NATIONAL HEALTH LABORATORY SERVICE

ANNUAL PERFORMANCE PLAN

Fiscal Year 2023-2024

Date of Tabling: March 2023

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List of abbreviations

AAR	Academic Affairs and Research
AARQA	Academic Affairs, Research and Quality Assurance
AFS	Annual Financial Statement
AI	Artificial Intelligence
AIDS	Acquired Immune Deficiency Syndrome
API	Application Programming Interface
APP	Annual Performance Plan
ART	Antiretroviral Therapy
ASLM	African Society for Laboratory Medicine
AUDA-NEPAD	African Union Development Agency of the New Partnership for Africa's Development
BAC	Benefits Advisory Committee
BIU	Business Intelligence Unit
BLRF	Bargaining and Labour Relations Forum
BSL	Bio-Safety Level
CD4	CD4 Lymphocytes (Immune-level indicator)
CDC	Centers for Disease Control and Prevention
CDW	Corporate Data Warehouse
CED	Centre for Enteric Diseases
CEO	Chief Executive Officer
CEZPD	Centre for Emerging Zoonotic and Parasitic Diseases
CHAI	Clinton Health Access Initiative
CHARM	Centre for Hospital Infections and Antimicrobial Resistance
CMSA	Colleges of Medicine of South Africa
CRDM	Centre for Respiratory Diseases and Meningitis
CST	Community Screening and Testing
CTB	Centre for Tuberculosis
CU	Comprehensive University
DEL	Department of Employment and Labour
DHET	Department of Higher Education and Training
DMP	Diagnostic Media Products
DMT2	Diabetes Mellitus Type 2
DoH	Department of Health
DP	Digital Pathology
DRTB	Drug-resistant TB
DSI	Department of Science and Innovation
EAP	Employee Assistance Programme
EID	Emerging Infectious Diseases
EIOS	Epidemic Intelligence from Open Sources

EOC	Emergency Operations Centre
EXCO	Executive Committee
FCL	Forensic Chemistry Laboratory
FETP	Field Epidemiology Training Programme
FPS	Forensic Pathology Services
FMPPI	Framework for Managing Programme Performance Information
GRAP	Generally Recognised Accounting Practice
GWME	Government-Wide Monitoring and Evaluation
HIV	Human Immunodeficiency Virus
HPCSA	Health Professions Council of South Africa
HPV	Human Papilloma Virus
HR	Human Resources
ICT	Information and Communication Technology
IgG	Immunoglobulin G
IMT	Incident Management Team
IP	Intellectual Property
ISO	International Organisation for Standards
LIS	Laboratory Information System
MBOD	Medical Bureau for Occupational Diseases
MPLS	Multiprotocol Label Switching
MTEF	Medium-term Expenditure Framework
MTSF	Medium-term Strategic Framework
NAPHISA	National Public Health Institute of South Africa
NCD	Noncommunicable Diseases
NCR	National Cancer Registry
NDoH	National Department of Health
NDP	National Development Plan
NEDLAC	National Economic Development and Labour Council
NGO	Non-Governmental Organisation
NGS-SA	Network for Genomic Surveillance South Africa
NHA	National Health Act
NHI	National Health Insurance
NHLS	National Health Laboratory Service
NICD	National Institute for Communicable Diseases
NIOH	National Institute for Occupational Health
NMC	Notifiable Medical Conditions
NPA	National Prosecuting Authority
NPP	National Priorities Programmes
NSP	National Strategic Plan
OEHS	Occupational and Environmental Health and Safety
OHASIS	Occupational Health and Safety Information System

OHS	Occupational Health and Safety
OHSS	Occupational Health Surveillance System
OPCO	Operations Management Committee
PATHAUT	Pathology Disease Surveillance Report
PAIA	Promotion of Access to Information Act
PCR	Polymerase Chain Reaction
PET	Provincial Epidemiology Team
PEPFAR	President's Emergency Plan for AIDS Relief
PFMA	Public Finance Management Act
PIVOTAL	Professional, Vocational, Technical and Academic Learning
PLWHIV	People Living with Human Immunodeficiency Virus
QMS	Quality Management System
POCT	Point-of-care Testing
POPI	Protection of Personal Information
PPE	Personal Protective Equipment
PTS	Proficiency Testing Scheme
PUI	Persons under Investigation
QA	Quality Assurance
R&D	Research and Development
RFQ	Request for Qoutation
SANAC	South African National AIDS Council
SADC	Southern African Development Community
SAHPRA	South African Health Products Regulatory Authority
SANAS	South African National Accreditation System
SAMA	South African Medical Association
SAMRC	South African Medical Research Council
SARS-CoV2	Severe Acute Respiratory Syndrome Coronavirus-2
SAPS	South African Police Service
SAVP	South African Vaccine Producers
SDG	Sustainable Development Goals
SHE	Safety, Health, and Environment
SLMTA	Strengthening Laboratory Management Toward Accreditation
Stats SA	Statistics South Africa
STI	Sexually Transmitted Infections
SWOT	Strengths, Weaknesses, Opportunities and Threats
TAT	Turnaround Time
TB	Tuberculosis
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TTR	Teaching, Training and Research
UNAIDS	Joint United Nations Programme on HIV and AIDS
UoT	University of Technology

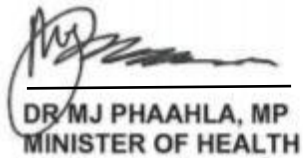
WHO	World Health Organization
WRC	Water Research Commission
WSP	Workplace Skills Plan

STATEMENT BY THE MINISTER OF HEALTH

The National Health Laboratory Service (NHLS) 2023/24 Annual Performance Plan (APP) is drawn from the 2020/21 - 2024/25 Strategic Plan. This APP takes into account all the relevant policies, legislation and other mandates the NHLS.

The APP accurately reflects the strategic goals and objectives which the National Health Laboratory Service will endeavour to achieve over the period 2023 - 2024.

I hereby endorse this NHLS APP developed by the Board of the NHLS under the guidance of Professor Eric Buch, Chair of the NHLS Board and Dr Karmani Chetty, NHLS Chief Executive Officer.



DR MJ PHAAHLA, MP
MINISTER OF HEALTH
DATE: 16/03/2023

STATEMENT BY THE CHAIRPERSON OF THE NHLS

The 2023/24 Annual Performance Plan for the National Health Laboratory Service (NHLS) outlines goals and strategies to achieve its mandate: provision of cost-effective and efficient health laboratory services to all public sector healthcare providers; supporting and conducting health research; and provision of training for health science education.

The NHLS plays a critical role in providing pathology services to approximately 80% of the South African population. The laboratory service provided by the NHLS is integral to the diagnosis of diseases. About 70% of the clinical decisions and patient diagnoses are linked to pathology and laboratory services.

This Annual Performance Plan paves the way for NHLS to enhance its service delivery ability, considering challenges related to both external and internal factors; and streamlining and implementing an efficient and cost-effective organisational structure.

It is also important to note that this APP assumes that NICD and NIOH remain in the NHLS for the entire fiscal year 2023/2024. If all sections of the NAPHISA Bill are proclaimed, the NHLS will revise the Strategic Plan to reflect the institutes' independence from the NHLS.

The NHLS strives to improve the quality of health care for all indigent South Africans, by focusing on enhanced laboratory service-related solutions provided to meet patient needs; efficient information technology capability; and the achievement of internal excellence in the organisation. These efforts are supported by programmes such as Academic Affairs, Research and Quality Assurance; Surveillance of Communicable Diseases; Occupational Health and Safety; Information Communication and Technology; Forensic Chemistry; and Administration.

Our commitment to service delivery, sound business management, compliance with applicable prescripts and standards, as well as good governance, remains the driving force.

As the Chairperson of the Board, I am confident that the NHLS' 2023/24 Annual Performance Plan will support the organisation's mandate and agenda to lead relevant and responsive service delivery in South Africa while making a positive impact on the lives of all indigent citizens.

Professor Eric Buch
Chairperson of the NHLS Board

OFFICIAL SIGN-OFF

It is hereby certified that this Annual Performance Plan:

- was adopted by the management of the National Health Laboratory Service (hereunder referred to as the NHLS) under the guidance and support of the Board;
- considers all the relevant policies, legislation, and other mandates for which the NHLS is responsible; and
- accurately reflects the strategic goals and objectives for the 2023–24 financial year.

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Approved by:

Dr Joe Phaahla, MP
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Minister of Health

PART A: Our mandate

1. Constitutional mandate

In terms of the provisions of the Constitution of the Republic of South Africa, 1996 (as amended), the NHLS is, among other things, guided by the following sections and schedules. Its role is to contribute towards the following:

- The Constitution, which places obligations on the state to realise socio-economic rights, including access to healthcare progressively.
- Section 27 of the Constitution, which states as follows with regards to healthcare:
  (1) Everyone has the right to have access to
    (a) healthcare services, including reproductive healthcare.
  (2) The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights.

2. Updates to the relevant Legislative and other mandates

2.1. The National Health Act, 61 of 2003

This Act provides a framework for a structured, uniform health system within the Republic, considering the obligations imposed by the Constitution and other laws on the national, provincial, and local governments concerning health services. The objects of the National Health Act (NHA) are as follows:

- Unite the various elements of the national health system according to a common goal to promote and improve the national health system in South Africa.
- Provide for a system of cooperative governance and management of health services within national guidelines, norms, and standards in which each province, municipality, and health district must address questions of health policy and the delivery of quality healthcare services.
- Establish a health system based on decentralised management, principles of equity, efficiency, sound governance, internationally recognised standards of research, and a spirit of enquiry and advocacy that encourages participation.
- Promote a spirit of cooperation and shared responsibility among public and private health professionals and providers, and other relevant sectors, within the context of national, provincial, and district health plans.
- Create the foundations of the healthcare system to be understood alongside other laws and policies that relate to health.

2.2. The National Health Laboratory Service Act, 37 of 2000

This Act requires the NHLS to provide cost-effective and efficient health laboratory services to all public sector healthcare providers, any other government institution within and outside the Republic that may require such services and any private healthcare provider that requests such services. According to the Act, the NHLS must also promote health research and provide training for health science professionals.

2.3. Public Finance Management Act (PFMA), 1999 (as amended)

The objectives of the Public Finance Management Act are as follows:

- To regulate financial management in the national government and provincial governments.
- To ensure that all revenue, expenditure, assets, and liabilities of those governments are managed efficiently and effectively.
- To provide for the responsibilities of persons entrusted with financial management in those governments.
- To provide for matters connected therewith.

2.4. Criminal Procedure Act, 51 of 1977

The following paragraphs of Section 212 specifically applies:

- (4)(a) (v) Whenever any fact established by any examination or process requiring any skill in biochemistry, in metallurgy, in microscopy, in any branch of pathology or in toxicology is or may become relevant to the issue at the criminal proceedings, a document purporting to be an affidavit made by a person who in that affidavit alleges that he or she is in the service of the State or of a provincial administration or any university in the Republic or any other body designated by the Minister for the purposes of this subsection by notice in the Gazette, and that he or she has established such fact by means of such an examination or process, shall, upon its mere production at such proceedings be prima facie proof of such fact: Provided that the person who may make such affidavit may, in any case in which skill is required in chemistry, anatomy or pathology, issue a certificate in lieu of such affidavit, in which event the provisions of this paragraph shall mutatis mutandis apply with reference to such certificate.
- (8)(a) In criminal proceedings in which the collection, receipt, custody, packing, marking, delivery or despatch of any fingerprint or body-print, article of clothing, specimen, bodily sample, crime scene sample, tissue (as defined in section 1 of the National Health Act), or any object of whatever nature is relevant to the issue, a document purporting to be an affidavit made by a person who in that affidavit alleges- (i) that he or she is in the service of the State

or of a provincial administration, any university in the Republic or anybody designated by the Minister under subsection (4).

2.5. Medicines and Related Substances Act, 101 of 1965

The Medicines and Related Substances Act, which was amended by Amendment Act, 2008 (Act No. 72 of 2008) and Amendment Act, 2015 (Act No. 14 of 2015) and enacted in May 2017, enabled, amongst others, the establishment of the South African Health Products Regulatory Authority (SAHPRA), the licensing of manufacturers and importers of active pharmaceutical ingredients, and the regulation of medical devices.

The purpose of the Act, among others, is to:

- Provide for the registration of medicines and related substances intended for human and for animal use;
- Provide for the establishment of a Medicines Control Council (subsequently replaced by SAHPRA) ;
- Provide for the control of medicines and scheduled substances and medical devices;
- Provide for the licensing of certain persons to compound, dispense, or manufacture medicines and
- medical devices and to act as wholesalers or distributors;

2.6. National Road Traffic Act 93 of 1991

Section 65 specifically applies:

- (1) No person shall on a public road-
  (a) drive a vehicle; or
  (b) occupy the driver's seat of a motor vehicle the engine of which is running,
  while under the influence of intoxicating liquor or a drug having a narcotic effect.
- (2) No person shall on a public road-
  (a) drive a vehicle; or
  (b) occupy the driver's seat of a motor vehicle the engine of which is running,
  while the concentration of alcohol in any specimen of blood taken from any part of his or her body is not less than 0,05 gram per 100 millilitres, or in the case of a professional driver referred to in section 32, not less than 0,02 gram per 100 millilitres.
- (3) If, in any prosecution for an alleged contravention of a provision of subsection (2),
  It IS proved that the concentration of alcohol in any specimen of blood taken from any part of the body of the person concerned was not less than 0,05 gram per 100 millilitres.

at any time within two hours after the alleged contravention, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0,05 gram per 100 millilitres at the time of the alleged contravention, or in the case of a professional driver referred to in section 32, not less than 0,02 gram per 100 millilitres, it shall be presumed, in the absence of evidence to the contrary, that such concentration was not less than 0,02 gram per 100 millilitres at the time of the alleged contravention.

2.7. Inquest Act, 58 of 1959

The act provides for the holding of inquests in cases of deaths or alleged. deaths apparently occurring from other than natural causes and for matters incidental thereto, and to repeal the Fire Inquests Act, 1883 (Cape of Good Hope) and the Fire Inquests Law, 1884 (Natal).

2.8. Foodstuff, Cosmetics and Disinfectants Act, 54 1972

The act provides for the regulation of foodstuffs, cosmetics, and disinfectants and quality standards that must be complied with by manufacturers as well as the importation and exportation of these items.

2.9. Protection of Personal Information Act, 4 of 2013

The Protection of Personal Information (POPI) Act aims to bring South Africa in line with existing data protection laws around the world. The purpose of this Act is to, among others to:

- Promote the protection of personal information processed by public and private bodies.
- Introduce certain conditions to establish minimum requirements for the processing of personal information.
- Provide for the establishment of an Information Regulator to exercise certain powers and to perform certain duties and functions in terms of this Act and the Promotion of Access to Information Act.
- Regulate the flow of personal information across the borders South Africa.

The POPI Act applies to all private and public organisations that process personal information, referring to information that is processed electronically, recorded manually and used in both health and public authority records. With specific reference to Sections 19 to 22 the Act differentiates between a Responsible Party and an Operator Party and allocate different responsibilities to these parties. In any agreement it is essential to clarify these roles upfront and to ensure that all parties comply not only with the general provisions of the Act, but also with specified responsibilities.

POPI act obligations apply throughout the full period that the organisation is processing personal data. So do the rights of individuals in respect of personal data. Disposal of data is included in the POPI act – data must be disposed of securely and in a way which does not prejudice the interests and rights of the individual concerned.

The Act deals extensively with the following issues:

- Data collection.
- Data preservation.
- Third party access.
- Compromised data; and
- Compliance.

2.10. Promotion of Access to Information Act, 2 of 2000

The purpose of the Promotion of Access to Information Act (PAIA) is to promote the right of access to information, to foster a culture of transparency and accountability in South Africa. Furthermore, PAIA is aimed at encouraging an open democracy where individuals from all walks of life are empowered to engage with government and participate in decisions which affect their lives. The introduction of the POPI Act necessitated several changes to this Act but did not fundamentally change its principles or content. Access to health information is covered in Sections 30 (public) and 61 (private) of the Act, while Sections 34 (public) and 63 (private) deals with the mandatory protection of privacy of a third party who is natural person. The Act provides for access requests through an Information Officer who is obligated to comply with the protection clauses in the Act.

3. Updates to applicable policies and planned policies.

3.1. National Health Insurance Bill

The National Health Insurance (NHI) Bill provides for the establishment of the NHI Fund as a legally defined organ of the state. The Bill seeks to do the following:

- Establish the NHI Fund, its functions, powers, and duties, and make provision for the control of the NHI Fund by the NHI Board.
- Define beneficiaries of services covered by the NHI Fund, including population registration.
- Provide for the contracting of accredited providers of personal health care services.

- Allow the Minister to determine the healthcare benefits that will be reimbursed through the NHI Fund, as well as the service coverage and cost measurement provisions.

Key features of the NHI Bill

The purpose of the NHI Bill is to establish and maintain an NHI Fund through mandatory prepayment that aims to achieve sustainable and affordable universal access to quality health care services. This will be achieved by the following:

- Serving as the single purchaser and single payer of healthcare services to ensure the equitable and fair distribution and use of health care services.
- Ensuring the sustainability of funding for health care services.
- Providing for equity and efficiency in funding by pooling funds and the strategic purchase of healthcare services, medicines, health goods, and health-related products from accredited and contracted healthcare service providers. This applies to all health establishments, excluding military health services and establishments.

The NHI Fund is to purchase healthcare services as determined by the Benefits Advisory Committee (BAC).

3.2. National Development Plan: Vision 2030

The National Development Plan (NDP) is a long-term vision for the country that focuses on the vital capacities required to develop the economy and society. It provides a broad strategic framework to guide crucial government decisions and actions. The plan emphasises that accelerated growth in South Africa requires active participation of all citizens and leadership in all sectors that prioritise the country's collective interests in terms of its narrow, short-term aims and government performance that has improved significantly.

The NDP lays out nine long-term health goals for South Africa. Five of these goals focus on enhancing population health and wellbeing, while the other four goals focus on strengthening health systems. The NHLS' role is to contribute to the NDP's Vision 2030 and to align appropriate services through stakeholder consultation.

By 2030, South Africa should have achieved the following:

- Raised the life expectancy of South Africans to at least 70 years.
- Progressively improved tuberculosis (TB) prevention and cure.
- Reduced maternal, infant and child mortality.

- Significantly reduced the prevalence of non-communicable diseases.
- Completed health system reforms.
- Established primary healthcare teams that provide care to families and communities.
- Achieved universal health care coverage.
- Filled posts with skilled, committed, and competent individuals.

3.3. Sustainable Development Goals

The Sustainable Development Goals (SDGs) 2030, which are built on the Millennium Development Goals of 2015, were adopted as the global goals by world leaders on 25 September 2015. World leaders formulated 17 SDGs to end poverty, fight inequality and tackle climate change by 2030. The following targets, to be achieved by 2030, have been adopted for **Goal 3**: Ensure healthy lifestyles and promote wellbeing for all at all ages.

1. Reduce the global maternal mortality ratio to less than 70 deaths per 100 000 live births.
2. End preventable deaths of new-borns and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1 000 live births and under-five mortalities to at least as low as 25 per 1 000 live births.
3. End the epidemics of HIV/AIDS, TB, malaria and neglected tropical diseases, and combat hepatitis, water-borne diseases, and other communicable diseases.
4. Reduce premature mortality from non-communicable diseases by one-third through prevention and treatment and promote mental health and wellbeing.
5. Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and the harmful use of alcohol.
6. Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality, and affordable essential medicines and vaccines for all.
7. Support the research and development of diagnostics, vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, as per the Doha Declaration on Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement and Public Health, which affirms the right of developing countries to use, to the full, the provisions in the TRIPS Agreement regarding flexibilities to protect public health and, in particular, provide access to medicines for all.
8. Substantially increase health financing and the recruitment, development, training, and retention of health workforce in developing countries, especially in the least developed countries and Small Island Developing States.

9. Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and the management of national and global health risks.

The recent United Nations (UN) SDG update report (2022) has acknowledged that recent global events such as COVID 19, climate change and global conflicts have had grave impacts on progress towards these aspiration goals and extra effort will be required to reverse effects on health, education, and food security, amongst others.

The vision of the NHLS is to provide a high-quality, patient-centred laboratory service that is clinically efficient and cost-effective. This will contribute significantly to **Goal 3 of the SDG**: Ensure healthy lives and promote wellbeing for all, irrespective of age, as well as the **vision of the South African health system**: A long life for all South Africans.

3.4. Alignment with the NDoH's Medium term Strategic Framework (MTSF) and the NDP Implementation Plan 2019–2024

The NHLS' plan is in line with the plan of the NDoH, which responds to the goals identified by the Cabinet of South Africa's sixth democratic administration, as embodied in the MTSF for the period 2019–2024. It aims to eliminate avoidable and preventable deaths (*survive*), promote wellness, prevent, and manage illness (*thrive*); and transform health systems, the patient's experience of care and mitigate social factors determining ill health (*transform*), all of which are aligned with the United Nations' three broad objectives of the SDGs for health.

The NHLS' responses are structured into four outcomes and twelve outputs over the next five years, as indicated in the table below, and are aligned with the goals of the NDoH, as well as the pillars of the Presidential Health Summit Compact.

Table 1: Alignment of the NHLS' outcomes and outputs with goals of the NDoH and the pillars of the Presidential Health Summit Compact.

<table>
<tr><th>Revised NDoH MTSF 2019–2024 outcomes</th><th>NHLS outcomes</th><th>NHLS outputs</th><th>Presidential Health Summit Compact pillars</th></tr>
<tr><td>Universal health coverage for all South Africans to be achieved by 2030</td><td rowspan="4">Clinical effectiveness and efficiency

High-quality service

Cost-effective services

Good governance</td><td rowspan="4">Modernised laboratory services

Improved total turnaround times.

Strengthened total quality management systems.

Performance-driven workforce.

Equitable service coverage

Improved stakeholder relations

Reduced cost of pathology services to clients</td><td rowspan="4">Pillar 4: Engage the private sector in improving the access, coverage, and quality of health services.

Pillar 6: Improve the efficiency of public sector financial management systems and processes.</td></tr>
<tr><td>Progressive improvement in the total life expectancy of South Africans</td></tr>
<tr><td>Total life expectancy of South Africans improved</td></tr>
<tr><td>Reduced maternal and child mortality</td></tr>
<tr><td rowspan="3">Improved educational and health outcomes and skills development for women, girls, youth, and persons with disability</td><td rowspan="3">Clinical effectiveness and efficiency</td><td rowspan="3">Appropriately trained human resources in adequate numbers.</td><td>Pillar 5: Improve the quality, safety and quantity of health services provided with a focus on primary health care.</td></tr>
<tr><td>Pillar 8: Engage and empower the community to ensure adequate and appropriate community-based care.</td></tr>
<tr><td>Pillar 1: Augment the Human Resources Health Operational Plan.</td></tr>
</table>

3.5. Framework for Managing Programme Performance Information (2007)

The Framework for Managing Programme Performance Information (FMPPI) outlines key concepts in the design of management systems in the public sector for defining, collecting, reporting and using performance information. The FMPPI emphasises that performance information is essential to focus the attention of the public and oversight bodies on whether public institutions are delivering value for money by comparing their performance against their budgets and service delivery plans, and to alert managers to areas where corrective measures are required.

3.6. Policy Framework for the Government-wide Monitoring and Evaluation System (2005)

The Framework for the Government-wide Monitoring and Evaluation (GWME) system identifies programme performance information as one of the data terrains underpinning it, focusing on information that is collected by government institutions while fulfilling their mandates and implementing the policies of government.

3.7. National Public Health Institute of South Africa

The establishment of the National Public Health Institute of South Africa (NAPHISA) is envisaged and will comprise divisions dealing with the following, within the context of the broader NAPHISA mandate:

- Communicable diseases
- Non-communicable diseases
- Occupational health
- Cancer surveillance
- Injury and violence prevention
- Environmental health

The establishment of NAPHISA as a single national public entity is intended to provide high level surveillance coordination across functions. The entity will provide evidence, expertise, and advice to the government to improve population health. It will also coordinate relevant disease and injury surveillance, research, training, and workforce development, as well as monitor and evaluate services and interventions directed at major health problems affecting the population. NAPHISA will provide training, conduct operational research, and support interventions aimed at reducing the burden of communicable and non-communicable diseases, injuries and violence, and occupational diseases.

The NAPHISA Bill was assented to by the President on 5 August 2020. Regulations are being finalised before the Act is proclaimed. NAPHISA will have an impact on the NHLS' functions because roles and functions will be defined, and traversal functions may be shared.

4. Updates to relevant court rulings

There are no court rulings that will have a significant ongoing impact on the NHLS' operations or service delivery obligations.

5. Situational analysis

5.1. External Factors

5.1.1. Political Landscape

The NHLS, as a public entity, is sensitive to changes in political leadership at both a national and regional level. This represents a microcosm of major global political shifts in governance and policy. South African politics is currently characterised by inherent instability, with rapid changes affecting political continuity and leadership visibility at all levels of government. Differences in provincial governance structures also contribute to the level of ability to execute service in different geographical regions.

5.1.2. National Legislative and Policy Changes

The NHLS operates within a national legislative and policy framework, which means that many pieces of legislation and policies enacted at any level of governance will have a differential impact on the NHLS. Key developments that will affect the NHLS directly include the National Health Insurance (NHI) Bill, the National Public Health Institute of South Africa (NAPHISA) Act, as well as the amendments to the National Health Laboratory Service Act, when these are promulgated.

The proposed NHI Act (through the NHI Bill) represents a key opportunity for the NHLS, which is currently uniquely positioned as the sole provider of pathology and associated services to the public sector, to expand and adapt its laboratory service offering to the regions, in line with the NHI mandate and expectations. It must be noted, however, that other laboratory service providers are currently positioning themselves as potential competitors to the NHLS, and this may constitute potential threats and opportunities for the organisation.

The NAPHISA Act will result in the separation of the National Institute for Occupational Health (NIOH) and the National Institute for Communicable Diseases (NICD) from the NHLS. This will allow for a change in focus and might improve the financial positions of all three, especially if cross-subsidisation of surveillance activities is independently funded from core NHLS service delivery. It must, however, be noted that both the NICD and the NIOH are dependent on NHLS laboratory routine data and services, together with support services, including human resources, finance and procurement, so it is likely that a prolonged handover period will be required to allow for complete independence. In addition, the outputs in terms of teaching, training and research

(both grants and publications) of both institutes are significant and this may impact future targets of the parent organisation.

5.1.3. Political stakeholder engagement and influence

The primary shareholder of the NHLS remains the National Department of Health (NDoH), although there are several additional and subordinate dependencies, including, amongst others, the National Department of Higher Education and Training (DHET), the National Department of Science and Innovation (DSI), the National Treasury and the National Department of Employment and Labour (DEL), as well as provincial Departments of Health. Efficient stakeholder engagement is critical to ensuring financial and organisational sustainability, and the improving NHLS financial position is a testament to a highly effective and responsive relationship with these stakeholders. These stakeholders may, however, also influence the priorities of the organisation, particularly since many have representation on the NHLS board.

5.2. Social factors

5.2.1. Population size

According to Statistics South Africa's (Stats SA) mid-year 2022 population estimates, the South African population is estimated at 60,6 million, an increase of 640 074 (annual growth rate of 1,06%) from 2021 mid-year population estimates. Gauteng still comprises the largest proportion of the South African population with approximately 16,1 million (26,6%) people living in the province followed by KwaZulu-Natal with 11,5 million (19,0%) and the Western Cape with 7,2 (11,9%).

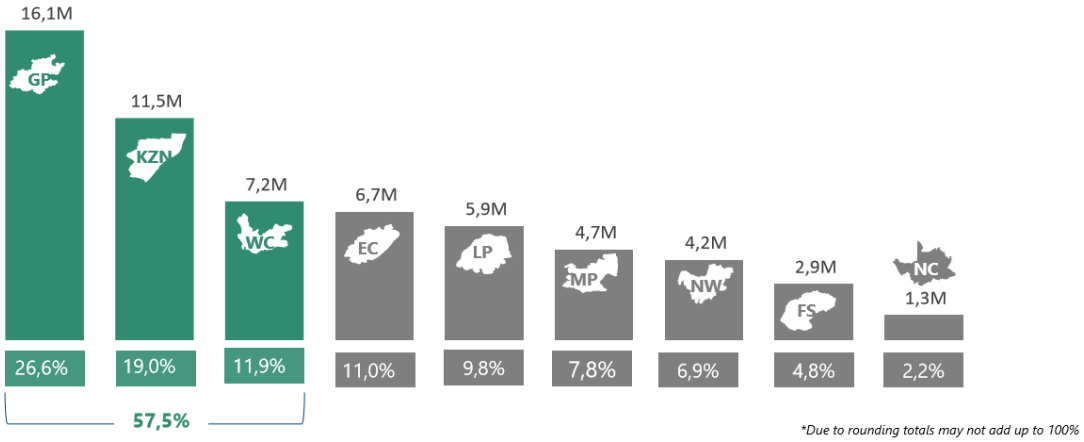


Figure 1: STATS SA, Mid-year estimates 2022

The increase in population in South Africa occurs at a time when the economy and budget continue to decline, and healthcare costs rise. The COVID-19 pandemic has added more pressure with the rise in infections and deaths and concomitant unemployment. Stringent financial management is critical at a time when unemployment is rife, and many societies depend on the public sector for healthcare. The NHLS, as a provider of pathology services to more than 80% of the South African population, must accomplish this while being financially viable.

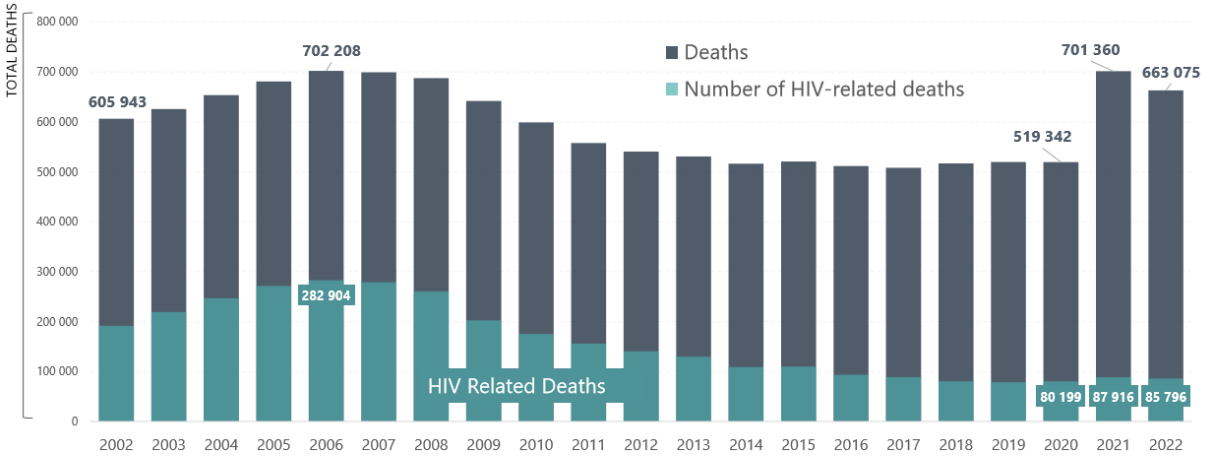
5.2.2. High Burden of Disease

South Africa is a middle-income country with a high burden of communicable diseases (especially priority diseases including *TB and HIV* infections), which can be diagnosed easily and considered both preventable and treatable. Through the National Priority Programmes (NPP), the NHLS has shown itself to be responsive to many communicable diseases affecting the public sector. The integration of testing for non-communicable diseases within an "ideal clinic" setting remains an additional key priority as does the use of additional technical solutions and resources, including point-of-care technology and electronic laboratory tools, to ensure that there is increased efficiency throughout the laboratory value chain and that patient ownership of laboratory results is ensured.

5.2.3. COVID, HIV, TB Syndemic

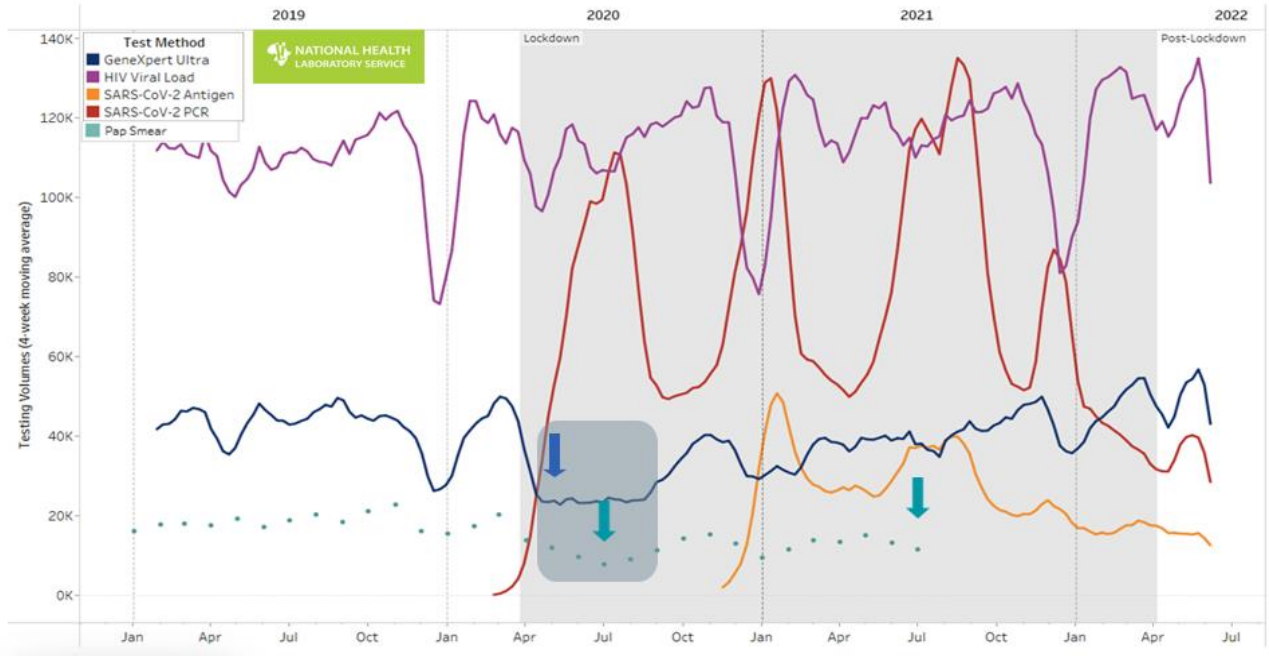
There are 8,45 million people living with HIV in 2022. [1] COVID-19 pandemic presented challenges that hampered the progress in the eradication of HIV and AIDS. The uptake of Antiretroviral Treatment (ART) in South Africa has enabled positive people to live longer and healthier, leading to an increased HIV population over time. However, since 2020, there has been a slight increase in HIV related deaths, despite efforts to ensure ART rollout and better treatment regiments during the COVID-19 pandemic[1].

Figure 2: Total number of deaths estimated over time vs HIV-related deaths in thousands, 2002—2022.



The chronic nature of the HIV programmes brought some stability to those already on the ART programme during the COVID pandemic. Greater devastation was evident in diagnostic programs for TB, resulting in a significant setback for the diagnostic gains made in the pre-COVID years figure 2. Reassuringly from a diagnostic perspective there appear to be demonstrable signs of recovery.

Figure 3: Monitoring South Africa's syndemic through laboratory data: NHLS test volumes from 2019 to 2022 for GeneXpert TB, HIV viral load, SARS-CoV-2 molecular and antigen and pap smear testing. Test volumes are represented by a 4-week moving average. Arrows highlight test reductions during early country lockdown during COVID19.



5.2.4. Urbanisation

There is increasing urbanisation in South Africa. By 2021, approximately 68% of South Africans lived in major urban centres. This represents an opportunity to engage with a local workforce but also has implications for planning for service adjustments and improvements in both rural and urban areas.

5.2.5. Movement of skilled workers

This represents a socioeconomic, as well as a political issue. There has been an emigration of skilled workers including scientists, pathologists, technical and administrative staff. In some cases, this poses a significant threat to organisational continuity as replacement supply does not match demand. A possible strategy may be the appointment of highly skilled workers from other countries, although this may be problematic given the administrative requirements.

5.2.6. High unemployment rate, including the youth unemployment rate.

The unemployment rate in the second quarter of 2022 decreased slightly from 34.5% to 33.9% when compared with the first quarter of 2022[1]. The youth unemployment rate however decreased by 1.3% to 46.5%[1] in 2022 over the same period. Key drivers of youth and general unemployment include the current socioeconomic conditions in South Africa, prior and created by national lockdowns, but also limited access, to tertiary training and skills development. As a responsive organisation, and moreover one that provides extensive support for training, the NHLS is positioned positively to impact employment by supporting skills acquisition and capacity building both directly within the healthcare sector and indirectly through the development of policies that favour both local and transformational procurement. The ability of the NHLS to procure locally and to increase skill acquisition may, however, be limited by political and economic considerations, including directives on increasing headcount and reductions in overall revenue generation. High economic inequality levels and unemployment rates pose a risk to the ongoing social stability in South Africa.

5.3. Economic factors

5.3.1. National Budget Constraints

There are currently several factors negatively affecting the economic situation in the country. All these factors either directly or indirectly affect the NHLS daily. The following are some of the most prevalent macroeconomic issues:

- The past and ongoing impact of the Severe Acute Respiratory Syndrome - Coronavirus-2 (SARS-CoV2) pandemic on the economy. This includes the emergency recovery of prior well-functioning priority disease programmes.
- Energy supply and load shedding remains a major risk that has influenced business continuity, as well as costs associated with being able to run an organisation effectively and efficiently with limited or constrained energy supply on a continuous basis.
- Increased commodity prices, particularly fuel prices.
- Failing infrastructure at our public sector hospitals.
- Transport issues, such as the increase of fuel costs and a deteriorating road infrastructure.
- The Rand remains extremely volatile due to both internal and external factors around the globe which impacts exchange rates directly.
- Higher than expected inflation rates and an upward trend in the repo rate.

These factors have necessitated the implementation of increased cost-cutting measures, which have included a moratorium on increasing headcount within the civil service, and reductions in conditional grants allocated for teaching, training, and research, and to both the NICD and the NIOH. It has also impacted provincial ability to pay for NHLS core services. All these factors impact negatively on NHLS operations.

5.3.2. Current risks to the financial sustainability of the NHLS

The NHLS Board and the NHLS management team have instituted financial practices that require enough cash reserves to cover at minimum: three (3) months' salaries and two (2) month's creditors payments. Salaries for three (3) months are approximately R1,2 billion, a figure that may have to be adjusted upwards following completion and implementation of wage negotiations Creditor’s payments for two (2) months are approximately R1,2 billion. The NHLS generates its own revenue through its operations and therefore it is essential that the necessary working capital is available to operate effectively on a continuous basis. This cash coverage of R2,4 billion is seen as a minimum threshold to ensure NHLS sustainability and ability to continue as a going concern.

Debt collection remains a key performance target of the NHLS and is vital to ensure that the NHLS can deliver on its mandate daily. To achieve the above, it is vital that all NHLS customers can pay timeously and in full for all services rendered by the NHLS.

5.3.3. Payments from Provincial Departments of Health's

The NHLS primarily services all public health facilities in the country, approximately 93% of the NHLS's debtors' book is debt owed by provinces. The provincial DoHs are struggling to pay for services delivered in full, due to the constrained financial situation across the country, which in turn impacts the NHLS negatively. The total outstanding debt owed by all provinces currently stands at R5.89 billion for the period ending 31 March 2022. Of the R5.89 billion, 70,8%, which amounts to R4.17 billion of the debt, is over 90 days.

In the financial year ending 31 March 2022, the NHLS expensed a debt impairment of R1,2 billion, mainly due to poor payment from the provincial DoHs, The NHLS are wary of the financial position of the provincial DoHs and are carefully trying to manage its cash reserves to ensure that it remains viable if payments from the provincial DoHs deteriorate even further.

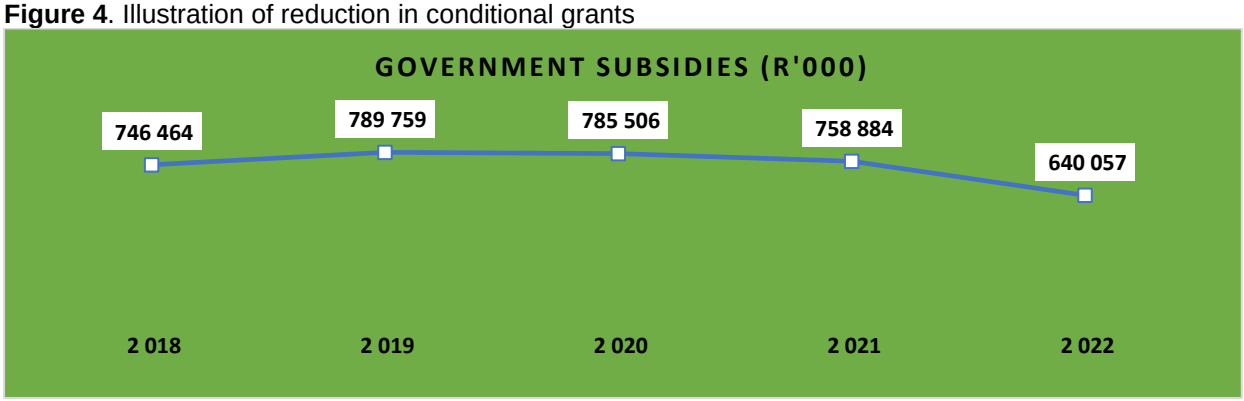
5.3.4. Shortfall in conditional grant funding and the Teaching, Training and Research grant.

The NICD, NIOH and National Cancer Registry (NCR) receive a conditional grant from the NDoH as they perform a national function and was not meant to be funded by the NHLS. However, from the inception of the NHLS, there has been cross subsidisation of these divisions. In 2015, the grant was increased in a move to make these divisions independent as they were meant to be incorporated into the planned National Public Health Institute for South Africa (NAPHISA). In recent years the conditional grant has been reduced and NAPHISA has not become operational to date, this has resulted in the NHLS providing large amounts of funding to these divisions to ensure they remain functional and operational.

The NHLS currently receives the Teaching, Training and Research (TTR) grant from the NDoH to re-imburse for the time NHLS employees perform teaching and training activities at the various teaching institutions across the country. However, the NHLS has been cross subsidizing the TTR grant which covers only a portion of the costs that were meant to be covered.

Overall, in recent years the NHLS has had to increase its cross subsidization because of the reduction of the conditional grants by the NDoH.

Figure 4. Illustration of reduction in conditional grants



As seen in Figure 4, the conditional grants have been on a steady decline. This while the costs within the areas covered by the grants have been on an upward trajectory. Further funding cuts are anticipated for the conditional grants going forward, which effectively means that the NHLS is required to increase their cross-subsidisation funding for the NICD, NIOH, NCR and TTR on a continuous basis. Currently the NHLS is only able to provide this funding through its surplus cash reserves.

The approximate shortfalls projected for the current financial year are captured in Table 1:

Table 2: Projected grants shortfall for FY 2023/24

Division	Shortfall (R)
NICD	219 178 506
NIOH	48 610 320
TTR	100 726 363
Total	**368 515 189**

The NHLS have already started utilising funds to improve the operational performance of the FCL. This will involve a significant investment in employee costs, towards the appointment of professional, technical and support staff. Furthermore, a capital replacement programme is being instituted to ensure the modernisation and removal of outdated, poorly functioning equipment, together with the appropriate costs of enhanced quality assurance practices.

A conservative projection of the funding shortfall will be in the region of R30 million in the current financial year and expected to exceed R100 million in the 2023/24 financial year. The chronic underfunding means the current conditional grant is inadequate to meet the demands of the FCL. Therefore, the NHLS will be required to invest its resources into the FCL to improve the performance of the entity.

The NHLS is anticipating the funding gaps highlighted in the previous sections may continue to grow in the future and will have to ensure that it has the necessary funds to bridge the funding deficits for the highlighted institutions.

5.4. *Financial Risk Mitigation Strategies*

5.4.1. Power Grid failure – NHLS Solar Project

The NHLS have been greatly affected by the load shedding that has been rampant throughout the country. It is anticipated that load shedding will continue well into the future and there needs to be investment into alternative and/ or renewable energy resources to ensure the NHLS can function on a 24/7 basis. Load shedding poses a major risk to the continuous and uninterrupted service by the NHLS. The NHLS have embarked on a solar project through a tender process for the Sandringham (Head Office) Campus, this is where the NHLS hosts all the NHLS Corporate functions (Finance, HR, IT, Communications, etc.), NICD, NCR, Diagnostic Media Products (DMP), South African Vaccine Producers (SAVP) and mostly importantly the NHLS IT infrastructure The NHLS have made a strategic decision to make Sandringham a fully off-grid site to ensure that this NHLS Campus is able to function without the effects of load shedding. This project will require a large capital injection that will be recouped over time through the savings on future electrical bills that would have been incurred.

5.4.2. Private sector work

The private sector is thought to encompass both private-sector laboratories and relevant private industries. Private industries, including the mining sector, is increasing its insourcing of laboratory and other health services. This could pose a significant threat to the organisation although both quality and test repertoire may be limited to specified test bundles. The NHLS remains competitive on price, quality and test repertoire, and private industry and managed healthcare both represent potentially lucrative markets for the NHLS. However, private laboratories do pose a significant threat to the ongoing functioning of the NHLS primarily because of active recruitment of senior and trained laboratory technical staff, including pathologists, and aggressive marketing strategies with high brand recognition.

An additional potential revenue stream for the NHLS in the private sector could include clinical research and trial support.

5.4.3. International and national grant funding and non-governmental organisations

The NHLS has several characteristics that make it attractive to grant funders, including a comprehensive test repertoire, a significant national network and laboratory footprint, and resources like the Corporate Data Warehouse (CDW) and the national biobank. In addition, NHLS staff, especially joint staff, have been very successful in leveraging their technical expertise to compete for international grants. There are multiple non-governmental organisations that would consider the NHLS an important strategic partner in improving laboratory services and medical research. A number of these bodies are, however, direct competitors for grant funding (especially international grant funding). Therefore, the NHLS needs to strengthen and improve efficiencies in the management of grants.

5.5. Communication and Media strategy

Communication within the organisation is critical to building unity of purpose and organisational culture. External communication and media strategy are important for educating the public and providing public health updates. During the Coronavirus pandemic, as well as with other infectious disease outbreaks, the NICD has been responsible for driving the dissemination of information and the careful strategy of the NHLS has improved public perception of the organisation. A more comprehensive strategy, particularly with respect to internal communications, is needed to increase organisational coherence.

5.6. Technology

Technology is key to NHLS business operations, its development will enable the organisation to provide high-quality diagnostic testing solutions. The digitisation of all NHLS functions will be a priority to further enhance business processes. However, there are challenges restraining the progression to fully digitalise the organisation's environment to meet the organisation's requirements. The challenges currently being faced include, but are not limited to, aging Information Technology (IT) infrastructure, IT skills shortage, the availability of electricity, and the Supply Chain Management processes which inhibit the replacement of critical systems and tools on time. Technology provides many opportunities for the NHLS including the ability to identify instrument malfunctions remotely, to manage laboratories remotely, to institute innovations like digital pathology and to conduct real-time surveillance. IT platforms such as the Laboratory Information Management Systems (LIS), Oracle E-Business Suite (EBS), CDW and Enterprise Content Management (ECM) are central to the organisations daily operations and research initiatives.

The NHLS have been carefully managing its cash flow which has resulted in a slow capital replacement programme, including the NHLS IT infrastructure. The NHLS is now able to undertake an extensive capital replacement programme which the NHLS laboratories are in dire need of. This will ensure that the NHLS is at the forefront of providing the most cutting edge and up to date technology with regards to pathology services.

5.7. Environment

5.7.1. Climate change

Ongoing global warming is likely to result in significant changes in the climate in South Africa. Currently South Africa is experiencing floods in some parts of the country which result in infrastructure failure. There is a significant risk placed on the NHLS by infrastructural failure. These include power outages, water scarcity (due to drought or infrastructure failure) and inadequate road and transportation services (including port and public service). In addition, increased temperatures will increase cooling costs.

The NHLS is often lodged in buildings over which it has limited control. These buildings are often in a state of disrepair and pose a significant threat to ongoing service provision and quality and requires continuing mitigation. The NHLS is also both a net energy consumer and a producer of waste and sustainability will require innovation in laboratory design and function. A business continuity plan has been developed to mitigate these challenges.

5.8. Legal

5.8.1. Protection of Personal Information Act (Act No 4, 2013)

The POPI Act ensures the confidentiality of all private individuals, and this important right is the bedrock of a quality laboratory service. POPIA can, however, affect key functions of the NHLS including surveillance, especially in a public health emergency and research conducted through the NHLS network.

5.8.2. Consumer protection and litigation

The primary customers of the NHLS are the patients who access its laboratory services. Through the principles of Batho Pele, these patients have the right to quality, timely and accurate clinical services. As customers, they are protected by the Consumer Protection Act (No. 68, 2008). Litigation has increased; this includes medico-legal litigation as well as litigation from suppliers against the NHLS. This poses a significant risk to the NHLS.

6. Internal environment analysis

6.1. Laboratory Service

The National Health Laboratory Service (NHLS) is mandated to provide diagnostic testing services to >80% of the South African population (public sector). The NHLS operates and provides support across the entire pathology value chain through a network of laboratories covering all nine provinces.

The NHLS supports a hybrid service delivery model, with some of the tests (especially those with a high dependency on a rapid Turnaround Time) being decentralised and specialised tests being centralised. As such, it is critical that laboratory processes are automated as much as possible to improve efficiencies. There is, therefore, a need to modernize the existing platforms to enable responsiveness to changing diagnostic needs, with the focus on improving access to pathology services in rural and deep rural areas as one of the key priorities. For example, these can include innovative solutions for emerging pathogens or improvements to testing platforms that are already in place. In some cases, however, the requirements for upgrades or improvements can be onerous and careful consideration should be given to cost – and healthcare benefit impact.

The NHLS supports the National HIV diagnostic and anti-retroviral monitoring programme by providing centralised HIV viral load (HIV VL) testing across 16 laboratories. Centralized Early Infant Diagnosis HIV-PCR diagnostic services are provided at 11 laboratories. The NHLS provides decentralised CD4-count diagnostic services for immune status monitoring and offers reflex cryptococcal antigen testing to exclude opportunistic infections in advanced HIV disease. Centralised HIV drug-resistance testing is provided at 5 laboratories.

For TB, the National TB diagnostic programme is supported through the following:

- The provision of decentralised molecular testing for TB disease with 165 laboratories performing Xpert MTB/RIF Ultra testing for screening patients with possible TB.
- Laboratories performing smear-microscopy for baseline testing and for treatment response monitoring.
- Fourteen specialised TB-culture laboratories for liquid-based TB-culture and drug-susceptibility testing for first- and second-line anti-TB treatment agents.

The COVID-19 pandemic also highlighted the need for service agility for rapid testing responses, and an ability to leverage existing platforms for multi-disease testing. The rapid increase in COVID-19 testing resulted in a significant strain on the NHLS infrastructure and capacity, negatively impacting diagnostics for HIV, TB and other priority diseases. However, in the 2021–

2022 financial year, COVID-19 test volumes started declining and declined even further during the current financial year. As of 30 September 2022, COVID-19 test volumes declined by 75% when compared to the same period in the previous financial year. The decline in these test volumes will not pose a challenge for the NHLS because the instruments procured for COVID-19 testing will be utilised to run other molecular tests. The NHLS is currently considering integrating other tests with COVID-19 testing. Furthermore, the NHLS will support the NDoH TB recovery plan by capacitating the mobile laboratories and using them for community testing.

POCT has several advantages for clinical care, chief among which are the rapid turnaround time and the ability to initiate urgent patient care. In some settings, for example intensive care units, POCT is preferred for these reasons. The NHLS has the required footprint and infrastructure to position itself to implement POCT and ensure the expected quality of test results. It has begun a project to assess the performance of key analysers in this context. It must be noted that some healthcare facilities have implemented POCT within the clinical context, separate from the NHLS service and without involvement of the NHLS. This may pose a threat both to quality of service (which is in this case not necessarily subjected to normal quality management systems) and potentially to NHLS revenue.

6.2. Forensic Chemistry Laboratory Service

The Forensic Chemistry Laboratories (FCLs) fall within the Forensic Pathology Services (FPS) Directorate of the NHLS and are classified as essential services according to the Labour Relations Act, Act No. 66 of 1995. In June 2018, the NDoH was instructed to move the FCLs to the NHLS, as legislated by the NHLS Act of 2000. There are currently four FCLs in South Africa. These are in Cape Town, Durban, Johannesburg, and Pretoria. The four laboratories serve the entire South African population. Clients include the South African Police Service (SAPS), the provincial Departments of Health (Forensic Pathology Services mortuaries), the National Prosecuting Authority (NPA) and the local authorities (municipalities).
The core business of the FCLs include the following:

- The testing of biological tissues and fluids for the presence of poisons and/ or drugs in instances of unnatural deaths (toxicology analysis).
- The testing of antemortem and post-mortem blood for the presence of alcohol in alleged drunken driving matters (alcohol analysis).
- Food testing in terms of the Foodstuffs Act.

On 1 April 2022, the FCLs were fully integrated into the NHLS. It has been faced with challenges that have negatively affected service delivery. Staff shortages and staff rotation due to COVID-19

pandemic resulting in the laboratories operating at half capacity, old equipment, and delays in procurement and sub-standard buildings were among the challenges. These, among others, resulted in poor turnaround time of test results and accumulation of backlogs in the toxicology laboratories.

Since the integration, the NHLS has focused on implementing structures to improve efficiencies in the FCLs and filling critical posts. The NHLS managed to appoint the Head of Laboratories and fill some critical technical posts. Other support structures were put in place, e.g., the appointment of a dedicated procurement officer, finance manager and human resources manager. The laboratories are currently implementing the backlog strategy to catch up with all the outstanding testing.

6.3. Academic Affairs, Research and Quality Assurance

The main objectives of the Academic Affairs, Research and Quality Assurance (AARQA) Division of the NHLS are to strengthen academic affairs, teaching and training, as well as the research and innovation mandate of the organisation, while maintaining and providing quality improvement processes throughout the platform.

AARQA is responsible for the maintenance and establishment of effective partnerships with faculties of health sciences across South African medical universities, comprehensive universities (CUs) and universities of technology (UoTs).

In collaboration with the area managers, the QA Department serves to:

- Enhance the NHLS QA systems and processes.
- Maintain and acquire accreditation and certification of the laboratories and support service departments across the country; and
- Manage the Proficiency Testing Schemes (PTSs) for all NHLS laboratories, some private pathology laboratories, and other African and international laboratories.

6.3.1. Teaching and training

The delivery of the teaching, training, and research mandate of the NHLS is a shared responsibility between the NHLS and medical universities across South Africa. Vocational training is provided to registrars, intern medical scientists and student medical technologists working towards qualifications as pathologists, medical scientists, and technologists respectively, in compliance with the Health Professions Council of South Africa (HPCSA) requirements.

During the 2021–2022 financial year, there were 629 trainees from various academic institutions and disciplines on the NHLS platform. These include 95 intern medical scientists, 274 Medical technology students and 260 registrars. Details on the number of trainees per pathology discipline are elaborated in the table 2.

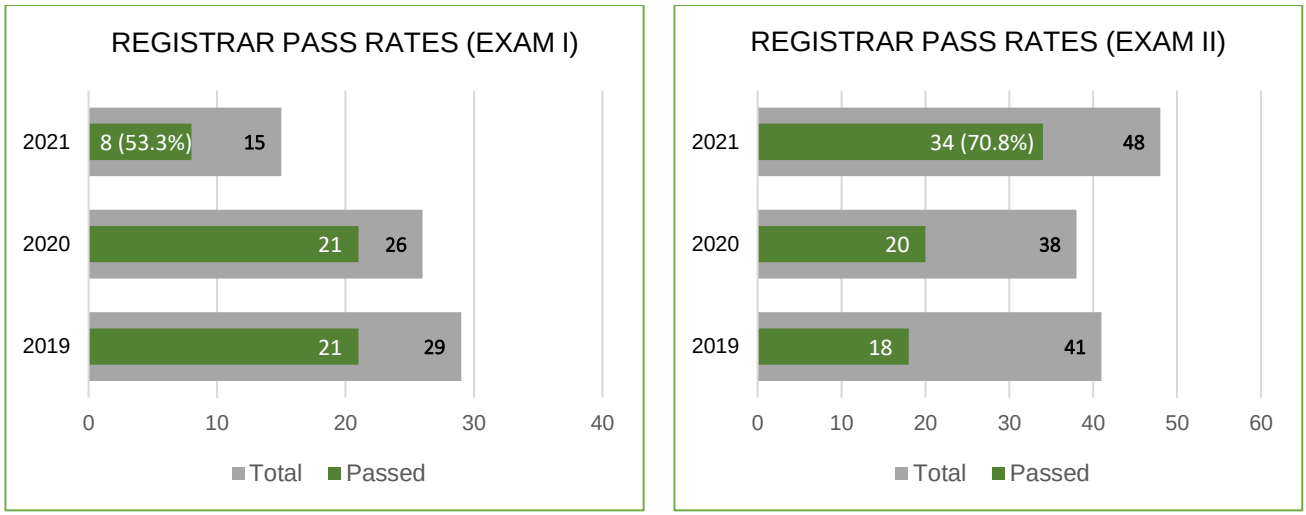
Table 2: Current NHLS vocational trainees by discipline as of 31 March 2022

Discipline	Intern: Medical Scientists	Student: Medical Technologist	Registrar	Total
Anatomical Pathology	4	16	75	95
Chemical Pathology	15	2	45	62
Clinical Pathology		202	7	209
Haematology	9	2	53	64
Human Genetics	10	4	5	19
Immunology	11	4		15
Microbiology	21	9	52	82
Oral Pathology			1	1
Virology	25	20	22	67
Other		15		15
Total	**95**	**274**	**260**	**629**

6.3.2. Registrar and intern medical scientist pass-rates.

The NHLS is the sole provider of training for pathology registrars in the country. To date, the pass rate of registrars who are trained to be pathologists has been increasing for the Colleges of Medicine of South Africa (CMSA) Part I examinations from 60% (2018) to 80.7% (2020) but declined again to 53.3% in 2021. Similarly, pass rates for CMSA Part II (exit) examinations increased from 40.5% (2018) to 52.6% (2020) and 70.8% in 2021, as depicted in figure 3.

Figure 4: NHLS registrar pass rates for CMSA examinations semester I and semester II from 2019 to 2021.



NHLS also provides a training platform for intern medical scientists with 55 and 15 Medical Scientists having completed their training successfully in December 2020 and December 2021 respectively, table 3.

Table 3: Intern Medical Scientist completed training and certified by the HPCSA from 2019 to 2021.

Discipline	Year		
	2019	**2020**	**2021**
	Completed	Completed	Completed
Anatomical Pathology		2	
Chemical Pathology	4	12	3
Genetic Counselling		2	
Haematology/Molecular Biology	5	11	5
Human Genetics	3	9	
Immunology		3	2
Medical Microbiology		8	4
Virology	2	8	1
Total	**14**	**55**	**15**

6.3.3. Service delivery

The NHLS continues to provide adequate and efficient diagnostic pathology laboratory services to all individuals in South Africa, with a specific focus on the public sector. AARQA strives to support this through the implementation of the national pathologists' coverage plan, which aims to ensure clinicians' access to consultative pathologist services. This includes a strategic service

delivery plan to ensure that the NHLS' laboratories are standardised and equipped with sufficient resources to provide equitable service to the South African population. The key strategy for fulfilling this objective is to obtain laboratory accreditation through the South African National Accreditation System (SANAS), which will allow for adequate training and service provision.

In line with the NHLS' Strategic Plan, it continues to increase the number of accredited diagnostic laboratories with 15 new laboratories accredited in 2020–2021. The NHLS has 91 SANAS-accredited diagnostic laboratories, as well as three ISO 9001:2015-certified support departments. By the end of the Medium-Term Expenditure Framework (MTSF), the NHLS will have certified all eight supporting departments, and more than half of the diagnostic laboratories will have received SANAS accreditation.

Improving service delivery also involves the advancement of laboratory systems to improve turnaround times and ensure the quality of results. AARQA continues to implement PTSs, health technology assessments and clinical consultative services to explore new diagnostic and disease management approaches to improve the quality of results generated by the NHLS's laboratories.

6.3.4. Research and innovation

A total of 688 journal articles that were co-authored by NHLS researchers were published in indexed journals during the last financial year. A total of 194 journal articles have already been published in the first half of the current financial year. Information on authorship by university affiliation for the FY 2021-2022 is indicated in table 4.

Table 4: Number of publications co-authors by NHLS researchers per institution (2021/2022 financial year)

Institution	Apr 2021 - Mar 2022		
	No of Publications	First Author	Last Author
SMU	12	6	1
WITS	218	113	71
UCT	121	64	18
UL	2	0	1
UP	64	35	13
US	76	41	21
UFS	42	12	8
UKZN	55	28	11
UWC	6	1	0
WSU	5	0	1
NHLS Only	87	29	21
Total	**688**	**329**	**166**

6.3.5. NHLS Intellectual property and innovation

The NHLS has significant intellectual capital and access to both material and data, which can improve its value. The NHLS has implemented an Intellectual Property (IP) and innovation policy. This represents an opportunity for both revenue generation and reputational enhancement. The policy aims to govern the rights that accrue between the NHLS, universities and other stakeholders in relation to fostering collaborative inventions, discoveries, and improvements, and to facilitate the effective identification, protection, utilisation, and commercialisation of NHLS IP for the benefit of the South African public as required by the Intellectual Property Rights (IPR) Act.

6.3.6. Quality Assurance

The NHLS has a fully functional Quality Assurance department that has significantly expanded laboratory accreditation throughout the platform. SANAS-accredited facilities include all national central laboratories and an increasing number of provincial tertiary, regional and district laboratories, as well as certain select facilities accredited by international accreditation societies such as the Qualogy, European Federation of Immunogenetics, the National Institutes of Health and the United States Food and Drug Administration. Quality Management Systems (QMS) are mature and well implemented, and there is significant institutional knowledge. In addition to maintaining and expanding these systems, there is an opportunity to leverage them as additional revenue generating streams e.g., creation of external PTSs for national and international customers is already in place, as is the validation of new technologies.

6.3.7. Accreditation and Certification

Throughout this reporting period, the NHLS continued to implement and improve the QMS in laboratories and departments in accordance with the following international standards: International Organisation for Standards (ISO)/ International Electrotechnical Committee (IEC) 9001:2015, ISO 15189:2012, ISO/ IEC 17020:2012, ISO/ IEC 17025:2017 and ISO/ IEC 17043:2010.

The Quality Assurance department, through the Q-Pulse office, continued to support the implementation and maintenance of QMS by ensuring that the policies and procedures are controlled in compliance with the required standards. The team ensured that NHLS staff are equipped with the required skills to manage different modules of the QMS software by training 540 staff on different Q-Pulse modules, compared to five in FY 202-2021. With the increase in accreditation and certification, the number of active documents on the system increased from 8398 at the end of FY21 to 8500 at the end of FY22.

The total number of accredited diagnostic laboratories increased as SANA) managed to conduct initial assessments in 18 laboratories compared to 15 in the previous financial year. This passed the 100

milestone of accredited NHLS laboratories, with 109 laboratories accredited at this stage. At the end of March 2022, the total number of laboratories with certificates was 99/216 (46%).

6.4. National Institute for Communicable Diseases

The National Institute for Communicable Diseases (NICD) has the following strategic objectives:

- To be the national public health institute for surveillance of communicable diseases in South Africa.
- To detect outbreaks or epidemics at an early stage to be able to respond to them timeously and effectively, or to anticipate imminent outbreaks or epidemics by investigation, research, and the analysis of data and to communicate information accordingly.
- To engage in directed and relevant research to answer questions related to national and regional public health communicable diseases problems, as well as their surveillance and management.
- To provide a reference function for communicable diseases laboratories in the public and private sectors nationally, regionally, and internationally.
- To build capacity for communicable diseases nationally and regionally.
- To provide scientific evidence to the NDOH, the scientific community and to the public.

The (NICD) is the national public health institute of South Africa, providing reference microbiology, virology, epidemiology, surveillance and public health research and training in communicable diseases. It serves as a publicly trusted source of information, both during outbreaks and as part of its routine surveillance of priority infectious diseases. The programme contributes mainly to high-quality service outcomes by providing a robust and efficient communicable disease surveillance system and outbreak response.

The NICD works in close collaboration with the national and provincial Departments of Health in the planning of policies and programmes to support communicable disease control and elimination efforts and provides specialised laboratory testing. A key role is to detect, respond and report timeously during communicable disease outbreaks by providing technical support and critical laboratory diagnostic services.

Several NICD laboratories are WHO collaborating partners, providing reference diagnostic services and surveillance for communicable diseases such as influenza, poliomyelitis, TB, and measles, among others. The NICD houses BSL III laboratories and the only positive pressure suit maximum-containment BSL IV laboratory in Africa, making it a premier research, surveillance, and diagnostics institution for communicable diseases. The NICD’s sequencing core facility

conducts next-generation sequencing for diagnosis and outbreak support. The NICD is also equipped with a transmission electron microscopy facility, which is useful for both complicated and sophisticated diagnostic investigations and provides a resource for research. Surveillance for malaria and arbovirus vectors is a key function of the NICD, which also houses five insectaries for culturing a wide range of mosquito species that are of public health importance.

The NICD achieved 100% of the targets set for the previous financial year. It continued to provide surveillance and training in communicable. Furthermore, the NICD established the Notifiable Medical Conditions mobile application, which collects real-time data on communicable diseases of public health importance. This enables the collation and interpretation of up-to-date intelligence on communicable disease incidence in South Africa. This information can be used to calculate the outbreak response threshold, predict future disease trends, and inform control policies and regulatory practices.

The NICD continues to serve as a coordination centre for responses to public health emergencies, such as the listeriosis outbreak of 2017–18 and the COVID-19 outbreak in 2020–21. It aims to collate, organise, and deploy resources, both internal and external, in response to a major infectious disease incident, outbreak, or a related event that has been declared a public health emergency by the Director-General of the NDoH. Provincial epidemiologists support eight of the nine provinces. The NICD has enrolled eleven more epidemiologists this year to strengthen the support given to the provinces. Epidemiologists are deployed to provincial health departments to help with outbreak investigations.

The Centre for Emerging Zoonotic and Parasitic Diseases (CEZPD) continues to provide national and regional capacity for the diagnosis, surveillance, and research of viral, bacterial and parasitic pathogens, particularly those classified as zoonotic risk Group 3. CEZPD also provides capacity for several agents, including viral haemorrhagic fevers, arthropod-borne viral infections, rabies and rabies-related infections, bacterial infectious diseases such as anthrax, botulism and plague, rickettsioses, malaria, parasitic opportunistic infections, diarrhoeal disease in children under five, schistosomiasis and soil-transmitted helminthic diseases. The Centre also serves as the national referral laboratory for human rabies investigations in the country.

Technology development and intervention-driven research are used to improve communicable disease surveillance, diagnostics, and control. As part of the Centre for Tuberculosis's diagnostics function, several new cutting-edge diagnostic technologies were evaluated for the rapid detection of Drug-resistant TB (DRTB). The data generated was submitted to the WHO for review and was used for the recent recommendations of these molecular assays. Assessments of next-generation

sequencing technologies for the diagnostic utility and surveillance of DRTB have been initiated and are planned to continue over the coming years.

6.5. National Cancer Registry

The primary roles of the National Cancer Registry (NCR) are national pathology-based cancer surveillance and the implementation of population-based cancer registration. During 2021, the NCR used multi-model supervised machine learning techniques to assign malignancy status to histology reports from the NHLS' Corporate Data Warehouse (CDW) and identify missing cancer records that could not be identified by routine CDW algorithms. This significantly improved the completeness of the pathology-based registry for 2015, 2016 and 2017. Reports for the pathology-based registry for 2016 and 2017 were published on the NCR's website.

6.6. National Institute for Occupational Health

The National Institute for Occupational Health (NIOH) is a division of the NHLS. It provides occupational and environmental health and safety services and support across all sectors of the economy, including the informal economy. Its mandate is to promote workers' health and safety nationally through a range of programmes, including, but not limited to, the surveillance of occupational diseases, specialised laboratories, health hazard evaluations, applied laboratory and epidemiological research, statutory autopsy services and other clinical services, and teaching and training on critical occupational health and safety skills.

The NIOH established the following goals that aim to contribute to the high-quality service outcomes and provide robust and efficient occupational environmental health services in a resource-constrained environment:

- Promote safety and health in workplaces through interventions, recommendations, and capacity building.
- Provide specialised safety, health, and environmental services to the NHLS.
- Maintain quality management systems.
- Strengthen stakeholder collaborations, especially with government entities.
- Increase capacity for occupational health surveillance.
- Establish revenue-generating streams for the sustainability of key occupational health programmes.

The NIOH continues to play a crucial role in training of various occupational groups across numerous sectors to equip industry with the tools required to protect and promote workers' health

and safety, including their safe return to work during the pandemic. When Zoom reached its maximum capacity of 3 000 participants due to increased demand for online COVID-19 training, the capacity of the online training platform was extended to live streaming on YouTube. A dedicated workplace advisory hotline, specifically for occupational health professionals, employees, and employers, had to be established and has now been expanded to address general workplace queries beyond COVID-19. To date, 82 webinars have been conducted with over 40 000 participants being trained on COVID-19 topics. Several guidelines and fact sheets have been developed and translated into local languages. These have been disseminated nationally and to neighbouring countries. All this material is accessible via the NIOH's zero-rated website.

During the past year, the NIOH played a role in some notable developments in Occupational Health and Safety (OHS) in South Africa. Several staff members represented the NIOH on key high-level decision-making technical committees, including the National Economic Development and Labour Council (NEDLAC) and the Department of Employment and Labour (DEL), in the drafting, and revising occupational health legislation and guidelines. The NIOH's newsletter, *NIOH OccuZone*, continued to be used as a medium for disseminating information on the Institute's activities. This quarterly publication provides information on current research, specialised services and the Institute's teaching and training activities. The NIOH launched the inaugural copy of this newsletter as a medium to disseminate critical information to its stakeholders.

In addition, the NIOH has increased its digital footprint through the effective utilisation of the social media platforms, Twitter and YouTube. These communication channels provided the opportunity for networking on a global scale, assisted with targeting specific stakeholders through tailored communication, and provided a diverse public relations platform to share information. New website visits increased by 57% with new visitors from other African countries and Europe.

The NIOH, being the primary provider of Safety, Health, and Environment (SHE) services to the entire NHLS, has provided overall leadership in guiding the implementation of policies for NHLS staff members in line with national guidelines. In view of the increasing number of infections, there was a need to recruit more medical personnel. Two more doctors and seven occupational health nurses were hired to perform screening, contact tracing and management of COVID-19 within the NHLS. The Occupational Health and Safety Information System (OHASIS) supports surveillance and compliance with Occupational and Environmental Health and Safety (OEHS) legislation and provides information for research in the information system used by practitioners to support the services offered to NHLS employees. The OHASIS has been extensively adapted for the unique needs posed by the NHLS' laboratory environment.

The NIOH's specialised laboratories have managed to maintain quality management system accreditation year after year. The Institute is the only entity in South Africa that has acquired four different quality management system accreditations i.e., ISO 15189 (Medical Laboratories), ISO 17025 (Testing and Calibration Laboratories), ISO 17020 (Conformity Assessment for Inspection Bodies) and ISO 9001. It has also been able to provide pre-SANAS internal audits, training, and support to NHLS laboratories, including PTS guidance to staff.

Historically, stakeholder engagement has been lacking, but in the recent times the NIOH has managed to strengthen functional working relationships with its key stakeholders, including DEL, the NDoH, organised labour, non-governmental organisations (NGOs) and professional societies. At the insistence of organised labour and the request of the NDoH, the NIOH conducted countrywide on-site audits of public and private healthcare facilities during the latter parts of 2020. This is evidence of the trusting relationship that has been built. The audit highlighted some deficiencies in various health systems. The NHLS scored well on most indicators.

The NIOH is a WHO collaborating centre and is recognised as a Centre of Excellence. It collaborates with various local and international universities, governments, and organisations, including advising the African Union Development Agency of the New Partnership for Africa's Development (AUDA-NEPAD), as well as collaborating with the International Labour Organization (ILO) on matters that include research, skills development, and policy advisory support. The NIOH currently serves as the advisory body for occupational health in the region.

Research is fundamental to the NIOH's mandate to produce new knowledge, to prevent ill health and injury and to promote good health. The Institute has a large and varied interdisciplinary research programme that covers many issues that are important to the improvement of workers' health and the health of communities living around workplaces. Research remains a priority for the Institute and primarily focuses on the prevention of workplace exposure, with specific reference to hazardous biological agents. The NIOH's few researchers managed to publish 43 articles in peer-reviewed journals during the 2020/21 financial year, an increase over the previous year. However, the recent loss of senior research staff members due to retirement is posing a huge challenge to meeting targets for the coming year.

All the above-mentioned new strategic areas and responsibilities represent a major challenge for the NIOH as it tries to address its priorities with limited resources. Hence, there are ongoing efforts to generate revenue by exploring various funding mechanisms and opportunities available to fulfil its core mandate effectively and sustainably.

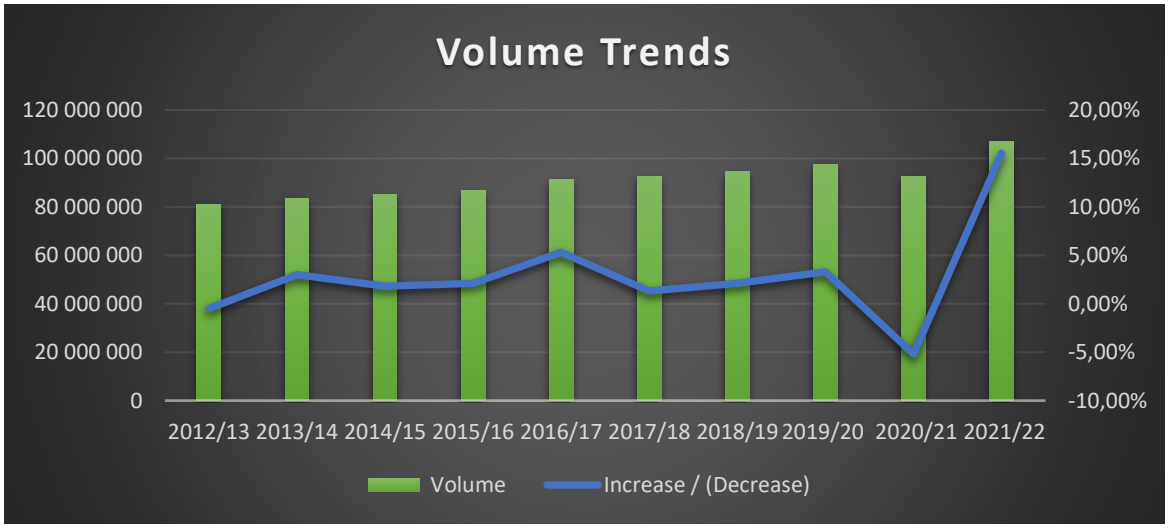
The informal economy, which is already large, will probably expand rapidly, and the NIOH's programmes in this economic sector will need to be geared to respond to its growing needs.

The NIOH recognises that new issues may emerge or become more important during the next five years, and some plans may be retired as they have been achieved, so priorities may be shifted in response to changing conditions.

6.7. Financial Management

NHLS continues to show improvement in its financial performance, which is mainly due to the increase in the volume of tests performed. Test volumes have increased from 82 471 586 in the 2020/2021 financial year to 106 837 537 (approximately 16%) in the 2021/2022 financial year as per table 5. The significant increase in test volumes was due to the COVID-19 pandemic. As of 30 September 2022, the NHLS has already conducted 55 834 738 tests, compared to 52 871 714 tests (a 6% increase) conducted in the previous year. The main contributor to the increase in volumes is HIV and related tests. However, the COVID-19 test volumes decreased by approximately 75% when compared to the same period in the previous financial year, resulting in a decline of approximately 76% in revenue. The NHLS managed to keep the tariff increases below the recommended increase as per the Medium-Term Expenditure Framework Guidelines; however, this may not be sustainable given the weak economic environment.

Table 5: Test volume trends — ten-year analysis



The amount billed to the provinces in the 2021/2022 financial year was R11 billion, and the provinces managed to pay R10 billion, approximately 90% of the billed amount. As of 30

September 2022, provinces were billed R5.4 billion and they managed to pay R5.6, this may be unsustainable because of the budget cuts announced by National Treasury for 2023/2024 financial year. For this reason, the NHLS needs to implement strict cost containment measures and implement the revenue and costing strategy to increase revenue going forward.

Supply Chain Management (SCM) continues to be a challenge. A lot of effort is put into capacitating the SCM department and improving the processes. The NHLS is currently striving for an effective and responsive procurement process, providing uninterrupted power and water supply, increasing revenue, and ultimately achieving a clean audit opinion from the Auditor-General by the end of the MTSF.

6.8. Information and Communication Technology

The NHLS ICT infrastructure, which has been a challenge for some time, was prioritised in the previous financial year. The aim is to build a strong ICT foundation based on robust and agile infrastructure with core laboratory and enterprise capabilities and innovative solutions that help build state-of-the-art laboratory services in the country.

During the previous and current financial years, the NHLS managed to improve some of the IT infrastructure which include data centre equipment and new bandwidth roll out through the Multiprotocol Label Switching (MPLS) project. The improved IT infrastructure and other planned applications and systems upgrades will enable the NHLS to achieve its intention to be fully digitalised and improve service delivery.

6.9. Human Resources

The NHLS has one of the most highly regarded technical teams. These include affiliated medical scientists and pathologists with a National Research Foundation A and B rating. Currently, the NHLS takes sole responsibility for training pathology registrars and has the highest output of registered medical scientists in the country. It also has a learning academy that trains intern medical technologists, student medical technicians, and medical laboratory assistants and liaises with the UoTs to provide work-in-learning opportunities for intern medical scientists. This represents a potential pipeline to provide the organisation and the country with skilled and competent technical staff. There is, however, ongoing attrition, particularly of pathologists at higher levels, including Heads of Department, due to recruitment from the private sector and international migration. This does pose a risk to the triple mandate of the NHLS, including the ability to continue training.

The employee turnover rate at the NHLS is low compared to the national and health sectors. However, the employees who leave the organisation hold critical positions, leaving a visible gap in the organisation's performance. A clear recruitment strategy, staff development and retention are critical for the organisation.

6.10. SWOT analysis

The NHLS conducted a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis to ensure that a better understanding of the existing organisational capacity, and internal and external environments, provides a solid foundation for planning. The NHLS will be in a better position to plan for any potential opportunities and create mitigation strategies to prevent threats from becoming realities with a clear grasp of its strengths and weaknesses.

Table 6: Strengths, weaknesses, opportunities, and threats

Strengths	Weaknesses
• Strong academic base that allows sustainable partnerships with stakeholders through relevant research outputs. • A national pathology laboratory footprint that allows for equitable access to healthcare. • An exclusive national integrated data warehouse. • Influence in the international, national, and regional societies on laboratory medicine. • A competitive remuneration structure. • Well-established disease surveillance systems. • A leader in dealing with occupational health issues in the country. • National leaders in assay validation and the development of new assays. • Competitive pricing of tests.	• Limited ownership of value chain from the collection of samples to the return of results. • Lack of succession planning and development across various levels. • Inequitable distribution of critical and scarce skills. • Inadequate ICT infrastructure capacity. • Complacency due to perceived security from being a designated public sector service provider. • Inadequate supply chain management capacity. • Over-reliance on suppliers due to the specialist nature of services and goods needed by the NHLS to fulfil its mandate.

Opportunities	Threats
• Establish multisectoral partnerships to enhance the sharing of intellectual capacity. • Leverage the current capacity to expand research and innovation. • Make use of other sources of income to enhance revenue streams. • Expand the existing footprint in terms of the national and regional laboratory network. • Leverage on the implementation of National Health Insurance. • Strengthen integrated IT systems. • Utilise media coverage to promote the NHLS' brand and corporate image. • Perform remote oversight of laboratories by pathologists. • Investigate the automation and digitalisation of manual processes, including digital pathology.	• Private-sector competition, especially in Anatomical Pathology. • The opening of new medical schools: the NHLS may not have enough resources to cover the needs. • The sub-optimal functioning of the Grants Office. • Insufficient throughput from the training platform. • Challenge regarding the retention of professional staff. • Operational costs exceed tariff increases. • Increased competition with the implementation of the NHI. • Data security – compliance with the Protection of Personal Information (POPI) Act. • Energy and water challenges.

7. Overview of the 2021/2022 budget and MTEF estimates.

7.1. *Materiality and significant framework*

Treasury Regulation Section 28.3.1 states: “For purposes of material [section 55(2) of the Public Finance Management Act (PFMA)] and significant [section 54(2) of the PFMA], the accounting authority must develop and agree on a framework of acceptable levels of materiality and significance with the relevant executive authority.”

Materiality and/or significance within NHLS is defined as a threshold or cut-off point where the information (omission or inclusion of it) will alter the decisions that are to be taken. NHLS thus accepts that materiality can be both quantitative and qualitative.

The NHLS has considered the following factors:

- The nature of NHLS’ business
- Statutory requirements affecting NHLS
- The inherent and control risks associated with NHLS

7.2. Nature of the NHLS’ business

The NHLS is the main provider of clinical support services to the national, provincial, and local departments of health through its countrywide network of quality-assured diagnostic laboratories. The NHLS also provides surveillance support for communicable diseases, cancer, occupational health, and forensic chemistry, and thus, it endeavours to align its strategy to both the DoH priorities and the national and regional Burden of Disease.

The NHLS delivers services throughout the public sector from the Primary Health Care level to tertiary and national central hospitals. The level of complexity and sophistication of services increases from the peripheral laboratories to the central urban laboratories (with specialised surveillance infrastructure existing at isolated sites).

7.3. Statutory requirements laid down on the NHLS.

The NHLS is managed according to the provisions of the National Health Laboratory Service Amendment Act 5 of 2019, as well as the NHLS Rules, gazetted in July 2007, and the Public Finance Management Act No. 1 of 1999 (as amended). It is a Schedule 3A public entity governed by a Board and a Chief Executive Officer.

7.4. The control and inherent risks associated with the NHLS.

In assessing the control risk of the NHLS, cognisance was given to, amongst others, the following:

- Proper and appropriate governance structures have been established.
- An audit and risk committee that closely monitors the control environment of the NHLS has been established.
- The function of internal audit was established, and some of the projects are co-sourced with the external audit functions.
- A three-year internal audit plan, based on annual risk assessments being performed, is reviewed, and agreed upon by the audit and risk committee.
- Material risks that require attention i.e., irregular expenditure reported in the annual report, are receiving attention and controls are being implemented to address weaknesses.
- A delegation of authority is in place where awards of tenders above R10 million are approved by the NHLS Board.
- There is an Annual Performance Plan Accreditation Strategy listing the targeted date for the accreditation of each laboratory.
- Senior management and Bargaining and Labour Forum (BLRF) engagement platforms have been established.
- Turnaround times for resolving reported ICT failures and downtime are monitored.
- Application of a conservative investment strategy during the investment of funds.
- Development of the NHLS IT strategy.
- Laboratory referral processes are reviewed and updated regularly.

7.5. *Materiality level for consideration:*

7.5.1. Qualitative aspects

Materiality can be based on several financial indicators. Detailed is an indicative table of financial indicators of the type that are widely used:

Basis	Acceptable percentage range
Gross revenue	0.25 – 1%
Gross profit	1 – 2%
Net income	2.5 – 10%
Equity	2 – 5%
Total assets	**0.5 – 2%**

The level of materiality for 2023–2024 has been set as follows:

- Assets: R7 784 977 000 x 0.5% = R 38 924 885 for transactions in the Statement of Financial Position, the 2021–2022 audited total asset balance was used.
- Gross revenue was calculated as R12 237 665 000 x 0.5% = R 61 188 325 for classes of transactions in the Statement of Financial Performance, the 2021–2022 audited revenue was used.
- The utilisation of 0.5% for both the statement of financial position and performance is based on the nature, statutory requirements, controls, and inherent risk associated with the NHLS above.

As far as qualitative materiality is concerned, NHLS has adopted the following materiality levels:

- All amounts/events pertaining to criminal conduct and/or dishonest behavior.
- All amounts/events pertaining to non-compliance with legislation.
- All unusual transactions/ events that are not within the mandate of the NHLS as legislated.

7.6. *Expenditure estimates*

The total expenditure estimate (2023/2024) comprised Compensation of employees of R6.0 billion and Goods and Services of R7.5 billion. Over the Medium term (2023/24-2025/26), total revenue is estimated to increase from R13.5 billion to R15.3 billion. NHLS has provided for a steady increase in required personnel with compensation of employees increasing from R6.0 billion to R6.8 billion over the medium term (2023/24-2025/26). The decrease in the grant transfers received will impact negatively on the activities of the National Institute for Communicable Diseases (NICD), National Institute for Occupational Health (NIOH), Teaching, Training and Research (TTR) and Forensic Chemistry Laboratories (FCL).

The NHLS continued to implement the processes of enhancing the provision of rapid, reliable, and efficient service delivery at low cost. This was achieved through state-of-the-art laboratories, the right people with the right skills at the right level, cutting edge information technology whilst ensuring that it remained financially stable to sustain its operations.

7.7. *Budget for FY 2023/24*

The planned budget for FY 2023/24, previous budgets and medium-term estimates are captured in table 7.

Table 7: Budget 2023 – 2024

Statement of Financial Performance	Audited	Audited	Forecast	Medium-Term Estimate		
Budget 2023/2024	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**
Revenue						
Test Revenue	**9 778 606 000**	**11 597 608 000**	**12 091 246 446**	**12 474 650 574**	**13 313 915 906**	**14 256 825 552**
Other	1 051 695 000	400 774 000	87 532 000	91 908 600	96 504 030	101 329 232
Interest Received	163 705 000	201 404 000	221 196 000	210 136 200	199 629 390	189 647 921
Transfers received	758 884 000	640 057 000	772 521 000	725 255 000	757 891 000	795 786 000
Total Revenue	**11 752 890 000**	**12 839 843 000**	**13 172 495 446**	**13 501 950 374**	**14 367 940 326**	**15 343 588 704**
Expenses						
Compensation of employees	4 202 399 000	4 783 603 000	5 319 690 666	5 929 903 083	6 350 926 202	6 801 841 962
Goods and services	7 485 108 000	7 979 809 000	7 415 077 905	7 511 888 125	7 937 672 741	8 461 559 142
Total Expenses	**11 687 507 000**	**12 763 412 000**	**12 734 768 572**	**13 441 791 208**	**14 288 598 943**	**15 263 401 104**
Surplus/(Deficit)	**65 383 000**	**76 431 000**	**437 726 875**	**60 159 166**	**79 341 384**	**80 187 600**

Programme 1: Laboratory Service

Programme purpose

This programme represents the NHLS' core business, which is to provide cost-effective and efficient health laboratory services to all public sector healthcare providers, any other government institution within and outside South Africa that may require such services, and any private healthcare provider that requests such services, as mandated by the NHLS Act. The NHLS must provide equitable, comprehensive, high-quality, timely and cost-effective pathology services that will improve patient care.

Explanation of Performance over the Medium-Term Period

The NHLS' intention for the MTEF, among others, is to leverage innovation and new technology to improve efficiency. To achieve this, the NHLS must invest in innovative solutions, information technology, digital technology, communication links and logistical services.

With the aim to achieve clinical efficiency and relevance, the NHLS will continue:

- surveillance to drive diagnostic implementation,
- provision of new diagnostic services including for emerging or re-emerging pathogens,
- targeted training to produce a fit-for-purpose and responsive workforce,
- implementation and validation of state-of-the-art diagnostic testing including for surveillance e.g. Next Generation Sequencing;
- operational research to drive the optimisation and utilisation of laboratory services including pre-analytical, analytical, and post-analytical factors which may impact quality; and
- the harnessing of big data and bioinformatics to inform a wide range of key strategies, from influencing national and international policy to optimal laboratory network and test repertoire.

Outcome, outputs, performance indicators and targets

Programme 1: Sub-programme: Laboratory Service

Outcome	Output	Output indicator	Audited/actual/planned performance			Estimated performance	Medium-term targets		
			2020/21 Audited	2021/22 Audited	2022/23 Planned	2023/24	2024/25	2025/26	2026/27
Clinical effectiveness and efficiency	**Improved turnaround times**	Percentage of TB GeneXpert tests performed within 40 hours	95%	94	93%	94%	94%	95%	95%
		Percentage of CD4 tests performed within 40 hours	95%	93	94%	95%	95%	95%	95%
		Percentage of HIV viral load tests performed within 96 hours	80%	93	82%	94%	95%	95%	95%
		Percentage of HIV PCR tests performed within 96 hours	83%	90	81%	92%	94%	95%	95%
		Percentage of cervical smear screening performed within five weeks	95%	97%	91%	95%	92%	93%	94%
		Percentage of laboratory tests (full blood count)	95%	95%	94%	95%	95%	95%	95%

Outcome	Output	Output indicator	Audited/actual/planned performance			Estimated performance	Medium-term targets		
			2020/21 Audited	2021/22 Audited	2022/23 Planned	2023/24	2024/25	2025/26	2026/27
		performed within eight hours							
		Percentage of laboratory tests (urea and electrolytes) performed within eight hours	94%	91%	94%	95%	95%	95%	95%
		Percentage of SARS-CoV-2 PCR tests performed within 48 hours	New	New	85%	90%	92%	94%	95%
Clinical effectiveness and efficiency	**Equitable service coverage**	Develop and implement a POCT plan	POCT plan developed	POCT plan developed	Implement the pilot to assess feasibility and cost benefit	10% implementation of the POCT plan based on the pilot	20% implementation of the POCT plan based on the pilot	30% implementation of the POCT plan based on the pilot	50% implementation of the POCT plan based on the pilot
	Improved oversight and access to pathology through technology and innovation.	Implement digital pathology	0%	Develop the implementation plan	Prepare for implementation of the digital pathology	Implement the pilot	Implement the pilot	Roll out 10% of identified laboratories based on the pilot	Roll out 20% of identified laboratories based on the pilot

Programme performance indicators and quarterly targets for 2023/24

Output indicator		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
6.2.2.1	Percentage of TB GeneXpert tests performed within 40 hours	**Quarterly**	94%	94%	94%	94%	94%
6.2.2.2	Percentage of CD4 tests performed within 40 hours.	**Quarterly**	95%	95%	95%	95%	95%
6.2.2.3	Percentage of HIV viral load tests performed within 96 hours	**Quarterly**	94%	94%	94%	94%	94%
6.2.2.4	Percentage of HIV PCR tests performed within 96 hours	**Quarterly**	92%	92%	92%	92%	92%
6.2.2.5	Percentage of cervical smear screening performed within five weeks	**Quarterly**	95%	95%	95%	95%	95%
6.2.2.6	Percentage of laboratory tests (full blood count) performed within eight hours	**Quarterly**	95%	95%	95%	95%	95%
6.2.2.7	Percentage of laboratory tests (urea and electrolytes) performed within eight hours	**Quarterly**	95%	95%	95%	95%	95%
6.2.2.8	Percentage of SARS-CoV-2 PCR tests performed within 48 hours	**Quarterly**	90%	90%	90%	90%	90%
6.2.2.9	Develop and implement a POCT plan	**Annually**	10% implementation of the POCT plan based on the pilot	N/A	N/A	N/A	10% implementation of the POCT plan based on the pilot
6.2.2.10	Implement digital pathology	**Annually**	Implement the pilot	N/A	N/A	N/A	Implement the pilot

NB: The turnaround time is measured from the time of registration in the laboratory until the results are authorised.

Reconciling performance with budget and MTEF

Laboratory Service	Audited	Audited	Audited	Budget	Medium-term estimate		
R000'	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Expenses	**7 210 316**	**10 015 414**	**9 010 569**	**8 322 261**	**9 978 062**	**10 640 830**	**11 415 881**
Compensation of employees	3 218 694	3 316 602	3 695 486	4 049 681	4 400 966	4 736 134	5 103 634
Goods and services	3 991 622	6 698 812	5 315 083	4 272 580	5 577 097	5 904 696	6 312 247

The budget will focus on, *interalia*:

- the provision of new diagnostic services including for emerging or re-emerging pathogens,
- upgrading of laboratory equipment,
- implementation of Point of Care Testing and Digital Pathology, and
- make provision for the filling of vacant critical posts.

Programme 2: Academic Affairs, Research and Quality Assurance

Programme purpose

The main purpose of this programme is to help the NHLS strengthen its mandate of maintaining and providing high-quality assured and accredited laboratory medicine to the academic platform. Two of the focus areas within this programme are to ensure that research is conducted to improve service delivery and quality and to ensure national coverage by NHLS pathologists. The aim is to oversee and collaborate with various training institutions that contribute to the development of qualified and skilled people operating within the scientific field of pathology services. There are three sub-programmes:

Quality Assurance

The purpose of this sub-programme is to improve total QMSs within laboratories and support structures to improve the quality of NHLS laboratories' results.

Academic Affairs

The purpose of this sub-programme is to support and promote the training and capacity-building of all medical laboratory health professionals to ensure the NHLS and the rest of the country have high-quality professional and technical skills in pathology. This mandate strengthens the business case for the sustained development of the NHLS through the increased output of highly trained pathologists, medical scientists, medical technologists, and medical technicians.

Research and Innovation

The purpose of this sub-programme is to create an enabling research environment that promotes multidisciplinary, world-class research and research outputs, allowing the NHLS to contribute to national and global scientific knowledge. The sub-programme supports innovative research initiatives while encouraging the exploration of innovative emerging technologies and technology transfer to enhance South African research and development capacity for novel ideas.

Explanation of Performance over the Medium-Term Period

The NHLS, over the MTEF, plans to obtain ISO 9001:2015 certification for its administration departments. This will strengthen and improve the QMS in these departments and ensure that service delivery and academic platforms within the NHLS receive consistent, high-quality products and services, which, in turn, bring business benefits.

The NHLS aims to have all the national central laboratories, provincial tertiary laboratories and regional laboratories SANAS accredited over the MTEF.

Programme 2: Academic Affairs, Research and Quality Assurance

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicators**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
High-quality services	**Strengthened total quality management systems**	Percentage compliance achieved by laboratories during annual quality compliance audits	100%*	98%	93%	94%	95%	95%	95%
		Percentage of laboratories achieving proficiency testing scheme performance standards of 80%	99%*	99%	92%	94%	96%	98%	98%
		Number of national central laboratories that are SANAS accredited	51	52	53	53	53	53	53
		Number of provincial tertiary laboratories that are SANAS accredited	13	15	16	17	17	17	17

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicators**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
		Number of regional laboratories that are SANAS accredited	29	30	35	38	41	44	45
		Number of district laboratories that are SANAS accredited	35	42	40	55	65	75	85
		Number of ISO 9001-certified departments	3 departments	4 departments	5 departments	6	7	8	8
		Develop and implement the pathologists' national coverage plan	Pathologists' national coverage plan approved	30% implementation of the pathologists' national coverage plan	30% implementation of the pathologists' national coverage plan	40% implementation of the pathologists' national coverage plan	50% implementation of the pathologists' national coverage plan	60% implementation of the pathologists' national coverage plan	70% implementation of the pathologists' national coverage plan
	Cutting-edge health research	Number of articles published in peer-reviewed journals	673	**688**	660	680	700	720	720
Clinical effectiveness and efficiency	**Appropriately trained human resources in adequate numbers**	Number of pathology registrars admitted and trained in the NHLS	46	64	40	40	40	40	40
		Number of intern medical scientists	55	31	50	50	50	50	50

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicators**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
		admitted and trained in the NHLS							

Programme performance indicators and quarterly targets for 2023/2024

Output indicators		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
7.2.2.1	Percentage compliance achieved by laboratories during annual quality compliance audits	**Annually**	94%	N/A	N/A	N/A	94%
7.2.2.2	Percentage of laboratories achieving proficiency testing scheme performance standards of 80%	**Annually**	94%	N/A	N/A	N/A	94%
7.2.2.3	Number of national central laboratories that are SANAS accredited	**Annually**	53	N/A	N/A	N/A	53
7.2.2.4	Number of provincial tertiary laboratories that are SANAS accredited	**Annually**	17	N/A	N/A	N/A	17
7.2.2.5	Number of regional laboratories that are SANAS accredited	**Annually**	38	N/A	N/A	N/A	38
7.2.2.6	Number of district laboratories that are SANAS accredited	**Annually**	55	N/A	N/A	N/A	55
7.2.2.7	Number of ISO 9001 certified departments	**Annually**	6	N/A	N/A	N/A	6
7.2.2.8	Develop and implement the pathologists' national coverage plan	**Annually**	40% implementation of the pathologists' national coverage plan	N/A	N/A	N/A	40% implementation of the pathologists' national coverage plan
7.2.2.9	Number of articles published in peer-reviewed journals	**Annually**	680	N/A	N/A	N/A	680
7.2.2.10	Number of pathology registrars admitted and trained in the NHLS	**Annually**	40	N/A	N/A	N/A	40

Output indicators		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
7.2.2.11	Number of intern medical scientists admitted and trained in the NHLS	**Annually**	50	N/A	N/A	N/A	50

Reconciling performance with budget and MTEF

Research	Audited	Audited	Audited	Budget	Medium-term estimate		
R000'	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Expenses	**108 777**	**227 494**	**381 622**	**355 022**	**377 871**	**400 289**	**420 303**
Compensation of employees	40 174	132 119	114 360	118 208	124 650	131 493	138 068
Goods and services	68 603	95 375	267 262	236 814	253 221	268 795	282 235

The NHLS, over the MTEF, plans to

- operationalise research to drive the optimisation and utilisation of laboratory services including pre-analytical, analytical, and post-analytical factors which may impact quality.
- harness big data and bioinformatics to inform a wide range of key strategies, from influencing national and international policy to optimal laboratory network and test repertoire.
- Obtain ISO 9001:2015 certification of all the administration departments,
- Strengthen total quality management systems,
- Increase number of SANAS accredited laboratories,
- make provision for the filling of vacant critical posts.

Programme 3: Surveillance of Communicable Diseases

Programme purpose

The National Institute for Communicable Diseases is a national public health institute for South Africa that provides reference microbiology, virology, epidemiology, surveillance, and public health research to support the government's response to communicable disease threats.

Explanation of Performance over the Medium-Term Period

The NICD has the following strategic objectives:

- To be the national public health institute for surveillance of communicable diseases in South Africa.
- To detect outbreaks or epidemics at an early stage to be able to respond to them timeously and effectively, or to anticipate imminent outbreaks or epidemics by investigation, research, and the analysis of data and to communicate information accordingly.
- To engage in directed and relevant research to answer questions related to national and regional public health communicable disease problems, as well as their surveillance and management.
- To provide a reference function for communicable diseases laboratories in the public and private sectors nationally, regionally, and internationally.
- To build capacity for communicable diseases nationally and regionally.

Outcomes, outputs, output indicators and targets

Programme 3: Surveillance of Communicable Diseases

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicator**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
High-quality services	A robust and efficient communicable disease surveillance system and outbreak response	Percentage of identified prioritised diseases under surveillance	90%	98%	90%	90%	90%	90%	90%
		Percentage of outbreaks of Category 1 notifiable medical conditions responded to within 24 hours after notification	100%	100%	100%	100%	100%	100%	100%
		Percentage of NICD laboratories that are SANAS accredited	100%	100%	100%	100%	100%	100%	100%
		National HIV surveillance reporting	N/A	N/A	90%	90%	90%	90%	90%
		National TB surveillance reporting	N/A	N/A	85%	85%	85%	85%	85%
		Number of articles published in peer-reviewed journals	200*	257	160	170	180	200	200
	Appropriately trained human resources in adequate numbers	Number of field epidemiologists qualified	7	8	8	8	9	10	10

***The increased number of research publications was due to the increased COVID-19 related research output. The targets have been adjusted to be realistic going forward.**

Programme performance indicators and quarterly targets for 2023/2024

Output Indicator		Reporting Period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
8.2.2.1	Percentage of identified prioritised diseases under surveillance	**Quarterly**	90%	90%	90%	90%	90%
8.2.2.2	Percentage of outbreaks of Category 1 notifiable medical conditions responded to within 24 hours after notification	**Quarterly**	100%	100%	100%	100%	100%
8.2.2.3	Percentage of NICD laboratories that are SANAS accredited	**Annually**	100%	N/A	N/A	N/A	100%
8.2.2.4	National HIV surveillance reporting	**Quarterly**	90%	90%	90%	90%	90%
8.2.2.5	National TB surveillance reporting	**Quarterly**	85%	85%	85%	85%	85%
8.2.2.6	Number of articles published in peer-reviewed journals	**Annually**	170	N/A	N/A	N/A	170
8.2.2.7	Number of field epidemiologists qualified	**Annually**	8	N/A	N/A	N/A	8

Reconciling performance with budget and MTEF

Surveillance of Communicable Diseases	Audited	Audited	Audited	Budget	Medium-term estimate		
R000'	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Expenses	**420 410**	**418 225**	**401 452**	**459 886**	**483 761**	**508 700**	**534 135**
Compensation of employees	270 804	263 594	280 648	322 993	340 596	359 295	377 260
Goods and services	149 606	154 631	120 804	136 893	143 165	149 405	156 875

The NHLS, through NICD, aims to:

- Strengthen surveillance to drive diagnostic implementation,
- Implement and validate surveillance systems e.g. Next Generation Sequencing;
- To detect outbreaks or epidemics at an early stage to be able to respond to them timeously and effectively, or to anticipate imminent outbreaks or epidemics by investigation, research, and the analysis of data and to communicate information accordingly.
- make provision for the filling of vacant critical posts.

Programme 4: Occupational and Environmental Health and Safety

The environment, in this context, refers to the environment that is contaminated by workplace activities or that can be protected from contamination through workplace interventions. Safety in this context refers to the synergies between occupational health and occupational safety such as in risk assessments, ergonomic assessments, teaching and training, and the surveillance of occupational diseases and injuries.

Programme purpose

The National Institute for Occupational Health is a national public health institute that provides occupational and environmental health and safety support across all sectors of the economy to improve and promote workers' health and safety. National and provincial government departments and public entities are important clients, including the MBOD of the national DoH. The Institute achieves this by providing occupational medicine, hygiene, advisory, statutory pathology, and laboratory services, conducting research, and providing teaching and training in occupational and environmental health and safety.

Explanation of Performance over the Medium-Term Period

The NIOH set the following goals to contribute to high quality of service outcomes and provide robust and efficient occupational environmental health services in a resource-constrained environment:

- Promote safety and health in workplaces through interventions, recommendations, and capacity building.
- Provide specialised safety, health, and environmental services to the NHLS.
- Maintain quality management systems.
- Strengthen stakeholder collaborations, especially with government entities.
- Increase capacity for occupational health surveillance.
- Establish revenue-generating streams for the sustainability of key occupational health programmes.

Outcomes, outputs, output indicators and strategic objectives

Programme 4: Occupational and Environmental Health and Safety

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicator**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
High-quality services	Robust and efficient occupational and environmental health services	Percentage of occupational and environmental health laboratory tests conducted within the predefined turnaround time	97%	98%	90%	90%	90%	90%	90%
		Number of occupational, environmental health and safety assessments completed	15	16	15	20	21	23	25
		Number of occupational health surveillance reports produced	4	4	4	4	4	4	4
		Percentage of NIOH laboratories that are SANAS accredited	100%	100%	100%	100%	100%	100%	100%

Programme performance indicators and quarterly targets for 2023/2024

Outputs		Reporting period	Annual target 2023/2024	Quarterly targets			
				First	Second	Third	Fourth
9.2.2.1	Percentage of occupational and environmental health laboratory tests conducted within the predefined turnaround time	**Quarterly**	90%	90%	90%	90%	90%
9.2.2.2	Number of occupational, environmental health and safety assessments completed	**Annually**	20	N/A	N/A	N/A	20
9.2.2.3	Number of occupational health surveillance reports produced	**Annually**	4	N/A	N/A	N/A	4
9.2.2.4	Percentage of NIOH laboratories that are SANAS accredited	**Annually**	100%	N/A	N/A	N/A	100%

Reconciling performance with budget and MTEF

Occupational and Environmental Health and Safety	Audited	Audited	Audited	Budget	Medium-term estimate		
R000'	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**
Expenses	**137 787**	**139 732**	**135 764**	**166 009**	**174 738**	**183 999**	**193 199**
Compensation of employees	108 067	110 650	112 981	134 216	141 530	149 300	156 765
Goods and services	29 720	29 082	22 783	31 793	33 208	34 699	36 434

The NHLS aims to:

- Promote safety and health in workplaces through interventions, recommendations, and capacity building.
- Maintain quality management systems.
- Increase capacity for occupational health surveillance.
- make provision for the filling of vacant critical posts.

Programme 5: Forensic Chemistry Laboratory Service

Programme purpose

This programme is responsible for pre-and post-mortem analyses of blood alcohol levels for drunk driving, as well as toxicology analyses of biological fluids and human organs in the event of unnatural deaths like murder and suicide, in accordance with the Criminal Procedure Act, and in accordance with the Foodstuffs Act for food and cosmetic analyses.

Explanation of Performance over the Medium-Term Period

The Forensic Chemistry Laboratories have been fully integrated into the NHLS as of 01 April 2022.

The FCLs' primary business includes the following:

- Testing of biological tissues and fluids for the presence of poisons and/or drugs in instances of unnatural deaths (toxicology analysis).
- Testing of ante-mortem and post-mortem blood for the presence of alcohol in alleged drunken driving matters (alcohol analysis).
- Food testing in terms of the Foodstuffs Act.

The initial analysis performed on the FCLs shows that there will be a need for a large capital injection as well as additional funding to improve the operational performance. The capital injection is mainly required as the infrastructure is deteriorated, and the additional operational funding is required as FCL is currently underfunded. This surplus will be utilised, in part, for improvements in operational performance. It will be also used to reduce the backlog of tests that accumulated over the years.

Outcomes, outputs, output indicators and strategic objectives

Programme 5: Forensic Chemistry Laboratory Service

Outcome	Output	Output indicator	Audited/actual/planned performance			Estimated performance	Medium-term targets		
			2020/21 Audited	2021/22 Audited	2022/23 Planned	2023/24	2024/25	2025/26	2026/27
Clinical effectiveness and efficiency	Improved turnaround times	Percentage of blood alcohol tests completed within a normative period of 90 days	New	New	60%	75%	80%	85%	90%
		Percentage reduction of backlogged toxicology cases	New	New	20%	40%	60%	80%	100%
		Percentage of perishable food samples tested within 30 days of sampling	New	New	50%	75%	80%	85%	90%
		Percentage of non-perishable food samples tested within 60 days of sampling.	New	New	50%	75%	80%	85%	90%

Programme performance indicators and quarterly targets for 2023/24

Output indicator		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
10.2.1	Percentage of blood alcohol tests completed within a normative period of 90 days	**Quarterly**	75%	15%	15%	20%	20%
10.2.2	Percentage reduction of backlogged toxicology cases	**Quarterly**	40%	10%	10%	10%	10%
10.2.3	Percentage of perishable food samples tested within 30 days of sampling	**Quarterly**	75%	15%	15%	20%	20%
10.2.4	Percentage of non-perishable food samples tested within 60 days of sampling	**Quarterly**	75%	15%	15%	20%	20%

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Reconciling performance with budget and MTEF

Forensic chemistry Laboratory	Audited	Audited	Audited	Budget	Medium-term estimate		
R000'	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**
Expenses	**-**	**-**	**-**	**490 500**	**530 925**	**566 561**	**604 589**
Compensation of employees	-	-	-	104 448	119 007	127 457	136 506
Goods and services	-	-	-	386 052	411 918	439 104	468 083

The initial analysis performed by FCL shows that we will require a large capital injection as well as additional funding to improve the operational performance. The capital injection is mainly required to:

- Strengthen the Forensic Chemistry Laboratories.
- Upgrading of laboratory equipment.
- Improve deteriorated infrastructure.
- Accreditation of laboratories and acquiring certification of internal controls for testing.
- And filling of critical vacant posts.

Programme 6: Administration

Programme purpose

The Administration programme plays a crucial role in the delivery of the NHLS' services through the provision of a range of support services, such as organisational development, HR and labour relations, information technology, property management, security services, legal services, communication, and integrated planning. The NHLS depends highly on the effective management of financial resources and the procurement process as administered by the Finance department. Generating sufficient revenue remains a critical focus area for the NHLS, to ensure financial viability and sustainability. There are three sub-programmes.

Financial Management

The purpose of this sub-programme is to effectively manage the finances of the organisation and to improve the cash flow position of the NHLS.

Information and Communication Technology (ICT)

The purpose of this sub-programme is to build a robust and agile ICT infrastructure as well as innovative digital solutions to facilitate and enable state-of-the-art laboratory services at the NHLS by 2025.

Human Resources Management

The purpose of this sub-programme is to provide effective HR services through efficient processes, systems, and adequate human resources.

Explanation of Performance over the Medium-Term Period

The NHLS' intention for the MTEF, among others, is to leverage innovation and new technology to improve efficiency. To achieve this, the NHLS must invest in information technology, digital technology, communication solutions and logistical services.

It continues to implement improved procurement policies and procedures to eliminate irregular expenditure. This includes system enhancements and continuous procurement training interventions.

In line with our revenue enhancement strategy, the NHLS aims to restructure and re-engineer DMP’s manufacturing plant and establish the Research and Development (R&D) section. The establishment of this section will facilitate the collaboration with medical diagnostic companies to manufacture rapid diagnostic kits for the growing POCT market and bring more business to the NHLS.

Furthermore, the NHLS aims to invest in the establishment of a Business Intelligence Unit (BIU) to further reinforce the Board's control. The BIU will produce studies on evidence-based operational strategy, cost-cutting, market, and intellectual property appraisal. It will also be used to track whether the NHLS is on track to accomplish its strategic goals by tracking specified indicators.

Programme 6: Sub-Programme: Financial Management

Output indicator			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicator**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
Cost-effective services	**Improve the liquidity position of the NHLS**	Ratio of current assets to current liabilities	3,1:1	3.8:1	2:1	2:1	2:1	2:1	2:1
		Cash flow coverage ratio (operating cash in-flows / total debt)	2,9:1	3.5:1	2:1	2:1	2:1	2:1	2:1
		Number of creditor days	35 days	28 days	30 days	30 days	30 days	30 days	30 days
		Number of debtors days	109 days	129 days	100 days	120 days	110 days	100 days	90 days
	Provide affordable pathology services	Review the cost of top hundred (100) pathology tests by volume over the next four years.	New	New	New	Cost of 25% of the tests reviewed	Cost of 50% of the tests reviewed	Cost of 75% of the tests reviewed	Cost of 100% of the tests reviewed
	Clinical effectiveness and efficiency	Percentage turnaround time for awarding tenders that are below R10 million within 180 days	69%*	90%*	75%	80%	85%	90%	90%
		Percentage turnaround time for awarding tenders that are above R10 million within 180 days	New	New	70%	75%	80%	80%	80%

Output indicator			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicator**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
Good governance	**Audit opinion of the Auditor-General**	Audit opinion of the Auditor-General	Unqualified	Unqualified	Unqualified	Unqualified	Clean	Clean	Clean
	Corruption-free organisation	Percentage of allegations reported through the NHLS' tipoff platform that are investigated and completed within 180 days	92%	96%	90%	90%	90%	90%	90%
	Transformed procurement system.	Percentage of RFQs awarded to service providers that are below a B-BBEE score level 4.	New	New	New	60%	65%	70%	75%

***Figures represent the turnaround time of all the tenders awarded within 90 days.**

Sub-programme performance indicators and quarterly targets for 2023/24

Output indicator		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
11.2.2.1	Ratio of current assets to current liabilities	**Quarterly**	2:1	2:1	2:1	2:1	2:1
11.2.2.2	Cash flow coverage ratio (operating cash in-flows / total debt)	**Quarterly**	2:1	2:1	2:1	2:1	2:1
11.2.2.3	Number of creditor days	**Quarterly**	30 days	30 days	30 days	30 days	30 days
11.2.2.4	Number of debtors days	**Quarterly**	120 days	120 days	120 days	120 days	120 days
11.2.2.5	Review the cost of top hundred (100) pathology tests by volume over the next four years.	Annually	Cost of 25% of the tests reviewed	N/A	N/A	N/A	Cost of 25% of the tests reviewed
11.2.2.6	Percentage turnaround time for awarding tenders that are below R10 million within 180 days	**Quarterly**	80%	20%	20%	20%	20%
11.2.2.7	Percentage turnaround time for awarding tenders that are above R10 million within 180 days	**Quarterly**	75%	15%	15%	20%	25%
11.2.2.8	Audit opinion of the Auditor-General	**Annually**	Unqualified	N/A	N/A	N/A	Unqualified
11.2.2.9	Percentage of allegations reported through the NHLS' tipoff platform that are investigated and completed within 180 days	**Annually**	90%	N/A	N/A	N/A	90%

Output indicator		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
11.2.2.10	Percentage of RFQs awarded to service providers that are below a B-BBEE score level 4.	Quarterly	60%	60%	60%	60%	60%

Outcome, output, output indicators and targets

Programme 6: Sub-programme: Information and Communication Technology

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output Indicator**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
Clinical effectiveness and efficiency	Modernised information technology systems	High-capacity bandwidth rollout (new MPLS)	New	New	Implement to 80% of the NHLS sites	Implement to 85% of the NHLS sites	Implement to 90% of the NHLS sites	Implement to 90% of the NHLS sites	Implement to 95% of the NHLS sites
		Distribution of CDW summary reports to provinces	New	New	80% of the public hospitals serviced by the NHLS receive monthly reports	85% of the public hospitals serviced by the NHLS receive monthly reports	90% of the public hospitals serviced by the NHLS receive monthly reports	90% of the public hospitals serviced by the NHLS receive monthly reports	95% of the public hospitals serviced by the NHLS receive monthly reports
		Implementation of stock management system and analytics	New	New	Implement to 80% of the NHLS' laboratories	Implement to 85% of the NHLS' laboratories	Implement to 90% of the NHLS' laboratories	Implement to 90% of the NHLS' laboratories	Implement to 95% of the NHLS' laboratories
		Percentage system uptime for critical systems	100%	99%	99%	99%	99%	99%	99%

Sub-programme performance indicators and quarterly targets for 2023/24

Output indicator		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
11.3.2.1	High-capacity bandwidth rollout (new MPLS)	**Quarterly**	Implement to 85% of the NHLS sites	Implement to 85% of the NHLS sites	Implement to 85% of the NHLS sites	Implement to 85% of the NHLS sites	Implement to 85% of the NHLS sites
11.3.2.2	Distribution of CDW summary reports to provinces	**Quarterly**	85% of the public hospitals serviced by the NHLS receive monthly reports	85% of the public hospitals serviced by the NHLS receive monthly reports	85% of the public hospitals serviced by the NHLS receive monthly reports	85% of the public hospitals serviced by the NHLS receive monthly reports	85% of the public hospitals serviced by the NHLS receive monthly reports
11.3.2.3	Implementation of stock management system and analytics	**Quarterly**	Implement to 85% of the NHLS' laboratories	Implement to 85% of the NHLS' laboratories	Implement to 85% of the NHLS' laboratories	Implement to 85% of the NHLS' laboratories	Implement to 85% of the NHLS' laboratories
11.3.2.4	Percentage system uptime for critical systems at laboratory level	**Quarterly**	99%	99%	99%	99%	99%

Outcomes, outputs, output indicators and targets

Programme 6: Sub-programme: Human Resources

			Audited/actual/planned performance			Estimated performance	Medium-term targets		
Outcome	**Output**	**Output indicators**	**2020/21 Audited**	**2021/22 Audited**	**2022/23 Planned**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
Clinical effectiveness and efficiency	Appropriately trained human resources in adequate numbers	Staff turnover ratio	3%	4.6%	5%	5%	5%	5%	5%
		Number of intern medical technologists and student medical technicians admitted and trained in the NHLS	251	285	250	250	250	250	250
		Percentage of employees trained as per the approved training plan (WSP)	New	New	70%	75%	80%	85%	90%
	Performance-driven workforce	Percentage of employees with approved and evaluated performance agreements	89%	99%	98%	98%	98%	98%	98%

Sub-programme performance indicators and quarterly targets for 2023/24

Output indicator		Reporting period	Annual target 2023/24	Quarterly targets			
				First	Second	Third	Fourth
10.4.2.1	Staff turnover ratio	**Quarterly**	5%	5%	5%	5%	5%
10.4.2.3	Number of intern medical technologists and student medical technicians admitted and trained in the NHLS	**Annually**	250	N/A	N/A	N/A	250
10.4.2.4	Percentage of employees trained as per the approved training plan (WSP)	**Quarterly**	75%	15%	15%	25%	20%
10.4.2.5	Percentage of employees with approved and evaluated performance agreements	**Twice a year**	98%	98%	98%	N/A	N/A

Reconciling performance and budget and MTEF (to be updated)

Administration	Audited	Audited	Audited	Budget	Medium-term estimate		
R000'	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**
Expenses	**795 262**	**886 642**	**2 834 006**	**1 805 381**	**1 897 787**	**1 995 519**	**2 095 295**
Compensation of employees	292 904	379 434	580 128	761 644	803 154	847 247	889 610
Goods and services	502 358	507 208	2 253 878	1 043 736	1 094 633	1 148 272	1 205 685

The NHLS aims to:

- Target training to produce a fit-for-purpose and responsive workforce,
- Acquire Solar Power, Generators and Water Security,
- Purchase Buildings and Major Renovations of buildings,
- Acquire Computer Equipment and implement other strategic IT projects,
- Restructure and re-engineer DMP’s manufacturing plant and establish the Research and Development (R&D) section,
- Invest in the establishment of a Business Intelligence Unit (BIU) to further reinforce the Board's control.

Key risks

The risks detailed in Table 8 below are not specific to a specific outcome. Any one of them can have an impact on the NHLS' Strategic Plan.

Table 8: NHLS Strategic Risks Register

No	Risk name	Rating	Appetite Statement	Measurement Criteria	Risk Tolerance threshold	
1	Failure to procure timely and minimise irregular expenditure. (**Procurement**)	High	Low appetite for protracted procurement turnaround time.	Approved procurement turnaround time.	90%	**Acceptable**
					>75%**<**90%	**Tolerable**
					<75%	**Unacceptable**
2	Aging Infrastructure and equipment	Moderate	Low appetite for poor infrastructure and outdated equipment.	• Implementation of infrastructure development plan. • Implementation of equipment modernisation plan.	90%	**Acceptable**
					>80%**<**90%	**Tolerable**
					<80%	**Unacceptable**
3	Insufficient provisional and national budget for NHLS services by DoH	Moderate	Low appetite for unpaid services.	Collection of billed services.	90%	**Acceptable**
					>80%**<**90%	**Tolerable**

No	Risk name	Rating	Appetite Statement	Measurement Criteria	Risk Tolerance threshold	
					<80%	**Unacceptable**
4	Failure to meet demand for Pathology and Laboratory services	Moderate	High appetite to perform all tests requested within set turnaround times (TAT).	Execution of requested test.	90%	**Acceptable**
					>80%<90%	**Tolerable**
					<80%	**Unacceptable**
5	Rising cost of employee compensation	High	NHLS is committed to effective management of employment expenditure.	Labour-Revenue ratio	<45%	**Acceptable**
					45%	**Tolerable**
					>45%	**Unacceptable**
6	Skill shortages (**Pathologists**) in key disciplines to execute strategy and business objectives	High	High appetite to produce pathologists for national requirements.	Achievement of approved targets	90%	**Acceptable**
					>80%<90%	**Tolerable**
					<80%	**Unacceptable**
7		Moderate		Achievement of approved targets	90%	**Acceptable**

No	Risk name	Rating	Appetite Statement	Measurement Criteria	Risk Tolerance threshold	
	Laboratories failure to obtain SANAS Accreditation		NHLS has low appetite for laboratories that not SANAS-accredited.		>80%<90%	**Tolerable**
					<80%	**Unacceptable**
8	Failure to provide IT services that meet business requirements	High	Low appetite for IT systems downtime.	Uptime of IT systems that are supporting operations.	90%	**Acceptable**
					>80%<90%	**Tolerable**
					<80%	**Unacceptable**
9	Inability to operate during disaster (**Business continuity**)	Moderate	Low appetite for failure to operating during disaster.	Recovery of critical business functions within established timelines.	90%	**Acceptable**
					>80%<90%	**Tolerable**
					<80%	**Unacceptable**
10	Unavailability of electricity- dependent critical systems	**Extreme**	Low appetite for lengthy electricity supply disruptions	Implementation of power supply backup plans	90%	**Acceptable**
					>80%<90%	**Tolerable**
					<80%	**Unacceptable**

Programme 1: Laboratory Services

Indicator Title: 6.2.2.1	Percentage of TB GeneXpert tests performed within 40 hours
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	The total number of TB GeneXpert tests performed and reviewed within 40 hours is divided by the total number of TB GeneXpert tests requested in the same period, expressed in percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
New indicator	No
Desired performance	94%
Indicator owner	Area managers
Indicator Title: 6.2.2.2	**Percentage of CD4 tests performed within 40 hours**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	The total number of CD4 tests performed and reviewed within 40 hours is divided by the total number of CD4 tests requested in the same period, expressed in percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	95%

Indicator owner	Area managers
Indicator Title: 6.2.2.3	**Percentage of HIV viral load tests performed within 96 hours**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	The total number of HIV viral load tests performed and reviewed within 96 hours is divided by the total number of HIV viral load tests requested in the same period, expressed in percentage.
Calculation type	Cumulative – year to date
Desired performance	94%
Indicator owner	Area managers
Indicator Title: 6.2.2.4	**Percentage of HIV PCR tests performed within 96 hours**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	The total number of HIV PCR tests performed and reviewed within 96 hours is divided by total number of HIV PCR tests requested in the same period, expressed as a percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	92%
Indicator owner	Area managers
Indicator Title: 6.2.2.5	**Percentage of Cervical Smear screening performed within 5 weeks**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.

Indicator Title: 6.2.2.5	Percentage of Cervical Smear screening performed within 5 weeks
Method of calculation	The total number of cervical smears tests performed and reviewed within five weeks is divided by total number of cervical smear tests requested in the same period, expressed in percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	95%
Indicator owner	Area managers
Indicator Title: 6.2.2.6	**Percentage of laboratory tests (full blood count) performed within eight (8) hours**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	Total number of full blood count tests performed and reviewed within eight hours divided by the total number of full blood count tests requested in the same period, expressed in percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	95%
Indicator owner	Area managers
Indicator Title 6.2.2.7	**Percentage laboratory tests (Urea & Electrolytes) tests performed within 8 hours**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	Total number of Urea and Electrolytes tests performed and reviewed within eight hours divided by the total number of Urea and Electrolytes tests requested during the same period, expressed in percentage.
Calculation type	Cumulative year to date
Reporting cycle	Quarterly
New indicator	No

Indicator Title 6.2.2.7	**Percentage laboratory tests (Urea & Electrolytes) tests performed within 8 hours**
Desired performance	95%
Indicator owner	Area managers
Indicator Title 6.2.2.8	**Percentage of SARS-CoV-2 PCR tests performed within 48 hours**
Definition	It is a measure of the time it takes from registration on the Laboratory Information System (LIS) of the tests until the results are reviewed.
Source/collection of data	The data comes from the information captured on the laboratory information system and is interfaced with the NHLS Central Data Warehouse (CDW) for consolidation. A report is then generated from the CDW.
Method of calculation	The total number of SARS-CoV-2 PCR tests performed and reviewed within eight hours divided by the total number of SARS-CoV-2 PCR tests requested in the same period, expressed in percentage.
Calculation type	Cumulative year to date
Reporting cycle	Quarterly
New indicator	Yes
Desired performance	90%
Indicator owner	Area managers
Indicator Title: 6.2.2.9	**Develop and implement Point of Care Testing plan**
Definition	Point of Care Test (POCT) is a test that is performed at or near the site of patient care with the view of effecting immediate clinical decision-making and optimising patient management. The plan will be aligned with the national priorities in health.
Method of calculation	Implementation of POCT at the identified sites as outlined in the plan.
Calculation type	Non-cumulative
Reporting cycle	Annually
Desired performance	10% implementation of the POCT based on the pilot.
Indicator owner	Chief Executive Officer
Indicator Title: 6.2.2.10	**Implement digital pathology**
Definition	Digital Pathology (DP) incorporates the acquisition, management, sharing and interpretation of pathology information (including slides and data) in a digital environment. It also refers to artificial intelligence (AI)-based approaches for the

Indicator Title 6.2.2.7	Percentage laboratory tests (Urea & Electrolytes) tests performed within 8 hours
	detection, segmentation, diagnosis, and analysis of digitised images. Globally, DP has been adopted for clinical work but also for education and research.
Method of calculation	Number of information sharing sessions.
Calculation type	Non-cumulative
Reporting cycle	Annually
Desired performance	Implement the pilot
Indicator owner	Chief Executive Officer

Programme 2: Academic Affairs, Research and Quality Assurance

Indicator Title: 7.2.2.1	Percentage compliance achieved by laboratories during annual quality compliance audits
Definition	This indicator measures the percentage of laboratories achieving 80% compliance using the internal quality compliance audits. The target laboratories are those that are not SANAS accredited at the time of the audit.
Source/collection of data	Spreadsheet with percentage scores obtained by laboratories audited. Manual collection of data by Quality Assurance.
Method of calculation	Total number of laboratories achieving a minimum score of 80% with the quality compliance audits divided by the total number of laboratories audited. (Audited laboratories refers to the laboratories that are not SANAS accredited only).
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	94%
Indicator owner	National Quality Assurance Manager/Executive Manager: AARQA

Indicator Title: 7.2.2.2	**Percentage of laboratories achieving proficiency testing scheme performance standards of 80%**
Definition	The indicator measures the percentage of laboratories achieving a minimum average score of 80% in all NHLS proficiency testing schemes in which they are enrolled in the financial year. This does not include external Performance Testing Schemes (PTS) performance.
Method of calculation	The average of the total number of laboratories scoring 80% and above, divided by the average of the total number of laboratories participating in the PTS, is expressed as a percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	94%
Indicator owner	National Manager: Quality Assurance/Area Managers
Indicator Title: 7.2.2.3	**Number of National Central laboratories that are SANAS Accredited**
Definition	This indicator measures the number of laboratories in the National Central laboratories accredited by SANAS (laboratory in this case refers to a discipline or department located within the national central laboratory).
Source/collection of data	SANAS accreditation certificates or SANAS assessment outcome letter. The SANAS accreditation certificate is active for a four-year cycle, however, SANAS assesses the accredited laboratories annually and issues a letter of recommendation to indicate that the laboratory remains accredited. So, the laboratory is considered accredited as long as the accreditation certificate is still valid, and the annual assessments are done to maintain the accreditation status.
Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	53
Indicator owner	National Manager: Quality Assurance/Area Managers
Indicator Title: 7.2.2.4	**Number of provincial tertiary laboratories that are SANAS accredited**
Definition	This indicator measures the number of laboratories in the Provincial Tertiary laboratories accredited by SANAS (laboratory in this case refers to a multidisciplinary facility located within or attached to one Provincial Tertiary Hospital)
Source/collection of data	SANAS accreditation certificates or a SANAS assessment outcome letter. The SANAS accreditation certificate is active for a four-year cycle, however, SANAS assesses the accredited laboratories annually and issues a letter of recommendation to indicate that the laboratory remains accredited. So, the laboratory is considered accredited as long as the accreditation certificate is still valid, and the annual assessments are done to maintain the accreditation status.

Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	17
Indicator owner	National Manager: Quality Assurance/Area Managers
Indicator Title: 7.2.2.5	**Number of regional laboratories that are SANAS accredited**
Definition	This indicator measures the number of regional laboratories accredited by SANAS Assessors during an accreditation visit per laboratory (laboratory in this case refers to a multidisciplinary facility located within or attached to one Regional Hospital).
Source/collection of data	SANAS accreditation certificates or a SANAS assessment outcome letter. The SANAS accreditation certificate is active for a four-year cycle, however, SANAS assesses the accredited laboratories annually and issues a letter of recommendation to indicate that the laboratory remains accredited. So, the laboratory is considered accredited as long as the accreditation certificate is still valid, and the annual assessments are done to maintain the accreditation status.
Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	38
Indicator owner	National Manager: Quality Assurance/Area Managers
Indicator Title: 7.2.2.6	**Number of district laboratories that are SANAS accredited**
Definition	This indicator measures the number of laboratories in the district that have been accredited by SANAS Assessors during an accreditation visit per laboratory.
Source /data collection	SANAS accreditation certificates or a SANAS assessment outcome letter. The SANAS accreditation certificate is active for a four-year cycle, however, SANAS assesses the accredited laboratories annually and issues a letter of recommendation to indicate that the laboratory remains accredited. So, the laboratory is considered accredited as long as the accreditation certificate is still valid, and the annual assessments are done to maintain the accreditation status.
Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	55
Indicator owner	National Manager: Quality Assurance/Area Managers
Indicator Title: 7.2.2.7	**Number of ISO 9001 certified departments**
Definition	This indicator measures the number of support departments in head office that have the ISO 9001 certification.
Source/collection of data	The ISO 9001 certificates or the assessment outcome letter

Method of calculation	Count
Calculation type	Cumulative – Year to date
Reporting cycle	Annually
Desired performance	6 departments
Indicator owner	National Manager: Quality Assurance/Executive Managers of the respective departments
Indicator Title: 7.2.2.8	**Develop and implement the pathologists' national coverage plan**
Definition	A plan to ensure equitable access to quality pathology services for all people, as well as access of pathologists to all healthcare practitioners nationally.
Method of calculation	N/A
Calculation type	Non-cumulative
Reporting cycle	Annually
Desired performance	40% implementation of the pathologists' national coverage plan
Indicator owner	Executive Manager: AARQA
Indicator Title: 7.2.2.9	**Number of articles published in the peer-reviewed journals**
Definition	The indicator measures the number of peer-reviewed articles published by, and in collaboration with, NHLS researchers.
Source/collection of data	NHLS Research Database. The database captures all the research peer reviewed articles that were published by the NHLS staff, which includes the NICD and NIOH publications.
Method of calculation	Count
Calculation type	Cumulative year to date
Reporting cycle	Annually
Desired performance	680
Indicator owner	National Manager: Academic Affairs and Research
Indicator Title: 7.2.2.10	**Number of pathology registrars admitted and trained in the NHLS**
Definition	The number of registrars appointed in the NHLS to be trained.
Source/data collection	Human Resource Information System, which will confirm the appointment of pathology registrars.
Method of calculation	Count
Calculation type	Cumulative year to date
Reporting cycle	Annually
Desired performance	40
Indicator owner	National Manager: Academic Affairs and Research
Indicator Title: 7.2.2.11	**Number of intern medical scientists admitted and trained in the NHLS**
Definition	The number of intern medical scientists appointed in the NHLS to be trained.
Source/collection of data	Human Resource Information System, which will confirm the appointment of the intern medical scientists.
Method of calculation	Count

Calculation type	Cumulative year to date
Reporting cycle	Annually
Desired performance	50
Indicator owner	National Manager: Academic Affairs and Research

Programme 3: Surveillance of Communicable Diseases

Indicator Title: 8.2.2.1	**Percentage of identified prioritised diseases under surveillance**
Definition	This is described by the percentage of cases that were followed up at the enhanced surveillance sites for the organisms that are identified as priorities as per the GERMS protocol.
Source/collection of data	The departmental enhanced site surveillance operational report (IT database).
Method of calculation	The total number of cases followed up at the enhanced surveillance sites for the organisms identified as priorities according to the GERMS protocol is divided by the total number of cases that match the same case definition, expressed as a percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	90%
Indicator owner	Executive Manager: NICD
Indicator Title: 8.2.2.2	**Percentage of outbreaks responded to within 24 hours after notification**
Definition	Measure of speed with which we can respond to outbreaks. All the outbreaks that are notified to NICD are documented and stored in the database.
Source/collection of data	All the organisms responsible for the outbreaks are documented and kept in the database. The date of notification of the outbreak is also documented as is the time it took for NICD to respond.
Method of calculation	Total number of notified outbreaks responded to within 24 hours divided by the total number of outbreaks notified, expressed in percentage.
Calculation type	Cumulative year to date
Reporting cycle	Quarterly
Desired performance	100%
Indicator owner	Executive Director: NICD
Indicator Title: 8.2.2.3	**Percentage of NICD laboratories that are SANAS accredited**
Definition	This indicator measures the percentage of laboratories that have been accredited by SANAS.

Source/collection of data	SANAS accreditation certificates or a SANAS assessment outcome letter. The SANAS accreditation certificate is active for a four-year cycle; however, SANAS assesses the accredited laboratories annually and issues a letter of recommendation to indicate that the laboratory remains accredited. So, the laboratory is considered accredited as long as the accreditation certificate is still valid, and the annual assessment are done to maintain the accreditation status.
Method of calculation	Total number of medical laboratories accredited by SANAS, divided by the total number of all medical laboratories in NICD (this excludes all the non-medical laboratories and the sequencing laboratory, which does not have the ISO standard for accreditation), expressed in percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	100%
Indicator owner	Executive Director: NICD
Indicator Title: 8.2.2.4	**National HIV surveillance reporting**
Definition	HIV surveillance reports are distributed to the National and Provincial Departments of Health.
Method of calculation	Percentage
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	90%
Indicator owner	Executive Director: NICD
Indicator Title: 8.2.2.5	**National TB surveillance reporting**
Source/collection of data	Weekly reports are distributed to National and Provincial Departments of Health alerting them to all GeneXpert **Rifampicin Susceptible, GeneXpert Rifampicin Resistant, MDR and XDR TB** cases diagnosed in the NHLS in the preceding week (national and provincial reports are generated and stratified to district/sub-district level)
Method of calculation	Count
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	85%
Indicator owner	Executive Director: NICD
Indicator Title: 8.2.2.6	**Number of articles published in the peer reviewed journals**
Definition	The indicator measures the number of peer-reviewed articles published by, and in collaboration with, NICD researchers.
Source /data collection	NICD Data. The database captures all the research and peer-reviewed articles that were published by the NICD staff.
Method of calculation	Count

Calculation type	Cumulative year to date
Reporting cycle	Annually
Desired performance	170
Indicator owner	Executive Director: NICD
Indicator Title: 8.2.2.7	**Number of field epidemiologists qualified**
Definition	A number of Field Epidemiologists qualified and were admitted to NICD for training. Candidates enrol in the appropriate training facilities to complete their qualification in field epidemiology.
Source/collection of data	A copy of the certified results from the training facility or a copy of the qualification from the training facility.
Method of calculation	Count
Calculation type	Cumulative – Year to date (Academic Year — January – December)
Reporting cycle	Annually
Desired performance	8
Indicator owner	Executive Director: NICD

Programme 4: Occupational and Environmental Health and Safety

Indicator Title: 9.2.2.1	**Percentage of occupational, and environmental health laboratory tests conducted within the predefined turn-around time**
Definition	It is a measure from the time specimens were received until they were completed, expressed as a percentage.
Source/collection of data	NIOH database and an Excel spreadsheet of all the tests performed and the time it took to complete the tests.
Method of calculation	Total number of occupational and environmental health laboratory tests completed within predefined turnaround time in testing laboratories only (Analytical Services, Immunology, Microbiology, Occupational Hygiene, Pathology) divided by a total number of occupational and environmental health laboratory tests received in testing laboratories only (Analytical Services, Immunology, Microbiology, Occupational Hygiene, Pathology), expressed as a percentage.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
Desired performance	90%
Indicator owner	NIOH Head of Analytical Services
Indicator Title:9.2.2.2	**Number of occupational, environmental health and safety assessments completed**
Definition	An occupational, environmental health and safety assessment is a report or letter with recommendations to address the issues reported and is not a project or substantial collaborative effort involving more than one man-week.

Source/collection of data	Records of reports or letters concerning risks in the workplace sent to clients.
Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	20
Indicator owner	Head of Occupational Hygiene
Indicator Title:9.2.2.3	**Number of occupational health surveillance reports produced**
Definition	Pathological (macroscopic and microscopic) examination of cardiorespiratory organs and submission of a diagnostic report to the Medical Bureau for Occupational Diseases (MBOD) per case received.
Source/collection of data	Cardiorespiratory organs from current and former miners are sent to the NIOH from regions within South and Southern Africa.
Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	4
Indicator owner	NIOH Head of Pathology
Indicator Title:9.2.2.4	**Percentage of NIOH laboratories that are SANAS accredited**
Definition	This indicator measures the percentage of laboratories that have been accredited by SANAS.
Source/collection of data	SANAS Accreditation Certificates or SANAS assessment outcome letter. The SANAS accreditation certificate is active for a four-year cycle; however, SANAS assesses the accredited laboratories annually and issues a letter of recommendation to indicate that the laboratory remains accredited. So, the laboratory is considered accredited as long as the accreditation certificate is still valid, and the annual assessments are done to maintain the accreditation status.
Method of calculation	Total number of laboratories accredited by SANAS divided by total number of all medical laboratories in NIOH, expressed as a percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	100%
Indicator owner	Executive Director: NIOH

Programme 5: Forensic Chemistry Laboratory Service

Indicator Title: 10.2.1	Percentage of blood alcohol tests completed within a normative period of 90 days
Definition	It is a measure of the time it takes from receipt of samples in the laboratory for the tests until the results are reviewed.
Source/collection of data	The data comes from the information that is captured on the laboratory information management system or laboratory information management system (LIMS).
Method of calculation	Total number of blood alcohol tests performed and reviewed within 90 days divided by the total number of blood alcohol tests requested in the same period, expressed in percentage.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
New indicator	Yes
Desired performance	75%
Indicator owner	Head of Forensic Chemistry Laboratories

Indicator Title: 10.2.2	Percentage reduction of backlogged toxicology cases
Definition	The term “backlog” is defined as all unprocessed samples as at the end of the previous financial year, e.g., backlog will be all unprocessed samples as at the 31 March 2023 for the new financial year 2023/2024.
Source/collection of data	The data comes from the information that is captured on the laboratory information management system (LIMS).
Method of calculation	Total number of backlogged toxicology cases reviewed divided by the total number of backlogged toxicology cases.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
New indicator	Yes
Desired performance	40%
Indicator owner	Head of Forensic Chemistry Laboratories

Indicator Title: 10.2.3	Percentage of perishable food samples tested within 30 days of sampling
Definition	It is a measure of the time it takes from sample collection to the time the results are reviewed.

Source/collection of data	The data comes from the information that is captured on the laboratory information management system (LIMS).
Method of calculation	Total number of perishable food sample tested and reviewed within 30 days from the collection date divided by the total number of perishable food samples received in the laboratory in the same period, expressed in percentage.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
New indicator	No
Desired performance	75%
Indicator owner	Head of Forensic Chemistry Laboratories

Indicator Title: 10.2.1	**Percentage of non-perishable food samples tested within 60 days of sampling**
Definition	It is a measure of the time it takes from sample collection to the time the results are reviewed.
Source/collection of data	The data comes from the information that is captured on the laboratory information management system (LIMS)
Method of calculation	Total number of non-perishable food samples tested and reviewed within 60 days from the collection date divided by the total number of non-perishable food samples received in the laboratory in the same period, expressed in percentage.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
New indicator	No
Desired performance	75%
Indicator owner	Head of Forensic Chemistry Laboratories

Programme 6: Administration: Sub-Programme – Financial Management

Indicator Title: 11.2.2.1	**Ratio of current assets to current liabilities**
Definition	This is a measure of short-term liquidity.
Source/collection of data	The current assets figure and the current liabilities figure are obtained from the balance sheet report generated by the Financial Accounting Section monthly.
Method of calculation	Current assets/current liabilities
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	2:1
Indicator owner	Chief Financial Officer
Indicator Title: 11.2.2.2	**Cash flow coverage ratio (Operating cash in-flows / total debt)**
Definition	Current assets/current liabilities
Source/collection of data	NHLS Cash Flow Report and Creditors Age Analysis as of the end of the reporting period
Method of calculation	Cash and cash equivalents or payables from exchange transactions
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	2:1
Indicator owner	Chief Financial officer
Indicator Title: 11.2.2.3	**Number of creditor days**
Definition	The creditor days' ratio measures how quickly invoices are being paid to suppliers. The longer it takes for the NHLS to make payments for services rendered/goods received, the greater the number of creditors' days.
Source/collection of data	The creditors figure is obtained from the Excel Age Analysis report generated by the Accounts Payable Department monthly. The net creditors figure is used, and it excludes the SAVP (NHLS subsidiary). Purchases figures are determined through an account inquiry on Oracle and are obtained by selecting the parent expenditure accounts for production and support operations.
Method of calculation	(Total month-end trade creditors/ YTD purchases annualised) x 365 days
Calculation type	Non-cumulative
Reporting cycle	Quarterly Purchase figures are obtained via an account inquiry on Oracle by selecting the parent expenditure accounts for production and support operations.
Desired performance	30 days

Indicator owner	Chief Financial Officer
Indicator Title: 11.2.2.4	**Number of Debtors days**
Definition	The “debtor days” ratio measures how quickly cash is being collected from debtors. The longer it takes for the NHLS to collect payments for services rendered the greater the number of debtors’ days.
Source/collection of data	The debtor’s figure is obtained from the Excel Age Analysis report generated by the Accounts Receivable Department monthly. The net debtors’ figure is used, and it excludes the SAVP (NHLS subsidiary). The net debtors figure refers to total debt, which incorporates both government and private sector debt. Revenue figures are determined through an account inquiry on Oracle and are obtained by selecting the parent revenue account (5000 range) as well as other income (grants, teaching income, miscellaneous sales).
Method of calculation	(Total month-end trade debtors/YTD test revenue and other income annualised) x 365 days
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	120 days
Indicator owner	Chief Financial Officer

Indicator Title: 11.2.2.5	**Review cost of top hundred (100) pathology tests by volume over the next four years.**
Definition	The NHLS need to review the cost of tests to ensure cost recovery and the organisations’ financial stability.
Source/collection of data	Data from Finance
Method of calculation	Total number of tests within the top 100 by volumes which cost have been reviewed, divide by the top 100 tests by volume, express as a percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	25%
Indicator owner	Chief Financial Officer

Indicator Title: 11.2.2.6	**Percentage turnaround time for awarding tenders that are below R10million within 180 days**
Definition	The tenders must be awarded within 90 days after the closing date of the advertisement.
Source/collection of data	The supply chain management unit should provide data on the spreadsheet.
Method of calculation	Total number of tenders that are below R10 million awarded within 180 days from the closing date of the tender divided by the total number of tenders that are below R10 million which were closed in the same period, expressed in percentage.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
Desired performance	80%
Indicator owner	Chief Financial Officer
Indicator Title: 11.2.2.7	**Percentage turnaround time for awarding tenders that are above R10 million within 180 days**
Source/collection of data	The supply chain management unit to provide data on the spreadsheet.
Method of calculation	Total number of tenders over R10 million awarded within 180 days of the tender closing date divided by the total number of tenders are above R10 million which were closed in the same period, express in percentage.
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
Desired performance	75%
Indicator owner	Chief Financial Officer
Indicator Title: 11.2.2.8	**Audit opinion of the Auditor general**
Definition	This means that AFS is prepared in accordance with GRAP, and that our internal policies and the information are made available to the public within the necessary framework and timeframes.
Source/collection of data	Audit opinion
Method of calculation	N/A
Calculation type	Non-cumulative
Reporting cycle	Annually
Desired performance	Unqualified
Indicator owner	Chief Financial Officer
Indicator Title:11.2.2.9	**Percentage of allegations reported through the NHLS tipoff platform that are investigated and completed within 180 days**
Source/collection of data	A spreadsheet provided by the Internal risk management and audit department

Method of calculation	A total number of allegations reported through the NHLS tipoff platform that are investigated and completed within 180 days divided by the total number of allegations reported through the NHLS tipoff platform, expressed as a percentage.
Calculation type	Cumulative – year to date
Reporting cycle	Annually
Desired performance	90%
Indicator owner	Head of Internal Risk Management and Audit.

Indicator Title:11.2.2.10	**Percentage of RFQs awarded to service providers that are below a B-BBEE score of level 4.**
Source/collection of data	Data from supply chain management
Method of calculation	Total number of RFQs awarded to service providers that are below a B-BBEE score of level 4, divide by a total number of RFQs within a quarter.
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	60%
Indicator owner	Chief Information Officer

Programme 6: Administration: Sub-Programme – Information and Communication Technology

Indicator Title:11.3.2.1	**High-capacity bandwidth rollout (new MPLS)**
Source/collection of data	MTN
Method of calculation	Number of NHLS sites with new MPLS divided by the total number of NHLS sites, expressed as a percentage
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	Implement to 85% of the NHLS sites
Indicator owner	Executive Manager: Information Technology
Indicator Title:11.3.2.2	**Distribution of CDW summary reports to provinces**
Source/collection of data	CDW daily activity reports
Method of calculation	Total number of public hospitals serviced by the NHLS receiving the CDW summary reports divided by the total number of public hospitals serviced by the NHLS, expressed as a percentage
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	85% of the hospitals receive monthly reports
Indicator owner	Executive Manager: Information Technology
Indicator Title:11.3.2.3	**Implementation of stock management system and analytics**
Source/collection of data	Oracle Stock Management and CDW Analytics Tool Usage Report

Method of calculation	Total number of NHLS laboratories as at the end of the financial year where stock management and analytics have been installed, divided by the total number of NHLS laboratories as at the end of the financial year, expressed as a percentage
Calculation type	Cumulative – year to date
Reporting cycle	Quarterly
Desired performance	Implement to 85% of the NHLS' laboratories
Indicator owner	Executive Manager: Information Technology
Indicator Title:11.3.2.4	**Percentage system uptime for critical systems at laboratory level**
Definition	TrakCare, Oracle EBS and CDW system availability
Source/collection of data	SLA and incident report/reports
Method of calculation	Total SLA uptime minus downtime (impacting SLA uptime) as recorded on the incident report(s) for a month for each system (Oracle EBS, TrakCare and CDW). (The numerator is the total number of days in a quarter when the systems were down, and the denominator is the total number of days in that quarter, express that as a percentage). You then take the average of the total for each system (percentage uptime).
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	99%
Indicator owner	Executive Manager: Information Technology

Programme 6: Sub-Programme – Human Resources

Indicator Title: 11.4.2.1	**Staff Turnover ratio**
Source/collection of data	Human Resource Information System (Oracle)
Method of calculation	Divide the number of voluntary terminations by the total number of staff at the end of the reporting period, expressed as a percentage
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	5%
Indicator owner	Executive Manager: Human Resources
Indicator Title: 11.4.2.3	**Number of intern medical technologists and student medical technicians admitted and trained in the NHLS**
Source/collection of data	Human Resources Information System, which will confirm the appointment of pathology registrars.
Method of calculation	Count
Calculation type	Cumulative – year to date
Reporting cycle	Annually

Desired performance	250
Indicator owner	Executive Manager: Human Resources
Indicator Title 11.4.2.4	**Percentage of employees trained as per the approved training plan (WSP)**
Source/collection of data	Spreadsheet from Human Resources
Method of calculation	Total number of employees trained in the financial year as per the WSP divided by the total number of employees registered on the WSP in the same financial year
Calculation type	Cumulative – year end
Reporting cycle	Quarterly
Desired performance	75%
Indicator owner	Executive Manager: Human Resources
Indicator Title: 11.4.2.5	**Percentage of employees with approved and evaluated performance agreements**
Definition	Alignment of individual, team, and organisational performance to ensure delivery of strategy and appreciation of contribution
Source/collection of data	Performance Management System – HRIS
Method of calculation	The number of employees with approved and evaluated performance agreements divide by the total number of employees, expressed as a percentage. The contracting for the current financial year is reported in the first quarter, whilst the reporting of the evaluated performance from the previous financial year is reported in the second quarter of the current financial year.
Calculation type	Non-cumulative
Reporting cycle	Twice a year
Desired performance	98%
Indicator owner	Executive Manager: Human Resource

ANNEXURE A: Changes made to the Strategic Plan

Programme 1: Laboratory Service

Outcome	Output	Output indicator	Estimated performance. 2023/24	Comments
Clinical effectiveness and efficiency	**Improved oversight and access to pathology through technology and innovation**	Implement digital pathology	Implement the pilot	**"Modernised laboratory services as an output are very broad.** This has been replaced it with **"improved oversight and access to pathology through technology and innovation"** to make the output more specific.

Programme 5: Forensic Chemistry Laboratories

Outcome	Output	Output Indicator	Estimated performance. 2024/25	Comments
Clinical effectiveness and efficiency	**Improved turnaround times**	Percentage of blood alcohol tests completed within a normative period of 90 days	75%	Changes the output for proper alignment
		Percentage reduction of backlogged toxicology cases	40%	
		Percentage of perishable food samples tested within 30 days of sampling	75%	
		Percentage of non-perishable food samples tested within 60 days of sampling.	75%	

Programme 6: Administration – Sub-Programme: Financial Management

Outcome	Output	Output indicator	Estimated performance. 2023/24	Comments
Cost Effective services	**Provide affordable pathology services**	**Review the cost of top hundred (100) pathology tests by volume over the next four years.**	**Cost of 25% of the tests reviewed**	Revised the output from **"Reduced cost of pathology service to the client" to "Provide affordable pathology services".** The output indicator has been added to enable the NHLS to recover the cost of the tests and remain financially stable.
Good Governance	**Transformed procurement system.**	**Percentage of RFQs awarded to service providers that are below a B-BBEE score level 4.**	**60%**	We have included the output as the NHLS's commitment to transformation of the procurement system.

Programme 6: Administration – Sub-Programme: Human Resources

Outcome	Output	Output indicator	Estimated performance. 2023/24	Comments
Clinical effectiveness and efficiency.	**Appropriately trained human resources in adequate numbers**	B-BBEE compliance	N/A	The indicator has been removed and replaced with "**Percentage of RFQs awarded to service providers that are below a B-BBEE score level 4**. The indicator has been moved to sub-programme: financial management.

ANNEXURE B: Changes to the programmes structure.

The NHLS rearranged the programme structure to align to the legislative mandate of service provision, training, and research. The change in structure is as follows:

Old Structure	New Structure
Programme 1: Administration	**Programme 1:** Laboratory Service
Programme 2: Surveillance of Communicable Diseases	**Programme 2:** Academic Affairs, Research and Quality Assurance
Programme 3: Occupational Health	**Programme 3:** Surveillance of Communicable Diseases
Programme 4: Laboratory Tests	**Programme 4:** Occupational and Environmental Health and Safety
Programme 5: Research	**Programme 5:** Forensic Chemistry Laboratories
	Programme 6: Administration

The above changes will be communicated to the National Treasury to make necessary adjustments.