PRIMARY HEALTHCARE

LABORATORY HANDBOOK

A STEP-BY-STEP GUIDE

May 2018

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

NATIONAL HEALTH
LABORATORY SERVICE

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Ideal Clinic Team

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- Dr Ruth Lekalakala (Pathologist Microbiology NHLS)
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Department of Health (DoH) stakeholders

- Ms Jeanette Hunter (NDoH DDG: Primary Healthcare)
- Dr Yogan Pillay (NDoH DDG: HIV and AIDS, TB and Maternal, Child and Women's Health)
- Dr Anban Pillay (NDoH DDG: Health Regulatory and Compliance Management)
- National District Health Services Committee
- National and PHC Essential Medicine List Committees
- National Clinical Programme Managers
- Provincial Laboratory Co-ordinators
- Provincial representatives who participated in the National Consultation Workshop

NHLS Resources

- NHLS Laboratory Handbook (served as a reference document)
- NHLS Tshwane Laboratory User Handbook

NHLS Stakeholders

- NHLS CEO
- NHLS Executive Management Team
- NHLS Business Managers
- NHLS Expert Committees
- Representatives who participated in the National Consultation Workshop

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PEPFAR

USAID
FROM THE AMERICAN PEOPLE

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

PRIMARY HEALTHCARE

LABORATORY HANDBOOK

A STEP-BY-STEP GUIDE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ACRONYMS

Acronym	Description
ALP	Alkaline Phosphatase
ALT	Alanine Transaminase
DBS	Dried blood spot
CCMT	Comprehensive Care, Management and Treatment of HIV and AIDS
CRAG	Cryptococcal Antigen test
DMT	District management team
DoB	Date of birth
DoH	Department of Health
EDTA	Ethylene-diamine-tetra-acetic acid
EID	Early infant diagnosis
ELL	Essential laboratory list
EML	Essential medicines list
FBC	Full blood count
FNA	Fine needle aspirate
FT4	Free Thyroxine 4
GGT	Gamma GT
HbA1c	Glycated Haemoglobin
HCW	Healthcare worker
HIV	Human Immunodeficiency Virus
HPCSA	Health Professions Council for South Africa
HPRS	Health Patient Registration System
HSV	Herpes simplex virus
ICSM	Integrated Clinical Services Management
INR	International normalized ratio
LBC	Liquid-based cytology
LDL-C	LDL-Cholesterol
LIS	Laboratory Information System

Acronym	Description
MC&S	Microscopy, culture and sensitivity
MP	Medical practice number
MTB	Mycobacterium tuberculosis
NDHSC	National District Health Services Committee
NDoH	National Department of Health
NHLS	National Health Laboratory Service
PCR	Polymerase Chain Reaction
PHC	Primary healthcare
PFMA	The Public Finance Management Act
POC	Point-of-care
PPT	Plasma preparation tube
PSA	Prostate-Specific Ag
Rh	Rhesus Factor
RIF	Rifampicin
RTC	Regional Training Centres
SANC	South African Nursing Council
SLA	Service level agreement
SMS	Short message service
SOP	Standard operating procedure
SST	Serum separator tube
TAT	Turn-around times
TB	Tuberculosis
TSH	Thyroid-stimulating hormone
WBC	White Blood Cell

A key to icons used this handbook

References to appendices

References to forms

Principles to be followed

Instructions for procedures

Notes and things to remember

PRIMARY HEALTHCARE LABORATORY HANDBOOK

a step-by-step guide

INTRODUCTION

OVERVIEW

INTRODUCTION TO THE HANDBOOK

The National Department of Health (NDoH) is committed to providing quality and affordable healthcare that includes access to cost effective and efficient laboratory services. An integrated package of essential health services, as defined for primary healthcare (PHC) level in all health districts, will provide a solid foundation for a single, unified and standardised health system. The overall aim of this synergistic approach is to achieve optimal health outcomes

The 'Ideal Clinic' programme is an initiative that commenced in July 2013 as a way of systematically improving and correcting deficiencies in PHC facilities in the public sector. An Ideal Clinic is therefore a clinic with good infrastructure, adequate staff, adequate medicine and supplies, good administrative processes, and adequate bulk supplies that use applicable clinical policies, protocols and guidelines as well as partner and stakeholder support, to ensure the provision of quality health services to the community. An Ideal Clinic cooperates with entities including other government departments, public entities, private sector and non-governmental organisations to address the social determinants of health.

The *Integrated Clinical Services Management (ICSM) model* is a key focus within the Ideal Clinic. The ICSM model is a health system strengthening model which builds on the strengths of the HIV programme to deliver integrated care to patients with chronic and/or acute diseases or who come for preventative services, by taking a patient-centric view that encompasses the full value chain of continuum of care and support.

PHC services are defined by a recognised package of services to be delivered at that level according to appropriate clinical guidelines. These clinical guidelines have been used to define the *PHC Essential Laboratory List (PHC ELL)* as approved by the National Health Council in 2015 (PHC ELL is to be found in **Appendix A** of this handbook). The intention of the ELL is to guide cost-effective selection of laboratory testing towards improving the quality of care rendered.

appendix A Page 108

The PHC ELL should be reviewed regularly to ensure concurrence with all updated clinical guidelines and protocols.

Thus, the NDoH and National Health Laboratory Services (NHLS) have jointly developed this *PHC Laboratory Handbook* to improve the quality of service delivery and patient care as we move towards the full implementation of the ICSM model. The management of laboratory services is a sub-component 14 of the Ideal Clinic Dashboard.

Ideal Clinic Dashboard: Elements for management of laboratory services

National Core Standards	Component	Sub-component	ELEMENTS		Weight	MM	Level of responsibility	Check list	Performance
DOMAIN 3: CLINICAL SUPPORT SERVICES	3. Pharmaceuticals and Laboratory Services	**14. Management of laboratory services:** Monitor consistent availability and use of laboratory services							
			106	Primary Healthcare Laboratory Handbook is available	E	&	NDoH		
			107	Required functional diagnostic equipment and concurrent consumables for point of care testing are available	E	K	HF	Y	
			108	Required specimen collection materials and stationery are available	E	K	HF	Y	
			109	Specimens are collected, packaged, stored and prepared for transportation according to the *Primary Healthcare Laboratory Handbook*	E	K	HF	Y	
			110	Laboratory results are received from the laboratory within the specified turnaround times	E	&	HF	Y	

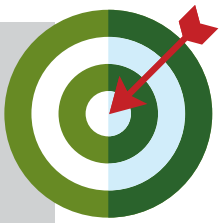
Sub component 14

The relevant elements of the sub-components are:

- The *PHC Laboratory Handbook* is available.
- Required functional diagnostic equipment and concurrent consumables for point of care testing are available.
- Required specimen collection materials and stationery are available.
- Specimens are collected, packaged, stored and prepared for transportation according to the *PHC Laboratory Handbook*.
- The laboratory results are received from the laboratory within the specified turn-around times.

The development of the *PHC Laboratory Handbook* is based on the following **objectives**:

1. To entrench a common integrated approach to enhance the quality of PHC services
2. The standardisation of clinic-laboratory processes.
3. To ensure cost effective laboratory service utilisation.
4. To provide standardised systems and procedures for requesting laboratory tests, related specimen collection materials and for access to results.



The aim of this handbook is to improve accessibility of laboratory services and enhance appropriate laboratory utilisation. The standardisation of clinic-laboratory processes will facilitate appropriate test selection and adequate collection, packaging, storage, recording and submission of specimens. Furthermore, it is expected that these standardised processes will harmonise and strengthen the interaction between health facilities and the laboratory service.

It is envisaged that this laboratory handbook will bring closer cooperation between facility managers and their local laboratory managers to ensure optimal quality health services.

Legal mandate

a. The content of this handbook is informed by the following legislation:

- *National Health Act* (61 of 2003) as amended
- *National Health Laboratory Service Act* (37 of 2000)
- *National Health Laboratory Service Amendment Bill* (1093 of 2015)
- *The Public Finance Management Act* (Act 1 of 1999)
- *Public Service Act Proclamation* (103 of 1994)

b. Provision of laboratory services

- The NHLS is a national public entity established in terms of the National Health Laboratory Service Act, 2000 (Act 37 of 2000) to provide quality, affordable and sustainable health laboratory and related public health services.
- Laboratory services as defined by the NHLS Act and the NHLS Amendment Bill are provided by the NHLS as guided by service level agreements (SLAs) with all the provinces.

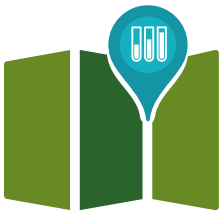
- **Confidentiality**: The NHLS ensures protection of personal information by ensuring that all employees are aware that patient information is confidential. There is a standard operating procedure (SOP) on confidentiality that all employees are expected to comply with. Access to electronic information is managed through a formal registration process and password-protected access. Therefore, laboratory employees and registered healthcare workers are allocated appropriate access levels depending on their scope of work and/or responsibilities. **Hard copy patient results should be delivered in sealed envelopes.**

It is anticipated that orientation on the use of this *PHC Laboratory Handbook* will be provided in a cascade training approach jointly by the local NHLS laboratory and the Regional Training Centres of the provincial departments of health.

Clinic-laboratory interface

The health facility and the local NHLS laboratory manager should meet on a regular basis to address issues related to laboratory services. Through open communication channels, minor problems could be solved rapidly without the need for escalation. Ultimately, both managers take the responsibility of providing good quality healthcare services to their local communities.

It is therefore critical for the health facility manager to know the following:



LOCAL SUPPORTING LABORATORY: LOCATION AND CONTACT DETAILS

LABORATORY MANAGER: CONTACT DETAILS

LABORATORY COURIER SERVICE ARRANGEMENT

The health facility operational manager may use either the *PHC Laboratory Handbook* (**Appendix D**) or the *NHLS website* (www.nhls.ac.za) to determine their local NHLS support laboratory and details as above (refer to **Section 8** (page 105 for step-by-step instructions on how to find laboratory contact details). At the district level, the NHLS business manager should participate regularly in the quarterly district management team (DMT) meetings to ensure concerns are addressed, such as:

appendix D Page 113

Poor laboratory performance:

- Turn-around times (TAT)
- Availability of specimen collection materials
- Adherence to agreed laboratory courier collection schedules

Poor facility performance:

- Incomplete request forms
- Inadequate specimen collection
- Inappropriate specimen storage

Revision and review of the laboratory courier service to align with facility requirements:

- Frequency of daily collection (per heath facility)
- Days when collection will take place
- Collection times

appendix D Page 115

Where these local approaches have failed, the following escalation procedure should be followed:

Refer to Appendix D for local laboratory contact details and corresponding hours of operation.

OVERVIEW OF THE HANDBOOK

This handbook has been designed to provide the facility manager with guidance to manage and monitor consistent availability of appropriate laboratory services.

The handbook provides a step-by-step guide for the process of identifying, collecting and submitting laboratory specimens by PHC facilities to their local NHLS laboratory. It has been developed to enhance the appropriate use of the diagnostic laboratory services as part of the ICSM approach. In addition, it aims to foster an understanding of appropriate, relevant and cost effective tests that should be performed at the PHC level. The core elements of the handbook are depicted graphically below.

Figure 1: Core elements of the *PHC Laboratory Handbook*

Laboratory services within a patient-centric PHC service

The use of clinical guidelines or standard treatment guidelines assists clinicians to identify the appropriate laboratory tests to be performed using a patient-focused consultation and management approach as part of the ICSM model described below. This enhances a rational application of the selection of appropriate tests from the PHC-ELL.

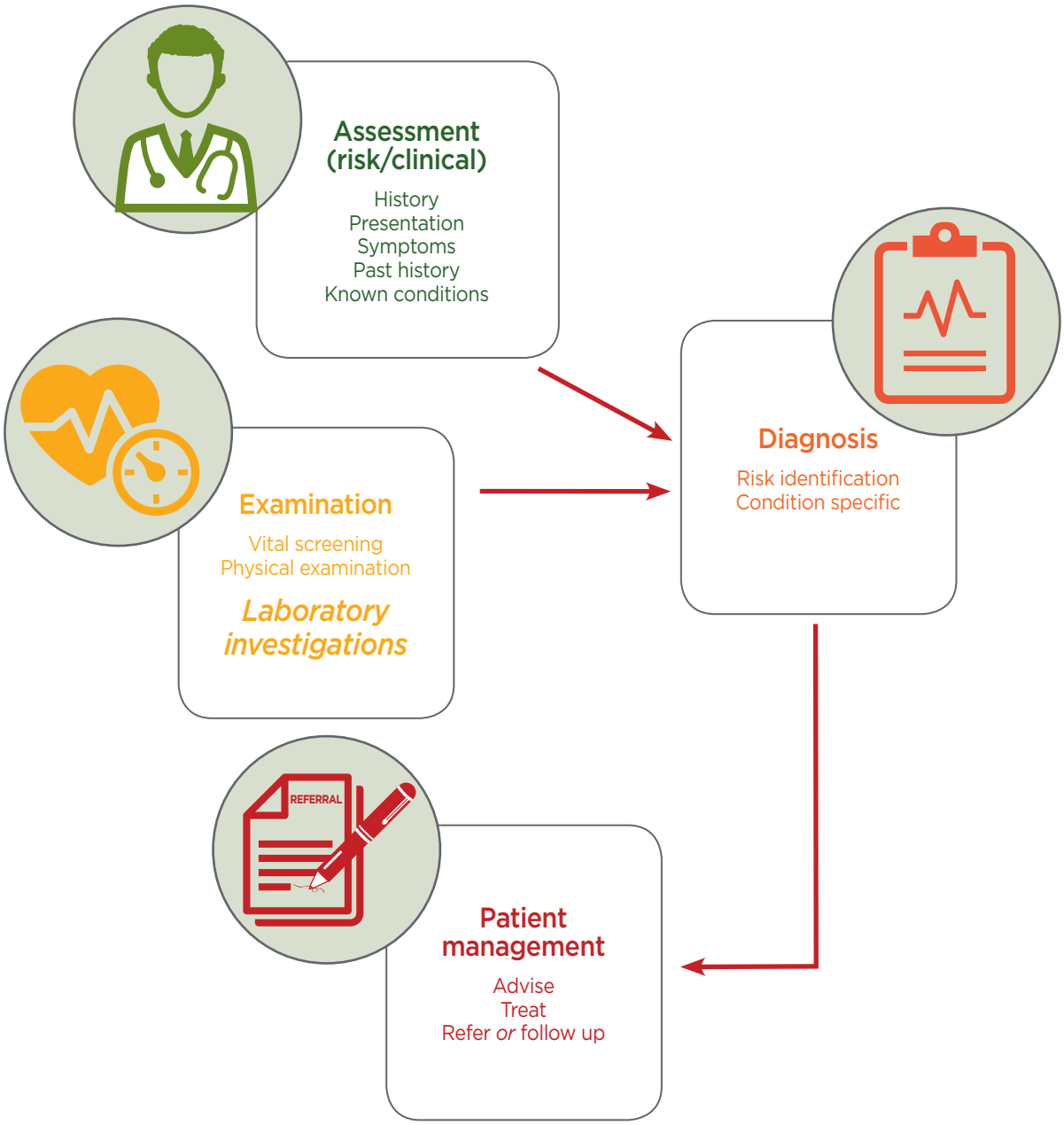


Figure 2: Laboratory services within the ICSM model

PHC Essential Laboratory List

Key:

PHC	This test may be requested by all healthcare professional, i.e. nurse and doctor
PHC with Doctor (Dr)	This test may only be requested by a doctor

Test	Category
Chemical Pathology	
ALP (Alkaline Phosphatase)	PHC with Dr
ALT (Alanine Transaminase)	PHC
Amylase/Lipase	PHC with Dr
Calcium (serum)	PHC with Dr
Cholesterol	PHC
Creatinine (eGFR) (serum)	PHC
CRP (C-reactive protein)	PHC with Dr
Folate (serum)	PHC with Dr
FT4 (Free Thyroxine 4)	PHC with Dr
Gamma GT (GGT) (Serum)	PHC with Dr
Glucose	PHC
HbA1c (Glycated Haemoglobin)	PHC
LDL-Cholesterol (LDL-C)	PHC with Dr
Phenytoin	PHC with Dr
Pleural effusion Protein	PHC with Dr
Potassium (serum)	PHC
Prostate-Specific Ag (PSA)	PHC with Dr
Sodium (serum)	PHC with Dr
Total Bilirubin	PHC with Dr
Triglycerides	PHC
TSH (Thyroid-stimulating hormone)	PHC
Uric Acid (serum)	PHC
Urine albumin: creatinine ratio	PHC with Dr
Urine protein: creatinine ratio	PHC with Dr
Vitamin B12	PHC with Dr
Haematology	
Differential count	PHC with Dr
Full Blood Count (FBC)	PHC with Dr

Test	Category
Haemoglobin	PHC with Dr
INR (International Normalized Ratio)	PHC with Dr
Platelets	PHC with Dr
Red Cell Antibody screen (Coomb's Test) or the "Direct Antiglobulin Test (DAT)"	PHC
White Blood Cell (WBC)	PHC
Blood Grouping	
ABO (Blood grouping)	PHC
Rhesus Factor (Rh)	PHC
Microbiology	
CRAG (Cryptococcal Antigen test)	PHC with Dr
Hepatitis A IgM	PHC with Dr
Hepatitis B Surface Ag	PHC with Dr
Pleural effusion MCS	PHC with Dr
Stool parasites – Bilharzia & other parasites.	PHC with Dr
Syphilis Serology	PHC
MCS (Microscopy, culture band sensitivity)	PHC with Dr
HIV	
CD4 Count	PHC
HIV Elisa (discordant rapids)	PHC
HIV PCR for infants	PHC
Viral Load	PHC
TB	
TB Culture	PHC
TB Drug Susceptibility	PHC
TB Line Probe Assay (Hain MTBDR)	PHC
TB Smear microscopy	PHC
X-pert MTB/RIF	PHC
Cytopathology	
Cytology for aspirates including lymph nodes	PHC with Dr
Pap smear	PHC

High-level processes for the core elements in relation to patient care

The flow diagram below depicts the high-level processes for each of the core elements in the handbook as they relate to clinical service delivery.

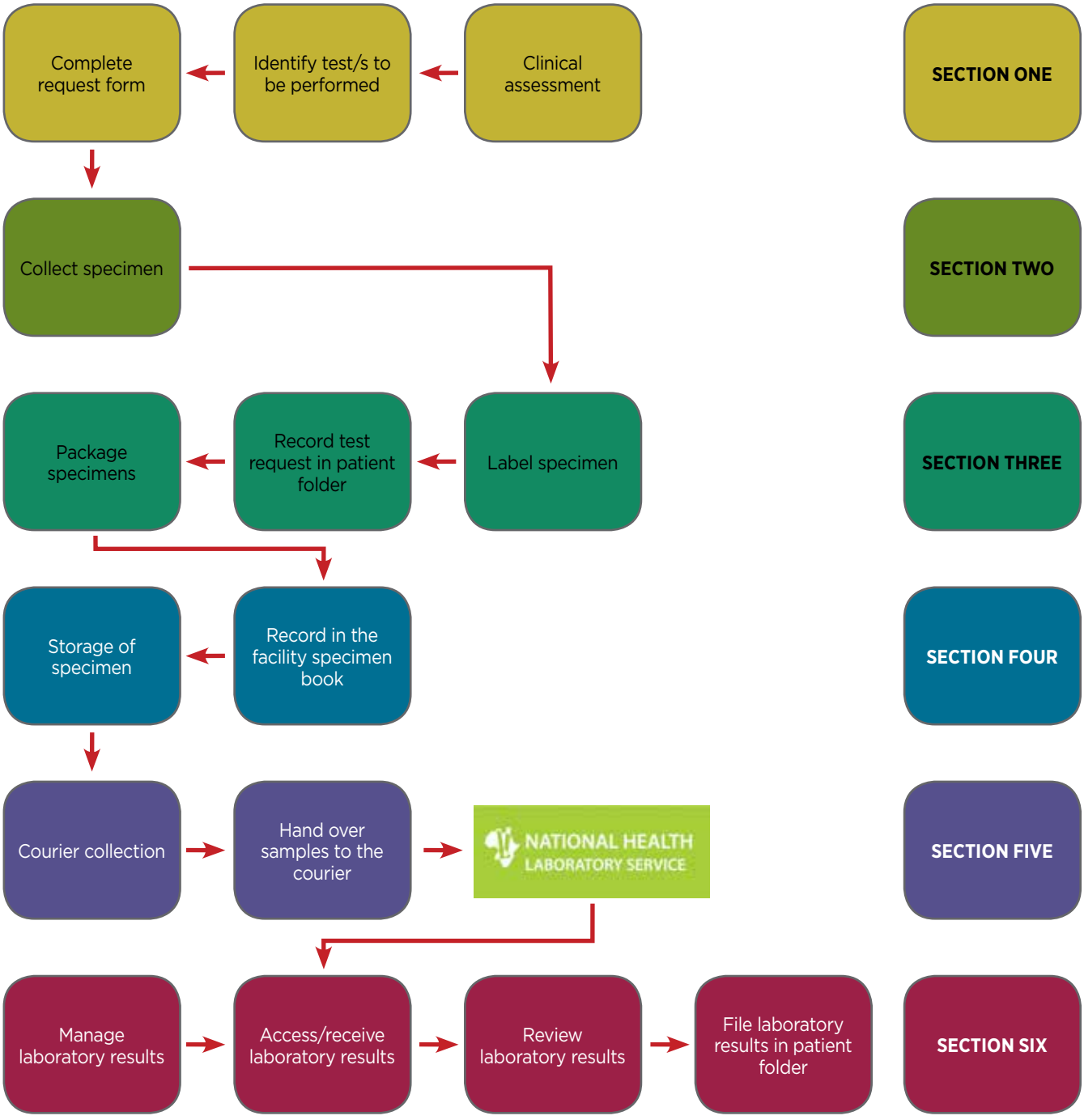


Figure 3: High-level processes for the core elements in relation to patient care


section
1
COMPLETE REQUEST FORM
section
2
Collect specimen
section
3
Package specimen

SECTION ONE

COMPLETE REQUEST FORM

section 4 — Specimen storage

section 5 — Specimen collection by courier

section 6 — Manage laboratory results

section 7 — Order specimen collection materials

section 8 — Access to additional information

Based on the clinical assessment of the patient, identify the appropriate and relevant laboratory tests to be performed based on clinical guidelines and then confirm specific test requirements from the PHC ELL detailed list.

GENERAL PRINCIPLES

Principles *for appropriate laboratory testing by healthcare professionals*

- Laboratory investigations should be requested for a specified clinical indication and not merely as a routine procedure.
- The authorised requesting healthcare professional must have a clear indication and define the purpose or reason for each laboratory investigation.

The following questions may assist in defining the purpose/indication:

- Will the result modify or change the diagnosis, management or treatment of the patient? (i.e. is it clinically justified?)
- Was this test requested previously, is there any reason to repeat (i.e. do the previous results still have clinical relevance?)

- Proper clinical examination should precede the selection of diagnostic laboratory tests.
- Tests should not be repeated because results are not available, unless the laboratory confirms that the specimen was not received by the laboratory e.g. lost in transit or rejected for a specific reason e.g. insufficient specimen.

NHLS provides specific request forms that must be completed for all specimens submitted to the laboratory:

form **N1** *Page 25*

PHC REQUEST FORM
For general routine tests

form **N2** *Page 28*

CYTOLOGY REQUEST FORM
For Pap smears and other cytology requests only

Complete the appropriate form in full so that the laboratory can process specimens correctly (see pages 26, 27 and 29 for samples of completed forms).

appendix **B** *Page 110*

You will find a copy of the PHC ELL detailed list in Appendix B of this document.

Laboratory investigations do not replace the need for a clinical examination of the patient.

INFORMATION TO BE PROVIDED ON NHLS REQUEST FORMS

The following information should be provided on the **N1** and **N2** request forms:

Patient information

- Patient name and surname, gender, age and date of birth, folder, Health Patient Registration System (HPRS) and identification (ID) number/passport number

Why? To ensure that the laboratory data is matched to the correct patient and that appropriate age and gender adjusted reference intervals are supplied.

Facility information

- Facility name
- Facility code: Laboratory Information System facility location code if known
- Service point: a specific location within the facility e.g. MOU or adherence clubs

Why? To ensure that the laboratory results are sent to the appropriate health facility.

Collection date and time

- Date and time of collection

Why? To ensure laboratory can determine viability of specimen for processing.

Healthcare worker information

- Full name, HPCSA or SANC number and contact details

Why? To ensure that the laboratory can contact the healthcare worker (HCW) if the need arises.

Phlebotomist's information (where there is a phlebotomy service)

- Name of the person collecting the specimens

Why? Information is required should the person collecting the specimens not be the same as requesting healthcare worker.

Tests requested

- Mark appropriate tests as indicated by clinical guidelines from the list of tests in the ELL

Why? To ensure each specimen is correctly processed only for tests requested.

Concise description of the clinical problem/diagnosis

Why? To assist in the extent of specimen processing and results interpretation.

Comprehensive Care, Management and Treatment of HIV and AIDS requests

- For all patients who are HIV positive and all patients (irrespective of HIV status) that require an Xpert test, please tick the CCMT box next to the NHLS logo on the top left of the N1 request form.
  N1: Request Form and **N2: Cytology Request Form**.

Why? This is for billing purposes, to ensure that laboratory tests are correctly allocated to conditional grant account/s in your province.

The following information is mandatory for data capturing, processing and reporting of results on laboratory specimens:

- Facility name
- Patient's folder or HPRS number
- Patient's national ID number or passport number (if available)
- Patient's name
- Patient's surname
- Patient's date of birth
- Patient's gender
- Healthcare worker's name
- Healthcare worker's HPCSA or SANC number
- Healthcare worker's signature
- Collection date

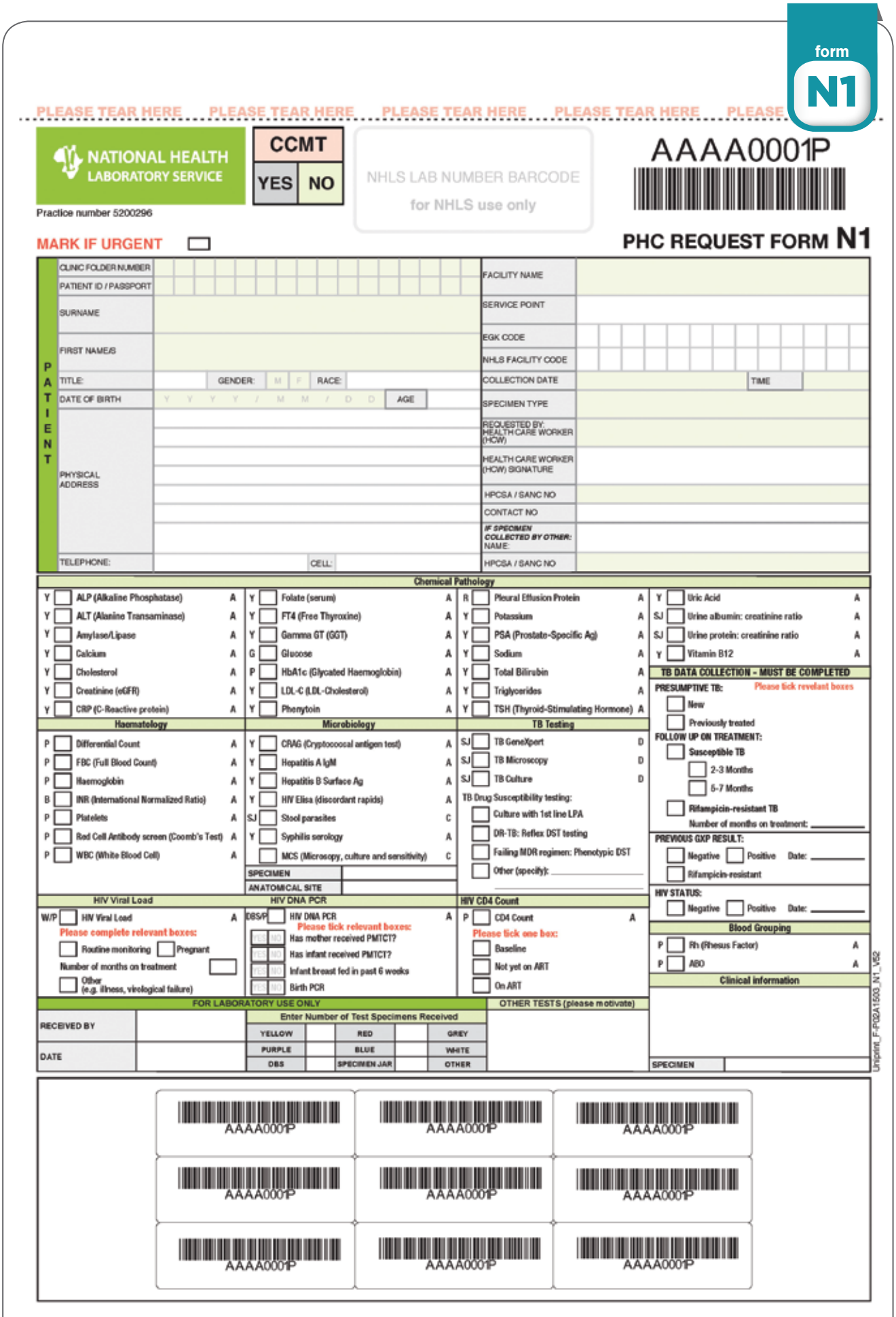


Figure 4: N1: PHC Request Form

N1: Routine CCMT request
(Sample information, not real individual)

NATIONAL HEALTH LABORATORY SERVICE

CCMT YES NO

Practice number 5200295

AAAA0001P

MARK IF URGENT ☐

PHC REQUEST FORM N1

PATIENT

CLINIC FOLDER NUMBER	458176785XO
PATIENT ID / PASSPORT	6106190109068
SURNAME	NKOSI
FIRST NAME/S	THEMBI
TITLE:	MRS GENDER: F X RACE: BLACK
DATE OF BIRTH	1961 06 19 AGE 55
PHYSICAL ADDRESS	HOUSE 1 JUSTICE MALACA STR LANGA
TELEPHONE	021-541-5167 CELL: 084-416-7307

FACILITY NAME	SIYATHEMBA C4C
SERVICE POINT	CHRONIC
EGK CODE	
NHLS FACILITY CODE	625030
COLLECTION DATE	15/06/2015 TIME: 1140S
SPECIMEN TYPE	BLOOD
REQUESTED BY: HEALTH CARE WORKER (HCW)	DR SN YATI
HEALTH CARE WORKER (HCW) SIGNATURE	Yati
HPCSA / SANC NO	MP0149GS
CONTACT NO	081-786-6417
IF SPECIMEN COLLECTED BY OTHER: NAME:	
HPCSA / SANC NO	

Chemical Pathology

Y	☐	ALP (Alkaline Phosphatase)	A	Y	☐	Folate (serum)	A	R	☐	Pleural Effusion Protein	A
Y	☐	ALT (Alanine Transaminase)	A	Y	☐	FT4 (Free Thyroxine)	A	Y	☐	Potassium	A
Y	☐	Amylase/Lipase	A	Y	☐	Gamma GT (GGT)	A	Y	☐	PSA (Prostate-Specific Ag)	A
Y	☐	Calcium	A	G	☐	Glucose	A	Y	☐	Sodium	A
Y	☐	Cholesterol	A	P	☒	HbA1c (Glycated Haemoglobin)	A	Y	☐	Total Bilirubin	A
Y	☒	Creatinine (eGFR)	A	Y	☐	LDL-C (LDL-Cholesterol)	A	Y	☐	Triglycerides	A
Y	☐	CRP (C-Reactive protein)	A	Y	☐	Phenytoin	A	Y	☐	TSH (Thyroid-Stimulating Hormone)	A

Y	☐	Uric Acid	A								
SJ	☐	Urine albumin: creatinine ratio	A								
SJ	☐	Urine protein: creatinine ratio	A								
Y	☐	Vitamin B12	A								

Haematology

P	☐	Differential Count	A	Y	☐	CRAG (Cryptococcal antigen test)	A	SJ	☐	TB GeneXpert	D
P	☐	FBC (Full Blood Count)	A	Y	☐	Hepatitis A IgM	A	SJ	☐	TB Microscopy	D
P	☐	Haemoglobin	A	Y	☐	Hepatitis B Surface Ag	A	SJ	☐	TB Culture	D
D	☐	INR (International Normalized Ratio)	A	Y	☐	HIV Elisa (discordant rapids)	A				
P	☐	Platelets	A	SJ	☐	Stool parasites	C				
P	☐	Red Cell Antibody screen (Coomb's Test)	A	Y	☐	Syphilis serology	A				
P	☐	WBC (White Blood Cell)	A		☐	MCS (Microscopy, culture and sensitivity)	C				

Microbiology

SPECIMEN

ANATOMICAL SITE

TB Testing

TB Drug Susceptibility testing:
- ☐ Culture with 1st line LPA
- ☐ DR-TB: Reflex DST testing
- ☐ Failing MDR regimen: Phenotypic DST
- ☐ Other (specify): _____

TB DATA COLLECTION - MUST BE COMPLETED

PRESUMPTIVE TB: Please tick relevant boxes
- ☐ New
- ☐ Previously treated

FOLLOW UP ON TREATMENT:
- ☐ Susceptible TB
  - ☐ 2-3 Months
  - ☐ 5-7 Months
- ☐ Rifampicin-resistant TB
  - Number of months on treatment: _____

PREVIOUS GXP RESULT:
- ☐ Negative ☐ Positive Date: _____
- ☐ Rifampicin-resistant

HIV STATUS:
- ☐ Negative ☐ Positive Date: _____

HIV Viral Load

WIP ☐ HIV Viral Load A

Please complete relevant boxes:
- ☐ Routine monitoring ☐ Pregnant
- Number of months on treatment ☐
- ☐ Other (e.g. illness, virological failure)

HIV DNA PCR

DBS/P ☐ HIV DNA PCR A

Please tick relevant boxes:
- ☐ Has mother received PMTCT?
- ☐ Has infant received PMTCT?
- ☐ Infant breast fed in past 6 weeks
- ☐ Birth PCR

HIV CD4 Count

P ☐ CD4 Count A

Please tick one box:
- ☐ Baseline
- ☐ Not yet on ART
- ☐ On ART

Blood Grouping

P ☐ Rh (Rhesus Factor) A

P ☐ ABO A

Clinical information

Nael assessment at diagnosis

FOR LABORATORY USE ONLY

RECEIVED BY

DATE

Enter Number of Test Specimens Received

YELLOW		RED		GREY	
PURPLE		BLUE		WHITE	
DBS		SPECIMEN JAR		OTHER	

OTHER TESTS (please motivate)

SPECIMEN

Unisprint_F-PN2A150D_N1_V02

AAAA0001P AAAA0001P AAAA0001P
AAAA0001P AAAA0001P AAAA0001P
AAAA0001P AAAA0001P AAAA0001P

Figure 5: Example of correctly completed N1: Routine CCMT Request Form

N1: MC&S request
(Sample information, not real individual)

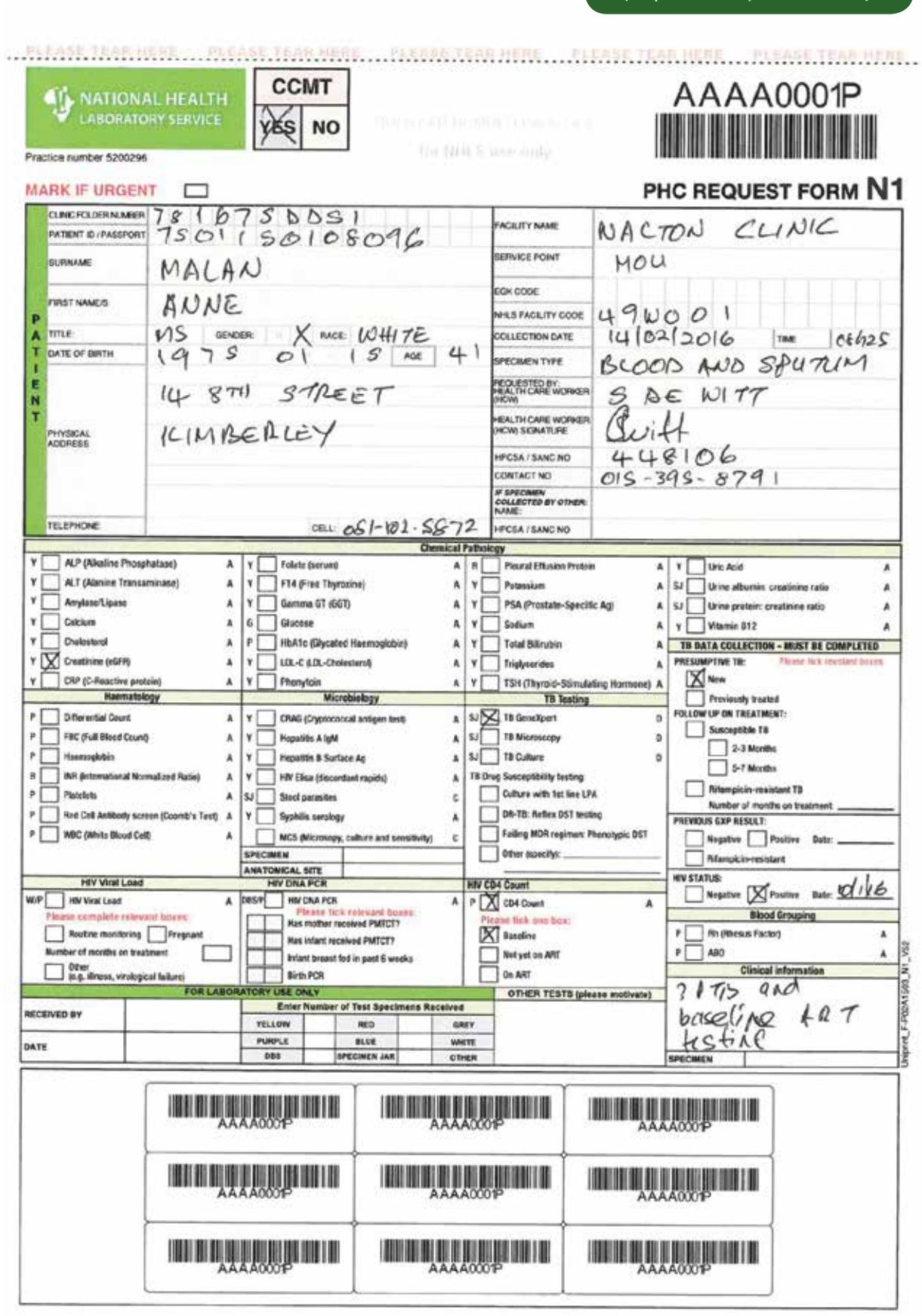


Figure 6: Example of a correctly completed N1: Microscopy, Culture and Sensitivity (MC&S) Request Form

form N2

PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE

NATIONAL HEALTH LABORATORY SERVICE

CYTOLOGY

Practice number 5200296

Conditional Grant YES NO

NHLS LAB NUMBER BARCODE FOR NHLS USE ONLY

AAAA0001R

SECTION A

LOC
- CHC / CLINIC / HOSP
- WARD
- eGK APPROV. CODE
- COPY REPORT TO

SPEC
- SPECIMEN
- ANATOMICAL SITE
- COLLECTION DATE / TIME
- COLLECTED BY

PATIENT
- PATIENT ID NO / ID / Passport
- HOSPITAL NUMBER
- SURNAME
- FIRST NAME / SEX M F
- DATE OF BIRTH D D / M M / Y Y Y Y / AGE
- RACE / TITLE
- PATIENT ADDRESS
- PATIENT TEL NO H: W: C:

CLIN
- ICD10 DIAGNOSIS CODES
- Warfarin Heparin

HCW
- CLINICIAN / HCW NAME
- HPCSA / SANC NO
- PRACTICE NO
- CONTACT NO
- EMAIL ADDRESS
- CLINICIAN'S SIGNATURE

PRIVATE ACCOUNT
- AUTHORISATION NO / FEE CLASS
- MEDICAL AID / PLAN
- MEDICAL AID NO / DEP CODE
- MEMBER NAME
- MEMBER ID NO
- MEMBER ADDRESS
- MEMBER TEL NO
- EMPLOYER
- MEMBER'S SIGNATURE

I consent to tests and take responsibility for payment of this account

SPECIMEN TYPE
- CONVENTIONAL SMEAR R146.02
- Liquid based specimen R186.99
- OTHER (please specify)

PREVIOUS CYTOLOGY
DATE ___/___/___ Y N
CYTOLOGY NO: ___
CYTOLOGY DIAGNOSIS: ___

LAST RELEVANT SURGERY / PATHOLOGY
DATE ___/___/___ Y N
SPECIMEN NO(S): ___
SPECIMEN TYPE: ___
DIAGNOSIS: ___

RADIATION
DATE ___/___/___ Y N
AREA: ___

CHEMOTHERAPY
DATE ___/___/___ Y N
TYPE: ___

SECTION B

✓ GYNAECOLOGICAL

LMP
DATE ___/___/___
CONTRACEPTION / HRT Y N
TYPE: ___
PREGNANT WEEKS
POST PARTUM WEEKS
Y N POSTMENOPAUSAL
Y N POST MENOP. BLEED
Period of bleeding: ___

RETRO VIRUS + - ? Rx

SYMPTOMATIC / DIAGNOSTIC
OR
CERVICAL SCREENING PROGRAMME

ORIGIN OF SMEAR / SPECIMEN
- Cervix
- Endocervix
- Vagina
- Vault
- Endometrium
- Other: Specify

CONDITION OF CERVIX
- HEALTHY
- INFLAMMATORY
- SUSPECTED CA

SMEAR / SPECIMEN TAKEN WITH
- Spatula
- Endocervical Brush / Broom
- Endometrial Endopap
- Other: Specify

SECTION C

GENERAL CYTOLOGY

✓ ORIGIN OF SPECIMEN / ORGAN

URINARY TRACT
- Bladder
- Kidney L / R
- Ureter L / R
- Other: Specify

RESPIRATORY
- Trachea
- Bronchus L / R
- Lung L / R

FLUID
- Pleural L / R
- Pericardial
- Peritoneal
- CSF
- Other: Specify

LYMPH NODES
- Supraclavicular L / R
- Cervical (Neck) L / R
- Axillary L / R
- Inguinal L / R
- Other: Specify

HEAD AND NECK
- Mouth (Spec)
- Salivary Gland (Spec)
- Larynx
- Thyroid

GASTROINTESTINAL
- Oesophagus
- Pancreas
- Liver
- Other: Specify

BREAST
- Breast L / R
- Nipple discharge L / R

OTHER (PLEASE SPECIFY)
- Other e.g. Eye, Skin, Prostate, Hydrocoele, Testis, Ovary, Synovial, Bone, Soft tissue

✓ TYPE OF SPECIMEN
- Sputum
- Urine (voided)
- Urine (catheter/scope)
- Smear
- Imprint
- Washing / lavage
- Brush
- Suction aspiration
- Fine needle aspiration (FNA)
- Other:

SECTION D

CLINICAL DETAILS

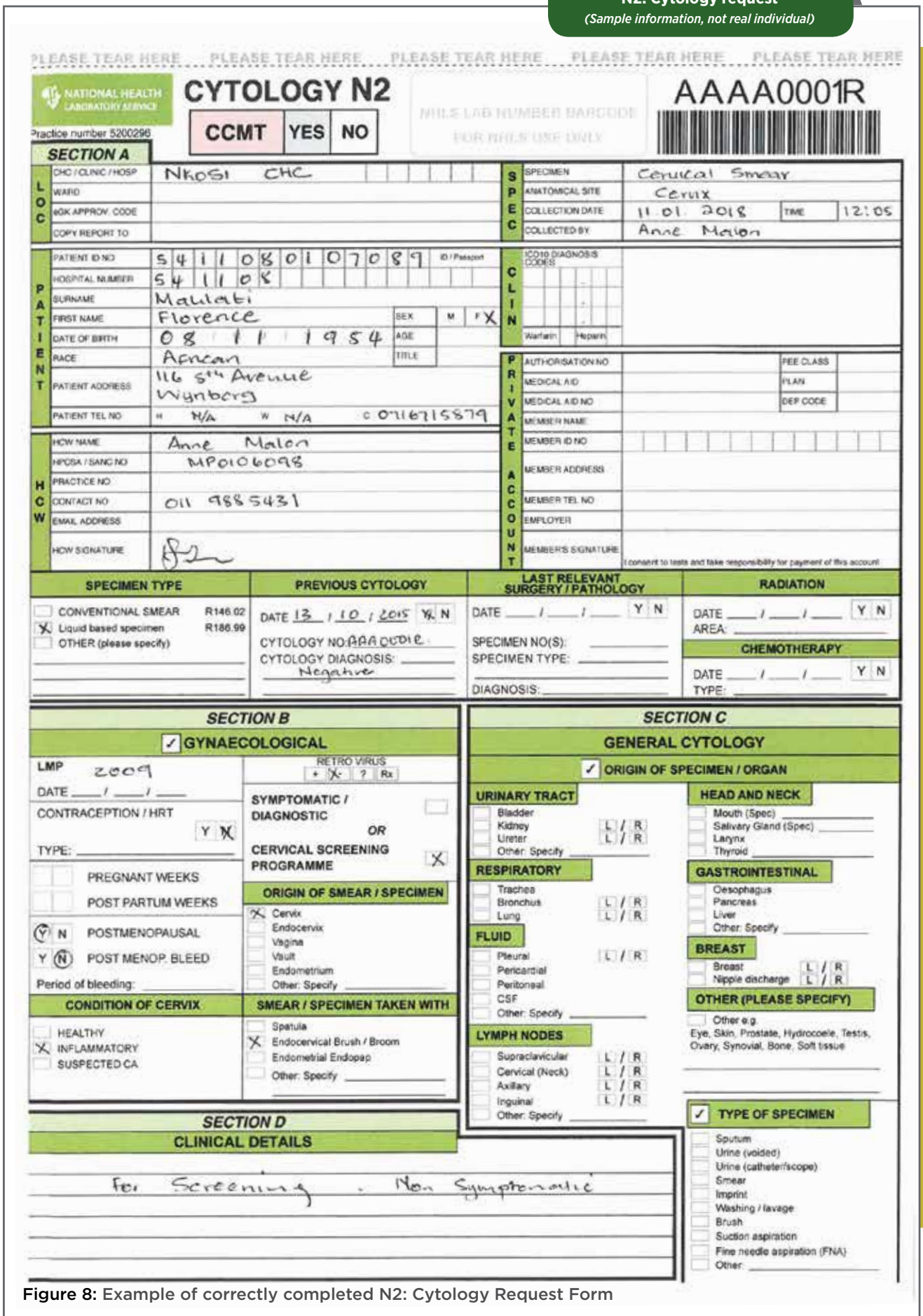
D D M M C C Y Y CLINICIAN'S NAME (PLEASE PRINT) CLINICIAN'S SIGNATURE

LOC - Location detail • HCW - Healthcare Worker • SPEC - Specimen • CLIN - Clinical detail

Uniprint-F_P02A1504_V11

Figure 7: N2: Cytology Request Form

N2: Cytology request
(Sample information, not real individual)



PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE

NATIONAL HEALTH LABORATORY SERVICE

Practice number 5200296

CYTOLOGY N2

CCMT YES NO

NHLS LAB NUMBER BARCODE FOR NHLS USE ONLY

AAAA0001R

SECTION A

LOC
- CHC / CLINIC / HOSP: Nkosi CHC
- WARD:
- eDK APPROV. CODE:
- COPY REPORT TO:

SPEC
- SPECIMEN: Cervical Smear
- ANATOMICAL SITE: Cervix
- COLLECTION DATE: 11 01 2018 TIME: 12:05
- COLLECTED BY: Anne Malan

PATIENT
- PATIENT ID NO: 5411080107089 ID / Passport
- HOSPITAL NUMBER: 54 11 08
- SURNAME: Maulabi
- FIRST NAME: Florence SEX: M F X
- DATE OF BIRTH: 08 11 1954 AGE:
- RACE: African TITLE:
- PATIENT ADDRESS: 116 5th Avenue Wynberg
- PATIENT TEL NO: H N/A W N/A C 0716715879

CLIN
- ICD10 DIAGNOSIS CODES
- Warfarin Heparin

HCW
- HCW NAME: Anne Malan
- HPCSA / SANC NO: MP0106098
- PRACTICE NO:
- CONTACT NO: 011 9885431
- EMAIL ADDRESS:
- HCW SIGNATURE:

PRIVATE ACCOUNT
- AUTHORISATION NO:
- MEDICAL AID:
- MEDICAL AID NO:
- MEMBER NAME:
- MEMBER ID NO:
- MEMBER ADDRESS:
- MEMBER TEL NO:
- EMPLOYER:
- MEMBER'S SIGNATURE: I consent to tests and take responsibility for payment of this account
- FEE CLASS:
- PLAN:
- DEP CODE:

SPECIMEN TYPE
- CONVENTIONAL SMEAR R146.02
- X Liquid based specimen R186.99
- OTHER (please specify)

PREVIOUS CYTOLOGY
DATE 13 / 10 / 2015 Y X N
CYTOLOGY NO: AAAA0001R
CYTOLOGY DIAGNOSIS: Negative

LAST RELEVANT SURGERY / PATHOLOGY
DATE / / Y N
SPECIMEN NO(S):
SPECIMEN TYPE:
DIAGNOSIS:

RADIATION
DATE / / Y N
AREA:

CHEMOTHERAPY
DATE / / Y N
TYPE:

SECTION B
✓ GYNAECOLOGICAL

LMP 2009
DATE / /
CONTRACEPTION / HRT Y X
TYPE:
- PREGNANT WEEKS
- POST PARTUM WEEKS
- Y N POSTMENOPAUSAL
- Y N POST MENOP. BLEED

Period of bleeding:

RETRO VIRUS + X ? Rx

SYMPTOMATIC / DIAGNOSTIC
OR
CERVICAL SCREENING PROGRAMME X

ORIGIN OF SMEAR / SPECIMEN
- X Cervix
- Endocervix
- Vagina
- Vault
- Endometrium
- Other: Specify

CONDITION OF CERVIX
- HEALTHY
- X INFLAMMATORY
- SUSPECTED CA

SMEAR / SPECIMEN TAKEN WITH
- Spatula
- X Endocervical Brush / Broom
- Endometrial Endopap
- Other: Specify

SECTION C
GENERAL CYTOLOGY

✓ ORIGIN OF SPECIMEN / ORGAN

URINARY TRACT
- Bladder
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RESPIRATORY
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- Bronchus L / R
- Lung L / R

FLUID
- Pleural L / R
- Pericardial
- Peritoneal
- CSF
- Other: Specify

LYMPH NODES
- Supraclavicular L / R
- Cervical (Neck) L / R
- Axillary L / R
- Inguinal L / R
- Other: Specify

HEAD AND NECK
- Mouth (Spec)
- Salivary Gland (Spec)
- Larynx
- Thyroid

GASTROINTESTINAL
- Oesophagus
- Pancreas
- Liver
- Other: Specify

BREAST
- Breast L / R
- Nipple discharge L / R

OTHER (PLEASE SPECIFY)
- Other e.g. Eye, Skin, Prostate, Hydrocoele, Testis, Ovary, Synovial, Bone, Soft tissue

✓ TYPE OF SPECIMEN
- Sputum
- Urine (voided)
- Urine (catheter/scope)
- Smear
- Imprint
- Washing / lavage
- Brush
- Suction aspiration
- Fine needle aspiration (FNA)
- Other:

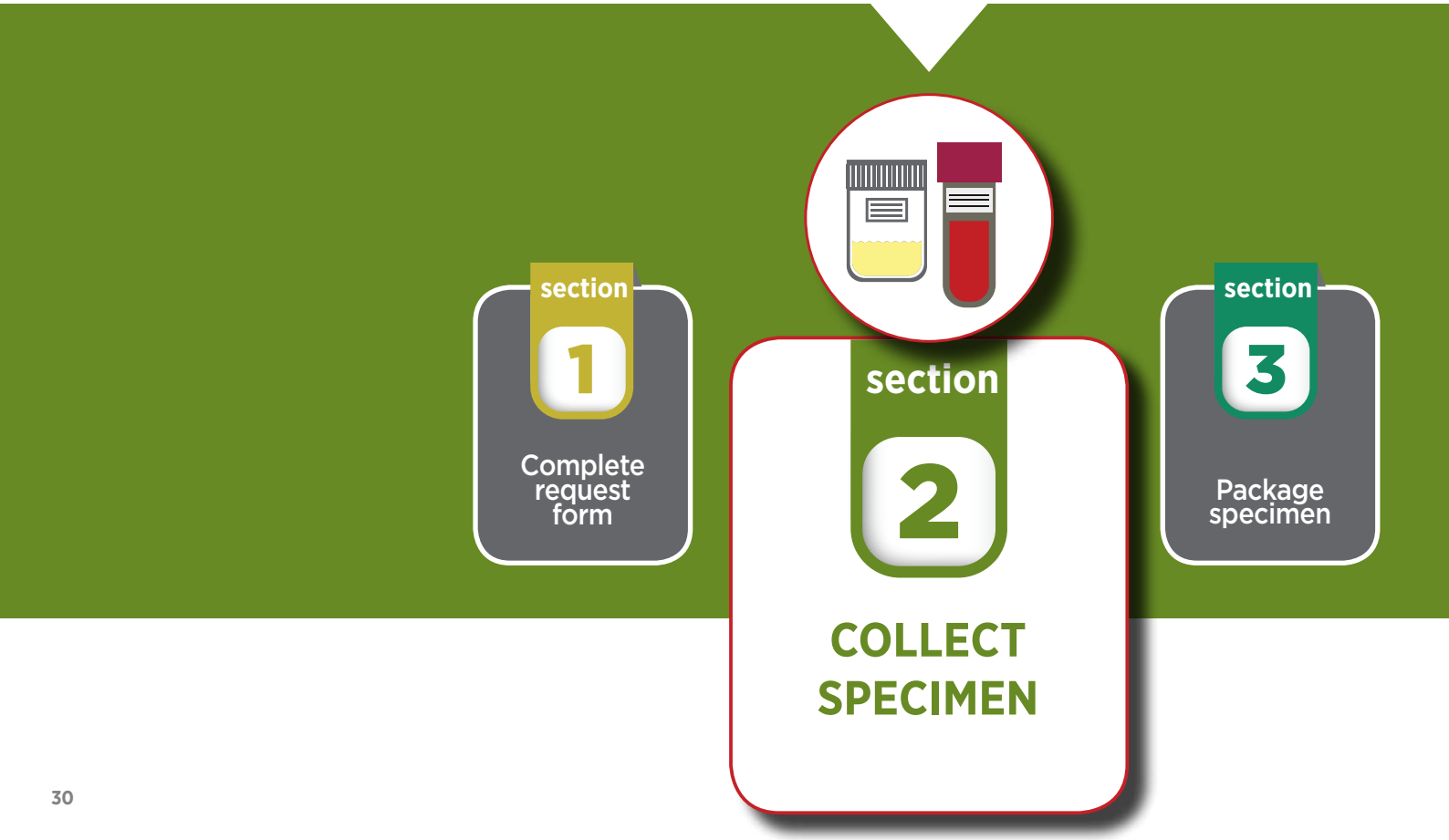
SECTION D
CLINICAL DETAILS

For Screening - Non Symptomatic

Figure 8: Example of correctly completed N2: Cytology Request Form

Complete request form

SECTION **TWO**


section
1
Complete request form
section
2
COLLECT SPECIMEN
section
3
Package specimen

SECTION TWO

COLLECT SPECIMEN

SECTION TWO

This section offers a series of step-by-step guides to the collection of various specimens required for the tests identified in the ELL.

THE PHC ESSENTIAL LABORATORY LIST

1. Familiarise yourself with the detailed PHC Essential Laboratory List in the table below.

- The Essential Laboratory List identifies all laboratory tests that can be requested by PHC facilities (with and without a doctor).
- The ELL details estimated turnaround times, specimen types, specimen collection tubes, specimen storage conditions and special instructions for each test.

appendix B Page 110

Detailed PHC ELL* (See Key for this table on page 36)

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
ABO (Blood grouping)	PHC	24	3 mL clotted blood	Purple		A	
ALP (Alkaline Phosphatase)	PHC with Dr	24	3 mL clotted blood	Yellow		A	
ALT(Alanine Transaminase)	PHC	24	3 mL clotted blood	Yellow		A	
Amylase/Lipase	PHC with Dr	24-48	5 mL clotted blood	Yellow		A	
Calcium (serum)	PHC with Dr	24	5 mL clotted blood	Yellow	Avoid stasis/ prolonged tourniquet application.	A	
CD4 Count	PHC	24	4 mL EDTA blood	Purple	Do not store in refrigerator.	A	
Cholesterol	PHC	24-48	5 mL clotted blood	Yellow	Patient should be fasting. Refer to section 2.13.1 (Cholesterol and lipogram)	A	
CRAG (Cryptococcal Antigen test)	PHC with Dr	24	5 ml EDTA Blood	Purple		A	Only performed where CD4 <= 100
Creatinine (eGFR) (serum)	PHC	24	3 mL clotted blood	Yellow		A	

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
CRP (C-reactive protein)	PHC with Dr	24	5 mL clotted blood	Yellow		A	
Cytology for aspirates including lymph nodes	PHC with Dr				Refer to NHLS National Laboratory Handbook		
Differential count	PHC with Dr	24	5 ml EDTA Blood	Purple		A	
Folate (serum)	PHC with Dr	24-48	4 mL EDTA blood	Yellow		A	
FT4 (Free Throxine 4)	PHC with Dr	24-48	5 mL clotted blood	Yellow		A	To be performed only after TSH levels indicate need for FT4 testing
Full Blood Count (FBC)	PHC with Dr	24	5ml EDTA blood	Purple		A	
Gamma GT (GGT) (Serum)	PHC with Dr	24	3 mL clotted blood	Yellow		A	
Haemoglobin	PHC with Dr	24	5ml EDTA blood	Purple		A	Only requested following an abnormal Hb performed in the health facility
HbA1c (Glycated Haemoglobin)	PHC	24	4 mL EDTA blood	Purple		A	
Hepatitis AIgM	PHC with Dr	24-48	5ml Clotted/ EDTA blood	Yellow/		A	
Hepatitis B Surface Ag	PHC with Dr	24-48	5ml Clotted/ EDTA blood	Yellow		A	
HIV Elisa (discordant rapids)	PHC	24	3 mL clotted blood	Yellow		A	Only to be requested when discordant rapid HIV results are obtained for the same patient.
HIV PCR for infants	PHC	24-48	Dry blood spot (DBS)/EDTA blood	Purple	Minimum volume 500µl. Dedicated tube required.	A	

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
INR (International Normalized Ratio)	PHC with Dr	24	5ml Sodium Citrate blood	Blue	To reach lab within 24 hrs.	A	
LDL-Cholesterol (LDL-C)	PHC with Dr	24	3 mL clotted blood	Yellow	Patient should be fasting. Refer to section 2.13.1 (Cholesterol and lipogram)	A	
MCS (Microscopy, culture band sensitivity)	PHC with Dr	24-72	Refer to *PHC Laboratory Handbook*			C	CSF is not on the ELL for PHC facilities.
Pap smear	PHC	Up to 6 weeks	Refer to *PHC Laboratory Handbook*			B	
Phenytoin	PHC with Dr	24-48	5 mL clotted blood	Yellow	IV treatment: 2-4 h after last dose. Oral treatment: Collect specimens at same time of day for serial monitoring.	A	
Platelets	PHC with Dr	24	5ml EDTA blood	Purple		A	
Pleural effusion MCS	PHC with Dr	24	Pleural effusion	Red	Do not use tubes with preservatives	A	Can only be requested by health facilities with X-Ray
Pleural effusion Protein	PHC with Dr	24	Pleural effusion	Red	Do not use tubes with preservatives	A	Can only be requested by health facilities with X-Ray
Potassium (serum)	PHC	24	3 mL clotted blood	Yellow	Avoid haemolysis and delay in transit time.	A	
Prostate-Specific Ag (PSA)	PHC with Dr	24	5 mL clotted blood	Yellow		A	May not to be used as a screening test.
Red Cell Antibody screen (Coomb's Test) or the "Direct Antiglobulin Test (DAT)"	PHC	24	5ml EDTA blood	Purple		A	Used for detection of antibodies on red cells.
Rhesus Factor (Rh)	PHC	24	3 mL clotted blood	Yellow		A	
Sodium (serum)	PHC with Dr	24	3 mL clotted blood	Yellow		A	

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
Stool parasites – Bilharzia & other parasites.	PHC with Dr	24	Stool			C	
Syphilis Serology	PHC	24	5ml clotted blood	Yellow		A	
TB Culture	PHC	Between 5 days and 6 weeks	Sputum			D	
TB Drug Susceptibility	PHC	Between 5 days and 6 weeks	Sputum			D	
TB Line Probe Assay (Hain MTBDR)	PHC	24-48	Sputum			D	
TBSmear microscopy	PHC	24	Sputum			D	
Triglycerides	PHC	24-48	5 mL clotted blood	Yellow	Patient should be fasting. Refer to section 2.13.1 (Cholesterol, triglyceride, lipogram, lipoprotein electrophoresis)	A	
TSH (Thyroid-stimulating hormone)	PHC	24-48	3 mL clotted blood	Yellow		A	
Uric Acid (serum)	PHC	24	3 mL clotted blood	Yellow		A	
Urine albumin:creatinine ratio	PHC with Dr	24	Urine			A	
Urine protein:creatinine ratio	PHC with Dr	24	Urine			A	
Viral Load	PHC	24-48	5ml EDTA/PPT blood	Purple/ White		A	
Vitamin B12	PHC with Dr	24-48	5 mL clotted blood	Yellow		A	
White Blood Cell (WBC)	PHC	24	5ml EDTA blood	Purple		A	
Xpert MTB/RIF	PHC	24	Sputum			D	

*Estimated TAT: Time from specimen leaving the facility, to results being available and/or delivered to the facility

Key to specimen handling for Detailed PHC ELL

	Specimen handling	Length of storage
A	Specimens must be kept away from direct sunlight. Specimens should not be exposed to dramatic temperature fluctuations and vibrations (of particular relevance when being transported.	Where room temperature exceeds 25°C specimens should be stored in the fridge or cooler box (+- 5°C) to preserve specimen integrity. Specimens should not be exposed to dramatic temperature fluctuations.
B	When the smear has been fixed, inside a slide carrier (envelope), and store at room temperature	24 hours at room temperature (20-25°C)
C	Collect specimens and place into the transport medium provided (where appropriate). Store at room temperature	24 hours at room temperature (20-25°C). Urine specimens should be stored in the fridge (2-5 °C)
D	Specimens should be collected in clean leak proof containers free from paraffin and other waxes or oils. Specimens should be kept cool during transportation but should not be frozen.	Specimen should be transported immediately at ambient temperature to the nearest local laboratory. Specimens delayed prior to transportation should be stored refrigerated (2-8°C). Specimens should reach the laboratory no later than 48 hours after specimen collection.

GENERAL PRECAUTIONS FOR ALL SPECIMEN COLLECTION

It is of critical importance that HCW's implement the guidelines for the proper collection, storage and transport of specimens. All diagnostic information is contingent on the quality of the specimen received.

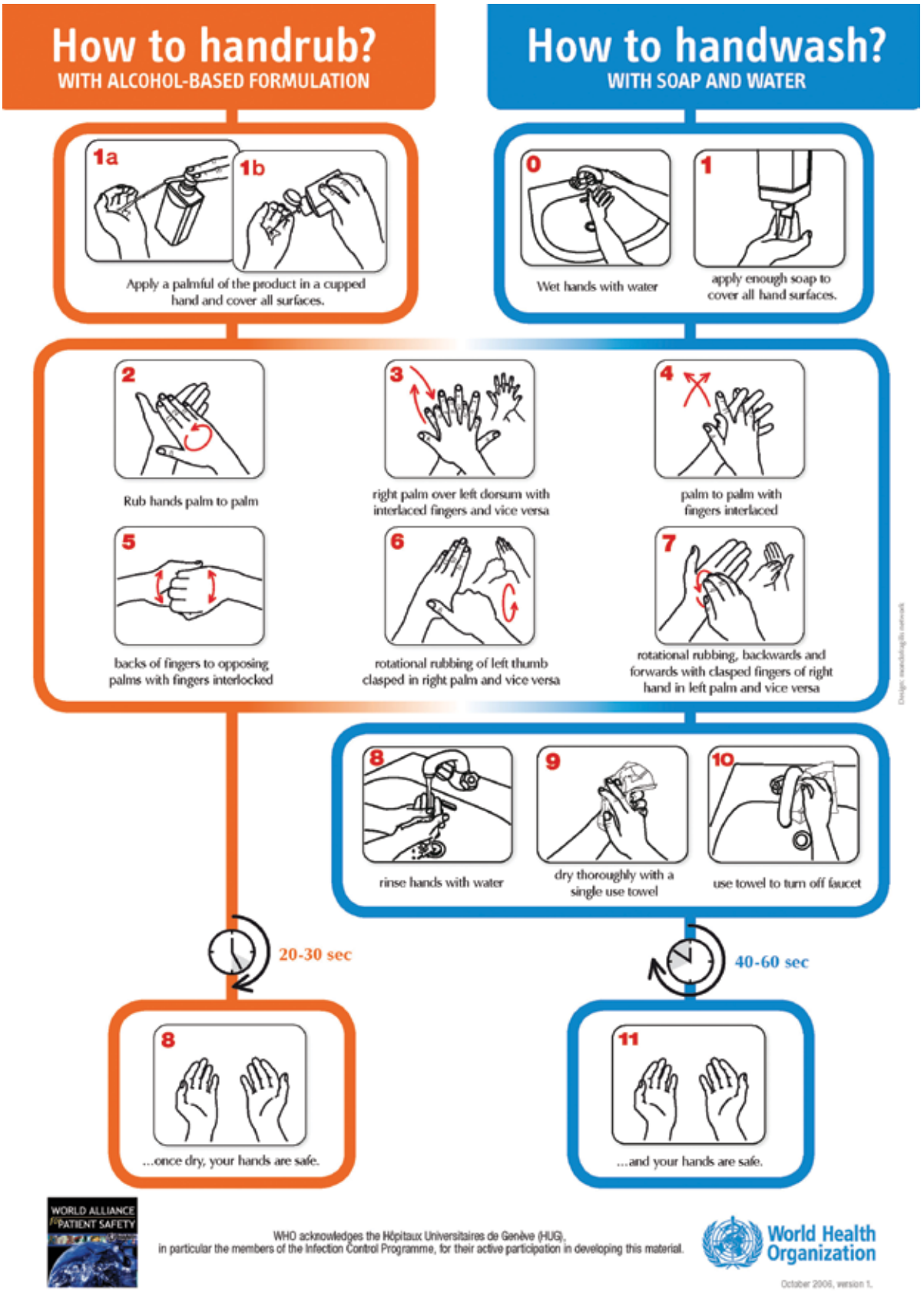
Standard infection control precautions:

- Identify and assemble the individual specimen collection materials required, i.e. vacutainer test tube/s, sterile specimen jars, etc., to perform the tests requested.
- Wash hands using soap and water. If water and soap are not available, use disinfectants. (Refer to the figures on the following page)
- Dry hands thoroughly.
- Put on gloves.
- Follow strict aseptic technique when collecting specimens.
- Collect recommended specimen quantities for the requested test to avoid specimen rejection due to insufficient specimen.

Figure 9: How to wash hands using soap and water

Source: https://coolrain44.files.wordpress.com/2009/07/handwashing_fight_germs.gi

Figure 10: Fight germs by washing your hands



Source: http://www.who.int/patientsafety/en/

Figure 11: How to perform the hand rub and hand wash

SPECIFIC SPECIMEN COLLECTION PROCEDURES

GENERAL PRINCIPLES

Principles *for collecting specimens*

- Verify the identity of the patient and make sure that the correct folder or HPRS number is specified on both the **N1 Request Form** and specimen container (e.g. tube).
- Ensure that sufficient specimen for the requested test is collected in appropriate container.
- Check specimen containers for expiry dates where applicable.
- Use good phlebotomy technique to avoid hemolysis or venous stasis.
- Do not attempt to augment low specimen volumes by transferring blood from tubes containing anticoagulant/preservative into clotted blood specimens.
- The following order of draw should be followed for PHC when performing a venipuncture:

1. Sodium citrate (blue top)
2. Clotted blood (red top)
3. Gel containing tube/s (SST/yellow top)
4. EDTA tubes (purple top)
5. Sodium fluoride (grey top)

Specimens may be rejected based on the following criteria:

- Specimens that have inappropriately clotted, e.g. Full blood count (FBC)
- Specimens that are haemolysed, e.g. haemoglobin.
- Specimens collected in the wrong anticoagulant, e.g. Glucose in a red top Vacutainer tube.
- Specimens that are too old to be processed, e.g. Potassium received more than 24 hours after collection will not be processed.
- Vacutainer test tubes that are under-filled, e.g. International Normalised Ratio (INR) in a blue top Vacutainer tube.

1. Blood collection in adults and children

B appendix Page 110

Ensure maximal compliance to the Detailed ELL (**Appendix B),** for tests requiring special patient preparation or precautionary measures during collection.

WHAT TO DO
HOW TO DO IT

Follow this procedure for the performance of the venipuncture in adults and children.

1. Approach the patient in a friendly, calm manner. Provide for the patient's comfort as much as possible, and gain their co-operation.
2. Identify the patient correctly.
3. Adhere to standard Infection control precautions.
4. Correctly complete the **N1 Request form**.
5. Verify the patient's condition, i.e. fasting, dietary restrictions, timing, and medical treatment and provide the relevant information on the N1: Request Form.
6. Label all tubes in the presence of the patient. Label the tubes with the correct patient information, i.e. patient's name and folder number or patient's identification label.
7. Position the patient, i.e. sit in a chair, lie down or sit up in bed, with a supported hyper-extended arm.
8. Select the venipuncture site.
9. Use aseptic techniques by washing hands and using gloves.
10. Apply the tourniquet above the selected venipuncture site. Do not place the tourniquet too tightly.
11. The patient should make a fist without pumping the hand.
12. Disinfect the puncture site using alcohol containing disinfection, preferably 70% alcohol swabs. Cleanse in a circular motion, beginning at the puncture site and working outward. Allow to air dry prior to venipuncture.
13. Grasp the patient's arm firmly using your thumb to draw the skin taut and anchor the vein. The needle should be at an appropriate angle with the surface of the arm. Swiftly insert the needle through the skin and into the lumen of the vein. Avoid excessive trauma and probing.
14. Push the Vacutainer tube completely onto the needle. Blood should begin to flow into the tube. Where applicable, a syringe and needle may be used.
15. Mix each Vacutainer tube gently as you withdraw the tube from the needle.
16. When the last Vacutainer tube has been inserted into the needle, release the tourniquet.
17. Remove the needle from the patient's arm using a swift backward motion.
18. Dispose of needle in the sharps container **without recapping**.
19. Press down on the puncture site with gauze when the needle has been removed, applying adequate pressure to avoid the formation of a haematoma.
20. Have the patient hold a small gauze pad over the puncture site for a couple of minutes to stop the bleeding. Cover the puncture site with sterile gauze, held in place with an elastic plaster.
21. Dispose of the gauze and other used materials, e.g. gloves, in the appropriate medical waste containers.
22. Label each specimen with one of the peel-off, pre-printed barcode labels from the **N1 request form**.

REFER TO FIGURE 12

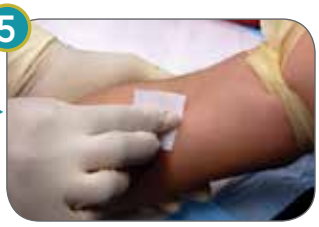
N1 form

Collect supplies.

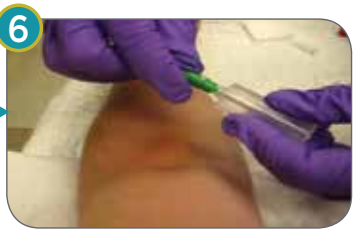
Label all tubes at the patient bedside. Label the tubes with the correct patient information.

Put tourniquet on patient above venipuncture site.

Have patient form a fist so veins are more prominent.



After palpating the path of the vein, clean the venipuncture site with 70% alcohol swabs using a circular motion. Allow the area to dry.



Assemble needle and vacuum tube holder.

Remove cap from needle.

Push the Vacutainer tube completely onto the needle. Blood should begin to flow into the tube.

Fill the tube until it is full or until vacuum is exhausted. Mix immediately.

When the last Vacutainer tube has been inserted into the needle, release the tourniquet.

Place dry gauze over the venipuncture site as you remove the needle.

Apply mild pressure to the gauze swab and slowly remove the needle.

Properly dispose of all contaminated supplies.

Apply simple plaster or continue applying mild pressure until bleeding has stopped.

Figure 12: Venipuncture step-by-step for adults and children

2. Blood collection in neonates and infants

WHAT TO DO
HOW TO DO IT

Follow this procedure for the performance of the venipuncture in neonates and infants

Heel-toe or finger-prick method

1. Allow drops of blood to collect and fall into the microtainer, gently shaking the tube after each drop to prevent clotting.
2. Do not squeeze the puncture site as this will dilute the blood with tissue fluid.
3. Provide a minimum of at least 250µl.
4. Place the lid on the microtainer (if purple top, invert several times to prevent clot formation).

Formal venipuncture

1. Blood can also be sampled into microtainer tubes through venipuncture.
2. Collect a minimum of 1ml of blood.

Figure 13: Blood collection in neonates and infants

Special precautions for blood collection in neonates and infants:

- Follow the above principles and use the appropriate puncture sites, syringes, needles and tube sizes, e.g. microtainer tubes.

SECTION TWO

SPECIFIC PRECAUTIONS FOR MICROBIOLOGY TESTING

Principles *for microbiology testing*

- Verify the identity of the patient and make sure that the correct folder or HPRS number and patient name is specified on both the **N1 Request Form** and specimen container.
- Clearly label the specimen container with the patient's name, folder/HPRS number, date and time of specimen collection and label all specimens with one of the peel-off pre-printed barcoded labels from the N1 request form.
- The type of specimen including collection site should be provided, e.g. sputum, gastric aspirate, type of urine or fluid as well as type of swab e.g. superficial swab, infected wound, throat swab, vaginal swab, etc. but NOT pus swab.
- Utilise appropriate specimen collection materials prescribed and check specimen container/s for expiry dates where applicable.
- Ensure that sufficient specimen for the requested test/s is collected in appropriate container/s.
- Collect specimen before administering antimicrobial agents where applicable, e.g. specimens for MC&S.
- Follow strict aseptic technique when collecting specimens to minimise contamination as the recovery of contaminants or normal microbial flora will be misleading, and result in inappropriate patient management.
- Collect specimens from anatomic sites that are most likely to yield pathogens where applicable.
- Identify the specimen source and/or specific site correctly to ensure appropriate processing in the laboratory.
- Tissue or fluid submitted for culture is always superior to material on swabs.

form N1

Remember "Junk in, junk out".

1. Sputum specimen

Principles *for sputum collection*

- Explain the procedure for sputum collection to the patient (refer to Figure 14 on the next page).
- Ensure that the specimen collection area is well ventilated and offers the patient some privacy.
- Send the patient to the designated sputum collection area (where applicable).
- Collection is preferable in the morning (better yield). However, do not miss the opportunity to collect the sputum specimen at the time of consultation.
- The patient should be instructed to expectorate sputum from a deep, productive cough with no nasal secretions or saliva into the sterile specimen jar.
- The healthcare worker must check that an adequate sputum specimen has been collected.
- For children who are not able to expectorate a sputum specimen, a naso-gastric aspirate may be submitted to the laboratory.

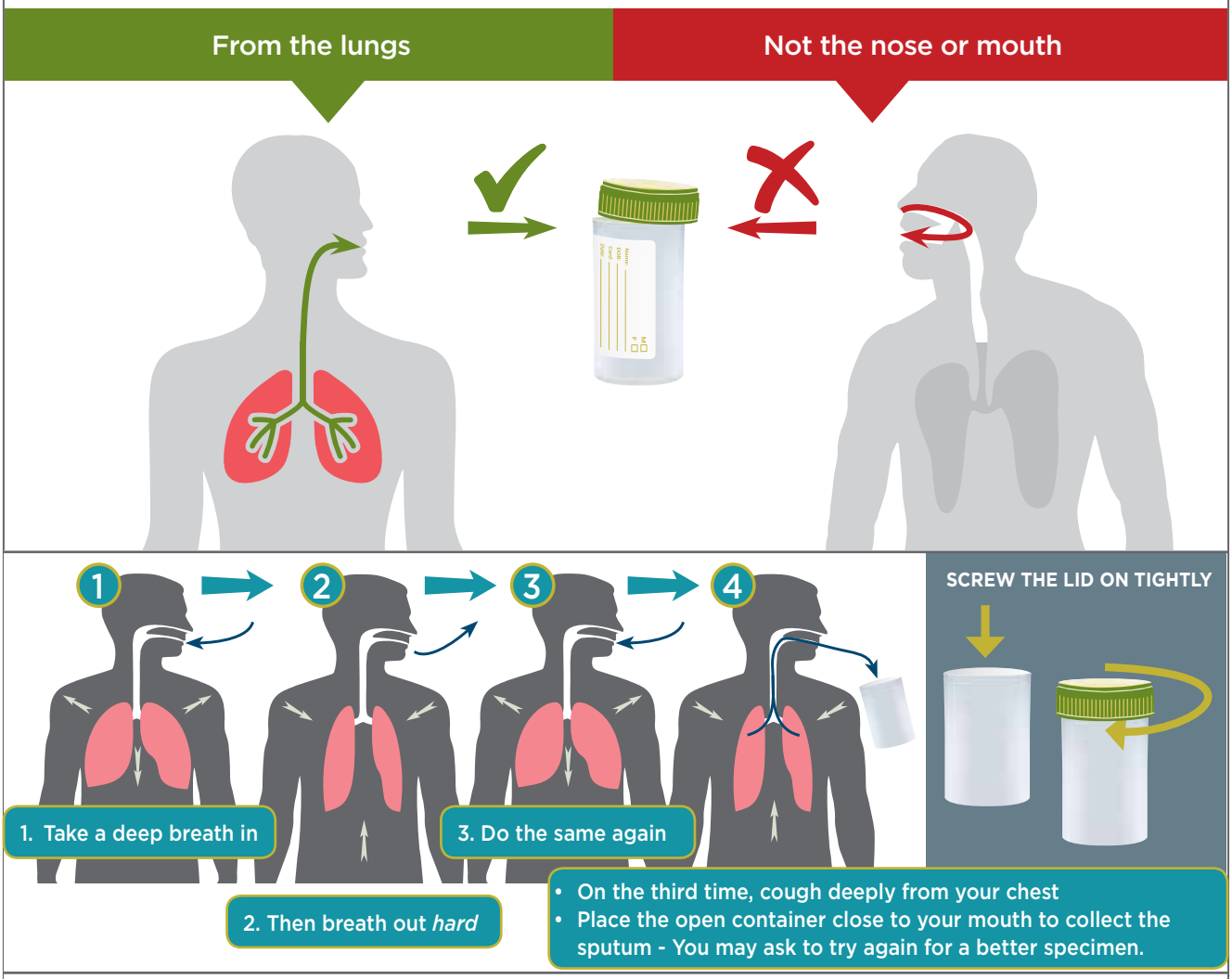
Follow this procedure for sputum collection

1. Rinse mouth with water (to prevent contamination with food particle, mouth wash or oral drugs).
2. Take a deep breath and exhale two times.
3. On the third time, cough deeply from your chest.
4. Place the open sterile specimen jar close to your mouth to collect the sputum (5-10 ml).
5. Screw the lid on tightly (to avoid spillage).
6. Hand the sterile specimen jar with collected sputum to the healthcare worker.
7. Wash your hands after sputum collection.

Sputum specimens with sub-optimal volume (less than 5ml) will not be processed as this may produce a false-positive result.

On the following page is a pictorial guide to collecting sputum specimens for TB testing.

Follow this procedure for sputum specimen collection for TB testing



Good specimens = Accurate diagnosis

Source: http://www.bccdc.ca/NR/rdonlyres/

Figure 14: Collection of sputum specimens for TB testing

2. Urine specimen

GENERAL PRINCIPLES

Principles *for urine specimen collection*

- Appropriate collection of urine specimens is critical to ensure the validity and reliability of results interpretation.
- Urine is normally a sterile body fluid, however, contamination by normal flora of the perineum, urethra and vagina can occur during collection.
- Never submit urine collected in a bedpan or urinal.
- Urine can be collected at any time of day and can be stored for up to 24 hours in a refrigerator (2-5°C).
- Ensure the specimen is labeled, properly sealed and stored upright in the specimen plastic bags (in the compartment for sterile specimen jars).
- Early morning urine specimens have the best yield. However, do not miss the opportunity to collect the urine specimen at the time of consultation.

Do not force fluids prior to urine collection as this will dilute colony counts and result in potential misinterpretation.

Do not use urine specimen collected for laboratory processing for point of care (POC) urine dipstick testing.

- The healthcare worker must clearly label the specimen container with the patient's name, folder number, date and time of specimen collection and label all specimens with one of the peel-off pre-printed barcoded labels from the **N1 request form**.

N1 form

WHAT TO DO
HOW TO DO IT

Follow this procedure for urine specimen collection in adults

Provide these gender-specific instructions to patients for the collection of clean-catch midstream urine:

Females

1. Wash hands well.
2. Cleanse the urethral opening and vaginal vestibule with gauze/cotton wool soaked in water/saline.
3. Hold the labia apart during voiding.
4. The patient should pass a few milliliters of urine into the toilet bowl, DO NOT STOP THE FLOW, and then collect the midstream portion of urine into the sterile specimen jar.

Males

1. Wash hands well.
2. Cleanse the penis, retract the foreskin and wash with gauze/cotton wool soaked in water/saline.
3. Circumcised men are not required to cleanse the peri-urethral area before voiding.
4. Keep foreskin retracted while voiding.
5. The patient should pass a few milliliters of urine into the toilet bowl, DO NOT STOP THE FLOW, and then collect the midstream portion of urine into the sterile specimen jar.

WHAT TO DO
HOW TO DO IT

Follow this procedure for urine specimen collection in children

1. It is advisable that you attach the bag before feeding the baby.
2. Make sure the pubic and genital areas have been thoroughly washed, and are clean, dry and free from powder.
3. Wash your hands and remove the strip of protective paper on the bag, exposing the adhesive.
4. **Do not** place your fingers inside the bag as this will contaminate the sample.
5. **Female Collection**: Position the wider part of the opening of the bag so that it covers the upper part of the genitalia, ensuring that the small end of the opening is applied firmly to the skin in the area between the vagina and rectum. Apply gentle pressure to the adhesive area to seal.
6. **Male Collection**: The wider section of the opening is placed under the scrotum, the penis inserted into the bag and firm pressure applied to the adhesive area to seal.
7. Check every 15 minutes to see if the baby has passed urine.
8. It is not advisable to apply a tight nappy.
9. Do not leave the paediatric bag on the baby for more than one hour.
10. Discontinue using if skin develops symptoms of an allergy.
11. When the specimen has been collected, remove the bag gently by tucking up. Then fold the two adhesive surfaces together and seal the bag.
12. Hold the bag over a sterile urine container and using clean scissors, cut off a corner, let the urine run in the jar, replace the lid and dispose of the plastic collection bag.
13. Store in the refrigerator (2-5ºC).
14. Please return container to the health facility promptly.
15. Inform staff that sample was collected using a paediatric bag.

3. Stool specimen

WHAT TO DO
HOW TO DO IT

Follow this procedure for stool specimen collection

1. Obtain unformed stool specimens.
2. Take parts of the stool that look bloody or slimy (contain mucous/pus).
3. Fill each container at least 1/3 full.

DO NOT overfill the sterile specimen jar.

4. Replace the lid.
5. Complete the **N1 PHC request form**. Please provide the suspected clinical diagnosis to enhance appropriate processing of the specimen in the laboratory.
6. **Do not** submit more than one stool specimen for any individual patient within a 24 hour period.

- Stool specimens can be collected at any time of day and can be stored at room temperature for up to 24hr. Where room temperature exceed 25°C then store in a refrigerator (2-5°C).

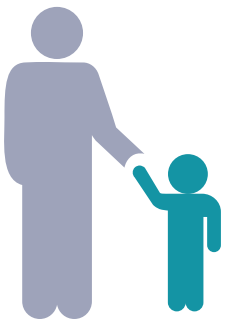
N1 form

Prior to collection of specimen

- **Do not** use a laxative before collecting the stool sample.
- Empty bladder completely (so stool sample is not contaminated with urine).

Specimen collection from adults:

1. Collect the stool specimen into sterile specimen jar.
2. **Do not** let water touch the stool sample.



Specimen collection from children:

1. **Do not** submit stool sample in nappies.
2. For children with diarrhoea, or liquid stool, fasten a nappy liner to the nappy using childproof safety pins. Remove the stool specimen from the nappy using a disposable plastic spoon and put into the sterile specimen jar.

4. Special collection instructions for other microbiology specimens

Specimen	Special collection instructions
Aspirates or swabs from abscesses, wound and fluid specimens	**General precautions:** The site, amount and method used to collect these specimens play a critical role in determining the usefulness of the culture results. For purposes of meaningful culture results, proper disinfection of the skin and collection of representative specimens is advised. Therefore, collection of a tissue biopsy, aspirates and aliquots of pus/fluid is superior to a swab. Sterile specimen jars or sterile Vacutainer tubes without additives should be used for collection of such specimens. Do not place biopsy specimen in formalin or wrap in gauze. **Swabs of superficial wounds and ulcers:** The surfaces are usually colonised and cultures from such specimens often yield mixed bacterial flora, which do not reflect the organisms of true infectious significance. Therefore, every effort should be made to obtain specimens from deeper aspects of these lesions with careful avoidance of the contaminated tissue surface. Submit the specimen in a sterile container and deliver to the laboratory without delay. **Aspirates:** Decontaminate the collection site with 70% alcohol and/or with 10% povidone-iodine solution and allow to air- dry. Aspirate the deepest part of the lesion using a 3-5ml syringe and a 22-23 gauge needle. The aspirating syringe can be used as the transport container if the needle is removed and the syringe is capped. Alternatively, transfer the aspirate into a sterile container and transport to the laboratory promptly.
Burn wounds	The surface of burn wounds is commonly colonised by the patient's own microbial flora or by environmental organisms therefore collection of a representative specimen is important. Swab cultures of burn wounds are not adequate for the detection of true and potential pathogens therefore biopsy specimens are recommended. The collected punch biopsy should be submitted in a sterile container.

CYTOLOGY SPECIMEN

1. Conventional Pap smear collection

GENERAL PRINCIPLES

Principles *for conventional Pap smear collection*

- Assemble specimen collection materials.
- Prepare the patient.
- Have a good light source.
- Check the expiry date on the bottle of fixative.
- Glass slides with a ground glass end must be used for this purpose and the patient's name and folder number must be written on the slide at the frosted end using a lead pencil.
- Complete the specific **N2: Cytology Request Form** for Pap smears.
- Any previous investigations must be mentioned with dates and laboratory numbers, if available.

N2 form

Figure 15: Pap smear specimen collection materials

The following contributes to unsatisfactory Pap smear results:

- Scanty material
- Un-labeled slides
- Delayed fixation
- Unfixed slides
- Smear too thick
- Broken slides (poor packaging)
- Improper transportation of smears without a slide holder
- Use of lubricants prior to sampling.
- Excessive bleeding, i.e. bloody smear.

WHAT TO DO
HOW TO DO IT

Follow this procedure for optimal Pap smear specimen collection

(refer to Figure 16)

1. Spread labia and insert the speculum correctly (speculum can be dry or moisten with lukewarm water only).
2. Visualize entire cervix using a good light source.

- *How to visualise the cervical os when not seen:*
  - Ask the patient to cough or push or bear colon.
  - For obese patients, use condom over the Cusco or speculum [which is cut on top] to prevent the fat tissue falling on the vaginal pathway thus obscuring the cervix.
  - Put a pillow or a rolled towel under the pelvic area under the back.
  - Rotate speculum or Cusco up or down or sideways to locate the cervix until the cervical os is visualised.

3. Remove any obscuring discharge and excess blood with a ring forceps holding a folded gauze pad.
4. Use the wooden spatula to sample the cervical material.
5. Apply firm pressure and rotate spatula more than 360 degrees.
6. Apply material uniformly along the length of a slide and not onto the frosted end.
7. Fix rapidly with spray fixative (within 10 seconds).
8. Allow fixative to air-dry.
9. The slides must be placed in slide holders before transport to the laboratory.

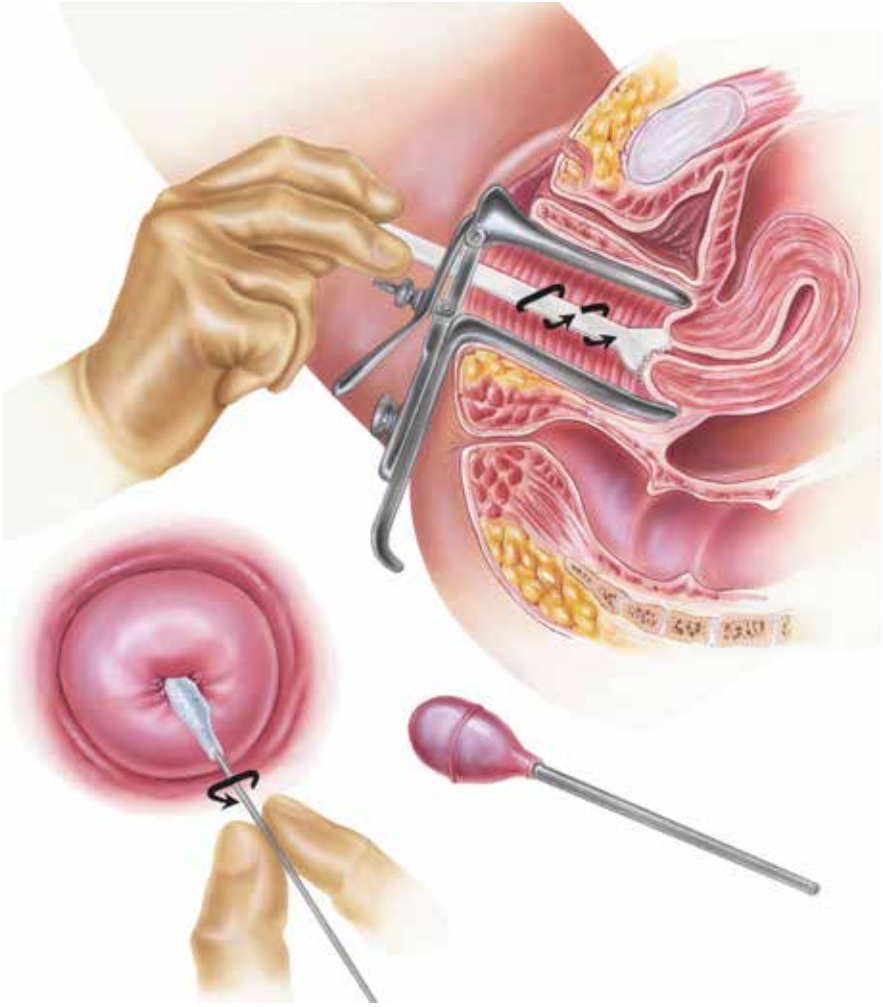


Figure 16: Specimen collection for Pap smear using Cervi-brush

WHAT TO DO
HOW TO DO IT

Follow this procedure for using a Cervi-brush

1. Insert into cervical os.
2. Sample the entire transformation zone by rolling the brush shaft between your thumb and forefinger while turning the brush 360°, five time in a clockwise direction. Maintain gentle pressure.
3. Spread the collected sample on the entire length of the clear slide with one side of the brush.
4. Turn the brush over and again spread the material on the entire length of the slide.

Smears made by each side of the brush should slightly overlap.

5. Spray fix immediately (within 10 seconds).
6. Allow slide to dry (after fixation) before packing to send off..Z

WHAT TO DO
HOW TO DO IT

Follow this procedure for proper fixation technique

1. Air-drying of a specimen causes distortion and loss of cytoplasmic density. Crisp nuclear chromatic patterns are lost, and the cytoplasm cannot be coloured properly. For this reason, rapid fixation is a vital step in cytological preparations.
2. When the clinician is preparing a slide e.g. pap smear or bronchial, oesophageal or gastric brushings, the smear should be made in one direction with one motion and the doctor should avoid using the same area of the slide twice. All prepared slides should be sprayed with cytological fixative immediately to prevent specimen degeneration.
3. Check expiry date on spray fixative.

2. Liquid based cytology

WHAT TO DO
HOW TO DO IT

Follow this procedure for liquid based cytology collection

1. Prepare all consumables before starting the procedure.
2. Complete patient details on both the N2 request form as well as the liquid-based cytology (LBC) vial. Specimens may be returned if details are missing from the vial.
3. Prepare collection materials.
4. Ensure the entire plastic seal is removed from the lid of the LBC vial and discarded.

Figure 17: Recording the patient details on the LBC vial

Prepare the patient

1. Counsel the patient by explaining the LBC sample collection procedure and when to return to the health facility.
2. Put the patient in lithotomic position.
3. Ensure that you have a good light source.
4. Spread the labia and insert the speculum correctly.
5. Do not use any lubricants such as KY Jelly as these may interfere with the test process. Use sterile warm water or running tap water if the vagina is dry.
6. Visualize the entire cervix.
7. Remove any obscuring discharge, blood or mucus.

WHAT TO DO
HOW TO DO IT

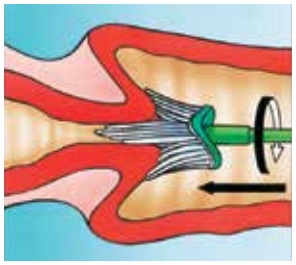


Figure 18: Sample collection using the cervexbrush

Method using Cervex brush (broom-like brush)

- Insert the central bristles of the brush into the endocervical canal deep enough to allow the shorter bristles to fully contact the ectocervix.
- Rotate the brush 360°, 5 times.
- Rinse the cervex brush immediately into the LBC vial solution vial by pushing it into the bottom of the vial 10 times, forcing the bristles apart.
- As a final step, swirl the brush vigorously to further release material.
- Visually inspect the cervex brush to ensure that no material remains attached.
- Discard the collection device (into the biohazard waste box).

Do not leave the head of the brush inside the vial.

Figure 19: Tighten LBC vial cap

- Tighten the cap so that the black torque line on the cap passes the black torque line on the vial (to ensure there is no leakage of the sample).
- Do not over-tighten. [It will break the sensors of the processing machine in the Lab].
- Place the vial and requisition form in a specimen bag for transportation to the laboratory.

Method using endocervical brush (combi-brush)

- Push gently, and rotate the brush 360° in a clockwise direction. Rotate 1½ times.

Do not use an endocervical brush if the woman is wearing Intrauterine Contraceptive Device (IUCD), is pregnant or has a stenosed cervix.

- Rinse the endocervical brush immediately into the LBC vial solution by pushing it into the bottom of the vial 10 times, forcing the bristles apart.
- As a final step, swirl the brush vigorously to further release material.
- Visually inspect the endocervical brush to ensure that no material remains attached.
- Discard the collection device (into the biohazard waste box).

Figure 20: Sample collection using the endocervical brush

3. Fine needle aspirate collection

This procedure is for visible or easily accessible palpable lesions and is **NOT** suitable for deep-seated lesions, which should be conducted under radiological guidance.

WHAT TO DO
HOW TO DO IT

Follow this procedure for fine needle aspirate collection

1. Explain the fine needle aspirate (FNA) procedure to the patient.
2. Write all required information, including the clinical information, especially the site and nature of the lesion, as specified on the **CN2 Cytology Request Form**.

form **N2**

Follow this procedure to prepare the FNA smear

1. Label all slides using a pencil (on the frosted portion) with the patient's name and folder number

Do not label slides with barcodes; barcodes must be attached to the slide holder.

2. Examine the nature of the lesion i.e. solid, cystic, mobile etc.
3. Clean the skin with antiseptic.
4. Insert the sterile 22g needle with an attached 10 or 20ml syringe into the lesion with the dominant hand while stabilising the mass with the non-dominant hand.
5. Retract the syringe to produce and maintain a negative pressure of about 5ml.
6. Move the needle in various directions to sample cells from different areas of the mass while maintaining the negative pressure.
7. When only the nub of the syringe is filled with aspirate material, withdrawn the needle while maintaining a negative pressure until the subcutaneous tissue is reached. Then release the piston of the syringe to equalize the pressure.
8. Withdrawn the needle and then completely disconnect it from the syringe.
9. Fill the syringe with air, and reconnect to the needle.
10. Express the material at the frosted end of the glass slide.
11. Place a second glass slide face down, parallel to the bottom slide and pull both slides apart in separate directions.

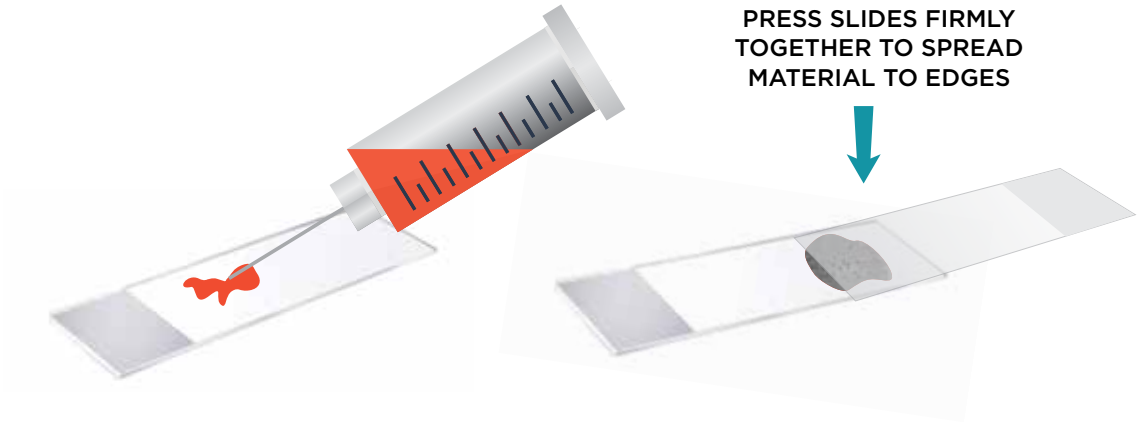


Figure 21: Deliver material on slide and use second slide to make a smear

- Fix one of the slides immediately using spray fixative; leave the other slide to air dry. Clearly mark which slide is fixed and which is air dried.
- Label all slides in pencil with the patient's name or hospital number.

The cytology staff will gladly show any clinician how to perform a fine needle aspiration.

- Hold the aerosol spray fixative 17-22cm from the glass slide.
- Hold the glass slide horizontally while spraying with fixative. If the slide is held at an angle, the material may be sprayed off the slide.

The expiry date on the bottle of spray should be checked regularly.

- Clearly mark which of the slides is fixed, and which is air-dried.

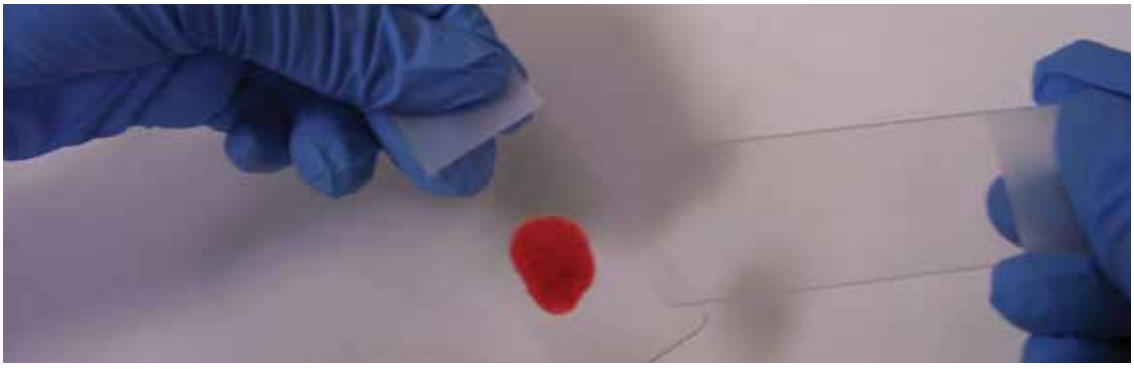


Figure 22: Example of a prepared smear

4. Dried blood spots collection for Early Infant Diagnosis

WHAT TO DO
HOW TO DO IT

Follow this procedure for the collection of dried blood spots:

1. Assemble the materials to perform dried blood spots (DBS) collection:

- DBS card
- Desiccant sachet
- Disinfectant, i.e. alcohol swab
- Safety lancet
- Drying rack
- Plastic bag
- Gauze/cotton wool
- N1 PHC Request Form
- Powder free gloves

Figure 23: Example of a required materials

2. Confirm the patient's identity and check the expiry date on the filter paper card.
3. Write the name, date of birth and date of sample collection onto the filter paper card and complete the request form.

REFER TO FIGURE 24

Use aseptic techniques as described here:

1. Wash your hands.
2. Put gloves on.
3. Select an appropriate puncture site.
   - Young infants – heel or big toe
   - Infants older than 9 months – finger
4. Clean the selected site with the skin disinfectant swab and allow to dry for 30 seconds.

Show the mother how to warm the baby's foot to increase circulation.

Figure 24: Preparation for procedure

WHAT TO DO
HOW TO DO IT

REFER TO FIGURE 25

Method for collecting the sample:

5. Position the foot or hand with the puncture site. Puncture the site using a freshly unpacked sterile lancet.
6. Whilst holding the foot correctly, apply and release pressure to allow a drop of blood to form. Do not squeeze or "milk" the puncture site as this may dilute the blood with tissue fluid.

   Wipe away the first blood drop using a clean cotton wool swab. The initial drop contains tissue fluid that may dilute the specimen.

   Allow another large blood drop to form.

   Lightly touch filter paper card onto blood drop. Apply blood only to the printed side of the filter paper card. Allow blood to soak through and to radiate to completely fill the circle but do not layer more than one blood drop onto the same circle. Do not touch the blood spots with your hands or gloves!

   Allow the next drop of blood to form and soak it onto the next marked circle. Repeat until at least three marked circles are filled with blood.

   The pre-printed circles hold ±75 µl blood each when completely filled. Samples with insufficient blood cannot be processed since the Polymerase Chain Reaction (PCR) result may be unreliable.
7. Apply pressure to the puncture site using clean gauze (or cotton wool) to stop further bleeding and apply a plaster strip to puncture site.
8. Dispose of the lancet safely into a sharps/infectious waste disposal container.

REFER TO FIGURE 26

Method for drying:

1. Place the card in the drying rack without the blood touching the rack.

Do not allow blood spots to come into contact with any surface or each other.

2. Allow to dry thoroughly for at least three hours while keeping it away from sunlight, dust and insects.
3. Place the card with a desiccant sachet into an airtight sealable bag.
4. Close bag and send it together with the request form to the laboratory.

During transport the samples should not be left in the car as exposure to sunlight and heat may deteriorate the samples.

Heel prick method

Toe prick method

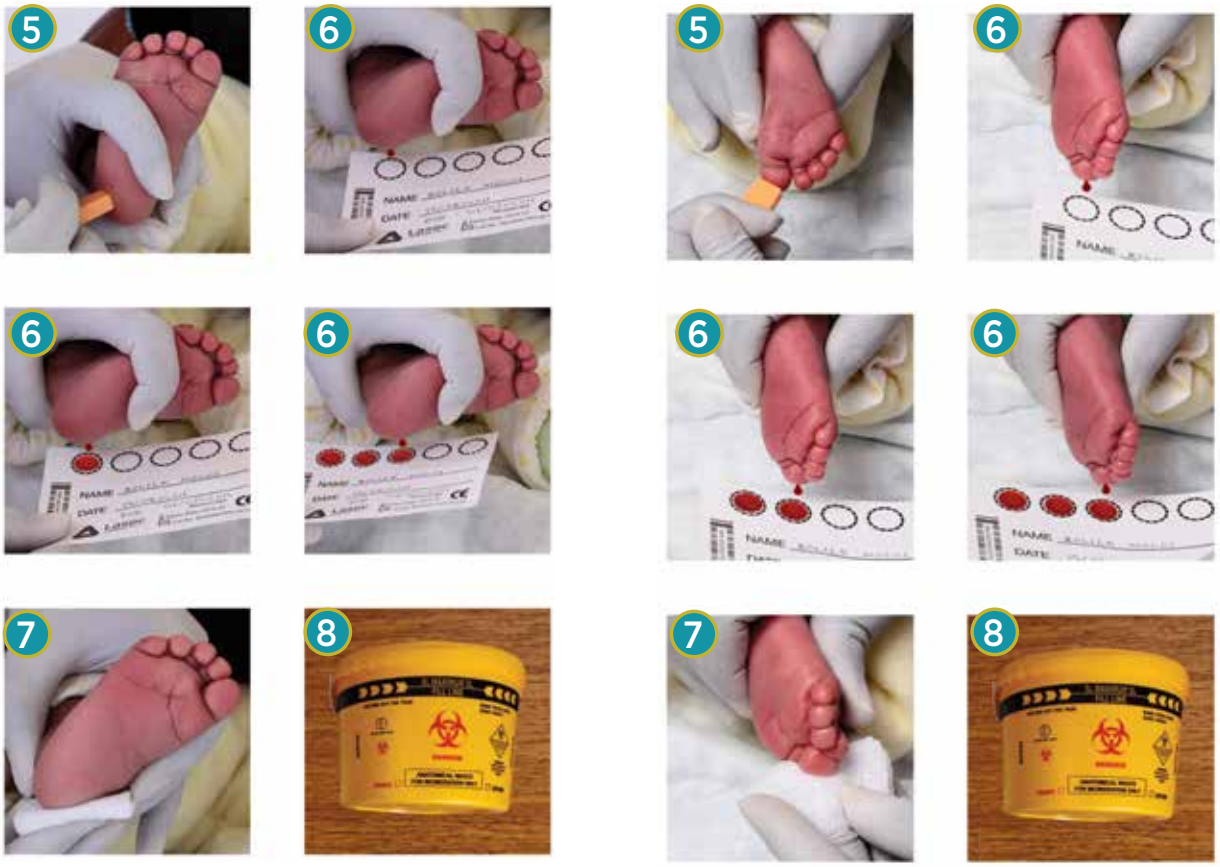
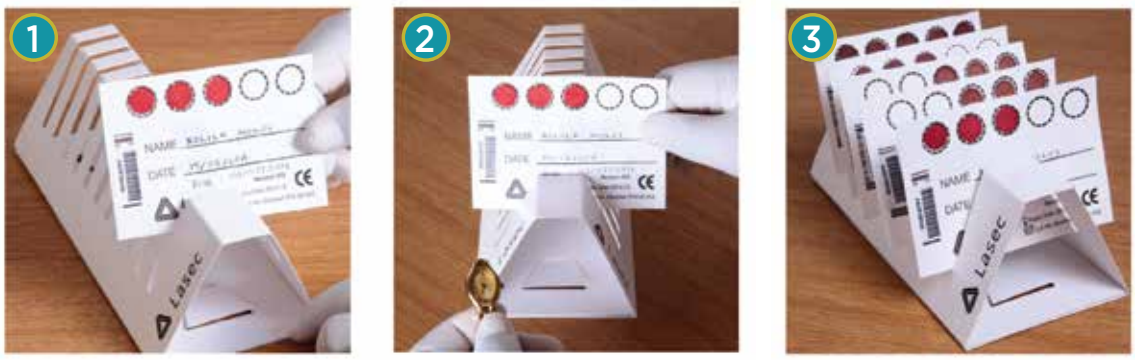


Figure 25: DBS step-by-step sample collection



Source: NHLS, 'Taking blood from infants for the HIV PCR test standard Operating Procedure'

Figure 26: DBS drying method

Features of an acceptable DBS card

1. At least three pre-printed circles should be completely filled with blood.
2. The **N1 PHC Request Form** barcode label should be affixed, and the DBS card completely and accurately labelled.

Figure 27: Examples of acceptable DBS cards

Features of an unacceptable DBS card

- Patient details on DBS card are ineligible
- Patient details on the DBS card do not match the information provided on the **N1: Request Form**.
- Insufficient sample for processing.
- Blood spotted outside the pre-printed circle.

Figure 28: Examples of unacceptable DBS cards

SPECIAL PRECAUTIONS FOR CHEMICAL PATHOLOGY TESTS

For some specific tests, special precautions need to be complied with, e.g. fasting for a cholesterol test. Take note the precautions.

1. Cholesterol and lipogram

The patient should adhere to their normal diet and lifestyle for two weeks preceding the test. Blood should be collected with minimal stasis in the seated position after an overnight fast of 10-12 hours (water permitted). In patients who have suffered a myocardial infarction, sampling should be done either within 24 hours or after three months. Due to large biological variability and pre-analytical errors, decisions to initiate treatment with lipid-modifying drugs should be based on at least two separate results obtained one week or more apart, using the same laboratory to minimise variability. If there is a discrepancy of more than 10% between these two, a third specimen is advisable.

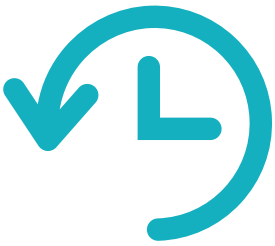
Take note of the special precautions which need to be complied with for some specific tests.

CONSEQUENCES OF IMPROPER SPECIMEN COLLECTION

Improper specimen collection can mean that specimens are rejected and can have the following consequences:

Haemolysed samples

Will lead to inaccurate results, e.g. incorrectly elevated Potassium.



Insufficient samples

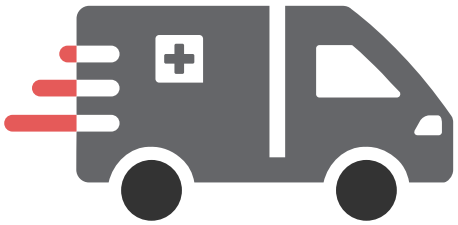
Will lead to rejection and/or delayed processing.

Inadequate mixing

Will result in clotting of the specimen collected in an anticoagulant tube thus no further processing will be undertaken.

Poor Sample storage and transport could lead to:

- Specimen contamination and failure to isolate the causative microorganism.
- Improper treatment of the patient.



Specimens may be rejected based on the following criteria:

- Specimens that have inappropriately clotted, e.g. FBC.
- Specimens that are haemolysed, e.g. haemoglobin.
- Specimens collected in the wrong anticoagulant, e.g. Glucose in a red top Vacutainer tube.
- Specimens that are too old to be processed, e.g. Potassium received more than 24 hours after collection will not be processed.
- Vacutainer test tubes that are under-filled, e.g. INR in a blue top Vacutainer tube.

SECTION **THREE**

section 1

Complete request form

section 2

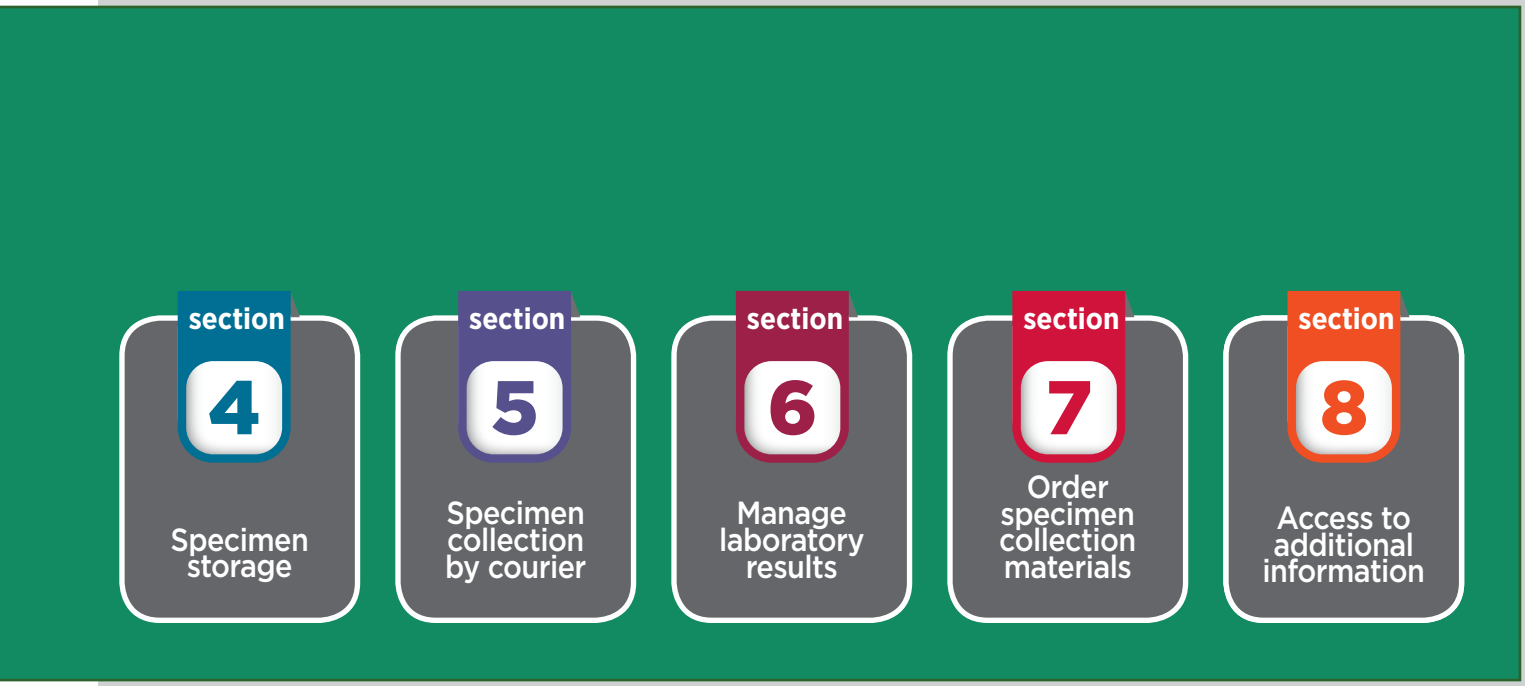
Collect specimen

section 3

PACKAGE SPECIMEN

SECTION THREE

PACKAGE SPECIMEN



SECTION THREE

form N1

form N2

Once the request form (N1 or N2) has been completed and specimens collected, follow the packaging instructions discussed below.

LABEL SPECIMENS

WHAT TO DO
HOW TO DO IT

Follow this procedure for the labeling of specimens

1. Write the patient's name and surname and clinic folder or HPRS number clearly, using a pen or marker on each specimen.
2. Peel off barcode labels from the **N1: PHC and N2: Cytology Request Forms** and attach to each specimen collected.
3. Where seven or more specimens are collected from one patient, complete a second request form and use the barcodes from the second form for additional specimens. There are nine barcodes provided with the **N1: Request Form** (seven for specimens and two reserved for facility record keeping).
4. Please place the barcode horizontally for Vacutainer tubes (refer to the figure below). Place the barcode across the Vacutainer test tubes so that they are clearly visible and can be scanned easily in the laboratory.

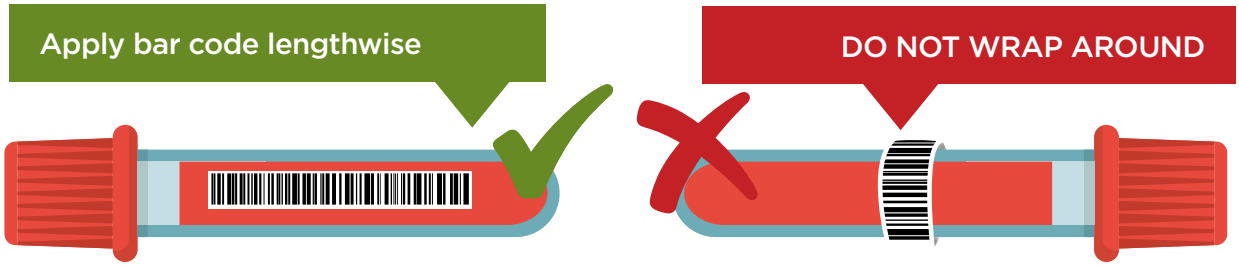


Figure 29: How to apply the request form barcode

Place the barcode horizontally on sterile specimens.

Figure 30: How to apply the request form barcode to sterile specimen jar

RECORDING OF SPECIMEN IN THE PATIENT FILE

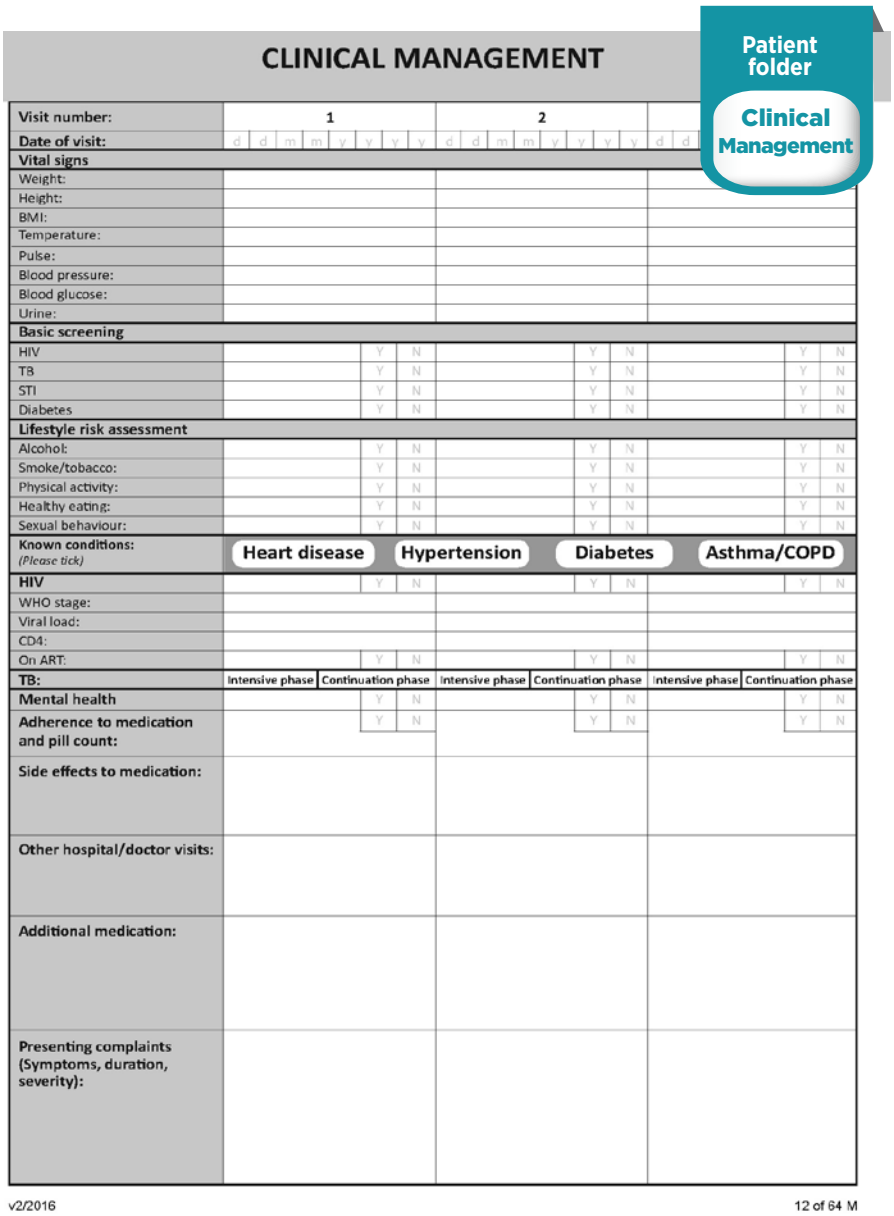
WHAT TO DO
HOW TO DO IT

N1 form

N2 form

Follow this procedure for the recording the specimen

- Peel off one barcode sticker from the **N1: PHC or N2: Cytology request form** and stick it in the Lab Investigation section of the Clinical Consultation Form (Figure 31 below) in the patient folder.
- Where a second **N1: PHC Request Form** is used place the second barcode in the Lab Investigation section of the patient folder for tracking purposes to access laboratory results for the additional tests.



CLINICAL MANAGEMENT

Patient folder
Clinical Management

Visit number:	1	2	
Date of visit:	d d m m y y y y	d d m m y y y y	d d
Vital signs			
Weight:			
Height:			
BMI:			
Temperature:			
Pulse:			
Blood pressure:			
Blood glucose:			
Urine:			
Basic screening			
HIV	Y N	Y N	Y N
TB	Y N	Y N	Y N
STI	Y N	Y N	Y N
Diabetes	Y N	Y N	Y N
Lifestyle risk assessment			
Alcohol:	Y N	Y N	Y N
Smoke/tobacco:	Y N	Y N	Y N
Physical activity:	Y N	Y N	Y N
Healthy eating:	Y N	Y N	Y N
Sexual behaviour:	Y N	Y N	Y N
Known conditions: *(Please tick)*	Heart disease	Hypertension	Diabetes	Asthma/COPD
HIV	Y N	Y N	Y N
WHO stage:			
Viral load:			
CD4:			
On ART:	Y N	Y N	Y N
TB:	Intensive phase / Continuation phase	Intensive phase / Continuation phase	Intensive phase / Continuation phase
Mental health	Y N	Y N	Y N
Adherence to medication and pill count:	Y N	Y N	Y N
Side effects to medication:			
Other hospital/doctor visits:			
Additional medication:			
Presenting complaints (Symptoms, duration, severity):			

v2/2016 12 of 64 M

Figure 31: Clinical Consultation Form

- Indicate the date and testss requested in the **Laboratory Test Results form** (Figure 32 below) of the patient record by placing a tick next to each test requested to assist with tracking results.

Patient folder

Lab Results

LABORATORY TEST RESULTS

TEST	Date requested: (d d m m y y y y)	Date requested: (d d m m y y y y)	Date requested: (d d m m y y y y)	Dat (d d m m y y y y)
	Results	Results	Results	Results
ALP				
ALT				
Calcium				
CD4				
Cholesterol				
Coomb's Test				
CRAG (Cryptococcal antigen test)				
Creatinine (eGFR)				
CPR				
Cytology				
Differential count				
FT4 (Free Thyroxine 4)				
Gamma GT				
Haemoglobin				
HbA1c				
Hepatitis A, B or C				
HIV PCR for infants				
INR				
Lactic Acid				
LDL				
Lipase				
MCS (Non-TB)				
MCV				
Pap smear				
Phenytoin				
Platelets				
Potassium				
PSA				
Red Cell Folate				
RPR				
Sodium				
Stool parasites				
TB Drug Susceptibility				
TB Line Probe Assay				
TB MC&S (re-treatment and HIV patients)				
Triglycerides				
TSH				
Uric Acid (Serum)				
Urine albumin: creatinine ratio				
Urine protein: creatinine ratio				
Viral load				
Vitamin B12				
WBC				
Xpert MTB/RIF				
Other				

v2/2016 38 of 64 M

Figure 32: Patient folder: Laboratory Results Form

SPECIMEN PACKAGING

GENERAL PRINCIPLES

Principles *for specimen packaging*

- All specimens must be placed in the appropriate compartment of the specimen plastic bags provided.

Use only ONE *specimen plastic bag per patient.*

- The specimen plastic bags are designed to accommodate the N1: **PHC and N2: Cytology Request Form** and specimens for each individual patient only.

The specimen plastic bags have separate compartments for:

1

N1: PHC & N2:Cytology Laboratory Request Forms

Fold the form in half and insert into compartment with patient information facing outward. This will enable the laboratory to read the **N1: PHC Request Form** without unpacking the entire package.

2

Sterile specimen jar

Larger specimen compartment reserved for specimen jars.

3

Vacutainer test tubes

Reserved for collected blood specimens.

Figure 33: Specimen bag with test tubes in the allocated compartment

SECTION THREE

GENERAL PRECAUTIONS

GENERAL PRINCIPLES

Principles *for packaging of specimens*

- All specimens must be packaged carefully to avoid breakage or leakage of the specimen.
- All specimens must be packed in compliance with the transportation guidelines for medical specimens with at least one complete **N1: PHC or N2: Cytology Request Form** per patient.

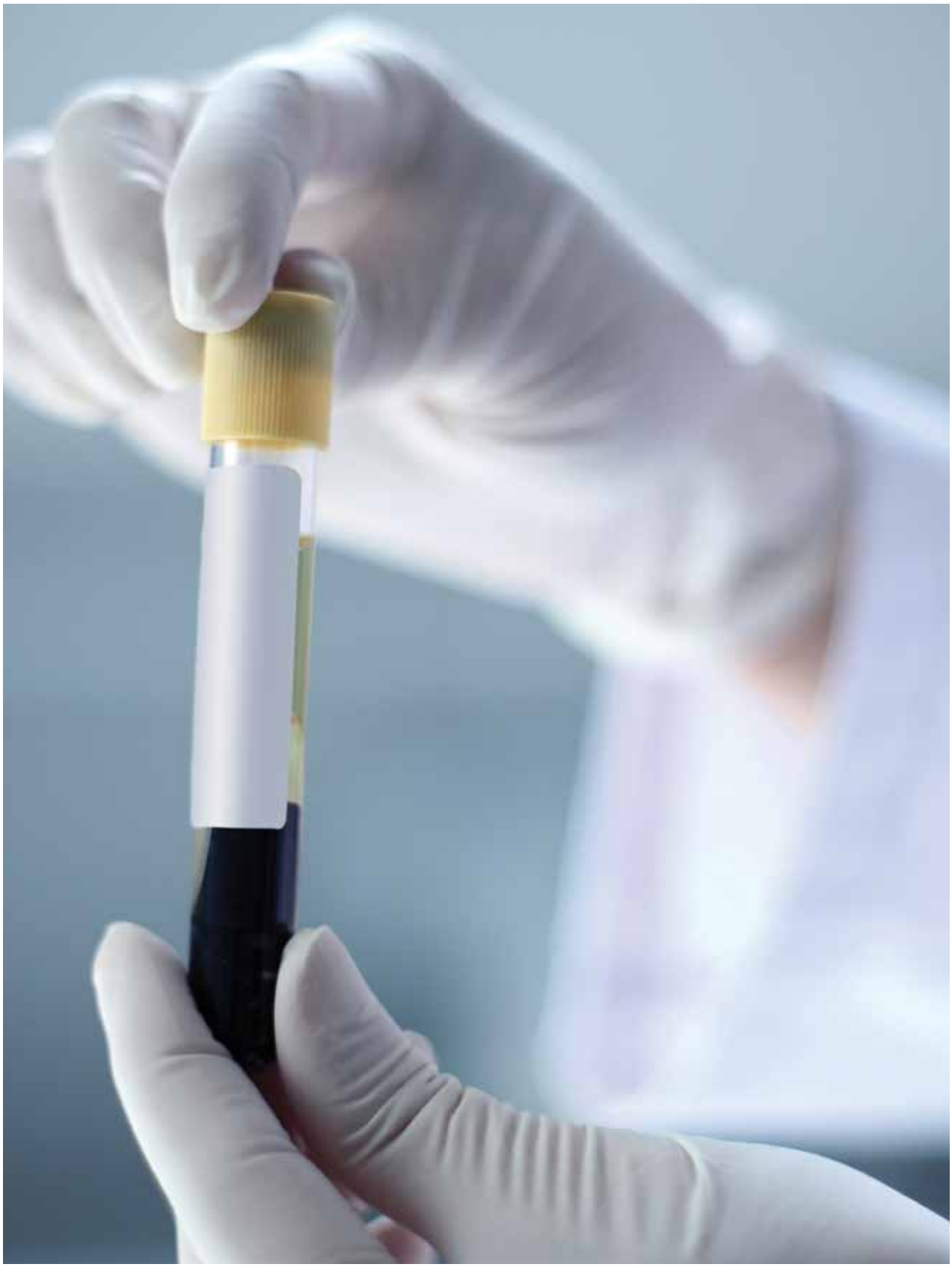
form N1

form N2

The request form should never be placed inside the plastic bag with the specimen but must be placed in outside pouch of transparent plastic bag.

Reasons for specimens found to be unacceptable or rejected by the laboratory include:

- Un-labeled or improperly labeled specimens.
- Improperly sealed specimens resulting in contamination (visually apparent).
- Specimens received in leaking, cracked or broken containers.
- Specimens not appropriate for a particular test.



Package specimen

SECTION **FOUR**

section 1
Complete request form

section 2
Collect specimen

section 3
Package specimen

section 4

SPECIMEN STORAGE

SECTION FOUR

SPECIMEN STORAGE

SECTION **FOUR**

SPECIMEN RECORDING IN THE FACILITY SPECIMEN REGISTER

GENERAL PRINCIPLES

Principles *for recording facility specimens*

NHLS provides a specific register that must be completed for all specimens within the facility:

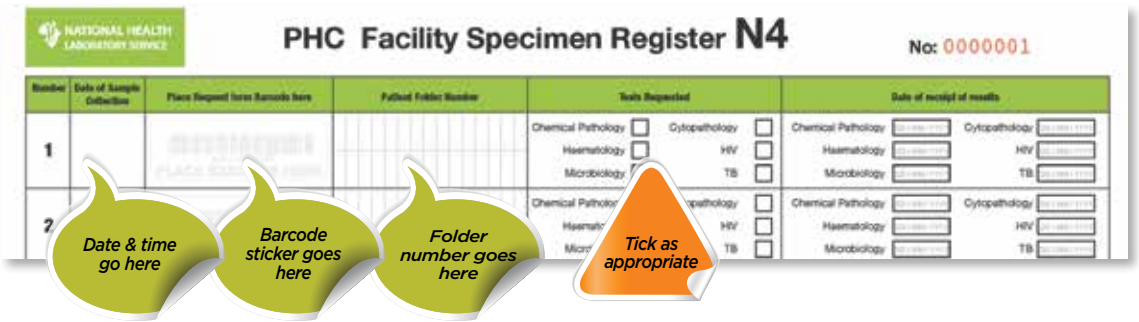
form **N4** *Page 81*

PHC FACILITY SPECIMEN REGISTER
For recording of facility specimens

- Ensure that all specimens within the facility are recorded in the **N4: Facility Specimen Register** and placed in the specimen collection box immediately.

Use one row per patient in the register

- Peel off the ***barcode sticker*** from the **N1: PHC or N2: Cytology request form** and place in the **N4: PHC Facility Specimen Register**.
- Complete the following information in the **N4: PHC Facility Specimen Register:**
  - Date, time
  - Patient folder/HPRS number and,
  - Tick the appropriate disciplines for the test/s requested (refer to N1 request form).



- Seal the specimen plastic bag.
- Drop off the samples in the designated area, i.e. specimen collection box or specimen fridge/facility cooler box for collection by the NHLS courier (based on test specific specimen storage conditions).

SPECIMEN STORAGE CONDITIONS

Principles *for specimen storage*

- All specimens awaiting collection by courier must be stored according to the determined storage conditions for each ELL test in **Appendix B** (refer to the table below).
- The specimen stability and viability may change over time due to inappropriate storage.

Do not remove specimens from the specimen plastic bag once already packaged.

Do not refrigerate cytology smears.

Specimen handling and storage conditions

ELL KEY	SAMPLE HANDLING	STORAGE CONDITIONS
A	• Specimens must be kept away from direct sunlight • Specimens should not be exposed to dramatic temperature fluctuations	• Specimens can be stored for up to 24 hours at room temperature (20-25°C) • Where room temperature exceeds 25°C, specimens must be stored in a fridge (2-5°C) to preserve specimen integrity)
B	• When the smear has been fixed, insert into a slide holder and store in specimen storage bag • Do not use an envelope	• Store at room temperature (20-25°C) until collection
C	• Collect specimens in sterile specimen jar or tubes • Where appropriate, place in the transport medium provided	• All specimens except urine can be stored up to 24 hours at room temperature (20-25°C) • Urine and stool specimens must be stored in the fridge (2-5°C)
D	• Specimens should be collected in clean leak proof containers	• Specimens can be stored up to 24 hours at room temperature (20-25°C) or up to 48 hours in a fridge (2-5°C) • Where room temperature exceeds 25°C, specimens must be stored in the fridge (2-5V) to preserve specimen integrity • Do not freeze specimen

If the courier doesn't collect:

Adhere to the specified specimen storage conditions, even after the completed daily collection schedule.

Specimen transport and storage conditions, together with the time interval between collection and testing may affect the quality of test results.

Specimens should not be exposed to vibrations (especially during transportation).

CONSEQUENCES OF IMPROPER SPECIMEN STORAGE

- Dramatic temperature fluctuations could lead to the loss of viability of causative microorganism or overgrowth of normal commensal organisms, thus negatively affecting patient care.

SECTION **FIVE**

SECTION FIVE

SPECIMEN COLLECTION BY COURIER

section **5**

SPECIMEN COLLECTION BY COURIER

section **6** Manage laboratory results

section **7** Order specimen collection materials

section **8** Access to additional information

A courier service is provided by the NHLS to collect patient specimens daily (or as agreed with the DMT).

- The laboratory manager must provide each facility manager with a written designated collection time schedule (early/mid/late morning and/or early/mid/late afternoon).
- Ensure that you familiarise yourself with the designated collection schedule for your facility.
- The courier should arrive daily at the scheduled time. If not, follow the escalation procedure to alert the laboratory manager.
- The couriers are identified by their name tags. The vehicles are branded with the NHLS logo and contact details.

WHAT TO DO
HOW TO DO IT

Follow this procedure for recording specimen handed over to the NHLS courier

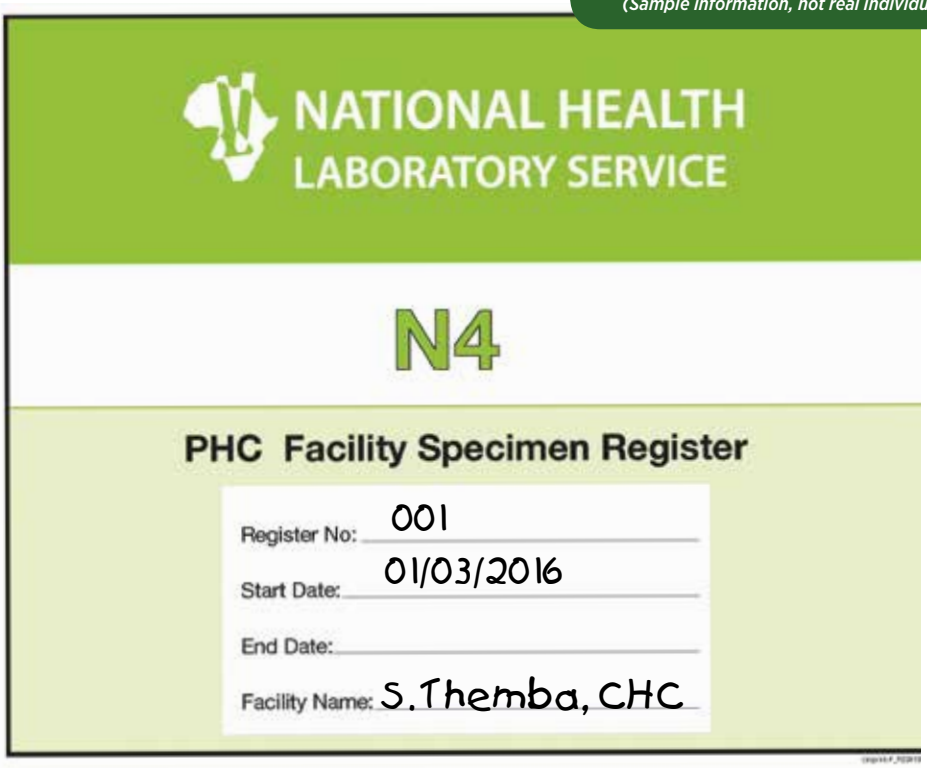
form **N4**

1. On arrival at the facility, the courier must report to reception.
2. Designated facility staff must ensure that the number of specimen packages from the specimen collection box, fridge or cooler box correspond to the number of entries in the **N4: PHC Facility Specimen Register.**
3. Check specimen fridge or cooler box on each NHLS courier visit to ensure that all specimens are sent timeously.
4. Designated facility staff must then handover specimens from the specimen collection box, fridge or cooler box to the courier.
5. Draw a line in the **N4: PHC Facility Specimen Register** after the last specimen entered for that specific courier collection to clearly reflect the number of specimens collected.
6. The NHLS courier must enter his full name, collection date and time in the **N4: PHC Facility Specimen Register** at the above mentioned line for auditing purposes.
7. Tear off the top copy of the completed **N4: PHC Facility Specimen Register** and hand to the courier with the specimens. Leave the carbon copy in the N4 Register.
8. Designated facility staff member to sign the NHLS courier log sheet to confirm specimen collection, where applicable.

For each new PHC Facility Specimen Register (N4) being used, complete the following information in the space provided on the front cover:

- **Register number**: consecutive numbering of the register, e.g. 1, 2, 3, etc.
- **Start and end date**: period during which the register was used
- **Facility name**: add facility name.

N4: PHC Facility Specimen Register
(Sample information, not real individual)



NATIONAL HEALTH LABORATORY SERVICE

N4

PHC Facility Specimen Register

Register No: 001

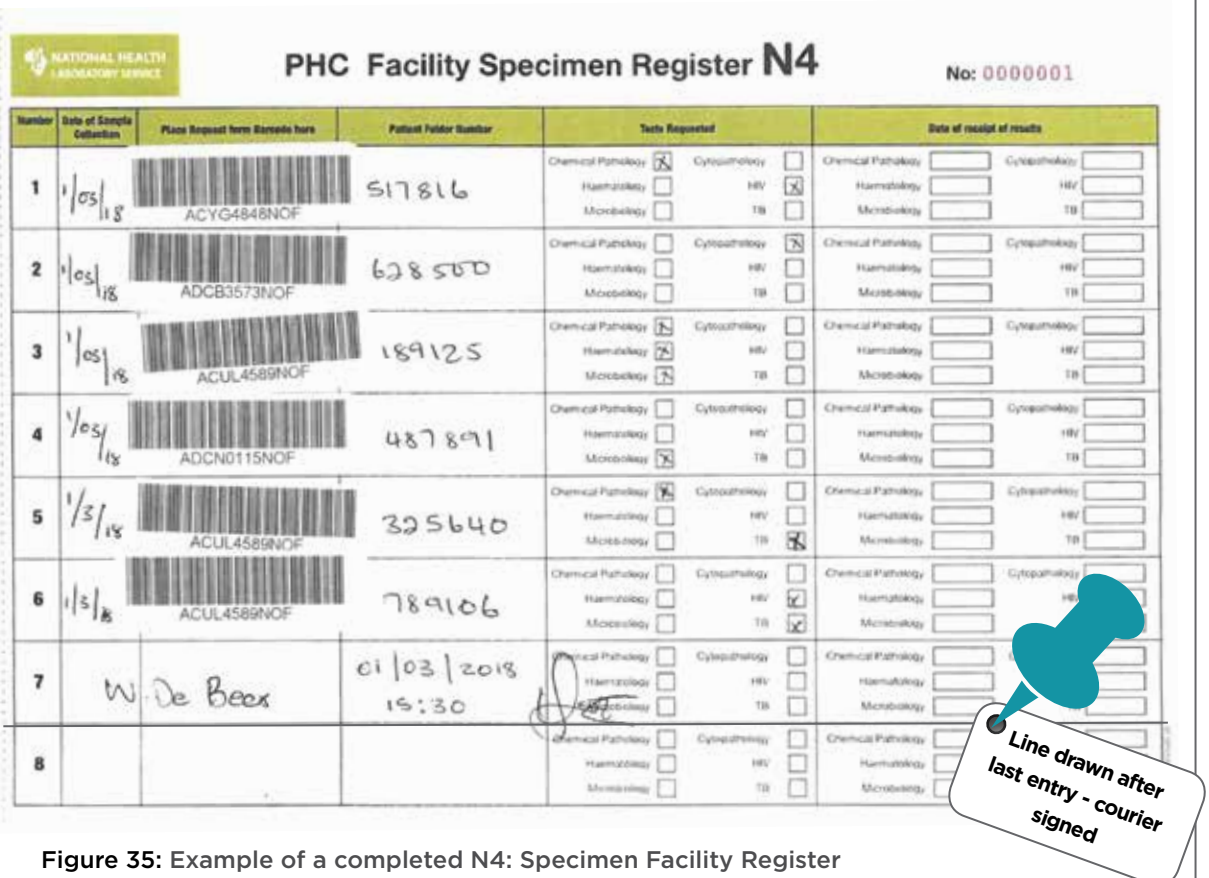
Start Date: 01/03/2016

End Date:

Facility Name: S.Themba, CHC

Figure 34: Example of a completed Facility Specimen Register cover

N4: PHC Facility Specimen Register
(Sample information, not real individual)



PHC Facility Specimen Register N4

No: 0000001

Number	Date of Sample Collection	Place Request form Barcode here	Patient Folder Number	Tests Requested	Date of receipt of results
1	1/03/18	ACYG4848NOF	517816	Chemical Pathology ☒ Cytopathology ☐ Haematology ☐ HIV ☒ Microbiology ☐ TB ☐	
2	1/03/18	ADCB3573NOF	628500	Chemical Pathology ☐ Cytopathology ☒ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	
3	1/03/18	ACUL4589NOF	189125	Chemical Pathology ☒ Cytopathology ☐ Haematology ☒ HIV ☐ Microbiology ☒ TB ☐	
4	1/03/18	ADCN0115NOF	487891	Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☒ TB ☐	
5	1/3/18	ACUL4589NOF	325640	Chemical Pathology ☒ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☒	
6	1/3/18	ACUL4589NOF	789106	Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☑ Microbiology ☐ TB ☑	
7	W De Beer	01/03/2018 15:30		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	
8				Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	

Line drawn after last entry - courier signed

Figure 35: Example of a completed N4: Specimen Facility Register

SECTION **SIX**


section
1
Complete request form
section
2
Collect specimen
section
3
Package specimen
section
4
Specimen storage

SECTION SIX

MANAGE LABORATORY RESULTS

HOW TO ACCESS RESULTS

There are multiple mechanisms for health facilities to receive or access laboratory results.

HOW TO ACCESS RESULTS

1

Printed laboratory results

Routine delivery of printed patient results by the courier. This is the primary mechanism for receiving results.

3

Telephonic access

Call your local laboratory to request the patient results using barcode.

2

Electronic access to laboratory results

NHLS SMS printer

- The listed laboratory results will be printed automatically by the SMS printer at the facility.
- However, if the results are misplaced or not received within 24hrs, then scan the request form barcode to access and print the laboratory results.

NHLS WebView portal

- The NHLS web view results portal (Trak Care Lab WebView) is available provided you have a computer with internet access.
- All users need to be individually registered to use this service. Please request user registration form from your local laboratory manager.
- Following registration, you will be allocated a username and password to access results.

1 Delivery of printed laboratory results by the courier

The NHLS courier will deliver printed laboratory results in a sealed envelope to each health facility on a regular basis.

- Each sealed envelope must display the facility name.
- Ensure that the delivered envelope is the correct one for that facility
- Where applicable, sign the log sheet provided by the courier.

Figure 36: Sealed envelope containing patient results

2 Electronic access to laboratory results

USING THE SMS PRINTER TO ACCESS LABORATORY RESULTS

Figure 37: Bi-directional SMS printer

The following tests results are currently available for printing on the SMS printer:

- CD4
- HIV Viral load
- HIV DNA PCR (Early Infant Diagnosis)
- Xpert MTB/RIF
- TB Microscopy (Auramine/ZN)
- CRAg

WHAT TO DO
HOW TO DO IT

Follow this procedure to access laboratory results using the bi-directional SMS printer

1. Ensure the printer is switched on and that the barcode scanner is connected
2. Press the # key.
3. After receiving the "Scan Barcode" message, you can now scan the **N1 Request Form** barcode.
4. Your requested patient results will print if available. Only authorized results will print on the SMS printer.

USING THE WEBVIEW PORTAL TO ACCESS LABORATORY RESULTS

WHAT TO DO
HOW TO DO IT

Follow this procedure to access laboratory results by accessing the Webview portal

1. Navigate to the NHLS website: **http://www.nhls.ac.za.**
2. Click on the "Login to Lab Results" icon.
3. Select the "TrakCare Lab WebView All Provinces" link.
4. Click on the "TrakCare Lab WebView portal" link.
5. An online user manual is provided on the landing screen.

Figure 38: TrakCare Lab WebView link

Logging in

1. Enter your username and password.

If you do not yet have your login details, contact your local laboratory manager.

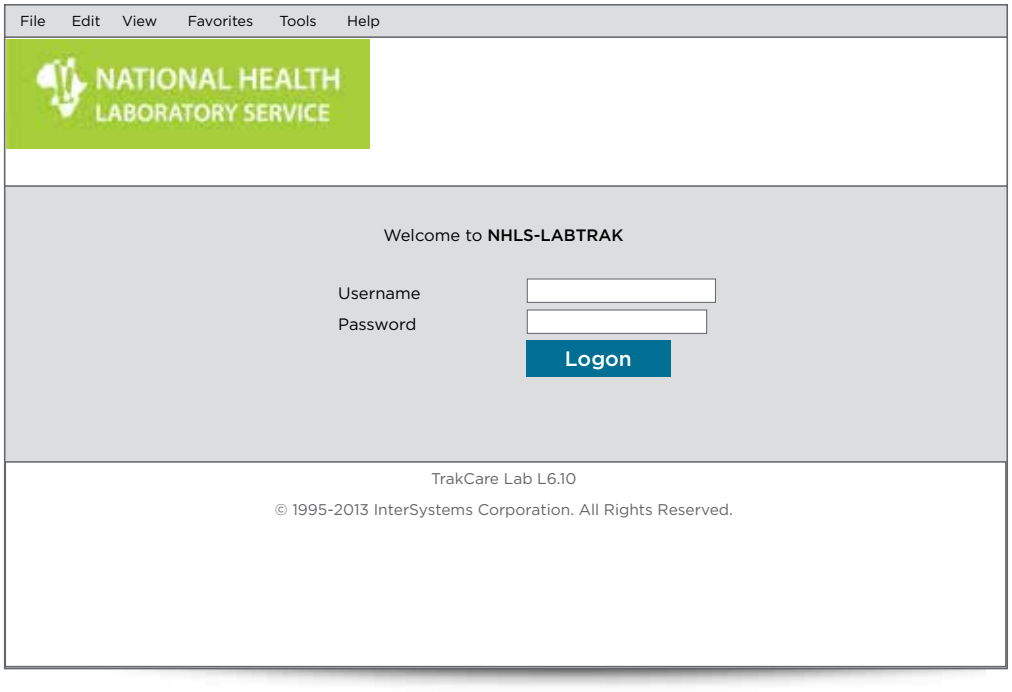


Figure 39: Trak Care WebView login screen

After login

Once you are logged in, the patient search screen is displayed. This screen enables the user to search the database for patient results.

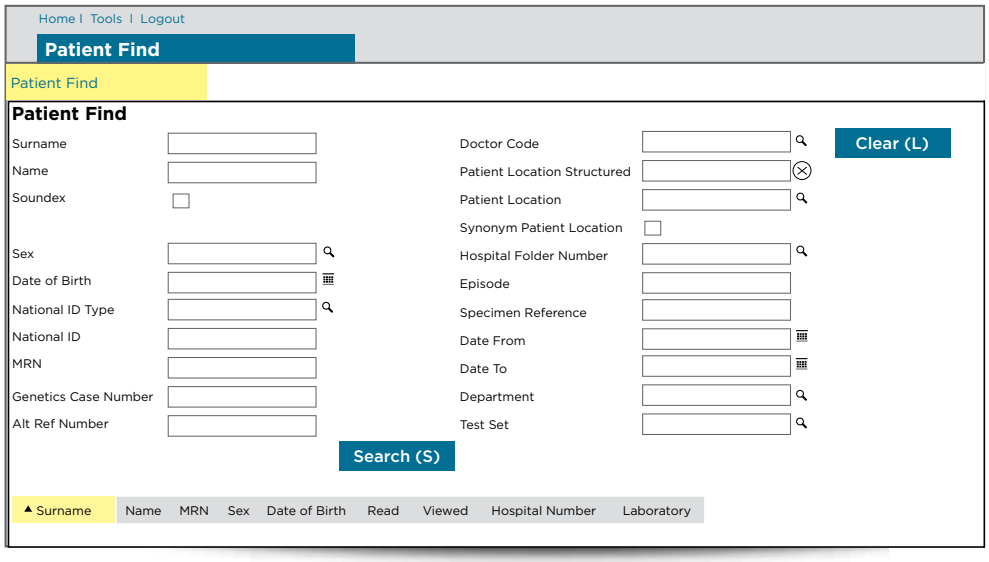


Figure 40: Trak Care WebView patient search screen

- If multiple search criteria are entered, only specimens that match all the search criteria can be found.
- Search for patient results using the following fields:
  - Request form barcode number (in the specimen reference field).

OR

  - Patient folder number.
  - Surname: Type in patient surname (Not case sensitive).
  - Name: Type in patient name.
- If you are unsuccessful, then add the following fields to the search criteria:-
  - Date of birth: Type in date of birth, in the format DD/MM/YYYY. A calendar icon next to the field allows one to select a Date of birth on the calendar.
  - Patient location: This is the health facility from which the specimen originated.

3 How to access laboratory results telephonically

Follow this procedure to access laboratory results telephonically

- Call your local laboratory to request the patient's results.
- For laboratory contact details please refer to Appendix D.
- The request form barcode should be provided to the laboratory employees when searching for results.
- This barcode links each patient's results to a specific patient visit based on the request form.

appendix D Page 115

REVIEW LABORATORY RESULTS

The laboratory results will consist of the following:

1. Patient specific laboratory test results
2. Result interpretation
3. Test reference ranges (as appropriate)

Should you require assistance to interpret any laboratory results, please contact your local laboratory manager.

The facility manager must designate a competent professional nurse to review the printed laboratory results

Follow this procedure to review the printed laboratory results (delivered and SMS printed):

1. Open the sealed envelope and ensure that all results are for your health facility.
2. Return incorrectly addressed or inserted laboratory results to the courier
3. Screen all the delivered and SMS printed results to identify abnormal results.
4. Where abnormal results are identified, the patient must be requested to return to the health facility immediately (as per clinical protocol).
5. The professional nurse must enter the date and time of review on each laboratory result sheet.
6. Update the **N4: PHC Facility Specimen Register** i.e. enter date of receipt of test results in the last column of N4, against the specific discipline.

FILE LABORATORY RESULTS

GENERAL PRINCIPLES

Principles *for dealing with laboratory results*

- Reviewed results must be filed within five working days in patient folder by allocated administration staff member.
- On pre-retrieval of the patient's folder for a planned return to the health facility, ascertain whether all the laboratory reports have been received and filed (from the facility lab request form).
- If they have not been filed in the folder, use one of the above mechanisms to obtain all outstanding results.
- Update the Laboratory Results page in the patient folder. (Refer to figure 41)

13th June 2017

Enter date of specimen collection at the top of each column

Enter normal results using a black pen

Enter abnormal results using a red pen.

Patient folder
Lab Results

LABORATORY TEST RESULTS

TEST	Date requested: (d d m m y y y y)	Date requested: (d d m m y y y y)	Date requested: (d d m m y y y y)	Date requested: (d d m m y y y y)
	Results	Results	Results	Results
ALP				
ALT				
Calcium				
CD4				
Cholesterol				
Coomb's Test				
CRAG (Cryptococcal antigen test)				
Creatinine (eGFR)				
CPR				
Cytology				
Differential count				
FT4 (Free Thyroxine 4)				
Gamma GT				
Haemoglobin				
HbA1c				
Hepatitis A, B or C				
HIV PCR for infants				
INR				
Lactic Acid				
LDL				
Lipase				
MCS (Non-TB)				
MCV				
Pap smear				
Phenytoin				
Platelets				
Potassium				
PSA				
Folate (serum)				
RPR				
Sodium				
Stool parasites				
TB Drug Susceptibility				
TB Line Probe Assay				
TB MC&S (re-treatment and HIV patients)				
Triglycerides				
TSH				
Uric Acid (Serum)				
Urine albumin: creatinine ratio				
Urine protein: creatinine ratio				
Viral load				
Vitamin B12				
WBC				
Xpert MTB/RIF				
Other				

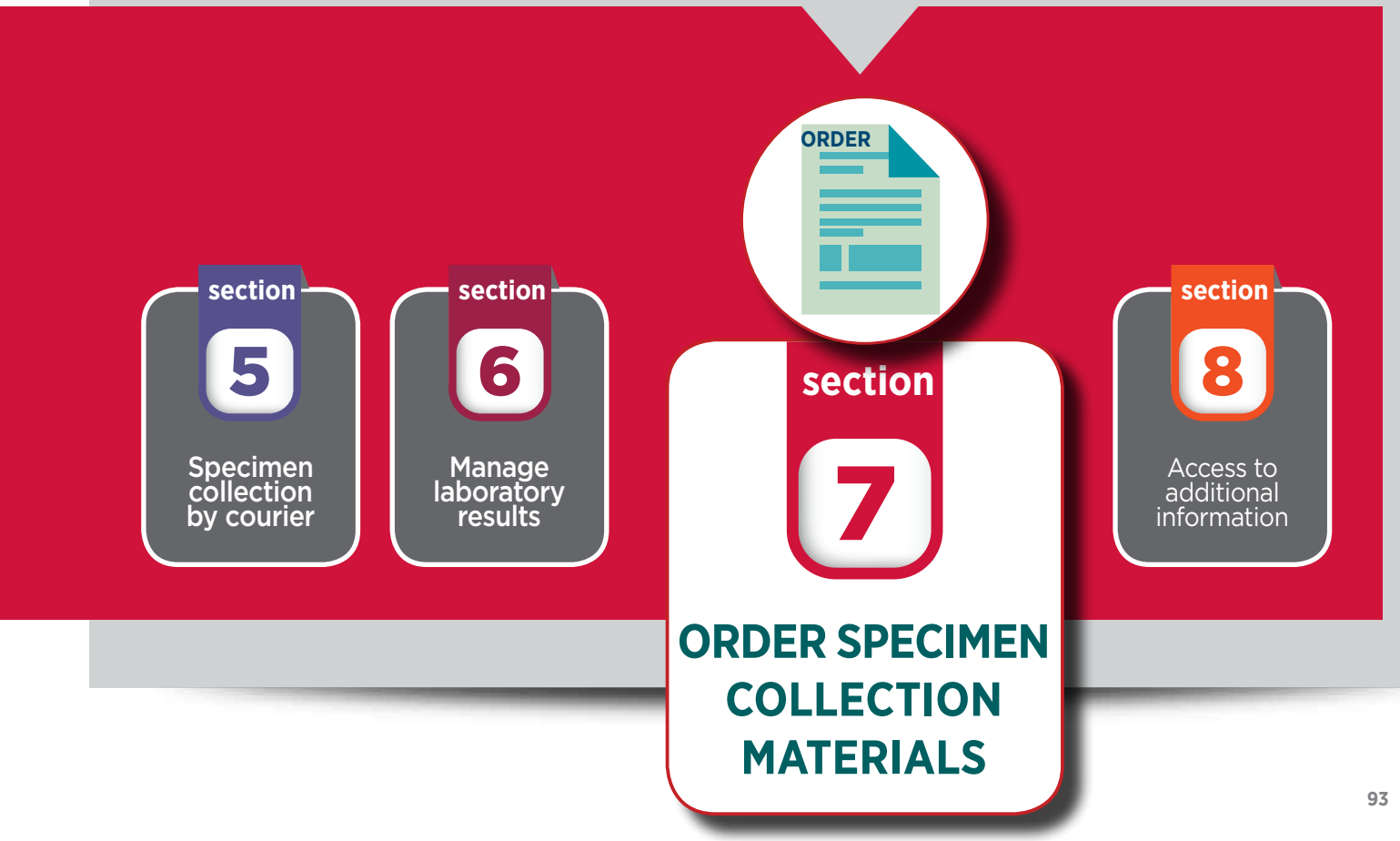
v2/2016 38 of 64 M

Figure 41: Patient folder: Laboratory Results

SECTION **SEVEN**

SECTION SEVEN

ORDER SPECIMEN COLLECTION MATERIALS



SECTION **SEVEN**

Use the **N3: PHC specimen collection material order book** to request additional specimen collection materials from your local NHLS laboratory:

form N3 *Page 97*

PHC FACILITY SPECIMEN REGISTER
For recording of facility specimens

Ensure regular stock checks and stock rotation, using oldest stock first.

Why? Never allow stock to reach expiry date.

Submit requests timeously.

Why? To ensure sufficient stocks of specimen collection materials at the health facility at all times.

Determine the quantity of request forms (N1 and N2), specimen collection materials and disposables that you need to order based on entries for the last two weeks in the N4: PHC Facility Specimen Register.

Why? Use this information to identify the next order quantity.

form N3

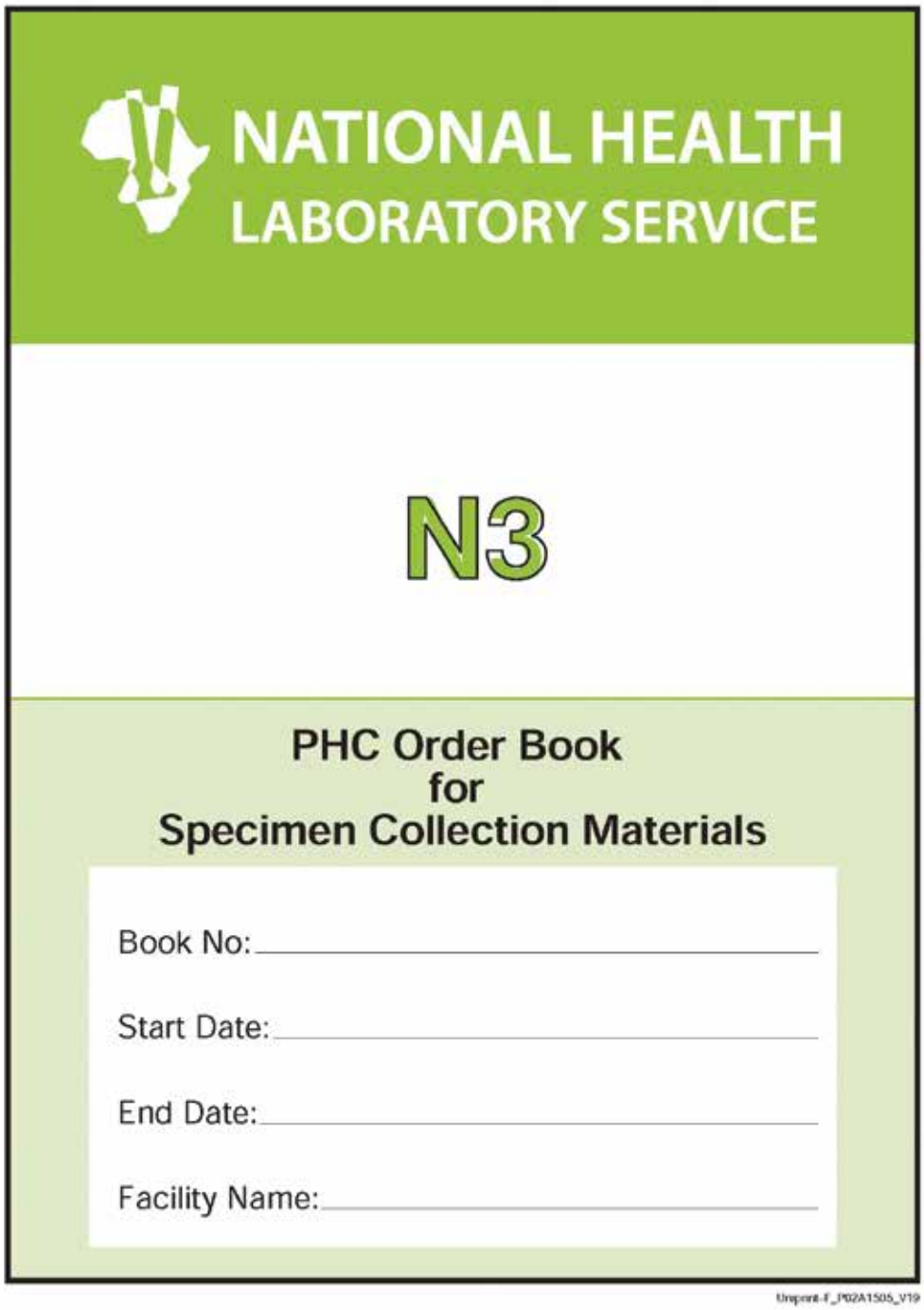
For each new N3 register used, insert the following information in the space provided:

- **Register number:** please number each register sequentially, i.e. 1, 2, etc.
- **Start and end date:** period during which the book was used.
- **Facility name:** add your facility name.

It is imperative that the health facility manager align requests for specimen collection materials with the number of specimens submitted to the laboratory.

Specimen collection materials are provided exclusively for the collection of laboratory specimens and may not be used for other purposes, e.g. storing tablets or creams.

Please refer to the two workflows on pages 98 and 100 for the health facility and laboratory that relate to specimen collection materials. Each workflow describes all the steps to be followed by the health facility and laboratory to ensure specimen collection materials availability at all times at the facility.



NATIONAL HEALTH
LABORATORY SERVICE

N3

PHC Order Book
for
Specimen Collection Materials

Book No: _____

Start Date: _____

End Date: _____

Facility Name: _____

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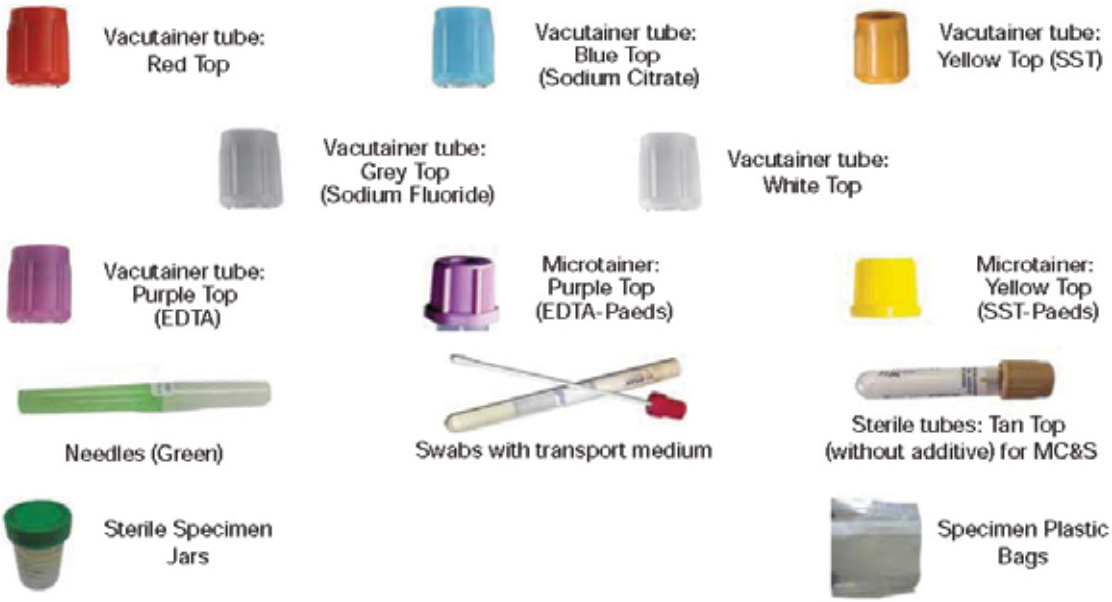
form N3

REQUEST FORMS

N1	N2	N3	N4
NATIONAL HEALTH LABORATORY SERVICE	NATIONAL HEALTH LABORATORY SERVICE	NATIONAL HEALTH LABORATORY SERVICE	NATIONAL HEALTH LABORATORY SERVICE
PHC REQUEST FORM	CYTOLOGY REQUEST FORM	PHC ORDER BOOK for SPECIMEN COLLECTION MATERIALS	PHC FACILITY SPECIMEN REGISTER

ROUTINE SPECIMEN COLLECTION MATERIALS



PAP SMEAR COLLECTION MATERIAL

EID COLLECTION MATERIAL

LBC COLLECTION MATERIAL

Please use Request Form N3 to request additional materials for specimen collection from your local NHLS laboratory as follows:-

- Submit your requests timeously to ensure sufficient stocks of materials for specimen collection at your health facility at all times.
- Determine the quantity of request forms, materials for specimen collection and disposables that you need to order based on entries for the last two weeks in the Facility Specimen Register (N4).
- The facility manager must align requests for materials for specimen collection with the number of samples/tests submitted.
- Place the completed Request Form N3 in the box with laboratory specimens and hand over to the NHLS courier.

For each new register used, please provide the following information in the space provided:

- Register Number: consecutive numbering of the register per facility
- Start and end date: period during which the register was used
- Facility Name: enter the facility name.

Figure 42: Request forms and specimen collection materials for PHC to be ordered

form **N3**

Local Laboratory Name	
Health Facility Name	
Health Facility Address	

NATIONAL HEALTH LABORATORY SERVICE

No: 0000001

REQUEST FORM **N3**

Health Facility Contact Number		Facility Manager Name	
Name of Requestor		Facility Manager Signature	
Date requested:			

PHC Specimen Collection Material Order Form

Category	Description		Unit of Measure	Stock on Hand	Quantity Requested	Laboratory to complete		Acknowledgement of Receipt
						Quantity Approved in Laboratory	Quantity Supplied	
Request Forms	PHC Request Form	N1	50 Forms per book					
	Cytology Request Form	N2	50 Forms per book					
	PHC Order Book Material for specimen collection	N3	25 Sets per book					
	PHC Facility Specimen Register	N4	50 Forms per book					
Specimen Collection Materials	Vacutainer tube: Red Top		Tube					
	Vacutainer tube: Blue Top (Sodium Citrate)		Tube					
	Vacutainer tube: Yellow Top (SST)		Tube					
	Vacutainer tube: Grey Top (Sodium Fluoride)		Tube					
	Vacutainer tube: White Top (PPT)		Tube					
	Vacutainer tube: Purple Top (EDTA)		Tube					
	Microtainer: Purple (EDTA Paeds)		Tube					
	Microtainer: Yellow (SST-Paeds)		Tube					
	Needles (Black)		Box (100)					
	Needles (Green)		Box (100)					
	Swabs with transport medium		Swab					
	Sterile Tubes (without additive) for MC&S		Tubes					
	Sterile specimen jars		Jars					
	Specimen plastic bags		Roll (50)					
Pap smear collection materials	Liquid-based Cytology (LBC) Vials		Pack (25)					
	Combi-brush		Pack (25)					
	Cervex-brush		Pack (25)					
	Fixative		Can					
	Wooden spatula		Pack (50)					
	Slide holder / Envelope		Each					
	Microscope slides		Pack (50)					
Early Infant Diagnosis (EID)	DBS PCR Kit		100 Kits					
SMS Printer	Thermal paper roll		Rolls					

Motivation for additional specimen collection material, e.g. campaign

TO BE COMPLETED BY COURIER AND LABORATORY STAFF

Collection by Courier		Order Received by Laboratory		Despatch by Laboratory		Materials Received by Facility	
Name		Name		Name		Name	
Signature		Signature		Signature		Signature	
Date		Date		Date		Date	

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Figure 43: N3 PHC Order Book: Materials for Specimen Collection Request Form

SECTION SEVEN

ORDERING AND RECEIVING SPECIMEN COLLECTION MATERIALS

WHAT TO DO
HOW TO DO IT

Follow this process to order and receive specimen collection materials in the health facility.

STEP 1

Conduct a stock take of specimen collection materials in the health facility

The first step is for the health facility to conduct a stock take of all specimen collection materials. This includes visiting all consulting rooms to ensure that an accurate assessment is made of the collection material quantities in the health facility.

STEP 2

Review the Facility Specimen Register (N4) entries for the last two weeks to determine number of patients that received a laboratory test.

The number of patients could be used to determine the quantity of N1 PHC Request Forms required. Pay attention to the unit of measure indicated in the N3 Specimen Collection Order Book, as the request forms are provided in books of 50 forms each.


PHC Facility Specimen Register N4

STEP 3

Complete the N3 form

Using the information obtained from the stock take and review of the Facility Specimen Register (N4) complete the Specimen

Collection Order Book (N3). Indicate the stock on hand and quantity requested for each item.

In the health facility

Should you not have received the specimen collection materials timeously or all the order with no clear communication regarding a back-order, please follow the escalation procedure. Start by escalating the issue to your local laboratory manager.

STEP 5

Receive the specimen collection materials

Update the Specimen Collection Order Book (N3) in the section at the bottom of the book "Materials Received by Facility". In the Acknowledgement of Receipt column, confirm that the quantity dispatched by your local laboratory is the quantity received.

STEP 4

Hand completed N3 form to the courier

Ensure that the NHLS courier completes the section for collection by courier. The health facility will now have a record of the quantity of materials ordered as well as proof that the completed form was collected by the courier in the N3 Specimen Collection Order Book (N3).

Tear off the completed N3 form, place in the box with laboratory specimens and hand over to the NHLS courier.

WHAT TO DO
HOW TO DO IT

Follow this process in the laboratory to approve, prepare and dispatch specimen collection materials to the health facility.

1 Courier completes form

In the health facility, the NHLS courier is required to complete the ***N3: Specimen Collection Order Book*** prior to the top form being torn off and given to the courier.

2 Laboratory receives the completed *N3: Specimen Collection Order form.*

3 Laboratory staff complete the section titled 'Order received by laboratory'

The laboratory staff member responsible for receiving the ***N3: Specimen Collection Materials forms***, must complete the section 'Order received by laboratory'. The staff member must enter their name, signature and date on which the completed ***N3 form*** was received from the facility.

4 Approve or amend the request for specimen collection material

The staff member assigned to approve specimen collection material orders must approve the request by indicating the quantity of request forms, specimen collection materials and disposals that were approved on the ***N3 form***. Should the laboratory choose to not approve the full request for specimen collection materials, this must be communicated to the health facility manager in writing.

5 Add the quantity of specimen collection materials actually supplied

Add the quantity of request forms, specimen collection materials and disposables actually supplied on the ***N3 form*** as well as reasons if not decreased quanitity supplied. If the requested quantities of any forms, specimen collection material and disposables is not supplied, clearly communicate the reasons. For example:

a) Awaiting stock (back-order) and estimated date of re-delivery – ensure process in laboratory to track and fulfill back-orders.

b) Stock request did not fit profile of usage at the facility thus, order decreased.

In the laboratory

11 File the original completed ***N3 form*** within the laboratory (preferably in a folder per health facility).

10 Add a copy of the completed *N3 form* to the plastic bag and seal the plastic bag.

9 Package the request forms, specimen collection materials and disposibles to be issued in the labeled plastic bag.

8 Label a plastic bag with the health facility name.

7 Make a copy of the completed ***N3 form.***

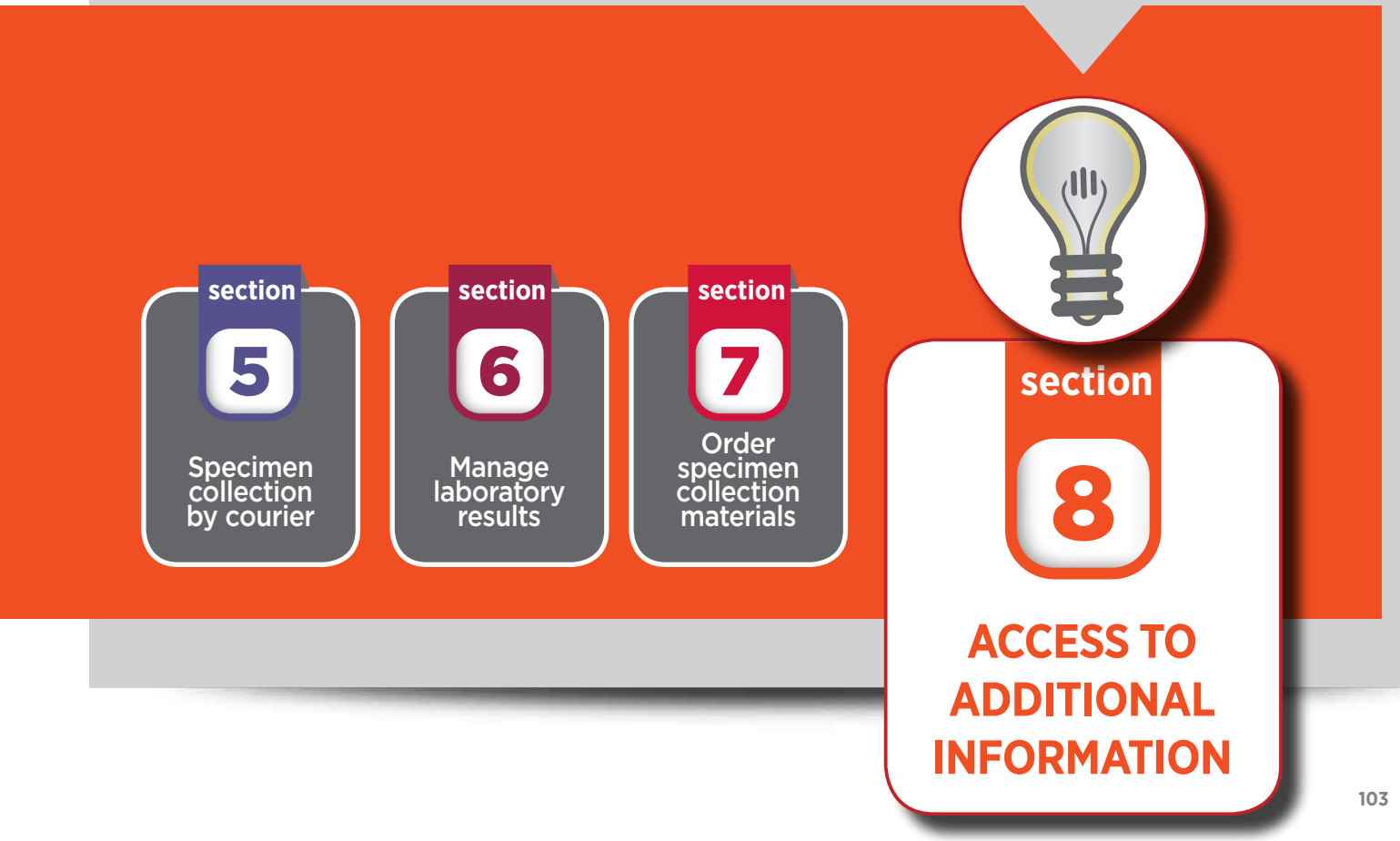
6 Sign the ***N3 form*** by completing the section titled 'Despatch by laboratory'.

12 Hand the sealed plastic bag containing the specimen collection materials and duplicate form to the courier for delivery to the health facility.

SECTION **EIGHT**

SECTION EIGHT

ACCESS TO ADDITIONAL INFORMATION



appendix D Page 115

If you require any additional information that is not provided in this handbook, refer to either the national laboratory handbook or call your local laboratory manager **(Appendix D)**.

WHAT TO DO HOW TO DO IT

Access to the National Laboratory Handbook

If you require any additional information for a test that is not listed in this handbook, i.e. more esoteric tests, access the online National Laboratory Handbook:

1. Log on to the NHLS website (**www.nhls.ac.za**).
2. Click on the "Diagnostic Services" hyperlink
3. Click on the "Lists of tests" hyperlink
4. Click on the "Click here to view the handbook" hyperlink
5. Use the displayed *National Laboratory Handbook* to search for the specific information required.

Figure 44: NHLS website access to the *National Laboratory Handbook* for all levels of care

How to obtain laboratory contact details

The contact details and operating hours for all NHLS laboratories are provided in **Appendix D**. Alternatively, visit the NHLS website to obtain contact details for any laboratory within the network.

WHAT TO DO
HOW TO DO IT
D appendix
Page 115

1. Log on to the NHLS website (**www.nhls.ac.za**).
2. Click on the "About Us" hyperlink
3. Click on the "Laboratories" hyperlink
4. Use the interactive map to find your local laboratory (example displayed below)

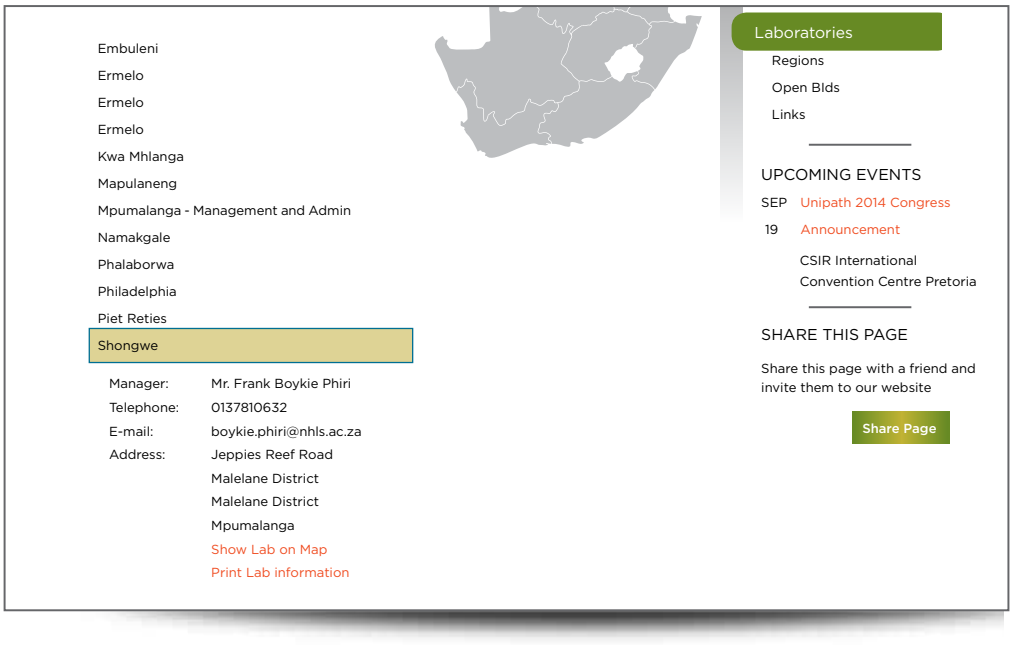


Figure 45: NHLS website providing laboratory contact detail

REFERENCES

1. Centers for Disease Control and Prevention; Tuberculosis, Sputum Collection Instructions. Instructions.pdf SC, editor. Unknown. Atlanta, Georgia: Centers for Disease Control and Prevention (CDC)
2. National Health Laboratory Service (NHLS) (2013) CMJAH NHLS Handbook. Johannesburg. pp 148.
3. National Health Laboratory Service (NHLS) (2013) Taking blood from infants for the HIV PCR test: Standard Operating Procedure. Johannesburg. pp 14.
4. National Health Laboratory Service (NHLS) (2012) TAD Laboratory User Handbook. 18-01-2012 ed. Pretoria. pp 102.
5. National Health Laboratory Service (NHLS) (2014) National Laboratory Handbook. Sandringham, Johannesburg. pp 162.

APPENDICES

APPENDIX A

PHC Essential Laboratory List

Key:

PHC	This test may be requested by all healthcare professionals, i.e. nurse and doctor
PHC with Dr	This test may only be requested by a doctor

Test	Category
Chemical Pathology	
ALP (Alkaline Phosphatase)	PHC with Dr
ALT (Alanine Transaminase)	PHC
Amylase/Lipase	PHC with Dr
Calcium (serum)	PHC with Dr
Cholesterol	PHC
Creatinine (eGFR) (serum)	PHC
CRP (C-reactive protein)	PHC with Dr
Folate (serum)	PHC with Dr
FT4 (Free Thyroxine 4)	PHC with Dr
Gamma GT (GGT) (Serum)	PHC with Dr
Glucose	PHC
HbA1c (Glycated Haemoglobin)	PHC
LDL-Cholesterol (LDL-C)	PHC with Dr
Phenytoin	PHC with Dr
Pleural effusion Protein	PHC with Dr
Potassium (serum)	PHC
Prostate-Specific Ag (PSA)	PHC with Dr
Sodium (serum)	PHC with Dr
Total Bilirubin	PHC with Dr
Triglycerides	PHC
TSH (Thyroid-stimulating hormone)	PHC
Uric Acid (serum)	PHC
Urine albumin: creatinine ratio	PHC with Dr
Urine protein: creatinine ratio	PHC with Dr
Vitamin B12	PHC with Dr
Haematology	
Differential count	PHC with Dr
Full Blood Count (FBC)	PHC with Dr

Test	Category
Haemoglobin	PHC with Dr
INR (International Normalized Ratio)	PHC with Dr
Platelets	PHC with Dr
Red Cell Antibody screen (Coomb's Test) or the "Direct Antiglobulin Test (DAT)"	PHC
White Blood Cell (WBC)	PHC
Blood Grouping	
ABO (Blood grouping)	PHC
Rhesus Factor (Rh)	PHC
Microbiology	
CRAG (Cryptococcal Antigen test)	PHC with Dr
Hepatitis A IgM	PHC with Dr
Hepatitis B Surface Ag	PHC with Dr
Pleural effusion MCS	PHC with Dr
Stool parasites – Bilharzia & other parasites.	PHC with Dr
Syphilis Serology	PHC
MCS (Microscopy, culture band sensitivity)	PHC with Dr
HIV	
CD4 Count	PHC
HIV Elisa (discordant rapids)	PHC
HIV PCR for infants	PHC
Viral Load	PHC
TB	
TB Culture	PHC
TB Drug Susceptibility	PHC
TB Line Probe Assay (Hain MTBDR)	PHC
TB Smear microscopy	PHC
X-pert MTB/RIF	PHC
Cytopathology	
Cytology for aspirates including lymph nodes	PHC with Dr
Pap smear	PHC

APPENDIX B

Detailed Essential laboratory test list

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
ABO (Blood grouping)	PHC	24	3 mL clotted blood	Purple		A	
ALP (Alkaline Phosphatase)	PHC with Dr	24	3 mL clotted blood	Yellow		A	
ALT(Alanine Transaminase)	PHC	24	3 mL clotted blood	Yellow		A	
Amylase/Lipase	PHC with Dr	24-48	5 mL clotted blood	Yellow		A	
Calcium (serum)	PHC with Dr	24	5 mL clotted blood	Yellow	Avoid stasis/ prolonged tourniquet application.	A	
CD4 Count	PHC	24	4 mL EDTA blood	Purple	Do not store in refrigerator.	A	
Cholesterol	PHC	24-48	5 mL clotted blood	Yellow	Patient should be fasting. Refer to section 2.13.1 (Cholesterol and lipogram)	A	
CRAG (Cryptococcal Antigen test)	PHC with Dr	24	5 ml EDTA Blood	Purple		A	Only performed where CD4 <= 100
Creatinine (eGFR) (serum)	PHC	24	3 mL clotted blood	Yellow		A	
CRP (C-reactive protein)	PHC with Dr	24	5 mL clotted blood	Yellow		A	
Cytology for aspirates including lymph nodes	PHC with Dr				Refer to NHLS National Laboratory Handbook		
Differential count	PHC with Dr	24	5 ml EDTA Blood	Purple		A	
Folate (serum)	PHC with Dr	24-48	4 mL EDTA blood	Yellow		A	
FT4 (Free Throxine 4)	PHC with Dr	24-48	5 mL clotted blood	Yellow		A	To be performed only after TSH levels indicate need for FT4 testing
Full Blood Count (FBC)	PHC with Dr	24	5ml EDTA blood	Purple		A	
Gamma GT (GGT) (Serum)	PHC with Dr	24	3 mL clotted blood	Yellow		A	

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
Haemoglobin	PHC with Dr	24	5ml EDTA blood	Purple		A	Only requested following an abnormal Hb performed in the health facility
HbA1c (Glycated Haemoglobin)	PHC	24	4 mL EDTA blood	Purple		A	
Hepatitis A IgM	PHC with Dr	24-48	5ml Clotted/ EDTA blood	Yellow		A	
Hepatitis B Surface Ag	PHC with Dr	24-48	5ml Clotted/ EDTA blood	Yellow		A	
HIV Elisa (discordant rapids)	PHC	24	3 mL clotted blood	Yellow		A	Only to be requested when discordant rapid HIV results are obtained for the same patient.
HIV PCR for infants	PHC	24-48	Dry blood spot (DBS)/ EDTA blood	Purple	Minimum volume 500µl. Dedicated tube required.	A	
INR (International Normalised Ratio)	PHC with Dr	24	5ml Sodium Citrate blood	Blue	To reach lab within 24 hours	A	
LDL-Cholesterol (LDL-C)	PHC with Dr	24	3 mL clotted blood	Yellow	Patient should be fasting. Refer to section 2.13.1 (Cholesterol and lipogram)	A	
MCS (Microscopy, culture band sensitivity)	PHC with Dr	24-72	Refer to *PHC Laboratory Handbook*			C	CSF is not on the ELL for PHC facilities.
Pap smear	PHC	Up to 6 weeks	Refer to *PHC Laboratory Handbook*			B	
Phenytoin	PHC with Dr	24-48	5 mL clotted blood	Yellow	IV treatment: 2-4 h after last dose. Oral treatment: Collect specimens at same time of day for serial monitoring.	A	

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
Platelets	PHC with Dr	24	5ml EDTA blood	Purple		A	
Pleural effusion MCS	PHC with Dr	24	Pleural effusion	Red	Do not use tubes with preservatives	A	Can only be requested by health facilities with X-Ray
Pleural effusion Protein	PHC with Dr	24	Pleural effusion	Red	Do not use tubes with preservatives	A	Can only be requested by health facilities with X-Ray
Potassium (serum)	PHC	24	3 mL clotted blood	Yellow	Avoid haemolysis and delay in transit time.	A	
Prostate-Specific Ag (PSA)	PHC with Dr	24	5 mL clotted blood	Yellow		A	May not to be used as a screening test.
Red Cell Antibody screen (Coomb's Test) or the "Direct Antiglobulin Test (DAT)"	PHC	24	5ml EDTA blood	Purple		A	Used for detection of antibodies on red cells.
Rhesus Factor (Rh)	PHC	24	3 mL clotted blood	Yellow		A	
Sodium (serum)	PHC with Dr	24	3 mL clotted blood	Yellow		A	
Stool parasites – Bilharzia and other parasites	PHC with Dr	24	Stool			A	
Syphilis Serology	PHC	24	5ml clotted blood	Yellow		A	
TB Culture	PHC	Between 5 days and 6 weeks	Sputum			D	
TB Drug Susceptibility	PHC	Between 5 days and 6 weeks	Sputum			D	
TB Line Probe Assay (Hain MTBDR)	PHC	24-48	Sputum			D	
TBSmear microscopy	PHC	24	Sputum			D	
Triglycerides	PHC	24-48	5 mL clotted blood	Yellow	Patient should be fasting. Refer to section 2.13.1 (Cholesterol, triglyceride, lipogram, lipoprotein electrophoresis)	A	
TSH (Thyroid-stimulating hormone)	PHC	24-48	3 mL clotted blood	Yellow		A	

Test	Category	Estimated TAT (Hrs)*	Specimen Type	Tube Type	Special Instructions	Specimen Storage	Proviso
Uric Acid (serum)	PHC	24	3 mL clotted blood	Yellow		A	
Urine albumin:-creatinine ratio	PHC with Dr	24	Urine			A	
Urine protein:creatinine ratio	PHC with Dr	24	Urine			A	
Viral Load	PHC	24-48	5ml EDTA/ PPT blood	Purple/ White		A	
Vitamin B12	PHC with Dr	24-48	5 mL clotted blood	Yellow		A	
White Blood Cell (WBC)	PHC	24	5ml EDTA blood	Purple		A	
X-pert MTB/RIF	PHC	24	Sputum			D	

*Estimated TAT (Turn-around-time): Time from specimen leaving the facility to results being available and/or delivered to the facility

	Specimen Handling	Length of Storage
A	Specimens must be kept away from direct sunlight. Specimens should not be exposed to dramatic temperature fluctuations and vibrations (of particular relevance when being transported).	Where room temperature exceeds 25°C specimens should be stored in the fridge or cooler box (+- 5°C) to preserve specimen integrity. Specimens should not be exposed to dramatic temperature fluctuations.
B	When the smear has been fixed, inside a slide carrier (envelope), and store at room temperature.	24 hours at room temperature (20-25°C).
C	Collect specimens and place into the transport medium provided (where appropriate). Store at room temperature.	24 hours at room temperature (20-25°C). Urine specimens should be stored in the fridge (2-5 °C).
D	Specimens should be collected in clean leak proof containers free from paraffin and other waxes or oils. Specimens should be kept cool during transportation but should not be frozen.	Specimen should be transported immediately at ambient temperature to the nearest local laboratory. Specimens delayed prior to transportation should be stored refrigerated (2-8°C). Specimens should reach the laboratory no later than 48 hours after specimen collection.

APPENDIX C

Rapid tests performed at the health facility

POC testing might enhance early diagnosis and treatment of patients where there is no immediate access to a laboratory service. However, healthcare workers must ensure that POC testing is safe, accurate, appropriate and cost-effective. POC testing should be performed by competent healthcare workers to deliver accurate test results timely that contribute to patient management decisions.

Test	Category
Haemoglobin (Hb)	Subject to World Health Organisation (WHO) prequalification
HIV (rapid)	
Glucose (Glucometer)	
Malaria rapid test	
Rh 'D' (Rhesus factor)	

APPENDIX D

Laboratory Contact List

Laboratory	Telephone	Working Hours
Addington	(031) 327 2463/2475/2478/2479	24hrs
Aliwal-North	(051) 634 2398	08h00-17h00
All Saints	(047) 548 1025/4029	08h00-18h00
Appelsbosch	(032) 294 8006	07h30-17h00
Bambisana	(039) 253 7524	08h00-17h00
Barberton	(013) 712 2763	08h00-17h00
Beaufort West	(023) 415 1447	08h00-17h00
BelaBela (Warmbaths)	(014) 736 2374	08h00-17h00
Benedictine	(035) 831-7083/3279	24hrs
Bertha Gxowa (Germiston)	(011) 873 0000/0001	08h00-21h00
Bethal	(017) 647 2533	08h00-17h00
Bethesda	(035) 595 1161	24hrs
Bethlehem	(058) 303 5586	08h00-17h00
Bisho	(040) 635 0579	08h00-18h00
Bizana (St Patricks)	(039) 251 0255	08h00-18h00
Bloemfontein National Stat	(051) 405 2552/2438	08h00-17h00
Bloemfontein Receiving Office	(051) 411 9940	08h00-17h00
Botlokwa	(015) 527 8030	08h00-17h00
Botshabelo	(051)534 1610	08h00-17h00
Braamfontein	(011) 489 9355	08h00 -17h00
Brits	(018) 293 3512	07h30- 18h00
Butterworth	(047) 491 8690 (047) 491 0258	08h00-21h00
Cala	(047) 8770357	08h00-18h00
Canzibe	(047) 568 8576	08h00-17h00
Carletonville	018 788 6250	08H00 - 21H00
Catherine Booth	(035) 474 8408/9849	08h30-20h30
Cecilia Makiwane(Mdantsane)	(043) 708 2218	24hrs
Ceza	(035) 832 5126	08h00-17h00
Charles Johnson Memorial	(034) 271 0665	24hrs
Charlotte Maxeke Johannesburg Academic Hospital	(011) 489 8443/8440	24hrs
Chris Hani Baragwanath-Chemistry	(011) 489 8781	24hrs
Chris Hani Baragwanath-Haematology	(011) 489 8749/8750	24hrs
Chris Hani Baragwanath-Histology	(011) 489 8711/8710/8712	08h00-14h30
Chris Hani Baragwanath-Laboratory Support Services	(011) 489 8787/8780/8791	24hrs
Chris Hani Baragwanath-Microbiology	(011) 489 8740/8733/8736	08h00-18h00
Chris Hani Baragwanath-Satellite Lab	(011) 933 9736	24hrs
Christ The King (Ixopo)	(039) 834 7521	08h00-17h00
Church of Scotland	(033) 493 0968/1124	24hrs
Clairwood	(031) 451 5004	07h30-16h00
CN Phatudi	(015) 355 4935	08h00-17h00

Laboratory	Telephone	Working Hours
Cofimvaba	(047) 874 8020	08h00-18h00
Coronation	(011)470 9060	07h00 -17h00
Cradock	(048) 881 4343	08h00-17h00
De Aar	(053) 631 0669	08h00-19h00
Delmas	(013) 665 1059	08h00-17h00
Dilokong	(013) 214 8310	08h00-17h00
Discoverers	(011) 672 8207	08h00-17h00
Don McKenzie	(031) 401 6943 (031) 777 1155 (031) 124 2607	07h00-16h00
Donald Fraser	(015) 963 6369	08h00-19h00
Dora Nginza	(041) 464 4655	24hrs
Dr. George Mukhari - Lab Support Services	(012) 521 3434/3042/3048	24hrs
Dr. George Mukhari-Chemical Pathology	(012) 521 4062 /3569/3628	24hrs
Dr. George Mukhari-Cytology	(012) 521 5850	08h00-17h00
Dr. George Mukhari-Haematology	(012) 521 5807	24hrs
Dr. George Mukhari-Histology	(012) 521 5850	08h00-17h00
Dr. George Mukhari-Microbiology	(012) 521 4790	24hrs
Dr. George Mukhari-Virology	(012) 521 4217/5629	24hrs
Dumbe	(034) 995 1441/8549	08h00-17h00
Dundee	(034) 212 1052 (Laboratory) (034) 297 7449 (Hospital)	24hrs
East London (Frere)	(043) 700 8702 (043) 701 6021	24hrs
Edendale	(033) 398 3302	24hrs
Edenvale	011 882 4000/1	08h00 - 18h00
Ekhombe	(035) 834 8055	08h00-17h00
Elim	(015) 556 3250	08h00-17h00
Ellisras	(014) 763 2254	08h00-17h00
Embhuleni	(017) 883 1504	08h00-17h00
Emmaus	(036) 488 1698/570	07h30-00h30
Empilisweni	(051) 611 0061	08h00-18h00
Ermelo	(017) 811 3305	24hrs
Eshowe	(035) 474 2052 (035) 473 4500	24hrs
Estcourt	(036) 432 7034 (036) 342 7034	08h00-17h00
Evander	(017) 632 2075	08h00-17h00
Far East Rand	(011) 813 2136	08h00-22h00
FOSA Centre	(031) 577 1215 (031) 503 2700	07h30-16h00
Ga-Kgapane	(015) 328 3811	08h00-17h00
Ganyesa	(053) 927 2001 (053) 9983666	08H00-17H00
Gelukspan	(018) 336 1153	08h00-17H00
George	(044) 873 0329 (044) 874 2022	24hrs
George Masebe	(015) 425 0055	08h00-17h00

Laboratory	Telephone	Working Hours
Giyani	(015) 812 3661	08h00-17h00
GJ Crooks (Scottburgh)	(039) 978 7040/7000	08h00-19h00
Glen Grey	(047) 878 0121	08h00-18h00
GraaffReinet	(049) 892 5195	08h00-17h00
Grahamstown	(046) 622 5066	08h00-19h00
Green Point	(021) 4179318	24hrs
Greenville	(039) 251 3553/3009	08h00-17h00
Greys	(033) 345 2070	24hrs
Greytown	(033) 413 2056	07h30-17h00
Groblersdal	(013) 262 5245	08h00-17h00
Groote Schuur	(021) 404 4129	24hrs
Helderberg (Somerset West)	(021) 852 3623	08h00-17h00
Helen Joseph	(011) 489 0402/0403/0404/0431/1658	24 hours
Helene Franz	(015) 505 0102	08h00-17h00
Hermanus	(028) 312 1005	8h00 -17h00
Hewu	(040) 841 0036/0133	08h00-18h00
Hlabisa	(035) 838 1387/1003	08h00-17h00
Hlengisizwe	(031) 401 6943 (031) 403 3235	Closed at present
Hluhluwe Receiving Office	(035) 562 1315	07h30-16h00
Holy Cross	(039) 253 7542	08h00-18h00
Humansdorp	(042) 200 4261	08h00-17h00
Imbalenhle	(033) 398 3302	08h00-17h00
Inanda	(031) 510 9866	07h30 - 16h00
InkosiAlbert Luthuli Central Hospital - Anatomical	(031) 240 2724	07h30-16h00
InkosiAlbert Luthuli Central Hospital - Chemical Pathology	(031) 240 2570	24hrs
InkosiAlbert Luthuli Central Hospital - Cytology	(031) 240 2627	07h30-16h00
InkosiAlbert Luthuli Central Hospital - Haematology	(031) 240 2682	24hrs
InkosiAlbert Luthuli Central Hospital - Management & Admin	(031) 240 2809/2693	07h30-16h00
InkosiAlbert Luthuli Central Hospital - Microbiology	(031) 240 2770	24hrs
InkosiAlbert Luthuli Central Hospital - Virology	(031) 240 2800	24hrs
InkosiAlbert Luthuli Central Hospital (First Contact)	(031) 240 2693	24hrs
Isilimela	(047) 567 5569	08h00-17h00
Itshelejuba	(034) 413 1973	08h00-17h00
Jane Furse	(013) 265 9514	24hrs
Jubilee	(012) 717 8687	24hrs
KabokweniThemba (Themba)	(013) 796 0236	08h00-17h00
Kalafong	(012) 318 6848	24hrs
Karl Bremer	(021) 949 6141 073 762 5465	08h00-24h00
Khayelitsha	(021) 417 9362 (021) 360 4522	24hrs
Kimberley	(053) 833 1641 / 2	24hrs
Kimberley Receiving Office	(053) 831-3969/4188	08h00-17h00
King Edward VIII - Chemical	(031) 205 6810	24hrs
King Edward VIII - Haematology	(031) 205 6564	24hrs

Laboratory	Telephone	Working Hours
King Edward VIII - Lab Support	(031) 205 6812	24hrs
King Edward VIII - Microbiology	(031) 360 3189	24hrs
King George V	(031) 242 6077/6033/6112	24hrs
Klerksdorp	(018) 465 4772	08h00-17h00
Knysna	(044) 382 0991	08h00-17h00
Kroonstad	(056) 212 2169	08H00-20H00
KwaDabeka	(031) 401 6293 (031) 707 4663	07h00-16h00
KwaMashu	(031) 503 2700	24hrs
KwaMashu New	(031) 503 2700	24hrs
KwaMhlanga	(013) 947 2557	08h00-17h00
KwaMsane	(035) 838 1387	09h00-18h00
Ladysmith	(036) 637 2111 ext 427	24hrs
Lebowakgomo	(015) 632 5347	24hrs
Lehurutshe	(018) 363 4148	24hrs
Leratong	(011) 410 6344	24 hours
Letaba	(015) 303 8513	24hrs
Livingstone	(041) 395 6182	24hrs
Louis Trichardt	(015) 516 6880	08h00-17h00
Lower Umfolozi(Empangeni)	(035) 907 5684/7146	07h30-16h00
Lydenburg	(013) 235 4487	07h30-16h00
Madadeni	(034) 328 8124	24hrs
Madwaleni	(047) 576 9010	08h00-19h00
Mafikeng	(018) 3833939	08h00-17h00
Mahatma Gandhi	(031) 539 6290	24hrs
Malamulele	(015) 851 0068	07h00-18h00
Maluti (Bedford)	(039) 256 0547	08h00-17h00
Mamelodi	(012) 801 1405	07h00-17h00
Manapo	(058) 713 1700 (058) 718 3230	08h00-17h00
Manguzi	(035) 592 0209	24hrs
Mankweng	(015) 267 6530	24hrs
Mapulaneng	(013) 799 0202	07h00-17h00
Mary Theresa	(039) 255 0628/0684	08h00-03h00
Matikwana	(013) 708 7010	08h00-17h00
Matlala	(013) 264 5109	08h00-17h00
Mbongolwane	(035) 476 6242	08h00-17h00
Mecklenburg	(015) 619 0435	08h00-17h00
Middelburg	(013) 282 5443	08h00-17h00
Midlands Receiving Office	(033) 342 2876	07h30-16h00
Mitchell's Plain (Manenburg/GF Jooste)	(021) 371 7921/7626 (021) 377 4300	24hrs
Mmamethlake	(012) 721 3867	08h00-22h00
Mokopane	(015) 483 4077	08h00-19h00
Montobello	(033) 506 0203	07h30-16h00
Moses Kotane	(014) 556 3992	08H00-17H00

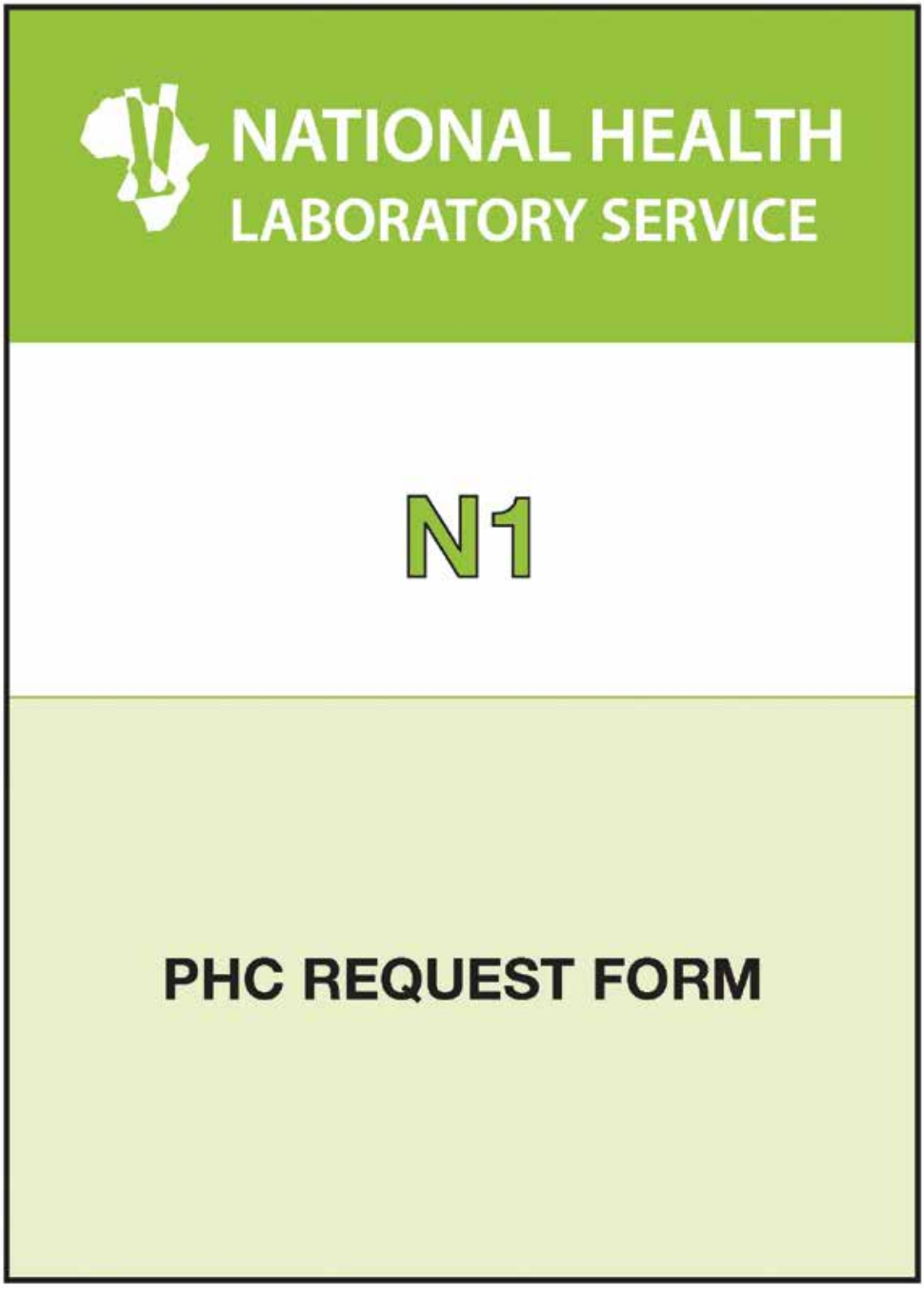
Laboratory	Telephone	Working Hours
Mosselbay	(044) 873 0329 (044) 690 3745	08h00-17h00
MosvoldNgwavuma	(035) 591 0502	24 hrs
Mount Ayliff	(039) 254 0951	08h00-03h00
Mpophomeni	(033) 238 0026	Is a Depot
Mseleni	(035) 574 1004	24 hrs
Mthatha	(047) 502 4189/4922	24hrs
Murchison	(039) 687 7950	07h30-16h00
Musina	(015) 534 0151	08h00-17h00
Namakgale	(015) 769 2359	07h00-17h00
Natalspruit	(011) 590 0350	24hrs
Nelspruit	(013) 741 1014/1015/4780	24hrs
Nelspruit Receiving Office	(013) 752 2053	08H00-17H00
Newcastle	(034) 328 0018/0054	08h00-24h00
Newcastle Receiving Office	(034) 312 6338	07h30-16h00
Ngwelezana(Empangeni)	(035) 794 2941	24hrs
Niemeyer	(072) 761 5588	07h00-16h00
Nkandla	(035) 833 5042	08h00-17h00
NkonnjeniMahlabathini	(035) 873 0571	24hrs
Northdale	(033) 387 9035	24hrs
Nylstroom	(014) 717 4435	08h00-17h00
Odi	(012) 725 2377	24hrs
Osindisweni	(032) 541 9200/9236	08h00-16h30
Osindisweni Microscopy Centre (Tongaat)	(032) 944 5054 (032) 5419200 083 5247561 084 4442570	Is a Depot
Oudtshoorn	(044) 279 1104	8h00 -17h00
Paarl	(021) 860 2746	24hrs
Pelonomi	(051) 405 9340	24hrs
Philadelphia	(013) 983 0358	08h00-18h00
Pholela	(033) 398 3302	07h30-16h00
Pholosong	(011) 738 9974	24hrs
Piet Retief	(017) 824 1314	07h00-17h00
Pinetown	(031) 311 6836	Is a Depot
Polokwane	(015) 297 1099	24hrs
Polokwane Receiving Office	No lines	07h30-16h30
Port Alfred	(046) 624 1047	08h00-17h00
Port Elizabeth	(041) 395 6158/6111	24hrs
Port Shepstone	(039) 688 6114/6113	24hrs
Potchefstroom	(018) 297-5525	24hrs
Potchefstroom Receiving Office	(018) 293-3511	08h00-17h00
Potgietersrus	(015) 491 2370	08h00-17h00
Pretoria-West	(012) 386 2866	08h00 - 17h00
Prince Cyril Zulu	(031) 311 3622 (031) 242 6112	07h30-16h00
Prince Mshiyeni(Umlazi)	(031) 906 2803	24hrs

Laboratory	Telephone	Working Hours
Prince Street	(031) 327 6743	07h30-16h00
Queenstown	(045) 839 4483	24hrs
Qumbu	(047) 553 8013	08h00-20h00
Red Cross	(021) 6585231 (021) 417 9319	24 hrs
Richmond	(033) 398 3302	07h30-16h00
Rietvlei	(039) 260 0017	08h00-17h00
RK Khan	(031) 401 6943 (031) 403 3235	24hrs
Rustenburg	(014) 592 8640	24hrs
Sandringham (NICD)	(011) 386 6134 (011) 885 5354	24hrs
Sasolburg	(016) 973 3837	08h00-17h00
Sebokeng	(016) 988 1417/1438	24 hours
Sekororo	(015) 303 2143	08h00-17h00
Seshego	(015) 223 6519	08h00-17h00
Shongwe	(013) 781 0632	07h00-17h00
Siloam	(015) 973 0453	08h00-17h00
Sizwe	(011) 882 4000/4001	Is a depot
Somerset East	(042) 243 1465	24hrs
South Rand	(011) 681 2068/2060/2076	08:00-16:30
Springbok	(027) 712 1099/1169	08h00-18h00
SS Gida	(040) 658 0083	08h00-18h00
St Andrews	(039) 433 1955 ext 269	24hrs
St Apollinaris	(039) 833 8000	07h30-16h30
St Barnabas	(047) 568 7769	08h00-19h00
St Elizabeth	(039) 253 1238	24hrs
St Marys	(035) 450 8231	08h00-17h00
St Ritas	082 906 8745	08h00-17h00
Standerton	(017) 712 4011	08h00-17h00
Stanger	(032) 552 2553	24hrs
Sundumbili	(032) 454 7500 (032) 437 6143/6144	07h30-16h30
Swartruggens	(014) 544 0802	08h00-17h00
Tafalofefe	(047) 498 6012	08h00-17h00
Tambo Memorial	(011) 917 9605/9606	24hrs
Taung	(053) 994 1030	08h00-00h00
Taylor Bequest (Matatiele)	(039) 257 0528	08h00-17h00
Taylor Bequest Mount Fletcher	(039) 257 0528	08h00-21h00
Tembisa	(011) 920 1126/2625	24hrs
Thabazimbi	(014) 777 2174	08h00-17h00
Thusong	(018) 338 1612	08h00-17h00
Tintswalo (Acornhoek)	(013) 795 5151	08h00-17h00
Tonga	(013) 780 3630/3621	08h00-17h00
Tongaat	(032) 944 5054	07h45-16h15
Tshepong	(018) 465 4772	24hrs
Tshilidzini	(015) 964 2238	08h00-17h00

Laboratory	Telephone	Working Hours
Tshwane Academic Division	(012) 354 3856/3847	24hrs
Tshwaragano	(053) 774 0692	08h00-00h00
Tsolo (Dr.MachupeMphahlele Memorial)	(047) 542 6416	08h00-17h00
Tygerberg	(021) 938-4904	24hrs
Tzaneen	(015) 307 1465	08h00-17h00
Uitenhage	(041) 961 0682	24hrs
Umphumulo	(032) 481 4100 Ext: 4236 (Office) Ext: 4150 (Laboratory)	24hrs
Universitas	(051) 448 0500 (051) 4053035	24hrs
Untunjambili	(033) 444 0818	08h00-18h00
Upington	(054) 332 9139/9141	08h00-00h00
Usher Memorial(Kokstad)	(039) 797 8147 (039) 727 4007	08h00-17h00
Vereeniging/Kopanong	(016) 428 4005 082 6576921	08:00 - 22h00
Victoria	(040) 653 2715	08h00-18h00
Volksrust	(017) 735 1994	08h00-17h00
Vredendal	(027) 213 3924/3925	08h00-17h00
VryburgHuhudiHuhudi)	(053) 927 2001	08h00-00h00
Vryheid	(034) 989 5946 (034) 982 2111	24hrs
Vryheid Receiving Office	(034) 980 0283	07h30-16h00
Welkom	(057) 396 6200	24hrs
Wentworth	(031) 468 2904 (031) 460 5000	24hrs
West Coast District (Vredenburg)	(022) 713 4468	08h00-18h00
WF Knobel	(015) 221 1569	08h00-17h00
Willowvale	(047) 499 1204	07h00-17h00
Witbank	(013) 656 6646 / 6691	24hrs
Witkoppen	(011) 705-2438	08:00 - 17h00
Witpoort	(014) 769 0197	08h00-17h00
Wolmeransstad	(018) 596 1708	07h30-16h30
Worcester	(023) 348-1232/1233/1234/1235	24hrs
Yusuf Dadoo	(011) 660 7388/7389	08:00-21h00
Zebediela	(015) 662 1198	08h00-17h00
Zitulele	(047) 575 9551	08h00-20h00

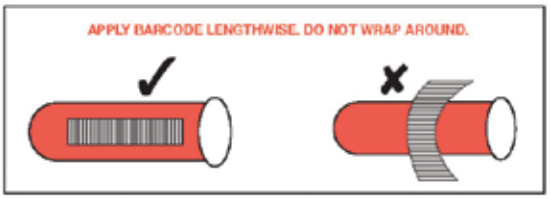
APPENDIX E

N1: Laboratory request forms



INSTRUCTIONS FOR COMPLETION OF THIS FORM

1. When completing the form ensure that writing is legible and all ticks are placed clearly in the appropriate tick boxes.
2. Please label all specimens with:
   - one of the peel-off pre-printed labels, *in addition* to the patient identification label.
   - patient's identification label ***OR***
   - patient's name and folder number.



3. Use the correct specimen collection material as per specimen key next to each test on ELL.

Yellow with gel	Y
Red without gel	R
Grey (fluoride)	G
Purple (EDTA)	P
Blue (citrate)	BL
White (Plasma Preparation Tube)	W
Dried blood spot (card)	DBS
Sterile specimen jar	SJ

4. For all patients who are HIV positive and all patients (irrespective of HIV status) that require an Xpert test, please tick the CCMT box next to the NHLS logo on the top left of the N1 request form.
5. If TB or HIV tests are requested, the Data Collection questions **must** be completed.
6. Use the key below to ensure appropriate specimen handling and storage for each test as per ELL.

ELL Key	Sample Handling	Storage Conditions
A	• Specimens must be kept away from direct sunlight. • Specimens should not be exposed to dramatic temperature fluctuations.	• Specimens can be stored for up to 24 Hours at room temperature (20-25°C). • Where room temperature exceeds 25°C, specimens must be stored in the fridge (2-5°C) to preserve specimen integrity.
B	• When the smear has been fixed, insert into a slide holder and store in specimen storage bag. • Do not use an envelope.	• Store at room temperature (20-25°C) until collection.
C	• Collect specimens in sterile specimen jar or tubes. • Where appropriate, place in the transport medium provided.	• All specimens except urine can be stored up to 24 Hours at room temperature (20-25°C). • Urine and stool specimens must be stored in the fridge (2-5 °C).
D	• Specimens should be collected in clean leak proof containers.	• Specimens can be stored up to 24hrs at room temperature (20-25°C) or up to 48hrs in a fridge (2-5°C). • Where room temperature exceeds 25°C, specimens must be stored in the fridge (2-5°C) to preserve specimen integrity. • Do not freeze specimen.

USE THE FOLLOWING TO ACCESS RESULTS:

- Trak care web view - Results: https://trakcarelabwebview.nhls.ac.za/trakcarelab/default.htm
- Disa: https://labresults.nhls.ac.za

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PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE

NATIONAL HEALTH LABORATORY SERVICE

CCMT YES NO

NHLS LAB NUMBER BARCODE for NHLS use only

AAAA0001P

Practice number 5200296

MARK IF URGENT ☐

PHC REQUEST FORM N1

PATIENT

CLINIC FOLDER NUMBER
PATIENT ID / PASSPORT
SURNAME
FIRST NAME/S
TITLE: GENDER: M F RACE:
DATE OF BIRTH Y Y Y Y / M M / D D AGE
PHYSICAL ADDRESS
TELEPHONE: CELL:

FACILITY NAME
SERVICE POINT
EGK CODE
NHLS FACILITY CODE
COLLECTION DATE TIME
SPECIMEN TYPE
REQUESTED BY: HEALTH CARE WORKER (HCW)
HEALTH CARE WORKER (HCW) SIGNATURE
HPCSA / SANC NO
CONTACT NO
IF SPECIMEN COLLECTED BY OTHER: NAME:
HPCSA / SANC NO

Chemical Pathology

Y	☐	ALP (Alkaline Phosphatase)	A	Y	☐	Folate (serum)	A	R	☐	Pleural Effusion Protein	A
Y	☐	ALT (Alanine Transaminase)	A	Y	☐	FT4 (Free Thyroxine)	A	Y	☐	Potassium	A
Y	☐	Amylase/Lipase	A	Y	☐	Gamma GT (GGT)	A	Y	☐	PSA (Prostate-Specific Ag)	A
Y	☐	Calcium	A	G	☐	Glucose	A	Y	☐	Sodium	A
Y	☐	Cholesterol	A	P	☐	HbA1c (Glycated Haemoglobin)	A	Y	☐	Total Bilirubin	A
Y	☐	Creatinine (eGFR)	A	Y	☐	LDL-C (LDL-Cholesterol)	A	Y	☐	Triglycerides	A
Y	☐	CRP (C-Reactive protein)	A	Y	☐	Phenytoin	A	Y	☐	TSH (Thyroid-Stimulating Hormone)	A

Y	☐	Uric Acid	A
SJ	☐	Urine albumin: creatinine ratio	A
SJ	☐	Urine protein: creatinine ratio	A
Y	☐	Vitamin B12	A

Haematology

P	☐	Differential Count	A
P	☐	FBC (Full Blood Count)	A
P	☐	Haemoglobin	A
B	☐	INR (International Normalized Ratio)	A
P	☐	Platelets	A
P	☐	Red Cell Antibody screen (Coomb's Test)	A
P	☐	WBC (White Blood Cell)	A

Microbiology

Y	☐	CRAG (Cryptococcal antigen test)	A
Y	☐	Hepatitis A IgM	A
Y	☐	Hepatitis B Surface Ag	A
Y	☐	HIV Elisa (discordant rapids)	A
SJ	☐	Stool parasites	C
Y	☐	Syphilis serology	A
	☐	MCS (Microscopy, culture and sensitivity)	C

SPECIMEN
ANATOMICAL SITE

TB Testing

SJ	☐	TB GeneXpert	D
SJ	☐	TB Microscopy	D
SJ	☐	TB Culture	D

TB Drug Susceptibility testing:
☐ Culture with 1st line LPA
☐ DR-TB: Reflex DST testing
☐ Failing MDR regimen: Phenotypic DST
☐ Other (specify): _____

TB DATA COLLECTION - MUST BE COMPLETED

PRESUMPTIVE TB: Please tick relevant boxes
☐ New
☐ Previously treated

FOLLOW UP ON TREATMENT:
☐ Susceptible TB
☐ 2-3 Months
☐ 5-7 Months
☐ Rifampicin-resistant TB
Number of months on treatment: _____

PREVIOUS GXP RESULT:
☐ Negative ☐ Positive Date: _____
☐ Rifampicin-resistant

HIV STATUS:
☐ Negative ☐ Positive Date: _____

HIV Viral Load

W/P ☐ HIV Viral Load A

Please complete relevant boxes:
☐ Routine monitoring ☐ Pregnant
Number of months on treatment ☐
☐ Other (e.g. illness, virological failure)

HIV DNA PCR

DBS/P ☐ HIV DNA PCR A

Please tick relevant boxes:
☐ Has mother received PMTCT?
☐ Has infant received PMTCT?
☐ Infant breast fed in past 6 weeks
☐ Birth PCR

HIV CD4 Count

P ☐ CD4 Count A

Please tick one box:
☐ Baseline
☐ Not yet on ART
☐ On ART

Blood Grouping

P ☐ Rh (Rhesus Factor) A
P ☐ ABO A

Clinical information

SPECIMEN

FOR LABORATORY USE ONLY

RECEIVED BY
DATE

Enter Number of Test Specimens Received

YELLOW		RED		GREY	
PURPLE		BLUE		WHITE	
DBS		SPECIMEN JAR		OTHER	

OTHER TESTS (please motivate)

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AAAA0001P AAAA0001P AAAA0001P
AAAA0001P AAAA0001P AAAA0001P
AAAA0001P AAAA0001P AAAA0001P

Has this one been updated??

TEST GUIDELINES

Test Description

Chemical Pathology

Y	☐	ALP (Alkaline Phosphatase)	A	Y	☐	Folate (serum)	A	R	☐	Pleural Effusion Protein	A
Y	☐	ALT (Alanine Transaminase)	A	Y	☐	FT4 (Free Thyroxine)	A	Y	☐	Potassium	A
Y	☐	Amylase/Lipase	A	Y	☐	Gamma GT (GGT)	A	Y	☐	PSA (Prostate-Specific Ag)	A
Y	☐	Calcium	A	G	☐	Glucose	A	Y	☐	Sodium	A
Y	☐	Cholesterol	A	P	☐	HbA1c (Glycated Haemoglobin)	A	Y	☐	Total Bilirubin	A
Y	☐	Creatinine (eGFR)	A	Y	☐	LDL-C (LDL-Cholesterol)	A	Y	☐	Triglycerides	A
Y	☐	CRP (C-Reactive protein)	A	Y	☐	Phenytoin	A	Y	☐	TSH (Thyroid-Stimulating Hormone)	A

Y	☐	Uric Acid	A
SJ	☐	Urine albumin: creatinine ratio	A
SJ	☐	Urine protein: creatinine ratio	A
Y	☐	Vitamin B12	A

Haematology

P	☐	Differential Count	A
P	☐	FBC (Full Blood Count)	A
P	☐	Haemoglobin	A
B	☐	INR (International Normalized Ratio)	A
P	☐	Platelets	A
P	☐	Red Cell Antibody screen (Coomb's Test)	A
P	☐	WBC (White Blood Cell)	A

Microbiology

Y	☐	CRAG (Cryptococcal antigen test)	A
Y	☐	Hepatitis A IgM	A
Y	☐	Hepatitis B Surface Ag	A
Y	☐	HIV Elisa (discordant rapids)	A
SJ	☐	Stool parasites	C
Y	☐	Syphilis serology	A
	☐	MCS (Microscopy, culture and sensitivity)	C

SPECIMEN

ANATOMICAL SITE

TB Testing

SJ	☐	TB GeneXpert	D
SJ	☐	TB Microscopy	D
SJ	☐	TB Culture	D

TB Drug Susceptibility testing:

- ☐ Culture with 1st line LPA
- ☐ DR-TB: Reflex DST testing
- ☐ Failing MDR regimen: Phenotypic DST
- ☐ Other (specify): _____

TB DATA COLLECTION - MUST BE COMPLETED

PRESUMPTIVE TB: Please tick relevant boxes

- ☐ New
- ☐ Previously treated

FOLLOW UP ON TREATMENT:

- ☐ Susceptible TB
  - ☐ 2-3 Months
  - ☐ 5-7 Months
- ☐ Rifampicin-resistant TB

Number of months on treatment: _____

PREVIOUS GXP RESULT:

- ☐ Negative ☐ Positive Date: _____
- ☐ Rifampicin-resistant

HIV STATUS:

- ☐ Negative ☐ Positive Date: _____

HIV Viral Load

W/P ☐ HIV Viral Load A

Please complete relevant boxes:

☐ Routine monitoring ☐ Pregnant

Number of months on treatment ☐

☐ Other (e.g. illness, virological failure)

HIV DNA PCR

BBS/P ☐ HIV DNA PCR A

Please tick relevant boxes:

YES NO Has mother received PMTCT?

YES NO Has infant received PMTCT?

YES NO Infant breast fed in past 6 weeks

YES NO Birth PCR

HIV CD4 Count

P ☐ CD4 Count A

Please tick one box:

- ☐ Baseline
- ☐ Not yet on ART
- ☐ On ART

Blood Grouping

Y	☐	Rh (Rhesus Factor)	A
Y	☐	ABO	A

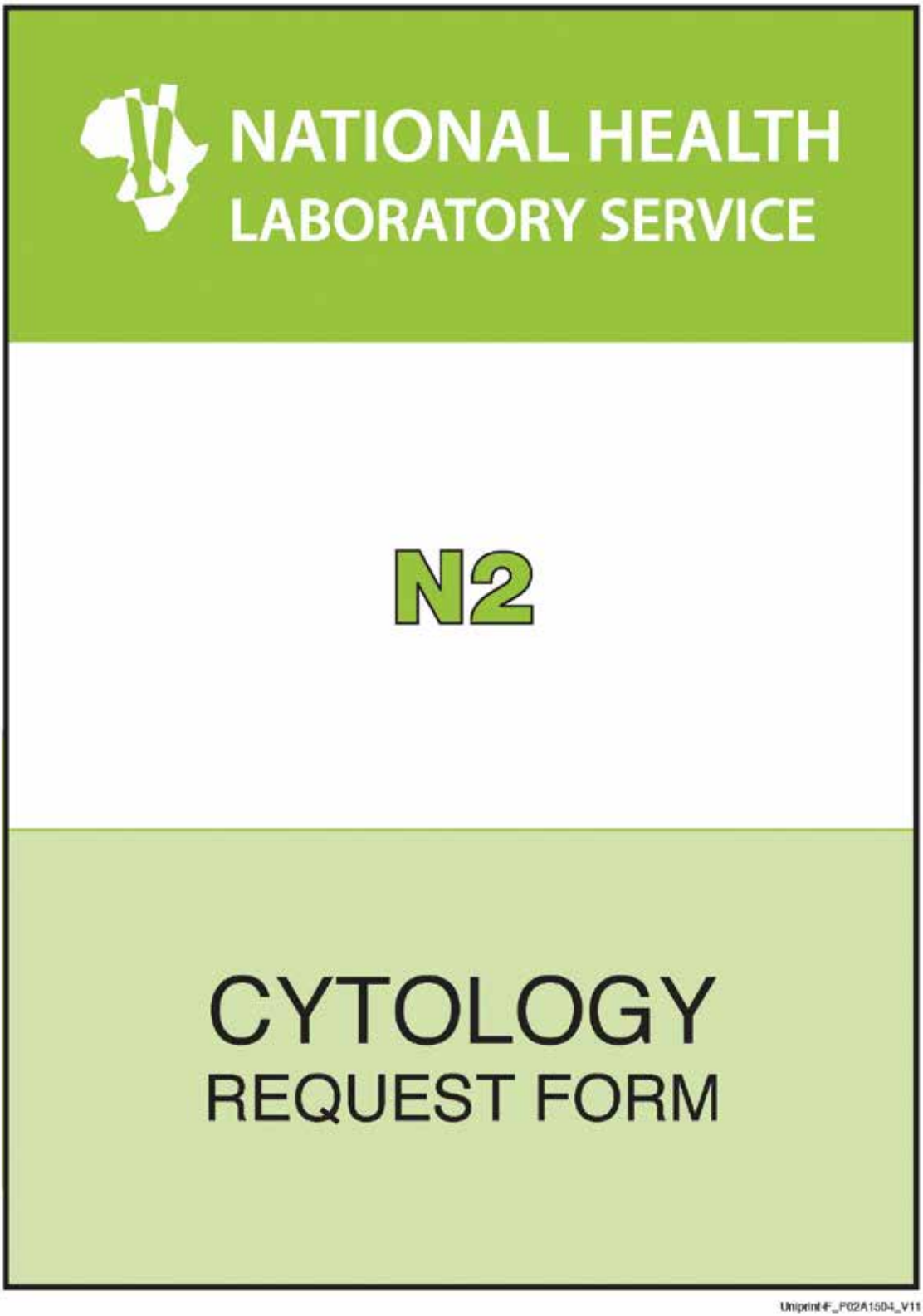
Clinical information

SPECIMEN

FOR LABORATORY USE ONLY

OTHER TESTS (please motivate)

N2: CYTOLOGY REQUEST FORM



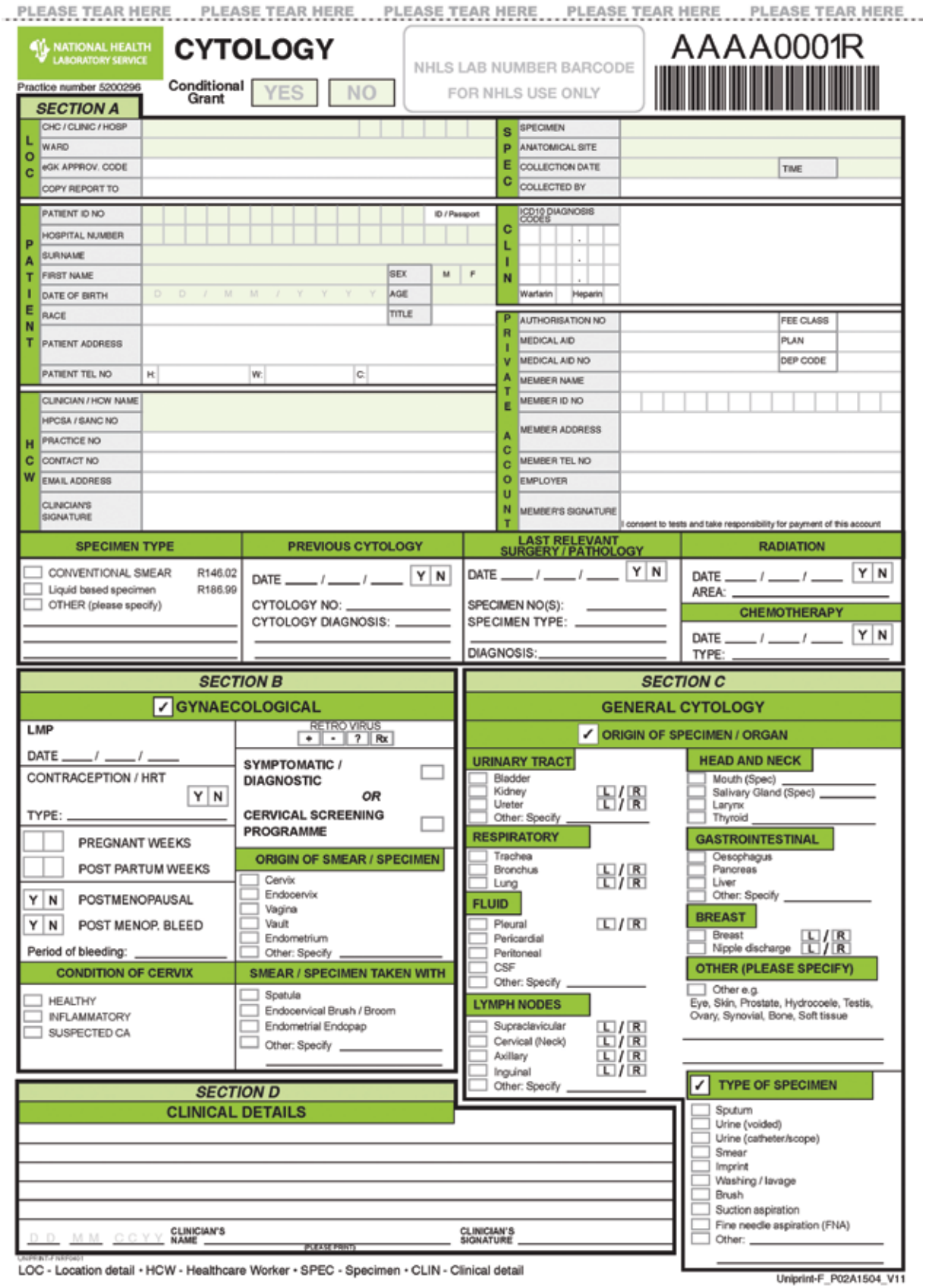
INSTRUCTIONS TO COMPLETE THIS FORM

1. For GYNAECOLOGICAL specimens kindly complete sections A,B and D.
2. For GENERAL specimens and Fine needle aspirates (FNA) kindly complete sections A,C and D.
3. Ensure that all mandatory fields are completed in full.
4. When completing the form, ensure that writing is legible, and all ticks are placed clearly in the tick boxes.
5. Please label all specimen tubes, bottles or vials with one of the peel-off pre-printed labels, *in addition* to the patient identification label, EXCEPT for ready prepared slides, i.e. PAP smears; FNA smears, etc. which must be labeled by writing the patient details on the frosted-end of the slide with a pencil - NB. do NOT label slide with printed labels.

Uniprint-F_P02A1504_V11

USE THE FOLLOWING TO ACCESS RESULTS:

- Trak care web view - Results: https://trakcarelabwebview.nhls.ac.za/trakcarelab/default.htm
- Disa: https://labresults.nhls.ac.za



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NATIONAL HEALTH LABORATORY SERVICE

CYTOLOGY

Practice number 5200296

Conditional Grant YES NO

NHLS LAB NUMBER BARCODE
FOR NHLS USE ONLY

AAAA0001R

SECTION A

LOC
- CHC / CLINIC / HOSP
- WARD
- eGK APPROV. CODE
- COPY REPORT TO

SPEC
- SPECIMEN
- ANATOMICAL SITE
- COLLECTION DATE / TIME
- COLLECTED BY

PATIENT
- PATIENT ID NO / ID / Passport
- HOSPITAL NUMBER
- SURNAME
- FIRST NAME / SEX M F
- DATE OF BIRTH D D / M M / Y Y Y Y / AGE
- RACE / TITLE
- PATIENT ADDRESS
- PATIENT TEL NO H: W: C:

CLIN
- ICD10 DIAGNOSIS CODES
- Warfarin Heparin

PRIVATE ACCOUNT
- AUTHORISATION NO / FEE CLASS
- MEDICAL AID / PLAN
- MEDICAL AID NO / DEP CODE
- MEMBER NAME
- MEMBER ID NO
- MEMBER ADDRESS
- MEMBER TEL NO
- EMPLOYER
- MEMBER'S SIGNATURE — I consent to tests and take responsibility for payment of this account

HCW
- CLINICIAN / HCW NAME
- HPCSA / SANC NO
- PRACTICE NO
- CONTACT NO
- EMAIL ADDRESS
- CLINICIAN'S SIGNATURE

SPECIMEN TYPE
- ☐ CONVENTIONAL SMEAR R146.02
- ☐ Liquid based specimen R186.99
- ☐ OTHER (please specify)

PREVIOUS CYTOLOGY
DATE ___ / ___ / ___ Y N
CYTOLOGY NO: ___
CYTOLOGY DIAGNOSIS: ___

LAST RELEVANT SURGERY / PATHOLOGY
DATE ___ / ___ / ___ Y N
SPECIMEN NO(S): ___
SPECIMEN TYPE: ___
DIAGNOSIS: ___

RADIATION
DATE ___ / ___ / ___ Y N
AREA: ___

CHEMOTHERAPY
DATE ___ / ___ / ___ Y N
TYPE: ___

SECTION B

☑ GYNAECOLOGICAL

LMP
DATE ___ / ___ / ___

CONTRACEPTION / HRT Y N
TYPE: ___

PREGNANT WEEKS
POST PARTUM WEEKS

Y N POSTMENOPAUSAL
Y N POST MENOP. BLEED

Period of bleeding: ___

RETRO VIRUS + - ? Rx

SYMPTOMATIC / DIAGNOSTIC ☐
OR
CERVICAL SCREENING PROGRAMME ☐

ORIGIN OF SMEAR / SPECIMEN
- ☐ Cervix
- ☐ Endocervix
- ☐ Vagina
- ☐ Vault
- ☐ Endometrium
- ☐ Other: Specify ___

CONDITION OF CERVIX
- ☐ HEALTHY
- ☐ INFLAMMATORY
- ☐ SUSPECTED CA

SMEAR / SPECIMEN TAKEN WITH
- ☐ Spatula
- ☐ Endocervical Brush / Broom
- ☐ Endometrial Endopap
- ☐ Other: Specify ___

SECTION C

GENERAL CYTOLOGY

☑ ORIGIN OF SPECIMEN / ORGAN

URINARY TRACT
- ☐ Bladder
- ☐ Kidney L / R
- ☐ Ureter L / R
- ☐ Other: Specify ___

RESPIRATORY
- ☐ Trachea
- ☐ Bronchus L / R
- ☐ Lung L / R

FLUID
- ☐ Pleural L / R
- ☐ Pericardial
- ☐ Peritoneal
- ☐ CSF
- ☐ Other: Specify ___

LYMPH NODES
- ☐ Supraclavicular L / R
- ☐ Cervical (Neck) L / R
- ☐ Axillary L / R
- ☐ Inguinal L / R
- ☐ Other: Specify ___

HEAD AND NECK
- ☐ Mouth (Spec) ___
- ☐ Salivary Gland (Spec) ___
- ☐ Larynx
- ☐ Thyroid ___

GASTROINTESTINAL
- ☐ Oesophagus
- ☐ Pancreas
- ☐ Liver
- ☐ Other: Specify ___

BREAST
- ☐ Breast L / R
- ☐ Nipple discharge L / R

OTHER (PLEASE SPECIFY)
- ☐ Other e.g. Eye, Skin, Prostate, Hydrocoele, Testis, Ovary, Synovial, Bone, Soft tissue

☑ TYPE OF SPECIMEN
- ☐ Sputum
- ☐ Urine (voided)
- ☐ Urine (catheter/scope)
- ☐ Smear
- ☐ Imprint
- ☐ Washing / lavage
- ☐ Brush
- ☐ Suction aspiration
- ☐ Fine needle aspiration (FNA)
- ☐ Other: ___

SECTION D

CLINICAL DETAILS

D D M M C C Y Y CLINICIAN'S NAME (PLEASE PRINT) CLINICIAN'S SIGNATURE

LOC - Location detail • HCW - Healthcare Worker • SPEC - Specimen • CLIN - Clinical detail

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PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE PLEASE TEAR HERE

CYTOLOGY REPORT: FOR LABORATORY USE ONLY

RECEIVED DATE D D M M Y Y

LABORATORY STAFF CODE PREPARED BY

TIME H

VOLUME M L

MACROSCOPIC APPEARANCE/QUALITY

FNA PERFORMED BY

SCORE

NUMBER OF SMEARS PAP MGG H+E

SPECIAL STAINS: DATE

URGENT RESULTS CONVEYED TELEPHONICALLY / FAXED

TO:

BY: DATE: / / TIME: H

GYNAE

SPECIMEN TYPE: CONVENTIONAL SMEAR LBC

SELF COLLECTED SAMPLE OTHER (please specify)

SATISFACTORY FOR EVALUATION: Y N

REASONS FOR UNSATISFACTORY/ LIMITING FACTORS

DIAGNOSIS:

MICRO-ORGANISMS:

ADDITIONAL FINDINGS:

ANCILLARY TESTING:

RECOMMENDATIONS:

NON-GYNAE

CLINICAL HISTORY:

FINAL DIAGNOSIS:

DIFFERENTIAL DIAGNOSIS:

MICRO-ORGANISMS:

ADDITIONAL FINDINGS:

OTHER / SPECIAL STAIN RESULT:

RECOMMENDATIONS:

SNOMED code: 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6 | 1 2 3 4 5 6

COMMENTS:

Scr/Reg/MO/Path 1: 1 2 3 4 / /

Scr/Reg/MO/Path 2: 1 2 3 4 / /

R/R: 1 2 3 4 / /

Chk/MO/Path 1: 1 2 3 4 / /

Chk/MO/Path 2: 1 2 3 4 / /

SIGNED OUT ON BEHALF OF: / /

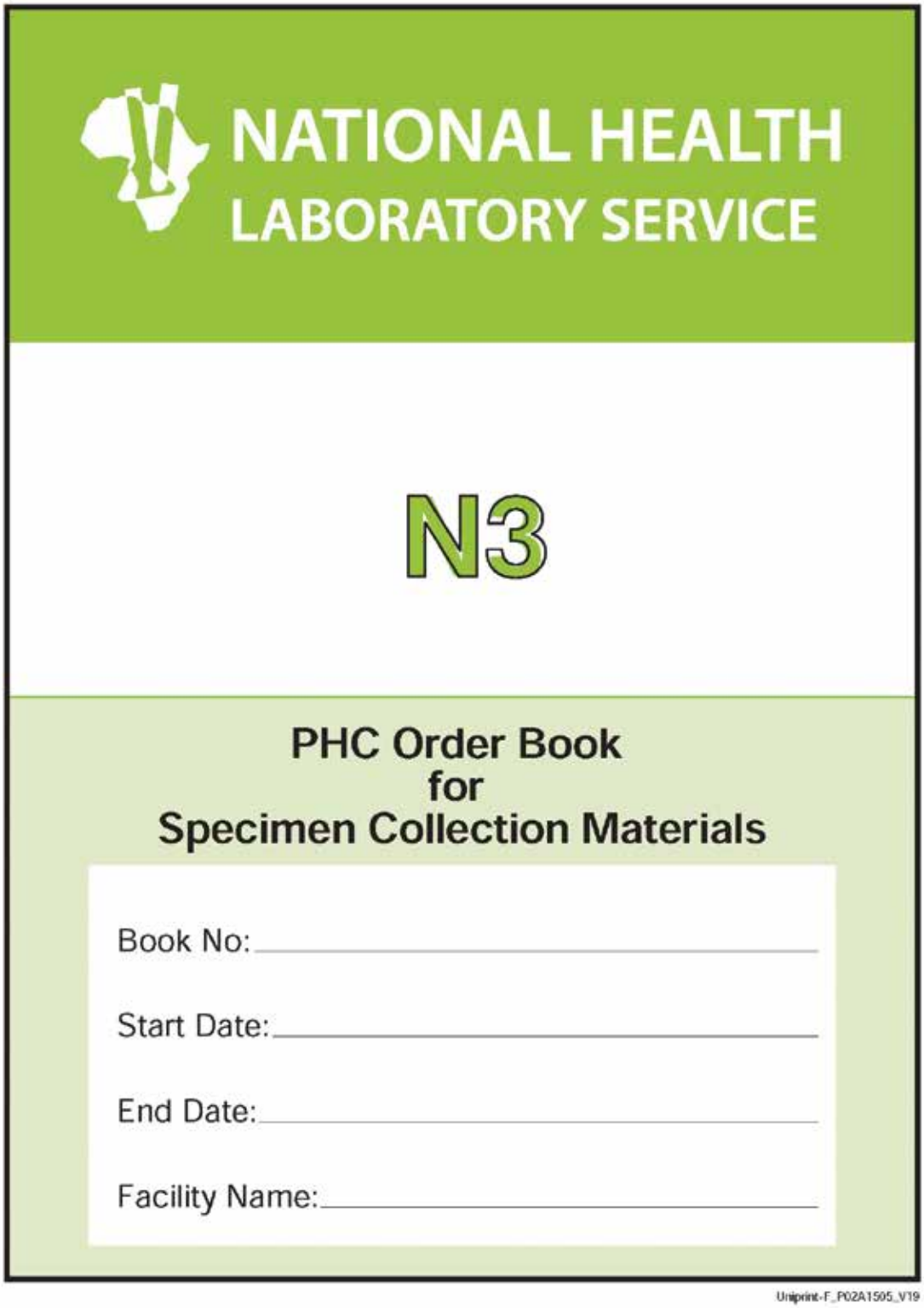
Uniprint-F_P02A1504_V11

AAAA0001R AAAA0001R AAAA0001R

AAAA0001R AAAA0001R AAAA0001R

APPENDIX F

N3: PHC Order Book for Specimen collection materials



REQUEST FORMS

N1 — NATIONAL HEALTH LABORATORY SERVICE — PHC REQUEST FORM

N2 — NATIONAL HEALTH LABORATORY SERVICE — CYTOLOGY REQUEST FORM

N3 — NATIONAL HEALTH LABORATORY SERVICE — PHC ORDER BOOK for SPECIMEN COLLECTION MATERIALS

N4 — NATIONAL HEALTH LABORATORY SERVICE — PHC FACILITY SPECIMEN REGISTER

ROUTINE SPECIMEN COLLECTION MATERIALS


Vacutainer tube: Red Top


Vacutainer tube: Blue Top (Sodium Citrate)


Vacutainer tube: Yellow Top (SST)


Vacutainer tube: Grey Top (Sodium Fluoride)


Vacutainer tube: White Top


Vacutainer tube: Purple Top (EDTA)


Microtainer: Purple Top (EDTA-Paeds)


Microtainer: Yellow Top (SST-Paeds)


Needles (Green)


Swabs with transport medium


Sterile tubes: Tan Top (without additive) for MC&S


Sterile Specimen Jars


Specimen Plastic Bags

PAP SMEAR COLLECTION MATERIAL


Fixative


Wooden Spatula


Slide Holder


Microscope Slides (76 x 26 mm)

EID COLLECTION MATERIAL


DBS PCR Kit

LBC COLLECTION MATERIAL

Combi-brush

Cervex-brush

LBC VIAL

Please use Request Form N3 to request additional materials for specimen collection from your local NHLS laboratory as follows:-

- Submit your requests timeously to ensure sufficient stocks of materials for specimen collection at your health facility at all times.
- Determine the quantity of request forms, materials for specimen collection and disposables that you need to order based on entries for the last two weeks in the Facility Specimen Register (N4).
- The facility manager must align requests for materials for specimen collection with the number of samples/tests submitted.
- Place the completed Request Form N3 in the box with laboratory specimens and hand over to the NHLS courier.

For each new register used, please provide the following information in the space provided:

- Register Number: consecutive numbering of the register per facility
- Start and end date: period during which the register was used
- Facility Name: enter the facility name.

Uniprint-F_P02A 1505_V19

Local Laboratory Name		NATIONAL HEALTH LABORATORY SERVICE	
Health Facility Name		**No:** 0000001	
Health Facility Address		**REQUEST FORM N3**	
Health Facility Contact Number		**Facility Manager Name**	
Name of Requestor		**Facility Manager Signature**	
Date requested:			

PHC Specimen Collection Material Order Form

Category	Description		Unit of Measure	Stock on Hand	Quantity Requested	Laboratory to complete		Acknowledgement of Receipt
						Quantity Approved in Laboratory	Quantity Supplied	
Request Forms	PHC Request Form	N1	50 Forms per book					
	Cytology Request Form	N2	50 Forms per book					
	PHC Order Book Material for specimen collection	N3	25 Sets per book					
	PHC Facility Specimen Register	N4	50 Forms per book					
Specimen Collection Materials	Vacutainer tube: Red Top		Tube					
	Vacutainer tube: Blue Top (Sodium Citrate)		Tube					
	Vacutainer tube: Yellow Top (SST)		Tube					
	Vacutainer tube: Grey Top (Sodium Fluoride)		Tube					
	Vacutainer tube: White Top (PPT)		Tube					
	Vacutainer tube: Purple Top (EDTA)		Tube					
	Microtainer: Purple (EDTA Paeds)		Tube					
	Microtainer: Yellow (SST-Paeds)		Tube					
	Needles (Black)		Box (100)					
	Needles (Green)		Box (100)					
	Swabs with transport medium		Swab					
	Sterile Tubes (without additive) for MC&S		Tubes					
	Sterile specimen jars		Jars					
	Specimen plastic bags		Roll (50)					
Pap smear collection materials	Liquid-based Cytology (LBC) Vials		Pack (25)					
	Combi-brush		Pack (25)					
	Cervex-brush		Pack (25)					
	Fixative		Can					
	Wooden spatula		Pack (50)					
	Slide holder / Envelope		Each					
	Microscope slides		Pack (50)					
Early Infant Diagnosis (EID)	DBS FCR Kit		100 Kits					
SMS Printer	Thermal paper roll		Roll					

Motivation for additional specimen collection material, e.g. campaign

TO BE COMPLETED BY COURIER AND LABORATORY STAFF

Collection by Courier		Order Received by Laboratory		Despatch by Laboratory		Materials Received by Facility	
Name		**Name**		**Name**		**Name**	
Signature		**Signature**		**Signature**		**Signature**	
Date		**Date**		**Date**		**Date**	

Unipmt-F_P02A1505_V19

APPENDIX G

N4: PHC Facility Specimen Register


NATIONAL HEALTH
LABORATORY SERVICE

N4

PHC Facility Specimen Register

Register No: _____

Start Date: _____

End Date: _____

Facility Name: _____

NATIONAL HEALTH LABORATORY SERVICE

PHC Facility Specimen Register N4

No: 0000001

Number	Date of Sample Collection	Place Request form Barcode here	Patient Folder Number	Tests Requested	Date of receipt of results
1		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
2		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
3		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
4		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
5		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
6		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
7		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB
8		PLACE BARCODE HERE		Chemical Pathology ☐ Cytopathology ☐ Haematology ☐ HIV ☐ Microbiology ☐ TB ☐	Chemical Pathology Cytopathology Haematology HIV Microbiology TB

APPENDIX H

Patient Folder: Clinical Consultation and Laboratory Results Forms

CLINICAL MANAGEMENT

Visit number:	1		2		3	
Date of visit:	d d m m y y y y		d d m m y y y y		d d m m y y y y	
Vital signs						
Weight:						
Height:						
BMI:						
Temperature:						
Pulse:						
Blood pressure:						
Blood glucose:						
Urine:						
Basic screening						
HIV		Y N		Y N		Y N
TB		Y N		Y N		Y N
STI		Y N		Y N		Y N
Diabetes		Y N		Y N		Y N
Lifestyle risk assessment						
Alcohol:		Y N		Y N		Y N
Smoke/tobacco:		Y N		Y N		Y N
Physical activity:		Y N		Y N		Y N
Healthy eating:		Y N		Y N		Y N
Sexual behaviour:		Y N		Y N		Y N
Known conditions: *(Please tick)*	Heart disease	Hypertension	Diabetes	Asthma/COPD		
HIV		Y N		Y N		Y N
WHO stage:						
Viral load:						
CD4:						
On ART:		Y N		Y N		Y N
TB:	Intensive phase / Continuation phase		Intensive phase / Continuation phase		Intensive phase / Continuation phase	
Mental health		Y N		Y N		Y N
Adherence to medication and pill count:		Y N		Y N		Y N
Side effects to medication:						
Other hospital/doctor visits:						
Additional medication:						
Presenting complaints (Symptoms, duration, severity):						

v2/2016 12 of 64 M

LABORATORY TEST RESULTS

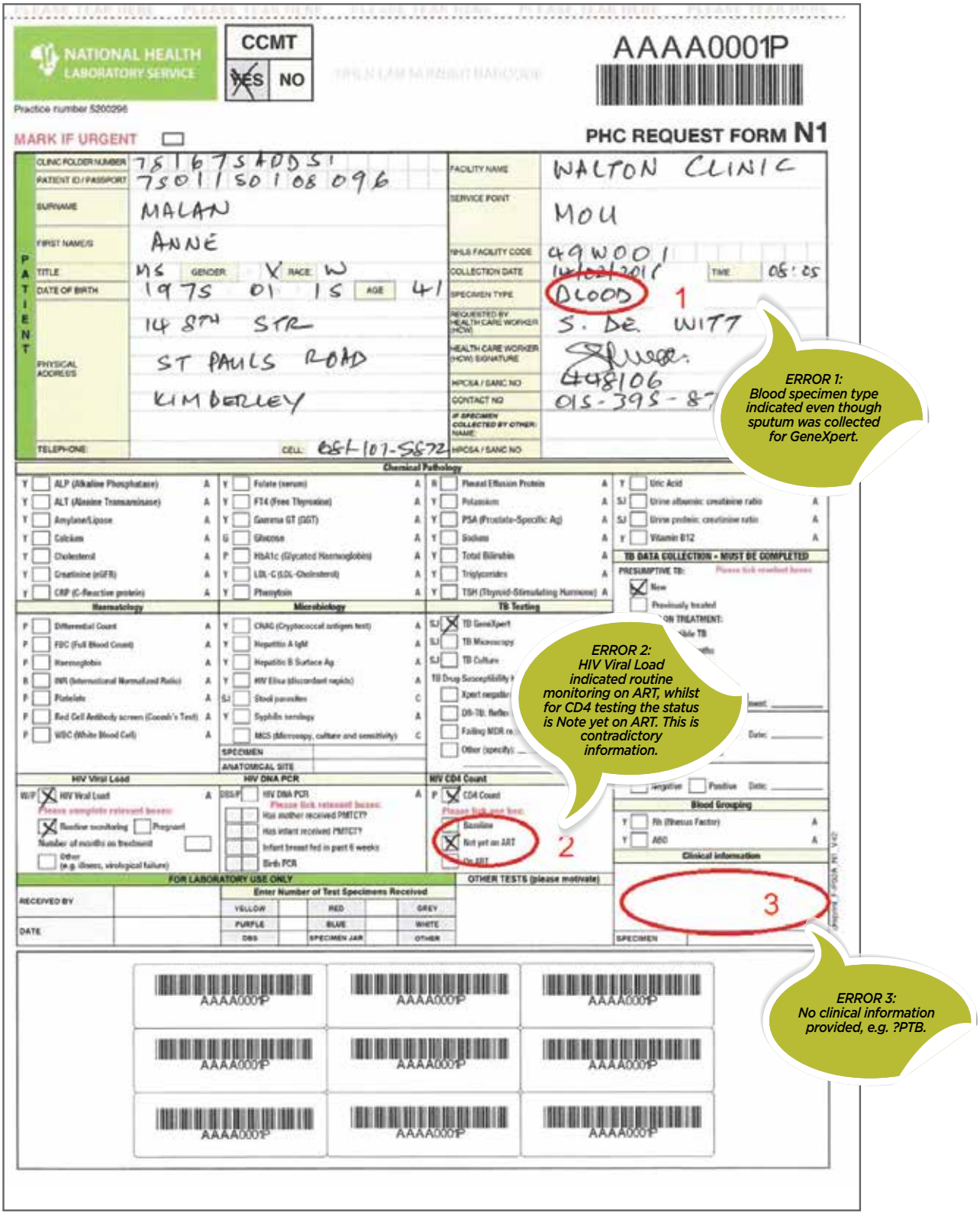
TEST	Date requested: d d m m y y y y	Date requested: d d m m y y y y	Date requested: d d m m y y y y	Date requested: d d m m y y y y
	Results	Results	Results	Results
ALP				
ALT				
Calcium				
CD4				
Cholesterol				
Coomb's Test				
CRAG (Cryptococcal antigen test)				
Creatinine (eGFR)				
CPR				
Cytology				
Differential count				
FT4 (Free Thyroxine 4)				
Gamma GT				
Haemoglobin				
HbA1c				
Hepatitis A, B or C				
HIV PCR for infants				
INR				
Lactic Acid				
LDL				
Lipase				
MCS (Non-TB)				
MCV				
Pap smear				
Phenytoin				
Platelets				
Potassium				
PSA				
Red Cell Folate				
RPR				
Sodium				
Stool parasites				
TB Drug Susceptibility				
TB Line Probe Assay				
TB MC&S (re-treatment and HIV patients)				
Triglycerides				
TSH				
Uric Acid (Serum)				
Urine albumin: creatinine ratio				
Urine protein: creatinine ratio				
Viral load				
Vitamin B12				
WBC				
Xpert MTB/RIF				
Other				

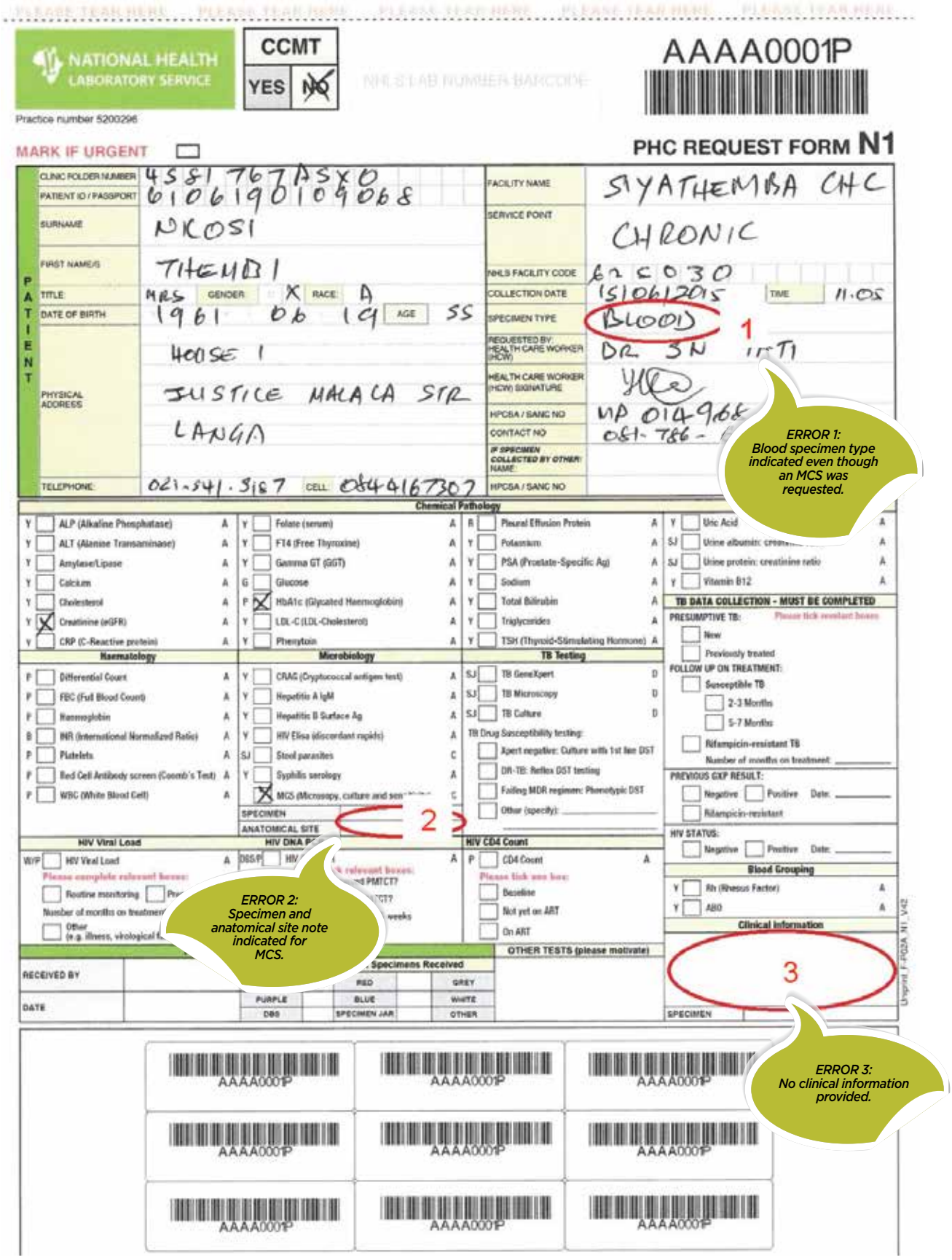
v2/2016

38 of 64 M

APPENDIX I

Examples: Incorrectly completed forms




NATIONAL HEALTH LABORATORY SERVICE
CCMT
YES NO
AAAA0001P
Practice number 5200296
MARK IF URGENT
PHC REQUEST FORM N1
PATIENT
CLINIC FOLDER NUMBER 4581767ASXO
PATIENT ID / PASSPORT 6106190109068
SURNAME NKOSI
FIRST NAME/S THEMBI
TITLE MRS GENDER X RACE A
DATE OF BIRTH 1961 06 19 AGE 55
PHYSICAL ADDRESS HOUSE 1 JUSTICE MALACA STR LANGA
TELEPHONE 021-541-3187 CELL 0844167307
FACILITY NAME SIYATHEMBA CHC
SERVICE POINT CHRONIC
NHLS FACILITY CODE A2C030
COLLECTION DATE 15/06/2015 TIME 11:05
SPECIMEN TYPE BLOOD
REQUESTED BY: HEALTH CARE WORKER (HCW)
HEALTH CARE WORKER (HCW) SIGNATURE
HPCSA / SANC NO MP 0149068
CONTACT NO 021-786-
IF SPECIMEN COLLECTED BY OTHER: NAME:
HPCSA / SANC NO
Chemical Pathology
ALP (Alkaline Phosphatase)
ALT (Alanine Transaminase)
Amylase/Lipase
Calcium
Cholesterol
Creatinine (eGFR)
CRP (C-Reactive protein)
Folate (serum)
FT4 (Free Thyroxine)
Gamma GT (GGT)
Glucose
HbA1c (Glycated Haemoglobin)
LDL-C (LDL-Cholesterol)
Phenytoin
Pleural Effusion Protein
Potassium
PSA (Prostate-Specific Ag)
Sodium
Total Bilirubin
Triglycerides
TSH (Thyroid-Stimulating Hormone)
Uric Acid
Vitamin B12
Haematology
Differential Count
FBC (Full Blood Count)
Haemoglobin
INR (International Normalized Ratio)
Platelets
Red Cell Antibody screen (Coomb's Test)
WBC (White Blood Cell)
Microbiology
CRAG (Cryptococcal antigen test)
Hepatitis A IgM
Hepatitis B Surface Ag
HIV Elisa (discordant rapids)
Stool parasites
Syphilis serology
SPECIMEN
ANATOMICAL SITE
TB Testing
TB GeneXpert
TB Microscopy
TB Culture
TB Drug Susceptibility testing:
Xpert negative: Culture with 1st line DST
DR-TB: Reflex DST testing
Failing MDR regimen: Phenotypic DST
Other (specify):
TB DATA COLLECTION - MUST BE COMPLETED
PRESUMPTIVE TB:
New
Previously treated
FOLLOW UP ON TREATMENT:
Susceptible TB
2-3 Months
5-7 Months
Rifampicin-resistant TB
Number of months on treatment:
PREVIOUS GXP RESULT:
Negative
Positive
Date:
Rifampicin-resistant
HIV STATUS:
Negative
Positive
Date:
Blood Grouping
Rh (Rhesus Factor)
ABO
Clinical Information
3
SPECIMEN
HIV Viral Load
HIV Viral Load
Routine monitoring
Other
HIV DNA PCR
HIV CD4 Count
CD4 Count
Baseline
Not yet on ART
On ART
OTHER TESTS (please motivate)
RECEIVED BY
DATE
Specimens Received
RED
GREY
PURPLE
BLUE
WHITE
DBS
SPECIMEN JAR
OTHER
2
1
ERROR 1: Blood specimen type indicated even though an MCS was requested.
ERROR 2: Specimen and anatomical site note indicated for MCS.
ERROR 3: No clinical information provided.
AAAA0001P

CONTACT DETAILS

National Department of Health
Private Bag X828
Pretoria

National Health Laboratory Service
1 Modderfontein Road
Sandringham