

REPUBLIC OF KENYA



MINISTRY OF HEALTH

# Specifications for the Kenya Essential Diagnostics List (KEDL)

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# Foreword



Quality diagnostics and robust laboratory systems are fundamental in guiding effective health care services. The Maputo Declaration of 2008 highlighted the need to improve access to testing. Progress has been slow with only 19% of populations in low middle income countries having access to testing at primary health care level.<sup>1</sup> Kenya's laboratory capacity mapping report of 2020 revealed that clinical and public health laboratories are still saddled with poor infrastructure, supply chain limitations and limited human resources for health.<sup>2</sup>

Kenya developed its Essential Diagnostics List (KEDL) in 2023 containing a list of 249 essential in vitro diagnostic tests (IVDs) for priority communicable and non-communicable diseases in Kenya. This specifications list is an accompanying document of the KEDL detailing the associated supplies, reagents and commodities of the listed IVDs. This specifications guidelines will inform decision making for procurement of essential tests and increase prioritization of the accompanying supplies needed to effect testing.

The Kenyan constitution of 2010 provides that every person has the right to the highest attainable standard of health including reproductive health in Article 43.<sup>3</sup> In addition, The Health Act 2017<sup>4</sup> states that it is a fundamental duty of the State to observe, respect, protect, promote, and fulfill the right to the highest attainable standard of health including reproductive health care and emergency medical treatment. Systems for service delivery anchored on the Health Act, 2017,<sup>4</sup> Ministry of Health Policies and strategic investment plans are key drivers of Universal Health Coverage in Kenya.<sup>5</sup>

As Kenya contributes towards the sustainable development goals, the health of our people is key and we must therefore develop strategies that will provide affordable health services for the health and wellbeing of our citizens (UN SDGs3).<sup>6</sup> We recommend that National and county Governments, Private and Non-Governmental Organisations work collaboratively and utilize this list to support appropriate procurement of supplies of essential tests listed in the KEDL 2023.

**Nakhumicha S. Wafula**  
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**MINISTRY OF HEALTH**

## Acknowledgements



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We also acknowledge the representation of the County government, the Kenya Medical Supplies Agency (KEMSA), the Kenya Medical Laboratory Technicians and Technologists Board (KMLTTB), the Kenya Association of Clinical Pathologists (KACP), the Kenya Tissue and Transplant Authority, National referral hospitals (Kenyatta National Hospital, Moi Teaching and Referral Hospital) and private facilities (Aga Khan Hospital, Nairobi).

We also wish to thank the World Health Organization (WHO) for the guidance, and for the ongoing policy guidance to optimize the KEDL as a priority-setting tool for Universal Health Coverage (UHC).

Finally, we would also like to appreciate the logistical and technical support from the Clinton Health Access Initiative (CHAI) and financial support provided by the Foundation for Innovative New Diagnostics (FIND).



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# Executive Summary



Essential diagnostic products are an integral part of Universal Health Coverage (UHC).<sup>7</sup> The specifications guide of KEDL 2023 ensures that procurement and supply for in vitro-diagnostics (IVDs) for Kenya's is conducted effectively at all the healthcare levels to guide efforts to improve access, in line with the Ministry of Health's aims under the UHC initiative.<sup>5</sup> This specifications document details reagents, equipment and consumables for each test listed in the main KEDL 2023 document in the respective test category; required information for effective procurement of tests. It serves as a comprehensive update to the Specifications for Essential Diagnostic Supplies document published in 2020.<sup>8</sup>

The Ministry of Health through the Division of National Laboratory Services (NLS) and Directorate of Health Products and Technologies (DHPT) constituted a multidisciplinary team of professionals, namely the KEDL Review Technical Working Group (TWG), to spearhead the effort of reviewing and ensuring that the KEDL is based on the most current evidence, both globally and nationally.

KEDL 2023 was published as a standard EDL. It listed 249 IVD tests for clinical management and public health surveillance for Kenya's priority communicable and non-communicable diseases across 12 test disciplines as general and disease-specific tests. While it included additional test information such as specimen type and test technique for each test it did not list accompanying supplies. The specifications guide for KEDL 2023 will serve as a useful tool for:

1. Budgeting of supplies, reagents and equipment for the essential diagnostic tests.
2. Procurement of supplies and laboratory commodities
3. Supply, donations and distribution
4. Health insurance schemes
5. Promoting the rational use of diagnostics
6. Guiding the production and manufacturing of diagnostics within the country

Procurement officials, programme and laboratory managers at National and County levels are encouraged to make use of the KEDL 2023 specifications list, as it is a crucial accompanying tool in enhancing the implementation of the KEDL.

**Dr. Patrick Amoth, EBS**

**DIRECTOR GENERAL FOR HEALTH**

# List of Abbreviations

<b>AAS</b>	Atomic Absorption Spectrometry
<b>AEFI</b>	Adverse Events Following Immunization
<b>AFB</b>	Acid-fast Bacilli
<b>AFP</b>	Alpha-Fetoprotein
<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>ALP</b>	Alkaline Phosphatase
<b>ALT</b>	Alanine Aminotransferase
<b>AMSTAR</b>	A Measurement tool for Assessment of Systematic Reviews
<b>ANA</b>	Antinuclear Antibodies
<b>ANCA</b>	Antineutrophil Cytoplasmic Antibodies
<b>ANTI-CCP</b>	Anti-cyclic Citrullinated Peptide
<b>APTT</b>	Activated Partial Thromboplastin Time
<b>ASLM</b>	African Society for Laboratory Medicine
<b>ASOT</b>	Antistreptolysin O Titers
<b>AST</b>	Aspartate Aminotransferase
<b>BAL</b>	Bronchoalveolar lavage
<b>BMA</b>	Bone Marrow Aspirate
<b>BRCA1</b>	Breast Cancer Gene 1
<b>BRCA2</b>	Breast Cancer Gene 2
<b>BUN</b>	Blood Urea Nitrogen
<b>CA</b>	Cancer
<b>CEA</b>	Carcinoembryonic Antigen
<b>CGTRH</b>	Coast General Teaching and Referral Hospital
<b>CHAI</b>	Clinton Health Access Initiative
<b>CHMT</b>	County Health Management Teams
<b>CMLC</b>	County Medical Laboratory Coordinator
<b>COVID</b>	Coronavirus Disease
<b>CPGs</b>	Clinical Practice Guidelines
<b>CrAg</b>	Cryptococcal Antigen
<b>CRP</b>	C-Reactive Protein
<b>CSF</b>	Cerebral Spinal Fluid
<b>DAT</b>	Direct Antiglobulin Test
<b>DBS</b>	Dried Blood Spot
<b>DHIS-2</b>	District Health Information System -2
<b>DHPT</b>	Division of Health Products and Technologies
<b>DS DNA</b>	Double-stranded deoxyribonucleic acid
<b>DST</b>	Drug Susceptibility Testing
<b>E test</b>	Epsilometer tests
<b>EDL</b>	Essential Diagnostics List
<b>EDTA</b>	Ethylenediamine Tetracetic acid
<b>EGFR</b>	Epidermal Growth Factor Receptors
<b>ELISA</b>	Enzyme-Linked Immunosorbent Assay
<b>EML</b>	Essential Medicines List
<b>ENA</b>	Extractable Nuclear Antigen

<b>ESR</b>	Erythrocyte Sedimentation Rate
<b>EtD</b>	Evidence to Decision
<b>FDP</b>	Fibrinogen Degradation Product
<b>FIND</b>	Foundation for Innovative New Diagnostics
<b>FM</b>	Fluorescence Microscopy
<b>FNA</b>	Fine-Needle Aspirate
<b>FOBT</b>	Fecal Occult Blood Test
<b>FSH</b>	Follicle Stimulating Hormone
<b>FTA-ABS</b>	Fluorescent Treponemal Antibody Absorption
<b>G6PD</b>	Glucose-6-Phosphate Dehydrogenase
<b>GGT</b>	Gamma-Glutamyltransferase
<b>GRADE</b>	Grading of Recommendations, Assessment, Development and Evaluations
<b>H. pylori</b>	Helicobacter Pylori
<b>HAV</b>	Hepatitis A Virus
<b>Hb</b>	Haemoglobin
<b>HBcAB</b>	Hepatitis B core Antibody
<b>HBcAg</b>	Hepatitis B core Antigen
<b>HBsAB</b>	Hepatitis B surface Antibody
<b>HBsAg</b>	Hepatitis B surface Antigen
<b>HCG</b>	Human Chorionic Gonadotropin
<b>HCV AB</b>	Hepatitis C Virus Antibody
<b>HDL</b>	High Density Lipoprotein
<b>HIV</b>	Human Immunodeficiency Virus
<b>HLA</b>	Human Leukocyte Antigen
<b>HPV</b>	Human Papilloma Virus
<b>HSV</b>	Herpes Simplex Virus
<b>HVS</b>	High Vaginal Swab
<b>IAT</b>	Indirect Antiglobulin Test
<b>IDSR</b>	Integrated Disease Surveillance and Response
<b>IgG</b>	Immunoglobulin G
<b>IgM</b>	Immunoglobulin M
<b>IHC</b>	Immunohistochemistry
<b>ISE</b>	Ion-Selective Electrode
<b>IVD</b>	In Vitro Diagnostic
<b>KEDL</b>	Kenya Essential Diagnostics List
<b>KEML</b>	Kenya Essential Medicines List
<b>KEMLCL</b>	Kenya Essential Medical Laboratory Commodities List
<b>KEMRI</b>	Kenya Medical Research Institute
<b>KEMSA</b>	Kenya Medical Supplies Agency
<b>KEMSL</b>	Kenya Essential Medical Supplies List
<b>KEPH</b>	Kenya Essential Package for Health
<b>KMLTTB</b>	Kenya Medical Laboratory Technicians and Technologists Board
<b>KNH</b>	Kenyatta National Hospital
<b>KOH</b>	Potassium Hydroxide
<b>LAM</b>	Lipoarabinomannan
<b>LDH</b>	Lactate Dehydrogenase

<b>LDL</b>	Low-density lipoproteins
<b>LPA</b>	Line Probe Assay
<b>MDR TB</b>	Multi-Drug Resistant Tuberculosis
<b>MIC</b>	Minimum Inhibitory Concentration
<b>MoH</b>	Ministry of Health
<b>MTB/RIF</b>	Mycobacterium Tuberculosis/ Rifampicin Resistance
<b>NAAT</b>	Nucleic Acid Amplification Test
<b>NEDL</b>	National Essential Diagnostics List
<b>NFL</b>	Non-facility Laboratory
<b>NGS</b>	Next Generation Sequencing
<b>NPHL</b>	National Public Health Laboratory
<b>NTRL</b>	National Tuberculosis Reference Laboratory
<b>PCR</b>	Polymerase Chain Reaction
<b>pH</b>	Power of Hydrogen
<b>PICO</b>	Population, Intervention, Comparator, Outcome
<b>PSA</b>	Prostate Specific Antigen
<b>PT/INR</b>	Prothrombin Time / International Normalized Ratio
<b>PTT</b>	Partial Thromboplastin Time
<b>RBT</b>	Rose Bengal Test
<b>RDT</b>	Rapid Diagnostic Tests
<b>RF</b>	Rheumatoid Factor
<b>Rh</b>	Rhesus Factor
<b>RIGHT</b>	Reporting Items for practice Guidelines in Healthcare
<b>rK39</b>	Recombinant K 39
<b>RT-PCR</b>	Real-Time-Polymerase Chain Reaction
<b>RT-qPCR</b>	Reverse Transcription-quantitative real-time PCR
<b>RVF</b>	Rift Valley Fever
<b>SARI</b>	Severe Acute Respiratory Infection
<b>SARS-CoV 2</b>	Severe Acute Respiratory Syndrome-Corona Virus 2
<b>SAT</b>	Serum Agglutination Test
<b>SFBG</b>	Sex Hormone Binding Globulin
<b>SOTS</b>	Sample Other Than Sputum
<b>STI</b>	Sexually Transmitted Infection
<b>TB</b>	Tuberculosis
<b>TB LAMP</b>	Tuberculosis Loop-mediated Isothermal Amplification
<b>TnI</b>	Troponin Test
<b>TPHA</b>	Treponema pallidum Haemagglutination Assay
<b>TSH</b>	Thyroid Stimulating Hormone
<b>TWG</b>	Technical Working Group
<b>UHC</b>	Universal Health coverage
<b>VDRL</b>	Venereal Disease Research Laboratory
<b>VHF</b>	Viral Haemorrhagic Fevers
<b>WGS</b>	Whole Genome Sequencing
<b>WHO</b>	World Health Organization
<b>XDR TB</b>	Extensively Drug Resistant Tuberculosis
<b>ZN</b>	Ziehl Neelsen



# Definition of terms

<b>Antimicrobials</b>	Medicines including antibiotics, antivirals, antifungals and antiparasitics that are used to treat infections.
<b>Antimicrobial Resistance</b>	When infections caused by bacteria, viruses, fungi and parasites no longer respond to medicines.
<b>BCR-ABL</b>	A mutation that is formed by combination of two genes, known as BCR and ABL
<b>Essential Diagnostics</b>	Tests that satisfy the priority health care needs of the population and are selected with due regard to disease prevalence, public health relevance, evidence of utility and accuracy and comparative cost-effectiveness.
<b>In Vitro Diagnostics</b>	Devices intended for the in-vitro examination of specimens derived from the human body to provide information for diagnosis or monitoring for compatibility purposes. E.g. reagents, calibrators, control material and test kits.
<b>Multidrug Resistant TB</b>	TB bacteria resistant to at least both isoniazid and rifampicin.
<b>Extensively Drug Resistant Tuberculosis (XDR)</b>	TB bacteria resistant to any fluoroquinolone and to at least one of the three second-line injectable drugs (capreomycin, kanamycin and amikacin), in addition to multidrug resistance.







# 1.0 Introduction

## 1.1 Background

Essential lists for Health Products & Technology (HPT) help meet the priority healthcare needs of a country's population and enable Universal Health Coverage (UHC).<sup>7 9 10</sup> The Ministry of Health (MoH) availed the first editions of the Kenya Essential Medical Laboratory Commodities List (KEMLCL) in 2014<sup>11</sup> and the Kenya Essential Medical Supplies List (KEMSL)<sup>12</sup> in 2016.

The World Health Organization (WHO) introduced the concept of an Essential List for in-Vitro Diagnostics (IVD) in 2018. So far, three versions of the WHO Essential List for Diagnostics (WHO EDL) have been published (2018, 2019, and 2021)<sup>13-15</sup> and the fourth update is underway. Member states are required to adapt the list to national needs based on public health relevance, evidence of efficacy and safety, quality, comparative cost-effectiveness and local suitability / appropriateness.<sup>16</sup> Kenya developed national its EDL in 2023 by adapting the WHO EDL third edition<sup>13</sup> and building on it previous KEMLCL 2014.<sup>11</sup>

## 1.2 Rationale

Some of the benefits expected from the KEDL are increased prioritization, procurement and access to tests, ultimately leading to improved patient care and greater capacity to detect diseases during outbreaks.<sup>16-18</sup> KEDL 2023 was published in the standard EDL format following recommended WHO methodology for national EDLS.<sup>16</sup> While it included test information such as specimen type and test technique for each test it did not list accompanying supplies. A standard EDL with no additional test information about its accompanying supplies may not be considered comprehensive enough to support procurement.<sup>17 18</sup> A specifications document detailing reagents, equipment and consumables for each test listed in the main KEDL 2023 document is therefore essential for effective procurement of tests. MoH published a specifications document for essential diagnostics supplies in 2020<sup>8</sup> but this guide did not include specifications for all tests categories listed in the KEDL 2023.

## 1.3 Goal

To support effective decision-making for appropriate procurement and resource allocation for priority diagnostics listed in the KEDL 2023 to enhance quality laboratory and testing services.

## 1.4 Target population and end users

This list of specifications for IVD tests applies to those responsible for procuring, supplying and donating tests. The intended primary users of the KEDL include policy makers, procurement managers, program managers, laboratory managers at national and county health settings.

## 2.0 Methodology

This specifications document details reagents, equipment and consumables for each test listed in the main KEDL 2023 document. The development of the KEDL 2023 followed WHO guidance on developing national essential lists<sup>16</sup> and drew on the previous Kenya Essential Medical Laboratory Commodities List developed in 2014 (KEMLCL 2014)<sup>11</sup> and the third edition of the WHO model list for essential IVDs (WHO EDL 2021).<sup>15</sup> The KEMLCL 2014 contained 105 IVDs listed across 12 test disciplines. The methodology has been detailed in the KEDL document.

KEDL 2023 included IVDs for clinical management, public health surveillance and forensic testing for priority communicable and non-communicable diseases according to Kenya's Integrated Disease Surveillance and Response Document (IDSR)<sup>19,20</sup> and updates from recent government reports.<sup>21-23</sup>

Specifications have been given for each test categorized as general or disease specific across 12 test disciplines. General tests were defined as IVDs used for routine care and detection of multiple conditions or a set of symptoms suggestive of diseases on the Kenyan priority disease list. Disease-specific tests were defined as IVDs for detecting specific diseases or target infections on the Kenyan priority disease list. The 12 test disciplines included histopathology & cytopathology; bacteriology; virology; parasitology; mycology; haematology; clinical chemistry; Immunology; blood transfusion & transplant services; food and water analysis; molecular pathology, clinical & forensic toxicology and forensic biology. Genetic/genomics tests were also considered across these 12 disciplines where appropriate.

The group that developed the KEDL comprised a Secretariat, Technical Working Group (TWG), Consultant and evidence review team. Reviewers of the KEDL draft included stakeholders from MoH, Academic and Research institutions, the Kenya Association of Clinical Pathologists (KACP), the African Society of Laboratory Medicine (ASLM) and the Foundation for Innovative New Diagnostics (FIND). The process was coordinated with support from technical partners, Clinton Health Access Initiative (CHAI). The details of establishing the KEDL guideline group and reviewers had been outlined in the main KEDL 2023 document. The list of individual participants and reviewers is available in Annex 1.

## 3.0 Specifications for in vitro diagnostic tests (IVDs) in KEDL 2023

The KEDL 2023 contains a list of 249 IVD tests. The previous essential list, the KEMLCL 2014<sup>9</sup> contained 105 IVDs listed across 12 test disciplines.

The associated specifications of all tests included in the KEDL can be found in table 1 below.

**Table 1: Specifications for general and disease-specific IVD tests included in the KEDL 2023**

\* Disease-specific tests for some diseases fall across different test disciplines e.g. cancer  
Multiplex testing has been considered across different test disciplines.

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	General				
		<b>Microscopy, culture and identification of microbes</b>	<p><b>Gram Stain:</b> Crystal violet powder, iodine crystals, Potassium iodide crystals- white crystalline, water-soluble ethanol (AR), acetone (GP), safranin O powder/ neutral red powder/ basic fuchsin powder, immersion oil RI 1.515 -xylene free</p> <p><b>ZN stain:</b> Variable volumes of Loeffler methylene blue powder/ leuco-malachite green powder</p> <p>Variable volumes of sulphuric acid (AR) / HCL concentrated, variable volumes of ethanol 95%(vol/vol), phenol crystal, basic fuchsin powder, immersion oil-xylene free of refractive index (RI) 1.515, ethanol- 95%(vol/vol), distilled water, storage media tryptic Soy Broth with 15% glycerol</p> <p><b>Indian Ink:</b> Nigrosin dye Tricare: Carbon black dye 0.3% tricresol, distilled water</p> <p><b>Powdered culture media (500 grams):</b> Blood agar base, muller hinton, modified thayer Martin's media, MacConkey agar with or without salt, MacConkey broth, DCA or XLD agar, TCBS, selenite F, CLED, tryptic soy media, peptone water, brain heart infusion, TSI, urea</p>	Microscope, distiller, incubator, anaerobic jars, bunsen burner, biosafety cabinets class II, CO2 jars, automated ID machine, weighing scale, autoclave, refrigerators (2-8 degrees Celsius), freezer (-20, -80 degrees Celsius), micro incinerator, turbid meter, vortex mixer, water bath, laminar flow bench	Grounded edge frosted microscope slide, coverslips- 22x22 mm, inoculating loops 0.01 ul, 0.001ul, sterile petri dish-90mm, conical flasks-100, 250, 500mls and 1000ml pyrex glass, alcohol swabs-sterile 70% isopropyl, applicator sticks- wooden 6 inches with diameter 2.5 mm, autoclavable, biohazard bin liners (red, yellow, black with biohazard label), buffer tablets, pH 6.8, 7.2, disposable lab coats with band (small, medium, large), digital thermometer, cell counting neubauer chamber-glass 30 by 70 mm and 4 mm thickness, graduated Pasteur pipette-3 ml, sterile urine container 30-60 ml, sterile polypot 15-20 ml, single-channel pipette (0-10, 10-100, 100-200, 200-500, 500-1000 UL rangers), yellow pipette tips, blue pipette tips, screw-capped universal bottle-28ml, screw capped Bijou bottle-7 ml, 14 ml, 28 ml, wash bottles, tripod stand and wire gauze, media preparation bottles; borosilicate /pyrex 250 ml, 500 ml, 1000 ul, 2000 ul, TSI tube-test tube with flat bottom, flat bottom beakers, plastic sharp container, slide boxes, plastic or wooden grooves carrying 100-200 slides, slide folder; cardboard, individual side position, staining rack, autoclave tape, digital timers, disinfectants,



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	General				
		Microscopy, culture and identification of microbes			disposables powdered gloves-small, medium, large, disinfectants, absorbent material or gauzes, glycerol, cryovials 1ml, cryovial boxes
			<b>Transport media:</b> Cary Blair transport media and Stuart's media, Tryptic soy broth, TCBS media Sheep blood Enrichment Media Defibrinated sterile blood, 25 ml bottle, distilled water <b>Biochemical reagents:</b> Bacitracin discs, optochin discs, novobiocin discs, kovacs, indole, catalase (hydrogen peroxide), API, esculin, Simon citrate, sulfur indole motility, TSI, urea, glycerol 98.5% <b>Serotyping:</b> Staphylococcus latex agglutination, streptococcus latex agglutination test, automated cartridge/ card, 0.45 % normal saline <b>Controls:</b> MacFarlands, standard calibrators, ATCC organisms		
		Antimicrobial susceptibility tests (AST)	<b>Antibiotic discs /cassettes:</b> Ampicillin-10 µg, erythromycin 15µg, cefoxitin-30 µg, amikacin-30µg, amoxicillin-20µg, ampicillin 10µg, penicillin 10 units, tetracycline 30µg, co-amoxiclav-20/10µg, nalidixic acid-30 µg, ceftazidime-30 µg, cefotaxime -30 µg, ceftriaxone-30 µg, ciprofloxacin- 5µg, gentamicin-10µg, imipenem-10µg, meropenem-10 µg, ertapenem 10µg, piperacillin-tazobactam-	Equipment covered under microscopy and culture	Same as microscopy and culture in addition to the disc dispenser

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	General				
		<b>Antimicrobial susceptibility tests (AST)</b>	100/10µg, cefuroxime-30µg, cefpodoxime-30µg, ciprofloxacin- 5µg, norfloxacin-10 µg, cephalexin-30µg, nitrofurantoin- 300µg, trimethoprim-sulfamethoxazole 25/25, 50, cartridge of 50 disks, ceftazidime/avibactam 30/20µg, ceftolozane/tazobactam 30/10µg		
		<b>Blood culture</b>	Biphasic media and automated, aerobic and anaerobic culture media, paediatric blood culture bottles	Same as in culture with the addition of the following; incubator/ automated Incubator	Same as in culture with additional of the following; sterile syringe and needle
	Disease-specific				
	<b>Tuberculosis (TB)</b>	<b>Mycobacterium tuberculosis bacteria test</b>	ZN and FM reagents <b>ZN stain:</b> Variable volumes of Loeffler methylene blue powder/ leuco-malachite green powder Variable volumes of sulphuric acid (AR) / HCL concentrated, variable volumes of ethanol 95%(vol/vol), phenol crystal, basic fuchsin powder, Immersion oil-xylene free of refractive index (RI) 1.515, ethanol-95%(vol/vol), distilled water, storage media tryptic Soy Broth with 15% glycerol, auramine O powder, methanol, methylene blue-GP, potassium permanganate powder, HCL, sulphuric acid	FM/LED microscope, biosafety cabinet class II, slide warmer, slide dryer	Applicator sticks, disinfectants, absorbent material, powder-free gloves (medium, small, large), frosted slides
		<b>Mycobacterium tuberculosis deoxyribonucleic acid (DNA) test</b>	DNA extraction reagents (kit)	Huma Loop T or HumaTurb instruments, detection unit with UV light for reading	Screw cap micro tubes, 50 ml conical centrifuge tube
			NAAT chip-based reagents, MTB chip, RF chip	NAAT chip-based (lab and prep)	Disinfectants, falcon tubes, printing papers, gloves (small, medium, large), 50 ml conical centrifuge tubes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	Disease-specific				
	Tuberculosis (TB)	<b>Mycobacterium tuberculosis deoxyribonucleic acid (DNA) test</b>	NAAT cartridge-based kit	NAAT cartridge-based equipment, printer, CPU, keyboard, mouse, scanner, UPS	Transfer pipettes, disinfectant, absorbent materials, gloves, 50 ml conical centrifuge tubes
		<b>TB LAM (Lipoarabinomannan)-Urine</b>	Testing strip	Timer	Transfer pipettes and pipette tips, gloves (small, medium, large), urine containers
		<b>Mycobacterium tuberculosis DNA mutations associated with resistance test</b>	Extraction and amplification reagents (DNA strips, MTBDplus)	Biosafety cabinet class II, thermocycler, extractor, GT BLOT, microcentrifuge, scanner, computer, laminar flow	Disinfectants, absorbent material, transfer pipettes and filtered tips, distilled water, powdered free gloves (small, medium, large), cryovials-1ml
		<b>TB Whole Genome Sequencing (WGS)/ Next Generation Sequencing (NGS) Sequencing (NGS)</b>	Gene sequencing reagents-library preparation kit, primers, and probes	Biosafety cabinet class II, gene sequencer, laminar flow, thermocycler, gel electrophoresis tank, UV gel viewer, fluorimeter, thermomixer	Micropipettes, absorbers, pipette holders, filtered pipettes tips, disinfectants, N95 masks, powder-free gloves
		<b>Drug susceptibility testing of Mycobacterium tuberculosis</b>	TB culture reagents (NaCl, NaOH, Normal saline 0.9%, phenol, P.B.S-6.8 PH, Trisodium citrate, MGIT tubes, Pyrazinamide tubes First-line susceptibility drugs: Streptomycin, isoniazid, rifampicin-SIRE kit, and pyrazinamide kit Second-line susceptibility drugs: Clofazimine-1µg/ml, delamanid-1.0µg/ml, moxifloxacin CB-1.0µg/ml, moxifloxacin CC-0.25µg/ml, levofloxacin-1.0µg/ml, bedaquiline-1.0µg/ml, linezolid-1.0µg/ml Commercially prepared LJ media MTB identification kit, brain heart infusion, MGIT calibrators, ATCC materials-H37Rv, 98.5% glycerol 2.5l	Biosafety cabinet II, microscope (LED, light), incubator, autoclave, MGIT, bactec machine, cold centrifuge, printer, timer, vortexer, refrigerators (2-8 degrees Celsius), freezer (-20,-80 degrees Celsius), mixer, hot air oven	Disinfectants, absorbent material, transfer pipettes, filtered pipettes tips 0.1-10ul, 10-200ul 200-1000ul, frosted slides, cryovials, N95, powder-free gloves (small, medium, large), printing papers, biohazard bags, racks, pipette holder, universal bottles-20mls, culture plates, measuring jars, beakers, disposable gown, head covers, shoe covers, internal thread, skirted 2ml cryovial tubes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	Disease-specific				
	Pneumonia	<b>Culture/identification and sensitivity for bacterial pneumonia</b>	Culture media like SBA, CBA, MacConkey, biochemical reagents for bile solubility test for Streptococcus pneumoniae, identification kits, antibiotic discs, serotyping antisera	Incubator, anaerobic jars, bunsen burner, biosafety cabinets class II, machine for identification and susceptibility, weighing scale, autoclave, refrigerators (2-8 degrees Celsius), freezer (-20,-80 degrees Celsius) microscope	Inoculating loops, petri dish, flasks, applicator sticks, microscope slides, cover slips
		<b>NAATs for bacterial pneumonia</b>	Extraction, amplification reagents	Extractor and PCR equipment, biosafety cabinet, dead hood	Pipettes and pipette tips, powder-free gloves, disposable gowns, 70% alcohol
	Syphilis	<b>Venereal disease research laboratory (VDRL) for syphilis</b>	RDTs	Roller mixer, centrifuge, timer	Transfer pipettes
		<b>T. pallidum haemagglutination (TPHA) test for syphilis</b>	Haemagglutination kit	Microtiter plate, centrifuge, timer	Transfer pipettes and tips
		<b>Fluorescent treponemal antibody absorbed (FTA-ABS) for syphilis</b>	Treponema pallidum antigen, FITC, sorbent, reactive control serum, non-specific control serum, oil immersion, acetone	Fluorescent microscope	Gloves, disinfectant, slides, disposable gowns
		<b>NAATs for syphilis</b>	PCR reagents	Extractor and PCR machine	Gloves, disinfectant, slides, disposables
	Gonorrhea and Chlamydia	<b>NAATs for Chlamydia trachomatis and Neisseria gonorrhea infections</b>	Cartridge-based machine	Semi/fully automated machine	Gloves, disinfectant, disposables
		<b>Culture and antibiotic susceptibility testing for Gonorrhea and Chlamydia</b>	Chocolate agar (GC 11 agar base with 1% Iso VitaleX and purified hemoglobin), serotyping antisera, sugar fermentation test reagents for the confirmation of GC	Incubator with 5% CO <sub>2</sub> , microscope, machine for identification and susceptibility, refrigerators (2-8 degrees Celsius), freezer (-20,-80 degrees Celsius)	Gloves, slides, applicator sticks, inoculating loop, Petri-dishes, sterile swabs

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	Disease-specific				
	Clostridium difficile infection	Clostridium difficile antigen test that includes GDH and toxin	RDT kit	Timer	Applicator sticks, tissue, disinfectant
		NAATs for Clostridium difficile	PCR kit	Extractor and thermocycler	Gloves, disinfectant
	Peptic ulcers	Helicobacter pylori antigen test	RDT kit	Timer	Applicator sticks, disinfectant
	Cholera	Cholera antigen detection rapid test	RDT kit	Timer	Disinfectants, gloves
		Culture, antimicrobial susceptibility tests for cholera	Culture media, TCBS, alkaline peptone water, oxidase strips, serotyping antisera, vibrio cholerae polyvalent o1 (Vibrio cholerae serotype inaba, Vibrio cholerae serotype ogawa, vibrio 0139), a Antibiotics: Ampicillin 10 µg Tetracycline 30 µg, co-trimoxazole 1.25/23.75µg, norfloxacin-10µg	Incubator, wire loop, bunsen burner, biosafety cabinets, machine for identification and susceptibility, weighing scale, autoclave, fridge, microscope, shaker	Applicator sticks, absorbent material, physiological saline solution (NaCl 0.85% w/v), rectal swabs, Cary Blair transport media
	Typhoid fever	Salmonella antigen testing	RDT kit	Timer	Applicator sticks, disinfectants
		Salmonella culture and antibiotic susceptibility testing test	Culture media like MacConkey, XDL, TCBS, APW, TSI, SIM, Simons' citrate, urea, selenite F, Cary Blair transport media and Stuart's media identification kits Stains typing antisera: Salmonella polyvalent O groups A-G, salmonella O, group A, salmonella O group, salmonella O, group C1, salmonella O group C2, salmonella O group D KB Antibiotic discs: Ciprofloxacin 5 µg, ceftriaxone 30µg, chloramphenicol, 30µg ampicillin 10µg,	Incubator, wire loop, bunsen burner, biosafety cabinets, machine for identification and susceptibility, weighing scale, autoclave, refrigerators (2-8 degrees Celsius), freezer (-20,-80 degrees Celsius), microscope, shaker	Inoculating loops, petri dish, flasks, applicator sticks, microscope slides, cover slips

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	Disease-specific				
	Typhoid fever		and trimethoprim/sulfamethoxazole 1.25/23.75µg Salmonella O group E, Salmonella typhi VI, salmonella H polyvalent phases 1 & 2, salmonella H polyvalent phase 2;  Salmonella A-H (S.paratyphi A), Salmonella B-H (S.paratyphi B), Salmonella C-H (S.paratyphi C), salmonella D-H (S.typhi)		
	Dysentery	NAATs for salmonella	Culture media like MacConkey, XLD, APW, TSI, SIM, Simmons' citrate, urea, selenite F, identification kits, stains and biochemical reagents, antibiotic discs, (ciprofloxacin 5µg, ceftriaxone 30µg, chloramphenicol, 30 µg ampicillin 10µg and trimethoprim/sulfamethoxazole 1.25/23.75µg)	Incubator, wire loop, bunsen burner, biosafety cabinets, machine for identification and susceptibility, weighing scale, autoclave, refrigerators (2-8 degrees Celsius), freezer (-20,-80 degrees Celsius), microscope, shaker	Applicator sticks, tissue, microscope slide, and coverslips
		Serotyping-for Shigella	Physiological saline solution (NaCl 0.85% w/v) anti-seras : Shigella sonnei-vials of 2-3 mls, Shigella flexneri-vials of 2-3 mls, Shigella boydii 1- vials of 2-3 mls, Shigella boydii 2- vials of 2-3 mls, Shigella boydii 3 -vial of 2-3 mls, Shigella dysenteriae - vials of 2-3 mls	Roller mixer, centrifuge, timer	Disposable (or wire) microbiological loops, glass slides (approx.10 x 15 cm), micropipettes and tips, Pasteur pipettes and pipette bulbs, khan tubes, timer, electrical burner (if wire loops are utilized), lamp, wax pencils
	Meningococcal meningitis	Culture and antibiotic susceptibility testing for meningococcal meningitis (bacteria)	Culture media e.g., blood agar, MacConkey agar, identification kits, stains and biochemical tests, TCBS, APW, antimicrobial susceptibility discs, E test strips, reagents/cards for the automated method, antibiotic discs, 0.5 MacFarlands standard	Incubator, wire loop, bunsen burner, biosafety cabinets, machine for identification and susceptibility, weighing scale, autoclave, refrigerators (2-8 degrees Celsius), freezer (-20, -80 degrees Celsius), microscope	Disinfectant, physiological saline solution (NaCl 0.85% w/v)



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	Disease-specific				
	Menin-gococcal meningitis	Serotyping for menin-gococcal meningitis (bacteria)	Anti seras, physiological saline solution (NaCl 0.85% w/v), Neisseria meningitidis groups X-Z, W135	Timer	Microscope slides
	Anthrax	Culture and antibiotic susceptibility testing for anthrax	Culture media- SBA, broth culture, gelatin stab culture, identification kits, stains, biochemical tests, typing sera, antibiotic discs, 0.5 MacFarlands standard	Incubator, wire loop, bunsen burner, biosafety cabinet class 3, weighing scale, autoclave, refrigerators (2-8 degrees Celsius), freezer (-20,-80 degrees Celsius), microscope	Gloves, applicator sticks, disinfectant, microscope slides
		En-zyme-linked immunosor-bent assay (ELISA) for anthrax	Antigen/antibody reagents (kit) prepackaged with pre-coated strips or microplates and associated reagents	Multiwell reader capable of reading absorbance at 450 nm	Distilled /deionized water, pipettes and pipette tips, multiwell reader capable of reading absorbance at 450 nm, absorbent paper or paper towel, and a graph paper
		Gram stain microscopy for anthrax	Gram stain-crystal violet, gram's iodine, acetone/ acid alcohol, neutral red/ safranin	Microscope	Surgical blades
		NAATs for anthrax	DNA extraction and PCR reagents (primers, master mix)	Extractor and thermocycler, sequencer	Gloves, disinfectant
	Brucello-sis	Rose bengal (RBT) for brucellosis	Stained suspension of brucella abortus at pH 3.6-3.7	Roller mixer, centrifuge, timer	Applicator sticks, slides
		Serum ag-glutination tests (SAT) for brucel-losis	Specific antisera brucella abortus and melitensis, physiological saline solution (NaCl 0.85% w/v)	Water bath, timer	Transfer pipettes and tips
	Plague	Fine needle aspiration (FNA) test for plague	Stains Giemsa stain, wright stain, gram stain, wayson's stain Culture CIN agar, MacConkey, blood agar Antibiotic Discs Ciprofloxacin 5µg, doxycycline, levofloxacin 1µg, moxifloxacin 30µg, gentamicin 10µg, streptomycin	Microscope, incubator, autoclave, automated machine for DST and ID	Slides, gloves, wire loop, wash bottles, staining racks, cove slips, Petri dishes, oil immersion, and applicator sticks

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Bacteriology	Disease-specific				
	Leprosy	Microscopy for leprosy	ZN reagents (carbol fuchsin, 3% acid alcohol, methylene blue or potassium permanganate, 10% Formalin	Timer, microscope, microtome, tissue processor, slide drier, staining rack	Surgical blades
		NAATs for leprosy	Extraction and PCR reagents	Extractor, thermocycler	Disinfectants, falcon tubes, printing papers, gloves
Virology	Disease-specific				
	HIV infection	Rapid tests for human immunodeficiency virus (HIV) antibody	Screening test kits, confirmatory test kits, sensitivity, and specificity threshold as guided by WHO	Timers	Blood retractable lancet, EDTA capillary tubes, alcohol swabs, gauze, needles, strapping, buffer, disposable pipette
		HIV/Syphilis Duo test	HIV/Syphilis duo test kit, sensitivity and Specificity threshold as guided by WHO		
		Cluster of differentiation 4 (CD4) cell count	CD4, CD8 reagents for absolute and percentage counts, control materials, phosphate buffered formaldehyde	Point of care equipment, automated analyzers, automatic pipettes, vortexes, printer, roller mixer	EDTA tubes, reagent tubes containing fluorochrome dyes, cartridges
		ELISA for HIV	Complete ELISA HIV Ag/ Ab kits with approved sensitivity and specificity thresholds by WHO	ELISA Washer, ELISA reader, incubator, vortex mixer, timer, thermoshaker, refrigerators, and fridges	Gauze, mechanical pipette, distilled water, trough, pipette tips
		HIV NAATs/ viral load	Complete nucleic acid extraction kits, detection kits specific to the test platform, molecular grade ethanol	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel and multichannel pipettes, autoclave refrigerator and freezers	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips-10 ul, 20 ul, 50 ul, 100 ul, 200, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml)

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	HIV infection	HIV Drug Resistance	Nucleic acid extraction kits, amplification module kits, quantification kits, PCR clean-up kits, cycle sequencing kits (polymer, Tris-acetate-EDTA(TAE) buffer, sequencing standard kit)	Sequencing platforms, fluorometer, spectrophotometer, gel tank, centrifuge, vortex mixer, multi and single-channel pipettes	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips-10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml)
	Hepatitis B Virus	Hepatitis B Surface Antigen (HBsAg)-RDT	Complete HBsAg RDT kits	Centrifuge, timer	Blood lancet, vacutainer tubes, alcohol swabs, gauze, needles, strapping, buffer, disposable pipettes
		NAATs for Hepatitis B	Applicable viral/pathogen nucleic acid extraction kit complete HBV PCR Kit	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, Single-channel pipettes, Multichannel pipette, Refrigerator, and freezers, Biosafety Cabinet Class II	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips(10ul, 20ul, 50ul, 100ul, 200, 1000ul), PCR strips with caps, PCR plate (0.1ml/0.2ml), PCR tubes(0.1ml/0.2ml), cold block, RNase Away, DNase away, Falcon tubes(15ml,50ml,100ml), adhesive seals, autoclavable biohazard bags
		Hepatitis B Surface Antigen (HBsAg)-ELISA	Complete HBsAg Enzyme Immunoassay Kit comprising of coated wells, sample diluent, negative and positive control, conjugate, substrate diluent, substrate conjugate, and wash fluid	ELISA Washer, ELISA reader, incubator, vortex mixer, timer, thermoshaker	Gauze, mechanical pipette, distilled water, trough, pipette tips
	Hepatitis C Virus	Hepatitis C anti-body-RDT	Complete HCV RDT kits	Centrifuge, timer	Blood lancet, vacutainer tubes, alcohol swabs, gauze, needles, strapping, buffer, disposable pipettes
		Hepatitis C virus anti-body test	Complete Anti-HCV Elisa Kits	ELISA washer, ELISA reader, pipettes, incubator, vortex tube mixer, timer	Gauze, mechanical pipette, distilled water, trough, pipette tips

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Hepatitis C virus	Hepatitis C nucleic acid amplification tests (NAATs) -	Complete nucleic acid extraction kits, complete HCV RT-PCR Kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel, and multichannel pipettes, autoclave, refrigerator and freezers, Biosafety Cabinet Class II	Powder-free gloves, lab coats, masks, needles, and syringes 1.5ml/2ml microcentrifuge tubes, gauze, sterile filtered pipette tips(10ul, 20ul, 50ul,100ul,200,1000ul), PCR strips with caps, PCR plate (0.1ml/02ml), PCR tubes(0.1ml/0.2ml), cold block, RNase away, DNase away, Falcon tubes (15 ml,50 ml,100 ml), adhesive seals, autoclavable biohazard bags, sharps container
	Human papillomavirus (HPV) Infection	HPV DNA testing for NAATs for cervical smears	Preservcyst solution, Machine-specific HPV kit: Machine-specific- HPV cartridges	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette	Machine-specific reagents, HPV self-collection kit, (swabs, Preservcyst solution, powder-free gloves, specimen bags, marker pens) HPV clinician-assisted collection kit (speculum, cervical swabs, powder-free gloves, marker pens, Preservcyst solution), Transfer pipettes, disinfectant, absorbent material, gloves, 50 ml conical centrifuge tubes.
	Hepatitis A	Hepatitis A rapid diagnostic test	Hepatitis A Virus antigens kits, HAV IgM/IgG kits	Centrifuge, timer	Blood lancet, Vacutainer tubes, alcohol swabs, gauze, needles, strapping, buffer, disposable pipettes
		Hepatitis A IgM/ IgG (ELISA)	Hepatitis A IgM/ IgG ELISA kits	ELISA washer, ELISA reader, ISA reader, multi and single-channel pipettes, incubator, vortex tube mixer, timer	Gauze, mechanical pipette, distilled water, trough, pipette tips
		NAAT for Hepatitis A Virus	Nucleic acid extraction kits, hepatitis A virus RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer Single-channel pipettes and	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul,200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1ml/02ml), PCR tubes(0.1ml/0.2ml), cold block, RNase away, DNase away, Falcon tubes(15ml,50ml,100ml),

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Hepatitis A	NAAT for Hepatitis A Virus		Multichannel pipettes Autoclave Refrigerator and Freezers	adhesive seals, autoclavable biohazard bags, autoclave tape
	Oral/genital herpes	Herpes simplex virus type 1 and type 2 (HSV-1 & HSV-2) NAAT	Herpes simplex virus (HSV-1/2), nucleic acid extraction kits, PCR kit	Nucleic acid extractor (semi-automated/fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, and multichannel pipettes, autoclave refrigerator and freezers	Powder-free gloves, lab coats, masks, 1.5 ml/ 2ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away falcon tubes (15 ml, 50 ml, 100 ml) adhesive seals, autoclavable biohazard bags
	Corona virus disease (COVID-19)	SARS-CoV-2 antigen test	SARS-CoV-2 Ag-test cassette with specimen collection swabs and buffer	Timer	Powder-free gloves, N95 respirators gowns, apron, face shield sterile synthetic specimen collection swabs, autoclavable biohazard bags
		SARS-CoV-2 NAAT	Complete nucleic acid extraction/purification kit with specific reagents such as Lysis reagent, binding reagent, and elution reagent SARS-Cov-2 detection kit includes: PCR detection reagents Controls (negative, Positive, and internal controls)	Nucleic acid extractor (semi-automated/fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, and multichannel pipettes, autoclave, water bath/heating block, refrigerators, and freezer (2, -8, -20, -80 °C)	Powder-free gloves, lab coats, masks, sterile synthetic specimen collection swabs, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags
		SARS CoV 2 genome sequencing	Nucleic acid extraction kits, RT-PCR kits, rapid barcoding Kits, library preparation Kits, storage kits	Sequencing platform, conventional PCR instrument, fluorimeter, centrifuge, vortex tube, mixer,	Powder-free gloves, lab coats, masks, 1.5 ml/0.2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps,

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Corona virus disease (COVID -19)	SARS CoV 2 genome sequencing		single-channel, and multichannel pipettes	PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml) adhesive seals, autoclavable biohazard bags
	Influenza	Influenza multiplex NAAT	Nucleic acid extraction kits including Lysis buffer Binding buffer wash buffer Elution buffer multiple RT-PCR kits including PCR detection reagents Controls (Negative, Positive, and Internal controls) Influenza subtyping panel including probes, primers enzyme, buffer, and nuclease-free water	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, biosafety cabinet class II microcentrifuge, vortex mixer, computer, single-channel pipettes, and multichannel pipettes, autoclaves, refrigerators, and freezers	Powder-free gloves, lab coats, masks, sterile synthetic specimen collection swabs, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
	Measles	Measles NAATs test	Nucleic acid extraction kits, measles virus PCR detection kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette, biosafety cabinet	PPE(Powder-free gloves, lab coats, masks, goggles, face shield Snap-front lab coat with cinch cuffs) Bleach 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tapes, sharps container
		Measles IgM/IgG ELISA test	Measles IgM and IgG ELISA kit	ELISA analyser, ELISA washer, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Rubella	Rubella IgM or IgG anti-body test	Rubella IgM and IgG ELISA kit	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes
	Mumps	Mumps IgM/ IgG ELISA test	Mumps IgG and IgM ELISA kits	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex tube mixer, timer, thermoshaker	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes
	Rotavi-rus	Rapid test for rotavirus	Rotavirus RDT kit	Timer	Applicator sticks, absorbent material, droppers, applicator sticks
		NAATs for rotavirus	Nucleic acid extraction kits, rotavirus PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler(PCR platform), PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette biosafety cabinet, refrigerators and freezers, autoclave	powder-free gloves, gown, masks Stool poly pots with a scoop, applicator sticks, absorbent material, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
	Ebola Virus Disease	NAAT for Ebola	Nucleic acid extraction kits Filovirus/Ebola virus RT-PCR kits	Real-time PCR instrument, vortex mixer, nucleic acid extractors where applicable centrifuge biosafety cabinet class III, pipettes	PPE (Nitrile powder-free gloves with long cuffs, Face masks, particulate-respirator, face shield, goggles, fluid-resistant apron, gown and coverall, Non-slip pattern boot) Powder-free gloves, lab coats, masks, Alcohol-based hand rubs, Triple packaging boxes, needles, and syringes, Vacutainer tubes sharps container boxes 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul)



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Ebola Virus Disease	NAAT for Ebola			PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
	Marburg virus disease	NAAT for Marburg virus	Nucleic acid extraction kit Filovirus/Marburg virus RT-PCR Kit	Nucleic acid extractor (semi-automated/fully automated), thermocycler (PCR platform), PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette, biosafety cabinet Class III, refrigerators and freezers, autoclave	PPE (Nitrile powder-free gloves with long cuffs, Face masks, particulate respirator, face shield, goggles, fluid resistant apron, gown and coverall, Non-slip pattern boot, shoe covers) Alcohol-based hand rubs Triple packaging boxes, needles, syringes, Vacutainer tubes, sharps container boxes 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
		Marburg Virus IgM-Capture ELISA	Human Marburg Virus IgM ELISA Kit	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate with cover foil, filtered sterile pipette tips, disposable tubes
	Dengue	RDTs for dengue	Complete dengue RDT kits as follows; dengue NS1 rapid test kit dengue IgG/ IgM rapid test kit dengue combo rapid test kit	Timer	Vacutainer tubes, gauze, disposable pipettes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Dengue	Dengue NAATs tests	Nucleic acid extraction kits, Dengue RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette, biosafety cabinet	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml, adhesive seals, autoclavable biohazard bags, autoclave tapes
		IgM, IgG ELISA for dengue	Human anti-dengue virus IgG/ IgM ELISA kits including sample diluent, stop solution, conjugate, substrate solution, positive control, negative control and cut-off control, deionized or freshly distilled water	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer	ELISA microplate, cover foil, filtered sterile pipette tips, disposable tubes
	Yellow fever	Yellow fever virus IgM/ IgG ELISA	Yellow fever virus IgM/IgG ELISA kits	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes
		NAAT for yellow fever virus	Yellow fever virus RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette, biosafety cabinet Class II	Powder-free gloves, gown, masks, face shield, goggles Needles and syringes, Vacutainer tubes 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	West Nile fever	NAAT for West Nile fever	Nucleic acid extraction kits, Dengue RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler (PCR platform), PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette biosafety cabinet, refrigerators and freezers, autoclave	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
		IgM, IgG ELISA for West Nile fever	West Nile IgG/ IgM ELISA kits including sample diluent, stop solution, enzyme conjugate, substrate solution, positive control, negative control and cut-off control, deionized or freshly distilled water	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes
	Zika Virus	IgM/IgG antibodies to Zika virus	Zika Virus IgG/ IgM ELISA Assay Kit	ELISA washer, ELISA reader multi and single-channel pipettes incubator vortex tube mixer timer thermoshaker	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes
		Zika virus nucleic acid amplification test (NAAT)	Nucleic acid extraction kit Zika Virus RT-PCR Kit	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette biosafety cabinet III, refrigerators and freezers, autoclave	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away Falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Rift valley fever	IgM/ IgG ELISA for RVF	RVF virus IgM/IgG ELISA kits	ELISA washer, ELISA reader multi and single-channel pipettes incubator vortex tube mixer timer thermoshaker	ELISA microplate cover foil filtered sterile pipette tips disposable tubes
		NAAT for RVF	Nucleic acid extraction kits/systems Complete rift valley fever virus RT-PCR kit consisting of PCR reagents and controls	Real-time PCR instruments nucleic acid extractors where applicable centrifuge vortex biosafety cabinet II, multi and single-channel pipettes	Tubes and racks, sterile filtered pipette tips, PCR reaction plate, PCR tubes, adhesive seals
	Crimean Congo haemorrhagic fever	NAAT for Crimean Congo haemorrhagic fever virus	Nucleic acid extraction kits Crimean Congo haemorrhagic fever virus RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler (PCR platform), PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette biosafety cabinet, refrigerators and freezers, autoclave, biosafety cabinet class III	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
		IgM/IgG ELISA for Crimean Congo	Human Crimean-Congo Hemorrhagic Fever Virus IgG/IgM(CCHF-IgG/IgM) ELISA Kit	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes
	Lassa fever	IgM, IgG ELISA for Lassa	Human Lassa Virus IgG (LV-IgG) ELISA Kit and Human Virus IgM (LV-IgM) ELISA Kit	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate with cover foil, filtered sterile pipette tips, disposable tubes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Lassa fever	NAAT for Lassa fever virus	Nucleic acid extraction kits Lassa fever virus RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler (PCR platform), PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette biosafety cabinet, refrigerators and freezers, autoclave, biosafety cabinet class III	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
	Chikungunya	IgG/IgM ELISA for Chikungunya	Anti-chikungunya virus IgM and IgG human ELISA kit	ELISA washer, ELISA reader, multi and single-channel pipettes, incubator, vortex mixer, timer, thermoshaker	ELISA microplate, cover foil, filtered sterile pipette tips disposable tubes
		NAAT for Chikungunya	Nucleic acid extraction kits/systems, Chikungunya RT-PCR kit consisting of PCR reagents, controls	Real-time PCR instruments, nucleic acid extractors where applicable, centrifuge vortex, biosafety cabinet, pipettes	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags, autoclave tape
	Mpox	Mpox Virus NAATs	Nucleic acid extraction kits Mpox virus RT-PCR kits including; PCR detection reagents Controls (negative, positive, and internal controls	Real-time PCR instrument, vortex mixer, nucleic acid extractors where applicable, centrifuge biosafety cabinet II, pipettes	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul) PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away, falcon tubes (15 ml, 50

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Virology	Disease-specific				
	Mpox	Mpox Virus NAATs			ml, 100 ml), adhesive seals, autoclavable biohazard bags, sterile synthetic specimen collection swabs
	Polio	Polio viral isolation in cell culture	Applicable cell lines	Cell culture biosafety cabinet, cell culture incubators, cell counter, inverted microscope, water bath, centrifuge, autoclave, cryostorage container	Cell culture vessels, centrifuge tubes, syringes and needles, waste containers, roller racks, pipettes
		NAATs for Polio virus	Nucleic acid extraction kits, poliovirus Real-time RT-PCR kits	Nucleic acid extractor (semi-automated/ fully automated), thermocycler, PCR workstation, microcentrifuge, vortex mixer, computer, single-channel pipettes, multichannel pipette biosafety cabinet, refrigerators and freezers, autoclave	Powder-free gloves, lab coats, masks, 1.5 ml/2 ml microcentrifuge tubes, gauze, sterile filtered pipette tips (10 ul, 20 ul, 50 ul, 100 ul, 200 ul, 1000 ul), PCR strips with caps, PCR plate (0.1 ml/0.2 ml), PCR tubes (0.1 ml/0.2 ml), cold block, RNase Away, DNase Away Falcon tubes (15 ml, 50 ml, 100 ml), adhesive seals, autoclavable biohazard bags
Mycology	General				
		Microscopy of skin scrapings	KOH, lactophenol cotton blue-	Incubator 20-30 °C, microscope	Slides, cover slip, mounting Needles
		Skin punch biopsy for skin diseases	KOH, lactophenol cotton blue-	Incubator 20-30 °C, microscope, biosafety cabinet	Slides, cover slip, mounting needles
		Fungal culture for skin diseases	Sabouraud's dextrose powder with chloramphenicol, lactophenol cotton blue	Incubator 20-30 °C, mass spectrometer, microscope, biosafety cabinet	Applicator sticks, petri dish, disinfectants, absorbent material, frosted slides, cryovials, N95, gloves, printing papers, biohazard bags, racks, measuring jars, beakers, disposable gown, internal thread, skirted 2ml cryovial tubes
	Disease-specific				
	Cryptococcal meningitis	Cryptococcal antigen (CrAg)	RDT kit	Timer	Test tubes, disinfectants, pipettes and pipette tips



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Mycology	Disease-specific				
	Pneumonia	Pneumocystis jirovecii nucleic acid test	PCR kit	Real-time PCR for pneumocystis	Centrifuge tubes waste containers, roller racks, pipettes
	Aspergillosis	Aspergillus IgG anti-body	RDT kit	Mixer, timer	Centrifuge tubes, waste containers, roller racks, pipettes
		Aspergillus antigen test	RDT kit	Mixer, timer	Centrifuge tubes, waste containers, roller racks, pipettes
		Culture for aspergillus	Sabouraud's dextrose powder with chloramphenicol, lactophenol cotton blue-cleared	Incubator 20-30 0c mass spectrometer, microscope, biosafety cabinet class II	Applicator sticks, petri dish, disinfectants, absorbent material, frosted slides, cryovials, N95, gloves, biohazard bags, racks, measuring jars, beakers
Parasitology	General				
		Stool concentration for ova/cyst (%)	10% buffered formalin, normal saline(0.85%), Lugols Iodine, eosin, absolute diethyl ether/ethyl acetate, 33% zinc solution of SG 1.18, saturated sodium chloride	Microscope, centrifuge, mortar, pestle, sieve, gauze, funnel, cylinders	Microscope slides (ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), coverslips (22x22mm), applicator sticks, filter papers, centrifuge tubes, stool poly pots with a scoop (wide-mouthed 30ml), gloves, scotch tape, fine tip marker pen, labels, MSDS, spill kits (biological and chemical)
	Disease-specific				
	Malaria	Malaria rapid tests	HRP2, PLDH, and PAN RDTs with sensitivity and specificity as guided by WHO characteristics, buffer, control materials	Timers	70% alcohol swabs, gauze, pasteur pipettes, tourniquets, gloves, retractable blood lancets, EDTA vacutainer tubes, bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical)
		Blood smear for light microscopy for malaria	Giemsa stain powder (absorption in methanol 647-653nm) absolute methanol AR (MW 32.04, grams/mol), glycerol (MW 92.09, RI 1.47399, SG 1.2636), pH 7.2 buffer tablets, distilled water, calibrants, immersion oil (RI 1.515, viscosity at 20 degrees 100-120mPas,	Air dryer, slide warmer, staining rack, binocular light microscope, tally counters, pH meter, timer, weighing scale, graduated measuring cylinders (100 and 1000 mls), slide drying rack	Microscope slides (Ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), spreaders, beads, lancets (G 25-28), 70% alcohol swabs, funnel, filter paper (grade 540/597 pore size 4-7 by 150-320mm, hardened cellulose), lens tissue (size 10 by 15cm, thickness 0.035-0.040mm, lens cleaning fluid

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Parasitology	Disease-specific				
	Malaria	Blood smear for light microscopy for malaria	xylene free), automatic pipette (1-10ul), potassium dihydrogen orthophosphate anhydrous 98%, sodium phosphate dibasic dihydrate		(PH 7-8), pasteur pipettes, slide folder, slide storage boxes, amber reagent bottle, slide mailers, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), yellow pipette tips, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, fine tip marker pen, labels, MSDS, spill kits (biological and chemical)
		NAATs for malaria	PCR machine, nucleic acid extraction kits, subtyping panel reagents including malaria probes, primers enzyme, buffer, and nuclease-free water	Real-time PCR instruments, nucleic acid extractors, where applicable centrifuge, vortex, biosafety cabinet, and pipettes	Powder-free gloves, tubes, and racks, sterile filtered pipette tips, PCR reaction plate, PCR tubes, adhesive seals, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), lancets, bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, fine tip marker pen, labels, MSDS, spill kits (biological and chemical)
		Genome sequencing for malaria	Nucleic acid extraction kits, subtyping panel reagents including malaria probes, primers enzyme, buffer, and nuclease-free water	Genomic sequencer, PCR machine, Real-time PCR instrument, vortex mixer, nucleic acid extractors, where applicable centrifuge, biosafety cabinet, pipettes	Powder-free gloves, tubes, and racks, sterile filtered pipette tips, PCR reaction plate, PCR tubes, adhesive seals, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), retractable blood lancets, bin liners (red, yellow, and black), waste bins, sharps containers, disposable lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical)
	Schistosomiasis	Stool Kato Katz test for schistosomiasis	Kato-set (template with hole, screen, nylon or plastic, plastic spatula), glycerol-malachite green/ glycerol-methylene blue solution	Microscope	Slides, gloves, glazed tile, stool poly pots with a scoop (30ml), bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical)

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Parasitology	Disease-specific				
	Schistosomiasis	Urine for Schistosoma haematobium	Not applicable	Microscope, centrifuge	Microscope slides (ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), coverslips (22x22mm), gloves, centrifuge tubes (conical bottom, tight waterproof screw-capped, 50mls), pasteur pipettes, urine container, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical)
		IgG/IgM ELISA for schistosomiasis	ELISA kit specific to schistosomiasis, control materials	ELISA washer and reader, multi and single-channel pipettes, incubator, vortex tube mixer, timer, thermoshaker refrigerator (0-8 degrees Celsius)	Gloves, ELISA microplate, cover foil, filtered sterile pipette tips, disposable tubes, bin liners (red, yellow, and black), waste bins, sharps containers, disposable lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical)
	African trypanosomiasis	Microscopic smear for African trypanosomiasis	Leishman powder (solubility 0.1% methanolic solution, blue colour with greenish fluorescence), methanol AR (MW 32.04 grams/mol), buffer tablets PH 7.2 immersion oil RI 1.515, automatic pipette (1-10ul), graduated measuring cylinders (100 and 1000mls), calibrants	Microscope, pH meter, timers	Microscope slides (ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), spreaders, beads, retractable blood lancets (G 25-28), 70% alcohol swabs, funnel, filter paper (grade 540, 597 pore size 4-7 by 150-320mm, hardened cellulose), lens tissue (size 10 by 15cm, thickness 0.035-0.040mm), yellow pipette tips, lens cleaning fluid (PH 7-8), pasteur pipettes, slide folder, slide storage boxes, amber reagent bottle, slide mailers, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), fine tip marker pen, labels, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical)

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Parasitology	Disease-specific				
	African trypanosomiasis	IgG/ IgM ELISA for African trypanosomiasis	Specific for test platform, control materials	Graduated pipettes, ELISA washer, and reader, multi and single-channel pipettes, incubator, vortex tube mixer, timer, thermoshaker refrigerator (0-8 degrees Celsius)	Gloves, ELISA microplate cover foil, filtered sterile pipette tips, disposable tubes, bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels
		Indirect-fluorescence antibody test for African trypanosomiasis	Fluorochrome dye specific to the test	Fluorescence microscope	Gloves, applicator sticks, microscope slides, cover slips, bin liners (red, yellow, and black), waste bins, sharps containers, disposable lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels
	Leishmaniasis	Smear microscopy-leishmaniasis	Leishman powder (solubility 0.1% methanolic solution, blue colour with greenish fluorescence), methanol AR (MW 32.04 grams/mol), buffer tablets PH 7.2, immersion oil RI 1.515, automatic pipette (1-10ul), graduated measuring cylinders (100 and 1000mls)	Microscope, centrifuge	Microscope slides (ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), spreaders, beads, retractable blood lancets (G 25-28), 70% alcohol swabs, funnel, filter paper (grade 540, 597 pore size 4-7 by 150-320mm, hardened cellulose), lens tissue (size 10 by 15cm, thickness 0.035-0.040mm), lens cleaning fluid (PH 7-8), pasteur pipettes, slide folder, slide storage boxes, amber reagent bottle, slide mailers, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), yellow pipette tips, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Parasitology	Disease-specific				
	Leishmaniasis	<b>IgM, IgG for ELISA leishmaniasis</b>	ELISA Kit comprising of coated wells, sample diluent, negative and positive control, conjugate, substrate diluent, substrate conjugate, wash fluid	ELISA washer and reader, multi and single-channel pipettes, incubator, vortex tube mixer, timer, thermoshaker refrigerator (0-8 degrees Celsius)	Gloves, ELISA microplate, cover foil filtered sterile pipette tips, disposable tubes, EDTA vacutainer tubes, lancets, bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels
		<b>Rapid tests for Leishmaniasis (recombinant k39 antigen test)</b>	Rapid test kit specific for the test with buffer and control materials	Timer	Pasteur pipettes, needles, 70% alcohol swabs, gauze, pipettes, tourniquet, gloves, lancets, bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, fine tip marker pen, labels, MSDS, spill kits (biological and chemical)
		<b>NAAT for leishmaniasis</b>	PCR machine, nucleic acid extraction kits, subtyping panel reagents including leishmaniasis probes, primers enzyme, buffer, nuclease-free water	Real-time PCR instruments, nucleic acid extractors where applicable centrifuge, vortex, biosafety cabinet, pipettes	Powder-free gloves, tubes, and racks, sterile filtered pipette tips, PCR reaction plate, PCR tubes, adhesive seals, bin liners (red, yellow, and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels
		<b>Direct fluorescence-leishmaniasis</b>	Fluorescent dye	Fluorescent microscope	Microscope slides, (ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), coverslips (22x22mm), applicator sticks, lancets, 70% alcohol swabs, funnel, filter paper, lens tissue, lens cleaning fluid, pasteur pipettes, slide folder, slide storage boxes, amber reagent bottle, slide mailers, vacutainer purple top, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Parasitology	Disease-specific				
	Lymphatic Filariasis	Rapid diagnostic test for filariasis	test strips, control materials, and buffer.	timers	lancets, micropipettes
		Wet preparation & staining	Giemsa stain powder (absorption in methanol 647-653nm) absolute methanol AR (MW 32.04, grams/mol), glycerol (MW 92.09, RI 1.47399, SG 1.2636), pH 7.2 buffer tablets, distilled water, calibrants, immersion oil (RI 1.515, viscosity at 20 degrees 100-120mPas, xylene free), automatic pipette (1-10ul), potassium dihydrogen orthophosphate anhydrous 98%, sodium phosphate dibasic dihydrate	Air dryer, slide warmer, staining rack, binocular light microscope, tally counters, pH meter, timer, weighing scale, graduated measuring cylinders (100 and 1000 mls), slide drying rack	Microscope slides (Ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), spreaders, beads, lancets (G 25-28), 70% alcohol swabs, funnel, filter paper (grade 540/597 pore size 4-7 by 150-320mm, hardened cellulose), lens tissue (size 10 by 15cm, thickness 0.035-0.040mm, lens cleaning fluid (PH 7-8), pasteur pipettes, slide folder, slide storage boxes, amber reagent bottle, slide mailers, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), yellow pipette tips, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, fine tip marker pen, labels, MSDS, spill kits (biological and chemical)
		NAATs for lymphatic filariasis	Nucleic acid extraction kits, subtyping panel reagents including leishmaniasis probes, primers enzyme, buffer, nuclease-free water	PCR machine, Real-time PCR instruments, nucleic acid extractors where applicable centrifuge, vortex, biosafety cabinet, pipettes	Powder-free gloves, tubes and racks, sterile filtered pipette tips, PCR reaction plate, PCR tubes, adhesive seals, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, MSDS, spill kits (biological and chemical), fine tip marker pen, labels
	Onchocerciasis	Skin snip biopsy	Normal saline (0.85%), Giemsa stain powder (absorption in methanol 647-653nm) absolute methanol AR (MW 32.04, grams/mol), glycerol (MW 92.09, RI 1.47399, SG 1.2636), pH 7.2 buffer tablets, distilled water, calibrants, immersion oil (RI 1.515, viscosity at 20 degrees 100-120mPas, xylene free), automatic	Centrifuge, Air dryer, slide warmer, staining rack, binocular light microscope, tally counters, pH meter, timer, weighing scale, graduated measuring cylinders (100 and 1000 mls), slide drying rack	Centrifuge tubes, forceps, Microscope slides (Ground edges, frosted one side, 74-76 x 22-25 mm, thickness 1-1.2 mm), spreaders, beads, lancets (G 25-28), 70% alcohol swabs, funnel, filter paper (grade 540/597 pore size 4-7 by 150-320mm, hardened cellulose), lens tissue (size 10 by 15cm, thickness 0.035-0.040mm, lens cleaning fluid (PH 7-8), pasteur pipettes,



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Parasitology	Disease-specific				
	Onchocerciasis	Skin snip biopsy	pipette (1-10ul), potassium dihydrogen orthophosphate anhydrous 98%, sodium phosphate dibasic dihydrate		slide folder, slide storage boxes, amber reagent bottle, slide mailers, EDTA vacutainer tubes (4mls, with EDTA anticoagulant), yellow pipette tips, bin liners (red, yellow and black), waste bins, sharps containers, lab coats, disinfectants, paper towels, fine tip marker pen, labels, MSDS, spill kits (biological and chemical)
Haematology	General				
		Hemoglobin (Hb)	Hb microcuvettes, strips, controls	Compact and light-weight portable haemoglobinometer with digital display, (to measure HB in the range of 0 -25g/dl), calibrator	Vacutainers, lancets, needles, pipettes, methylated spirit, cotton wool, micropipettes
		Full haemogram	Reagent packs as per equipment specifications, controls	Five-part and three-part fully automated heamatology analyzer, roller, calibrator	EDTA vacutainers, needles, methylated spirit, cotton wool
		D-dimer	Reagents as per equipment specifications, controls	Automated and point-of-care D-dimer analyser, calibrator	Citrated vacutainers, needles, cotton wool, micropipettes
		Transferrin, iron ferritin, and total iron binding capacity (TIBC)	Reagent as per equipment specifications, controls	Semi-automated and automated TIBC spectrophotometer, water bath, vortex machine, centrifuge, calibrator	Plain vacutainers, needles, methylated spirit, cotton wool, micropipettes
		Partial thromboplastin time (PTT), also known as activated partial thromboplastin time (APTT)	Reagent packs as per equipment specifications, controls	Fully automated and semi-automated coagulation analyzer, calibrator	Citrated vacutainer, needles, cotton wool, methylated spirit
		Peripheral blood film examination	Romanowsky stains, leishman, giemsa, methanol, glycerol, buffered water, controls	Microscope, differential count counter, water bath, weighing scale, pH meter, calibrator	EDTA vacutainers, needles, staining rack, slides, oil immersion
		Prothrombin time and international normalized ratio (PT/ INR)	Reagent packs as per equipment specifications, controls	Fully automated and semi-automated coagulation analyzer, calibrator	Vacutainers, needles, pipettes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Haematology	Disease-specific				
		<b>Specific factor assay (factors VII, VIII, IX)</b>	Reagent packs as per equipment specifications, controls	Fully automated and semi-automated coagulation analyzer, calibrator	Vacutainers, needles, pipettes
		<b>Coombs (direct/indirect)</b>	Anti-D anti-human globulin, O positive pooled cells, normal saline, controls	Microscope, incubator, water bath, centrifuge, calibrator	Vacutainers, needles, pipettes, test tubes, slides
		<b>ABO and rhesus factor grouping</b>	Grouping antisera, anti-human globulin, controls	Microscope, water bath, centrifuge, shaker, calibrator	Vacutainers, grouping tiles, slides, test tubes, needles, pipettes
		<b>Bone marrow aspirate (BMA)</b>	Romanowsky stains (wrights giemsa, leishman, may-grunwald), methanol, buffered water, controls	Microscope, weighing scale, water bath, pH meter, calibrator	Slides, immersion oil, staining racks, slide box
		<b>Reticulocyte count</b>	New methylene blue powder or bromocresol green powder, methanol immersion oil, controls	Microscope, differential count counter, weighing scale, calibrator	EDTA vacutainers, slides, pipettes
		<b>ESR</b>	No reagent required	Weistergren/wintrobe stand, automated ESR machine, timer, calibrator	EDTA vacutainers, suction pipette, Weistergren/wintrobe ESR tubes
	Disease-specific				
	<b>Sickle cell disease</b>	<b>Sickle cell testing</b>	Chemical test: Sodium metabisulphite, controls	Microscope, incubator, calibrator	EDTA vacutainers, slides, coverslips, test tube, paraffin wax
			Hb electrophoresis: Equipment-specific reagents, controls	Electrophoresis equipment, hardware, and software for visualization, calibrator	EDTA vacutainers, slides, cellulose acetate Paper
			Chromatography HPLC-specific reagents, controls	HPLC equipment, sickle cell detector, calibrator	Sickle cell testing consumables

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
<b>Blood transfusion and transplant services (For Donor &amp; Recipient)</b>	<b>General</b>				
		<b>Blood collection</b>	Not applicable	Blood and sample refrigerators (0-8 degrees Celsius), freezers for blood components (-80 to -20 degrees Celsius), platelet agitators, centrifuges, cold rooms Automated Apheretic Blood Component Machine (Automated Component Processing System specifications as per the equipment) Apheresis cassettes, Apheresis diluent, Automated plasma extractor, calibrator	Blood bags, donor couches, tourniquets, squeezer balls, alcohol swabs, cotton wool, gauze, scissors, blood strippers, color-coded bins and bin liners, sharp boxes, spill kits, disinfectant, donor questionnaires, pens, refreshments, computers, books, weighing machine, blood pressure machine, vacutainers [EDTA and plain], cool boxes, strapping, first aid kits, gloves, lab coats, printers, sample racks, blood lancets
		<b>Blood grouping -ABO &amp; Rh D</b>	1. Grouping antisera, anti-human globulin, controls	Microscope, water bath, centrifuge, shaker, calibrator	Vacutainers, grouping tiles, slides, test tubes, needles, pipettes, color-coded bins and liners, water bath, centrifuge, physiological saline
			2. Machine-specific Reagent packs, controls	Fully automated blood grouping analyzer, calibrator	Vacutainers, disinfectants, centrifuge, and other consumables as per equipment available
		<b>Full haemogram</b>	Machine-specific reagent packs, controls	Five-part and three-part fully automated heamatology analyzer, calibrator	Vacutainers, disinfectants, centrifuge, and other consumables as per equipment available
		<b>Antibody screening</b>	Machine-specific reagents pack, controls	Automated blood grouping analyzer, calibrator	Vacutainers, disinfectants, centrifuge, and other consumables as per equipment available
		<b>A &amp; B antibody titration</b>	Machine-specific reagents to the equipment, controls	Fully automated blood grouping analyzer, calibrator	Plate carrier for machine-specific, sample rack, 16 x small tube (13 mm); barcode +B for machine-specific, Pasteur pipettes (disposable), plastic sample racks, gauze, pipettes, tips
		<b>Haemoglobin estimation</b>	Copper Sulphate, controls	Heamoglobulinometer, calibrator	Blood lancets, alcohol swabs, cotton wool, safety boxes, color-coded bin, Micro cuvettes, and bin liners

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Blood transfusion and transplant services (For Donor & Recipient)	General				
		<b>NAATs for rare blood grouping</b>	<p><b>PROCLEIX ULTRIO ELITE</b>            5K IVD including the following: Box 1. Kit ultrio elite 2500 tests x 2 boxes            10 x 2.8 ml Internal Control Reagent, 10 x 13.4 ml Enzyme Reagent, 10 x 34.7 ml Probe Reagent, 10 x 26 ml Amplification Reagent            Box 2. Kit ultrio elite 5 tests x 1 box            20 x 161 ml target capture reagent            Box 3. Kit ultrio elite 2500 tests x 2 boxes            10 x 91 ml Selection Reagent            Box 4. Kit ultrio elite 5000 tests x 1 box            20 x 46 ml target enhancer            Box 5. Calibrators 1 x 1 box            90 x 2 ml C0 – Procleix Negative Calibrator, 75 x 2 ml C1 – Procleix HIV Positive Calibrator, 75 x 2 ml C2 – Procleix HCV Positive Calibrator, 75 x 2 ml C3 – Procleix HBV positive Calibrator            box 6. procleix ultrio elite assay discriminatory probe reagents x 1 box (procleix              HIV 2 x 14 ml d1, procleix HCV 2 x 14 ml d2, procleix HBV 2 x 14 ml d3</p> <p><b>PROCLEIX ASSAY FLUID</b>            1 x 2.9L wash solution, 1 x 260ml silicon oil, 1 x 1.4L buffer for deactivation fluid</p> <p><b>PROCLEIX AUTO DETECT, AS</b>            1x auto-detect 1.0 0.1% hydrogen peroxide solution and            1x auto-detect 2 1.6N sodium hydroxide</p>	Fully automated PCR, calibrator	Powder-free gloves, plastic sample racks, sterile filtered pipettes, adhesive seals, bin liners (red, black & yellow), sharps container, disinfectants, paper towels, fine tip marker pen, labels, personal protective equipment

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
<b>Blood transfusion and transplant services (For Donor &amp; Recipient)</b>	<b>General</b>				
		<b>NAATs for rare blood grouping</b>	104772-kit, multi-tube unit 10 kits/box 60 T-1000-b-lx 1000 uL DITI tip w/filter Cover, waste bin, panther Waste bag, kit, panther Advanced cleaning solution 255 ml Amp reagent spare caps (bag of 100) Enzyme reagent spare caps (bag of 100) TCR reagent spare caps (bags of 100) Spare caps, TER blood bank (ultrio elite) (bag of 100), controls		
		<b>Direct antiglobulin test (DAT), also known as direct Coombs test</b>	1. Anti-D anti-human globulin, O positive pooled cells, normal saline, controls	Microscope, incubator, water bath, centrifuge, calibrator	Vacutainers, needles, pipettes, test tubes, slides
			2. Reagent packs as per equipment specifications, controls	Automated blood grouping analyzer, calibrator	Vacutainers, disinfectants, centrifuge, and other consumables as per equipment available
		<b>Indirect antiglobulin test (IAT), also known as indirect Coombs test or red blood cell anti-body screen</b>	Anti D anti-human globulin, O positive pooled cells, normal saline, controls	Microscope, incubator, water bath, centrifuge, calibrator	Vacutainers, needles, pipettes, test tubes, slides
		<b>Coagulation tests</b>	Reagent packs as per equipment specifications, controls	Fully automated and semi-automated coagulation analyzer, calibrator	Vacutainers, needles, pipettes
	<b>Disease-specific</b>				
	<b>HIV</b>	<b>HIV 1 &amp; 2</b>	Reagents packs that are equipment-specific, controls	Fully automated TTI analyzer, samples, and reagents refrigerators [2-8 degrees celcius], calibrator	Vacutainer tubes, disinfectant, spill kits, pipettes, disposable tips, distilled water, gauze, gloves, lab coats, measuring cylinders [100ml,500ml, and 1000ml], and other consumables as per the available equipment

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
<b>Blood transfusion and transplant services (For Donor &amp; Recipient)</b>	<b>Disease-specific</b>				
	<b>Hepatitis B</b>	<b>HBsAg</b>	Reagents packs that are equipment-specific, controls	Fully automated TTI analyzer, samples, and reagents refrigerators [2-8 degrees celcius], calibrator	Vacutainer tubes, disinfectant, spill kits, pipettes, disposable tips, distilled water, gauze, gloves, lab coats, measuring cylinders [100ml,500ml, and 1000ml], and other consumables as per the available equipment
		<b>HBcAb</b>	Reagents packs that are equipment-specific, controls	Fully automated TTI analyzer, samples, and reagents refrigerators [2-8 degrees celcius], calibrator	Vacutainer tubes, disinfectant, spill kits, pipettes, disposable tips, distilled water, gauze, gloves, lab coats, measuring cylinders [100ml,500ml, and 1000ml], and other consumables as per the available equipment
	<b>Hepatitis C</b>	<b>HCV Ab</b>	Reagents packs that are equipment-specific, controls	Fully automated TTI analyzer, samples, and reagents refrigerators [2-8 degrees celcius], calibrator	Vacutainer tubes, disinfectant, spill kits, pipettes, disposable tips, distilled water, gauze, gloves, lab coats, measuring cylinders [100ml,500ml, and 1000ml], and other consumables as per the available equipment
	<b>Cyto-megalo-virus</b>	<b>Cytomeg- alovirus antibody test</b>	CMV IgM/IgG ELISA and CLIA kits Equipment-specific reagents, controls	Immunoanalysers, refrigerators [2-8 degrees celcius] and freezer [-20 to -80 degrees celcius], calibrator	Vacutainer tubes, needles, cotton wool, gauze, disinfectants (70% ethanol), elastic bands, and other consumables as per the available equipment
	<b>Epstein Barr Virus</b>	<b>Epstein Barr antibody test</b>	Anti-viral capsid antigen IgM/IgG kits, anti-early antigen IgG kits, EBV nuclear antigen kits, and other equipment-specific EBV testing kits Equipment-specific reagents, controls	Immunoanalysers, refrigerators [2-8 degrees celcius] and freezer [-20 to -80 degrees celcius], calibrator	Vacutainer tubes, needles, cotton wool, gauze, disinfectants (70% ethanol), elastic bands, and other consumables as per the available equipment
	<b>Syphilis</b>	<b>Syphilis – Treponema pallidum test</b>	Equipment-specific reagents packs, controls	Fully automated TTI analyzer, samples, and reagents refrigerators [2-8 degrees celcius], Reagents packs,	Vacutainer tubes, disinfectant, spill kits, pipettes, disposable tips, distilled water, gauze, gloves, lab coats, measuring cylinders [100ml,500ml, and 1000ml], and other consumables as per the available equipment



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Immunology	General	<b>Anti-cardiolipin antibody test</b>	Anti-cardiolipin kits	Immunology analyzers freezers (-80, -20 degrees Celsius) and refrigerators (0 to 8 degrees Celsius), single and multi-channel pipette	Vacutainer tubes, needles, cotton wool, gauze, reagent reservoirs, zip lock bags, paper towel, 70% ethanol, and other consumables as per the available equipment
		<b>Specific IgE</b>	Specific IgE test kits		
		<b>IgG, IgA, and IgM tests</b>	IgG, IgA, and IgM assay kits		
		<b>Antinuclear Antibodies (ANA)</b>	ANA ELISA kits		
			ANA indirect immunofluorescence assay kits, ELISA	Fluorescent microscope (manual process), immunofluorescence analyser (automated process), Incubator, single and multi-channel pipettors	Test tubes, staining dish, cover slips, squeeze wash bottles, and other consumables as per the available equipment
		<b>Anti-neutrophil cytoplasmic antibodies test (ANCA)</b>	Complete ANCA kits	Immunology analyzers, freezers (-80, -20 degrees Celsius) and refrigerators (0 to 8 degrees Celsius), single and multi-channel pipette, Immunoblots, Indirect immunofluorescence	Vacutainer tubes, needles, cotton wool, gauze, reagent reservoirs, zip lock bags, paper towel, 70% ethanol, and other consumables as per the available equipment
		<b>Extractable nuclear antigen antibodies (ENA ) panel</b>	ENA screen ELISA assay kits reagents as the available equipment		
		<b>Anti-cyclic citrullinated peptide test( Anti-CCP)</b>	Anti-CCP kits		
		<b>Anti-double-stranded (DS) DNA</b>	Anti-DS DNA ELISA assay kits reagents as the available equipment		
	Disease-specific				
	<b>Strep-tococcal infection</b>	<b>ASOT</b>	Antistreptolysin O latex test kit should include; latex reagent positive and negative controls	Timers, freezers, refrigerators, single, multichannel pipette	Agglutination slides, disposable stirring sticks
	<b>Arthritis</b>	<b>Rheumatoid factor (RF)</b>	RF test kits should include latex reagent, positive and negative controls		

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General				
		<b>Total cholesterol</b>	Total cholesterol reagent as per equipment specification, controls	Random access chemistry spectrophotometer, refractometer, centrifuge, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul, 100 - 1000ul, 1000 - 5000ul), calibrator	Red/yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (Low, normal, and high levels), timers, room temperature thermometers, min-max fridge/freezer, thermometers, butterfly needles
		<b>Low-Density Lipoprotein (LDL)</b>	LDL reagent as per equipment specification, controls		
		<b>High-Density Lipoprotein (HDL)</b>	HDL reagent as per equipment specification, controls		
		<b>Tri-glycerides</b>	Triglycerides reagent as per equipment specification, controls		
		<b>Troponin T/I</b>	Troponin T/I reagents as per equipment specification, controls	Immunoassay analyser, centrifuge, double glass door refrigerator (2 - 8°C) or freezer @ -20 or -80°C, water distiller Single-channel adjustable automatic pipettes (5 - 50ul, 100 - 1000ul & 1000 - 5000ul), calibrator	Vacutainer needles red/ yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, Contact activated prickers, centrifuge, serum cups, permanent marker pens, multi calibrator, internal control materials (Low, normal, and high levels), timers, reaction tubes, Pipette tips (5-200ul, 100-1000ul & 1000-5000ul), min-max thermometers, distilled water
		<b>CSF /urine protein (microalbumin) test</b>	CSF/urine protein reagent as per equipment specification, controls	Random access chemistry spectrophotometer, refractometer, double glass door refrigerator (2 - 8°C) or freezer @ -20 or -80°C, Water distiller Single-channel adjustable automatic pipettes (5 - 50ul, 100 - 1000ul & 1000 - 5000ul) , calibrator	Sterile container, centrifuge, permanent marker multi-calibrator, quality control materials (low, normal & high), tourniquet, waste bins (red, yellow & black), and their respective waste bin liners

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General				
		<b>Blood glucose</b>	Glucose reagent specific to equipment, controls	Random access automated chemistry analyser, centrifuge, refractometer, calibrator, Glucometers	Purple top or red top vacutainer, vacutainer needles, vacutainer holder, alcohol swabs dry cotton gauze pieces, permanent marker multi calibrator, quality control materials (low, normal & high), tourniquet, waste bins (red, yellow & black) and their respective waste bin liners, serum cups, Lancets
		<b>Urinalysis</b>	Urine dipstick, controls	Urine strip reader, calibrator, Automated urine analysis	Urine container, marker pen, wastebin, bin liner, Automated urine analyser
		<b>Blood Urea Nitrogen (BUN)</b>	BUN reagent as per equipment specification, controls	Random access automated spectrophotometer or refractometer, calibrator	Vacutainer needles red/ yellow (gel), top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), ) timers, room temperature thermometers, min-max fridge/freezer thermometers, butterfly needles, serum cups, safety box, pipette tips (5 - 200ul, 100 - 1000ul, 1000 - 5000ul), cotton gauze, cotton wool, ethanol, sodium hypochlorite
		<b>Creatinine</b>	Creatinine reagent as per equipment specification, controls		
		<b>Electrolytes (sodium, potassium, chloride, lithium, and bicarbonate)</b>	Electrolyte pack as per equipment specification, sodium conditioner, electrolyte cleaning fluid, internal control materials (low, normal & high), controls	Ion selective electrode (ISE) analyser or refractometer, water deionizer, centrifuge, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 – 1000ul, 1000 - 5000ul), calibrator	Single electrode pieces (sodium, potassium, chloride, lithium), red/yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, timers, room temperature thermometers, min-max fridge/freezer thermometers, butterfly needles, yellow, blue tips, and safety box

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General	<b>Magnesium</b>	Magnesium reagent as per equipment specification, controls	Random access automated spectrophotometer or refractometer double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator, ion selective electrode (ISE) analyser	Red/yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), timers room temperature thermometers, min-max fridge/freezer thermometers, butterfly needles automatic pipette tips (5 - 200ul, 100 - 1000ul 1000 - 5000ul)
		<b>Phosphorus</b>	phosphorus reagent as per equipment specifications, controls		
		<b>Total Calcium</b>	Total calcium reagent as per equipment specification, controls		
		<b>Ionized Calcium</b>	Ionized calcium reagent as per equipment specification, controls		
		<b>Vitamin B 12</b>	Urine strip reagent specific for methylmalonic acid (MMA) or holotranscobalamin (holoTC), calibrator	Urine dipstick, calibrator	Urine container, permanent marker pen, powder-free examination gloves
			Microparticle immunoassay reagents per equipment specification for serum holoTC, calibrator	Chemiluminescent or enzyme immunoassay analyser, centrifuge, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul, 100 - 1000ul; 1000 - 5000ul), calibrator	Red/yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), timers, pipette tips (5 200ul; 100 - 1000, 1000 - 50000ul
		<b>Vitamin D (25-OH)</b>	Microparticle immunoassay reagents as per equipment specification for serum, controls	Chemiluminescent or enzyme immunoassay analyser, calibrator	

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General	<b>Alanine aminotransferase (ALT)</b>	ALT reagent as per equipment specification, controls	Random access automated spectrophotometer, or refractometer, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator	Vacutainer holders, red/ yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal and high levels), timers, pipette tips (5 200ul; 100 - 1000, 1000 - 5000ul), clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite
		<b>Aspartate aminotransferase (AST)</b>	AST reagent as per equipment specification, controls		
		<b>Alkaline phosphatase (ALP)</b>	ALP reagent as per equipment specification, controls		
		<b>Gamma-glutamyl transferase (GGT)</b>	GGT reagent as per equipment specification, controls		
		<b>Total bilirubin</b>	Total bilirubin reagent as per equipment specification, controls		
		<b>Direct bilirubin</b>	Direct bilirubin reagent as per equipment specification, controls		
		<b>Albumin</b>	Albumin reagent as per equipment specification, controls		
		<b>Lipase or amylase</b>	Lipase/amylase reagent as per equipment specification, controls		
		<b>Total protein</b>	Total protein reagent as per equipment specification, controls		
		<b>Blood pH and gases</b>	BGA reagent pack, controls	Blood gas analyzer (BGA), double glass door refrigerator, calibrator	Lithium heparin additive vacutainers, vacutainer needles, safety boxes, color-coded bin liners, color-coded bins, vacutainer needle holders,
		<b>C-reactive protein (CRP)</b>	Serum, control samples	Enzyme immunoanalyzer, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator	Vacutainer holders, red/ yellow (gel) top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal and high levels), timers, pipette tips (5 200ul; 100 - 1000, 1000 - 5000ul), clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General	<b>Whole blood lactate</b>	BGA reagent pack or lactate oxidase test strip specific to the point of care device, control samples	BGA or point of care lactate analyser, calibrator	Lithium heparin vacutainers, vacutainer needles, safety box, color-coded bin liners, color-coded bins, vacutainer needle holders
		<b>Blood glucose</b>	Glucose reagent specific to equipment, control samples	Random access automated spectrophotometer, or refractometer, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator, Glucometers	red top or purple top vacutainers, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), timers, pipette tips (5 200ul; 100 - 1000, 1000 - 5000ul), clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite
		<b>Glucose-6-phosphate dehydrogenase (G6PD)</b>	G6PD reagent as per equipment specification, control samples		purple top (EDTA) vacutainer tubes, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), timers, pipette tips (5 200ul; 100 - 1000, 1000 - 5000ul), clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite
		<b>Procalcitonin</b>	Procalcitonin reagents specific to equipment, controls	Enzyme immunoassay analyser, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator	Automatic pipette tips (5 - 200ul, 100 - 1000ul), vacutainer tubes, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), timers, clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General				
		<b>Uric acid</b>	Uric acid reagent specific to equipment, controls	Random access automated spectrophotometer, or refractometer, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator	Internal quality control samples (low, normal, high) validated for specific equipment automatic pipette tips (5 - 200ul, 1000 - 51000ul), vacutainer tubes, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, timers, clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite
		<b>Ketones</b>	Urine dipstick, controls	Urine strip reader, calibrator, Glucometer with ketone strips	Boiling tubes; (pyrex material)
		<b>CSF /urine protein (microalbumin) test</b>	CSF/urine protein reagent as per equipment specification, controls	Random access automated spectrophotometer, or refractometer, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator	Clean and clear screw cap plastic specimen container, single-use pipette tips (5 - 200ul, 100 - 1000ul) safety box, timers, cotton gauze, paper towels, red color & yellow coded bins, red & yellow coded bin liners, powder-free gloves
		<b>Human chorionic gonadotropin (beta HCG)-pregnancy testing</b>	Single strip storage: (2 - 30°C); sensitivity of 25 mIU/ml HCG, controls	HCG test strip, calibrator	Urine container, marker pen, waste bin, bin liner
		<b>Human chorionic gonadotropin (beta HCG)- tumor marker</b>	Beta HCG reagent as per equipment specification, controls	Enzyme immunoassay analyser, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, centrifuge, single-channel adjustable automatic pipettes (5 - 50ul, 100 - 1000ul and 1000 - 5000ul), calibrator	Vacutainer needles red/ yellow (gel), top vacutainer, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, internal control materials (low, normal, and high levels), timers, pipette tips (5-200ul, 100-1000ul &

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	General				
		Human chorionic gonadotro-pin (beta HCG)-tumor marker			1000-5000ul), min-max thermometers, distilled water, powder-free gloves
		Thy-roid-stim-ulating hormone (TSH)	TSH reagent kit as per equipment specification, controls		
		Free T3	Free T3 reagent kit as per equipment specifications, controls		
		Free T4	Free T4 reagent kit as per equipment specifications, controls		
		Estradiol	Estradiol reagent as per equipment specification, controls		
		Folli-cle-stim-ulating hormone (FSH)	FSH reagent as per equipment specification, controls		
		Progester-one	Progesterone reagent specific to the equipment, controls		
		Prolactin	Prolactin reagent specific to the equipment, controls		
		Testoster-one	Testosterone reagents specific to the equipment, controls		
		Sex hor-mone-bind-ing globulin (SHBG)	SHBG reagent kit as per equipment specifications, controls		
		Cortisol (total)	Total cortisol reagent as per equipment specification, control samples		

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	Disease-specific				
	Diabetes mellitus	Blood glucose testing	Equipment-specific glucose strips, controls	Glucometer, calibrator	Alcohol swabs, dry cotton gauze pieces, contact-activated prickers, safety box,
		Glucose tolerance test for diabetes mellitus	Glucose Meter specific glucose strips, control	Glucometer, analytical weighing balance, calibrator	Contact-activated prickers, safety box, urine container, alcohol swabs, dry cotton gauze pieces, pure glucose powder, drinking water
			Urine Glucose, controls	Glucose dipstick, calibrator	Clear screw cap urine container, marker pen, color-coded waste bin, bin liner
		Glyco-genated hemoglobin (HbA1C) test for diabetes mellitus	HbA1c reagent as per equipment specification, controls	HbA1c analyzer, calibrator	EDTA tubes, Vacutainer needle, Vacutainer Needle holder, Alcohol swabs, Dry cotton gauze pieces, Automatic Pipette, Pipette tips, Safety box, Tourniquet
	Cancer	Faecal Immunochemical test	Test strip, controls	iFOB immunochemical analyzer, automated, calibrator	Stool cups, tissue papers, gauze, sodium hypochlorite, labels
		BCR-ABL for cancer	BCR-ABL PCR kits, controls	Thermocyclers, nucleic acid extractors, NAAT, centrifuges, calibrator	Vacutainer tubes, needles, syringes, gauze, sodium hypochlorite, labels, PPE
		Genetic testing for BRCA1 or BRCA2 mutation traits.	BRCA1 or BRCA2 PCR kits, controls	Digital PCR equipment, gene sequencing, microtome, calibrator	Vacutainer tubes, needles, syringes, gauze, sodium hypochlorite, labels, PPE
		Cancer antigen 15-3 (CA 15-3)	Equipment-specific CA 15-3 kit, controls	Enzyme immunoanalyser, centrifuge laboratory-type refrigerator, frost-free freezer (- 20 to -80°C), single-channel adjustable pipettes (5 -50ul, 100 - 1000ul, 1000 - 5000ul), calibrator	Red/yellow top vacutainer tubes, vacutainer needles, syringes, cotton gauze, sodium hypochlorite, labels, permanent marker pen, paper towels
		Cancer antigen protein 125 (CA 125)	CA 125 kit, controls		
		Serum prostate-specific antigen (PSA)	Equipment-specific free PSA reagent Kit, controls		
		Human chorionic gonadotropin (HCG)	Equipment-specific HCG Reagent kit, controls		

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	Disease-specific				
	Cancer	<b>Fecal occult blood (FOB)</b>	FOB kit, controls	Rapid kits, calibrator	Stool cups, tissue papers, gauze, sodium hypochlorite, labels, PPE,
		<b>Alpha-fetoprotein (AFP)</b>	Equipment-specific AFP reagent kit, controls	Enzyme immunoanalysers, centrifuge laboratory-type refrigerator, frost-free freezer (-20 to -80°C), single-channel adjustable pipettes (5 - 50ul, 100 - 1000ul, 1000 - 5000ul), calibrator	Red/yellow top vacutainer tubes, vacutainer needles, syringes, cotton gauze, sodium hypochlorite, labels, permanent marker pen, paper towels, powder-free gloves
		<b>Cancer antigen 19-9 (CA 19-9)</b>	Equipment-specific CA 19-9 reagent Kit, controls		
		<b>Carcinoembryonic antigen (CEA)</b>	Equipment-specific CEA reagent Kit, controls		
		<b>Calcitonin test</b>	Equipment-specific reagents, controls	Chemiluminescence analysers, calibrator	24-hour urine bags, urine tubes, sodium hydroxide, sodium hypochlorite, labels, PPEs, gloves, face masks, googles
		<b>B2-Microglobulin</b>	Microglobulin complete kit, controls		
		<b>Epidermal growth factor receptors (EGFR)</b>	Epidermal growth factor receptors (EGFR) PCR Kit, controls	Digital PCR equipment, calibrator	As per the equipment
		<b>KRAS mutation analysis test</b>	Equipment-specific reagents, controls	Thermocyclers/PCR machines, calibrator	Vacutainer tubes, needles, syringes, gauze, sodium hypochlorite, labels, PPEs
		<b>Lactate dehydrogenase (LDH)</b>	Equipment-specific LDH reagent Kit, controls	Random access automated spectrophotometer, or refractometer, double glass door refrigerators (2 - 8°C) or freezer @ -20 or -80°C, water distiller, single-channel adjustable automatic pipettes (5 - 50ul & 100 - 1000ul, 1000 - 5000ul), centrifuge, calibrator	Vacutainer tubes, needles, syringes, gauze, sodium hypochlorite, labels, PPE internal quality control samples (low, normal, high) validated for specific equipment, automatic pipette tips (5 - 200ul, 1000 - 51000ul), vacutainer tubes, vacutainer needles, vacutainer needle holders, contact activated prickers, serum cups, permanent marker pens, multi calibrator, timers, clear glass test tubes, sharps box, color-coded bins and bin liners, cotton gauze, alcohol swabs, gauge 21/23 surgical blades, sodium hypochlorite
		<b>Bence Jones proteins urine test</b>	Glacial acetic acid, controls	Bunsen burner	Deionized water equipment, COC HCL, pyrex glass tubes, thermometer, pyrex beaker, tube holder, urine containers, permanent marker pen, gloves, color-coded bin liners

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Clinical chemistry	Disease-specific				
	Cancer	Flow Cytometry Antibodies Panel	Complete flow cytometry antibodies kits, controls	Flow cytometers, calibrator	As per the equipment
		Basic panel For immune histochemical (IHC) testing for the diagnosis of cancer	As per the equipment and panel; Breast cancer antibody panel, lymphoma antibody panel, lung cancer antibody panel, and controls	Immunohistochemistry machine, calibrator	Tissue cassettes, grease-free pencils
Histopathology and cytopathology	General				
		Histopathology examination	Iliac crest aspiration needle, Bone marrow biopsy needles with specially sharpened cutting edges, and core securing devices	autostainer, tissue processors, grossing stations, microscope, whole slide image scanner, blunt obturator	Sterile gloves, forceps, scalpel, scissors, gauze, sterile specimen container, formalin, neutral buffered saline
			Automatic tissue processing: absolute alcohols, distilled water, xylene, paraffin wax pellets, buffered formal saline, tissue embedding-paraffin wax pellets, tissue floatation, and fishing out-distilled water,	Tissue processor, Embedding station, heat source, water bath, oven	Camel hair brush, microtome blades, frosted-end slides, charged slides, staining racks, forceps/applicator sticks, reagent buckets, glass / plastic /aluminum reagent containers, wax -bath tissue bucket, tissue base molds, thermometer, slide racks (heat resistant)
			Haematoxylin and eosin, xylene, absolute alcohol, hydrochloric acid, distilled water, Scott's tap water(bluing solutions), Harris hematoxylin, eosin absolute alcohol, glacial acetic acid,	dewaxing incubator, auto-stainer, and auto-mounting machine.	Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Giemsa staining- giemsa solution, phosphate buffer, glycerol, methanol, ethanol, xylene, glacial acetic acid	Dewaxing incubator	Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			ZN (Ziehl Neelsen)- sulphuric acid, carbol fuchsin solution, malachite green /methylene blue solution, phenol crystals, ethanol		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Histopathology and cytopathology	General	Histopathology examination	Gordon and Sweets'-potassium permanganate solution (acidified), oxalic acid, ferric chloride solution, ammonium iron iii sulphate solution, ammoniacal silver nitrate solution, formaldehyde solution, hexamine solution, gold chloride solution, sodium thiosulphate solution, nuclear fast red solution		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Gram stain-crystal violet solution, gram's iodine solution, neutral red / safranin solution, acid alcohol /acetone		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Grocott /Gomori- chromic acid (chromium trioxide) solution, silver nitrate solution, hexamine solution, borax solution, gold chloride solution, sodium metabisulphite, sodium thiosulphate, light green SF solution		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Manson fontana- silver nitrate solution, neutral red stain /safranin, gram's iodine solution, distilled water		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Martius scarlet blue -celestine blue B, martius yellow solution, brilliant crystal scarlet 6R, phosphotungstic solution, aniline soluble blue/ methylene blue, hydrochloric acid, absolute ethanol		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Oil red O, glycerin jelly, or aqueous mountant		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Periodic acid schiff-periodic acid solution schiff reagent, absolute alcohol, glacial acetic acid, diastase solution, xylene, DPX		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Histopathology and cytopathology	General				
		<b>Histopathology examination</b>	Perls' prussian blue-potassium ferrocyanide solution, hydrochloric acid		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
			Toluidine blue-toluidine blue solution, sodium chloride solution, distilled water, glacial acetic acid/hydrochloric acid		Coupling jars, measuring cylinders, weighing scale, dispensing bottles, forceps, slides and slide cover slips, DPX, distilled water
		<b>Immunohistochemistry (IHC)</b>	Absolute alcohols, distilled water, xylene, paraffin wax pellets, buffered formal saline, universal Immunohistochemistry kit.	Tissue processor, embedding station, microtome, water bath, automated Immunohistochemistry analyzer	Camel hair brush, microtome blades, frosted-end slides, charged slides, staining racks, forceps/applicator sticks, reagent buckets, glass / plastic /aluminum reagent containers, wax -bath tissue bucket, tissue base molds, thermometer, slide racks (heat resistant)
		<b>Cytopathology panel (smears, fine needle aspirates, fine cytology)</b>	Saccomano fixative, isopropanol plasma thromboplastin, absolute ethanol	Microscope, ultrasound machine, slide examination scanner	Coverslips, frost end microscope slides, staining jars grease free pencils 95% alcohol, medispread sheet, syringes, needles sterile gauze, local anesthesia spray
			Papanicolaou stain-isopropanol, xylene, absolute alcohol, Harris haematoxylin, glacial acetic acid, DPX, orange G solution, eosin azure 50, hydrochloric acid, bluing solutions, ammonia powder,	Microscope, autostainer, slide examination scanner	coverslips, frost-end microscope slides, staining jars, grease-free pencils
			Haematoxylin and eosin staining (haematoxylin solution), eosin solution, isopropanol, xylene, DPX	Microscope, autostainer, slide examination scanner	Coverslips, frost-end microscope slides, staining jars, grease-free pencils

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Histopathology and cytopathology	General				
		<b>Post-mortem examination</b>	Decal solutions -Nitric acid, formic acid) Fixative-10 % neutral buffered formal saline-Formalin, potassium dihydrogen orthophosphate, disodium hydrogen phosphate Haematoxylin and eosin: xylene, absolute alcohol, hydrochloric acid, distilled water, scott's tap water(bluing solutions), harris hematoxylin, eosin Y, Absolute alcohol, glacial acetic acid, Papanicolaou stain-isopropanol, xylene, absolute alcohol, harris haematoxylin, glacial acetic acid, DPX, orange G solution, eosin azure 50, hydrochloric acid, bluing solutions, ammonia powder, decal solutions -nitric acid, formic acid) fixative-10 % neutral buffered formal saline-formalin, potassium dihydrogen orthophosphate, disodium hydrogen phosphate, haematoxylin, and eosin, xylene, absolute alcohol, hydrochloric acid, distilled water, scott's tap water(bluing solutions), harris hematoxylin, eosin Y, absolute alcohol, glacial acetic acid, Papanicolaou stain-isopropanol, xylene, absolute alcohol, harris haematoxylin, glacial acetic acid, DPX, orange G solution, eosin azure 50, hydrochloric acid, bluing solutions, ammonia powder	Automatic tissue processor, embedding station, microtome, automatic stainers, auto-mounting station, slide examination scanner	Coverslips, frost end microscope slides, staining jars grease free pencils 95% alcohol, media sheet, syringes, needles sterile gauze, local anesthesia spray

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Histopathology and cytopathology	Disease specific				
	Cancer	VIA, VILI	Iodine, vinegar, Acetic acid	Visual inspection	Speculum, portable adjustable lamp, examination bed, cotton wool, a pair of tongs, PPE
		Pap smear	Pap stains complete package (absolute ethanol, haematoxylin, orange G, Eosin azure, xylene, isopropyl alcohol DPX.)	Microscope autostainers	Coverslips, frosted slides, gauze, grease-free pencil
		Fine needle aspirates (FNA)	Needles, syringes, surgical spirit, alcohol swabs, methanol, pap stains (absolute ethanol, haematoxylin, orange g, eosin azure, xylene, isopropyl alcohol dpx.) and other special stains- Giemsa, ZN, H&E, Gordon and sweets, gram stain, grocott/gomori, manson fontana), aspiration biopsy syringe gun, controls	Ultrasound equipment, microscope, autostainers, mammogram, microscope, whole slide scanner, calibrator	Coverslips, frosted slides, immersion oil, gauze, grease-free pencil, staining dish, racks
		Basic panel for immunohistochemical testing for the diagnosis of cancer	As per the equipment and panel; Breast cancer antibody panel, lymphoma antibody panel, lung cancer antibody panel, and controls	Immunohistochemistry machine, calibrator	Tissue cassettes, grease-free pencils
		Tissue and tissue sections archiving	N/A	N/A	Slide and blocks archival cabinets
Forensic toxicology	General				
		Drug analysis	Analytical grade- dichloromethane, ether, ethanol, n-hexane, HPLC grade acetonitrile, methylene chloride and methanol, ammonium hydroxide and acetic acid, ammonium hydroxide, and acetic acid, drug standards: (cocaine, heroin, methamphetamine, amphetamines, morphine, phencyclidine (PCP), methadone, oxycodone, lysergic acid diethylamide (LCD), marijuana)	Multi-drug test panel (rapid test kits), Ultra-violet-visible spectroscopy (UV-VIS), Fourier-transform infrared spectroscopy (FTIR), fourier-transform infrared spectroscopy (FTIR) spectroscopy, gas Chromatography – Mass Spectrometer (GCMS) carboxyhemoglobinometer	HPLC/GCMS vials (2mls), membrane filters, powder-free gloves, paper towels, solid phase extraction (SPE) cartridges, and powder-free gloves, for all forensic-related work, rapid immuno chromatographic strips

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Forensic toxicology	General				
		<b>Pesticide analysis</b>	Organophosphates, organochlorines, carbamates and thiocarbamates, and pyrethroids standards, analytical grade; n-hexane, methanol acetonitrile, Ethyl acetate, ammonium sulphate, magnesium sulphate ( $MgSO_4$ ), Sodium chloride (NaCl), Sodium sulphate ( $Na_2SO_4$ ), Sodium hydroxide (NaOH) aluminum oxide ( $Al_2O_3$ ), $C_{18}$ )	Ultraviolet-visible spectroscopy (UV-VIS), high-performance liquid chromatography (HPLC), liquid chromatography-mass spectrometry (LC-MS), liquid chromatography-tandem mass spectrometry (LC-MS-MS), gas chromatography-mass Spectrometry (GC-MS), microwave digester, reflux apparatus	solid phase extraction (SPE) cartridges, gas, nitrogen
		<b>Heavy metal analysis</b>	Mercury, lead, cadmium, chromium, arsenic, palladium, standards, nitric acid analytical grade	Atomic absorption spectroscopy (AAS) with flame, hydride, and graphite tube technique, Inductively coupled plasma mass spectrometry (ICP-MS)	Gas; helium, hydrogen, argon acetylene, and solid phase extraction (SPE) cartridges
		<b>Alcohol analysis</b>	Analytical grade isopropyl alcohol	Gas chromatography with headspace	Gas: helium, hydrogen
		<b>Carboxyhemoglobin/ Carbon-monoxide</b>	Palladium (II) chloride ( $PdCl_2$ ), hydrochloric acid (HCl), sulphuric acid ( $H_2SO_4$ ), magnesium Chloride ( $MgCl_2$ ), glacial acetic acid, lead acetate, potassium hydroxide	Conway diffusion method	N/A
Forensic Biology	General				
		<b>DNA analysis</b>	Identifier Plus Kit, Identifier direct, globalfiler PCR amplification kit, globalfiler express PCR amplification kit, Prep-n-Go buffer, yfiler plus amplification kit, quantifiler trio DNA quantification kit, genescan 600- LIZ dye Size standard genescan 500- LIZ dye size standard, prepfiler BTA forensic extraction kit prepfiler forensic extraction kit. Power plex 21 amplification kit, vesaplex amplification kit, power plex fusion	3500 genetic analyzer, rapid DNA analyzer, thermal PCR machine, DNA quantification machine, automated differential extractor fume hood	Plate retainer 3500XL Series, plate base 3500XL Series microAmp optical adhesive film, micro Amp optical 96 well reaction plates (20 plates/ box), septa for 3500/3500XL genetic analyser 96 well 3500XL, genetic analyser 24-capillary array (36cm), prepfiler Spin Tubes and filter columns ethylene oxide treated, thin-walled, frosted lid, RNase –free PCR tubes (0.2ml), septa for cathode buffer container, 3500 series genetic analysers, nuclease-

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Forensic Biology	General				
		<b>DNA analysis</b>	power quant kit, power plex Y23 kit, α – disodium naphthyl phosphate, PSA semiquant (P30), Diazo fast blue B (brentamine), chelex 100 resin, Zinc powder, Proteinase K, dithiolthreitol (DTT), powerPlex Fusion 6C DC2720, powerPlex fusion 6C DC2705 x 2 , powerPlex 18D DC1802 OR PowerPlex 21 DC8902 , powerPlex 18D DC1802 OR PowerPlex 21 DC8902, powerPlex Fusion 6C DC2720 , powerPlex Y23 DC2305 x 2 , powerPlex Y23 DC2320 , powerPlex Y23 DC2305 , powerPlex Y23 DC2320, 5C matrix kit DG4850 (Y23, 18D, 21) versaPlex™ 6C matrix standard DG4960, 6C matrix Kit DG4900 (fusion 6C), bone extraction Kit DC6051 PLUS DNA IQ for maxwell FSC AS1550 DNA IQ™ System DC6701 , casework extraction Kit PLUS DNA IQ For Maxwell FSC AS1550 DNA IQ™ System DC6701 , CW spin baskets AS8101 , PLUS V4745 ClickFit microtubes (100pk) powerquant system, -PQ5002 PLUS Powerquant® calibration Kit-DS1221, magneSil® paramagnetic Particles MD1441 α – disodium naphthyl phosphate, diazo fast blue B (brentamine) DS-33 matrix standard kit (dye set G5), DS-36 matrix standard kit (dye set J6), Internal Lane Standard 600 electrophoretic buffer (10X) with EDTA, conditioning reagent, 3500 series		Free Eppendorf tubes (0.5ml, 1.5ml), micropipette tips ( 2.5µl, 10µl,20µl, 100µl, 200µl, 1000µl), surgical blades, wooden sterilized swab sticks in plastic tubes

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Forensic Biology	General				
		<b>DNA analysis</b>	Performance optimized Polymer 4 (Pop4), Polymer POP 4 for 3500/3500XL genetic analysers, anode buffer 3500 XL series, cathode buffer 3500 XL series, Magnetic particles, spectral calibration matrix standard kits		
Food and water	General				
		<b>Food adulterants</b>	Methanol HPLC/GC grade, absolute ethanol, formalin, starch 500g, hydrogen peroxide, sulphuric acid 2.5 litres, sodium metabisulphite standard 500g, orthophosphoric acid 2.5litres, acetonitrile HPLC grade, potassium iodide 500g, quality control for methanol and ethanol, amyl alcohol	Gas chromatography with flame ionisation detector, pipettes (range 1.25ul-20ul, 5ul-50ul, 20ul-200ul, 1-5ml and 100ul-1000ul), conical flasks; 100ml, 250ml and 500ml, 2ml vials, high power liquid chromatography with diode array detector, shaker, sonicator, fourier transform near-infrared, butyrometer, gerber centrifuge with tubes, refractometer, calorimeter, 25ml and 50ml pycnometer with lid, glass separating funnel; 100ml and 250ml, watch glass, Aluminum dish, reflux apparatus, vacuum oven, Rotary evaporator	Membrane filters (0.45u,47mm), filter papers, paper towels, gloves, pipette tips; 10ul, 200ul, and 1000ul, Helium gas, Hydrogen gas



Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Food and water	General				
		<b>Food contaminants analysis</b>	Mercury standard, lead standard, arsenic standard, copper standard, methanol AR, methanol HPLC, aflatoxin in corn quality control material, total aflatoxin kits of 96 antibody-coated wells, fumonisin kits of 96 antibody-coated wells, aflatoxin B1 kits of 96 antibody-coated well, aflatoxin M1 kits of 96 antibody-coated well, acetonitrile HPLC grade, hexane HPLC, pesticide residue mixed standards and quality control for pesticide residue, sodium hydroxide pellets 500g, trifluoroacetic acid, sodium phosphate, immunoaffinity kit, nitric acid, silver nitrate, Cadmium standard, Arsenic standard	ELISA, atomic absorption spectrophotometer with flame, hydride vapour unit and mercury vapour unit, micropipette; 1.5ul-20ul, 5ul-50ul, 20ul-200ul, 100ul to 1000ul and 1-5ml, filtration water system, beaker 250ml, centrifuge, HPLC with fluorescence detector, analytical balance, shaker, multichannel pipettes (20ul-200ul), volumetric flasks (25ml, 50ml, 100ml and 250ml), C18 column, blenders, vortex mixer, measuring cylinders (25ml, 50ml and 100ml), ultrasonicators, heating blocks, crucibles, screw-capped amber glass bottle 100ml, amber coloured volumetric flask 10 and 100ml, HPLC-MS/MS using reverse phase C18 column, UV/Vis spectrophotometer, vacuum concentrator, open-air oven, fume hood, Arsenic lamp, Cadmium lamp	Paper towels, pipette tips (10ul, 200ul and 1000ul, and 5000ul), membrane filters 0.45ul, filter papers, disposable gloves, solid phase extraction cartridges, quechers, hydrogen gas, acetylene gas, helium gas, argon gas, solid phase extraction (SPE) cartridges, quechers, pipette tips (10ul, 200ul, 1ml and 5ml)

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Food and water	General	<b>Food additives</b>	Sorbic acid standards, benzoic acid standards, caffeine standard, sodium metabisulphite standard 500g, orthophosphoric acid 2.5litres, acetonitrile HPLC grade, methanol HPLC grade, calcium propionate standard	HPLC with UV/vis detector, C18 column, analytical balance, vortex mixer, and sonicator, ultra-high performance liquid chromatography-tandem mass spectroscopy, pipette 20-200ul	2ml vials, membrane filters 0.45um, syringes compatible with 0.45um membrane filters, disposable gloves, pipette tips 200ul
		<b>Bacterial food analysis</b>	Dehydrated culture media powder of 500g include MacConkey broth, alkaline peptone water, plate count agar, MacConkey agar, xylose lysine deoxycholate agar, thiosulphate citrate bile salts agar, buffered peptone water, selenite cystine, Kovacs indole reagent 100mls bottle, rappaport vassiliadis reagent, 3% potassium hydroxide, fresh frozen human plasma, triple sugar iron agar, sulphur indole motility agar, sterile defibrinated sheep blood 25mls, blood infusion agar, robertson cooked meat medium, Salmonella typing antisera: Salmonella O Group A, salmonella O group B, salmonella O group C1, salmonella O group C2, salmonella O group D, salmonella O group E, Salmonella typhi Vi, salmonella H polyvalent phases 1 & 2, salmonella H polyvalent phase 2, salmonella a-H (S. paratyphi A), salmonella b-H (S.	Autoclave, fridge, water bath, incubators: 35-37 degrees Celsius, 43 degrees Celsius, 30 degrees Celsius, bijou bottles, McCartney bottles, universal bottles, Petri dishes, hot air oven, weighing balance with 0.0001 resolution	Gloves, pipette tips, inoculating loops, gauze

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Food and water	General				
		<b>Bacterial food analysis</b>	<p>paratyphi B), salmonella c-H (S. paratyphi C), salmonella d-H (S. typhi), salmonella rapid diagnostic sera (RDS1), salmonella rapid diagnostic sera (RDS2), salmonella rapid diagnostic sera (RDS3), salmonella a-H (S. paratyphi A)- vials of 2-3mls, salmonella b-H (S. paratyphi B)- vials of 2-3mls, salmonella c-H (S. paratyphi C)- vials of 2-3mls, salmonella d-H (S. typhi)- vials of 2-3mls, salmonella rapid diagnostic sera (RDS1)- vials of 2-3mls, salmonella rapid diagnostic sera (RDS2) - vials of 2-3mls, salmonella rapid diagnostic sera (RDS3) - vials of 2-3mls</p> <p>Shigella typing sera: shigella poly group A, shigella poly group B, shigella poly group C, shigella poly group A- vials of 2-3mls, shigella poly group B- vials of 2-3mls, shigella poly group C- vials of 2-3mls, shigella poly group D- vials of 2-3mls</p> <p>Cholera typing sera: Vibrio cholerae polyvalent- vials of 2-3mls, O1- Vials of 2-3mls, Vibrio cholerae serotype inaba- vials of 2-3mls, Vibrio cholerae serotype Ogawa- vials of 2-3mls, oxidase test paper strips</p>		

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Food and water	General				
		<b>Micronutrients analysis</b>	Hexane, absolute ethanol, ascorbic acid, retinyl palmitate, retinol, sodium hydrochloride, potassium hydrochloride, dichloromethane 2.5litres, iodine certified reference material, potassium iodate, potassium iodide, potassium dichromate, sulphuric acid, starch, nitric acid, iron standard, zinc standard, diethyl ether, petroleum ether, methanol HPLC grade, tetrahydrofuran, pyrogalllic acid, acetic acid, 2 propanol, Zinc and iron quality control material with a certificate of analysis, acetonitrile HPLC grade	HPLC with diode array detector, UV/VIS spectrophotometer, irradiation chamber, beakers, vortex mixer, graduated pipettes (1,2,3 and 8 ml) quartz cuvettes for spectrophotometer, automatic burettes, dispensers, atomic absorption spectrophotometer (AAS) with flame, hydride vapour unit and mercury vapour unit, muffle furnace, inductively coupled plasma mass spectrometry (ICP-MS), crucibles, funnels, volumetric flasks, 100ml volumetric flasks, 5ml vials, vacuum concentrator, erlenmeyer flasks, hot plate, microwave digester, muffle furnace, fourier transform infrared spectroscopy (FTIR), top pan balance, Vacuum Rotary evaporator	Paper towels, pasteur pipettes, pipette tips; 200ul and 1000ul acetylene gas and argon gas, disposable gloves, extraction thimbles, nitrogen gas, acetylene gas, argon gas, 2ml vials, solid phase extraction (SPE) cartridges, weighing paper

Discipline	Test category	In vitro diagnostic test	Reagents and general specifications	Test equipment	Consumables
Food and water	General				
		<b>Water analysis (bacterial &amp; chemical analysis)</b>	Copper, lead, zinc, iron, magnesium, calcium, sodium, fluoride, manganese, chloride, sulphates, nitrates, chromium, aluminium, cadmium, arsenic, cadmium, mercury, selenium, nickel, barium, boron, reagents for organic contaminants analysis, (all the reagents shall be compatible with DR6000 water testing spectrophotometer equipment) Bacteriological water testing: chromogenic coliform agar powder 100gm, 100gm, sterile distilled water	Water testing spectrophotometer, turbidity meter, pH meter, beakers, pump, glass bottles and autoclaves, membrane filtration system, atomic absorption spectrophotometer (AAS), 10ml square cuvette and 25ml round cuvette (compatible to DR6000 water testing spectrophotometer), refrigerator and freezer, fume hood	Paper towels, disposable gloves, filter papers, Petri dishes, methylated spirit, and membrane filters.







## 4.0 Funding and declaration of interests

The KEDL development process was funded by the Ministry of Health and FIND with CHAI being the implementation partner. FIND did not play a role in the design and development of the KEDL but provided guidance when requested.

All KEDL development participants completed and signed conflict of interest forms. No conflicts of interests were declared by the secretariat, TWG and evidence review team.

## 5.0 Accessing the specifications guide

The specifications for the Kenya EDL 2023 can be accessed through:

1. The MOH website (<https://www.health.go.ke/resources/guidelines-and-manuals/>),
2. The MOH guideline, standards and policies portal (<http://guidelines.health.go.ke/#/results/Health%20Infrastructure%20Norms%20and%20Standards>)
3. Contacting the NPHLS using the following email address; [info@nphl.go.ke](mailto:info@nphl.go.ke)

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# Annexes

## Annex 1: List of participants

### a) The KEDL Technical Working Group

Name	Designation	Location	Institution
<b>Secretariat</b>			
<b>Peter Lokamar</b>	Head- Division of National Laboratory Services	National Government	NPHLS
<b>Dr. Tom Menge</b>	Head, Directorate of Health Products and Technologies	National Government	DHPT
<b>Dr. Nancy Njeru</b>	Deputy Director of Pharmaceutical Services	National Government	DHPT
<b>Dr. Eunice Gathitu</b>	Deputy Director of Pharmaceutical Services	National Government	DHPT
<b>Richard Gatukui</b>	Pharmaceutical Technologist	National Government	DHPT
<b>Dr. Susan Njogo</b>	Pharmacist	National Government	DHPT/Africa Resource Centre
<b>TWG</b>			
<b>Esther Sigilai</b>	Deputy Director Medical Laboratory Services	National Government	NPHLS - National Cancer Reference Laboratory
<b>Stephen Kipkerich</b>	Principal Medical Laboratory Technologist	National Government	NPHLS
<b>Grace Bartonjo*</b>	Principal Medical Laboratory Technologist	National Government	NPHLS
<b>Christine Karimi Yegon</b>	Senior Medical Laboratory Technologist	National Government	Kenya Tissue and Transplant Authority
<b>Florence Chepyegon</b>	Director-laboratory and pathology services	Uasin Gishu County	Moi Teaching and Referral Hospital
<b>Likama Backson</b>	County Neglected Tropical Diseases Coordinator	Kajiado County	Kajiado County Referral Hospital
<b>Everlyne Macharia</b>	County Medical Laboratory Coordinator	Nyandarua County	County Health Management Team
<b>Suleiman Thani</b>	County Medical Laboratory Coordinator	Mombasa County	County Health Management Team
<b>Marebe Njeru</b>	County Medical Laboratory Coordinator	Nairobi County	County Health Management Team
<b>Alice Nataba</b>	County Medical Laboratory Coordinator	Turkana County	County Health Management Team
<b>Emilly Atieno</b>	County Medical Laboratory Coordinator	Kakamega County	County Health Management Team
<b>Joan Samia</b>	Deputy County Medical Laboratory Coordinator	Vihiga County	Vihiga County Referral Hospital
<b>Simon Waweru</b>	Sub-county Medical Laboratory Coordinator	Laikipia County	Rumuruti Sub county Hospital
<b>Joshua N. Muiruri</b>	Sub-County Medical Laboratory Coordinator	Nyeri County	Nyeri Central Sub County
<b>Stephen Ntuara</b>	Laboratory Manager	National Government	National Spinal Injury Referral Hospital
<b>Julius Okuku</b>	Laboratory Manager	Kisumu County	Muhoroni County Hospital
<b>Jacinta Nduku Sila</b>	Laboratory manager	Machakos County	Masii Health Centre
<b>Franklin Okemwa</b>	Laboratory Manager	Kajiado County	Namanga Health Center

Name	Designation	Location	Institution
<b>Secretariat</b>			
<b>Ronald Juma</b>	Deputy Laboratory Manager	Kisii County	Kisii County Referral hospital
<b>Esther Ngata</b>	Microbiology coordinator	Nairobi County	Aga Khan University Hospital
<b>Mellap Wanyonyi</b>	Medical Laboratory Officer	National Government	NPHLS- Virology Reference Laboratory
<b>Purity Kimathi</b>	Medical Laboratory Officer	National Government	Kenya Medical Laboratory Technicians and Technologists Board
<b>Alex Nyabuti</b>	Medical Laboratory Officer	National Government	NPHLS-National Cancer Reference Laboratory
<b>George Muchiri</b>	Senior Medical Laboratory Technologist	National Government	NPHLS-National Microbiology Reference Lab
<b>Nelly Mukiri</b>	Senior Medical Laboratory Technologist	National Government	NPHLS -National TB Reference Laboratory
<b>Francis Macharia</b>	Medical Laboratory Technologist	Murang'a County	Nyakianga Health Centre
<b>Alfred Mutu Gitau</b>	Deputy Chief Laboratory Technologist	National Government	Kenyatta National Hospital
<b>Douglas Kipchumba Keter</b>	Laboratory Technologist	National Government	Government Chemist Department
<b>Dorothy Murei</b>	Laboratory Technologist	Uasin Gishu County	Sugoi Dispensary
<b>Susan Wanjau</b>	Medical Laboratory Technologist	National Government	Kenya Tissue Transplant Authority
<b>Mary Mbugua</b>	Medical Laboratory Technologist	National Government	NPHLS - National Tuberculosis Reference Laboratory
<b>Dr. Grace Midigo</b>	Pathologist	National Government	Division of forensic and Pathology Services
<b>Dr. Dorothy Njeru</b>	Pathologist	National Government	Division of Forensic and Pathology Services
<b>Dr. Noelle Orata</b>	Pathologist	Nairobi County	Kenya Association of Clinical Pathologists
<b>Hashimmy Noor Hussein</b>	County Child and Neonatal Health Coordinator	Garissa County	County Health Management Team
<b>Maureen Peresian</b>	Clinical Officer	Kajiado County	Kajiado County Referral Hospital
<b>Susan Ndimi</b>	Nursing Officer	Kiambu County	Kiambu County Referral Hospital
<b>Samuel Justus Emeje</b>	Supply Chain Lead	Busia County	County Health Products and Technologies Unit
<b>Rose Gichana</b>	County Malaria Quality Officer	Mombasa County	County Health Management Team
<b>Caroline Kasera</b>	Laboratory Specialist	National Government	KEMSA
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<b>Lisa Were</b>	Consultant Team	Kisumu County	KEMRI-Centre for Global Health Research
<b>Jenifer Otieno</b>	Consultant Team	Kisumu County	KEMRI-Centre for Global Health Research
<b>Caleb Sagam</b>	Consultant Team	Kisumu County	KEMRI-Centre for Global Health Research
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<b>Cynthia Odhiambo</b>	Program Analyst	Kenya	Clinton Health Access Initiative
<b>Tessie Akinyi</b>	Diagnostics Coordinator	Kenya	Clinton Health Access Initiative
<b>*Deceased</b>			

## b) List of Reviewers

No.	Name	Organization/Affiliation
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2	Felix Bahati	KEMRI Wellcome Trust Nairobi KEMRI – Center for Disease Control & Prevention (CDC), Kisumu
3	Dr. Collins Otieno Odhiambo	Project Lead, African Society for Laboratory Medicine
4	Prof. Collins Ouma	Maseno University
5	Prof. Emily Rogena	Kenya Association of Clinical Pathologists
6	Prof. Geoffrey Omuse	Kenya Association of Clinical Pathologists
7	Dr. Alice Kanyua	Kenya Association of Clinical Pathologists
8	Dr. Valerie Magutu	Kenya Association of Clinical Pathologists
9	Dr. Anne Barasa	Kenya Association of Clinical Pathologists
10	Dr. Daniel Maina	Kenya Association of Clinical Pathologists
11	Dr. Brenda Gicheru	Kenya Association of Clinical Pathologists
12	Lucy Hattingh	Consultant, FIND
Other contributors		
1	Dr. Mary Nyangasi	Ministry of Health, Head, National Cancer Control Program
2	Dr. David Murage	Ministry of Health, National Cancer Control Program
3	Dr. Julia Muthua	Ministry of Health, National Cancer Control Program
4	Dr. Richard Njoroge	Pathologist, Ministry of Health/National Oncology Reference Laboratory
5	Dr. Shaheen Sayed	Pathologist, Aga Khan University Hospital
6	Dr. Steven Mutiso	Ministry of Health, Division on Non-Communicable Diseases
7	Dr. Valerian Mwenda	PATH



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