and bring together operational managers doing Master's or PhDs, this creates local spaces of engagement which is important for knowledge generation. The research events could also form platforms to engage with communities and this could additionally strengthen districts.

4.5 Session 5

The fifth session was focused on **National Health Research Pillars** and was chaired by Glaudina Loots (Department of Science and Innovation and NHRC). It included the following presentations:

4.5.1 Dr Michelle Mulder (SAMRC)

Dr Mulder's presentation was entitled "*Financing for Health Research and Innovation In SA*". She spoke about **financing for health research** and made the following key points:

She began by providing a recap from the 2018 Summit, including the agreed targets for health research funding in South Africa and the recommendations which were incorporated in the Integrated National Strategic Framework and Plan for Health Research In South Africa (2017 – 2022) [38], viz. that the South African Government investment in research for health should increase to 0.075 per cent (R2.7bn) of GDP by 2021 and to at least 0.15 per cent (R5.4bn) of GDP by 2030, and that total investment in research for health from the aggregated public, private and foreign sectors in South Africa should increase to 0.18 per cent (R6.5bn) of GDP by 2021 to 0.4 per cent (R14.4bn) of GDP by 2030. She said that in absolute terms, health research expenditure almost doubled between 2009/2010 (R3.5 billion) and 2016/2017 (R6.9 billion), representing an absolute increase of 10.2 per cent per annum and an average increase of 4.5 per cent per annum in real terms, but that in 2016/2017 the level of government investment had still been only 0.033 per cent of GDP.

She explored some funding data challenges, including limited access to the data. We concluded that we do not have up-to-date, comprehensive and accurate data on health research funding in South Africa and that efforts should be made to update previously published mapping review exercises for research for health finances by members of the NHRC [39, 40].

Dr Mulder then explored some major international funders for health Research and Innovation (R and I) in South Africa, including the United States (US) National Institutes of Health (NIH), the National Institute of Allergy and Infectious Diseases (NIAID), the US – South Africa Program for Collaborative Biomedical Research, the US Centers for Disease Control (CDC), the Bill and Melinda Gates Foundation (BMGF), the European and Developing Country Clinical Trials Partnership (EDCTP), the Wellcome Trust, and Grand Challenges Canada. She estimated that there is a total of approx. R4.72 billion, excluding European Union (EU), United Kingdom (UK) Government, USAID, and others, contributing to foreign research for health funding in South Africa.

In terms of local funding for health R and I, she said that the majority of R and D activity is taking place in the medical and health sciences (21.5 per cent), some R7.4 billion in 2019/2020, with a minimal increase from R6.9 billion in 2016/2017 – R500M in three years or ~two per cent per annum. She discussed the NRF, the HSRC, the Technology Innovation Agency, and the SAMRC, including their Grant & Innovation Programmes. She touched on Strategic Funding Partnerships, the SAMRC's COVID-19 programme, and the Sub-Saharan Funders Forum. She indicated the importance of the role of the Sub-Saharan Funders Forum, which have been hosted by the SAMRC, in aligning funded research with the research priority areas of the country and continent.

Dr Mulder's concluding remarks included that:

In terms of trends in health R and I funding:

- There is a need for comprehensive monitoring of health R and I investments in South Africa and more accurate data.
- Health R and I investment in South Africa is apparently not growing sufficiently and remains under-funded.
- COVID-19 has:
 - resulted in the emergence of new funders in the health R and I arena;
 - taught us the urgent need to establish capacity for local manufacture of PPE and other medical devices, diagnostics and vaccines - This has accelerated efforts on all of these fronts; and
 - shown that substantial funds can be quickly mobilised when really needed
- South Africa is playing an increasing role in the global R and I arena.
- There is increased recognition of the need to decolonise research.
- International funders are becoming more aware of the need to engage and collaborate locally to ensure their investments are relevant to local priorities and are aligned/coordinated with other funders.
- Health R&I funding is still insufficient and needs to be sustainably grown by tapping into new sources and using innovative funding models.

4.5.2 Prof Mamello Sekhoacha (Chairperson: NHREC and University of the Free State)

Prof Sekhoacha's presentation was entitled "*Health Research Ethics in the Era of Big Data, Pandemic and POPIA*". She spoke about **health research ethics in the era of big data, pandemics and the Protection of Personal Information Act (POPIA), 2013 (Act 4 of 2013)** and made the following key points:

Prof Sekhoacha said that the lessons learned from the COVID-19 pandemic included that the advisory role of the NHREC with respect to COVID-19 had not been clear at the start of the pandemic and that an opportunity had been missed for it to engage in the ministerial task teams. She said that the current South African ethics review model is burdensome in that it requires researchers to obtain multiple ethics approvals. The pandemic had revealed the need for an evaluation of the national ethics review structure. Operational challenges at the level of Research Ethics Committees suggested a need for more explicit operational guidance in the national guidelines [41]. She mentioned the guidelines on conducting research in a pandemic which the NHREC had published to address ethical issues, covered inter alia, the collectivist principles of social and distributive justice, the international collaborative research and the need for inclusivity, the need for balancing research ethics concepts with public health research principles, the use of placebo in a pandemic, informed consent and Material Transfer Agreements (MTA's), equipoise and the need for community engagement to build public trust [42].

She then addressed health research ethics in the era of big data, pandemic and the POPIA [43, 44]. She described the role of big data in health and health research, the issue of "big data exceptionalism", and some ethical concerns and ethical concepts which are challenged by uses of big data, including protection of personal privacy, respecting participants' autonomy, informed consent, compromised data protection being a possible violation of human rights, achieving equity, transparency, justice, fairness and reciprocity, insufficient public engagement leading to a trust deficit and the need for balancing data protection and privacy concerns with data sharing and open science as a persistent challenge [45]. She explored each of these in turn, with examples. She specifically explored trans-border data sharing and the responsibilities of research institutions, governance and policy, and suggested standards to raise data quality.

In conclusion she said that as technological developments continue apace, ethical foresight and flexibility are required to reduce risk of harm while promoting ethical conduct across the board, that at this stage, other risks from big data research and its applications might still be largely unknown. Further, that with artificial intelligence (AI) and machine learning techniques beginning to outstrip our capacity to understand and adapt, the ethical risks should be anticipated, and measures put in place to reduce their likelihood and impact. She suggested the following substantial norms and procedural values as being relevant to the big data context: substantial norms (harm minimisation, integrity, justice, liberty/autonomy, privacy, proportionality, public benefit, solidarity, and stewardship) and procedural values (accountability, consistency, adaptability, engagement, reasonableness, reflexivity, transparency, trustworthiness, monitoring, responsiveness and inclusiveness).

4.5.3 Thulile Zondi (National Department of Health)

Ms Zondi's presentation was entitled "*National Health Observatory (NHO) and Research in South Africa*". She spoke about **monitoring and evaluation and the research observatory** and made the following key points:

She asked why we need a NHO and gave as reasons fragmented information and information systems, and a consequent lack of research monitoring data. She mentioned that one of the priority interventions of the National Digital Health Strategy for South Africa 2019- 2024 [46] is to establish a South African National Health Observatory, in line with the WHO guidelines, and gave some background on the WHO Global Health Observatory [47, 48]. She also touched on the iAHO single multi-country platform. She mentioned the NHRD (which is specific to health research) and its history as well as the National Health Information Repository and Data warehouse (NHIRD), and its limitations.

She then described the functions of an observatory, viz. that it should be a "one-stop-shop for health information". She said that WHO SAAFRO had committed to supporting South Africa with development of a NHO, but that that approach was changed in 2020 with WHO supporting an iAHO. She described the initial work which had been done in the first half of 2021 at the NDoH, following the first phase. The NHO will be targeting, as data sources, routine health information systems, civil registration, health research, surveys/census, surveillances and M-Health, defined by the WHO as the use of mobile and wireless technologies to support the achievement of health objectives. She listed the routine reports available on the NHRD, including operational reports (general overview, field of study, health categories and timeline view) and strategic reports (research expenditure per field of study and per health category, field of study and health category per province, unique applications received, studies per research organisation and province, and the ability to download raw data). She showed some NHRD statistics for the last seven years (**Table 2**), broken down into health categories using the NHRD Automatic Classification System (Health Categories) [49].

Table 2: Total number of studies submitted on NHRD from 2015 to 2021

Health category	2015*	2016*	2017*	2018*	2019*	2020 [#]	2021 [#]	Total	Ranking
Blood	8	19	19	81	45	87	76	290	10
Cancer and neoplasms	78	55	116	231	185	171	170	821	5
Cardiovascular	62	71	168	224	176	110	128	763	6
Congenital disorders	2	9	1	13	18	45	40	110	16
Ear	9	5	9	18	20	20	18	79	17
Eye	4	10	3	9	8	59	26	111	14
Infection	495	595	744	870	638	488	414	3606	1
Injuries and accidents	48	51	65	110	113	101	90	465	8
Mental health	148	217	252	381	272	229	223	1450	4
Metabolic and endocrine	53	77	101	134	120	133	186	684	7
Musculoskeletal	6	0	29	68	25	51	62	216	12
Neurological	1	3	0	4	2	76	59	143	15
Oral and gastrointestinal	5	16	2	68	39	63	66	220	11
Renal and urogenital	30	35	62	74	80	51	69	220	
Reproductive health and childbirth	199	238	313	455	418	211	224	321	9
Respiratory	40	51	76	96	112	272	272	1640	3
Skin	0	0	3	6	0	24	19	52	18
Stroke	28	39	42	59	42	27	19	214	12
Generic health relevance	394	497	635	751	685	458	436	3171	2
Total	1 241	1 608	1 996	2 511	2 208	2 676	2 597	11 405	

*Estimation of trends: 2015 – 2019

Self classification of studies (researchers): 2020 -2021 according to UK classification system

She described the envisaged research module of the NHO, and pointed out that the adopted NHO platform includes a research module, which is being explored for configuration. Data entry will commence with key indicators and possibly main national population surveys e.g. SADHS, HIV prevalence survey and others. The outputs will be shared broadly.

Lastly, she mentioned some lessons which had been learned from Phase 1 of the NHO rollout, including that extra capacity was needed to commence the first phase of the project; that it does not resolve the problem of fragmentation on the ground and that concerns remain about the comparability of some of the adjusted indicators to fit the local situation.

In terms of future considerations, the NDoH intends to establish a National Health Observatory Technical Group, to work with the NHRC and relevant stakeholders to establish an appropriate NHO research module, to adopt South African indicators and data sources for the iAHO and to explore the automation of South African NHO updates.

4.5.4 Dr Michael McCaul (Stellenbosch University)

Dr McCaul's presentation was entitled "*Evidence Informed decision making: Translation in Health Research*". He spoke about **translation in health research** and made the following key points:

He described the flow of evidence from research to policy to large scale change, the "evidence ecosystem", facilitating factors (including personal contact between researcher and policymaker, timeliness and relevance of research and good quality research) and barriers (including power and budget struggles) for policymakers. He asserted that "it is all about relationships". He said that research priority setting must be a joint effort and that health research priority setting processes should assist researchers and policymakers in effectively targeting research that has the greatest potential public health benefit. Resources should be used to reduce duplication of effort and research wastage. Researchers need to take stock of what is known and interpret research findings in this context. Research needs to be high quality and robust; reporting needs to be accurate and transparent.

He asked what the role of knowledge translation (KT) is and covered some strategies to enhance research use, emphasising the importance of joint efforts and working together of policymakers and researchers [50, 51]. He covered some models of knowledge translation – push, pull, shared and integrated. He described a widely accepted approach for translating knowledge to action and suggested some ways to increase the use and impact of (research) evidence, including KT training. He used the example of the South African GRADE network.

Dr McCaul concluded by saying that we should not be funding, commissioning or doing research if there is not a purpose for its use; that KT needs to happen at the end and that there needs to be continuous co-production for relevance. Further, that the building, maintaining, and sustaining of relationships across individual, institutional and network level is critical.

4.5.5 Prof Anne von Gottberg (University of the Witwatersrand and National Institute of Communicable Diseases)

Prof von Gottberg's presentation was entitled "*SARS CoV 2 sequencing in South Africa: progress, lessons and next steps*". She spoke about **genomics in health research** and made the following key points:

She said that the objectives of SARS CoV-2 genomic surveillance were to detect, monitor and investigate virus variants, to support epidemiological and genomic virological characterisation of variants, to obtain timely and accurate information on the emergence and circulation of variants of concern (VOCs) and variants of interest (VOIs) and to develop robust surveillance systems [52, 53]. She spoke about the need for national (population-based) surveillance for sequencing, for a long-term, ongoing strategy, and for planning for our ongoing public health challenges. Prof von Gottberg described the process for submission of routine as well as of special interest specimens for SARS CoV-2 sequencing in South Africa. She described the steps in the discovery of the omicron variant. She then covered some new objectives for SARS CoV-2 sequencing, the possibility of expanding influenza surveillance for COVID-19, the chance to use sentinel surveillance platforms for SARS CoV-2 genomic surveillance. She touched on some research being done on a vaccine for Respiratory Syncytial Virus (RSV), on the genomic epidemiology of *Bordetella pertussis*, and on *Group B Streptococcus*. Her conclusions included that it is not clear where SARS CoV-2 will go, but that we can replicate some systems from influenza, that we need ongoing surveillance for clinical severity and seasonality, that there is a need for "rightsizing", that we need to explore what seasonal coronavirus can teach us about the next steps and focus on the WHO coronavirus laboratory network. We need to apply lessons learnt to other pathogens, build our sequencing and bioinformatics capacity and "remember to prepare for the next pandemic".

4.5.6 Further questions, inputs and comments from delegates

- Health research funding flows will require further in-depth analysis and information from various sources to quantify spending on health research in the country. Postgraduate students (MSc or PhD) could be funded by the government to do the analysis.
- International funders must be provided with national research priorities to enable funding of research that can be translated into good quality healthcare and address social determinants of health. There must also be good alignment between funders and priority setting which could ensure that funders do not drive the research agenda of the country.
- A national central ethics review body which may work under emergencies or pandemics, is currently under discussion at the NHREC. Currently researchers use RECs accredited with the NHREC for ethical review of research either based at their institutions or other institutions.
- The SARS COV-2 sequencing genomic surveillance was helpful in identifying different variants and this should be considered for other emerging pathogens.

5. Closing session

The final session was facilitated by Dr Tony Hawkrige (Member: NHRC).

He gave a **high-level summary of the proceedings of the 2022 summit in the light of previous summit recommendations**. He made the following points:

In terms of **suggestions for improvements**, the following were identified:

As researchers for health, we need to:

General points: Improve healthcare delivery and quality of life; rise above politics; stay ahead of the curve; renew our efforts.

Responsiveness: Be nimble, agile and rapid in our responses; be adaptive and able to adjust to remain “useful to planning”; pivot our expertise to where it is needed; not become numb to the statistics; seek out the “shadow pandemics” and the “silent pandemics”.

Collaboration, sharing, partnerships: Continuously collaborate, and do not wait for a crisis; share our data, knowledge and results rapidly – e.g., through pre-prints; work across disciplines – a multidisciplinary approach is essential, particularly in a community-based research setting; consult widely; build partnerships with the health department/s; collaborate globally and locally; work towards universal open access surveillance and collaboration and network, as institutions cannot “do it all on their own”.

Data management: Support policymakers to use the best available evidence, rather than waiting for the best evidence to emerge.

Funding: Consider/look for non-traditional funders e.g., the Solidarity Fund.

Agenda setting/focus: Avoid targeting a single disease in our efforts to reach targets (e.g., SDG 3.4, NCD); look for “research gaps” e.g., the non-optimal detection rate of NCDs; remember that “it is not all about COVID-19”; bring the tools developed during COVID-19 to bear on the entire sector (also applies to the Department of Health); move from personal/individual viewpoint to a public health/population/policy viewpoint; recognise role of broader socio-economic conditions; stop “slicing and dicing” and “carving into blocks” – look for “inter-linkages” and reach the whole person.

Human resources: Invest in quality succession planning – our academic leadership is ageing.

Research translation: Adopt strategies to enhance research use; be proactive rather than reactive, interactive rather than inactive; promote knowledge translation courses; do not fund, commission or do research if there is not a purpose for its use.

As health departments we need to:

Leadership: Continue to play a leadership role locally, regionally and globally; rebuild trust in our health institutions; “stabilise the whole Southern African Development Community (SADC) region”; “utilise research to inform reform of the health system towards district, sub-district and community based focus”; remember that the private sector also has an important role to play in research for health (e.g., private pathology laboratories); ensure that national and provincial departments are pulling together.

Agenda setting: Have the “right” research agenda; ensure that research advances benefit everyone; support high quality research; reclaim control of the neglected diseases and educate funders about the priorities and dynamics in the country.

Responsiveness: Act quickly when necessary.

Stewardship: Prioritise scarce resources; build relationships with academics; recognise the importance of modelling to health; invest in basic science research e.g., immunology; engage in comprehensive monitoring and evaluation, data gathering to build picture of financing of research for health.

Capacity building: Build a strong research culture for the next generation of researchers respecting demographic representation of the country; invest in vaccine manufacturing capacity.

Engagement, communication, partnerships, networking: Engage with the public to build trust, better understand the human toll of the COVID-19 epidemic and better understand vaccine hesitancy and its causes; forge public private partnerships, but they need to be “proper partnerships with commitment from both sides, working together and not against each other”; tap into new sources, innovative new funding models.

Data and health information management: Aim for agile systems which can collect and report data; build “redundancy across platforms”; work towards incorporating public and private sector data into one system – so that departments can understand the full spectrum; work towards interoperable systems – one health approach, cross border coordination, subnational level systems, to augment surveillance and disease intelligence; continue the exciting work around the National Health Data Observatory.

Health departments need to: Remember to include **traditional and allied health practitioners** in all research for health deliberations; not forget about **occupational health, occupational disease, and occupational injuries**, which affect 17 million South Africans, five million in the formal sector.

Health departments need to pay attention to **research ethics**: Ethical oversight and flexibility; anticipate ethical risks and put measures in place to reduce likelihood and impact; review regulatory and ethical frameworks regularly; look at issues around implementation and operational research, private clinical trials sites, and fees for ethical review.

In terms of suggestions for further research, there were many, including:

Maternal health and COVID-19: Causes of death, private sector, home deaths, avoidable factors – collateral effects of the pandemic, delayed impacts.

NHI/UHC: Revenue collection, quantifying existing resources, creating incentives in CUP funding options, risk profiling health establishments, reliability of complaints trends, ensuring health service quality, assessing multi-disciplinary health establishments, reasons for non-compliance with norms and standards, reliability of tools, cross-cutting measures, etc.

Child health: Changing needs of child health research - mortality (neonatal, infectious diseases, trauma) and morbidity (disability, mental health and intellectual disability); new priorities: under five's – neonatal services, nurturing care framework; over five's – neuro-developmental conditions, mental health; service platform – quality standards, effective coverage.

Violence and injuries: Key initiatives in child abuse, need for more intervention research; stepping up monitoring and evaluation of local experiences; injury costing studies; multisectoral and multidisciplinary initiatives.

6. Closure

Thulile Zondi (Chief Director: Health Information Research Monitoring and Evaluation in the National Department of Health) then made **closing remarks** and concluded the meeting.

7. Recommendations of the 2022 Summit

- 7.1 Ongoing advances in research for health should incorporate and embrace advances in technology, digital health and the fourth industrial revolution (4IR).
- 7.2 The implementation of UHC and NHI as its funding mechanism should be informed and underpinned by research in implementation science, epidemiological trends as well as social and structural determinants of health.
- 7.3 Investments in basic science research, innovation, manufacturing of diagnostics, therapeutics and vaccines – including capacity development and discovery research to drive them are critical going forward.
- 7.4 Investments in national genomic and epidemiological surveillance systems and scientific modelling, are necessary in the planning, management, and resource allocation for current infectious and non-infectious threats, as well as future pandemics.
- 7.5 The pandemic highlighted the necessity to strengthen collaborative partnerships at national and global level-including the WHO, local and international funders, universities and HEIs, PPPs, mobile companies, civil society, and research communities – all should be strengthened to advance research for health.
- 7.6 The direct and indirect effects of COVID-19, amongst others, compounded the burden of NCDs, contributed to loss of gains made in reduction of maternal mortality, exacerbated GBV and expanded the depth of mental ill-health. Hence research on both the direct biological effects of infectious agents and their indirect impact on health systems requires emphasis, within and beyond pandemics.
- 7.7 In addition to research on health system resilience, strengthening and preparedness for current and future pandemics (infectious and non-communicable), research aimed at discerning the extent of the human toll in a pandemic, social drivers and human behavior contributing to ill-health as well as underlying psychosocial drivers for vaccine hesitancy remains lacking.
- 7.8 Research related to infectious, respiratory, nutritional conditions as well as SIDS and injury should be prioritised to reduce under five year childhood mortality, whereas research on mental conditions and substance abuse should be areas of additional focus for older children.
- 7.9 There is a need to reinforce research on the behavioral science and psychosocial aspects underlying the abuse of alcohol, drugs, and other intoxicating substances as they contribute to the burden of violence and injury – including homicide, road traffic accidents and GBV - to inform and fortify policies for prevention of morbidity and mortality related to violence and injuries.

- 7.10 Research to inform implementation of the NHI, the funding model for attainment of UHC, should include amongst others, revenue collection for the NHI Fund, enumeration of PHC personal care cost and exploration of funding models for Contracting Unit for Primary Services (CUPS). Strengthening district and subdistrict level research and governance should include formalisation of district and sub-district learning partnerships (e.g. between researchers, HEIs and policy makers) as well as implementing DHS ‘literacy’ and capacity development. Further, addressing community engagement, social and structural determinants health, strengthening governance and leadership, transparency, inclusivity and accountability, and allocation of adequate resources remain fundamental.
- 7.11 As part of PHC re-engineering and reform, integration and coordination of key healthcare system policies, guidelines, and practices, such as those pertaining to HIV and AIDS, TB, metabolic syndrome, maternal child health and cancer, remains paramount.
- 7.12 PPPs should be further strengthened as additional opportunities for research, research funding, innovation and to support capacity building for research.
- 7.13 Research and mapping exercises to track funding resources for research for health should be prioritised, further, strategic, and legislative frameworks should be explored to ensure alignment of government investment in research for health with commitments made internationally to finance health research (such as the Mexico and Bamako Declarations). Given that funding sources and agencies for health research are predominantly international, initiatives (such as the SAMRC’s Funders Fora) aimed at aligning external funding with research for health priorities for the country should be strongly supported and sustained. New financial partnerships uncovered by the pandemic should be further strengthened and explored to support research for health. The establishment of a National Research for Health Priority Fund, to fund health research priorities, supported by international and novel sources of funding (including the private sector), should be a foremost priority for implementation.
- 7.14 The optimisation, implementation of, and user compliance with research monitoring tools, such as NHRD should be supported and finalised, to inform whether the nature of research is aligned with national health research priorities, and further, to assist with capacity development by identifying the caliber of research, institutional eminence (historically advantaged versus disadvantaged), geographic locations and ilk of researchers.
- 7.15 The institutional research ethical review processes, encompassing those relating to academic health complexes and health facilities within communities, and particularly during public health crises (including but not restricted to pandemics), should be capacitated to embrace agility and flexibility (including consideration for REC reciprocity within institutions and research sites). This will allow for rapid generation of new knowledge, and facilitate its utility to inform policy, guidance and practice.
- 7.16 There should be a coordinated effort towards the realization of a National Research for Health Translation Hub – to facilitate the translation and implementation of historically generated and novel information, findings and data into impactful evidence-based policy, guidance, and practice.

8. Conclusion and way forward

Akin to previous NHRC Summits (2011, 2018), the *2022 Summit* was an important forum and platform to engage and deliberate with all stakeholders involved in research for health. Its recommendations, along with that from previous summits, provide guidance and focus areas for stakeholders involved in research for health to improve the health and wellness of all South Africans, irrespective of background. Further, the summit recommendations provide a lucid vision and strategy on the requisites for strengthening the NHRS, and an indelible roadmap for adoption and implementation by current and future NHRCs, PHRCs, national and provincial departments (health, water and sanitation, higher education, etc.), HEIs, funders, industry, private health institutions, research communities and communities. The recommendations throughout the summits are consistently clear, and whilst some have been achieved, many remain to be implemented.

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National Department of Health

**Dr AB Xuma Building,
1112 Voortrekker Rd,
Pretoria Townlands 351-JR,
PRETORIA, 0187**

Switchboard: 012 395 8000