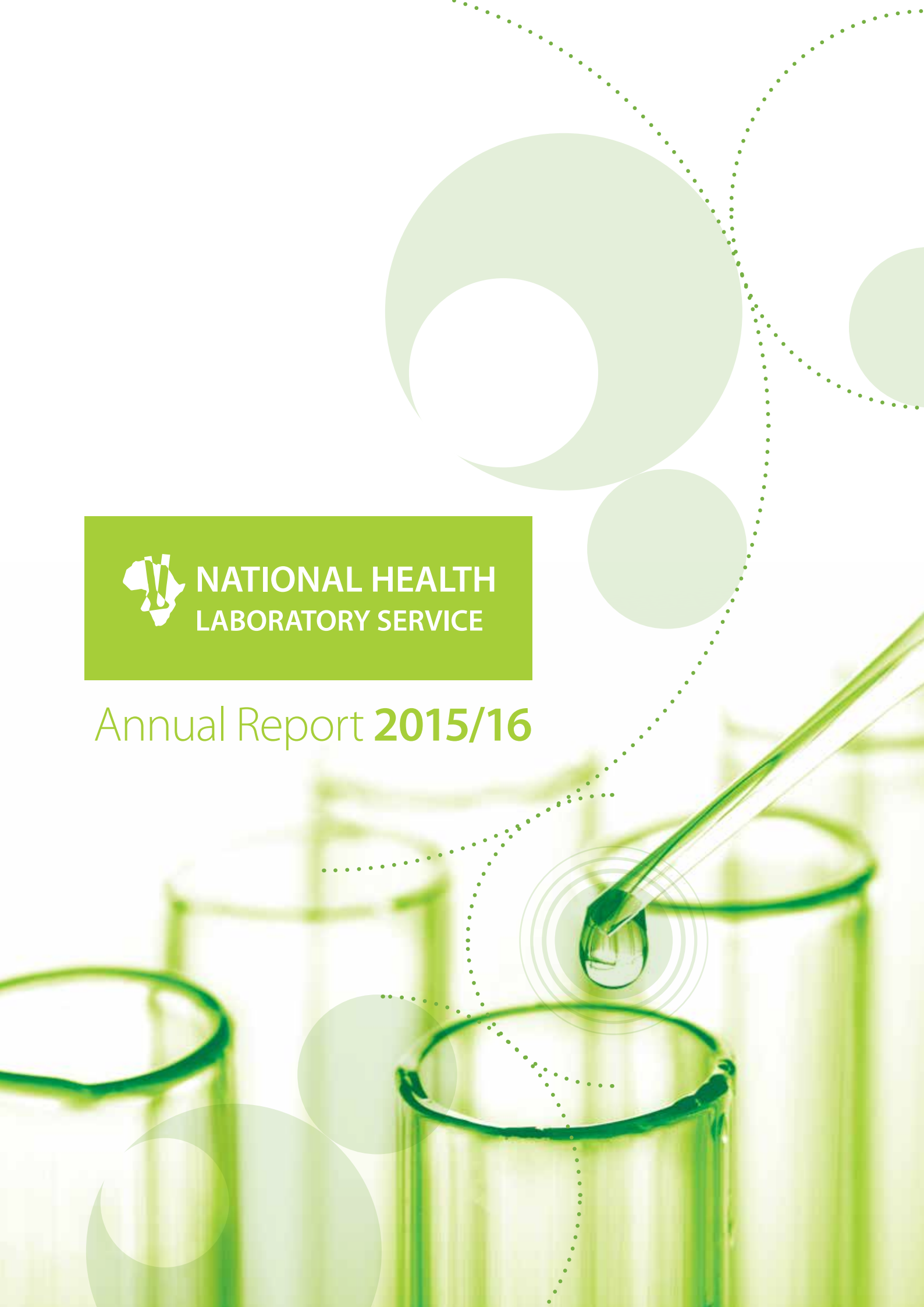




**NATIONAL HEALTH
LABORATORY SERVICE**

Annual Report **2015/16**





**NATIONAL HEALTH
LABORATORY SERVICE**



The NHLS is a proud recipient of the
2015 European Quality Award.



**NATIONAL HEALTH
LABORATORY SERVICE**

Annual Report **2015/16**

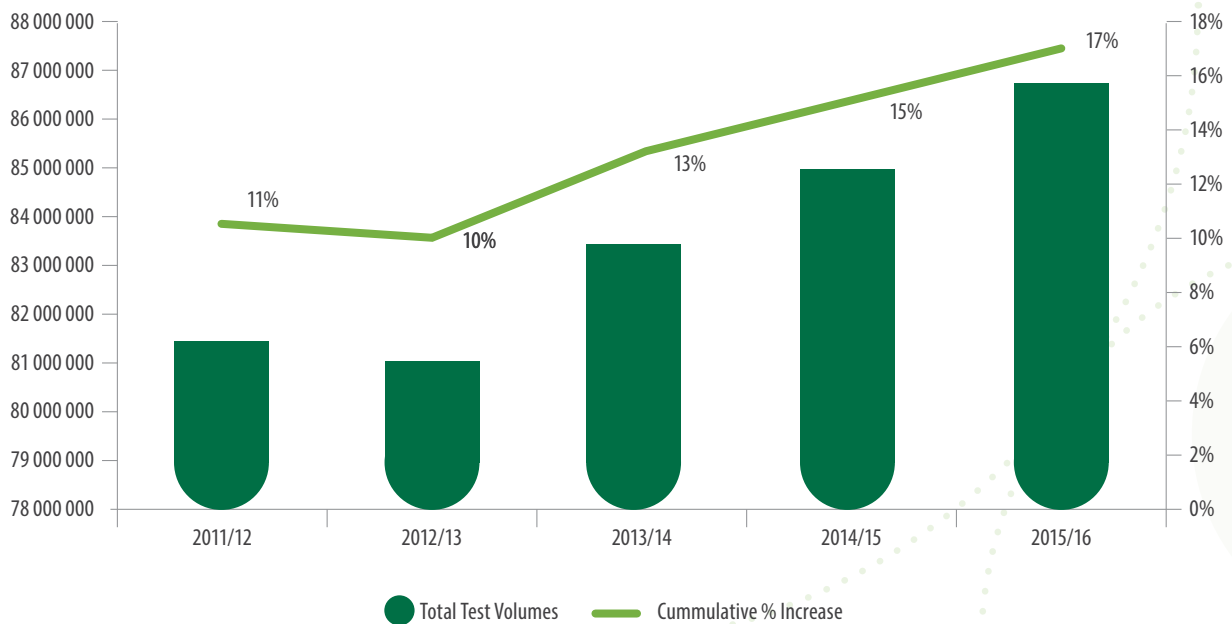


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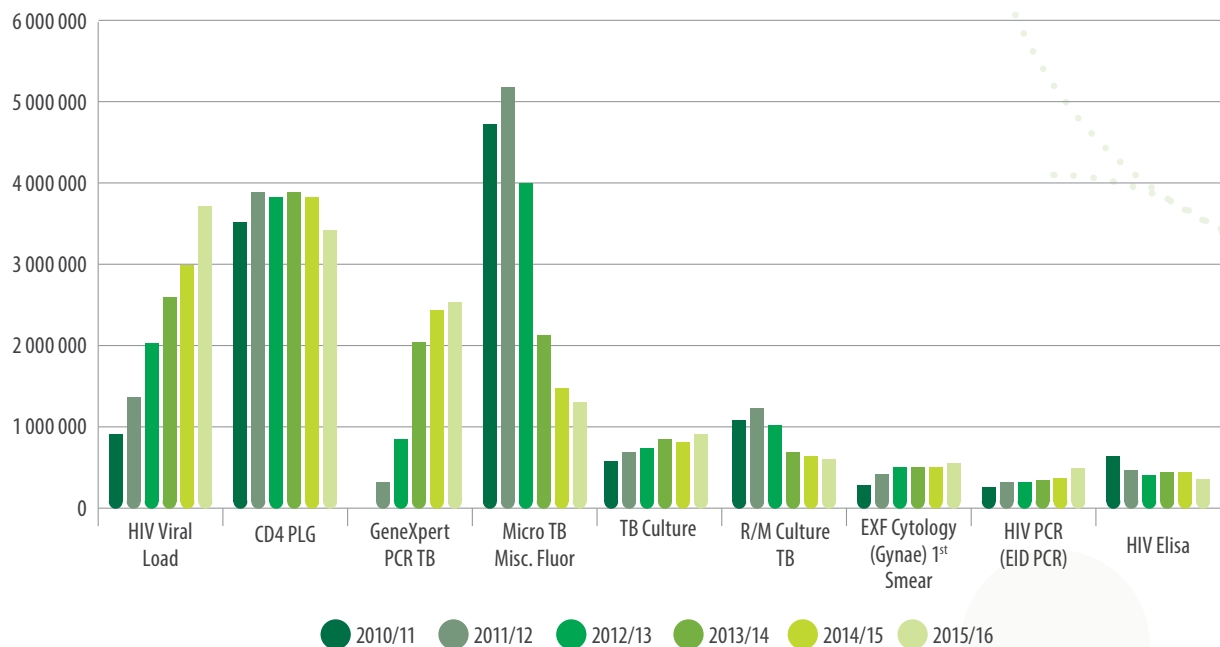
Performance Highlights

TOTAL TEST VOLUMES

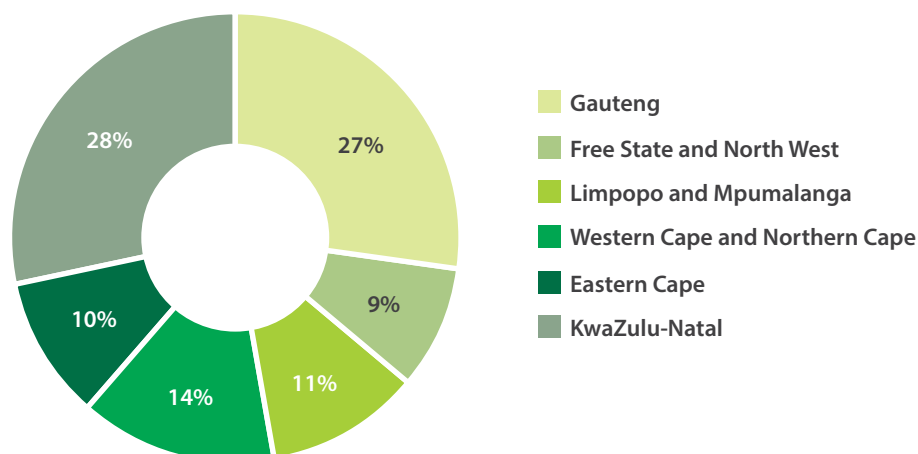


The above graph illustrates the growth year-on-year in test volumes.

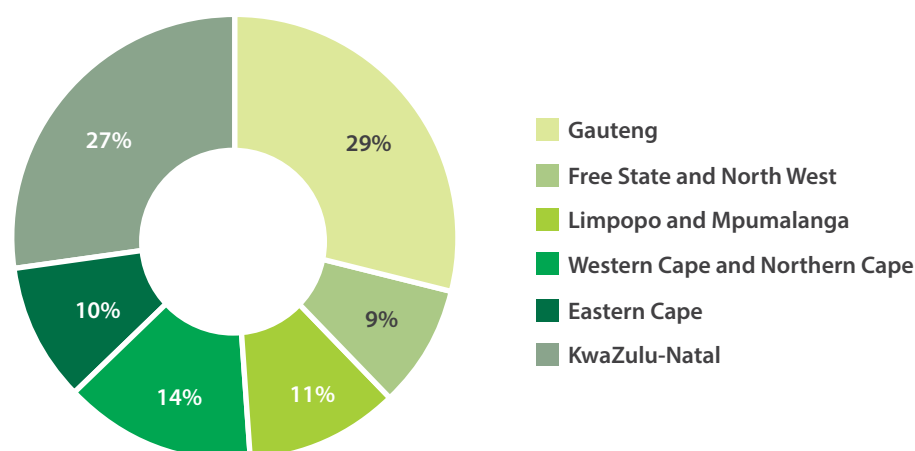
NATIONAL PRIORITY PROGRAMME TEST VOLUMES



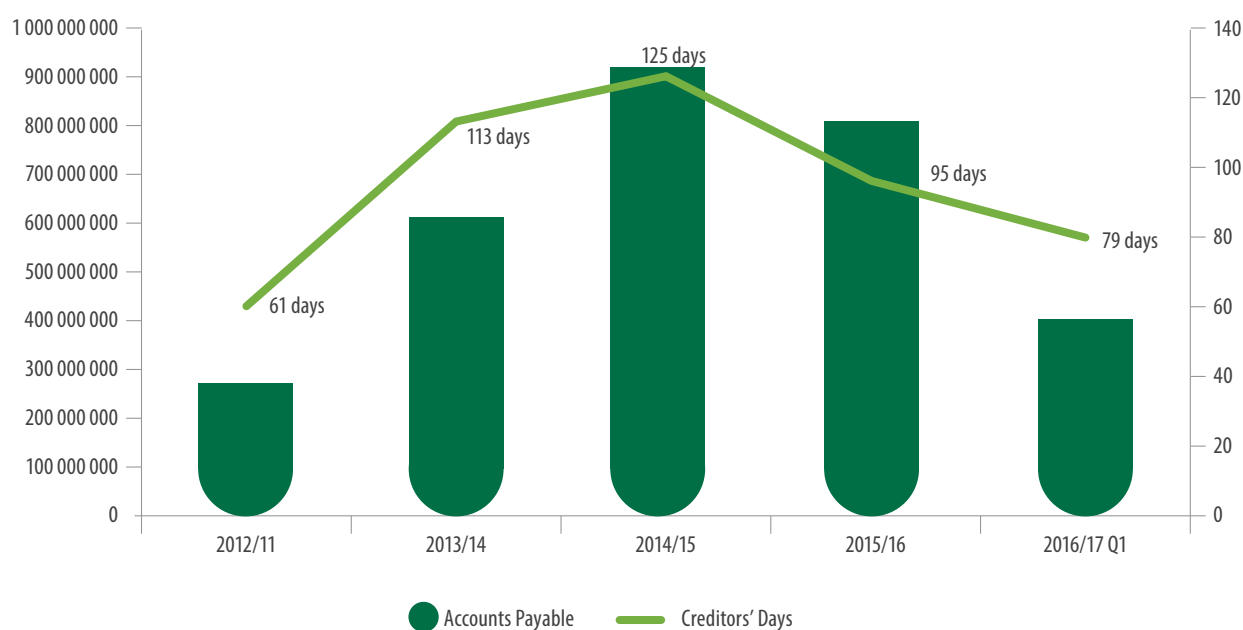
2014/15 FINANCIAL YEAR REVENUE DISTRIBUTION % BY PROVINCE



2015/16 FINANCIAL YEAR REVENUE DISTRIBUTION % BY PROVINCE



ACCOUNTS PAYABLE AND CREDITORS' DAYS



The accounts payable balance as at Quarter 1, 30 June 2016, reduced to a level lower than 31 March 2014, and short-term liquidity stronger than the financial position as at 31 March 2014 has been restored. This is further supported by the reduced creditors, which ended on 79 days as at 30 June 2016.



PART

A

GENERAL
INFORMATION

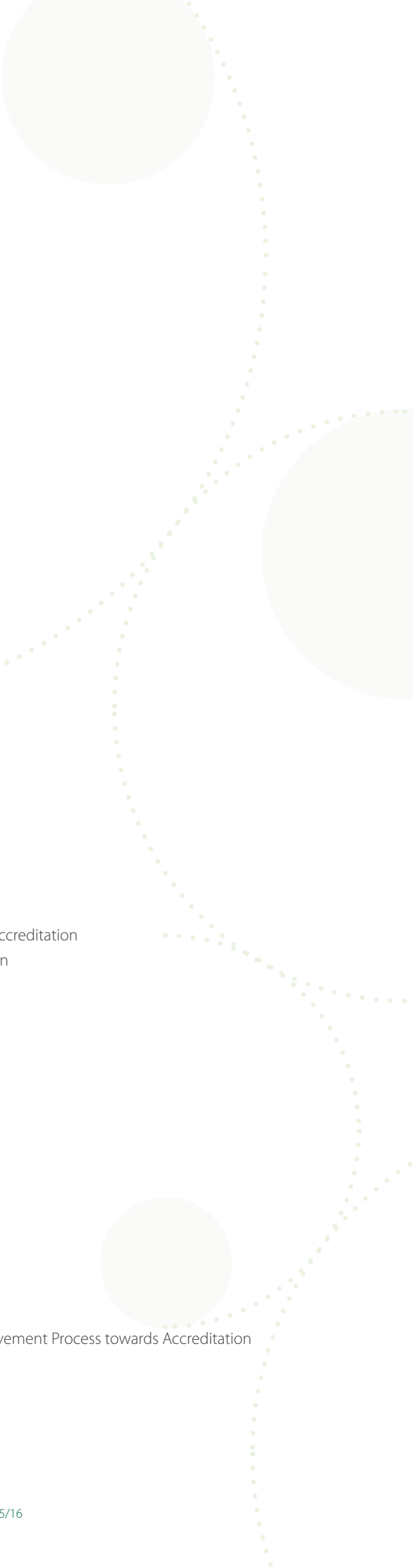
General Information

Registered name of the public entity	National Health Laboratory Service
Legal form	Schedule 3A public entity
Practice number	PR5200296
Registered office address	1 Modderfontein Road Rietfontein Sandringham Johannesburg, 2000
Postal address	Private Bag X8 Johannesburg 2131
Contact telephone numbers	011 386 6000
Email address	enquiries@nhls.ac.za
Website address	http://www.nhls.ac.za
External auditors	SizweNtsalubaGobodo Inc Chartered Accountants (SA) (SNG)
Bankers	First National Bank Limited, Rand Merchant Bank Limited, Investec Limited and Nedbank Limited

Abbreviations and Acronyms

AAR	Academic Affairs and Research
AARQA	Academic Affairs Research and Quality Assurance
ACGT	AIDS Clinical Trials Group
ACILT	African Centre for Integrated Laboratory Training
AIDS	Acquired Immune Deficiency Syndrome
AMR	Antimicrobial Resistance
ARV	Antiretroviral
ASLM	African Society for Laboratory Medicine
AVE	Advertising Value Equivalency
BBBEE	Broad-based Black Economic Empowerment
BHSc	Bachelor of Health Science
BLUC	Blood and Laboratory Users Committee
BSc	Bachelor of Science
CCMT	Comprehensive Care, Management and Treatment
CDC	Centers for Disease Control and Prevention
CDW	Corporate Data Warehouse
CED	Centre for Enteric Diseases
CEO	Chief Executive Officer
CEZD	Centre for Emerging and Zoonotic Diseases
CLS	Contract Laboratory Service
CM	Cryptococcal Meningitis
CMJAH	Charlotte Maxeke Johannesburg Academic Hospital
COA	Certificates of Analysis
CPD	Continuing Professional Development
CRDM	Centre for Respiratory Diseases and Meningitis
CRP	C-Reactive Protein
CTB	Centre for Tuberculosis
CU	Comprehensive University
DCS	Dried Culture Spot
DGM	Dr George Mukhari Hospital
DMP	Diagnostic Media Products
DNA PCR	Deoxyribose Nucleic Acid Polymerase Chain Reaction
DoH	Department of Health
DOH	Diploma in Occupational Health
DR	Drug Resistance
EA	Enterprise Architecture
EBS	E-Business Suite
ECM	Enterprise Content Management
EE	Employment Equity
eGK	Electronic Gate-keeping
EID	Early Infant Diagnosis
EOC	Emergency Operations Centre
EQA	External Quality Assurance/Assessment
ERP	Enterprise Resource Planning
ESI	Employee Satisfaction Index
EXCO	Executive Committee
FETP	Field Epidemiology Training Programme
FinCom	Finance Committee
FNA	Fine Needle Aspiration
FPD	Foundation for Professional Development
FS	Free State

GAP	Gauteng Accelerator Programme
GCIS	Government Communications and Information Services
GLP	Good Laboratory Practice
GLWP	Good Laboratory Work Practices
GSH	Groote Schuur Hospital
GRAP	Generally Recognised Accounting Practice
GXP	GeneXpert
HAST	HIV/AIDS and Sexually Transmitted Diseases
HIV	Human Immunodeficiency Virus
HIV PCR	Human Immunodeficiency Virus Polymerase Chain Reaction
HPCSA	Health Professions Council of South Africa
HST	Health Systems Trust
HTA	Health Technology Assessment
HWSETA	Health and Welfare Sector Education and Training Authority
IALCH	Inkosi Albert Luthuli Central Hospital
IKM	Information and Knowledge Management
ISO	International Organisation for Standards
IT	Information Technology
ITGC	Information Technology Governance Committee
ITSMD	Integrated Tiered Service Delivery Model
King III	King Code of Governance Principles and King Report on Governance
KPI	Key Performance Indicator
KZN	KwaZulu-Natal
LFA	Lateral Flow Assay
LIAT	Laboratory in a Tube
LIS	Laboratory Information System
LSHTM	London School of Hygiene and Tropical Medicine
M&E	Monitoring and Evaluation
MDR-TB	Multi-drug Resistant Tuberculosis
MMed	Masters in Medicine
MoU	Memorandum of Understanding
MRC	Medical Research Council
MSc	Masters in Science
NAPHISA	National Public Health Institute of South Africa
NC	Northern Cape
NCR	National Cancer Register
NGO	Non-governmental Organisation
NHA	National Health Act
NHC	National Health Council
NHI	National Health Insurance
NHLS	National Health Laboratory Service
NICD	National Institute for Communicable Diseases
NIOH	National Institute for Occupational Health
NMAL	Nelson Mandela Academic Laboratories
NPP	National Priority Programmes
ODWMA	The Occupational Diseases in Mines and Works Act
OHASIS	Occupational Health and Safety Information System
OHS	Occupational Health and Safety
PAHPW	Pan African Harmonisation Working Party
PathReD	Pathology Research and Development Congress
PBCR	Population-Based Cancer Registry
PCR	Polymerase Chain Reaction
PEPFAR	President's Emergency Plan for AIDS Relief (US)



PFMA	Public Finance Management Act
PHC	Primary Healthcare
PhD	Doctor of Philosophy
PID	Primary Immune Deficiency
PMTCT	Prevention of Mother-to-Child Transmission
POC	Point-of-Care
POCT	Point-of-Care Testing
PSM	Public Sector Manager
PTS	Proficiency Testing Scheme
QA	Quality Assurance
QC	Quality Control
QCA	Quality Compliance Audit
QCMD	Quality Control Molecular Diagnostics
QMS	Quality Management System
R&D	Research and Development
RSC	Research Committee
RCE	Regional Centre of Excellence
RDT	Rapid Diagnostic Test
RHRC	Remuneration and Human Resources Committee
RIF	Rifampicin
RMMCH	Rahima Moosa Mother and Child Hospital
RPR	Rapid Plasma Reagin
RTQII	Rapid Testing Quality Improvement Initiative
SADC	Southern African Development Community
SAHTA	South African Health Technology Assessment Society
SAMED	South African Medical Devices Industry Association
SAMH	SA Military Health
SANAS	South African National Accreditation System
SANDF	South African National Defence Force
SAVP	South African Vaccine Producers
SIQS	Swiss Institute for Quality Standards
SLA	Service Level Agreement
SLIPTA	Stepwise Laboratory Quality Improvement Process Towards Accreditation
SLMTA	Strengthening Laboratory Management Towards Accreditation
SMU	Sefako Makgatho Health Sciences University
SOE	State-owned Enterprise
SOP	Standard Operating Procedure
STEA	Scientific Travel and Events Attendance
TAT	Turnaround Time
TB	Tuberculosis
TBH	Tygerberg Hospital
UAL	Universitas Academic Laboratories
UFS	University of the Free State
UL	University of Limpopo
UOM	Unity of measure
UoT	University of Technology
WC	Western Cape
WHO	World Health Organization
WHO AFRO SLIPTA	World Health Organization's Africa Stepwise laboratory improvement Process towards Accreditation
Wits	University of the Witwatersrand
WRV	WebResults Viewer
WSP	Workplace Skills Plan
ZiNQAP	Zimbabwe National Quality Assurance Programme



Prof. Barry Schoub

Foreword by the Chairperson

It gives me great pleasure to present the 2015/16 Annual Report of the National Health Laboratory Service (NHLS). Throughout the year, we have continued to develop policies and practices that have enhanced good governance in the organisation.

The NHLS has developed its Strategic Plan and an Annual Performance Plan, which are focused on service provision as well as necessarily adapting to business realities. The Board is ultimately responsible for overseeing the organisation's performance and achievement of predetermined objectives, while the management team is responsible for the implementation of these strategies. The NHLS's financial position is gradually stabilising. The organisation continues to service prior debts and is able to meet its financial obligations as they fall due. The Board, through its committees,

has developed monitoring tools to ensure financial prudence within the organisation.

We are currently working with the shareholder to develop a 'modified capitated re-imbursement funding model' to improve our pricing models and billing across the provinces. We anticipate that the model will be fully implemented in the next financial year. During the year under review, the NHLS received the following accolades and international recognitions:

- The prestigious international European Quality Award in the Healthcare Sphere Category on 01 July 2015 at Montreux, Switzerland. This award is in recognition of the NHLS safe and effective treatment methods, its highly professional and competent medical staff, as well as service quality in accordance with prescribed European standards
- A five star scoring through the African Society for Laboratory Medicine (ASLM) external audits. ASLM was established to evaluate and recognise the progress of laboratory Quality Management Systems (QMS) using the World Health Organization's Africa Stepwise Laboratory Improvement Process towards Accreditation (WHO AFRO SLIPTA) checklist. The Northdale Laboratory in KZN has obtained a five star rating, which is the highest rating on the WHO AFRO SLIPTA checklist.

Challenges will without doubt continue in the year ahead, but I remain confident that the NHLS is well positioned to continue providing quality, affordable and sustainable health laboratory services in South Africa and beyond.

On behalf of the Board, I would like to thank our shareholder, the Minister of Health, and the Department of Health as a whole, for their continued guidance and support. I would also like to pay tribute to my colleagues serving on the Board for their high level of engagement during the year, and the time and dedication they took to ensure that we discharge our responsibilities with diligence and care.

I also wish to extend my heartfelt appreciation to all our employees who have put their shoulders to the wheel to ensure that the NHLS continues to provide this essential health service to all our people, even during the challenging moments presented by our economy.

The Board remains committed to maintaining and strengthening the NHLS's reputation as an ethical, dependable, effective and quality organisation for all its stakeholders.

Prof. Barry Schoub
Chairperson

Chief Executive Officer's Overview

INTRODUCTION

The Annual Report is a perfect platform to reflect on the year that was, and with that said, I would like to start by recognising that the 2015/16 financial year was an award-winning year for the organisation. In the year under review, the National Health Laboratory Service (NHLS) was awarded the prestigious 2015 European Quality Award in the Healthcare Sphere Category. The presentation ceremony was hosted by the Swiss Institute for Quality Standards (SIQS) and the Socrates Committee at Montreux, Switzerland during the Excellence in Quality Summit, held from 30 June–02 July 2015. Winning this award meant a lot for the organisation, as it highlighted the overwhelming dedication, commitment and professionalism of our medical staff in offering quality services in accordance with European standards.

The accolade not only elevated the organisation's status, but it also served as an indication of the great strides taken and the continuous improvements made in the South African healthcare landscape over the years.

Another significant milestone was the hosting of the first NHLS, Pathology Research and Development (PathReD) Congress, themed 'Enriching Health through Research: Paving the Future'. This congress served as a national platform to showcase ongoing research within the NHLS and partnering institutions. The prestigious occasion was hosted at Emperors Palace from 14–16 April 2015, and brought together NHLS experts from near and far.

In as much as the year was an award-winning and groundbreaking one, the organisation also had its fair share of challenges in the form of human resource matters, which had accumulated over time and needed to be resolved to restore staff morale. The implementation of the Reward and Remuneration Project consumed a great deal of time. It was very necessary, however, to implement it from the outset in a proper and fair manner for employees, in order to set the NHLS on a vigorous and successful path into the future. I am pleased to note that with the collaboration of various stakeholders, such as organised labour, we have managed to reach various resolutions, agreements and conclusions with regard to the project, and have been rectifying any mishaps over time.

OUR PEOPLE

As a statutory body, the NHLS is controlled by its Board members led by the Board Chairperson, Prof. Barry Schoub, who reports to the Minister of Health. The organisation is managed by an Executive Committee consisting of executive managers, reporting to the CEO, who in turn reports to the Board Chairperson. In the past year, we welcomed a new Legal Manager, a Human Resources Executive, and a Senior Manager in Monitoring and Evaluation to NHLS, to take up these pivotal positions in the organisation.

Our people breathe life into the organisation through their dedication, hard work, expertise and professionalism. As a result our organisation remains highly sought after. I am satisfied to say that the staff complement has increased by 4.2 % to 6 987. The number of pathologists increased to 214 from 194, which means we have managed to retain most of our pathologists and to recruit 10.3% more. This again confirms that the NHLS is a leader in the health sector, as professionals in these occupational categories have left their respective employers in the financial year to join the NHLS.

The number of medical technologists increased from 1 329 to 1 364, a percentage increase of 2.63%. This gain confirms that the NHLS is the leader in the health industry as our core professionals are opting to stay with the organisation, where an environment allows them to thrive. There is a 13% increase in the number of medical technicians and 6.4% improvement in the number of medical scientists. The increase in the headcount is in proportion to the work volume as reflected in the paragraph below.



Ms Joyce Mogale

The Human Resources Department successfully implemented phase 1 of the Remuneration and Reward Project for bands A–C, which was necessary to adjust and align staff salary scales. The process will be completed in the new financial year, with the implementation of the entire process for all grades.

Staff resignations remained at 5.6%, while disciplinary cases for misconduct decreased to 0.3%.

A total of 103 Biomedical Scholarships were offered to various students from disadvantaged communities, and 90 bursaries were extended to NHLS staff to enable their careers by studying towards further degrees.

OUR STAKEHOLDERS

The achievement of the NHLS's strategic objectives and mandate rests largely on the formation of partnerships with key stakeholders. In the period under review, the NHLS continued to engage with and strengthen relationships with the national and provincial Departments of Health, to ensure adherence to service level agreements and payment for laboratory and related services. The organisation also hosted a number of high level delegations. These include the Minister of Health, Deputy Minister of Health, members of the Parliamentary Portfolio Committee, Namibian delegation, the Ethiopian Public Health Institute, the United States of America's Department of Human Service, China's Minister of Health and the Iranian delegation, that all came to gain insight into our organisation's best practices and share ideas on how to improve on our mandates of research, training and service delivery.



CEO Ms Mogale with China's Minister of Health

DRIVING THE RESEARCH AGENDA

Close collaboration with our academic partners and a strong research foundation in the National Institute for Occupational Health, the National Institute for Communicable Diseases and the National Cancer Registry ensure constructive contributions and better co-ordination of the NHLS's research agenda. Research activities are conducted within the institutions and in NHLS laboratories. In the period, a total of 640 papers and ten book chapters were published together with academic partners. The majority of the publications were in the medical microbiology (including medical virology) and haematology disciplines.

OUR BUSINESS

It is pleasing to note that we have remained resilient in delivering on our mandates and have continued to make strides in our day-to-day business activities. This is evident in the mentioned activities outlined below.

Through the National Priority Programmes' (NPP) HIV viral load programme there was a 38% increase in HIV viral load tests from the previous financial year, which led to a total of 3.7 million HIV viral load tests in the 2015/16 financial year. This resulted in laboratories operating at maximum capacity and thus placing the programme under strain. An urgent review of the HIV viral load programme culminated in the rapid up-scaling of the programme and a doubling of capacity. Roche committed to the placement of newer, higher throughput Cobas 6800 and 8800 analysers, resulting in laboratories having to undergo renovations prior to

installation, with either a parallel installation or a total shutdown until completion. The upscale will allow for approximately six million HIV viral load tests to be achieved by the 2017/18 financial year.

Five laboratories have been up-scaled to the newer high throughput Cobas systems and three laboratories will be completed during the new reporting period.

In the previous financial year, the NHLS, together with the Aurum Institute, was appointed by the National Department of Health under the Global Fund grant, to implement interventions aimed at improving TB and HIV/AIDS management in vulnerable peri-mining communities, estimated at around 600 000 people in six main mining districts. Six staffed and TB GeneXpert equipped mobile TB units were deployed within the communities to undertake Xpert MTB/RIF testing for TB. In addition, people newly identified as HIV-infected through the clinical partner were staged for HIV-treatment using CD4 tests provided by the closest NHLS laboratory in the district.

In this reporting period, the mobile units continued to provide daily testing operations in the identified districts. The areas covered did not change, and included informal settlements, taxi ranks, farms, and institutions of higher learning. Provincial and district health campaigns continued to be supported through TB testing on site.

Highlights from the mobile project are as follows:

- Almost 100% of clinical partner personnel and mobile laboratory technicians were trained in all six selected peri-mining districts between October and December 2015
- The partnership between Aurum and the NHLS was strengthened to reach a common understanding and there was an improvement in specimen collection with a minimal error rate being reported after training.

South African Vaccine Producers (SAVP), an entity of the NHLS, which continually places the organisation on the map as it is the sole producer of antivenom on the African continent, has continued to supply its strategic products with excellent results. Some heartening feedback was received from as far afield as Spain, including a report from Kenya which stated "The antivenom has been busy saving lives in these serious snakebite areas".

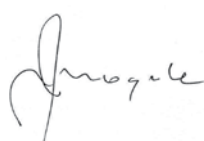
The SAVP acquired adequate amounts of the scarce Boomslang venom to ensure the continuous and uninterrupted supply of antivenom. As the sole manufacturer of this particular antivenom worldwide, it is gratifying to report that the SAVP dispatched in excess of 13 000 units (all antivenoms) in the 2015/16 financial year.

Our Finances

The NHLS ended its 2015/16 financial year on a sound note. We experienced an increase from 84 891 560 in 2014/15 to 86 891 560 in 2015/16, which equates to a 3.4% overall increase in the volume of tests requested. This translated into a R1 billion increase in test revenue. The increase in volume was largely due to HIV viral load and HIV-PCR tests, which increased by 20% and 30% respectively. Revenue for the year was R6.4 billion, compared to R5.7 billion at the end of the 2014/15 financial year. Material expenditure remained constant at 31%. Labour constituted 37% of total revenue compared to 35% in the previous financial year. Average revenue per capita increased by 7%, which is in line with inflation.

In Conclusion

The NHLS is committed to its mandate to serve approximately 80% of the South African population. As an organisation, we have remained resilient through our challenges and have not deviated from placing patient care first. 2015/16 financial year was a year of growth, change and transition. We've been through many developments and challenges, but still managed to exceed expectations with achievements. This was made possible by the continued support, commitment, dedication, loyalty and teamwork the NHLS staff showed during the year. I would like to extend my gratitude to the NHLS staff and Board for their support.



Ms Joyce Mogale
Chief Executive Officer

Board Members



Prof. Barry Schoub



Prof. Gregory Hussey



Ms Joyce Mogale



Mr Ben Durham



Dr Tim Tucker



Mr Michael Manning



Mr Andre Venter



Dr Patrick Moonsaar



Ms Ntombikayise Mapukata



Mr Thamsanqa Stander



Mr Stanley Harvey



Prof. Eric Buch



Prof. Mary Ross



Dr Gerhard Goosen



Ms Nelisiwe Mkhize



Mr Lunga Ntshinga



Prof. Haroon Salojee



Mr Michael Shingange



Prof. Willem Sturm

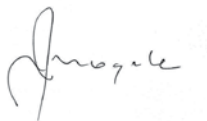
Statement of Responsibility and Confirmation of Accuracy for the Annual Report

To the best of our knowledge and belief, we confirm the following:

- All information and amounts disclosed in the Annual Report are consistent with the Annual Financial Statements audited by SizweNtsalubaGobodo Inc.
- The Annual Report is complete, accurate and is free from any omissions.
- The Annual Report has been prepared in accordance with the Annual Report Guidelines as issued by the National Treasury.
- The Annual Financial Statements (Part E) have been prepared in accordance with the Standards of Generally Recognised Accounting Practice (GRAP) applicable to the NHLS.
- The Accounting Authority is responsible for the preparation of the Annual Financial Statements and for the judgments made in this information.
- The Accounting Authority is responsible for establishing, and implementing a system of internal control, designed to provide reasonable assurance as to the integrity and reliability of the performance information, the human resources information and the Annual Financial Statements.
- The external auditors are engaged to express an independent opinion on the Annual Financial Statements.

In our opinion, the Annual Report fairly reflects the operations, the performance information, the human resources information and the financial affairs of the NHLS for the financial year ended 31 March 2016.

Yours faithfully



Ms Joyce Mogale
Chief Executive Officer
31 July 2016



Prof. Barry Schoub
Chairperson of the Board
31 July 2016

Strategic Overview

ABOUT THE NHLS

The National Health Laboratory Service (NHLS) is a public health laboratory service with approximately 288 laboratories across the nine provinces of South Africa, excluding depots, and serves approximately 80% of the South African population.

VISION

"Africa's centre of excellence for innovative laboratory medicine".

MISSION

To provide quality, affordable and sustainable health laboratory medicine, provide training for health science education and undertake innovative and relevant research.

VALUES

The National Health Laboratory Services (NHLS) has identified the following values as the principles that will govern behaviour of all employees within the organisation:

	Value	Description
1.	Care	<i>Caring about the environment and society:</i> This involves consideration of our impact on the environment and local communities, acting with concern and sensitivity. The National Health Laboratory Services (NHLS) is committed to behave ethically and contribute to the economic development of the workforce, community and society at large. It's about giving back to society and the environment as well as capacity building for a sustainable future.
2.	Unity of Purpose	<i>All Working together towards a common goal:</i> All employees should be united by a common vision and support each other in contributing to a beneficial and safe working environment. Teamwork and cohesion are key and collaboration should include pooling resources and communicating about each other's roles. Teamwork and cohesion are key and collaboration should include pooling resources and communicating about each other's roles. Foster trust and honesty in interactions with colleagues and behave professionally. Value all contributions, treat everyone consistently and fairly and capitalize on diverse viewpoints. Address and resolve conflicts effectively. Listen to others to fully understand and give clear, concise information when communicating expectations and accountabilities and providing feedback during coaching. Making NHLS goals a priority, using NHLS resources wisely and effectively and taking responsibility for your work.
3.	Service Excellence	<i>Valuing good work ethics and striving towards service excellence for customers:</i> This represents being committed to working with customers and building good relationships with them by understanding their needs, responding quickly and providing appropriate solutions. We treat them with respect at all times; we are helpful, courteous, accessible, responsible and knowledgeable in our interactions. We understand that we have internal and external customers that we provide services and information to. This information should be presented in a clear and concise form, where the message is adapted to the audience.

	Value	Description
4.	Transformation	<i>Looking forward to the future and growing together:</i> This encompasses investing in professional growth of staff by sharing knowledge and experience, peer networking, education through training and seeking opportunities to develop. It covers creative problem solving, informed risk-taking, learning from our mistakes and experiences and behaving professionally. We should adapt to change timeously and positively, address setbacks and ambiguity and adapt our thinking/approach as the situation changes. Ideas should be shared and implemented effectively. Leaders should develop innovative approaches and drive continuous improvement as well as effective and smooth change initiatives.
5.	Innovation	<i>Pioneering relevant research solutions and training:</i> Identifying needs to broad challenges present in local society. Creating space for research to be done and backing fresh ideas by bringing them to the market. Pursuing cost-effective solutions in research and training. Monitoring the impact of solutions on the challenges faced. Supporting the application of new ways of doing things at senior management level in the organisation. Encouraging pioneer personalities to operate outside the research box. Rewarding and publicising boundary-breaking initiatives. Giving credit to those to whom it is due.
6.	Integrity	<i>Working with integrity and responsibility:</i> Setting and achieving goals, consistently delivering business results while complying with standards and meeting deadlines. Displaying commitment to organisational success; proactively identifying ways to contribute and taking initiative to address problems/opportunities. Building efficiencies in the best use of public resources.

Legislative and other Mandates

The legislative mandate of the NHLS is derived from the Constitution, the National Health Act, 2003 (Act No. 61 of 2003), the NHLS Act, 2000 (Act No. 37 of 2000), and several pieces of legislation, regulations and policies passed by Parliament.

CONSTITUTIONAL MANDATE

The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), places obligations on the state to progressively realise socio-economic rights, including access to healthcare.

Section 27 of the Constitution states as follows with regards to healthcare, food, water, and social security:

- (A) Everyone has the right to have access to –
- healthcare services, including reproductive healthcare;
 - sufficient food and water; and
 - social security, including, if they are unable to support themselves and their dependents, appropriate social assistance.
- (B) The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights; and
- (C) No one may be refused emergency medical treatment.

THE NATIONAL HEALTH ACT, 2003 (ACT NO. 61 OF 2003)

This Act provides a framework for a structured uniform health system within South Africa, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services. The objects of the National Health Act (NHA) are to:

- Unite the various elements of the national health system in a common goal to actively promote and improve the national health system in South Africa
- Provide for a system of co-operative 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 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 which encourage participation
- Promote a spirit of co-operation 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 that must be understood alongside other laws and policies which relate to health.

THE NATIONAL HEALTH LABORATORY SERVICE ACT, 2000 (ACT NO. 37 OF 2000)

The Act mandates the NHLS to provide cost-effective and efficient health laboratory services to all public sector healthcare providers; any other government institution inside and outside of South Africa that may require such services; and any private healthcare provider that requests such services. The Act also mandates the NHLS to support health research and provide training for health science education.

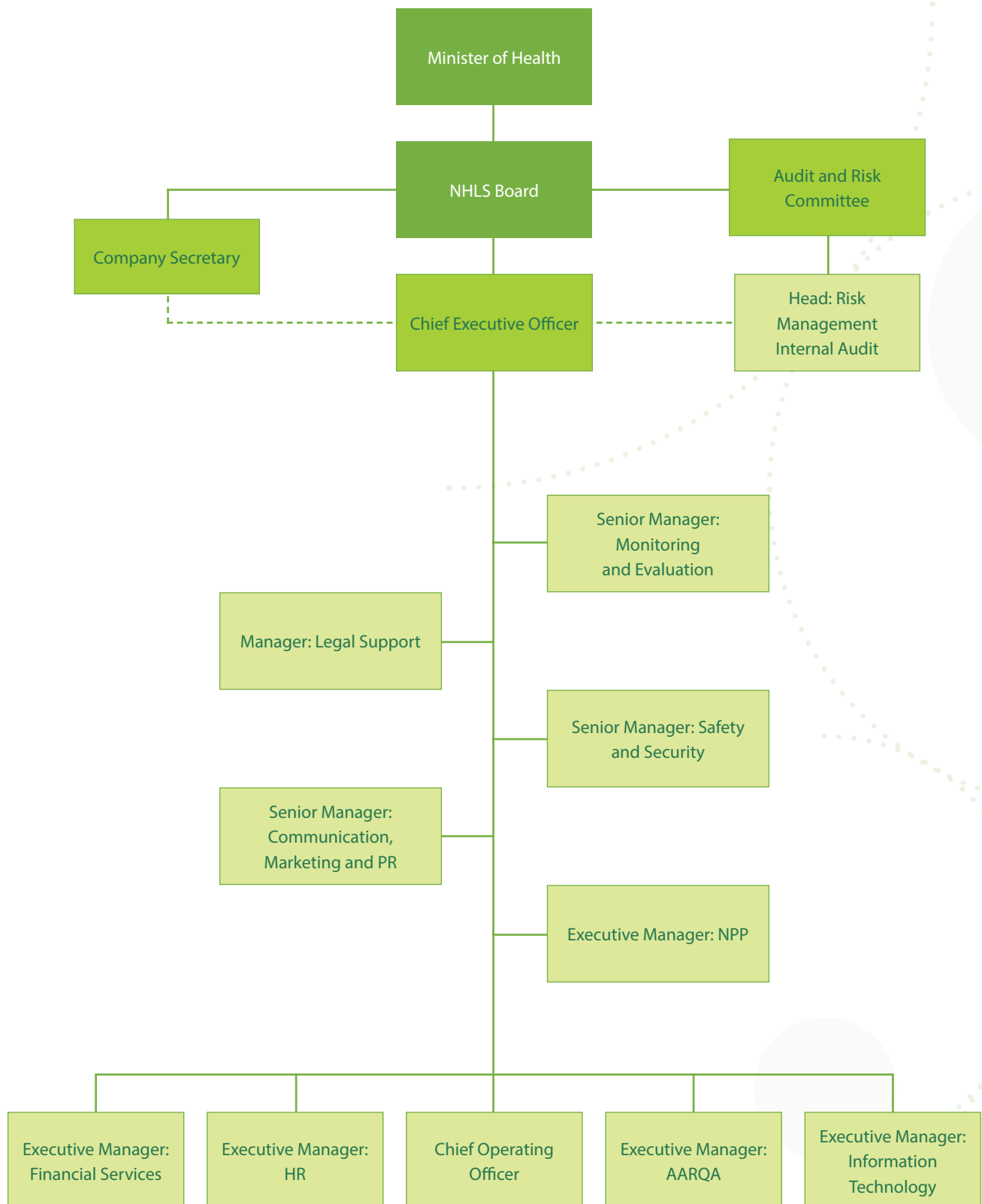
OTHER LEGISLATIVE OR POLICY INITIATIVES

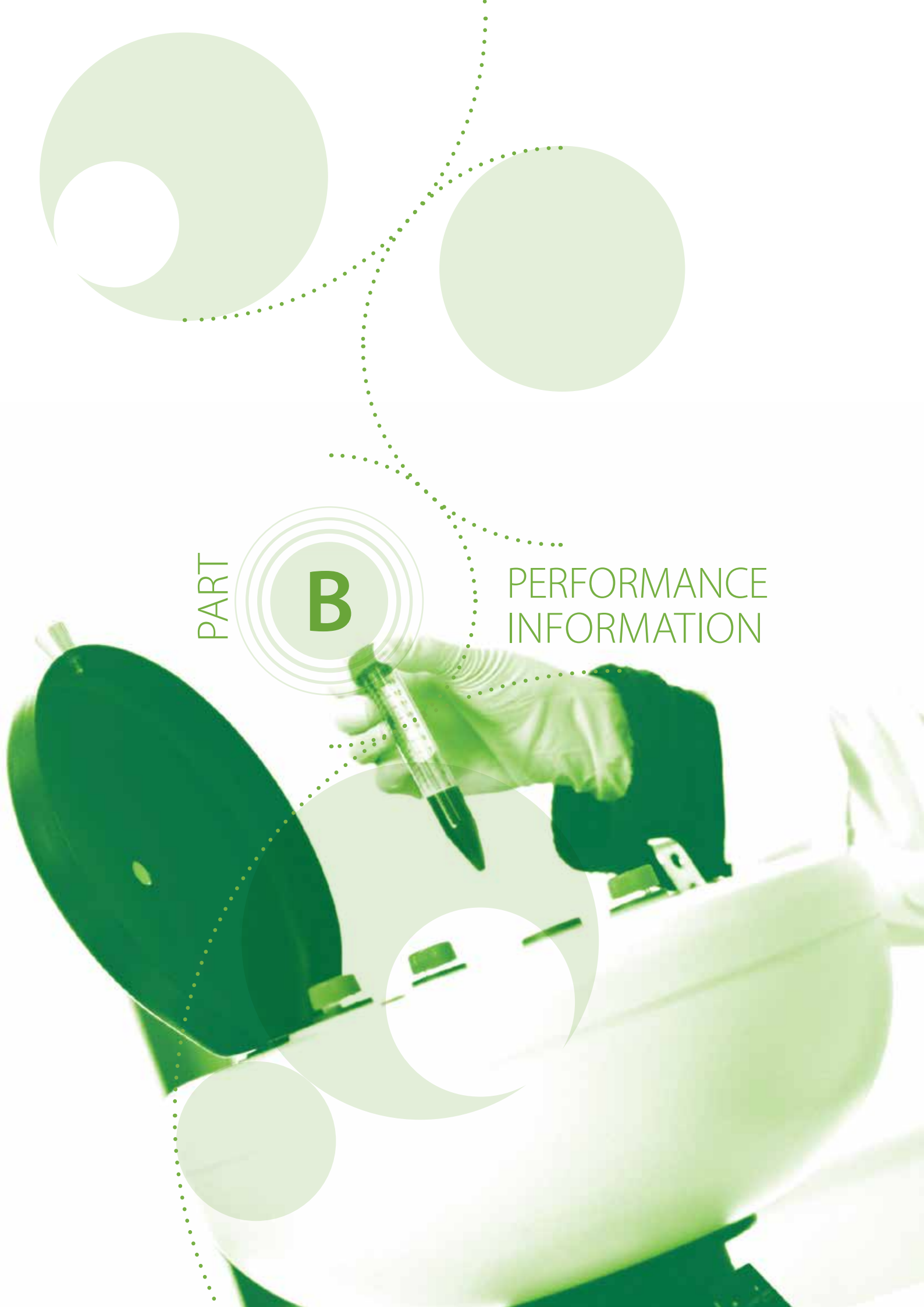
The NHLS is committed, as articulated in its Strategic Plan 2015/16–2019/20, to support the following:

- The mandate of the Department of Health
- The National Health Insurance (NHI), which will cover a defined basket of pathology services that are aligned with the package of services required per level of care. The pathology service will be delivered at the public healthcare level as well as at higher levels of care as defined by the NHLS Act and in line with the National Health Act. The latter requires the setting, monitoring and enforcing of quality control standards applicable to pathology services, to ensure patient safety.
- The following are functions in the National Public Health Institute for South Africa (NAPHISA)
 - Communicable disease
 - National Cancer Registry
 - Occupational Health
 - Non-communicable disease
 - Injury and violence prevention.

The various departments are still to be determined but naturally NICD, NCR, NIOH will be incorporated.

Organisational Structure





PART

B

PERFORMANCE
INFORMATION

Auditor's Report: Predetermined Objectives

The independent auditor performed the necessary audit procedures on performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on the performance against predetermined objectives is included in the report to management, with material findings being reported under the Predetermined Objectives heading in the Report on other Legal and Regulatory Requirements section of the Auditor's Report on page 155.

Situational Analysis

SERVICE DELIVERY ENVIRONMENT

During the 2015/16 period, the demand from provinces for the services of the NHLS increased by 3.4% from 84 891 560 in 2014/15 to 86 891 560, mainly driven by HIV viral load and TB GeneXpert volumes.

Despite staff turnover, staff numbers increased from 6 693 in 2014/15 to 6 987 as the end of March 2016, and service delivery improved remarkably. This is confirmed by the improvement in turnaround times for tests, notwithstanding the unexpected increase in HIV viral load testing by 38%. The increase resulted in a total of 3.7 million HIV viral load tests being conducted in the 2015/16 financial year.

The NHLS continued to fulfil its mandate of teaching, training and research in collaboration with medical universities, universities of technology and comprehensive universities. Due to critical skills shortages in certain areas and general staff shortages in others, the Learning Academy had to prioritise skills development through the analysis of its employees' most critical skills needs. In line with the Workplace Skills Plan (WSP), 1 946 employees attended technical and non-technical learning programmes and conferences in the period.

Focused support towards strengthening the diagnostic laboratory platform was received from the Centers for Disease Control (CDC) and the Global Fund in conjunction with the Department of Health (DoH). This substantial financial support for research activities enabled researchers to continue with their innovative research activities, demonstrated in 624 peer-reviewed journal articles which were published together with academic partners.

ORGANISATIONAL ENVIRONMENT

In 2015/16 the Honourable Minister of Health, Dr Aaron Motsoaledi, appointed new members to serve on the NHLS Board. This was followed by the appointment to the position of Chief Executive Officer of Ms Joyce Mogale, who had been acting as Interim CEO. Among the CEO's key responsibilities are the provision of strategic direction to the organisation; oversight of financial management to ensure cost-effectiveness and efficiency in the utilisation of resources; continuous improvement of the services delivered; improvement of staff morale; and the building, improvement and maintenance of a good working relationship with stakeholders.

During the period, the Strategic Plan was reviewed, leading to the development and adoption of a new Vision, Mission and Values for the organisation. These are inherent in the Annual Performance Plan 2016–2020.

Success of the Organisation

2015/16 was an award-winning year for the organisation. The NHLS was awarded the prestigious international European Quality Award in the Healthcare Sphere Category. The ceremony was hosted by the Swiss Institute for Quality Standards (SIQS) and the Socrates Committee during the Excellence in Quality Summit, held from 30 June–02 July 2015 in Montreux, Switzerland.

Relationships with stakeholders improved as a result of stakeholder engagement forums. Continued engagement and strengthening of relationships with the national and provincial Departments of Health ensured adherence to service level agreements and payment for laboratory and related services. This helped considerably, enabling the NHLS to pay suppliers on time and adjust the salary scales for bands A to C.

HR governance and leadership structures improved following the appointment of the HR Executive.

A further milestone was the hosting of the first NHLS Pathology Research and Development (PathReD) Congress, themed 'Enriching Health through Research: Paving the Future'. This congress served as a national platform to showcase ongoing research within the NHLS and partnering institutions. The occasion was hosted at Emperors Palace from 14–16 April 2015 and brought together experts from near and far.

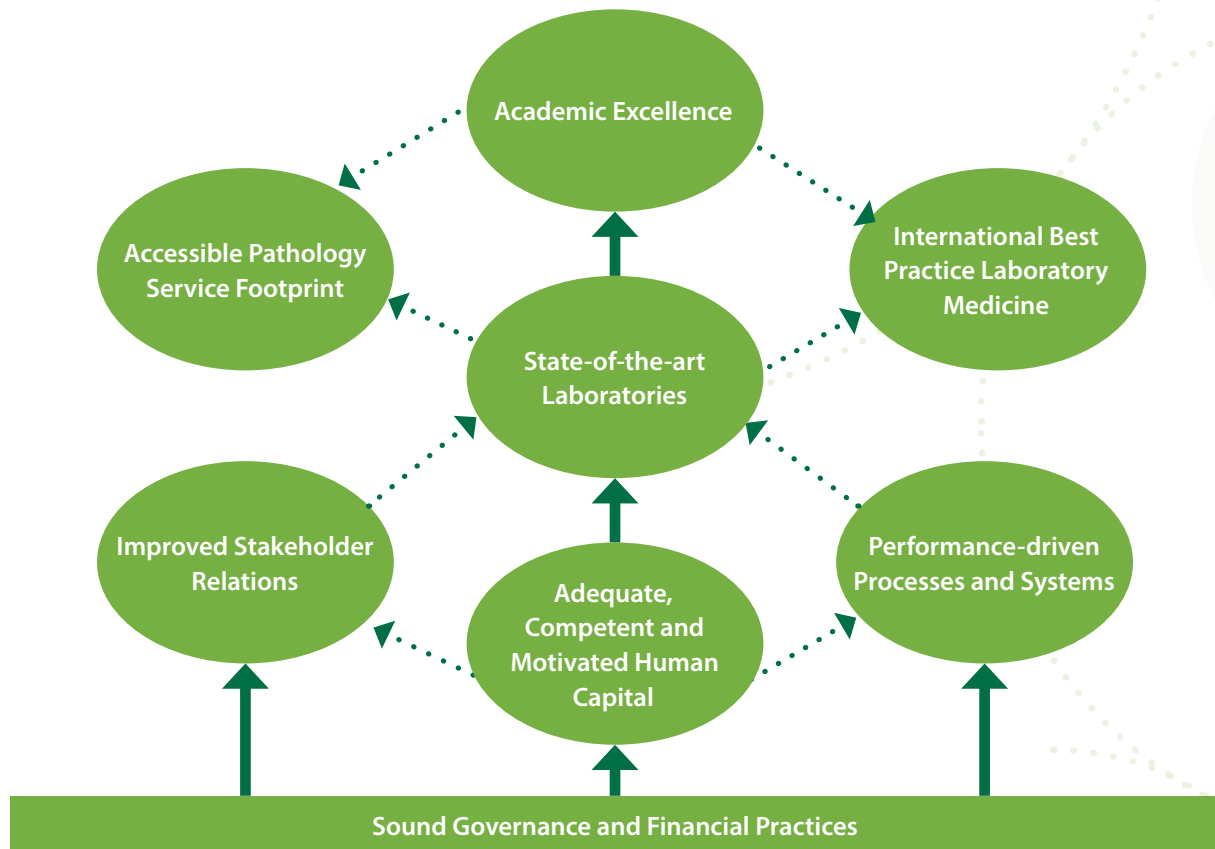
Conclusion

During the period under review, the Strategic Plan was reviewed, leading to the development and adoption of a new Vision, Mission and Values for the organisation. These are inherent in the Annual Performance Plan 2016–2020.

KEY POLICY DEVELOPMENTS AND LEGISLATIVE CHANGES

During the reporting period, there were no policy developments or legislative changes that impacted on the operations of the NHLS.

STRATEGIC OUTCOME-ORIENTED GOALS



Performance Information

KEY PERFORMANCE INDICATORS (KPI'S)

The overall performance score for 2015/16 was 73.68%.

Table B1: Definitions applied to key performance indicators

Key Performance Indicator	UOM	Definition	Report Name	Source	Frequency
TAT – TB Microscopy	%	% of tests completed within 40 hours in the laboratory, from date of first registration to date of results being made available	Downloaded Excel report	CDW	Monthly
TAT – CD4	%	% of tests completed within 40 hours in the laboratory, from date of first registration to date of results being made available	Downloaded Excel report	CDW	Monthly
TAT – HIV Viral load	%	% of tests completed within four working days in the laboratory, from date of first registration to date of results being made available	Downloaded Excel report	CDW	Monthly
TAT – HIV-PCR	%	% of tests completed within four working days in the laboratory, from date of first registration to date of results being made available	Downloaded Excel report	CDW	Monthly
TAT – Cervical smear	%	% of tests completed within 13 working days in the laboratory, from date of first registration to date of results being made available	Downloaded Excel report	CDW	Monthly

PERFORMANCE ACHIEVEMENTS BY PROGRAMME

Please note that all the KPI's without targets were removed as they could not be reported on in the financial year under review.

P1 Administration

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
Ensure effective financial management and accountability through improved audit outcomes	Audit opinion from the Auditor-General	Unqualified audit opinion	Achieved	Unqualified
Implement and monitor global budget	Financial systems and processes aligned with global budget	Financial systems and processes aligned with global budget	Achieved	Financial systems has been aligned with global budget and pilot phase started on 01 April 2016. The actual implementation will commence on 2017–2018
Develop and implement the ICT Governance Framework by focusing on the Business Continuity Plan	Develop and implement the ICT Governance Framework	Implementation of Disaster Recovery Plan and Identify Management	Achieved	Identity and Access management design was developed and signed off. An RFQ for governance gap analysis deferred to next financial year
Effective communication by development and implementation of a Communication Strategy	Develop an effective Communication Strategy	Develop and implement policies and procedures	Achieved	Standard Operating Procedures (SOPs) are loaded on Q-Pulse and have been implemented
Ensure efficient and responsive resource services through efficient recruitment processes	Average turnaround times for recruitment	Reduce recruitment turnaround to 4–5 months	Not achieved	Not achieved because of the austerity measures

P2 NICD

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
Supporting the establishment of the National Public Health Institute for South Africa (NAPHISA)	Input into DoH strategy for establishing legislative framework for establishment of NAPHISA	Draft Bill on NAPHISA developed	Achieved	
Enhance support for communicable disease prevention, surveillance and control for national and provincial government	Establishment of NICD provincial epidemiologist who will work with Provincial Communicable Diseases Directorates	Presence of NICD epidemiologist in five provinces	Not achieved	Four provincial epidemiologist appointed as of end of March 2016
Emergency Operations Centre (EOC) to manage communicable disease outbreaks of public health concern or pandemics	Establish and operationalise the EOC	Framework for EOC approved by the NDoH	Achieved	
Communicable disease surveillance programmes for leading infectious disease-associated causes of death	Establish and sustain prospective surveillance systems for the leading causes of infectious disease deaths and morbidity in South Africa	Sustain current surveillance systems and strengthen surveillance for TB and HIV drug resistance	Achieved	
Communications on communicable diseases	Publication of National Institute of Communicable Diseases (NICD) Communiqué and Bulletins Publication of surveillance and research activities in peer-reviewed journals	Maintain current communication output – quarterly reports to provinces on provincial trends for communicable diseases of major importance, including TB and select vaccine preventable diseases	Achieved	Achieved as planned
Support in communicable disease outbreak responses	Support to district/sub-district and provincial authorities in responding to communicable disease outbreaks	Respond to outbreaks within 48 hours of request to NICD and formal close-out report of the outbreak	Achieved	
Management of National Notifiable Systems Platform on behalf of the DoH	Establishment of an electronic system for Notifiable Diseases	Functional electronic, notifiable disease recording system	Not achieved	The strategy was approved and adopted. The developed and approved implementation plan is well underway
Training and development of epidemiologist in communicable diseases	Number of field epidemiologist trained	Average of eight Field Epidemiology Training Programme (FETP) graduates per annum over a five-year cycle	Not achieved	Four FETP graduates completed training

P3 NIOH

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
To provide specialised Occupational Health and Safety (OHS) services to prevent occupational disease and injury and promote worker health	Number OHS assessments conducted	31	24	Not achieved Other assessments to be conducted in the next financial year due to a shortage of assessors
	Number of patients assessed at the occupational medicine clinic	250	253	Achieved
	Number of Review Committee meetings attended	4	5	Achieved Indicator as per APP: Reviewing Authority meetings attended in accordance with the Occupational Diseases in Mines and Works Act, 1973 (Act No. 78 of 1973), as amended (ODWMA)
	Percentage of laboratories accredited	75%	88%	Achieved
	Number of laboratory tests performed	13 000	10 135	Not achieved Lack of PhD-level scientists to run analytical services organics laboratory in the country – this is a scarce skill
	Number of scientific journals	10	10	Achieved
	Number of queries per month	500	599	Achieved Indicator as per APP: Number of queries received per year and ii) percentage of queries answered (target 95%)
To provide technical support and respond to industrial incident/disasters when required	Number of industrial incidents or disasters responded to	As needed	Not applicable	No major industrial incidents
To nurture a culture of sustainable prevention	Number of information products produced via different media	4	5	Achieved
To develop partnerships with trade unions, employer organisations, private sector and non-governmental organisations (NGOs) to improve OHS	Number of projects conducted with an external partner	5	8	Achieved
To develop a national policy on OHS for South Africa	Number of OHS best practice workshops	1	1	Achieved
Support for national and provincial government departments and other government entities	Number of government departments/entities receiving technical and advisory support	9	13	Achieved
Conduct the statutory pathology services in terms of the ODWMA	Number of autopsy examinations conducted and reported	1 000	875	Achieved NIOH does not exercise control over the access and therefore demand for this service, however 100% of all the samples received were reported on
To provide technical expertise to reduce exposure to airborne pathogens in healthcare facilities	Number of assessments completed	1	6	Achieved
To conduct research in OHS	Number of published scientific articles and reports	25	25	Achieved
To develop surveillance systems for occupational health in South Africa	Number of databases accessed	1	5	Achieved
	Number of surveillance reports produced and disseminated	3	3	Achieved

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
To collaborate with national and international institutions	Number of national partnership activities	1	11	Achieved
	Number of international partnership activities	2	8	Achieved
To implement the Occupational Health and Safety Information System (OHASIS)	Number of government departments or State-owned Enterprises (SOEs) which have implemented OHASIS	1	1	Achieved
To initiate high impact cancer-related research to understand the patterns and causation of cancer in South Africa	Filling of vacant posts and creation of additional medical scientist posts	1 new medical scientist post	1	Achieved Vacant post created and advertised – successful candidate declined the offer
	Number of research grants awarded	2 additional research grants	2	Achieved 2 research grants awarded: Newton Grant of R300 million and MRC Centre of Excellence Grant
	Number of peer-reviewed publications per year	4 publications	5	Achieved
To support to the national and provincial DoH through the development and maintenance of an efficient and updated cancer surveillance system for South Africa	Number of pathology-based cancer incidence reports per year	Full-length reports for 2010–2011 published	2010 partially approved	Partially achieved Multiple technical problems with 2010 data delayed the production of the following year's data
	Number of population-based cancer surveillance sites established	Active surveillance from one PBCR established	Achieved	Active surveillance from one PBCR was established
	Develop a Monitoring and Evaluation (M&E) Plan for the Ekurhuleni Population-Based Cancer Registry (PBCR)	Consultation with international and regional experts on M&E of PBCRs	Not achieved	Not achieved because the surveillance site was not ready for M&E
	Establish Standard Operating Procedure (SOP) for implementation of PBCRs in other sites	SOP developed	Achieved	SOP for implementation of PBCRs were established
	Quarterly electronic data transfer of cases of cancer-related mortality to the National Cancer Register (NCR)	Consultation with DoH and Department of Home Affairs regarding reporting of cancer mortality data to NCR	Not achieved	Not achieved because the issue has been escalated to the Deputy Minister of Health via the Ministerial Advisory Committee on Cancer Care and Control
	Number of partnerships with international agencies	Maintain existing partnerships	Achieved	The exciting partnership is well maintained
	Number of awareness campaigns regarding cancer registration and cancer incidence per year	2 awareness campaigns	Achieved	Formal awareness campaigns became unnecessary once active surveillance using surveillance officers was implemented
To produce technical/clinical guidelines that improve quality of OHS	Number of technical guidelines produced and disseminated	1	1	Achieved

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
To strengthen human resources for OHS by contributing to the teaching and training of doctors, nurses, scientists, hygienists and occupational health practitioners	Number of occupational medicine specialists who completed training	1	1	Achieved
	Number of medical scientists who completed training	6	1	Not achieved With 6 currently in training
	Number of medical doctors who completed a Diploma in Occupational Health (DOH)	30	30	Achieved Indicator as per APP: Number of medical doctors trained in different diploma in occupational health programmes by NIOH; there are 60 currently in training
	Number of public health medicine registrars rotating at NIOH	3	4	Achieved
	Number of post-graduate students supervised	15	29	Achieved
To improve the intellectual capacity in South Africa for cancer surveillance and cancer research	Number of active research collaborations per year	1 additional university collaboration	1	Achieved New collaboration with UKZN
	Number of students supervised	2 DST-NRF interns, 3 postgraduate students supervised	2	Achieved
	Coding training courses per year for specialist coders	One introductory and one advanced training course per year for coders	Not achieved	Not achieved because the training course was held in May 2016

P4 LAB SERVICE

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
To improve total turnaround time (TAT) for TB Microscopy	TAT – TB Microscopy	95%	91%	Not achieved because of staff shortage and increased workload
To improve TAT for CD4 testing	TAT – CD4	90%	89%	
To improve TAT for HIV viral load testing	TAT – HIV Viral load	90%	64%	
To improve TAT for early infant diagnosis using DNA PCR testing	TAT – HIV-PCR	90%	73%	
To improve TAT for cervical cancer testing	TAT – Cervical smear	70%	48%	
To improve the productivity of NHLS in pre- and post-testing	Analytical staff productivity	Productivity measures per discipline developed	100%	Achieved
	Pre-analytical staff productivity	Pre-analytical productivity registration developed	Developed	Achieved
	Pre-analytical registration rate	Efficiency measures for the median in-lab TAT developed	Developed	Achieved
To implement a laboratory optimisation model of service delivery	Median in-laboratory TAT	Efficiency measures for in-lab TAT developed	Developed	Achieved The reports are on CDW
	Median clinic-to-laboratory TAT	Efficiency measures for the median clinic-to-lab TAT	Developed	Achieved
	Median laboratory-to-laboratory TAT	Efficiency measures for the median lab-to-lab TAT	Developed	Achieved
	Fully functional M&E Unit	30%	30%	Achieved Senior Manager M&E was appointed 01 January 2016

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
To increase the number of NHLS laboratories that are accredited	No. of laboratories accredited (academic)	88%	84%	Not achieved Some of the laboratories were ready for accreditation, but were not accredited in the financial year under review
	No. of laboratories accredited (regional)	(Applications)	39%	Achieved 39% of all applications in laboratories were accredited during the year under review
To develop and implement software systems	Enterprise Architecture (EA) developed and implemented	Architecture Principles and Guidelines developed and approved. Business Architecture + 2 reference architectures	Project was put on hold	Not achieved Head of EA resigned – no EA expertise
			Achieved	EARC established and operational
	Upgraded TrakCare rollout nationally with electronic gate-keeping (eGK), order entry and other required functionality	TrakCare rolled out in all labs with eGK	Achieved	IT EXCO Report 2015-11-06 (copy provided) Trak Software Development Life Cycle (SDLC) (enhancement report) eGK National Implementation V1
To develop and implement software systems (continued)	Enterprise Content Management (ECM) rollout nationally with Intelligent forms	ECM fully implemented in all labs and corporate services	Partially achieved	ECM KZN Plan 2015_ScannerRollout Gauteng Region Scanning Plan and Progress 2015-07 IKM Narrative Report 2015-08 IKM Narrative Report 2015-09 IKM Narrative Report ECM scanning proposal.doc Copy of Taxonomy Solution Plan and progress
	Identity Management, Risk, and Governance Management Solution rollout for all critical business systems	Pilot Integrated Identity Management Solution for all core business systems	Partially achieved	Copy of signed off RFQ and requisition
IT back-office infrastructure consolidated and refreshed	OS, Office Suite and email upgraded and standardised IT back-office infrastructure consolidated and refreshed	Operating System, Office Suite and email upgrading and standardisation	Achieved	Copy of NHLS baseline review presentation from Microsoft Software Management (SAM) partner

P5 AARQA

Strategic Objective Statement	Performance Indicator	Annual Target 2015/16	2015/16	Comments
			Actual	
To develop and implement a fully functional system	Appoint Database Advisory Team, introduce system tools, and implement system-generated reports	50%	50%	Achieved The database scope has been developed (25%). Excel templates and database structure provided and discussed with IT (25%). Outstanding (25%) is IT database development and the other (25%) is implementation. IT solution has not been resolved yet. Last communication indicated IT is still deciding on the best solution. Academic Affairs and Research (AAR) requests that there is special delegation to develop the solution internally
Promote current libraries and functions, negotiations with universities, identify electronic information centres, improve resources	% of personnel with library access and usage, electronic access coverage	50%	75%	Achieved A signoff to prescribe to Medline has been provided and requisition made. The remaining 25% is to load on intranet and send out communication to staff to start accessing the library service
Develop five-year Strategic Plan for Implementation of NHLS Research	% of recommendations successfully implemented	50%	50%	Achieved
Enhance strategic information through translational research	Research reports submitted to influence policy	6	6	Achieved

Business Unit Performance

INFORMATION TECHNOLOGY

Introduction

This 2015/16 Information Technology (IT) report presents the year's developments in terms of the people, technology, and efforts that are shaping the trajectory of IT at the NHLS. The department is working to improve shared services, revamp enterprise systems, be more efficient, cultivate a talented IT workforce, and promote a culture that supports diversity, openness and respect. The department supports and services the NHLS business departments across the country and talented and dedicated staff work diligently every day to support the technology needs of the organisation.

IT has made significant strides in its collective effort to improve shared IT services, build new partnerships, foster innovation, and plan for the future. It is increasingly being interwoven with the daily business functions and future successes of the NHLS, and plays a part in nearly every aspect of the organisation – from laboratory diagnostic services, to teaching, learning and research. Its activities are infused into day-to-day working lives (and home) in a way that is almost invisible.

The IT space, however, is an ever-changing technology landscape, which calls for constant adaption and improvement. This said, the IT environment becomes an exciting space with no shortage of opportunities or challenges.

IT Governance

IT is one of the NHLS's most important assets, one that supports the laboratory service, teaching and training, research, administrative, and other functions of the organisation. In support of a myriad of governance and organisational needs, the NHLS has established an IT Governance function to ensure the effective and efficient use of IT in enabling the NHLS to achieve its goals. To date, IT Governance has been involved in IT risk management and the co-ordination of action items from audits and performance reporting, amongst other matters. IT Governance works in alignment with the Risk Management Office on risks and audits. As IT Governance becomes more mature and capacitated, it will be more involved with designing and implementing initiatives to make the IT Department more efficient, sustainable, and cohesive.

NHLS IT Initiatives Aimed at Supporting the Business

The IT Department has been involved in a number of initiatives that were planned for this financial year, all aimed at supporting the organisation and improving customer satisfaction within and outside the organisation.

Identity and Access Management

The NHLS commissioned an independent information security consulting firm, to complete a gap analysis on identity and access management in the organisation. This was used to establish a clear, common understanding of role-based access provisioning, de-provisioning, and monitoring of both internal and external user access.

A capability maturity assessment of identity and access management at the NHLS was conducted. This assessment was based on best practices found in COBIT, ISO 27002, and NIST 800-53, covering security policies, data classification schemes, access, authentication, authorisation, and access control governance.

The outcome of the exercise was a conceptual and a technical design for identity and access management, suitable for implementation within the NHLS, to address the identified gaps. The next phases will span over the coming two or so years and will include implementation of the recommendations arising from the gap analysis.

The NHLS Corporate Data Warehouse

The Corporate Data Warehouse (CDW) merges legacy DISA data with TrakCare Lab data to provide an integrated platform with more than a decade of national pathology information that can be leveraged for research, epidemiology and operational purposes.



Acting Executive: Shaun Grimett

Areas of focus have involved the ongoing development of dashboards for the monitoring and evaluation of both the TB and the HIV Comprehensive Care, Management and Treatment (HIV CCMT) Programmes. The alert reports distributed to provinces to assist with linkage to care for drug resistant TB patients and infants diagnosed with HIV have been strengthened. Enhanced dashboards for monitoring and evaluation of the TB and HIV CCMT programmes have been developed and made available online to stakeholders.

Extensive reporting has been developed in support of antimicrobial resistance (AMR) surveillance and the CDW is represented on the National Ministerial Advisory Committee on AMR.

The CDW continues to expand its role as a health information exchange by providing near real-time results to m-Health applications and patient management systems.

NHLS Enterprise Resource Planning

The Oracle Enterprise Resource Planning (ERP) Unit provides support and maintenance for the Oracle ERP suite of products. E-Business Suite (EBS) includes Financials, Supply Chain, Human Resource Management, Customer Relationship Management and Project Accounting. These products support a myriad of business processes, for example Procure-to-pay and Order-to-Cash cycles within the NHLS. This unit also provides development, support and maintenance of the NHLS websites and the intranet.

DMP Certificate of Analysis – Diagnostic Media Products (DMP) produces media products that are supplied to NHLS laboratories. After production, the DMP QA Department conducts quality tests for which Certificates of Analysis (COA) are provided to the laboratories. The generation of the certificates was a very intense manual process. The Oracle ERP Unit was requested to assist in finding an automated solution. Initial investigations indicated that another EBS module (Oracle Process Manufacturing) would have to be purchased, which would have been a very costly option. As a result, the unit decided to develop the automation using the existing licensed module (Oracle Inventory). The development will enable laboratory staff to generate COAs for product batches upon receipt instead of relying on the DMP QA Department.

Payroll Legislative Retirement Reform Changes – the National Treasury introduced retirement reform changes, which became effective from 01 March 2016. The purpose is to standardise the tax treatments, as well as the pay-outs of all contributions to any retirement fund, to encourage employees to save for retirement and prevent retirees from spending their retirement assets too quickly. The configuration was completed in time, ensuring compliance with retirement legislation.

NHLS Laboratory Information Systems (LIS)

TrakCare Implementation – The TrakCare Laboratory information System was implemented at the NHLS laboratories, with the Western Cape Region implemented in late 2015. The institutes (NICD and NIOH) will be migrated to Trakcare early in the 2016/17 financial year. A new TrakCare patch was successfully implemented at the beginning of 2016. An enhancement process is currently under way to identify enhancements to improve end user experience.

Access to Webresults – The uptake of the WebResults Viewer (WRV) by doctors and other clinical staff has been steadily increasing. There are currently over 8 000 active users accessing the system and between them they have conducted over one million result searches per month on the TrakCare WRV.

Electronic Gate-keeping (eGK) – Implementation of eGK is continuing. The system has been extended to more hospitals in the Eastern Cape, Free State, Mpumalanga and Gauteng.

Interfaces (HL7) – The exchange of patient demographics and results between the NHLS's TrakCare system and other hospital information systems (HISs) is continuing. The interface to NetCare's Bluebird system has been completed. This enables electronic results to be sent from the NHLS to NetCare's UCT Private Hospital in Cape Town. Other interfaces completed in the review period include TrakCare to the Meditech system for the Contract Laboratory Service (CLS) for both CLS Johannesburg and Cape Town. This allows for the sending and receiving of patient demographics and results between the systems. Also completed is the interface between TrakCare and Medicom in Cape Town.

COMMUNICATION, MARKETING AND PUBLIC RELATIONS

The Communication, Marketing and Public Relations Department serves as a link between management and employees. The department is responsible for promoting the vision and mission of the organisation and positioning the NHLS as Africa's centre of excellence for innovative laboratory medicine through pro-active marketing, communication and information services to internal and external stakeholders.

The department was established in 2010 to deliver these objectives and has been able to support and deliver on the business objectives in many areas. The department's overarching aims in support of the NHLS's strategic vision are as follows:

- To help safeguard and strengthen the NHLS's brand and reputation as a leader for service, training and research
- To support and promote positive communications within the NHLS and its institutes and mutually beneficial engagement with external stakeholders
- To manage a range of events, activities and services that is important to the life, reputation and smooth running of the NHLS.

In the 2015/16 financial period, two staff members resigned from the department, including the Executive Manager whose contract ended. These changes in the staff matrix did not deter from performance, and the increased dependency on the support and initiatives provided by the department resulted in a productive year.

Some key achievements included the building and maintenance of the organisation's reputation through the initiatives listed below.

Media Relations

Good working relationships were established with the media, including TV, radio and various print outlets, by communicating key organisational events and answering to the media as and when the need arose.

The department facilitated a number of interactions which included television, radio and print interviews by the Chairperson of the Board, CEO, and NHLS subject matter experts. The appointment of the new CEO, Ms Joyce Mogale, led to the organisation receiving publicity in various media outlets, which generated a fair amount of Advertising Value Equivalency (AVE). The individual service result for the reporting period shows that print Advertising Value Equivalency (AVE) increased by R2 155 368 (15%) to R16 896 699, broadcast is down by R10 612 114 (71%) to R4 269 029, and online decreased by R8 472 992 (51%) to R8 218 325. The total combined for AVE for the period was R29 384 055, down from R46 313 793 in the previous period.

The department developed good relations with Umhlobo Wenene FM in their Career Guidance programme that airs every Sunday from 21h30 to 22h00, and educates the youth on different careers in the medical field.

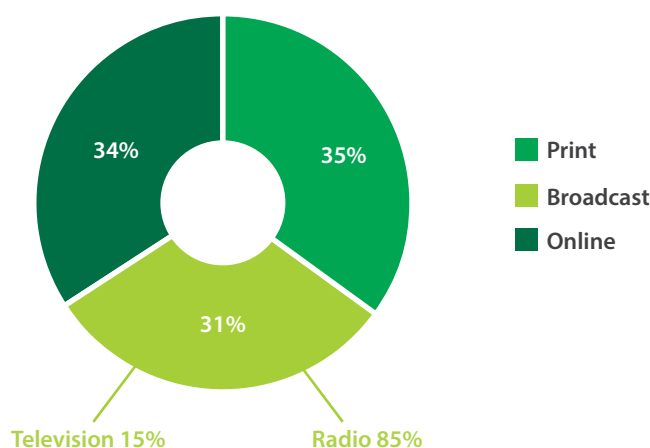


Figure B1: Total combined AVE for 01 Apr 2015–31 Mar 2016

Communication Manager: Ntokozo Majozi



Editorial Services

The department serves as a link between external and internal stakeholders through information and content sharing using various communication channels such as newsletters, editorials, intranet, and the internet. The production of the 2014/15 Annual Report was managed by this department and was produced as per schedule and published on the intranet and internet to meet the needs of stakeholders.

Notably, the department facilitated an interview request from the Government Communications and Information Services' (GCIS) *Public Sector Manager (PSM)* magazine for the CEO. The article, which was drafted by the GCIS, was edited by the department and approved by the CEO for publication in the February 2016 issue of PSM.

These are but a few activities, which the department took part in, in order to enhance communication between the organisation's stakeholders.



Customer Satisfaction Survey

The annual Customer Satisfaction Survey for internal and external stakeholders was conducted, revealing a 69% satisfaction level among external participants and 68% among internal participants. This shows a 2% improvement in satisfaction among external clients and a 2% decline among internal clients when compared with the 2013/14 survey.

Participation by external clients improved by comparison with the 2013/14 survey. The results have been shared with stakeholders through various channels. The Executive Committee (EXCO) and departments are working on the strategic plans to improve the level of satisfaction going forward.

Conferences and Exhibitions

The NHLS participated in several conferences where its scientist and researchers contributed meaningfully. The Communication, Marketing and Public Relations Department exhibited at some of these conferences.

PathReD

The first NHLS Pathology Research and Development (PathReD) Congress, themed 'Enriching Health through Research: Paving the Future' served as a national platform to showcase ongoing research within the NHLS and partnering institutions. The congress was hosted at Emperors Palace from 14–16 April 2015 and brought together NHLS experts from near and far. The initiative followed the inaugural 2013 NHLS Research Summit, which was convened with an overarching theme of improving health through research and reiterated the vision of the NHLS to support a dynamic, translational research programme, which is responsive to the healthcare needs of the South African people.

7th SA AIDS Conference

Held in Durban from 09–12 June 2015, the conference brought together people from all walks of life. HIV/AIDS is one of the key priority programmes of the national DoH and is aligned with the NHLS's National Priority Programme strategy. The conference was used as a platform to position the NHLS and engage with current and potential stakeholders through an exhibition.



Figure B2: 7th SA AIDS Conference

The P5 African Congress

Held in Cape Town from 23–24 March 2016, the event focused on point-of-care testing (PoCT) on the African continent, through the theme 'Leveraging Point-of-Care Testing and Personalised Medicine to Advance Healthcare'. The NHLS gained exposure through its exhibition during this congress, where a number of NHLS employees presented papers.

European Quality Award

On 01 July 2015, during the Summit Excellence in Quality in Montreux, Switzerland, the NHLS was awarded the international European Quality Award in the Healthcare Sphere Category, at a ceremony hosted by the Swiss Institute for Quality Standards (SIQS) and the Socrates Committee. This award recognises safe and effective treatment methods, highly professional medical staff and service quality in accordance with European standards. This international award is an accolade for South Africa and serves as recognition of the NHLS and affirmation of its position as a leader in pathology and diagnostic services.



Figure B3: European Quality Award

Graphic Design Services

The graphic design service offers a specialised skill to the organisation and undertook the design and layout of many posters for conferences for staff at the NICD, and the NIOH. The service was also responsible for the formatting and layout of strategic documents for the organisation and satisfied the needs of internal stakeholders.

Photographic Services

The photographic service includes the taking and storage of images for repeat use in various ways in the future. In the review period, the department assisted in the new access card campaign by taking staff members' photos and sponsoring lanyards for the cards.

Web Management Services

The web management service offers a specialist service to keep internal and external stakeholders informed of activities in the organisation through the updating and uploading of organisational information on the intranet and internet.

Internet statistics

Table B2: Statistics relating to internet usage

Year	Unique Visitors	Number of Visits	Page	Hit
2014/15	214 268	415 582	1 402 278	12 466 517
2015/16	251 656	439 410	1 700 808	17 212 686
Difference	37 388	23 828	298 530	4 746 169
Percentage	15%	5.4%	17.6%	27.6%

Intranet statistics

Table B3: Statistics relating to intranet usage

Year	Unique Visitors	Number of Visits	Page	Hit
2014/15	72 585	1 129 384	103 097 660	244 367 409
2015/16	76 482	1 291 449	126 839 505	286 339 654
Difference	3 897	162 065	23 741 845	41 972 245
Percentage	5.1%	12.6%	18.7%	14.7%

Conclusion

The Communication, Marketing and Public Relations Department has made great strides in establishing relations with several media outlets and the organisation's stakeholders.

Through its external and internal communication initiatives, employees and stakeholders alike remained informed of key NHLS projects. Major areas of success have been the increased communication channels for staff through the improved intranet and regular and informative internal newsletters. The department has remained the 'go-to' place for various projects across the NHLS, NICD and NIOH and has not disappointed.

ACADEMIC AFFAIRS, RESEARCH AND QUALITY ASSURANCE

Academic Affairs

Academic Stakeholder Relationships

The functions of Academic Affairs, Research and Quality Assurance (AARQA) are carried out through two core departments, Academic Affairs and Research (AAR), which merged with the Grants Office, and Quality Assurance (QA). Activities in AARQA focus on strategic support of the service platform through policy development, implementation guidance and M&E of quality assurance activities across all the NHLS laboratories, and on strengthening the NHLS mandate of research, teaching and training, with substantial contribution to service improvement. AARQA continues with the benchmarking of quality assurance standards for the NHLS to ensure adherence to accreditation and compliance measures across all the laboratories. Through the Health Technology Assessment (HTA) Unit, pre-evaluation of new *In Vitro* Diagnostic Devices is conducted to facilitate effective and reliable introduction of technology advancement on the service platform. With the official demerger of the University of Limpopo (UL) from the Sefako Makgatho Health Sciences University (SMU), the NHLS now has a relationship with the 10 medical universities, through their Faculties of Health Sciences. The relationship with the six Universities of Technology (UoT) and two comprehensive universities (CUs) continues through their Faculties of Health and Biomedical Sciences (See Table B4). Driving and developing the teaching and research mandates are carried out through close partnerships with all these institutions.

Executive Manager: Dr Johan van Heerden



Table B4: Universities and Universities of Technology in collaboration with NHLS

University	University of Technology (UoT)
Sefako Makgatho Health Sciences University (SMU)	Cape Peninsula University of Technology (CPUT)
University of Cape Town (UCT)	Central University of Technology (CUT)
University of KwaZulu-Natal (UKZN)	Durban University of Technology (DUT)
University of Limpopo (UL)	Mangosuthu University of Technology (MUT)
University of Pretoria (UP)	Tshwane University of Technology (TUT)
University of Stellenbosch (US)	Vaal University of Technology (VUT)
University of the Free State (UFS)	Comprehensive University (CU)
University of the Western Cape (UWC)	Nelson Mandela Metropolitan University (NMMU)
University of the Witwatersrand (Wits)	University of Johannesburg (UJ)
Walter Sisulu University (WSU)	

Following the directive as per the signed umbrella agreements, discussions on the bilateral agreements, which will govern the relationship with each individual institution, continue. Progress on the bilateral agreement between the NHLS and the medical universities has been made and finalisation of the remaining institutions is envisaged. Support has been provided for the new Medical School at the University of Limpopo in Polokwane and a strong relationship is developing. The umbrella agreement with the six UoTs and two CUs was reviewed and an amendment agreed upon, which is awaiting legal approval by the institutional legal departments. The amendment aligns the agreement with the new NHLS management structure and the introduction of the new BHSc degree. A final meeting will be conducted with each UoT and CU to formalise the bilateral agreements once the umbrella agreement has been endorsed.

Core Professionals in Training

During the 2015/16 financial year, 242 registrars and 27 intern medical scientists were trained on the NHLS training platform. The pattern for the number of trainees on the platform is similar to that of the previous financial year (Figure B4). A central recruitment process for intern medical scientists has been introduced and the appointment of 50 intern medical scientists approved. Twenty two intern medical scientists were appointed in 2015/16 and interviews for the advertised positions are planned from May 2016.

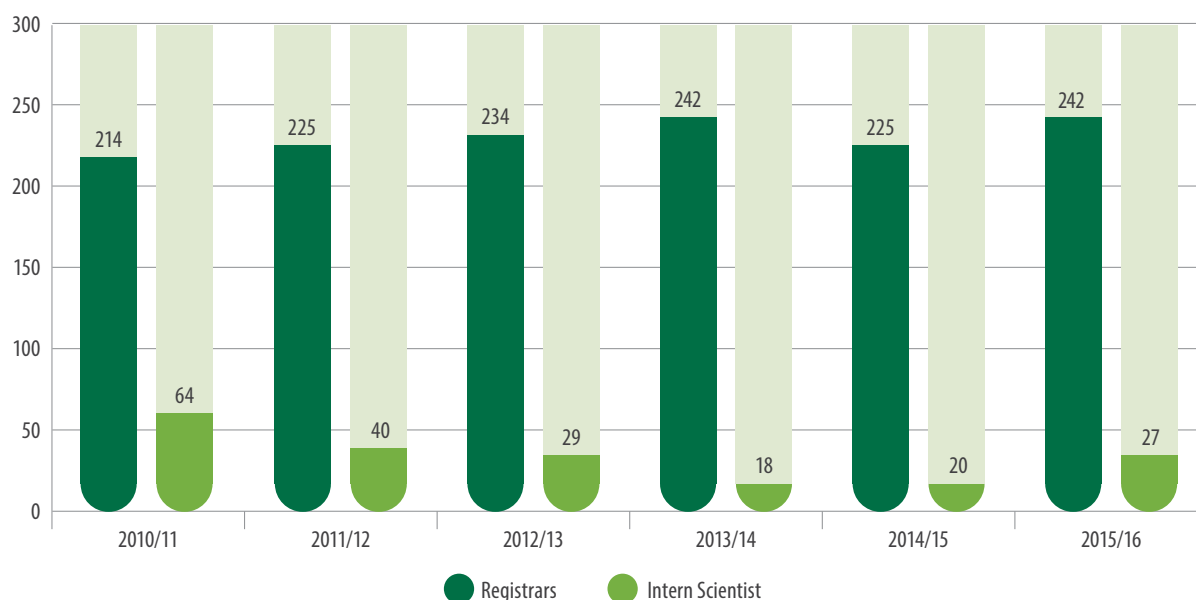


Figure B4: Number of registrars and intern medical scientists on NHLS training platforms: 2010/11–2015/16

The number of registrars qualifying as pathologists decreased to 27, with a pass rate of 34%. The number of new medical scientists registered during 2015/16 was ten. Measures to support trainees and to improve the number of those qualifying in the different professional categories continues.

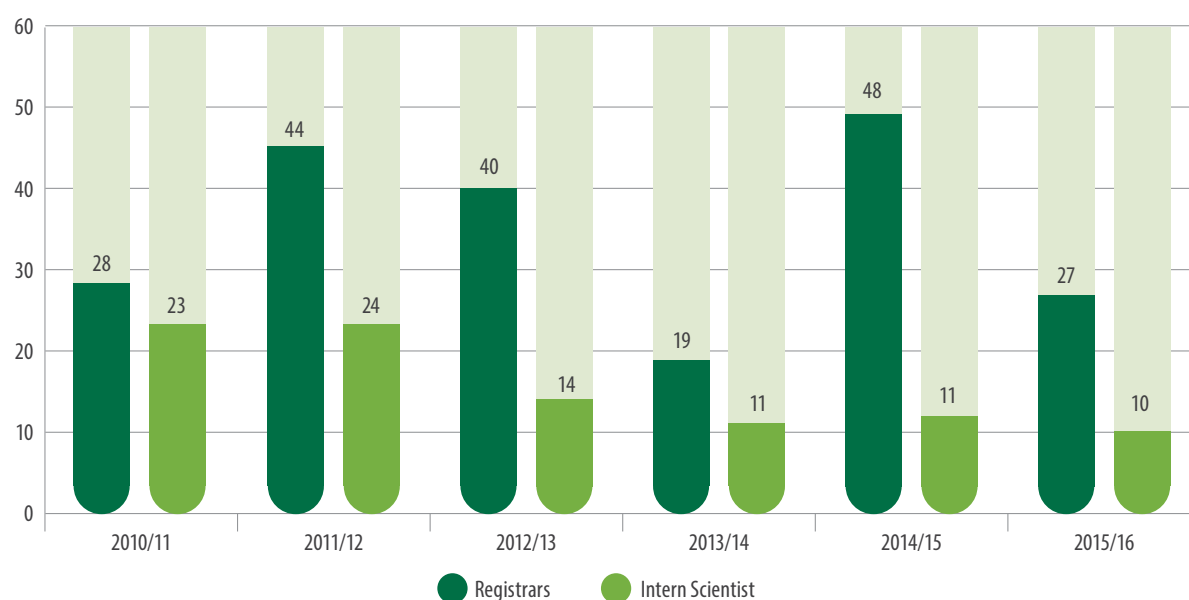


Figure B5: Number of newly qualified registrars and newly registered intern medical scientists on NHLS training platforms: 2010/11–2015/16

Figure B6 indicates a slight variation in the distribution of registrars by race. Despite the slight increase in the number of intern medical scientists (as indicated in Figure B7), the need for placement of intern medical scientist across all races still exists.

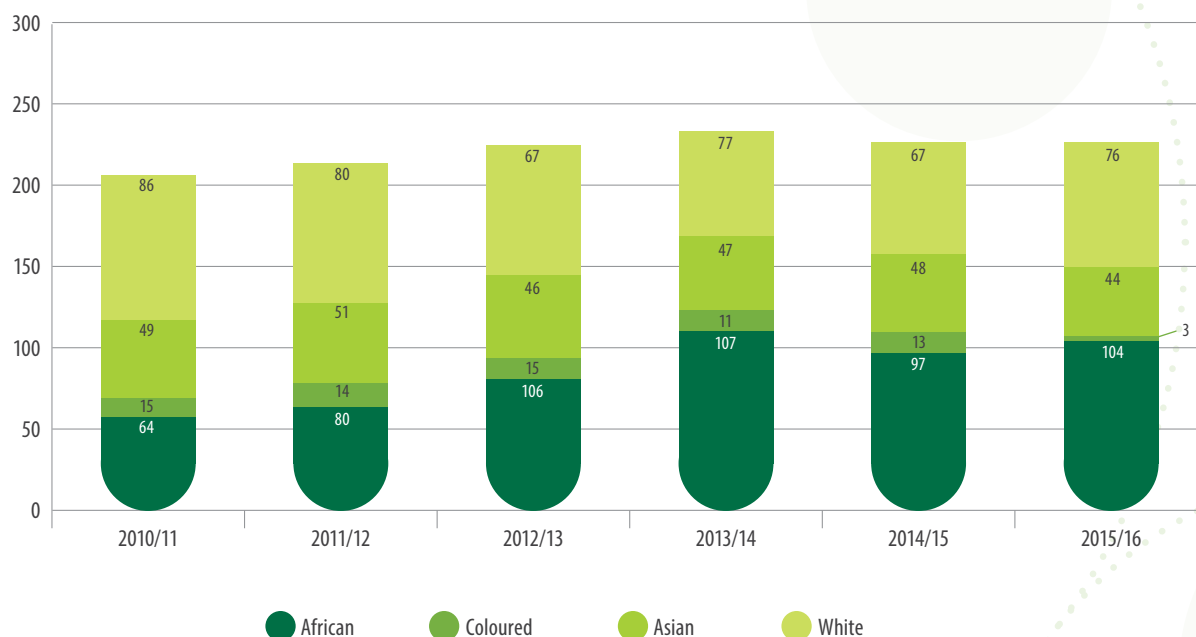


Figure B6: Number of registrars by race on NHLS training platforms: 2010/11–2015/16

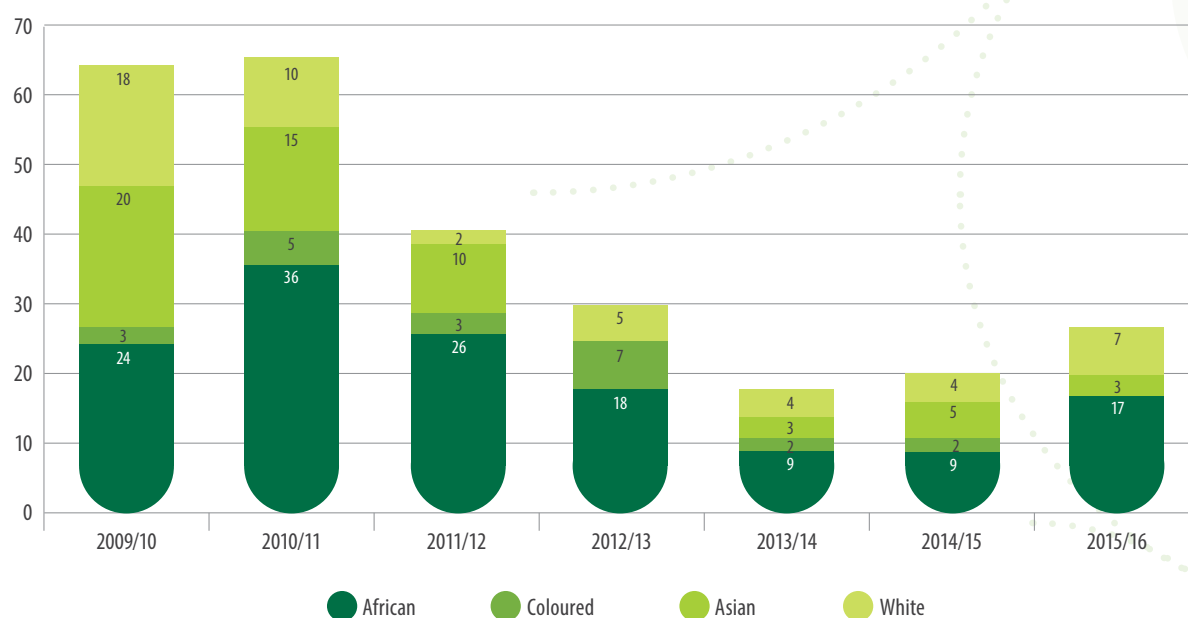


Figure B7: Number of intern scientists by race on NHLS training platforms: 2009/10–2015/16

Academic Support and Development

The NHLS's support for academic and development activities continued in the 2015/16 financial year, despite the challenges linked to financial constraints. The number of research activities and support programmes towards research, teaching and training improved. Although funding for attendance of academic activities and congresses was limited, a substantial number of staff were supported through the AAR office, and a substantial number of applicants were funded from the STEA budget. A significant percentage of the funding for these activities was provided through available grants or sponsored programmes. The NHLS-allocated K Project funding to stimulate research by staff and trainees continues to be a valuable resource for emerging researchers.

Driving the Research Agenda

Close collaboration with academic partners, and strong research foundations in the NIOH, NICD and NCR, ensure constructive contributions and better co-ordination of the NHLS research agenda. Research activities are conducted within the institutions and in NHLS laboratories. Figures B8 and B9 show the total number of peer reviewed journal articles published by discipline and institution. A total of 640 papers and 16 book chapters were published together with academic partners. Most publications were in the Medical Microbiology (including Medical Virology) (37%) and Haematology (17%) disciplines. Immunology publications increased from 54 to 75 papers. The University of Cape Town, followed by the University of the Witwatersrand, published most papers (201 and 162 publications (paper and book chapters), respectively).

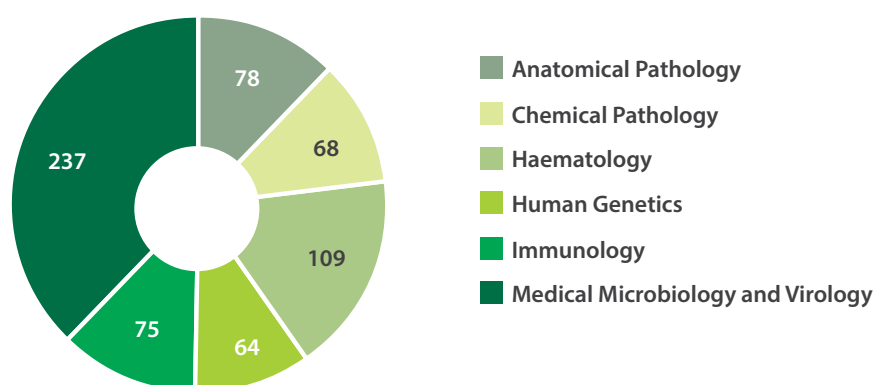


Figure B8: Number of peer reviewed journal articles by pathology discipline 2015/16

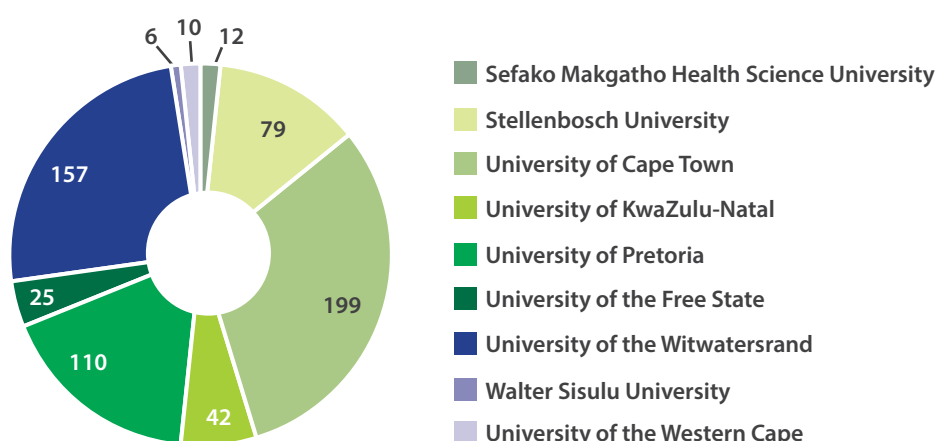


Figure B9: Number of peer reviewed journal articles by institution 2015/16

Progress has been made to ensure the NHLS's drive to establish a central research agenda and the sustainability of research activities. Continuous engagement on, and execution of, activities aligned to the *Report and Recommendations of the Inaugural NHLS Research Summit (2013)* remains a priority. The following progress has been made:

- Subscriptions for library access have been improved and electronic access to MEDLINE Complete through EBSCO has been effected. MEDLINE Complete is the largest contributor to the MEDLINE Index and provides full text for over 2 500 medical journals and will be available to all NHLS staff
- A programme to advance research, development and training within the NHLS has been finalised and will be adopted
- A NHLS Intellectual Property Policy draft will be finalised
- NHLS research strategic document will be finalised
- Research Conflict of Interest Policy will be finalised.

PathReD Congress

At the first NHLS Pathology Research and Development (PathReD) Congress, which was held in April 2015, the key speaker for the congress was the Director-General of the DoH, Ms Malebona Precious Motsoso. NHLS Board member, Dr Tim Tucker, outlined how research needs are to be repositioned within the NHLS. Academic leads were provided by invited speakers. Dr Cheryl Cohen highlighted the positive impact of pneumococcal vaccine on children in South Africa, and Prof. Frederic Sitas reaffirmed the correlation between smoking and cancer.

Ms Joyce Mogale, NHLS CEO, emphasised the continuous support for research by the NHLS despite the current challenges. Ms Mogale welcomed all in attendance and said: "The NHLS is very proud to be hosting the inaugural PathReD Congress. Despite the challenges we face, the NHLS is committed to nurturing and providing a firm foundation to researchers and for research through this initiative."

The Director-General, Ms Malebone Precious Matsoso took the theme further and said: "The NHLS will be supported by the DoH as it is a critical component of South Africa's healthcare landscape". She urged that, "There should be a concerted effort to bring the organisation back to its former glory."

PathReD scientific workshops proved to be a great success. Participants in attendance were from the NHLS and various academic institutions across the country. In total, 79 participants attended the pre-congress workshops held on 14 April 2015. The workshops were facilitated by prominent NHLS scholars from across the different medical schools, working with other prominent scholars from the Cape Peninsula University of Technology, the DoH, the University of the Witwatersrand, the Donald Gordon Medical Centre and Monash University. The workshops ran parallel to each other and covered the following topics: Basic Data Analysis; Data Management; Research Ethics; Routinely Collected Data: A Neglected Resource for Research; Scientific Writing; and Publishing and Grants Application. The Research Development Training and Mentorship Workshop, held on 16 April 2015, inspired technologists, scientists and pathologists alike.

In addition, a number of participants expressed their appreciation for the initiative and applauded the PathReD facilitators for a successful congress. Requests for follow-up workshops were made and the AAR Office is working on the rollout of a Research Development, Training and Mentorship Programme. The PathReD Organising Committee thanked the workshop facilitators for their overwhelming support and commitment to the success of the congress.

A total of 157 high quality abstracts were received across the three tracks, i.e. Laboratory Service, Systems Strengthening and Diagnostics; Infectious Diseases and Non-communicable Diseases; and Epidemiology, Treatment and Prevention.

During the closing ceremony, awards for the best oral and best poster presentations were presented. Due to the high quality of scientific work presented, the judges had a very difficult task selecting the winners. The PathReD 2015 Congress awards were in the form of financial support towards attending a scientific events. The best poster presentation winners received travel awards for a local conference of their choice to the value of R10 000 and the best oral presentation winners received travel awards for an international conference of their choice to the value of R20 000.

The winners of the awards were as follows:

Track 1: Lab Service, Systems Strengthening and Diagnostics

- Oral – Sharon Kappala
- Poster – Olivier Kiabilua

Track 2: Infectious Diseases and Non-communicable Diseases

- Oral – Tatum Lopes
- Poster – Zaahida Ismail

Track 3: Epidemiology, Treatment and Prevention

- Oral – Janine Olivier
- Poster – Nireshni Naidoo



Figure B10: Facilitators and students attending workshops during PathReD 2015

Electronic Gate-keeping

The NHLS strives to deliver excellent and affordable diagnostic services. To achieve service excellence, the NHLS, in collaboration with the DoH, has developed and implemented an Electronic Gate-keeping (eGK) tool as a test utilisation control measure. The eGK tool manages the use of laboratory services by clinicians and nurses, employing a set of criteria to determine if a laboratory service has been appropriately requested.

In 2016, the NHLS hosted an eGK workshop, which brought together 36 role players from the NHLS, DoH, and the Centers for Disease Control and Prevention (CDC) to discuss and share current knowledge on eGK, understand the implications, and review current eGK practices. The workshop provided a platform for the NHLS to propose eGK as a component of its Rational Laboratory Usage Initiative. This initiative aims to ensure the improvement of patient care and protection of patient safety through the provision of affordable and justifiable laboratory services. A decision was taken at the workshop to develop a national, standardised eGK rule set, to be piloted in KwaZulu-Natal and the Western Cape prior to national rollout. Task teams have been formed to oversee the development, implementation, and governance of the national standardised eGK rule set. The NHLS and the DoH have undertaken to facilitate provincial eGK meetings with clinicians to gain their input into the most appropriate and effective eGK rules. To date, KwaZulu-Natal has hosted a clinician meeting where 31 clinicians from various clinical disciplines contributed toward the formation of the standardised eGK rule set. Provinces will be hosting meetings with clinicians during the first half of 2016, with national meetings scheduled at regular intervals throughout the year.

Grant Management

The value of grants administered by the NHLS Grants Office decreased by 2.5%, from R611 million in 2015 to R596 million in 2016. The decrease was due to long-term grant awards coming to an end and others being in the final phase and ending in the first quarter of the new financial period. Standard documentation and processes have been introduced to the administration process. This is taking into consideration that 118 new projects with a total budget of R121 million have been added this financial year. Electronic signing of reports has not been activated as it still requires additional systems to implement. Figure B11 demonstrates grant funding received and administered by the NHLS over the past five years.

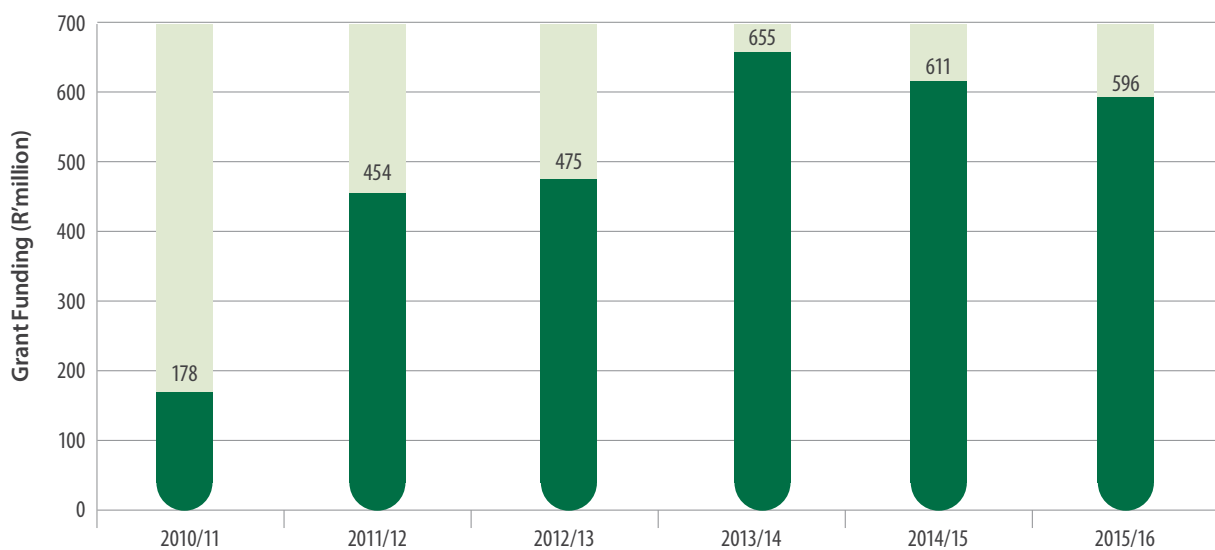


Figure B11: Grant funding administered by the NHLS (R million): 2010/11–2015/16

A total of 812 grant projects was administered in 2015/16. Of these, 118 were new projects to an approximate value of R121 million. The value of each award varies according to the scope of the project undertaken and the funding opportunity the grantor has made available. Figure B12 represents the status of grant projects administered by the NHLS. Of the 812 grants administered, 294 (36%) were closed during the year and 157(19%) are pending closure. The remaining 361 (45%) are still actively managed. A process to review cost centres which were pending closure was initiated and the total number of closed cost centres increased.

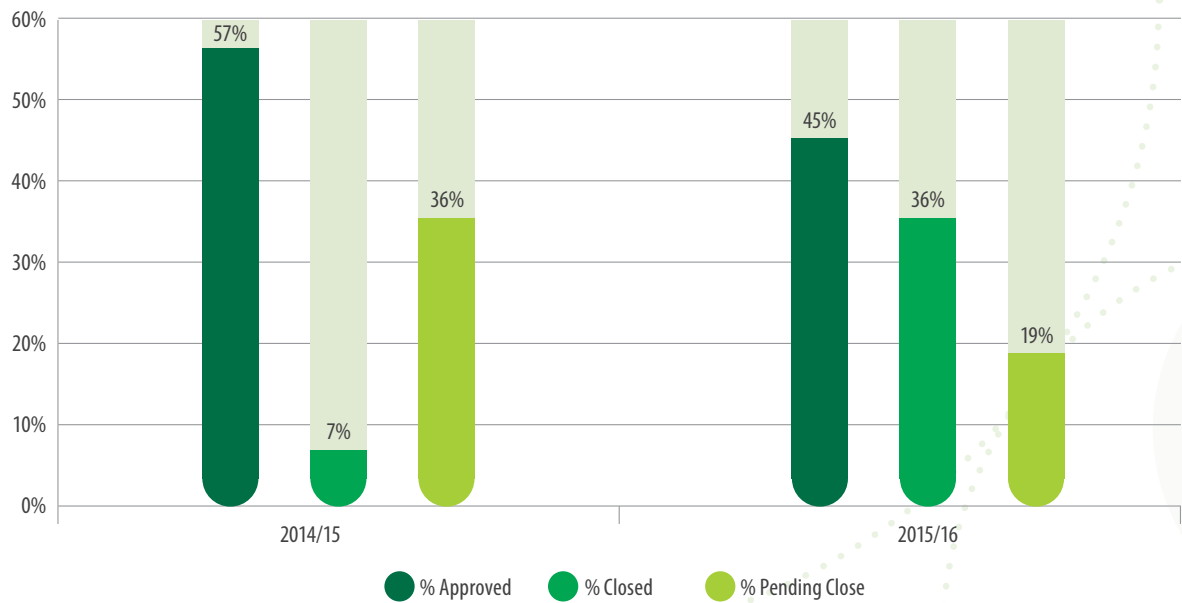


Figure B12: Percentage status of grant projects administered by the NHLS 2015/16

77.9% of grant funding administered by the NHLS was received from non-South African grantors to the total value of R475 726 706. Funding received from South African institutions amounted to R134 901 357, which is about 22.1% of the total funds received, as indicated in Figure B13.

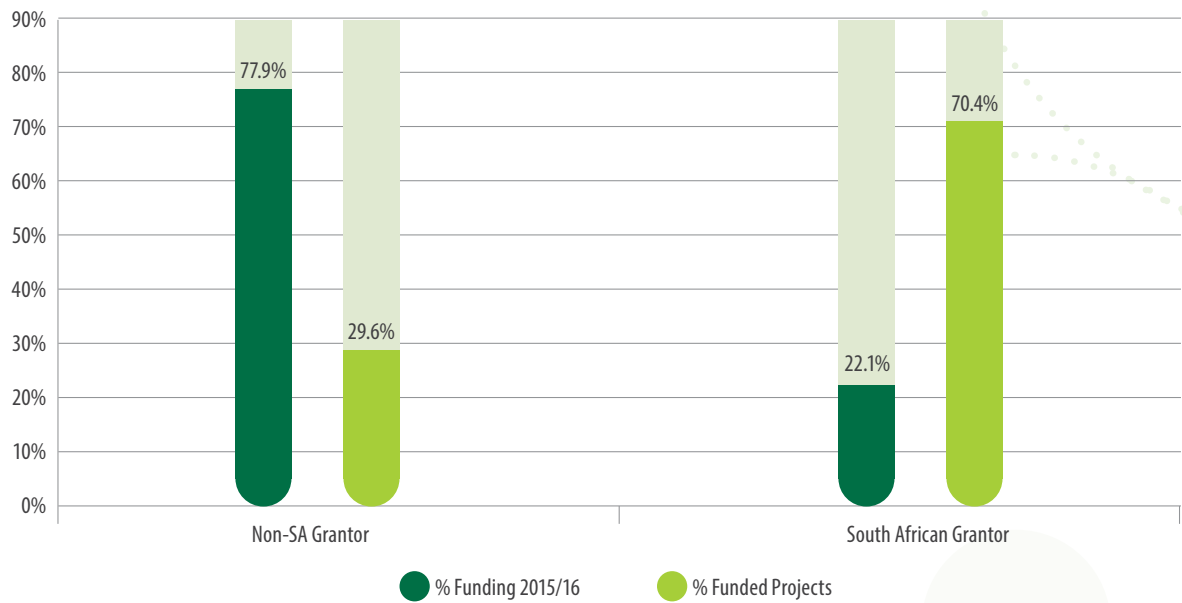


Figure B13: Percentage distribution of grant projects administered by the NHLS by origin 2015/16

The most significant monetary contribution towards NHLS grant funding was from DoH, closely followed by CDC. Figure B14 reflects the funding received from the CDC, which amounts to approximately R214 million. R215 million was received from the DoH and R167 million from other grantors.

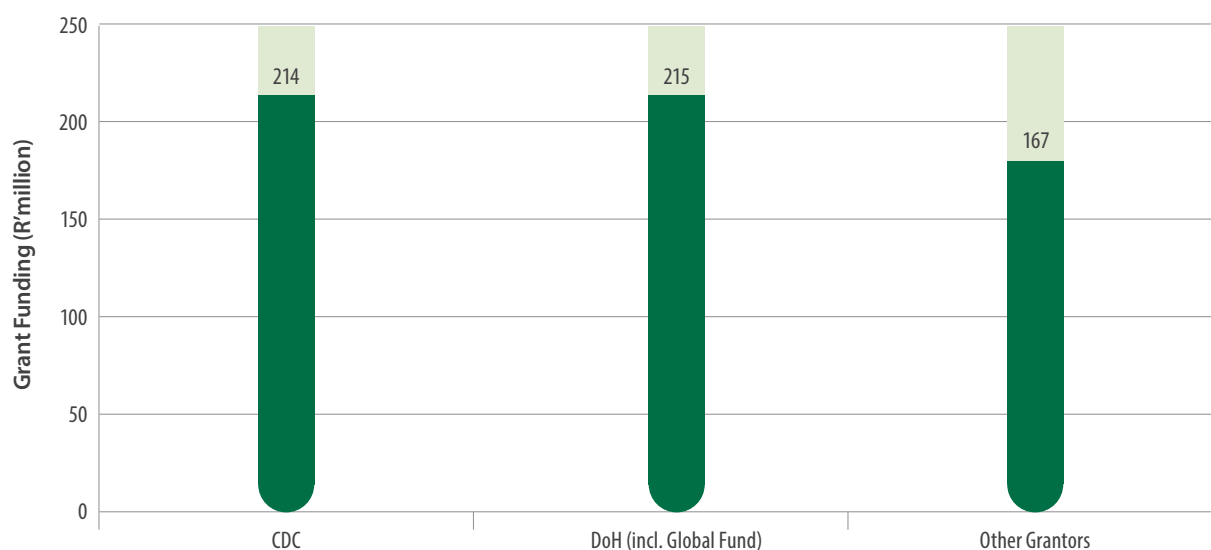


Figure B14: Monetary contribution by the CDC, DoH (including Global Fund) and other grantors, 2015/16

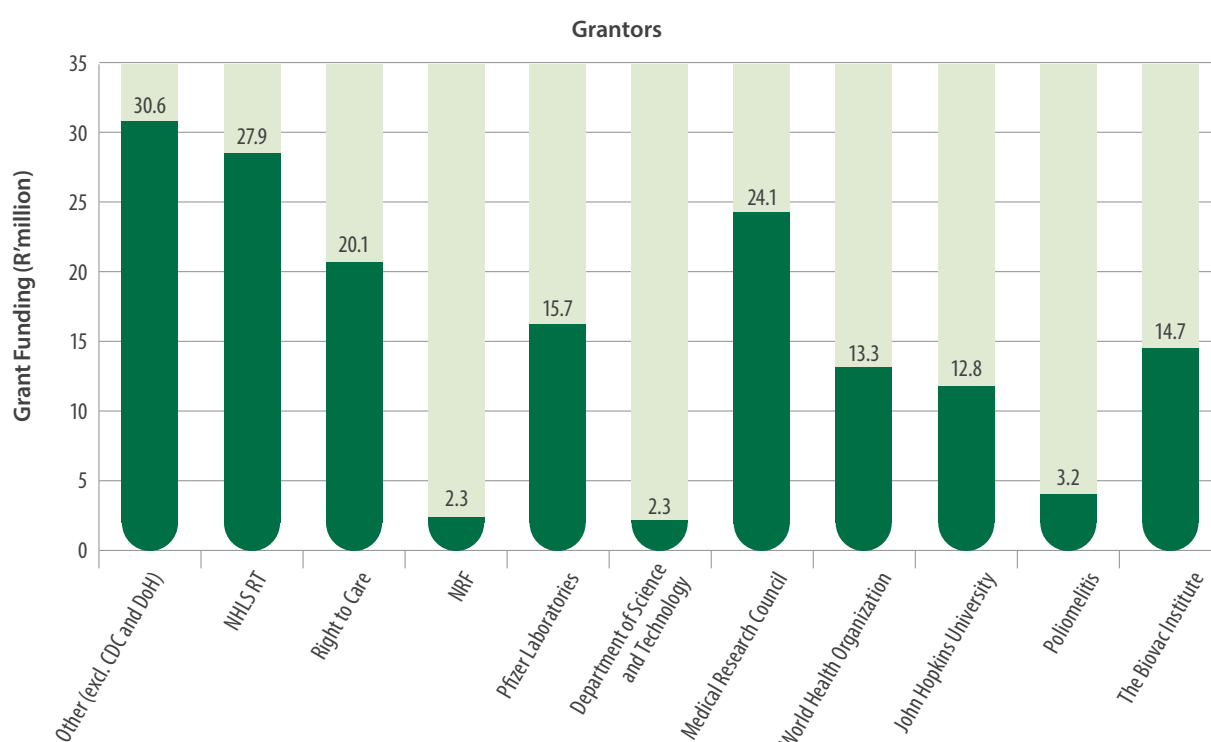


Figure B15: Monetary contribution by selected grantors other than the CDC, 2015/16

African Centre for Integrated Laboratory Training

In resource-limited countries with high burdens of infectious disease, the need for laboratory diagnostic services has constantly outpaced capacity due to the increased demand for the rapid expansion of HIV/TB programmes, which has resulted in a considerable increase in diagnostic demands on the public health laboratory services. Subsequently this places significant pressure on the diagnostic capacity of these services. This has impeded TB, HIV and malaria control efforts, particularly among individuals who are co-infected. The African Centre for Integrated Laboratory Training (ACILT) was established in 2008 under the first CDC-NHLS five-year Co-Agreement. The function of ACILT and ongoing course development is influenced by the changing requirements as identified by stakeholders and is driven by its vision and mission.

In response to the increase in diagnostic and treatment demand, the NHLS, as a national public entity, is mandated by the South African government to provide quality, affordable and sustainable public health laboratory and related public health services,

and is actively involved in the regional capacity building of a skilled laboratory workforce. This is primarily conducted through the ACILT programme, which is bolstering Africa's growing demand for a well-trained and motivated laboratory workforce through training for front-line laboratory staff, supervisors and managers thus building competent laboratory diagnostic capacity in sub-Saharan Africa.

Sustainability

ACILT has been solely funded through CDC/PEPFAR over the past seven years and since its inception as a project has been able to fulfil the mandate and meet the expectations as stipulated by the Southern African Development Community (SADC) MoU (Ref: WHO-AFRO: The Maputo Declaration on Strengthening of Laboratory Systems, 24 January 2008). The funding model that was adopted to execute the mandate has been unsustainable and therefore poses a risk to the amount of effort put into the training programmes that were established, developed and delivered through ACILT. Coupled with this is the realisation of the misalignment of ACILT as a training division under the NHLS.

In order for this training division to become sustainable and relevant to the strategy of the NHLS there is a need for ACILT to be integrated and transformed into a training division that is aligned with the NHLS strategy.

ACILT integration into the NHLS structure will ensure aligned support for the technical training division that will focus its attention on all the training needs of the organisation, as well as the international and continental programmes specifically designed to manage TB, HIV/AIDS, malaria, and any other new diseases that could emerge in the near future. A new funding model is being put in place, partly funded by the NHLS, to support the technical training programme for NHLS employees, and partly funded by the generation of income from other sources to support delegates participating from across Africa.

Training Courses for 2015/16

Analysis of the training courses for the period is as follows:

- A total of 583 applications was received for courses offered at ACILT
- A total of 388 applicants was selected and invited to the various courses (the number of participants for each course is restricted due to capacity constraints of the training facilities).

Table B5: Participants in courses and countries of origin

Course/Country	TB Culture and Identification	HIV Early Infant Diagnosis	TB Drug Susceptibility Testing	Strengthening Laboratory Management towards Accreditation	Biosafety and Bio-security	HIV Drug Resistance	Bio-risk Management Trainer Development Workshop	IATA Packaging and Shipping Certification	Maintaining and Communicating Good Laboratory Work Practices	Total
Angola	-	-	-	2	-	-	-	-	-	2
Botswana	3	1	2	7	6	1	-	-	-	20
Cameroon	-	4	1	1	-	-	-	-	-	6
Cote d'Ivoire	-	-	1	1	-	-	-	-	-	2
DRC	-	3	-	-	1	-	-	-	-	4
Ethiopia	5	9	1	-	-	-	-	-	-	15
Kenya	1	-	-	10	1	-	-	-	-	12
Lesotho	-	-	-	2	4	-	-	-	-	6
Malawi	3	-	3	4	-	-	-	-	-	10
Mozambique	4	6	4	1	1	-	-	-	-	16
Namibia	4	2	4	2	-	2	-	-	-	14
Nigeria	-	5	-	3	3	-	-	-	-	11
Rwanda	1	-	-	-	-	-	-	-	-	1
Seychelles	-	-	-	1	-	-	-	-	-	1
Sierra Leone	2	-	-	1	-	-	-	-	-	3
South Africa	9	1	3	6	15	3	24	44	118	223

Table B5: Participants in courses and countries of origin (continued)

Course/Country	TB Culture and Identification	HIV Early Infant Diagnosis	TB Drug Susceptibility Testing	Strengthening Laboratory Management towards Accreditation	Biosafety and Bio-security	HIV Drug Resistance	Bio-risk Management Trainer Development Workshop	IATA Packaging and Shipping Certification	Maintaining and Communicating Good Laboratory Work Practices	Total
Sudan	-	-	-	-	1	-	-	-	-	1
Swaziland	2	3	3	4	3	2	-	-	-	17
Tanzania	-	-	-	-	1	-	-	-	-	1
Uganda	-	-	-	4	2	-	-	-	-	6
Zambia	-	5	-	-	-	-	-	-	-	5
Georgia	-	-	-	4	-	-	-	-	-	4
Guyana	2	-	1	-	-	-	-	-	-	3
Kyrgyzstan	-	-	-	1	-	-	-	-	-	1
Nepal	-	-	-	1	-	-	-	-	-	1
Russia	-	-	-	1	-	-	-	-	-	1
USA	-	-	-	2	-	-	-	-	-	2
Total	36	39	23	58	38	8	24	44	118	388

Table B6: Courses offered by ACILT and number of attendees

Course Description	Participants Attending					
	NHLS	Africa	Other	Total	NHLS %***	Africa and Other %
TB Culture and Identification	9	25	2	36	25	75
HIV Early Infant Diagnosis and HIV Viral Load	1	38	-	39	2	98
TB Drug Susceptibility Testing	3	19	1	23	17	83
SLMTA*	6	43	9	58	10	90
Biosafety and Bio-security	15	23	-	38	11	60
HIV Drug Resistance	3	5	-	8	37	63
Bio-Risk Management Trainer Development Workshop	24	-	-	24	100	-
IATA Packaging and Shipping Certification	44	-	-	44	100	-
Maintaining and Communicating GLWP**	118	-	-	118	100	-
Total	223	153	12	388	49	51

* Strengthening Laboratory Management towards Accreditation

** Good Laboratory Work Practices

*** Percentage indicates proportion of NHLS employees who attended the specified training

All participants who attended the courses successfully completed them and were issued with ACILT certificates indicating their proficiency in the subjects and competency to carry out the processes in their laboratories.

Quality Assurance

The QA Department is responsible for the following portfolios at the NHLS:

- Accreditation of laboratories
- Certification of ISO 9001 in support service and diagnostic media products
- Electronic document control
- Health Technology Assessment (Evaluation of new *in vitro* diagnostic devices)
- Monitoring and compliance of laboratories
- Proficiency Testing Schemes (external QA)
- QA-related projects.

Accreditation

Increasing accreditation of medical laboratories to International Organization for Standards (ISO) 15189 requirements proved difficult during 2015/16. Annual assessments conducted by the South African National Accreditation System (SANAS) resulted in many laboratories receiving more findings compared to the previous year, due to limited resources in the laboratories and other challenges. Action plans are in place to address the identified gaps.

Initial (new) accreditation was recommended for the following:

- Two national central laboratories, one in KwaZulu-Natal and one in Gauteng
- One regional laboratory with three departments in the Eastern Cape
- Two district laboratories in KwaZulu-Natal, one with three departments and one with just one.

The percentage of accredited laboratories per tier is as follows:

- 93% (52/56) of national central (formerly tertiary) laboratories
- 35% (3/17) of provincial tertiary (formerly regional) laboratories
- 14% (6/44) of regional laboratories.

The target set for accreditation in the NHLS Strategic Plan was only achieved for the first tier (national central laboratories), while the provincial tertiary and regional laboratories did not reach the target set. Figure B16 shows the percentage of accredited laboratories per tier compared to the target set for the financial year.

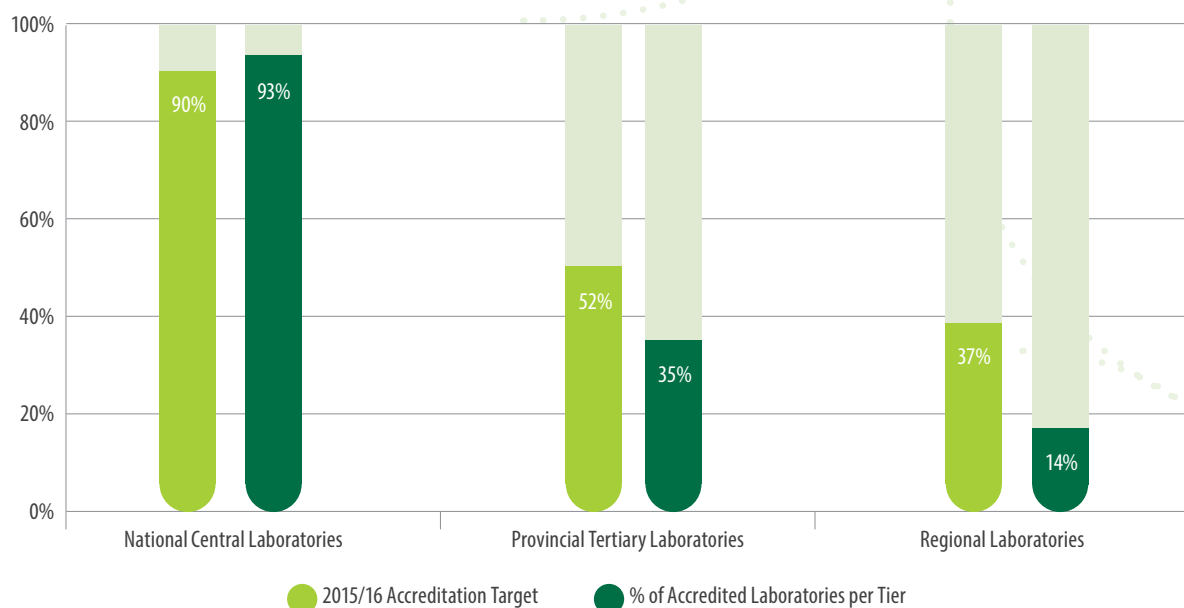


Figure B16: Percentage of NHLS laboratories that are accredited per laboratory tier compared to the 2015/16 target

Proficiency Testing Schemes

The provision of an additional 13 Human Immunodeficiency Virus (HIV) Early Infant Diagnosis (EID) Proficiency Testing Scheme (PTS) sites from Tanzania and Botswana was transferred by the CDC Atlanta to the NHLS. This increased the total HIV EID PTS participants to 76 sites in 11 countries, compared to 63 in the same number of countries in the previous financial year.



Figure B17: HIV EID PTS participants

The Gene Xpert PTS is still supported by the NHLS National Priority Programmes (NPP) team.

Cryptococcal antigen PTS was introduced during the previous financial year and a new scheme, antifungal susceptibility testing, was piloted and completed for introduction in the 2016/17 PTS.

A costing model was developed to guide subscription fees in the new financial year. In March 2016, the London School of Hygiene and Tropical Medicine (LSHTM) conducted a PTS costing training workshop in Johannesburg where six countries, namely Malawi, Senegal, South Africa, Uganda, Zambia and Zimbabwe, were represented. A follow-up course is planned in Zimbabwe in May 2016.

Accreditation of proficiency testing schemes

Eighteen PTSs maintained their accreditation.

Performance of NHLS Laboratories

The performance of laboratories on PTS is now aligned with the internationally acceptable performance level of 80% compared with 70% and 90% in previous years. Figure B18 shows the performance of laboratories for the six Areas, as well as the final organisational performance.

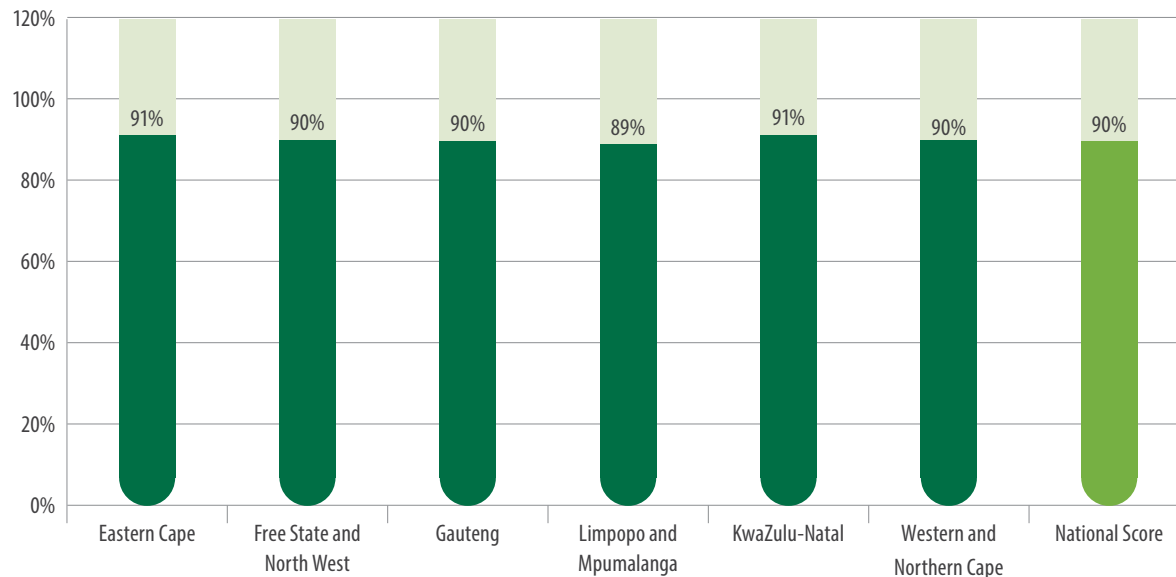


Figure B18: The percentage performance score of NHLS laboratories in PTS

Enrolments

The number of countries enrolled on the NHLS PTS decreased from 22 to 20. The number of enrolments by NHLS laboratories, South African private sector and other countries decreased by 18% from 4 164 in 2014/15 to 3 416 in 2015/16. The main decline resulted from over 400 CD4 enrolments from Nigeria that could not be re-enrolled before settling their account, which was in arrears. Table B7 lists non-South African countries participating in the schemes in alphabetical order.

Table B7: Countries with laboratories enrolled in NHLS PTS: 2015/16

No.	A-I	No.	K-Z
1.	Botswana	11.	Kenya
2.	Burkina Faso	12.	Lesotho
3.	Cameroon	13.	Malawi
4.	Democratic Republic of Congo	14.	Mozambique
5.	Eritrea	15.	Namibia
6.	Ethiopia	16.	Nigeria
7.	Gabon	17.	Swaziland
8.	Ghana	18.	Tanzania
9.	Guinea	19.	Uganda
10.	Ivory Coast	20.	Zimbabwe

Monitoring and Compliance

Three different internal audit tools continued to be used during the review period. The Quality Compliance Audit (QCA) tool was used to audit 189/386 (49%) of the laboratories which are a combination of provincial tertiary, regional and district laboratories. Eighteen laboratories working towards accreditation were audited using the WHO Stepwise Laboratory Qualitative Improvement Process Towards Accreditation (SLIPTA) checklist and all accredited laboratories were audited using the SANAS checklist.

The overall performance of laboratories audited using the QCA tool showed an increase from 77% in the previous financial year to 82% (Figure B19). Only 71% of the laboratories achieved a score of 80% and above.

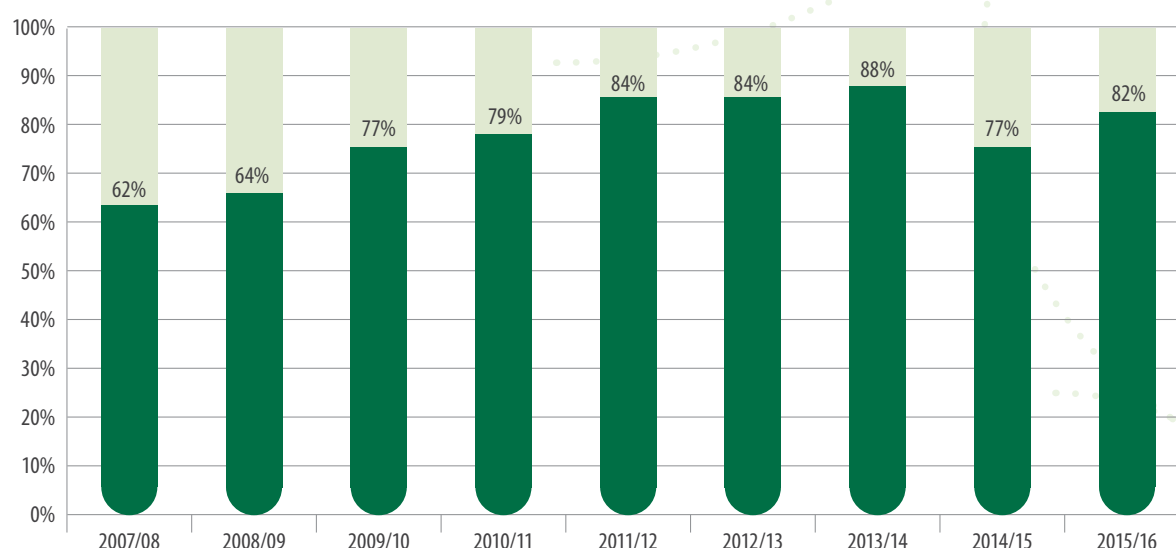


Figure B19: Percentage Quality Compliance Audit results

ISO 9001 Quality Management System in Support Structures

A total of 24/30 (80%) quality representatives has been appointed in an effort to cover all departments. These include AARQA, Finance, Human Resource, Information Technology (IT) as well as Communication, Marketing and Public Relations. Fifty-five staff members from these departments attended the ISO 9001:2015 Awareness and Implementation Course. Gap assessments have been completed in 16/36 (44%) of the units. As at the end of March 2016, ISO 9001 introduction meetings had been held in 31/36 (85%) of the units with delays in Finance and only one department in IT.

Health Technology Assessment (HTA)

Three staff members who were working on contract have been permanently employed from April 2016. A total of 70 applications were received during the reporting period. Thirty-two projects were completed with reports sent to suppliers. At the end of March 2016, 61 projects were still in progress. One training workshop was conducted to engage the NHLS Expert Committees.

Research or Grant Projects

Project Title:	Strengthening Laboratory Management Towards Accreditation (SLMTA) in South Africa
Investigator:	Patience Dabula
Project Period:	October 2012 to date
Reporting period:	April 2015 to March 2016
Funded by:	PEPFAR, CDC South Africa

Progress to date:

- A total of 69 participants from 18 laboratories completed the three-workshop series and six laboratory visits for Cohort 2 against the initial 81 participants that started workshop 1
- One new trainer was certified as an SLMTA Trainer during a SLMTA Train-the-trainer Workshop offered by the ACILT in September 2015
- Results of the exit audits conducted between November 2015 and January 2016 are shown in Figure B20
- 14 NHLS staff members were certified as internal SLIPTA Auditors during a course offered by the African Society for Laboratory Medicine (ASLM) in February 2016.

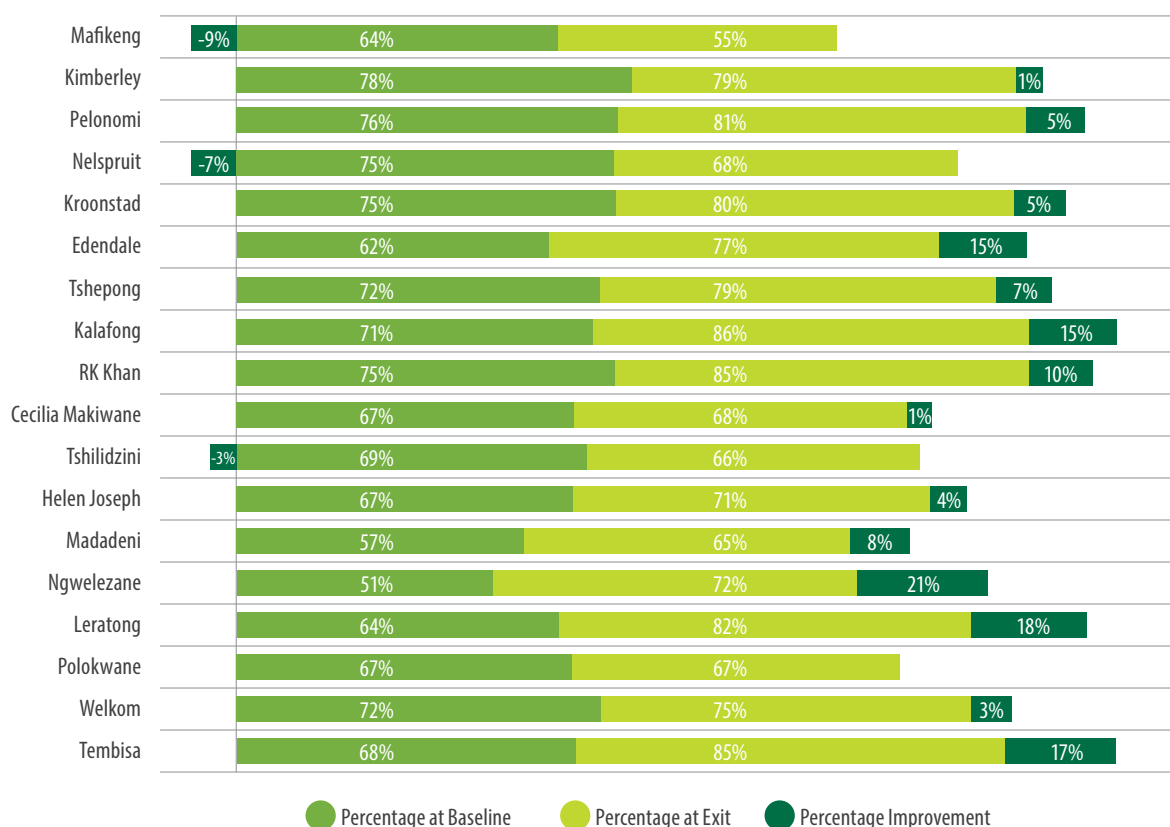


Figure B20: SLIPTA Audit results for Cohort 2

Project Title:	Development of a laboratory network and society to implement a quality systems improvement programme towards accreditation and laboratory management
Investigator:	Patience Dabula
Project Period:	January 2014 to date
Reporting Period:	April 2015–March 2016
Funded by:	PEPFAR and CDC South Africa, with the ASLM as an implementing partner

Activities during the period:

- The CEO of the NHLS signed the ASLM-NHLS contract for activities planned during the financial year
- The contract was not finalised between ASLM and CDC Atlanta, and as a result the activities planned could not be undertaken.

Project Title:	Implementation of Proficiency Testing in South African Voluntary Counselling and Testing Sites
Investigator:	Prof. Adrian Puren
Co-investigator:	Patience Dabula
Project Period:	January 2014 to date
Reporting Period:	April 2015 – March 2016
Funded by:	PEPFAR and CDC South Africa, with the ASLM as an implementing partner

Activities during the period:

- A Regional Rapid Testing Quality Improvement Initiative (RTQII) Workshop was organised by CDC Atlanta to train staff to train trainers in September 2016
- A Train-the-Trainer Workshop was held in February 2016 where 96 delegates from nine provinces were trained
- A total of 868 sites enrolled for Proficiency Testing Schemes.

Other Projects

Mechanism and Capacity for Clinical Trial

The Programme to Support the Ministry of Health of South Africa in the Implementation of a National Programme of Global Response to HIV, implemented by the Italian Istituto Superior Di Sanita (ISS) and sponsored by the Italian Government, continued during the financial year. Dr George Mukhari Laboratory renewed a contract to continue with the clinical trial work.

SADC Regional Centre of Excellence

Annual audits were conducted in September 2015 in both the Regional Centres of Excellence (RCEs) and supranational reference laboratories. The NHLS in South Africa and the Zimbabwe National Quality Assurance Programme (ZiNQAP) maintained their status as the Quality Assurance RCEs for SADC.

The National QA Manager represented SADC in Zimbabwe (Harare National Reference Laboratory and ZiNQAP) to conduct audits and assess the status of the facilities, while the National Manager for Operations and Support represented SADC in Zambia (Lusaka and Ndola) to conduct audits and assess the status of the laboratories.

Pan African Harmonisation Working Party (PAHWP)

There was little activity during this financial year due to the end of funding. Membership forms were developed and distributed and as at December 2015, 17 African countries, namely Burkina Faso, Burundi, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Uganda, United Republic of Tanzania, Togo, Zambia, Zanzibar and Zimbabwe, became involved in PAHWP activities. During the reporting period, several conference calls were made by the committee and one meeting was held in Arusha in December 2015. The CEO of the NHLS has given the go ahead for the PAHWP website to be hosted by the NHLS. The IT and Communication, Marketing and Public Relations departments are working on this in consultation with the London School of Hygiene and Tropical Medicine (LSHTM).

Contribution to policy

Patience Dabula and Stephina Makena, both from Corporate, and Janet Scholtz from the Western Cape were part of the committee that wrote the Quality Assurance chapter for the draft POCT Policy for South Africa.

Training

- Five staff members involved in HTA attended ISO 13485 training offered by SGS in August 2015.
- One PTS manager attended a Quality Control and Method Validation Workshop offered by the CDC Atlanta in April 2015.
- One PTS manager attended an RTQII Workshop offered by CDC Atlanta in September 2016.
- One QA co-ordinator attended an ISO 9001 Internal Audit Course by SGS in November 2016.

- All QA staff based in Sandringham attended Enterprise Content Management (ECM) Essentials training offered by the NHLS IT Department in January 2016.
- One QA manager completed a Stepwise Laboratory Qualitative Improvement Process Towards Accreditation (SLIPTA) Auditor training offered by ASLM in February 2016.
- Six staff members attended ISO 9001 training by SGS in February and March 2016.
- One QA co-ordinator attended Emotional Intelligence by OCEANO in March 2016.
- One QA co-ordinator attended Business Writing Skills by OCEANO in March 2016.

Conference Presentations

The number of presentations made at scientific meetings increased to fourteen compared to six in the previous financial year. Table B8 presents information on the presentations made.

Table B8: Presentations at congresses by QA staff: 2015/16

No.	Presenter	Title	Meeting Date	Type of Presentation	Venue
1.	Sarvashni Moodliar	Lessons learnt during the first three years of the implementation of the Health Technology Assessment Unit at the NHLS	PathReD Congress April 2015	Poster	Johannesburg, South Africa
2.	Patience Dabula	Foundation in Laboratory Leadership and Management (FLLM) strengthen managers at the NHLS in South Africa	PathReD April 2015	Poster	Johannesburg, South Africa
3.	Patience Dabula	Implementation of Strengthening Laboratory Management Towards Accreditation (SLMTA) and WHO Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) in South Africa	PathReD April 2015	Oral	Johannesburg, South Africa
4.	Hazel Aggett	Quality laboratory performance is important to the aims of the national priority programme: Findings from the NHLS immune monitoring CD4 proficiency testing scheme	PathReD April 2015	Oral	Cape Town, South Africa
5.	Sarvashni Moodliar	NHLS bringing new technology to market	South African Medical Devices (SAMED) Industry Association Annual Conference August 2015	Oral	Johannesburg, South Africa
6.	Sarvashni Moodliar	The use of HTA for improving the procurement of <i>in vitro</i> diagnostic devices: A desktop review	1 st South African Health Technology Assessment Society (SAHTAS) Regional Conference September 2015	Oral	Johannesburg, South Africa
7.	Patience Dabula	<i>In vitro</i> devices diagnosis regulatory and licensing	Malaria rapid diagnostic tests (RDTs) and fever case management in the private healthcare sector in Africa October 2015	Oral	Entebbe, Uganda
8.	Patience Dabula	The South African NHLS PTS	East African Region QA POCT Consultation October 2015	Oral	Addis Ababa, Ethiopia
9.	Sarvashni Moodliar	HTA implementation in Diagnostic Pathology Services	ISPOR SA Spring Workshop October 2015	Oral	Johannesburg, South Africa
10.	Patience Dabula	PAHWP learnings	Medical Device and IVD Regulatory Conference December 2015	Oral	Johannesburg, South Africa
11.	Sarvashni Moodliar	QA challenges with IVDs	SAMED Medical Device and IVD Regulatory Conference December 2015	Oral	Johannesburg, South Africa
12.	Hazel Aggett	Is it possible to conduct proficiency testing/external quality assessment in POC primary healthcare facilities	P5 Africa Congress March 2016	Poster	Cape Town, South Africa
13.	Hazel Aggett	Proficiency testing/external quality assessment and POC	P5 Africa Congress March 2016	Oral	Cape Town, South Africa
14.	Patience Dabula	Quality assurance requirements for POCT policy and implementation: Compliance with ISO 22870:2006	P5 Africa Congress March 2016	Oral	Cape Town, South Africa



Head: Prof. Wendy Stevens



Operations Manager: Dr Leigh Berrie

NATIONAL PRIORITY PROGRAMMES

Overview

The National Priority Programmes (NPP) comprises a multidisciplinary technical team consisting of members from the NHLS as well as the Wits Health Consortium. The team was established in 2010 to address the national Department of Health's need to provide increased access to patient testing in order to enhance treatment and care programmes and with a focus on certain priority areas in public healthcare, including HIV and associated opportunistic infections, such as tuberculosis, *Cryptococcus* and hepatitis.

The skill set was developed to enable management at all levels of a tiered laboratory structure, from highly centralised automated laboratories down to the lowest level, using point of care testing (POCT) or alternative strategies, such as mobile testing. The team also deals with the specific diagnostic needs of particularly vulnerable populations in South Africa and the region, such as miners and peri-mining communities, paediatric populations and offenders in the Correctional Services. More recently, the need to focus on chronic, non-communicable diseases, such as diabetes and HIV-associated infections, was recognised as more patients are treated successfully. The team has also been instrumental in pilot projects for the anticipated National Health Insurance (NHI) Plans, providing much needed data for both clinical and diagnostic plans.

The lessons learnt and experience gained during the implementation of several national laboratory programmes over the last 15 years, such as that for early infant diagnosis (EID) of HIV; CD4 testing; HIV viral load testing; molecular TB testing for adults and children and extra-pulmonary TB; cryptococcal antigen testing (reflexed following CD4 testing); and HIV drug resistance testing, has led to an improved level of sophistication in the approach to implementation. The strength of the team is the ability to be mobilised immediately to deal with a crisis, be it locally, nationally or regionally.

The group has not only been able to support implementation and ongoing programme M&E, but develop the multi-disciplinary technical teams to ensure a complete systems approach to diagnostics is undertaken. This has taken the form of protocols for needs and market assessments, assay validations, quality assurance, maintenance, training, use and development of verification and external quality assurance (EQA) materials. More recently an increased focus has rested on ensuring novel connectivity strategies for timeous data collection for programme monitoring, continuous quality monitoring and surveillance.

Internationally, the team works closely with organisations such as the Global Fund, CDC, USAID through the NGO, Right to Care, Bill and Melinda Gates Foundation, the Grand Challenges Canada, the World Health Organization, London School of Hygiene and Tropical Medicine, and UNITAID, to name a few. The ability to establish private-public partnerships has been demonstrated in the research and development work done with suppliers, including Roche, Abbott and others for HIV viral load; Cepheid and Hain for TB testing; Beckman Coulter for CD4; and engineering groups for novel SMS printer and software development.

Units of the National Priority Programme

CD4 Unit

Overview

During 2015, the NHLS NPP CD4 initiative, headed by Prof. Debbie Glencross and supported by National CD4 Co-ordinator, Dr Lindi Coetzee, continued with ongoing training and operational service interventions, assisted by two training officers, Mrs Sithembile Mojalefa and Mrs Sherry Drury, to ensure quality CD4 services across the NHLS. The role of the NPP/CD4 Unit involves mainly co-ordination and integration of aspects of CD4 servicing across the NHLS, including site evaluation, equipment validation, audits, SANAS accreditation support, equipment implementation and set-up, full technical support, as well as training through on-site and off-site workshops. The unit is also responsible for standardisation of testing, including placement of equipment and Standard Operating Procedures (QPULSE), and monitoring of CD4 laboratory performance on external quality control programmes (NHLS EQA and Beckman Coulter 3-IQAP) whilst providing support for associated corrective actions. To assist laboratory managers, the unit monitors all related CD4 data, including CD4 test volumes and related CD4 turnaround times (TAT) across all testing sites and provides reports for operational interventions and for evaluation and assessment for consolidation and strengthening of the NHLS CD4 network and risk management. In addition, the unit employs internal quality measures (flow count rates and other intra-sample quality parameters) which facilitate monitoring adherence to SOP and minimise instrument downtime.

Unfortunately, due to austerity measures, no training workshops were held during 2014 and 2015. However, 29 CD4 site visits were made to laboratories highlighted through the routine monitoring and evaluation structure described above, requiring directed training, assistance with audits and preparation for SANAS accreditation. Seventeen CD4 laboratory personnel attended a QA co-ordinators meeting in January 2016.

Operations

For the period April 2015 to March 2016, ~ 3.6 million CD4 volume tests were performed across 52 NHLS CD4 service laboratories. This is slightly less than the previous reporting period and possibly reflects changes in the 2015 global and national HIV treatment guidelines. During this period, where analysis of CD4 volumes in the context of laboratory proximity revealed areas of over-servicing, 14 laboratories were consolidated into eight CD4 testing facilities in KZN and the Eastern Cape. From February 2016, the process of replacing the older, obsolete BC-XL flow cytometers with the new BC Aquios 'load and go' equipment will facilitate improved workflow in sites performing 150 samples per day or less. In addition to overseeing the upgrades and installation of new instruments, the team provided on-site training and follow-up support to ensure that laboratories were optimally functioning after intervention.

Research and development

During 2015, the Beckman Coulter Aquios Flow cytometer and two fully automated ELISA systems (Thunder Bolt® system from Gold Standard Diagnostics (USA) and Personal LabTM (P-Lab) by Adaltis (provided by SiteTech Supplies SA) were evaluated and reported to the NHLS Health Technology Assessment (HTA) Unit. The BDS CD4 Presto evaluation was completed and the study published in *PLOS ONE*. Additional research was undertaken to establish different platforms for testing for cryptococcal antigen, other than the manual lateral flow strip assay (LFA), i.e. semi- or fully-automated ELISA platforms and kits. CrAg EIA platforms were evaluated and reported to the NHLS HTA Unit. The unit continued with grant funded research regarding development and evaluation of a flow-cytometry based CrAg assay.

POCT has been widely discussed to 'plug the gaps', but at a cost that is considerably more than the cost of a laboratory-based test (Cassim *et al.*, *PLOS ONE* 9(12): e115420). An integrated, tiered service delivery model (ITSDM) has been described to enable the NHLS to provide services (Glencross *et al.*, 9(12): e115420), including use of POC technologies to extend laboratory services in hard to reach sites, by making use of existing laboratory infrastructure. Proof of concept work published in the *SAMJ* in early 2016 has shown how this approach can successfully bring specific services closer and make them more accessible to indigent communities, whilst optimising quality and maximal cost benefit. In this study, a ~150% improvement in CD4 TAT was noted after implementation of a decentralised community CD4 service at the NHLS laboratory in De Aar. This research was chosen to represent the top 15% local innovations, best practices and lessons learnt that will help achieve 90-90-90 targets in South Africa, presented at the UNAIDS/USAIDS/PEPFAR/HE2RO and national DoH collaborative showcase meeting entitled 'Reaching 90-90-90 in South Africa: Innovations and Best Practices' held at the South African HIV/AIDS Conference at the ICC, Durban, in June 2015.

Cryptococcal Antigen Screening

Cryptococcal meningitis (CM) is a common opportunistic infection in HIV patients, frequently associated with high mortality; early screening for cryptococcal antigenaemia (CrAg) can prevent CM-associated morbidity and mortality. Automatic reflexed CrAg testing, on submitted CD4 samples with counts <100 cells/μl, has been shown to be the optimal cost-efficient method of screening for cryptococcal infection to save lives (Larson *et al.*, in press). Reflex CrAg screening is currently performed in four successful NHLS/NICD pilot CD4 laboratories in Gauteng, KZN and the Free State, using the IMMY™ POC lateral flow assay (LFA) and providing good sensitivity and specificity. In January 2016, the DoH made the decision to implement this reflexed testing approach from April 2016. Proposals for a national rollout based on a prioritised, phased-in implementation plan in districts where highest disease burden is noted (as higher proportions of patients with CD4 counts < 100 cell/μl, and including Vhembe, Central Karoo, Sekhukhune, Tshwane and Bojanala districts). Analysis of historical CD4 test volumes suggests that ~360 000 tests can be anticipated for 2016/17 (9.9% overall incidence of CD4<100cells/μl). This anticipated national workload will be split, with ~73% of sites doing LFA CrAg testing (< than 30 tests per day) and covering 45% of the total annual CrAg volumes. Automated ELISA systems will be required for the remaining 27% of laboratories performing higher volumes of tests that will comprise the remaining 54% of the total annual CrAg test volumes.

HIV Viral Load Unit

Project Manager: Somayya Sarang

Programme pathologist: Dr Sergio Carmona

Overview

The award of the new HIV viral load contract, together with an unexpected 38% increase in HIV viral load tests in the previous financial year, led to a total of 3.7 million HIV viral loads being tested in the 2015/16 financial year. This resulted in laboratories operating at maximum capacity, thus placing the programme under strain. An urgent review of the HIV Viral Load Programme when the NPP, Virology Expert Committee and NHLS Area Managers convened at Sandringham on 13 October 2015, culminated in the rapid up-scaling of the programme. Roche committed to the placement of the newer higher-throughput Cobas 6800/8800 analysers, resulting in laboratories having to undergo renovations prior to installation with either a parallel installation or total shutdown until completion. The up-scaling will allow for approximately six million HIV viral load tests to be undertaken by the end of the 2017/18 financial year.

Current and new developments

Five laboratories have been up-scaled to the newer high throughput Cobas systems and three laboratories are scheduled for completion during the course of 2016.

Table B9: Status of installation of Cobas systems

Laboratory	Cobas 6800	Cobas 8800	Status
CMJAH	-	2	Operational
IALCH	1	1	Operational
Nelspruit	1	1	Operational
Mankweng	1	1	Operational
Edendale	1	1	Operational
Mthatha	-	2	Installation commenced 31/03/2016
Ngwelezane	1	1	Scheduled for 21/05/2016
NHLS Port Elizabeth	2		Scheduled for 17/09/2016

The remaining laboratories, Tshepong, Madadeni, Frere, Groote Schuur and Tygerberg will remain on the Cobas Ampliprep Cobas Taqman (CAPCTM) analysers and will be reviewed at a later stage. The three Abbott sites, Addington, Universitas and Dr George Mukhari will continue running on the Abbott m2000sp and m2000rt platforms.

Monitoring and support to ensure ongoing quality of service

The 16 HIV viral load laboratories located throughout South Africa are managed by individual laboratory managers and supported by business and area managers who are directly responsible for ensuring continuous service delivery. The role of the NPP is to ensure ongoing support, integration and monitoring of the HIV Viral Load Programme on a national scale and this is achieved through site evaluation, equipment implementation and set-up, equipment verification, accreditation support, monthly meetings with the supplier, monthly indicator reports, Abbott mview, which monitors laboratory performance in real-time, Roche Axeda for remote connectivity when laboratories experience downtime and the ARV Dashboard, which provides reports for internal and external stakeholders in terms of test volumes and HIV viral load result test ranges from national and provincial levels down to district level.

The Roche Dashboard, which will allow for the monitoring of laboratory performance, is expected to be rolled out and functional towards the end of April 2016.

Through funding from USAID and Right to Care, an HIV Dashboard has been developed to monitor and evaluate the effectiveness of the public sector's Comprehensive Care, Management and Treatment Programme for HIV/AIDS in South Africa. Facility level functionality has been added to the dashboard, which is now available for use.

Training initiatives

Suppliers provide on-site training for new staff as well as refresher training for existing staff. Two successful Roche Super User Training Workshops were conducted on from 18–20 November 2015 and again from 24–26 February 2016. A successful advanced HIV viral load training course, offered by Abbott, was held from 27–28 October 2015. As a motivator for laboratories to continually improve their efficiencies and turnaround times, awards for the best performing HIV viral load laboratory, first and second position, as well as the most improved HIV viral load laboratory, are presented with a floating trophy and certificate at the user group meetings. The criteria for assessments are based on overall performance (volume, TAT, troubleshooting, monthly indicator reports, feedback from supplier, etc.). The winners of first and second positions for the Roche Platform, CAPCTM, were Ngwelezane and Nelspruit respectively and Edendale scooped the award for the most improved HIV viral load laboratory. The best Abbott performing laboratory for 2015 was Addington. Super-user training on the Cobas 8800 and 6800 analysers will be held in Quarter 3 of 2016.

External quality assurance

All HIV viral load testing laboratories are enrolled with the Quality Control Molecular Diagnostics (QCMD) EQA Programme. All EQA activities are co-ordinated by the NHLS QA Department.

Early Infant Diagnosis Unit

Overview

The Early Infant Diagnosis (EID) Unit aims to assist in the delivery of quality HIV diagnostic services for infants and children in collaboration with national and provincial partners. The team accomplishes this through training and support visits and advocacy.

The DoH Prevention of Mother-to-Child Transmission (PMTCT) guidelines were amended in 2015, requiring that a Polymerase Chain Reaction (PCR) test be done at birth for all babies born to HIV+ mothers. With this change in policy, training on EID at hospitals and maternity units around the country was a priority. The training performed included the correct collection of dried blood spot specimens and interpretation of PCR results, as well as guidance on the initiation of prophylaxis for the babies, to ensure that all HIV positive infants who are infected in utero or during birth are identified immediately and placed on the relevant treatment.

Training

Midwives and doctors have been trained on EID nationally and provincially in all provinces, with the exception of Limpopo and Northern Cape. Mentors from the supporting partners, Foundation for Professional Development (FPD) and Health Systems Trust (HST), have also been trained so that they are able to support their facilities.

Successes

The team has supported the DoH with implementation of the new PMTCT guidelines on birth PCR. They have also assisted in putting systems in place for birth testing, with the recommendation of blood samples to be taken at the postnatal wards once the newborn baby has had the opportunity to settle and it is easier to collect a higher quality specimen.

Challenges

Rotation of staff in the hospitals has been found to have a negative impact as it leads to a lack of knowledge on the PMTCT guidelines among staff in the labour wards, hence the need for ongoing training.

Monitoring and evaluation of the EID training

The Corporate Data Warehouse (CDW) Office, together with Prof. Gayle Sherman of NICD, distribute the monthly statistics on the top 50 facilities with the most missed diagnosis opportunities to the team. These are samples that have been rejected for clinical, clerical or administrative reasons. The team uses these statistics to identify the facilities that are not performing well in terms of dried blood spot collection and communicates its findings to the provincial PMTCT co-ordinators. A strategy is then developed to improve the quality of specimen collection in the problem areas.

Conferences

The team attended the 2015 SA AIDS Conference in Durban where presentations were made on EID. The team also attended the SOMSA conference where presentations were made to midwives.

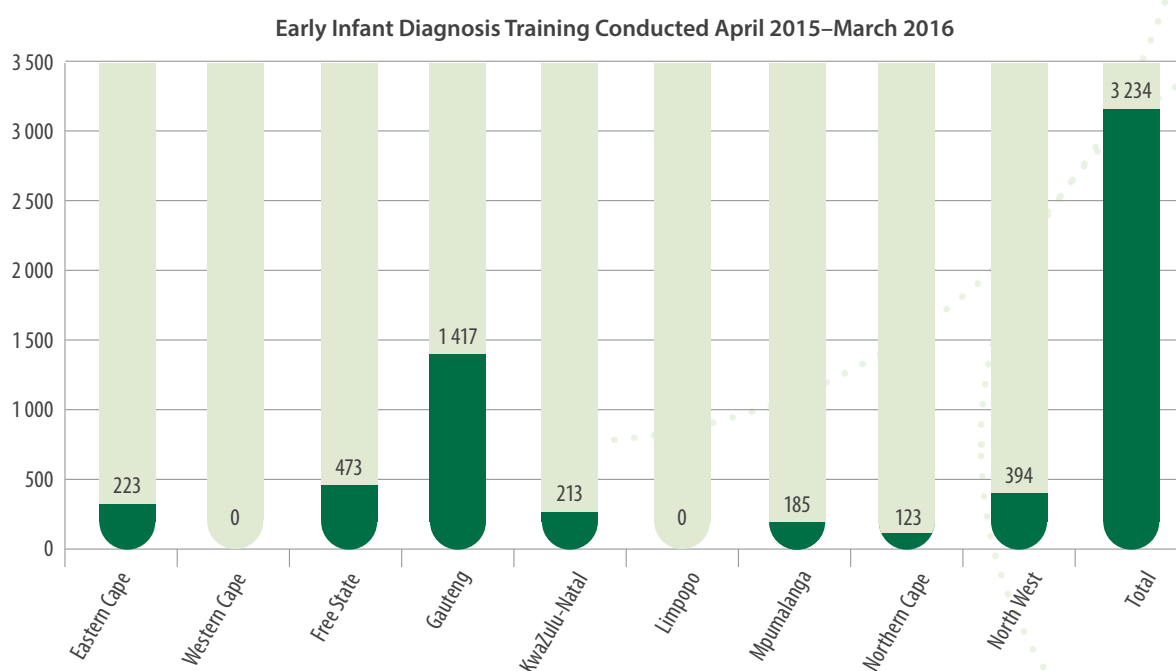


Figure B21: EID training statistics

HIV Genotyping Unit

Review of existing services

HIV genotyping has now been included in the National HIV Guidelines for all patients failing second line treatment. The NHLS provides HIV Drug Resistance (DR) testing as a diagnostic service at two large centres, Tygerberg Hospital in Cape Town and Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) in Gauteng, with small numbers also being performed at the Inkosi Albert Luthuli Central Hospital (IALCH) in KwaZulu-Natal and Universitas Hospital in Bloemfontein in the Free State. In phase 2 of the Global Fund Grant awarded to the NHLS, three laboratories at Dr George Mukhari Hospital (DGM), Universitas and IALCH were initiated or upscaled to increase capacity further. The team is evaluating various next-generation sequencing platforms as an alternative to the conventional sequencing platforms.

HIVDR surveys

Both the adult and paediatric HIVDR surveys have been completed. Manuscripts for both the surveys were submitted in Quarter 2 of 2016. The full survey report will soon be disseminated to local stakeholders. The adult and paediatric surveys are being consolidated into a single report which, once completed, will be distributed to the national and provincial DoHs, as well as to the facilities who participated in the survey. The Global Fund Grant has been instrumental in generating essential HIVDR data from different populations in South Africa. This data will be very useful for the DoH to further evaluate the HIV treatment programme. In addition, other countries from the region will benefit from the results once they have been published.

Upscale of HIVDR laboratory capacity

The three new HIVDR testing laboratories: IALCH, Universitas and DGM (previously Medunsa) are finalising the validation of the HIVDR test. Validations are expected to be completed in May 2016 for IALCH and Universitas, and soon thereafter for DGM. These laboratories will then start implementing the test routinely and will undergo SANAS accreditation later in 2016. All three laboratories appreciate the funding and technical support received through the Global Fund Grant, which has been instrumental in creating additional HIVDR capacity in South Africa. The impact is expected to be visible from the second half of 2016.

TB GeneXpert Unit

Overview

The NPP is responsible for the implementation, monitoring and evaluation of TB GeneXpert services across all NHLS sites, providing training to both laboratory and healthcare workers to improve TB healthcare services. Since March 2011, 314 TB GeneXpert instruments of varying sizes (GX4:115; GX16:190; GX48:1; GX80:8) have been placed in 211 sites – in both urban and rural settings, by the NPP and the DoH.

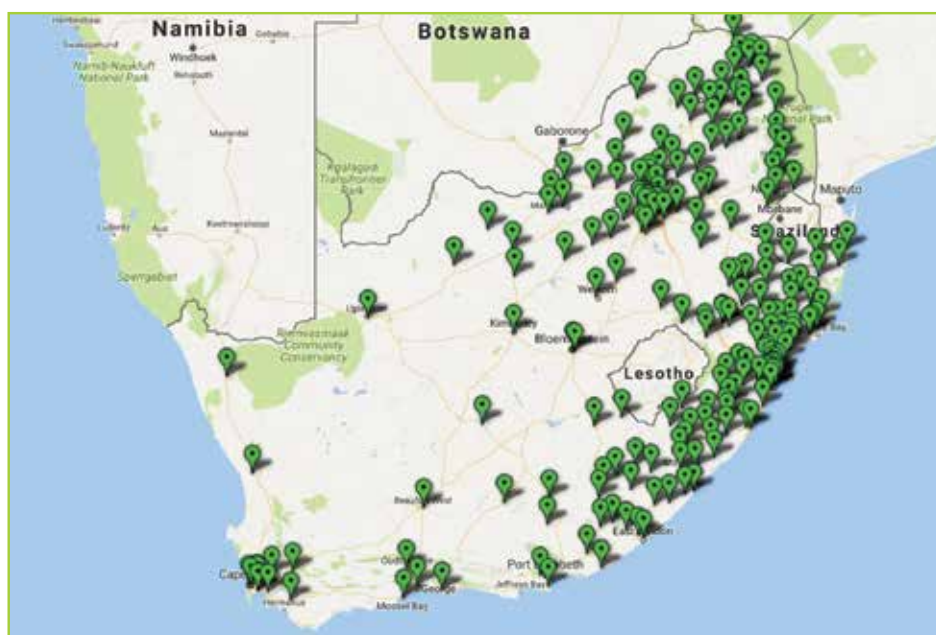


Figure B22: Current TB GeneXpert placements

From 31 March 2015 to 01 April 2016, 2 590 766 TB GeneXpert MTB/RIF tests were performed nationally by NHLS laboratories. The average national TB positivity rate among those tested was 9.26%. Average rifampicin resistance detection rates have remained around 7% (refer to Figure B23). The number of unsuccessful tests reported remained below 3%, and corrective actions have been implemented where necessary.

Table B10: National TB GeneXpert MTB Results

Year	MTB Detected	MTB Not Detected	Test Unsuccessful	Total	% MTB Detected
2011	34 421	165 582	5 441	205 444	16.75
2012	93 248	544 109	16 903	654 260	14.25
2013	201 681	1 478 260	51 773	1 731 714	11.65
2014	249 014	2 060 754	62 038	2 371 806	10.50
2015	245 263	2 340 946	56 997	2 643 206	9.28
Total	823 627	6 589 651	193 152	7 606 430	10.83

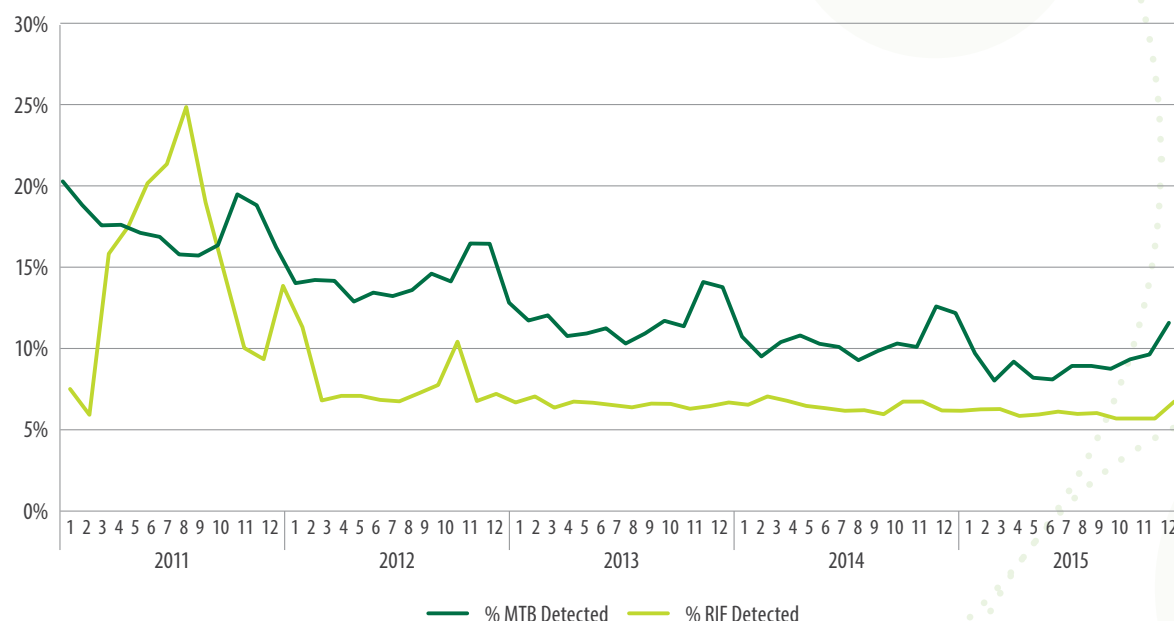


Figure B23: Percentage National GeneXpert MTB and RIF detection rates

Monthly uptake (Figure B24) has increased steadily since programme inception. Uptake is dependent on requests from various healthcare facilities that refer samples to the laboratories. A decrease in tests is usually reported during Easter and the December Festive Season, due to the number of public holidays in those months.

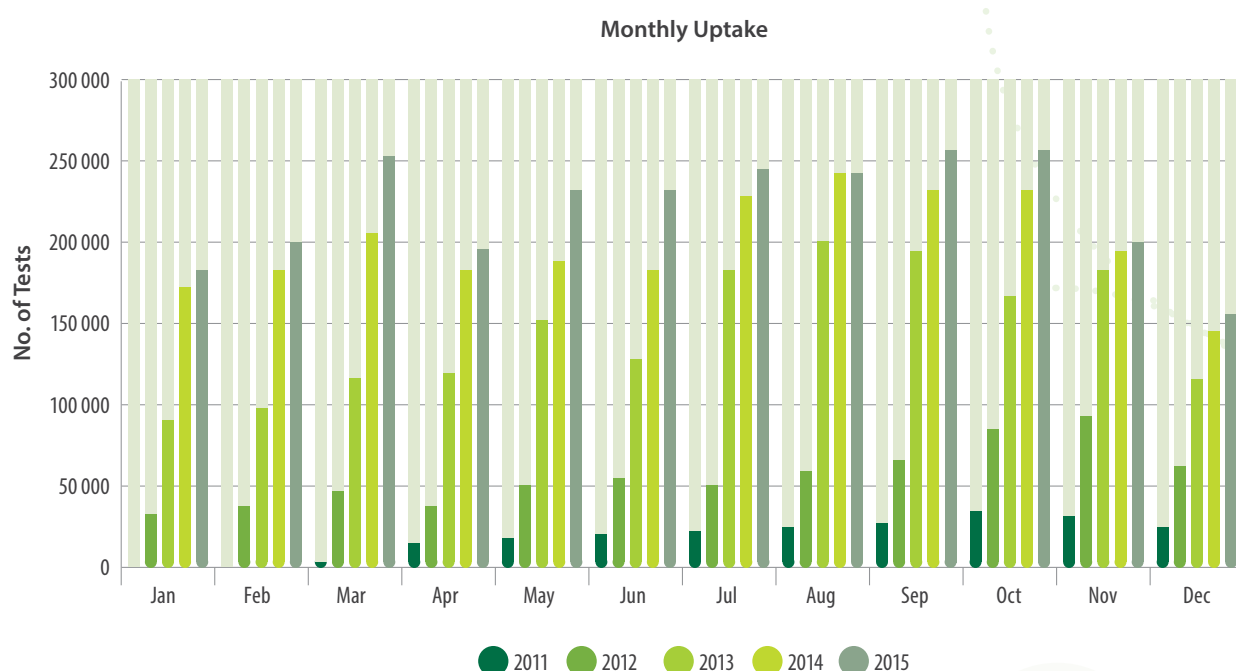


Figure B24: TB GeneXpert Monthly Uptake

Training: laboratory and clinical

The NPP team is responsible for monitoring TB GeneXpert testing across the country and provides training on quality procedures to healthcare workers (i.e. proper sputum collection). In total, 381 laboratory staff and 1 949 healthcare workers were trained in the reporting period and training will be ongoing to support DoH training on the clinical algorithm. The NPP also initiated extrapulmonary TB GeneXpert training for laboratory staff, doctors and professional nurses in healthcare facilities. Six advanced TB GeneXpert training workshops were held in collaboration with the supplier, Cepheid, producing 166 super TB GeneXpert operators across the nine provinces.

In addition to training, site visits were conducted for poor performing sites to provide troubleshooting support.

Table B11: Laboratories trained on TB GeneXpert, 2015/16

Province	Basic Users	Super Users
Eastern Cape	20	26
Free State	31	7
Gauteng	36	14
KwaZulu-Natal	58	73
Limpopo	6	17
Mpumalanga	17	10
Northern Cape	15	3
North West	8	6
Western Cape	24	10
Total	215	166

Table B12: Healthcare workers trained on TB GeneXpert, 2015/16

	2015										2016				
Province	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total 2015	Jan	Feb	Mar	Total 2016	Grand Total
Eastern Cape	111			47						158					158
Free State								25		25					25
Gauteng				29	23		49	58		159					159
Western Cape										0					0
Limpopo		10						16	12	38	87	323	56	466	504
Mpumalanga					111	206				317					317
Northern Cape			25							25					25
North West	139	126			33		84	20		402					402
KwaZulu-Natal		51	83	169			25	31		359					359
Total	250	187	108	245	167	206	158	150	12	1 483	87	323	56	466	1 949

External quality assurance

To monitor ongoing quality of the testing service, all NHLS Xpert MTB/RIF testing laboratories are enrolled in an EQA Programme using dried culture spots (DCS). Three DCS panels containing four samples each were distributed to all Xpert sites and results analysed online. A summary report was sent to quality co-ordinators across all provinces.

Monitoring and evaluation

All TB GeneXpert laboratories are monitored on a monthly basis in terms of test volumes, instrument utilisation, in-laboratory TATs and TB positivity, RIF resistance and error rates, through data extracted from the CDW. Summary reports on laboratory performance are compiled and distributed on a monthly basis to the area and business managers to assist with continuous monitoring of the programme.

In addition, concordance data between Xpert and Culture/LPA is analysed on follow-up TB GeneXpert RIF resistant cases. The average national concordance between the TB GeneXpert and Mycobacteria Growth Indicator Tube (MGIT) culture was reported to be 86%, and 89% between the TB GeneXpert and Line Probe Assay (LPA).

Upcoming plans

- Rollout of Xpert MTB/RIF Ultra assay towards the end of 2016.
- Rollout of new software 4.7b for the GX16 and GX4 instruments.
- Upgrade of the current UPS systems to a high voltage UPS to reduce errors related to power supply.
- Continuous monitoring of sites through remote connectivity software to improve programme performance.
- Completion of development of the TB GeneXpert Dashboard to improve programme performance.
- Ongoing clinical training to strengthen skills in TB detection.

The programme was expanded to directly support the annual screening for TB and HIV of a quarter of a million people in special risk populations in correctional centres and in peri-mining communities.

Correctional Services TB and HIV Programme

Programme Manager: Andani Phaswana

Overview

The activities under this programme were funded by three grants, namely:

- The DoH Global Fund Grant
- The Right to Care Global Fund Grant
- The Aurum CDC PEPFAR Grant.

Each of these grants had its own objectives and targets to be reached within the review period, with the main focus being the provision of TB GeneXpert testing to all correctional centres country-wide.

The Right to Care Global Fund Grant mainly focused on 12 selected correctional centres and ensured that the seven on-site TB GeneXpert laboratories within these facilities were provided with TB GeneXpert cartridges as well as human resources for TB testing. The 12 correctional centres are Barberton, Polokwane, Kgosi Mampuru (Tshwane), Mondeor (JHB), Groenpunt, Grootvlei, Westville, Mthatha, St. Alban's, Pollsmoor, Upington and Rustenburg. The seven centres within which the NHLS laboratories are set up are Barberton, Kgosi Mampuru, Mondeor, Groenpunt, Westville, St. Alban's and Pollsmoor Prison.

The Aurum CDC PEPFAR Grant's objectives were to offer health systems strengthening support in all the correctional centres by training officials on the National TB Guidelines and laboratory SOPs, as well as quality assurance for POCT with a particular focus on HIV rapid testing.

Training

Two staff members were pivotal in training correctional service officials on the TB procedure as per the DoH guidelines, quality assurance on POCT, as well as practical training on the correct processing of internal quality control materials. The outcome was a remarkable improvement in specimen collection, with minimal error rates noted and an improved TAT in areas that were previously lagging.

Table B13: Training per province, management area and centre

Province	Management Area Trained	Centres Trained	Participants Trained	Remarks
Eastern Cape	6 of 6 <ul style="list-style-type: none"> • Kirkwood* (4) • St Albans* (5) • Mthatha* (13) • SADA* (15) • Amathole* (5) • East London* (5) 	43 of 46	111	11% of management areas and 93% of correctional centres were trained. Healthcare providers and clinical partners (TB/HIV care) were trained.
Free State	1 of 4 <ul style="list-style-type: none"> • Groenpunt* (8) 	5 of 35	14	45% of management areas and 15% of correctional centres were trained.
Gauteng	3 of 8 <ul style="list-style-type: none"> • Krugersdorp* (1) • Modderbee* (3) • Zonderwater* (2) • Aurum Institute DCS support staff 	3 of 26	49	38% of management areas and 12% of correctional centres were trained.
KwaZulu-Natal	7 of 7 <ul style="list-style-type: none"> • Kokstad* (5) • PMB* (5) • Empangeni* (7) • Glencoe* (8) • Ncome* (6) • Waterval* (5) 	39 of 41	137	100% of DCS management areas, in co-operation with NHLS and DCS health managers, and 95% of correctional centres were trained. Only two centres were not represented during training – Empangeni Medium and Utrecht.
Limpopo	3 of 3 <ul style="list-style-type: none"> • Kuthama Sinthumule* (1) • Polokwane* (3) • Thohoyandou* (4) 	7 of 8	39	100% of management areas and 88% of correctional centres were trained.

Table B13: Training per province, management area and centre (continued)

Province	Management Area Trained	Centres Trained	Participants Trained	Remarks
Mpumalanga	3 of 3 • Baberton* (6) • Bethal* (6) • Witbank* (4)	17 of 17	38	100% of management areas and 100% of correctional centres were trained.
North West	2 of 3 • Rooigrond* (5) • Klerksdorp* (3)	6 of 13	16	67% of management areas and 46% of correctional centres were trained.
Northern Cape	3 of 3 • Upington* (3) • Kimberley* (4) • Colesberg/De Aar* (5)	11 of 11	35	100% of management areas and 100% of correctional centres were trained.
Western Cape	9 of 10 • Pollsmoor* (6) • Worcester* (5) • Voorberg* (4) • Drakenstein* (4) • Helderstroom* (4) • Brandvlei* (3) • Allandale* (4) • Goodwood* (1) • George* (9)	38 of 44	143	90% of management areas and 86% of correctional centres were trained.
Total	37 of 48	172 of 242	593	77% management areas and 71% of correctional centres trained nationally

*(number of centres per management area)

Results access

The Aurum PEPFAR Grant also funded the procurement of 92 SMS printers within the financial year for the correctional centres that had not yet received printers. These printers were distributed in the final quarter and it is hoped that they will improve customer satisfaction through more rapid result reporting. Applications for access to TRACK web view increased significantly as clients were shown the advantages of the system.

Access to NHLS services by clients

Various NHLS business managers assisted with the establishment of courier routes to certain correctional centres for routine specimen collection. Correctional centres that did not have active accounts with the NHLS were activated.

Data analysis

To improve reporting and data analysis, the programme under the Aurum Grant employed a data analyst, who commenced duties in April 2015. The dashboard for CD4 cell counts in correctional centres was finalised and the TB GeneXpert Dashboard was significantly improved.

Table B14: Number of TB GeneXpert tests performed in DCS 2015/16

2015/16	MTB Detected	MTB not Detected	Test Unsuccessful	Total	% Total
Totals	5 762	147 958	2 748	156 468	3.7

Table B15: Number of CD4 tests performed in DCS

Year	<=50	>50 <=100	>100 <=200	>200 <=350	>350 <=500	>500	Total
Oct-Dec 2013	151	192	549	1 472	1 707	2 383	6 454
Jan-Dec 2014	706	850	2 762	7 234	8 490	12 023	32 065
Jan-Dec 2015	664	903	2 931	7 481	9 157	13 638	34 774
Jan-Mar 2016	144	222	768	1 798	2 224	3 620	8 776
Total	1 665	2 167	7 010	17 985	21 578	31 664	112 069

Successes

- The set target under the Global Fund Grant for the number of TB GeneXpert tests to be performed was reached by January 2016. The actual number of GeneXpert tests performed for this financial year was 156 468. Of these, 5 762 MTB positive cases were identified of which 224 were Rifampicin-resistant on the TB GeneXpert. The successes can be attributed to the massive

training sessions that were organised by the DCS team, the officials and X-ray screenings performed by the partners working hand-in-hand with the NHLS team.

- CD4 testing revealed that 26% of all inmates who have been tested have a CD4 cell count of less than 500.
- The visits and training to more than 90% of DCS centres within one financial year was a significant achievement by the team.
- The NPP team, in conjunction with the Wits Infection Prevention and Control Unit, played a significant role in drafting the correctional services training manual on infection prevention and control as well as the national infection prevention and control policy for DCS. These are due to be released within the new financial year.
- Due to the efforts of the NHLS, clinical partners and DCS, there was an increase in the number of inmates screened and tested for TB, and their diagnosis and placement into treatment and care.
- The on-site Pollsmoor NHLS TB GeneXpert Laboratory was visited by the Minister of Health, Dr Aaron Motsoaledi, together with the President (Dr Jane Carter) and the Scientific Director (Dr Paula Fujiwara) of the International Union against Tuberculosis and Lung Disease. During the visit a demonstration of the Xpert MTB/RIF assay was performed by the NPP team.



Figure B25: Puleng Marokane from the NPP demonstrating the Xpert MTB/RIF test to the Minister of Health, together with Nasima Mohamed, Area Manager for the Western Cape, DCS officials and media representatives

Mine and Peri-mining Communities TB and HIV Programme

Programme Manager: Thabo Taleng

Overview

The NHLS, together with the Aurum Institute, was appointed by the DoH under the Global Fund Grant, to implement interventions aimed at improving TB and HIV/AIDS management for vulnerable peri-mining communities, estimated at around 600 000 people in six main mining districts. Six staffed and TB GeneXpert-equipped mobile TB units were deployed within the communities to undertake Xpert MTB/RIF testing for TB. In addition, persons newly identified as HIV-infected through the clinical partner were staged for HIV-treatment using CD4 tests provided by the closest NHLS laboratory in the district.

The six districts in South Africa with a high proportion of mines identified for focused attention are:

- Lejweleputswa in the Free State
- Dr Kenneth Kaunda and Bojanala Districts in the North West
- West Rand in Gauteng
- Waterberg and Sekhukhune in Limpopo.

In the reporting period, mobile units continued to provide daily testing operations in these districts. The areas covered remained the same as in the previous reporting period, including informal settlements, taxi ranks, farms, and institutions of higher learning. Provincial and district health campaigns continued to be supported by offering TB testing on site.



Figures B26 and B27: The mobile unit from West Rand District provided on-site Xpert MTB/RIF testing at the Union World Conference on Lung diseases in Cape Town

A total of 39 621 Xpert MTB/RIF tests were received and processed in the review period, 17% of which were performed in mobile GXP units. Cumulatively about 48% of the project target has been reached. The period saw fluctuating numbers of samples received and processed. Bojanala district contributed the highest percentage at 20%, followed closely by Dr Kenneth Kaunda at 19.6%. Waterberg processed the least at 13.5%. The results of all the samples that were received and processed in the mobile units were released within 24 hours of receipt, and most of those referred to the parent laboratories were completed within 48 hours (96% of samples received).

To improve the quality of samples submitted by the clinical partners, NPP's clinical trainers held several training sessions for Aurum TB screeners (clinical partners for the PMC project) on the aspects of Xpert MTB/RIF testing. Eighty participants from six districts were trained between October and December 2015.

Table B16: Xpert MTB/RIF training in the six peri-mining districts 2015/16

Province	Regions Trained	District	Participants Trained	Remarks
North West				
20/10/2015	Rustenburg	Bojanala	12	Contributed to 3.8% rejection rate across the region
22/10/2015	Klerksdorp	Dr K Kaunda	12	Had 0% rejection rate across the region and participants demonstrated knowledge on specimen collection and infection control
Free State				
26/10/2015	Welkom	Lejweleputswa	15	Contributed to 7.7% rejection rate across the region
Gauteng				
03/11/2015	Carletonville	West Rand	13	Contributed to 11.5% rejection rate across the region
Limpopo				
13/11/2015	Modimolle	Waterberg	16	Contributed to 73.1% rejection rate across the region
08/12/2015	Burgersfort	Sekhukhune	12	Contributed to 3.8% rejection rate across the region
Total	06		80	All regions were trained on specimen collection procedure, storage and infection control measures for effective Xpert MTB/RIF testing

Achievements

- Almost 100% of clinical partner personnel and mobile laboratory technicians were trained in all six selected peri-mining districts between October and December 2015
- The partnership between Aurum and the NHLS was strengthened resulting in a common understanding and goals and there was an improvement in specimen collection with a minimal error rate being reported after training.

mHealth Programmes and Linkage-to-Care

Programme Manager: Lynsey Isherwood

Project Managers: Floyd Olsen and Portia Madumo

Overview

The mHealth Division of the NPP was established in March 2014 with the primary aim of developing and implementing comprehensive mobile health (mHealth) solutions, mainly driven by android applications (apps) to improve both linkage and retention to care within priority disease areas such as HIV and TB.

miLINC

The *miLINC* Program was officially implemented on 19 March 2015 at three facilities within the Ugu District of KwaZulu-Natal (Murchison Hospital, Kwa-Mbunde Gateway Clinic and Gamalakhe Clinic). Since then, a further five facilities have been added within the Ugu District. The program was developed as part of the DoH and Global Fund's objective to increase the capacity to support the decentralisation of MDR-TB treatment. In December 2015, two districts in the Eastern Cape initiated the *miLINC* Program – Buffalo City (11 sites) and Nelson Mandela Bay (17 sites). The next phase of implementation will be in Tshwane, Ethekekwini, Free State and the Northern Cape.

Overview of *miLINC* apps

The *miLINC* Program is interfaced with the NHLS's Central Data Warehouse, with *miLINC* receiving twice-daily feeds of TB GeneXpert results requested from the primary healthcare facilities registered on *miLINC*. Three apps are incorporated into the program (Figure B28):

- **Green: Primary Healthcare Facility**
This is where the program begins. The patients are screened for TB (sputum collection) at the primary healthcare facility and registered on *miLINC* through their NHLS barcoded requisition form for TB GeneXpert testing.
- **Orange: Linkage Officer**
A Linkage Officer (funded by Global Fund) receives an alert on his/her tablet (funded by Global Fund) of a newly diagnosed Rifampicin-resistant patient. The alert contains all the details of the patient including, name, surname, ID number, residential address, contact number and NHLS barcode number. The Linkage Officer attempts to trace the patient and bring the patient to the referred MDR-TB treatment initiation site.
- **Blue: MDR-TB Initiation Site**
Once the treatment has begun, the healthcare worker records the initiation onto the app.



Figure B28: The three *miLINC* apps: (green = Primary Healthcare) (orange = Linkage Officer) (blue = MDR-TB Treatment Initiation Site)

Web portal

The dashboard (<https://sa-mdrtb.emocha.com/>) was developed to demonstrate cumulative data from the program (Figure B29). The dashboard is access controlled.

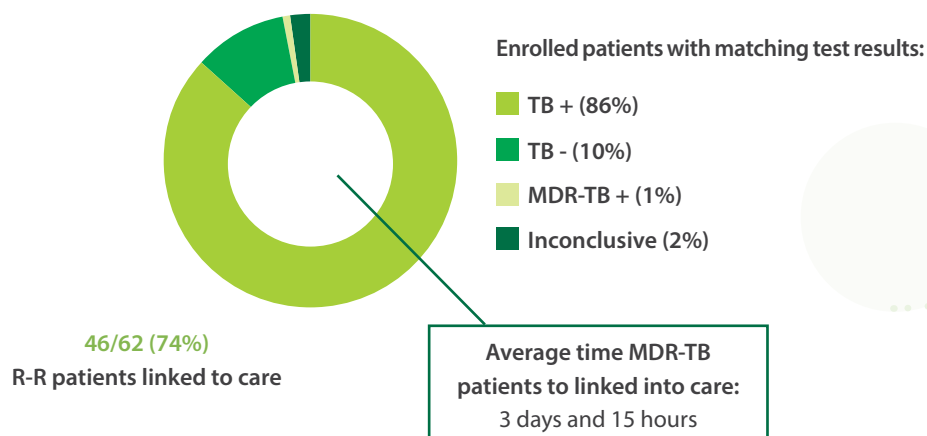


Figure B29: Cumulative statistics for the *miLINC* Program (19 March 2015–31 March 2016)

TreatTB and TreatTB Notify apps

The Treat TB app was developed and implemented on the first pilot site, Charlotte Maxeke Johannesburg Academic Hospital, on 04 December 2014, and lessons learnt were used to improve the app. On 02 June 2015, TreatTB was implemented at five MDR-TB treatment facilities within the Ekurhuleni district (Tembisa, Pholosong, Bertha Gxowa, Thelle Mogoerane and Far East Rand). Far East Rand has subsequently withdrawn from the programme as it is no longer an MDR-TB treatment site. Pre- and post-implementation evaluations were conducted on the 'users' of the app, who include healthcare workers and data capturers.

The TreatTB model includes SMS alerts to the DoH and local municipal co-ordinators, indicating a newly diagnosed Rifampicin-resistant patient. These alerts are sent to their personal mobile phones. However, one of the implementation challenges was that the co-ordinators did not want the alerts integrated into their personal mobile phones. To resolve the problem, the TreatTB-Notify app was developed and implemented on 02 October 2015. This notification app is android-driven and unfortunately only four of the 11 co-ordinators have it installed. The other seven have non-android mobile phones and continue to receive the SMS alerts.

Access to the apps

Both the TreatTB and TreatTB Notify apps are available for download through the Google Play Store. However, one needs to be authenticated and given a username and password to operate the TreatTB Notify app in order to comply with the POPI Act.

Reporting

Two reports are generated and distributed to relevant DoH stakeholders: a) A weekly report on patients linked to care; and b) A daily exceptions report that includes all patients that have not yet been linked to care.

Challenges

Albeit that co-ordinators are able to identify newly diagnosed Rifampicin-resistant patients due to the alerts on their mobile phones, healthcare workers and clinicians are reluctant to initiate treatment from a result received on a mobile phone and thus wait for the 'hard copy' result (either by SMS printer or laboratory print-out). This has affected the TAT to initiation of care.

Currently, there is no funding to continue the rollout of the TreatTB app.

Proposed way forward with the TreatTB Notify app

The TreatTB Notify app is a simple and cost-effective model for sending alerts to anyone in the field who is involved in tracing and initiating treatment of Rifampicin-resistant patients (Refer to Figure B30). The model complements the SMS printers and provides an alternative solution which can quickly penetrate the wider population of healthcare providers.

Table B17: Cumulative statistics for the TreatTB app (02 June 2015–31 March 2016)

	Number
Total number of patients diagnosed by GXP (excluding duplicate tests) in Ekurhuleni (Total number of results received on TreatTB app)	378
Total number of R-R patients linked to care	241
Total number linked to care \leq 5 days (including weekends)	104
Total number of patients with duplicate tests	15
Average days linked to care (including weekends)	10

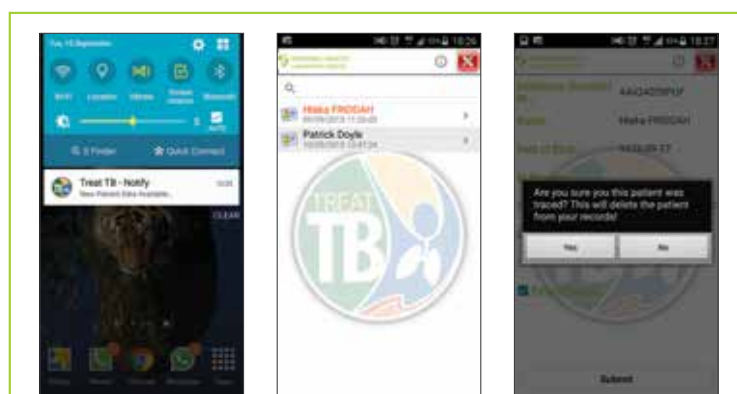


Figure B30: Three screenshots taken from the TreatTB Notify app, of an actual patient (personal identifiers have been deleted) – it is proposed that this method of messaging becomes an additional service to the existing bi-directional SMS printers

SMS printers

The NPP continues to support the 2 096 SMS printers that were procured and distributed in 2014. Continuous improvements are being made to the program, such as the introduction of a monitoring dashboard and weekly reports:

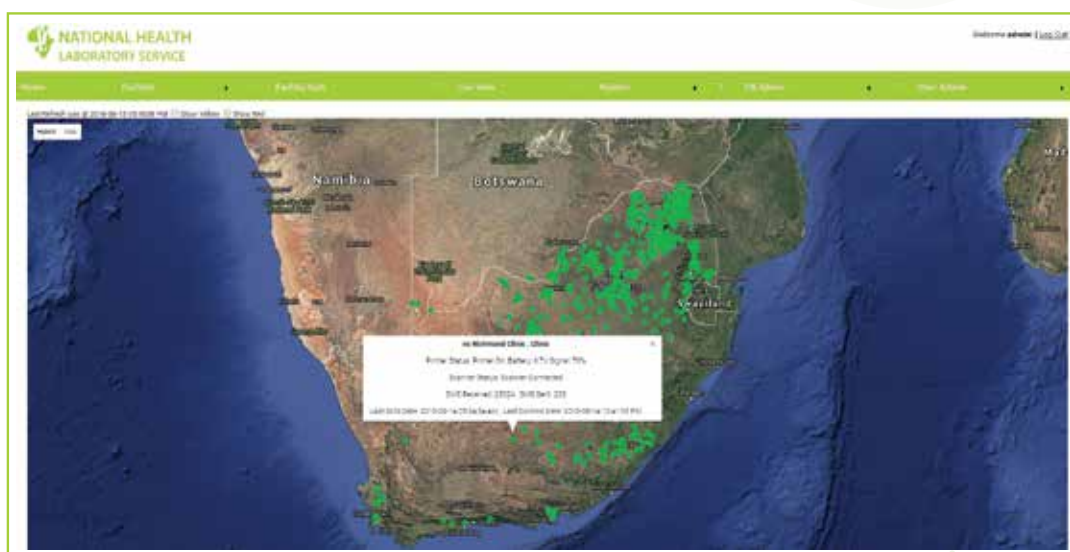


Figure B31: Monitoring dashboard

Due to high staff turnover at DoH facilities and the rotation of nurses, there was a need to train as many people as possible at facility level in order for relevant people to be able to operate the SMS printers correctly. Fourteen facilities in the North West were visited to provide support and training, and 64 healthcare workers were trained at these facilities. Four facilities were visited in the Northern Cape, and 11 healthcare workers were trained during these support visits.

Table B18: Training provided 2015/16

Province	No. of Trainees
Gauteng	119
Limpopo	85
KwaZulu-Natal	123
North West	64
Northern Cape	11
Total	402

Research and Development Group

Overview

The NPP Research and Development (R&D) Group comprises a multidisciplinary team specialising in applied research and implementation of new laboratory diagnostics for HIV and TB and includes quality management systems for high to low throughput testing platforms. The group's output contributes to improved services within the NHLS, and specifically to transfer of knowledge to the NPP, policy development for the DoH and global quality management for several diagnostic tests.

Contributing to Africa's Innovation through Science

This R&D team continues to provide a verification and external quality assessment programme for the TB GeneXpert MTB/RIF platform using in-house developed dried culture spot (DCS) technology. DCS technology is a tool to check that new molecular TB tests and instruments are 'fit for purpose' (verification), and was also developed for external quality assessment of the Xpert MTB/RIF (Cepheid) TB test. The DCS Programme has grown from a South African programme into a global programme. The verification material has been used to successfully verify >200 TB GeneXpert instruments in the field to ensure that the modules are fit for clinical result reporting.

The EQA Programme is currently being supplied to 207 NHLS laboratories and 184 users in 22 different countries worldwide. This programme includes TBGxMonitor®, web-based software to automate EQA result reporting. TBGxMonitor® currently services 401 instruments in 391 TB GeneXpert centres (laboratories and research clinics) in Botswana, Brazil, Ghana, Haiti, India, Kenya, Malawi, Mozambique, Namibia, Nigeria, Peru, Senegal, South Africa, Tanzania, Thailand, Uganda, Sweden, Zambia, Zimbabwe and Australia, including all NHLS Xpert-initiated centres. The R&D team won awards for this innovation through the Gauteng

Accelerator Programme (GAP) (Bioscience 2014) and the African Innovation Foundation (Impact Award 2015). The versatility of the DCS Programme has been demonstrated by its use with other molecular assays, such as the Genotype MTBDRplus (Hain Lifescience) line probe assay, which is also used in the current TB diagnostic algorithm for drug susceptibility testing, and the Abbott MTB (Abbott) assay. The success of this innovation has not only been through its increasing participants and multi-assay application, but also as a result of continued funding support through the CDC SA, the ACTG, and through its recent path to commercialisation. The latter is evident through its spin-off from the University of the Witwatersrand into a company called SmartSpot Quality (Pty) Ltd, with Wits acknowledging SmartSpot Quality as one of its first spin-off companies in the past five years.

Contributing to National Health TB Policy

Extended use of TB GeneXpert for diagnosing extra-pulmonary TB

The group performed one of the first evaluations in Johannesburg of the Xpert MTB/RIF assay for rapid diagnosis of pulmonary TB in adults and paediatrics. Not only was this a study that informed South Africa's National Policy for the use of Xpert MTB/RIF in the national programme, but it contributed to the Cochrane Review and WHO meta-analysis. The group extended this work to a further study on the use of Xpert MTB/RIF for diagnosing extrapulmonary TB. This has now become part of the NHLS NPP standard operating procedures used at TB GeneXpert testing sites. The study was also included in the WHO Policy. Further to this, the team collaborated with FIND and Dr David Alland, Dr Gary Reubenson and Dr Ashraf Coovadia at RMMCH in a clinical trial to investigate the use of the Xpert MTB/RIF assay for diagnosing paediatric TB on stool specimens. This study ended in 2015 and results are being finalised for publication and to inform policy for the diagnosis of TB in children.

Aiming for improvements in sensitivity of TB molecular diagnostics

The TB diagnostic development pipeline is seeing new, exciting technologies ready for evaluation, with both low- to high-throughput testing options. The group evaluated one such technology – Abbott MTB (Abbott Molecular, Germany) in a clinical trial of 300 participants from the Hillbrow Community Health Centre, in collaboration with Wits Reproductive Health Institute's Dr Andrew Black. This test has high throughput capacity and already exists in South Africa for testing HIV viral loads on plasma specimens. The polyvalent approach to integrate HIV and TB testing may increase access to testing. The Abbott MTB assay is proving more sensitive than Xpert, and has a second reflex test for identification of susceptibility to rifampicin and isoniazid. The trial is complete and undergoing data analysis, but appears suitable for South Africa's volume of testing.

Information technology's superpower and its place in global disease control

This year the team expanded its breadth of knowledge in IT applications for developing concepts in disease control using molecular indicators from the Xpert MTB/RIF result. The NHLS has an excellent Laboratory Information System (LIS) that connects all laboratory instruments to a single warehouse, which collects test results from all patients within the public sector. All data is housed centrally within the corporate data warehouse (CDW), from which patient results are sent to treatment facilities. The team in particular realised the potential importance of the molecular characteristics (such as cycle threshold, Ct) of each GeneXpert TB test performed, and formed the hypothesis that the Ct could be used as an indicator of mycobacterial disease burden and used to monitor trends in RIF resistance in space and time. The >400 000 MTB positive GeneXpert results (24 months) are therefore being analysed using various statistical and GIS models across the districts to present and evaluate disease trends over time and across geographically variable regions. Several multidisciplinary collaborations have evolved through the need to better understand and evaluate the findings. These collaborations include epidemiology groups at University of North Carolina, Health Economists at Right to Care and Wits School of Public Health. Included in this is the evaluation of the Remote Xpert, which is a dashboard-driven laboratory monitoring tool, to assist the NPP on GeneXpert instrument and site performance. Several projects are ongoing and funded through mechanisms such as CDC and NIH, and results are shared with the NPP and DoH.

Embracing future HIV testing needs with new molecular technologies

The R&D Group is involved in performing evaluations of various new high throughput and POC platforms for HIV viral load testing. The validation of the high throughput, automated Aptima HIV-1 Dx assay on the Panther system (Hologics) began in November 2015. The performance of this assay is being determined on plasma and DBS specimens (in collaboration with Clinical Laboratory Services (CLS), Hologics and Perinatal HIV Research Unit (PHRU)) versus the Abbott m2000 platform. In the POC viral load arena, the evaluation of the Alere q HIV-1/2 assay, a multiplex real-time PCR with fluorescence detection which provides a quantitative HIV viral load result in 55 minutes on 25ul of whole blood, is near completion. A full performance evaluation has been done (accuracy, precision, linearity) and the feasibility of the assay is being looked at for ease of use, waste and storage requirements and training needs. A laboratory evaluation of the Cepheid HIV-1 Quant HIV-1 assay, also a real-time PCR assay which provides a HIV viral load result in 90 minutes on plasma specimens, has just been completed. The performance was compared to predicate platforms (Roche and Abbott), and protocols were developed for off-label use of DBS and whole blood specimen types (for which the manufacturer has no claim). The successful evaluation of new HIV viral load platforms highlighted the need to develop a HIV viral load verification

product that is easy to transport, stable at ambient temperature, aligned with POC testing protocols (non-laboratory settings), suitable for non-laboratory skilled personnel, and cost effective. The R&D team is therefore in the process of developing a dried plasma spot and DBS-based verification material using the technology and lessons learnt from the dried culture spot approach, which has proven itself for *Mycobacterium tuberculosis* testing in a global programme.

Do new diagnostics impact on improved patient care?

This is a critical question being investigated by the team in collaboration with Prof. Van Rie at University of the Northern Cape (and now Antwerp University), through the NIH-funded EXIT-RIF study since 2012. *Evaluating the Xpert impact on TB-RIF resistance* was undertaken in Gauteng, Eastern Cape and the Free State as a prospective cohort study comparing RIF-resistant TB by Xpert MTB/RIF to culture-based susceptibility method. The objectives are to assess whether rapid diagnosis of RIF resistance leads to improved TB treatment outcomes; determine phenotypic and genotypic drug resistance profiles in patients diagnosed with Xpert-RIF resistance; and document management decisions and patient actions in 12 months following diagnosis of Xpert-RIF resistance. Preliminary findings show >1:3 patients died; Xpert only reduced mortality from 38% to 34% (unfamiliarity with technology may contribute); 40% of GeneXpert-tested patients had no confirmatory test for RIF; and only 20% were assessed for XDR-TB. This study is complete and manuscripts are in progress.

Information Management and Special Projects Unit

Ideal clinic and Operation Phakisa

The NHLS continues to work with the DoH in developing standards and processes to streamline the clinic-laboratory interface, as part of the overall DoH Ideal Clinic/National Health Insurance initiative, supported by the NHLS CEO and the DoH's Primary Healthcare (PHC) Deputy Director-General. The initiative forms part of the systems developed through Operation Phakisa Ideal Lab/Big-Fast-Results. The aim of the initiative is to implement the PHC package, which consists of the PHC laboratory handbook; the integrated PHC (#N1) and the national (#N2) cytology request forms; the specimen collection order book; and the facility specimen register (a paper-based system to ensure proper recording of samples taken at clinic level). Further developments include standardised stationery to record test requests and laboratory results in the patient's clinic folder. The entire package has been submitted for relevant approvals to the National Health Council (NHC). Implementation is planned for 2016/17 across South Africa, followed by evaluation.

Information management

The unit provides ongoing M&E as well as monthly and quarterly aggregate CD4, HIV viral load, HIV DNA PCR and Xpert MTB/RIF reports for both internal and external use. Many of these reports are prepared as Excel-based dashboards that provide multiple user-friendly views of sample-level laboratory data. The aggregate data is generated by the LIS used by each NHLS laboratory and extracted from the CDW. Examples of the reports generated include:

- National, provincial, district, sub-district and facility report for HIV viral load, CD4 and HIV PCR and Xpert MTB/RIF
- Percentage on Infant HIV positivity, CD4 samples below 350cell/μl and HIV viral load below 1 000 copies/mL
- Number of tests performed, i.e. correctional services facilities and peri-communities
- Laboratory workflow analysis
- Laboratory instrument capacity utilisation rates
- In-laboratory TATs.

National and Provincial HIV Counselling and Testing (HCT)/TB Campaigns and Events

The NPP takes part in various HCT campaigns throughout the year, including World TB Day, World AIDS Day and many more. Events included:

- The mobile laboratory team from Welkom supported an HCT campaign at Parliament on 03 November for an address by the Minister of Health to parliamentarians
- The mobile team from Carletonville area supported an HCT campaign in Khayelitsha on 30 November that was attended by parliamentarians
- On 01 December 2015, the mobile team from Dr Kenneth Kaunda provided Xpert MTB/RIF testing at the World AIDS Day commemoration in Port Shepstone, KZN
- The mobile team from Potchefstroom area supported an HCT campaign in Port Shepstone for World AIDS Day on 01 December 2015

- The mobile team from Carletonville area was present at the World Union Conference from 01–05 December 2015, offering on-site testing to delegates and community attendees
- The team did an oral presentation at the World Union Conference at a Global Fund satellite session
- The NHLS NPP team supported the 2016 World TB Day event on 22 March. The event took place at the Marapong Stadium, Lephalale Local Municipality, Waterberg District, Limpopo. The theme for 2016 is 'Ending South Africa's TB epidemic: Moving towards the 90-90-90 in metros and cities'. Four NHLS GeneXpert mobile laboratories were made available for testing on the day.



Figure B32: The NHLS NPP team and the KZN management staff on World AIDS Day in Port Shepstone, KwaZulu-Natal



Figure B33: The NHLS NPP team, Limpopo management staff and NHLS CEO, Joyce Mogale (centre), at the World TB Day event in Lephalale, Limpopo

Relevant Congress Presentations

- Cassim N, Coetzee LM, Carmona S and Glencross DK. Analysing trends in patient age and gender for CD4 testing in South Africa between 2010 and 2014. ANOVA Forum, 'Innovation matters'. 18th International Conference on AIDS and Sexually Transmitted Infections (STIs) in Africa (ICASA), Harare, Zimbabwe.
- Glencross DK, Cassim N and Coetzee LM. Understanding the strategies for 'full coverage' of CD4 services in South Africa: An integrated tiered service delivery model (ITSDM) – outcomes from early NHI implementation in Pixley ka Sema, South Africa. (Invited speaker). Break-out session, Sandton, Johannesburg.
- VIIth South African AIDS Conference, Durban South Africa
 - Poster: Coetzee LM, Moodley K and Glencross DK. Phase I (Laboratory Validation) of the BD FACSPresto™ point-of-care CD4 platform.
 - Poster: Coetzee LM, Moodley K and Glencross DK. Phase II (Field Validation) of the BD FACSPresto™ point-of-care CD4 platform.
- Glencross DK, Cassim N and Coetzee LM. Strategies for 'full coverage' of CD4 services in South Africa: An integrated tiered service delivery model (ITSDM). National Department of Health and US CDC 90-90-90 Highlights Forum.
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Performance Information by Province

GAUTENG

Introduction

Gauteng province, as the economic hub of the country, faces challenges resulting from a constant population increase, as people move to seek better opportunity in the city. The NHLS Gauteng continues to play a significant role in improving the health outcomes, patient safety and cost saving in the overall care of patients.

The region consists of six business units, with a footprint across the entire five districts in the province, namely: City of Tshwane Metropolitan, City of Johannesburg Metropolitan, Ekurhuleni Metropolitan, West Rand District and Sedibeng District.

Area Manager: Bahule Motlonye

Table B19: Laboratories per district

Laboratories per District				
City of Johannesburg	Ekurhuleni	Tshwane	West Rand	Sedibeng
Charlotte Maxeke Academic	Tambo Memorial	Tshwane Academic Division	Leratong	Sebokeng
Chris Hani Baragwanath Academic	Tembisa Tertiary	Dr George Mukhari Academic	Dr Yusuf Dadoo	Kopanong
Helen Joseph Tertiary	Pholosong	Kalafong Tertiary	Carletonville	
Braamfontein Complex	Far East Rand	Mamelodi		
Edenvale	Bertha Gxowa	Jubilee		
South Rand	Thelle Mogoerane	ODI		

Diagnostic Services and New Developments

The Gauteng region continues to be the second largest region by volume (tests). A total of 21 114 012 tests was requested by the province during 2015/16, an increase of 8% compared to 2014/15. These are total tests for both the hospitals and the 471 approved primary healthcare facilities, which are collected by courier service daily. The increase was mainly among priority tests as reflected in Table B20.

Table B20: Comparison of NPP volumes between 2014/15 and 2015/16

Test	Volumes 2014/15	Volumes 2015/16	% Difference
Cytology	164 552	197 355	20%
CD4	795 973	706 807	-12%
HIV DNA PCR	82 490	116 473	41%
HIV Viral Load	656 047	835 821	27%
TB GeneXpert	351 191	354 104	1%

All NPP tests, except the CD4 test, showed a year-on-year increase.

A feasibility analysis on the introduction of a new testing platform was performed, as a result of which new tests were introduced (Table B21).

Table B21: New tests introduced in 2015/16

Laboratory	New Tests
Dr George Mukhari Academic	Acid electrophoresis, red cell phenotyping, Pastorex – Identification of <i>Staph. aureus</i>
	Thrombophilia screening: i) Protein C ii) Protein S iii) Anti-thrombin
	HAIR TB PCR – second line drug testing
	HAIR Cryptococcal lateral antigen test
Sebokeng and Leratong	HBA1C
Tshwane Academic Division	Clostridium difficile Quick, Clostridium difficile PCR

Dr George Mukhari Academic Laboratory participated in the DoH's National Antenatal HIV Surveillance and also serves as a testing site for the clinical trial of an HIV vaccine, a collaborative effort between the DoH, Sefako Makgatho Health Sciences University and the Italian Ministry of Foreign Affairs.

The Charlotte Maxeke Academic Platform upgraded to a high throughput viral load testing analyser, in order to meet TATs, while addressing the increasing number of tests.

Service Delivery

The region maintained a 100% clinic-to-laboratory specimen collection coverage, and the optimisation of routes allowed for increased collection frequency, from two collections per day to three in high throughput health facilities on six days of the week.

Laboratory-to-laboratory night routes were introduced to ensure that samples are tested in the shortest possible time and maintain specimen integrity.

The TAT targets were achieved for CD4's and TB GeneXpert. Targets for the remaining tests were not reached for the region (Table B22). This was due to numerous factors that are currently being addressed. Once revised systems are in place (June 2016), these challenges should become a thing of the past.

Table B22: Percentage TAT performance for NPP tests 2015/16

Business Unit	TB Microscopy in 40 hrs	TB GeneXpert in 24 hrs	CD4 in 40 hrs	Viral Load in 96 hrs	HIV DNA PCR in 96 hrs	Cervical Smears in 312 hrs
Target	95%	90%	90%	90%	90%	70%
Chris Hani Baragwanath	95%	94%	94%	n/a	99%	n/a
Tshwane Academic	98%	96%	94%	n/a	71%	17%
Dr George Mukhari	85%	91%	95%	92%	n/a	17%
Charlotte Maxeke	88%	90%	88%	66%	92%	n/a
Ekurhuleni and Tshwane	97%	94%	90%	n/a	n/a	n/a
Johannesburg, Sedibeng and West Rand	96%	86%	n/a	n/a	n/a	24%

Notable Achievements

The Gauteng Region is proud of the following achievements.

Accreditation

All the laboratories that underwent SANAS assessments in the reporting period retained their accreditation status (Table B23).

Table B23: SANAS assessments results 2015/16

Passed Assessment	Discipline
Charlotte Maxeke Academic Laboratory	Chemical Pathology, Haematology, Anatomical Pathology, Microbiology
Chris Hani Baragwanath Academic Laboratory	Chemical Pathology, Haematology, Histopathology, Microbiology
Tshwane Academic Division Laboratory	Chemical Pathology, Haematology, Anatomical Pathology, Microbiology, Virology, Immunology
Dr George Mukhari Academic Laboratory	Chemical Pathology, Haematology, Anatomical Pathology, Microbiology, Virology
Braamfontein Laboratory Complex	Cytology, TB Laboratory, Immunology

Six laboratories, namely Kalafong, Tembisa, Tambo Memorial, Sebokeng, Leratong and Helen Joseph are preparing for accreditation. To accelerate and facilitate the process the laboratories have been enrolled on the Stepwise Laboratory Improvement Process toward Accreditation (SLIPTA) Programme. This provides an alternative training approach to laboratory management, based on international clinical standards, to prepare laboratories for accreditation. The programme ensures scheduled mentorship and support throughout the process.

Throughout the programme the laboratories were audited to evaluate improvement (Table B24).

Table B24: Pre- and post-SLIPTA audit results

Business Unit	Initial Audit	Follow-up Audit
Kalafong	2 stars	4 stars
Tembisa	2 stars	4 stars
Leratong	2 stars	3 stars
Helen Joseph	2 stars	2 stars
Tambo Memorial	4 stars	Not done

Thelle Mogoerane Laboratory (Old Natalspruit) was awarded a Certificate of Merit in recognition of outstanding service by Thelle Mogoerane Hospital management.

New Laboratories and Laboratory Upgrading

The new Bheki Mlangeni Hospital was opened in the City of Johannesburg – Region A (Soweto) in April 2014 and the NHLS took over the space provided for the establishment of a laboratory in December 2015. It is currently operating as a depot.

Tambo Memorial Laboratory's LSS Unit received a facelift which will improve the workflow of samples.

Renovation is in progress at Kalafong Laboratory's Phlebotomist area and the ODI Laboratory.



Figure B34: Upgraded laboratories at Tambo Memorial

Technical Skills and Staffing

The headcount at March 2016 was 1 906, an increase of 24% compared to March 2015 (1 533). The vacancy rate was 7%, mainly constituting technical staff.

Despite the increase, the NHLS Gauteng Region continues to struggle to retain and attract technical staff. This is particularly noticeable in Histology and Cytology where these scarce skills are in high demand.

Training

A number of training initiatives were achieved in the period (Table B25).

Table B25: Training 2015/16

Courses	Attendees	Output
Transportation of dangerous goods	Drivers	Regulatory requirement – adherence and compliance
Handling and packaging of dangerous goods		
Fire safety	All categories of staff	Regulatory requirement – adherence and compliance
First aid		
Basic morphology	Medical technologists and medical technicians	Accurate reporting and improved quality of results
Parasitology		
Bacteriology		
Quality management systems	Laboratory managers, medical technologists and medical technicians	Understanding and improving quality management systems
Internal auditors		
ISO15189		
Intern Med Technologists Refresher	Intern technologists	Preparation for the examination
Student Med Technicians Refresher	Student technicians	Preparation for the examination
Customer Service	All categories of staff	Improved responsiveness to client queries and building relationships

The region did not perform well in the 16 September 2015 board examination for intern medical technologists, achieving only a 24% pass rate. The results of the medical technician board examination on 15 October 2015 were more promising, with a pass rate of 80%.

Stakeholder Relations

A Service Level Agreement between the NHLS Gauteng Region and Gauteng DoH was signed on 31 March 2016. Regular contact with the client continued throughout the year with representatives reporting at the Medical Advisory Committee, Hospital and District TB Meetings and undertaking visits to the clinics. Pathologists play a significant role on the Infection Prevention, Control and Therapeutic Committee.

The Gauteng DoH was supported with the eGK rollout and effectiveness throughout the province, as well as a report on monthly basis.

The NHLS Gauteng participated in numerous activities/events in the province in support of the Gauteng DoH and as part of raising NHLS visibility. These included:

- World TB Day, Gauteng, held on 30 March 2016 and hosted by the City of Johannesburg in Dobsonville, Soweto
- The DoH Support visit (TB/HIV and AIDS Programme) in the Sedibeng District from 26–29 January 2016
- Hospital open days in May and November 2015 to showcase the services available at the institution.



Area Manager: Tabita Makula

EASTERN CAPE

Introduction

To support the national and provincial Departments of Health (DoH) in delivery of quality, accessible and affordable health services, the Eastern Cape Region provided laboratory services through 38 laboratories and four depots in the year under review. The scope of testing in each laboratory is in line with the essential laboratory lists per level of care.

The region consists of five business units spread across eight health districts in the province, well-resourced with competent staff and state-of-the-art equipment to ensure delivery of a quality service.

Table B26: Laboratories per District

Nelson Mandela Metropolitan	Sarah Baartman	Buffalo City Metropolitan	Amathole	Chris Hani	OR Tambo	Alfred Nzo	Joe Gqabi
Port Elizabeth	Graaff Reinet	East London	Butterworth	Queenstown	Nelson Mandela Academic	Mt Fletcher	Empilisweni
Livingstone	Somerset East	Cecilia Makiwane	Madwaleni	Glen Grey	St Elizabeth	Matatiele	Aliwal North
Dora Nginza	Humansdorp	Bisho	Willowvale	Hewu	Holy cross	Mt Ayliff	
Uitenhage	Grahamstown		SS Gida	Cradock	Zitulele	St Patricks	
	Port Alfred		Victoria	Cofimvaba	Canzibe	Madzikane KaZulu	
				All Saints	St Barnabas		
				Cala	Dr Malizo Mpehle Memorial		
4 laboratories	5 laboratories	3 laboratories	5 laboratories	7 laboratories	7 laboratories	5 laboratories	2 laboratories

Table B27 Depots per district

OR Tambo	Amathole	Alfred Nzo
Isilimela	Tafalofefe	Bambisana
Qumbu		

Diagnostics Services and New Developments

The region has laboratories on site in the national central hospital and three tertiary hospitals offering specialised services; five regional laboratories; 29 district hospitals and one community health centre offering emergency tests and TB testing; and four depots in four district hospitals.

The region continued to support the DoH in reducing the TB and HIV burden and increasing the uptake of cervical screening cases, as well as improving the adequacy rate.

Table B28: Testing sites for National Priority Programmes

Laboratory	CD4	EID	Viral Loads	Cervical Screening	TB Culture	TB Line Probe Assay (LPA)
Nelson Mandela Academic	Y	Y	y	Y	Y	
Butterworth	Y					
St Elizabeth	Y					
East London	Y		Y	Y		
Queenstown	Y					
Dora Nginza		Y	Y			
Livingstone	Y					
Port Elizabeth				Y	Y	Y

GXP testing performed in all sites except Livingstone; Dora Nginza; Humansdorp and Canzibe

TB Microscopy testing performed in all sites except Livingstone, Dora Nginza and Humansdorp laboratories

Although the workload reduced, there was an increase of 26% in viral load; 30% in HIV-PCR and 11% in TB GeneXpert tests. Gynaecological cases increased by 16%, with individual laboratory contributions being 4.1% for East London, 17.9% for Mthatha and 33.2% for Port Elizabeth.

Table B29: NPP test percentage differences – 2014/15 vs. 2015/16

Test	2014/15	2015/16	% Difference
HIV Viral load	316 396	397 533	26%
CD4	407 713	367 738	-10%
HIV-PCR	41 124	53 611	30%
TB GeneXpert	459 968	511 176	11%
Cervical smears	85 398	99 418	16%

The region improved capacity by upgrading equipment in some laboratories to meet demand. Aliwal North Laboratory was upgraded from TB GeneXpert 4 to TB GeneXpert 16. Although there was a 10% decrease in CD4 count testing, Queenstown and Butterworth laboratories received new Aquios CL CD4 count testing analysers (Figure B35) to improve the quality of tests. To match the demand of viral load testing and improve health outcomes for the Eastern Cape community, high throughput viral load analysers were placed in the Nelson Mandela Academic Laboratory to be commissioned in the new financial year..



Figure B35: AQUIOS CL for CD4 testing

Laboratories added new tests to the repertoire to improve turnaround time (TAT) and improve patient monitoring.

Table B30: New tests introduced in 2015/16

New Test	Laboratories
CMV PCR	Dora Nginza
Hepatitis B rapid	Southern and Northern Transkei Laboratories
CSF glucose	Butterworth and Cala
Lithium	Grahamstown

The laboratories in Southern and Northern Transkei automated the C-Reactive Protein (CRP) test, which was previously a manual test, to improve TAT. Chemistry and haematology analysers were upgraded in all district laboratories due for upgrades.

Extensive work was done to implement the HL7 interface at Livingstone Hospital, however delays were experienced due to infrastructure problems. The implementation is planned to happen early in 2016/17 and will be rolled out to other hospitals with eGK.

Service Delivery and Coverage

The access coverage remained 100% for clinic-to-clinic and hospitals with no laboratories on site, in line with the NHLS Strategy. Couriers collect more than once from the community health centres that offer a 24-hour service in the metropolitan municipalities.

To improve service delivery, the region extended courier services to six correctional services centres.

The region is reviewing the need to offer laboratory services on weekends in the peripheral laboratories after the full implementation of after hour services on weekdays. For the first time, messenger services were added in the district laboratories to improve messenger services. The clinicians in the district hospitals were very excited about this initiative.

The appointment of a Haematology Pathologist at Livingstone Laboratory was welcomed by the PE Hospital Complex Oncology Unit. The pathologist has improved the Flow Cytometry and Bone Marrow services offered to the PE complex.

Nelson Mandela Academic Laboratory added ten Webview points in wards and some community healthcare centres in the OR Tambo District, which increased customer access to laboratory results.

Turnaround Time

Test volumes for priority tests increased, due to changes in the National Guidelines for Management of TB and HIV, and the National Consolidated Guidelines for prevention of mother-to-child transmission, implemented in April 2015.

The TAT target set for National Priority Programmes (NPP) tests could not be achieved in the year under review. The exception was cervical smears where great improvement was noted from 49% in 2014/15 to 78% in 2015/16.

Table B31: TAT

Business Unit	TB Microscopy in 40 Hours	GXP in 24 Hours	CD4 in 40 Hours	Viral Load in 96 Hours	HIV-PCR in 96 Hours	Cervical Smear in 312 Hours
Target	90	90%	90%	90%	96%	70%
Border	80%	82%	90%	47%	n/a	74%
Ibhayi	79%	87%	89%	68%	75%	76%
NMAL	92%	78%	84%	55%	82%	54%
Northern Transkei	94%	94%	92%	n/a	n/a	n/a
Southern Transkei	90%	91%	91%	n/a	n/a	n/a
Region	84%	87%	89%	56%	78%	78%

Challenges in attracting technologists in the first part of 2015/16 contributed to the region not achieving set targets. In addition, it was hit hard by poor network connections due to Telkom line cable theft; power outages; and in some districts, service delivery protests preventing couriers from delivering specimens.

Accreditation

Dora Nginza Laboratory was the first regional laboratory to achieve initial SANAS accreditation in the Eastern Cape, during an assessment conducted in 2015/16. The region takes pride in achieving initial accreditation for the first time in a regional lab.

Table B32: SANAS accreditation

Business Unit/Laboratory	Discipline	SANAS Accreditation Achieved
Nelson Mandela Academic	Microbiology, Chemical Pathology, Haematology, Virology, Histology	Maintained
Pot Elizabeth	Microbiology, TB, Histology, Cytology	Maintained
Livingstone	Chemical Pathology, Haematology	Maintained
Dora Nginza*	Chemical Pathology, Haematology	Initial
East London	Microbiology, Chemical Pathology, Haematology, Cytology, Serology	Maintained

The Eastern Cape prides itself with the Department of Diagnostic Media Products (DMP) in the Ibhayi Business Unit, which achieved continued ISO 9001 accreditation with no non-conformances raised. DMP supplies diagnostic media to all the laboratories in the Eastern Cape and some private laboratories.

Once again, the peripheral laboratories (non-accredited) performed well in the audits to assess compliance with ISO 15189; the average for the region was 89%.

Cecilia Makiwane Laboratory is still working towards achieving a 5 star rating in preparation for SANAS accreditation in 2016/17. The laboratory achieved a 2 star rating in a SLIPTA baseline audit conducted during the reporting period.

New laboratories and Upgrading of Facilities

In the Northern Transkei Business Unit, St Patricks Laboratory was allocated new laboratory space in the newly constructed hospital building, to be commissioned early in the new financial year.

In the Border Business Unit, Cecilia Makiwane Laboratory was allocated space in the newly constructed Cecilia Makiwane Hospital. The laboratory is ready to be commissioned at the beginning of 2016/17.

Technical Skills and Staffing

In the first two quarters of the year, the region experienced challenges in attracting skilled labour. As a result sending staff for training became a challenge. However, by the last quarter of the year, laboratories were adequately staffed.

The PE Laboratory expanded its fine needle aspiration (FNA) service by training a nurse to be an FNA specialist. The specialist is appointed at Dora Nginza Laboratory and is rotating between Dora Nginza, Livingstone and the PE Provincial hospitals.

Student training continued for medical technologists and medical technicians for all categories in the three training laboratories with HPCSA accreditation, namely Nelson Mandela Academic, East London, and Port Elizabeth laboratories.

Table B33: Student intake

Business Unit	Technologists 2015	Technologists 2016	Technicians 2015/16
Umtata	0	0	8
East London	5	3	1
Port Elizabeth	7	6	6
Region	12	9	15

Skills Development

Despite the challenges, up-skilling of staff continued, with a total of 795 staff trained as part of skills development.

A total of 19 staff was trained in Advanced TB GeneXpert testing by the NPP to improve competency and quality of TB testing.

Roche Diagnostics offered training on basic operations of Cobas Integra (Chemistry) and Sysmex 1000i (Haematology) analysers.

To improve compliance with the Occupational Health and Safety Act, the following courses were attended by laboratory staff from all business units: Fire Marshal, First Aid, Basic Life Support.

To instil a customer-centric culture, improve laboratory performance, maintain quality systems, and improve leadership skills, laboratory managers were trained on Customer Care, Management for New Managers, Quality Management Systems, as well as Lean Management, which included staff from the Laboratory Support Services.

Customer Training

A total of 718 healthcare workers (external clients) were trained between 01 April 2015 and 31 March 2016. The training focused on specimen collection and handling of mainly EID, TB and HIV specimens to improve specimen quality.

Table B34: Training statistics

District	Number Trained
Alfred Nzo	19
Amathole	168
Buffalo City Metro	51
Chris Hani	73
Joe Gqabi	88
Nelson Mandela Metro	25
OR Tambo	228
Sarah Baartman	66
Total	718

Prof. Wright trained clinicians in the correct technique for FNAB. This training was undertaken at Dora Nginza Hospital, Port Elizabeth Provincial, and at Cecilia Makiwane Hospital in East London. The training of medical interns in the hospitals in the Ibhayi region in the FNAB technique is ongoing.

Stakeholder Relations

To increase NHLS visibility, the region participated in the following provincial events:

- World TB Day, held at the Makana sub-district early in 2016
- World AIDS Day, held at the Engcobo sub-district on 01 December 2015.



Figure B36: World AIDS Day, held at the Engcobo sub-district on 01 December 2015

To discuss service challenges and improvement strategies, scheduled quarterly bilateral meetings were held between the DoH and the NHLS.

The districts resuscitated the Blood and Laboratory Users Committee (BLUC) to improve communication and service delivery. Business managers were actively involved and attended the meetings across all districts.

Nelson Mandela Academic Laboratories (NMAL) made significant progress in terms of enhancing stakeholder relations. The CEO of the NHLS, Ms Joyce Mogale, visited Nelson Mandela Academic Hospital and Walter Sisulu University in February 2016. She was warmly welcomed by the CEO of Nelson Mandela Academic Hospital, Mrs Makwedini, and the Dean of the Faculty of Health Sciences, Dr Chitha, at Walter Sisulu University.

Meetings aimed at strengthening academic relations and interfacing with diagnostic services, research and academic training, such as Pathology Management Committee and Institutional Academic Pathology Committee, were held as scheduled throughout the 2015/16 financial year.

Prof. Wright held weekly perinatal meetings with obstetricians, perinatologists and midwives at Dora Nginza Hospital to present and discuss low Apgar babies and early neonatal and intrapartum deaths.

Increased visibility to customers resulting from increased customer education and related interaction played a pivotal role in advancing the NHLS as a brand.

Notable Achievements

Collaboration between the Eastern Cape DoH and the NHLS continued with the implementation of eGK. Nelson Mandela Academic, Umtata General, Livingstone and Dora Nginza Hospitals implemented eGK in the year under review. In total, the Eastern Cape has eGK in one central, two tertiary and two regional hospitals.

In order to mitigate the shortage of pathologists in the country and the difficulty in attracting them to the Eastern Cape, NMAL together with Walter Sisulu University, introduced the MMed in Anatomical Pathology. It also appointed a registrar in the programme for the first time.

To ensure that NMAL provides a seamless, around-the-clock service, with no interruptions from power failures, the NHLS installed a free 364 KV generator set in the last quarter of 2015/16.

To improve the oversight of laboratory services, the region recruited laboratory managers for all the district laboratories managed by technologists and technicians. The recruitment was successful in 90% of the laboratories and especially significant for the Southern Transkei Business Unit, which had no laboratory managers at all.



Area Manager: Nasima Mohamed

WESTERN AND NORTHERN CAPE

Western Cape Province

Introduction

The Western Cape (WC) has two national central laboratories and one tertiary laboratory that link to and have a co-operative agreement with the universities of Cape Town, Western Cape and Stellenbosch. The total staff complement for the region is 901 staff members.

The region includes 19 laboratories in three business units, which are spread across six health districts within the province. Combined, the region has four CD4 count; two viral load; two HIV polymerase chain reaction (PCR); 16 GeneXpert and 11 TB microscopy laboratories. The TrakCare laboratory information system (LIS) successfully went live in all Western Cape laboratories in the third quarter of 2015.

Table B35: Laboratories in the Western Cape business units

National Central Academic Laboratories	Tertiary Laboratories	WC – Green Point and Regional Laboratories	WC – District Laboratories
GSH Chemical Pathology	RXH Chemical pathology	GPC Chemical Pathology	Vredendal
GSH Haematology	RXH Haematology	GPC Haematology	West Coast District
GSH Microbiology	RXH Anatomical Pathology	GPC TB Lab	Karl Bremer
GSH Virology		GPC Media Lab	Mitchell's Plain
GSH Cytology		Paarl	Helderberg
GSH Anatomical Pathology		Worcester	Mossel Bay
GSH Immunology		George	Oudtshoorn
GSH Tissue Immunology			Knysna
GSH Genetics			Beaufort West
TBH Chemical Pathology			Khayelitsha
TBH Haematology			Hermanus
TBH Microbiology			Pollsmoor
TBH Virology			
TBH Immunology			
TBH Cytology			
TBH Anatomical Pathology			
TBH Genetics			
17 laboratories	3 laboratories	7 laboratories	12 laboratories

The WC regional laboratories (tertiary and district laboratories) appointed two pathologists to expand advisory services and to offer a haematology service for bone marrow patients. New haematology analysers were placed in eight regional laboratories to improve the efficiencies and turnaround times (TATs) at these facilities.

Diagnostic Services

The WC had a 2% decrease year-on-year from 10 748 280 tests performed in 2014/15 to 10 530 722 tests in the year under review. This is mainly attributable to the implementation of electronic gate-keeping (eGK) and point-of-care (POC), which reduced unnecessary testing. Anatomical pathology volumes increased by 12% with the province assisting the Eastern Cape.

The WC has one of the biggest TB laboratories in the country, with TB GeneXpert volumes exceeding 250 000 tests per annum. TB testing is offered at three regional laboratories, eight district laboratories as well as the two national central laboratories.

A phlebotomy service is provided to the clinics and wards at Groote Schuur Hospital (GSH) and the UCT Private Academic Hospital. The GSH Cytology Laboratory provides a fine needle aspiration (FNA) service at the Mitchell's Plain Breast Clinic.

The Tygerberg Immunology Unit assisted in testing samples for Leptospirosis after an unexpected break-out of the disease at Pollsmoor Prison. The final confirmatory testing was undertaken by the National Institute for Communicable Diseases (NICD).

New tests made available

New tests were added to test repertoires, these were mainly genetic tests. The Genetics Laboratory at GSH combined all the molecular facilities with the result that quality and productivity are now optimal.

Table B36: New tests made available

Laboratory	New Test
GSH Anatomical Pathology	Granzyme-B antibody for the diagnosis of anaplastic large cell and T-cell lymphomas
GSH Genetics	Test for Lynch syndrome (colorectal cancer syndrome)
	TERC and TERT DNA repeats to detect aplastic anaemia in bone marrow transfusion patients
	CALR and MPL mutations for chronic myeloproliferative disorder
	Mitochondrial neurohepatopathy (common mutation)
GSH Microbiology	TB GeneXpert on extra-pulmonary samples (CSF, aspirates, and all tissues)
GPC Chemistry	Gentamycin, Amikacin, Vancomycin, Salicylates, Serum folate
Paarl	Automated reticulocytes, TSH, T4, T3, Free PSA, PSA, BHCG
Worcester	Automated reticulocytes, TSH, T4, T3, Free PSA, PSA, BHCG, serum vitamin B12, serum folate

The GSH core laboratory embarked on the large-scale consolidation of assays onto one platform to maximise resources and improve productivity and TAT. Microbiology automated the manual rapid plasma reagin (RPR) assay for syphilis testing. Microbiology and viral serology assays were transferred to the new automated chemistry platform.

Pre-analytical processes, such as centrifugation, de-capping, aliquoting, sorting and capping of tubes, were automated using a task targeted, free standing, pre-laboratory automated system.



Figure B37: The pre-analytical automated system in the C17 NHLS Laboratory at GSH



Figure B38: The Sysmex XN9000 haematology system in the C17 NHLS Laboratory at GSH



Figure B39: Cobas 6000 chemistry systems in the C17 NHLS Laboratory at GSH

The virology laboratories at GSH and Tygerberg Hospital (TBH) acquired new analysers for HIV viral load testing, to manage the increase in testing required according to the revised ARV treatment guidelines.

The Worcester and Paarl Laboratories received consolidated chemistry and immunology analysers to provide an improved test repertoire, thereby improving service to clients as well as TAT and quality. Eight of the regional laboratories received new haematology analysers, which improved their TATs.

Service Delivery

National Priority Programmes (NPP) TATs were within set targets. However, cervical screening staff shortages and process flow problems contributed to poor overall TATs. Both have been improved and additional monitoring steps have ensured that backlogs are prevented or addressed early.

The Western Cape laboratories achieved the following average TATs for NPP tests:

Table B37: NPP volumes and TATs

Priority Test	Volume	TAT (%)
TB GeneXpert tests within 24 hours	250 000	92
TB microscopy tests within 40 hours	170 000	82
CD4 tests within 40 hours	257 000	80
HIV viral load tests within 96 hours	259 000	70
HIV-PCR tests within 96 hours	32 000	93
Cervical smear tests within 5 weeks	132 300	74

The underperformance for HIV viral load tests was due to the continuous break-down of the newly placed analysers. Anatomical pathology and cervical smear TATs improved considerably year-on-year.

The laboratories faced similar challenges to those which impacted on TAT in the previous year. Lack of adequate staffing, particularly at the Green Point Haematology Laboratory, negatively impacted on CD4 TATs in the last quarter of 2015. The staffing crisis was addressed and the TATs for CD4 tests have shown a significant improvement to over 92% since February 2016. Challenges were experienced during implementation of TrakCare, which also impacted on TAT. Close liaison was maintained with clients and other steps were taken to limit the impact on patient management during the transition period.

Health facilities in the Western Cape have 100% coverage of specimen collections, with some facilities having more than one collection per day. The TB/HIV co-ordinator, laboratory manager and pathologist continue to be involved in regular training and teaching programmes for healthcare workers in the TB arena.

Electronic gate-keeping (eGK) has been reinstated at certain sites and continues to assist the facilities with appropriate test utilisation and cost control.

Downtime on various instruments also negatively impacted on TAT across the divisions.

New Roche instruments for viral load testing were rolled out at GSH and TBH during 2015. The divisions of anatomical pathology at GSH and TBH provided support to the Port Elizabeth and East London Laboratories respectively, due to a shortage of pathologists in the Eastern Cape. The TBH Immunology Department continues to provide a consultancy service for Primary Immune Deficiency (PID) throughout South Africa and Africa.

Stakeholder Relations in the Region

Managers attended regular stakeholder meetings with the WC Department of Health (DoH), City of Cape Town, Department of Correctional Services, SANDF, Stellenbosch University, University of Cape Town and University of the Western Cape. In addition clinical meetings, bilateral and HIV/AIDS and Sexually Transmitted Diseases (HAST) meetings were attended to improve stakeholder relations and service delivery and discuss compliance with the service level agreement (SLA).

An eGK workshop was set up with the WC DoH to standardise and implement common eGK rules for all facilities in the Western Cape. Pathology coverage and mediation with clinicians in regional facilities improved patient care. In addition a phlebotomy service was provided in support of the Area Military Health (a substructure of the SANDF), which monitors occupational health and safety for the military. Weekly operational meetings were implemented within the laboratories and proved effective in addressing operational matters. Meetings were held with non-governmental organisations (NGOs) in the region that are assisting the DoH to provide adequate healthcare.

The Green Point TB Laboratory hosted a delegation of French members of parliament. Part of the delegation included major funders dedicated to the fight against HIV in France as well as resource-limited countries in Africa.

In October 2015, the World Health Organization (WHO) performed a Drug Resistant TB Review of the TB Programme in the Western Cape. The laboratories were found to have up-to-date techniques with well-maintained equipment. The logistics to move samples were declared well developed and communication between laboratories and health facilities adequate.

The 90-90-90 Screening Programme was launched in Parliament in November 2015. The event was attended by the CEO, area manager and NPP staff. Parliamentarians were given the opportunity to have TB tests done on site.



Figure B40: Health Minister, Dr Aaron Motsoaledi, at the NHLS mobile TB Laboratory during the launch of the 90-90-90 Programme

Pathologists, registrars and heads of department participate in various clinical meetings and forums contributing to and guiding patient management. Pathologists as well as a number of senior technologists and managers serve, among others, on the Medical Technologist Scientific Advisory Committee, the National Education Committee and NHLS Expert Committees. There is also participation in the setting and moderation of board examinations.

Notable Achievements

Laboratories

The following WC laboratories maintained SANAS and ISO 15189 accreditation in all divisions: GSH, TBH, George Laboratory and Green Point (GPC). In addition GPC Haematology and Chemical Pathology laboratories maintained CAP accreditation. The Media Laboratory at GPC also maintained its SABS ISO 9001 certification.

Members of staff

- Ms M Hoffman, TBH Division of Chemical Pathology, received her Masters Degree in Pathology from Stellenbosch University
- Dr A Zemlin attained her PhD and was made a Professor
- Dr M Esser became an Associate Professor in 2015 for her role played in PID, Allergy and Paediatric Rheumatology locally and in Africa
- Dr G van Zyl was made an Associate Professor in 2015
- Dr G van der Watt was made Professor in 2015.

Technical Skills and Staffing

Additional support staff was employed at Green Point TB Laboratory to improve TAT for TB tests. However, challenges were experienced in many laboratories in the Western Cape in finding suitable candidates for vacant posts, and numerous posts had to be re-advertised to attract suitable candidates. The staff managed to maintain the service despite severe staff shortages in some laboratories.

Training

Training was difficult to maintain due to staff shortages. Training programmes were held from January 2016 and the appointment of a regional training manager will improve the rollout of courses in the new financial year. Journal Clubs and Continuing Professional Development (CPD) talks continued in the various divisions. The laboratory training programme includes BHSc and diploma technologist students, technicians, intern scientists and registrars.

Table B38: Courses attended by Western Cape laboratory technologists

Course	Attendees	Output
Advanced TB GeneXpert training	Medical technicians and medical technologists	Understanding of TB GeneXpert in order to train other staff members
Instrument-specific training, e.g. Cobas Integra 400, new viral load platform, etc.	Medical technicians and medical technologists	Ability to competently operate new analysers and maximise quality and consumable efficiencies
Internal QMS training	Medical technicians, medical technologists and laboratory managers	Improved approach to QC in the laboratories
HTA training and ISO 15189:2012 training	Medical technicians, medical technologists and laboratory managers	Preparation for the changes to SANAS auditing standards and training of internal auditors
Excel 1–3 and PowerPoint training	All levels of staff	Increased skills in preparing spreadsheets and presentations
Lean Management Course	Laboratory managers and supervisors	Improved service delivery through reduction of bottlenecks and improved workflow in laboratories
Typing skills training	Laboratory clerks	Improved accuracy and speed of data capturing to reduce errors in sample registration
Dangerous goods, fire warden and first aid training	All levels of staff	Legislated courses for staff with those responsibilities
EP15 for validation and verification of instruments and tests	Medical technologists and laboratory managers	Improved quality of the overall test system and a quality result for clients

New Laboratories and Upgrading of Facilities

Minor alterations in the specimen reception areas at TBH and Green Point were facilitated by the area manager. This led to an improvement in workflow and TAT at both sites.

Northern Cape Province

Introduction

The Northern Cape (NC) is the largest and most sparsely populated province in South Africa, with a surface area of 372 889 km². The total staff complement in the business unit at the end of March 2016 was 87.

The NC continues to support and align its services with the mandate of the Department of Health (DoH), and is committed to contributing to government's vision of 'a long and healthy life for all South Africans'. The business unit comprises five laboratories, situated in each of the district hospitals. All laboratories perform TB microscopy and TB GeneXpert tests and there are three CD4 testing sites. Specialised tests are referred to Universitas, Tygerberg, Green Point and Charlotte Maxeke Johannesburg academic hospitals.

All laboratories are on the TrakCare laboratory information system, which enables easy access for specimen referral and results on the NHLS intranet.

Table B39: Laboratory service hours

District	NC Laboratory	Service
Frances Baard	Kimberley: Chemical Pathology, Haematology, Microbiology, TB, Anatomical Pathology	24 hours
John Taolo Gaetsewe	Tshwaragano	Normal hours and on-call after hours
ZF Mgcawu	Upington	24 hours and on-call weekends
Pixley ka Seme	De Aar	Normal hours and on-call after hours
Namaqua	Springbok	Normal hours and on-call after hours
	10 laboratories	

Diagnostic Services

The number of tests performed increased by 3.8% year-on-year, from 1 642 892 in 2014/15 to 1 708 054 in 2015/16. CD4 test volumes increased by 2.2%, from 63 603 to 65 002 and TB GeneXpert analysis increased by 9.2%, from 71 238 to 78 461. This increase was the result of the implementation of the TB/ART Guidelines and training provided by the NPP. The NHLS NC services four mines, namely Beeshoek, Black Rock, AfriSam and Khumani and a fifth one, Kolomela is in the process of being registered.

TB microscopy analysis decreased by 10.3%, from 47 898 in 2014/15 to 43 403 in the review period. The decrease is attributable to implementation and training on the TB GeneXpert algorithm, conducted by the NPP.

eGK was implemented at the Kimberley Laboratory on 02 February 2015. The initially high rejection rate declined over the financial year, stabilising at around 2%, showing that the system had matured and users are familiar with the rules.

Table B40: New laboratory tests introduced

Laboratory	New Tests
Kimberley Haematology	Automated D-Dimer Innovance
Kimberley Chemical Pathology	FSH, Progesterone, LH, Oestrogen, Ferritin, Amikacin, Vitamin B12, Folate, Testosterone, CA15-5, CA15-3, CA19-9 (validation in process)

The Vitek XL analyser and the haematology back-up analyser were installed in the Microbiology and Haematology laboratories respectively, to improve efficiency and TAT.

The old Epics XL CD4 analyser at De Aar Laboratory was replaced with an Aquios CL cytometer. This new CD4 testing technology, including PLG, will align the NHLS with the DoH strategy to manage HIV in the country. The Aquios CL cytometer is a 'load and go' system and requires no sample preparation. This will improve TAT and patient management and also reduce human error.

First-line microbiology tests, including gram stain, cell counts and wet preparations, are done locally in all peripheral laboratories. To improve quality and efficiency, plates are carefully inoculated and transported to Kimberley Laboratory for further testing.

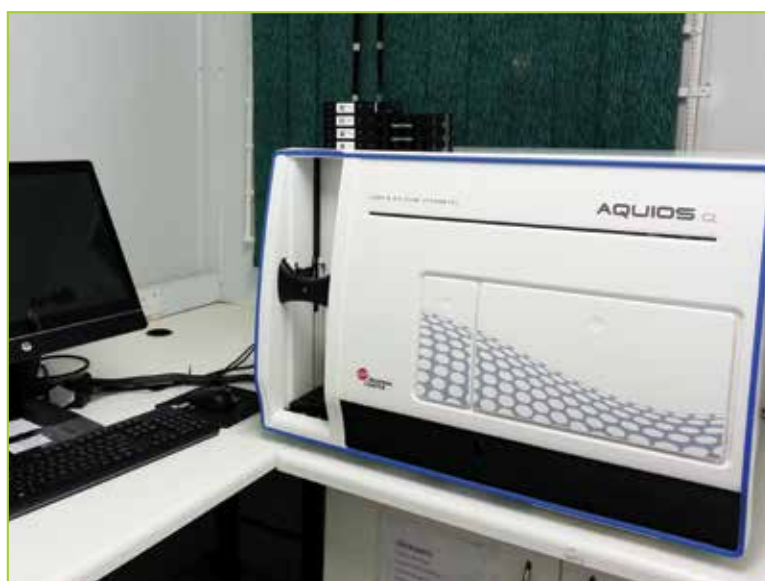


Figure B41: The Aquios XL cytometer for CD4 testing

Service Delivery

Daily collection from healthcare facilities is maintained at 100% and a total of 240 facilities is serviced. New bidirectional SMS printers were installed in the facilities to improve TAT on priority programmes.

Two pathologists (a haematologist and an anatomical pathologist) continue to provide advisory support to clinicians, train staff and improve service delivery. They are also involved in the CPD programme and advise on technical matters. This has a positive impact on the business unit as the clinicians also consult as and when needed, resulting in a notable improvement in TAT for morphology and anatomical pathology.

Health facilities in the NC have 100% coverage of specimen collections, with some facilities having more than one collection per day. The business unit continued to perform well in both diagnostic and priority programmes.

Table B41: Priority programme TAT

Priority Test	Volume	TAT (%)
Percentage of TB GeneXpert tests within 24 hours	78 500	98
Percentage of TB Microscopy tests within 40 hours	39 300	97
Percentage of CD4 tests within 40 hours	65 000	98

Client Interaction Management

The appointment of a client liaison officer improved stakeholder relationships in the business unit. Laboratory services to the four mines commenced in November 2015, with courier services also being provided to the mines. Monthly partnership meetings are held with all the mines and the NC DoH.

District and provincial meetings were attended, and the business unit actively participated in the provincial World TB Day commemoration event, held at Mayibuye Recreational Centre, and the World AIDS Day event held at the AR Abbas Stadium, Kimberley.



Figure B42: World AIDS Day event at the AR Abbas Stadium, Kimberley

Technical Skills and Training

The business unit put considerable effort into ensuring that relevant training takes place at all levels.

Table B42: Courses and staff trained

Training	Number of Staff
34 courses	277 healthcare workers and 231 staff

Technical staff retention remains a challenge. Posts are advertised, but there are either no applicants or applicants are unsuitable. This creates a challenge in operations, especially the implementation of a sustainable shift system in all departments over the 24 hour period.

Notable Achievements

The Kimberley Laboratory is preparing for SANAS accreditation. Two pre-SANAS audits were held, with the second showing significant improvement. A SLIPTA audit was combined with the pre-SANAS audit and performed from 26–27 January 2016. The laboratory obtained a 3 star final rating. A follow-up visit by the auditors is scheduled for the end of May 2016.

The De Aar Laboratory has been identified as a NHI pilot site. It is also being prepared for accreditation. The Quality Assurance Department is working closely with all the laboratories to ensure that they perform at an accredited laboratory level.

The Kimberley Laboratory's haematology technologists were acknowledged for their contribution to the publication of Dr L Haupt and Dr R Weyers entitled *Determination of functional iron deficiency status in haemodialysis patients in central South Africa*.

New laboratories and Laboratory Upgrading

The new De Aar Hospital is almost complete and scheduled for occupation late in 2016.

Conclusion

Generally, the business unit's performance improved. Great improvement was noted in the compliance and safety audits. Tshwaragano Laboratory continues to perform well, despite regular power outages due to insufficient electricity at Batlharos Village. Attracting staff to the province, especially to rural areas, remains a challenge. However, the team is committed to making the best with what it has, so as to improve patient care and service delivery in the province.

KWAZULU-NATAL

Introduction

The KwaZulu-Natal (KZN) Region prides itself in having on-site laboratory services at all district, regional, provincial tertiary and national central hospitals, providing clinical laboratory services to the 11 health districts of the province through 63 laboratories and 16 TB microscopy sites – a total of 79 laboratory facilities. The services range from providing clinical pathology with minimal (limited) microbiology testing at district hospital level; and a full clinical pathology service with microbiology, haematology and chemical pathology at regional hospital level; to a highly specialised service at the academic laboratories supporting provincial tertiary and national central hospitals, which includes anatomical pathology, chemical pathology, cytology, haematology, microbiology and virology.

The region has a good provincial coverage programme (formerly called the outreach programme), which allows laboratory medicine specialists (pathologists) in microbiology and virology to provide support to the NHLS's peripheral laboratories and clinicians. Other disciplines, like anatomical pathology, chemical pathology, and haematology, provide support predominantly at local levels, the limiting factor being the shortage of pathologists. To breach the gap, Inkosi Albert Luthuli Central Hospital (IALCH) has 33 registrars in training in different disciplines.

Overall, there has been continuous improvement in quality for the region in terms of proficiency testing and steady progress with SANAS accreditation; the SLIPTA/SLMTA programme; health and safety audit; and compliance audit compared to the previous reporting period. There are now nine SANAS-accredited laboratories compared to seven in the previous period.

Area Manager: Sibulele Bandezi



Table B43: Laboratories per business unit

Academic Complex	eThekweni North	eThekweni South	Inland	Midlands	Zululand	uMkhanyakude
IALCH Chemical	Mahatma Gandhi	Addington	Charles Johnson	Appelsbosch	Benedictine	Bethesda
IALCH Cytology	Kwamashu	Clairwood	Church of Scotland	Christ the King	Ceza	Hlabisa
IALCH Haematology	King DinuZulu	Murchison	Dundee	Edendale	Eshowe	Manguzi
IALCH Histopathology	Osindisweni	Prince Mshiyeni	Ekhombe	Greys	Itshelejuba	Mosvold
IALCH Microbiology	Stanger	Port Shepstone	Emmaus	Greytown	Mbongolwane	Mseleni
IALCH Virology	Umphumulo	Public Health	Estcourt	Kokstad	Nkandla	
	Untunjambili	RK Khan	Ladysmith	Montebello	Nkonjeni	
KEH Chemical	Catherine Booth	Scottburgh	Madadeni	Northdale	Vryheid	
KEH Haematology	Ngwelezane	St Andrews	Newcastle	St Appolinaris	St Mary's	
KEH Microbiology	Empangeni	Wentworth		Rietvlei	Dumbe	
9 laboratories	10 laboratories	10 laboratories	9 laboratories	10 laboratories	10 laboratories	5 laboratories

Table B44: TB Microscopy sites per business unit

EThekweni North	EThekweni South	Inland	Midlands	UMkhanyakude
Inanda	Prince Cyril Zulu	Bergville	Imbalenhle	KwaMsane
Nseleni	KwaDabeka	Niemeyer	Richmond	
Verulam	Hlengisizwe		Pholela	
Tonga	Turton			
Sundumbili				
Pinetown				
6 sites	4 sites	2 sites	3 sites	1 site

The staff complement increased slightly from 1 346 to 1 350 permanent staff, and an additional 50 students were placed on learnership contracts, thus bringing the total number to 1 400. Students are placed on learnership contracts instead of employment contracts not just to exclude labour relations issues, but most importantly to improve the pass rate going forward.

Table B45: Total head count per business unit/component

Business Unit/Component	Vacancies	Total Head Count
Academic Complex	40	382
eThekweni North	24	205
eThekweni South	21	254
Inland	18	113
Midlands	16	180
uMkhanyakude	11	52
Zululand	7	85
Prince Street	6	129
Total head count	143	1 400

Table B46: Staffing mix per business unit (excluding Prince Street staff – general administration)

Business Unit	Pathologists	Technologists	Technicians	Lab Clerk	Other *	Total
Academic Complex	22	107	65	62	84	340
eThekweni North	1	55	45	54	48	203
eThekweni South	2	76	48	64	60	250
Inland	-	24	29	26	32	111
Midlands	4	45	31	54	45	179
uMkhanyakude	-	10	18	10	14	52
Zululand	-	10	28	23	24	85
Total	29	327	264	293	307	1 220

*Other denotes: Business managers, laboratory managers, quality assurance co-ordinators (QAC), phlebotomists, phlebotomy technicians, stores assistants, stores clerks, laboratory assistants, cleaners, messengers and secretaries

Diagnostic Services and New Developments

All laboratories at health district level provide routine clinical pathology tests. NPP tests are performed at regional, tertiary and national central level. The NPP tests are performed as follows:

- CD4 counts are done at some large district health level laboratories to improve access coverage
- Viral load tests are performed in only four regional level laboratories and one national tertiary level laboratory
- HIV-PCR (EID) is performed only at the IALCH Virology Department
- Anatomical pathology tests are performed only at IALCH and Greys Hospital.

As part of test rationalisation to improve efficiency, the viral load testing facilities were reduced from six to five and CD4 count testing laboratories were maintained at nineteen.

The Specialised Laboratory Service Centres comprise one HIV-PCR testing centre for EID; two anatomical pathology (cytology and histopathology) testing facilities; and one *Mycobacterium Tuberculosis* Culture Laboratory. The region also has one Public Health Laboratory, which services the whole province, including the municipalities, Department of Agriculture and private sector for the testing of food and environmental samples.

The turnover for the year increased by R24 million or 1.5%, from R1 575 billion to R1 599 billion. The increase in turnover was mainly driven by viral load testing. The value of KZN DoH invoices increased by R32 million or 2%, from R1 568 billion to R1 600 billion, and payments increased by R447 million or 51%, from R870 million to R1 317 billion. Debtors' days decreased from 826 days to 718 days.

Overheads increased by R145 million or 28%, from R513 million to R658 million. This is largely attributable to the outsourcing of histology specimens and repairs and maintenance of buildings. The cost of direct materials increased by R53 million or 11%, from R489 million to R542 million. This is largely attributable to the cost of TB GeneXpert and HIV viral load kits due to currency fluctuations.

Inventory value at the end of March 2016 was R14 million and the number of stock days was managed at 18 days.

Performance

Service Delivery

The KZN Region increased test volumes from 24 992 754 in the previous reporting period to 25 306 125 in 2015/16, which is an increase of actual tests performed of 313 371 or 1.25%. The increase was mainly attributable to NPP tests. The number of TB GeneXpert tests increased by 37 283 or 6%, from 627 478 to 664 761, and HIV viral load tests increased by 50 471 or 2.2%, from 2 330 265 to 2 380 736.

The region maintained a 100% clinic-to-laboratory specimen collection coverage, and the optimisation of routes allowed for increased collection frequency from one collection per day to two collections per day to cater for high throughput health facilities and to improve specimen integrity and turnaround time.

Priority was given to the optimisation and utilisation of existing resources, resulting in the fact that KZN undertook more than 25 million tests, despite having a relatively small staff complement of 1 346 compared to other regions. This was achieved through the introduction of shifts to align service delivery with peak periods and the rationalisation of CD4 count testing.

Table B47: Total cytology slides screened

Slides for Screening	2014/15	2015/16	Actual Test Increase	Percentage Increase (%)	Comment
Gynaecological	163 466	195 300	31 834	19.5	Increase
Non-gynaecological	21 663	23 714	2 051	9.5	Increase
Fine needle aspirates (FNA)	18 137	26 893	8756	48.3	Increase
Total	203 266	245 907	42 641	21	Increase

Table B48: Total tests performed highlighting increase in GeneXpert and virology tests

Test volumes, including NPP Tests					
Tests	2014/15	2015/16	Actual Tests Increase	Percentage Increase (%)	Comment
HIV viral load	2 330 265	2 380 736	50 471	2.1	Increase
TB GeneXpert	627 478	664 761	37 283	6	Increase
General tests (all inclusive)	24 992 754	25 306 125	313 371	1.25	Increase

Quality Assurance and Legal Compliance

The region worked tirelessly towards good laboratory practice (GLP) and accreditation as part of a regional strategic thrust. As such, two new laboratories achieved SANAS accreditation to the ISO 15189:2012 standard. This brought the total number of SANAS-accredited laboratories to nine. All seven existing accredited laboratories maintained SANAS-accreditation during the annual surveillance audits.

These successes were made possible by the formation of a regional QA Focus Committee and through collaboration with the QA Division.

Table B49: SANAS accreditation (ISO 15189) activities in the KZN Region during 2015/16

Maintained SANAS Accreditation (Passed Surveillance)		Passed Pre-SANAS		SANAS Accreditation (Initial/New)	
1.	Addington	1.	Northdale	1.	Northdale
2.	IALCH Virology	2.	IALCH Chemical Pathology	2.	IALCH Chemical Pathology
3.	KEH Chemical Pathology				
4.	Public Health (Medical)				
5.	Mahatma Gandhi				
6.	KEH Haematology				
7.	KEH Microbiology				

The region continued to embrace the Strengthening Laboratory Management Towards Accreditation (SLMTA) Programme as an important vehicle to advance the objective of achieving SANAS accreditation, by enrolling four laboratories in cohort two.

Table B50 indicates the results obtained at the internal baseline and exit audits conducted by the QA Department.

Table B50: SLIPTA baseline and exit audit results

Laboratory	Date of Audit	%	Star Rating	Laboratory	Date of Audit	%	Star Rating
Baseline Audit				Exit Audit			
Madadeni	19–21 Aug 14	57	1	Madadeni	19–21 Jan 16	65	2
Ngwelezane	26–28 Aug 14	51	0	Ngwelezane	10–12 Nov 15	72	2
RK Khan	02–04 Sept 14	75	3	RK Khan	17–19 Nov 15	85	4
Edendale	24–26 Nov 14	62	1	Edendale	24–26 Nov 15	76	3

Ngwelezane Laboratory audit results showed the highest improvement of 21%, followed by Edendale Laboratory with 19%, RK Khan with 10% and Madadeni with 8%.

Proficiency scheme performance

The region is pleased to report that it performed well in QA and GLP, achieving target for both proficiency testing schemes. Performance in the 90% target scheme resulted in a 93% score, which shows a 1% improvement since the 2014/15 reporting period. The 75% scheme achieved 88%, which is 13% above the set target.

Table B51: Proficiency scheme performance

National Targets	2014/15 Cycle*	2015/16 Cycle
Target: 90%	92	93
Target: 70%	86	88

*The cycle for 2014/15 is based on 11 months' results

Health and safety audit

All the laboratories are audited annually by the safety, health and environment officer and the results show a 6% improvement since the previous cycle.

Table B52: Health and Safety Audit performance

Regional targets > 85%	Cycle 2014/15	Cycle 2015/16
Year-to-date average	88%	94%

Quality compliance audits

The Quality Assurance Department also audits all the non-accredited laboratories annually and an increase of 12% was noted between the 2014/15 and 2015/16 periods.

Table B53: Quality compliance comparison

National Targets > 75%	Cycle 2014/15	Cycle 2015/16
Year-to-date average	72%	84%

Turnaround Times

Despite the challenges experienced, the region attained performance targets on TAT for TB microscopy at 93%, and TB-GeneXpert at 90%.

The CD4 count was not achieved at 87%. Targets for the more specialised tests, which require highly trained/skilled staff, were not achieved due to a shortage of skilled staff and difficulties in attracting and retaining these skills within the organisation. These included viral load 70%, EID PCR 54%, and cytology 55%.

Table B54: TAT per KZN Region

TAT (Source: CDW RPT 7026)	2015/16 Annual Target	2015/16 Performance
TB GeneXpert: Target 90% within 24 hrs	90%	90.99%
TB direct: Target 90% with 24 hrs	90%	93.02%
CD4 count: Target 90% within 40 hrs	90%	87.83%
HIV viral load: Target 90% within 96 hrs	90%	70.49%
Cervical smear: Target 70% within 13 days	70%	55.36%
PCR – HIV (EID): 90% within 96 hrs	90%	54.13%

Overall, the TATs were impacted negatively by test volume increases in the NPP tests. TB GeneXpert test volumes increased from 627 478 to 664 761, accounting for a 37 283 (6%) test increase; HIV viral load tests increased from 2 330 265 to 2 380 736, accounting for a 50 471 increase; whilst there was little increase on production variables like staffing and IT. The delayed effect of austerity measures, skills shortages, slow recruitment processes, and IT was felt by the organisation, resulting in the non-achievement of some performance indicators during the reporting period.

Table B55: TATs per business unit

Performance Indicator	TB Microscopy	GeneXpert	CD4 Count	Viral Load	HIV-PCR	Cytology
Target	90% with 24 Hours	90% with 24 Hours	90% with 40 Hours	90% with 96 Hours	90% with 96 Hours	70% with 13 Days
Academic Complex	79.1%	67.1%	95.1%	63.1%	54.1%	36.5%
eThekweni North	91.1%	97.1%	93.9%	67.3%	n/a	n/a
eThekweni South	92.1%	93.8%	91.8%	79.0%	n/a	n/a
Inland	91.1%	92.7%	74.7%	68.0%	n/a	n/a
Midlands	93%	95.6%	87.1%	75.7%	n/a	85.7%
uMkhanyakude	92%	95.0%	82.1%	n/a	n/a	n/a
Zululand	94%	95.4%	90.2%	n/a	n/a	n/a
Regional average	90.4%	91%	88%	71%	54.1%	61.1%

Specific factors influencing the non-achievement of the CD4 count target included aging equipment with frequent down times, together with IT down times. The HIV viral load target was not achieved due to the transition from the old platform to the new, during which laboratories accumulated huge backlogs as a result of lack of capacity within the organisation to move specimens around, as well as high volumes. Subsequently there were teething problems with the new instruments that could not be resolved efficiently. HIV-PCR was affected by equipment challenges and human resource constraints, with a shortage of appropriately qualified people. Cytology was impacted by the use of old technology and staffing challenges, together with test volume increases of 21%.

Notable Achievements

- Improved adequacy rate from 53% in last reporting period to 56.1% in the current reporting period.
- Improved cytology rejection rate from 2.23% to 1.86%.
- SANAS accreditation and GLP improved from seven to nine laboratories in 2015/16.
- Collection and payment from KZN DoH improved by 20% from R869 779 685 (55%) in previous financial year to R1 268 585 (75.2%) in 2015/16.

Technical Skills

The region continued to experience challenges in the recruitment of skilled personnel, especially in rural settings, despite the lifting of austerity measures. As a result, the total staff complement increased from 1 346 at the end of March 2015 to only 1 350 at the end of March 2016. However, 50 students were engaged to breach staff shortage, bringing the total to 1 400. The situation meant that the KZN region depended on improving efficiencies by introducing shifts; test rationalisation, as mentioned previously; and the use of over-time in an effort to meet its targets.

Training

External and internal training programmes were offered to 911 staff members in KZN to up-skill and develop themselves on technological developments in their field of expertise.

Six bursaries were awarded to employees in the region to develop and strengthen management skills, while bursaries were awarded to medical technologists to advance further in the field of medical technology for B-Tech qualifications.

Foundations of Laboratory Leadership and Management (FLLM) training, was offered internally in collaboration with African Public Health Laboratory (APHL) to strengthen management capability.

The region is currently training 86 intern medical technologists and 19 student medical technicians. Training capacity has increased due to the Northdale Laboratory being HPCSA-accredited for the training of intern medical technologists and student medical technicians.

The region maintains strong collaboration with the universities of technology, and participated in career fairs at the Durban University of Technology and Mangosuthu University of Technology where the NHLS was promoted as an employer of choice.

Information Technology

Problems were experienced with connectivity, network speed and downtime across the laboratories in the region. 3G installations were introduced and an the IT Continuous Improvement Initiative was implemented, whereby three priorities per month are selected and resolved, or escalated if they cannot be resolved at a local level.

New Laboratories and Upgrading of Facilities

Cryptococcal antigen screening was piloted and implemented at Prince Mshiyeni Laboratory, with a view to rollout to the rest of the province once approval from the DoH is secured.

Stakeholder Relations

Where necessary and practical, the NHLS KZN provided on-site services to DoH campaigns, including TB GeneXpert testing and the collection of specimens to be tested in nearby laboratories.

At national level, the NHLS KZN participated in eGK workshops to encourage the employment of demand management strategies to improve efficiencies.

The region continued to work very closely with the DoH and joint workshops between the DoH and the NHLS were held. One such engagement was the Rationalisation of Laboratory Usage Workshop, which was attended by both the NHLS CEO and the KZN Head of Department. Clinicians participated in the sensitisation process relating to the rational utilisation of the laboratory service to promote improved efficiency by eliminating the ordering of tests that do not add clinical value.

Several meetings, workshops, training, advocacy campaigns, and commemoration events formed part of continual stakeholder engagement and customer relations management. These interactions occurred at all levels, from laboratory managers attending hospital management meetings, business managers attending hospital and district health meetings, to regional QA, TB and HIV co-ordinator meetings at district and provincial levels. The area manager attended meetings at provincial level and on invitation at health district level.

The senior management team, which comprises the area manager, business managers and regional managers, attended designated national and provincial campaigns, events and commemorations, such as World AIDS Day and World TB Day.

FREE STATE AND NORTH WEST

Free State Province

Introduction

The Free State (FS) Business Unit delivers laboratory services at various levels, from primary health clinics to tertiary level care to all districts within the Free State. The unit operates a wide specimen pickup and results couriering service to a large number of primary health clinics in all the districts, thus assisting the Free State DoH in providing health services to all communities.

Diagnostics services, Test Volumes and New Developments

2015/16 was a challenging period for the FS Business Unit. Acceptable turnaround times were maintained despite labour shortages. The business unit performed 2 251 000 tests which represent a 0.1% decrease since the previous year (2 253 500) (Figure B43).



Acting Area Manager Free State and North West: Prof. H Pieters

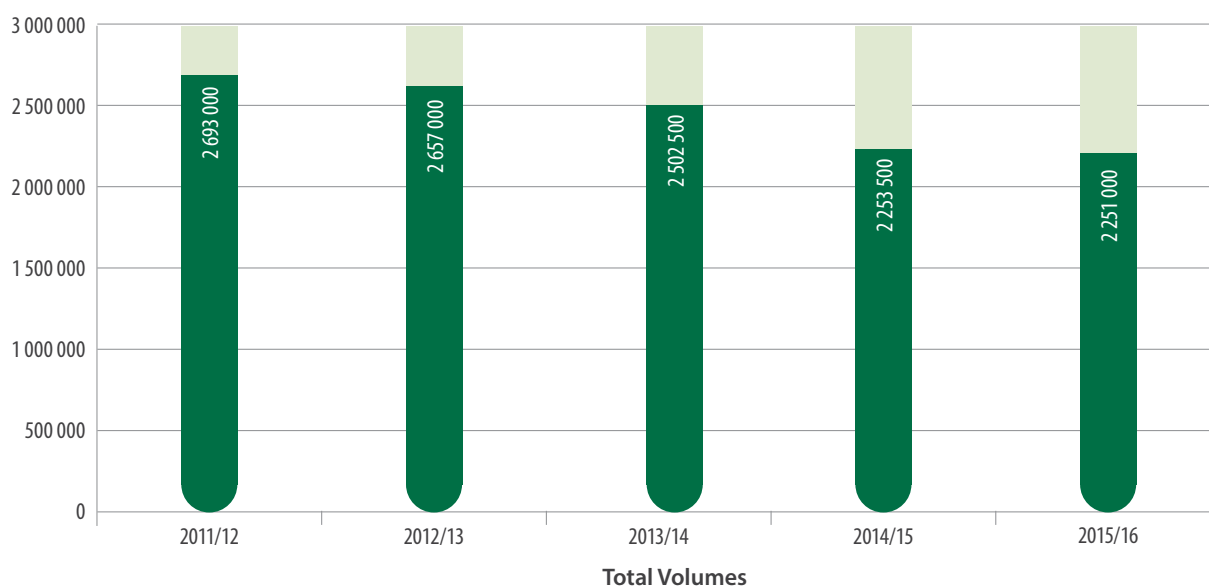


Figure B43: Test volume trends

It appears unlikely that the electronic gate-keeping (eGK) system, implemented by the DoH had a substantial effect on lowering the volumes, except possibly by inhibiting clinicians from requesting tests they knew would be rejected.

The NPP (Figure B44) recorded volumes of 190 000 in CD4 testing, a decrease of 3% from the previous year (196 000) and TB GeneXpert volumes of 120 500 with a decrease of 1.4% since the previous year (133 000). TB microscopy dropped from 46 000 to 38 500, a 16.3% decrease. The large decrease in TB microscopies is attributable to the FS DoH focus on GeneXpert testing for TB.

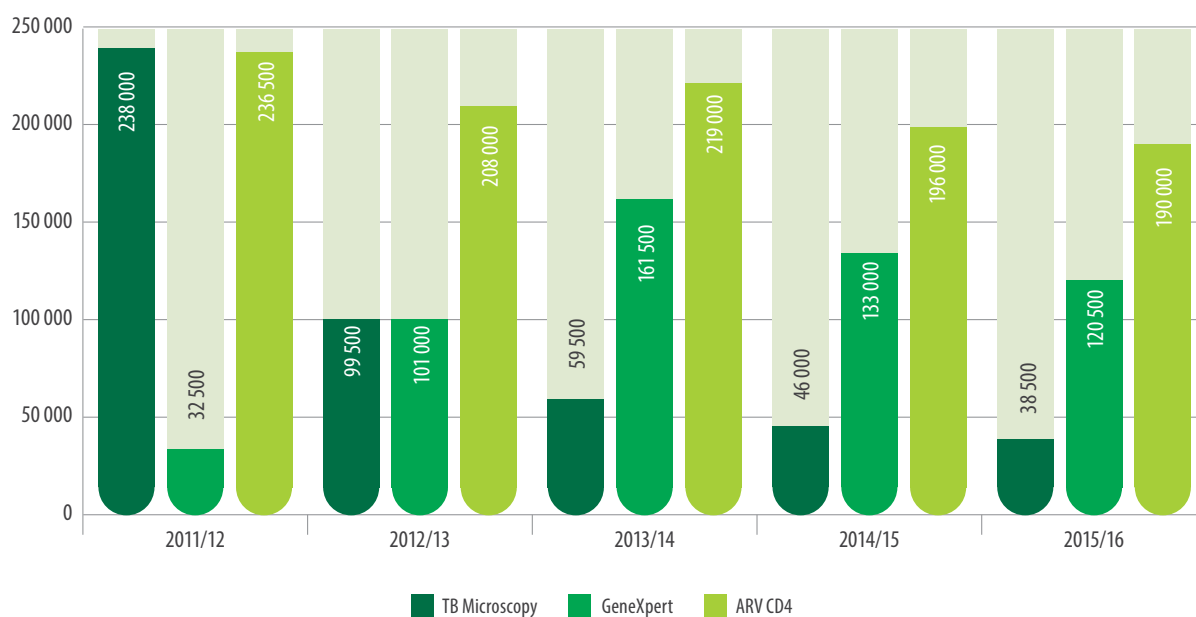


Figure B44: FS NPP test volume trends

A new development in the unit was the acquisition of a mobile unit for GeneXpert TB testing under the Peri-Mining Communities GeneXpert Project. The project aims to reach out to the streets of remote communities to prevent the spread of multi-drug resistant tuberculosis (MDR-TB).

Outline of Service Delivery, Coverage and TAT

The business unit operates seven laboratories to provide diagnostic tests to one tertiary hospital (Pelonomi), four regional and 22 district hospitals in addition to 235 primary healthcare facilities, including community health centres. Coverage is also extended to many correctional services facilities in the province. The more esoteric tests continue to be channelled to Universitas Academic laboratories. An outreach haematology service is provided by the resident pathologist to all laboratories and their clients.

Sasolburg started TB GeneXpert testing on-site following the appointment of a technician and laboratory clerk. Although the volumes have not yet stabilised, the impact of the additional service closer to the neighbouring communities is significant.

The laboratories achieved impressive TATs within target (Table B56).

Table B56: Summary of volumes and TATs for NPP

Test Category	Test Type BSC	Testing Laboratory	Total		
			Total Volume	Volume Within Target TAT	% Within Target TAT
ARV	CD4	Manapo	50 604	43 221	85.41%
		Pelonomi	73 647	66 964	90.93%
		Welkom	67 995	65 753	96.70%
TB	Microscopy	Bethlehem	3 059	3 043	99.48%
		Kroonstad	7 251	7 156	98.69%
		Manapo	5 430	4 471	82.34%
		Pelonomi	14 994	14 520	96.84%
		Welkom	8 051	7 622	94.67%
TB/DST	GeneXpert	Bethlehem	13 928	13 800	99.08%
		Botshabelo	10 437	10 069	96.47%
		Kroonstad	18 241	17 365	95.20%
		Manapo	15 075	14 371	95.33%
		Pelonomi	37 916	36 879	97.27%
		Welkom	25 999	24 072	92.59%

Notable Achievements

Three laboratories in the FS Business Unit were earmarked for intense preparation for SANAS accreditation. Kroonstad and Pelonomi laboratories are in advanced stages of readiness for accreditation pre-assessment.

New Laboratories and Laboratory Upgrading

No new laboratory facilities were established in the business unit.

Technical Skills and Staffing

The FS Unit experienced a nett loss of experienced technical staff, exacerbated by replacements with newly qualified and inexperienced staff, resulting in the further dilution of experience. Despite these challenges, the unit was able to maintain a good record of service delivery.

Table B57: Staffing

Job Category	Actual 2012/13 Headcount March 2013	Actual 2013/14 Headcount March 2014	Actual 2014/15 Headcount March 2015	Actual 2015/16 Headcount March 2016
Technologists	58	56	57	52
Technicians	17	15	17	17
Laboratory Assistants	6	6	6	5
Phlebotomists	4	6	4	4
Pathologists	1	1	1	1

Training

Seven student medical technologists and three student technicians wrote the board examination in the Clinical Pathology category and all passed.

Outreach Service Highlights

Haematology Morphology Refresher Course

The presentation of a Haematology Morphology Refresher Course during the review period was very successful, with 41 technologists/technicians and 23 students receiving haematology training.

Table B58: Training statistics

Laboratory	Number of Staff Members Trained			
	Technologists	Technicians	Students	Total
Bethlehem	3	2	3	8
Botshabelo	4	2	0	6
Kroonstad	2	1	7	10
Manapo	5	1	2	8
Pelonomi	10	1	11	22
Sasolburg	0	0	0	0
Welkom	9	1	0	10
Total	33	8	23	64

Research output

Weyers R, Coetzee MJ, Nel M. Iron status determination in pregnancy using the Thomas plot. *International Journal of Laboratory Hematology*. 2016; 38(2): 119–24.

Stakeholder Relations

The unit continued to maintain strong and positive working relations with various programmes of the DoH. NHLS representation was maintained at every meeting upon invitation, and in all events and workshops arranged by the DoH. The highlight of support is the ongoing direct interaction between the FS Business Unit's client support officer and the PHC facilities.

Universitas Academic Laboratories

Introduction

Universitas Academic Laboratories (UAL) serves the Universitas Academic Hospital and as the referral laboratory for the FS and NC business units.

UAL experienced an overall reduction in test volumes of 5.4% in the review period, and undertook 1.781 million tests. Workloads increased by 3% year-on-year, despite the overall reduction in test volumes.

The main contributor to the increase in turnover was a 30% increase in HIV-PCR test volumes referred from the FS and NC regions, including urea and electrolyte (U&E) and POC blood gas testing. The major turnover contribution of HIV viral loads has increased significantly in the past few years, almost doubling to 39.6% from 23% since 2013.

Outline of Service Delivery and Coverage

UAL has eight laboratories and serves Universitas Central Academic Hospital, National District Hospital, Free State Psychiatric Hospital, Three Military Hospital and Free State Area Military Health.

The UAL complex consists of the Service, Microbiology, Virology, Histopathology, Cytopathology, Immunology (tissue-typing), Human Genetics and National Stat laboratories (the latter is a satellite laboratory situated at National District Hospital).

The Service Laboratory at UAL provides 24-hour chemical pathology and haematology services, whilst Microbiology and Tissue typing are on-call laboratories. UAL is also the main referral laboratory for all specimens referred from FS regional laboratories, as well as Kimberley Laboratory in the NC.

Referrals consist mainly of more specialised chemical pathology, haematology, virology and microbiology tests, HIV viral loads, HIV-PCR, histology and cytology. Paternity tests are also done at Universitas Tissue Typing Laboratory.

The Virology Laboratory worked at maximum capacity, dealing with increasing volumes of HIV viral loads and HIV-PCR tests, which are still showing dramatic increases in volume.

Figure B45 depicts the slightly exponential trends of ARV testing at UAL over the last few years.

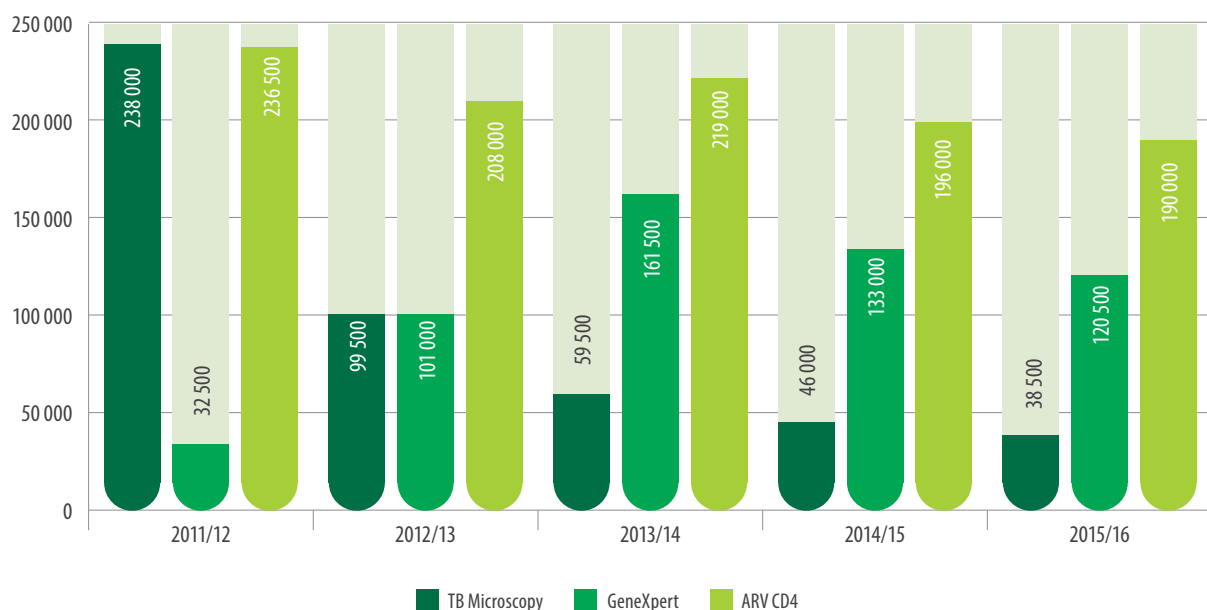


Figure B45: ARV testing trends at UAL

Significant Achievements

UAL has been accredited for more than six years, and maintained SANAS accreditation for all disciplines, save for part of Genetics, during the review period.

An Electronic Order Entry Steering Committee was established, together with all stakeholders, to project-manage the development and implementation of Electronic Order Entry on the FS DoH Hospital Information System, with direct connection to the NHLS Laboratory Information System (TrakCare). Electronic Order Entry is current industry best practice, aimed at improving specimen collection quality, turnaround times, cost savings, efficiency and effectiveness of eGK.

Turnaround times for cytopathology PAP smears surpassed all expectations, averaging 80% within target time. The Cytopathology Laboratory successfully assisted the Braamfontein Laboratory on numerous occasions to deal with backlogs.

New Laboratories and Upgrading of Facilities

The Microbiology and Virology departments initiated upgrading of their laboratories to improve safety to BSL2+ level in the TB-section and to provide for new equipment respectively. HIV drug resistance testing was introduced at Virology in 2015/16.

Technical Skills and Staffing

The total number of employees (excluding students) increased from 148 to 152, while technologist staffing levels remained constant.

A pathologist was appointed at Microbiology, significantly improving the number of pathologists to one, with one HOD at the department.

Two medical scientists were appointed at Genetics and Virology respectively. The medical scientist at Virology was taken over from the Global Fund funding and is responsible for the highly specialised HIV resistance testing.

The other academic departments remained relatively stable during the year; however, numerous technical and pathology posts remained difficult to fill due to scarcity of skills.

Training

UAL continued the training of laboratory assistants, technicians, technologists, registrars and intern scientists, in close co-operation with the NHLS Training Academy, Academic Affairs, Research and Quality Assurance (AARQA), the Central University of Technology and the University of the Free State Medical School. Technical training posts are now the responsibility of the Training Academy.

Stakeholder Relations

The main stakeholders at UAL are the FS DoH, SA Military Health (SAMH) and the University of the Free State (UFS).

Regular and *ad hoc* meetings were held with all stakeholders. Relations were generally very good, with no major disputes arising. Relations with SAMH reached a stage of maturity and standard such that 3 Military Hospital management proposed meetings be held only on an *ad hoc* basis to discuss issues when they arise. Relations with UFS remained excellent and amicably co-operative, as experienced with interactions with the Dean, Head of the School of Medicine and at Institutional Academic Pathology Committee (IAPC) meetings.

The relationship with FS DoH, the major stakeholder, remained strong and positive, with monthly Blood and Laboratory User Committee (BLUC) meetings assisting with managing the laboratory-clinician interface. The unit also maintained an excellent working relationship with the FS DoH Laboratory Contract Manager, enabling positive results for interventions and communications on use of laboratory services, in line with the service level agreement (SLA). A successful meeting was also held between the NHLS CEO and the Head of Health. Agreements were made at this meeting on guiding the way towards further improvements on important elements of NHLS and FS DoH needs.

North West Province

Introduction

The North West Business Unit performed a total of 3 759 980 tests in its 11 laboratories, representing an increase of 4.4%. A total of 928 033 tests were referred to other NHLS and private laboratories. No new tests were introduced in the financial year.

Service Delivery, Coverage and TAT

The North West NHLS laboratories serviced 22 hospitals, 15 prisons, 331 clinics, three SANDF area health military units and 12 correctional centres. Four of the laboratories operate 24-hour services and the remainder provide call-out services.

All the facilities are 100% covered by courier service suppliers, including two new clinics that were opened in the reporting period. The service includes transportation of specimens, consumables and hardcopy results.

All NPP testing showed excellent turnaround times, with the exception of HIV viral load testing (Table B59).

Table B59: NPP services

	TB Micro	TB GXP	CD4	HIV Viral Load
Volume	50 068	165 336	170 944	111 215
TAT	97%	91%	95%	88%

Notable Achievements

Tshepong Laboratory worked very hard during its Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) phase and was recommended for SANAS accreditation as a result. It is intended that more laboratories, additional to Rustenburg, such as Mahikeng, will work towards accreditation.

Technical Skills and Staffing

The North West Business Unit produced a 100% pass rate during the reporting period and qualified technicians and technologists were all absorbed into permanent positions in the various North West laboratories and other business units. A shortage of staff, however, remains due to the high staff turnover rate and a high demand in the private laboratory sector.

Training

Mahikeng, Tshepong and Rustenburg laboratories are the main training laboratories of the unit. These laboratories anticipate a new intake of interns in the year ahead, with each training laboratory accommodating three Clinical Pathology Medical Technology interns.

Stakeholder Relations in the Region

The relationship with the North West DoH continues to be driven by a sound provincial SLA. The North West NHLS laboratories offer a high quality service that is in line with the DoH 90-90-90 target plan for fighting the scourge of TB, AIDS and cervical cancer.

The NHLS was well represented at health commemoration ceremonies such as World AIDS Day, World TB Day and cancer campaigns.

The unit continues to operate the mobile laboratories attached to the Rustenburg and Potchefstroom laboratories. These mobile laboratories are utilised largely to reach out to the peri-mining communities for point-of-care testing of TB, and during HIV/AIDS and Sexually Transmitted Diseases (HAST) and TB campaigns.

LIMPOPO AND MPUMALANGA

Limpopo Province

Introduction

NHLS Limpopo comprises 37 laboratories spread across two business units, namely, Limpopo East and Limpopo West. There is an NHLS laboratory in each general hospital in the province and across all five districts. All laboratories provide a 24-hour service, seven days a week. The service is provided either through a call-out system or a shift system that ensures that technologists are available in the laboratory at all times. The above level of service was maintained in 2015/16, despite staffing and recruitment challenges.

The total NHLS staff complement in the province was 262 as at the end of March 2016, six less than at the same time in the previous year. This number excludes trainees who comprise eight intern technologists and three student technicians.

Key permanent appointments were made at management level to provide oversight of over operations and service delivery, including business managers and laboratory supervisors.

Quality remained the focus of laboratories in Limpopo. Two new quality co-ordinators were appointed, resulting in an improvement in quality compliance audit scores.

Continuous improvement of performance was achieved through focused skills development for identified categories of staff. Legislated courses were also offered to ensure compliance by the NHLS.

A number of laboratories were renovated and upgraded as part of routine maintenance to ensure compliance with safety and operational requirements. Several new tests were introduced to ensure that the needs of the patients are met.

Stakeholder engagement remained the focus of service. Regular service review meetings were held with clinical managers in all districts of the province.

Diagnostic Service

The total number of tests performed by the NHLS in Limpopo increased by 9%, from 6 038 487 in 2014/15 to 6 576 863 in the review period.

Accessibility to NHLS laboratories was maintained at 100% for hospitals and clinics in the province. All general hospitals have fully functional laboratories on site. Daily collection of specimens is maintained at 523 primary healthcare facilities, 78 of which are visited twice daily for specimen collection. Three new clinics were opened and the NHLS rearranged the courier service to include them in the collection schedule.

Focussed support to the NPP in the province continued. Table B60 indicates NPP test volume comparisons.

Table B60: Volume of NPP tests in 2015/16 compared to 2014/15

Test	Volumes 2014/15	Volumes 2015/16	% Difference
CD4	267 585	249 785	-7%
HIV viral load	208 145	245 810	18%
Cervical cancer screening	74 179	77 151	4%
TB GeneXpert	234 020	226 701	-3%



Area Manager: Jacob Lebudi

HIV viral load volumes increased by 18% year-on-year. This necessitated the acquisition of high throughput analysers to manage the workload. A drop in the number of tests was observed in TB GeneXpert testing and CD4 count testing.

The following turnaround times (TATs) were achieved:

- TB microscopy: 95% of tests within 48 hours
- TB GeneXpert: 92% of tests within 48 hours
- HIV viral load: 32% of tests within 72 hours (due to high volumes and the fact that the analysers could not cope with the load; new high throughput analysers were acquired to alleviate the problem)
- CD4: 94% of tests within 72 hours
- Cervical cancer screening: 48% within 13 days (affected by staff losses in this specialty – the vacancies were advertised numerous times with no suitable applicants).

New tests

Several new tests were introduced during the reporting period. Bone marrow aspirates, which were in the past referred to Gauteng, are now tested and reported on site at Polokwane Laboratory. An average of 20 aspirates is performed monthly. Myeloperoxidase staining of bone marrow, which is a specialised staining technique to enhance the differential diagnosis of leukaemia, was also introduced. This has improved the TAT in the management of patients with different malignancies diagnosed through these tests.

At Elim and Siloam hospitals, C-reactive protein (CRP) testing was introduced at the request of clients.

Accreditation

Polokwane and Tshilidzini laboratories were enrolled on the Stepwise Laboratory Management Towards Accreditation (SLMTA) Programme, which runs for a period of 18 months.

Participants from the laboratories attended three workshops during the period. Improvement projects were given to the participants after each workshop. The laboratories were subjected to mentoring by the trainers for a week, during which assistance was provided regarding QMS implementation in the respective laboratories.

A baseline audit was conducted in August 2014 and exit audits were conducted in November 2015. The results are presented in Table B61.

Table B61: Audit scores

Labs for Cohort 2	Date of Baseline Audit	Baseline Score	Date of Exit Audit	Exit Scores
Polokwane	12–14 Aug 2014	173 (2 stars)	10–12 Nov 2015	183 (2 stars)
Tshilidzini	19–21 Aug 2014	176 (2 stars)	24–26 Nov 2015	180 (2 stars)

The laboratories maintained their 2 star rating; however there were improvements in terms of total score attained in all the laboratories. Polokwane showed a ten point and Tshilidzini a four point improvement.

Mankweng Laboratory completed the SANAS surveillance audit and transition to ISO 15189:2012 on 03 September 2015. Accreditation was recommended and maintained by the laboratory.

A slight improvement in quality compliance audit scores was observed in several laboratories, especially in Limpopo East. Scores improved from an average of 80.2% in 2014/15 to 81.4% in 2015/16.

Laboratory Upgrades

Proper maintenance and continuous upgrading of laboratories is important to ensure continued service delivery in all laboratories. The following laboratory upgrades were completed:

- Mankweng Laboratory was upgraded to expand capacity of the viral load laboratory and accommodate new high throughput analysers



Figure B46: High throughput analysers at Mankweng Laboratory

- The George Masebe Laboratory call room was revamped to ensure staff comfort when on call to provide continuous service
- The entrance was revamped at Mokopane Laboratory to ensure the safety of staff and stakeholders visiting the laboratory
- The Nylstroom and Musina laboratories were connected to their respective hospital emergency power supplies to ensure uninterrupted power and therefore uninterrupted service delivery. In addition, Nylstroom Laboratory had stair rails reinforced for safety purposes, the geyser repaired and lights replaced in the laboratory
- Roof repairs were done at the Tshilidzini and Louis Trichardt laboratories and repairs were done to cupboards and windows tinted at Jane Furse Laboratory
- Funds were committed for the renovation of the St Ritas, Ga-Kgapane and Voortrekker laboratories, which will be completed in the new financial year
- To ensure ambient temperature and environment, new air conditioners were installed in numerous laboratories across the province.

Technical Skills and Staffing

In a quest to improve the technical skills and staffing in the province, supervisory positions were created in those laboratories where they were lacking. Appointments of supervisors were made in the following laboratories: Sekororo, Seshego, WF Knobel, Groblersdal, Helen Frans, Mecklenberg, Matlala and St Ritas. Further appointments are expected in Musina, Zebediela and Nylstroom. To improve technical skills in the province, ten new positions were created for medical technicians, and all were filled.

Table B61 presents the status of technical staff at the end of the financial year. The total number of technical staff as at end March 2015 was 145. This represents a 7% year-on-year increase.

Table B62: Technical staff

Job Title	Number
Laboratory managers	21
Laboratory supervisors	7
Medical technologists	38
Medical technicians	87
Pathologists	2
Total technical staff	155

To strengthen management in the province the following permanent appointments were made:

- Business managers for Limpopo East and West
- Regional finance manager
- Quality control co-ordinators for both Limpopo East and West.

Training

Continued skills development remained a focus for the NHLS Limpopo. To this end, the following interventions were undertaken.

Table B63: Courses provided and attendees

Intervention	Content	Target Group
First aid training	Legislative compliance	First aiders in the laboratory
Fire training	Legislative compliance	Fire wardens in the laboratory
Peripheral blood morphology	Business continuity, quality	Laboratory manager, supervisor, technologist, technician
Emotional intelligence	Business continuity	Business manager, laboratory manager and supervisor
Business writing skills	Business continuity	Business manager, laboratory managers and supervisor
Effective customer service	Business continuity	Laboratory support staff
Speed typing and keyboard practice	Business continuity	Laboratory support staff
Intern induction	Business continuity, risk	Intern medical technologists
Advanced GXP training	Better service delivery	Laboratory technicians and technologists
TrakCare refresher training	Better service delivery	Receiving clerks
Roche HIVVL super user	Service improvement	Medical technologists/technician in viral load laboratories
SLIPTA auditor training	Quality improvement	Identified auditors

Further to the above, two board examination preparatory workshops were held for the intern technologist in the province. The intern who wrote the board examination in microbiology passed, and was retained at the Polokwane Laboratory.

At the end of the financial year, there were 11 trainees, eight interns and three student technicians.

Stakeholder Relations

Stakeholder relations are managed through quarterly service review meetings with the laboratory co-ordinator and senior clinical managers from the hospitals. This is done in the spirit of the SLA, signed between the NHLS and the provincial DoH. The area manager, business managers and laboratory managers represent the NHLS at these meetings.

The NHLS participated in provincial health commemoration days such as World TB Day held in Lephalale, Waterberg District, on 22 March 2016. This was a national event hosted by Limpopo. The NHLS provided on-site TB GeneXpert testing and the phlebotomy service for CD4 testing.

Together with the provincial DoH, an orientation and induction programme was presented for community service doctors deployed in different hospitals in the province.

The NHLS Limpopo participated in the antenatal survey conducted in the province and was also part of the preparatory meetings and training conducted for healthcare workers.

Thusano portal training was conducted for clinical managers and finance staff in the province. A number of hospitals in the Sekhukhune, Waterberg and Capricorn districts were represented.

In an attempt to ensure continued support for the NPP, stakeholders were trained in the collection of pap smears and the use of the cytology request form. The objective was to ensure good quality pap smears to optimise the abnormal cell pickup rate and patient treatment. This training took place in the Sekhukhune, Vhembe, Waterberg and Capricorn districts.

Interactions with nurses and doctors in Vhembe District took place through training on approaches to blood collection.

Several clinical interactions with stakeholders took place through the resident pathologists in Microbiology and Haematology. The following topics were covered:

- Antibiotic resistance in staphylococcus – Voortrekker Hospital
- Current trends in antimicrobial resistance and strategies to manage these – Polokwane Provincial Hospital
- Infection control in neonatal units – Mankweng Hospital
- Approach to anaemia – Department of Internal Medicine, Polokwane, Mankweng Complex
- Appropriate collection and transportation of microbiology specimens – Mokopane Hospital.

The NHLS participated in the Surveillance and Outbreak Response Team quarterly meetings at district and provincial levels.

The relationship with the University of Limpopo was strengthened through a number of interactions and collaborations. These included:

- Four curriculum mapping workshops
- Strategic planning workshop for faculty of health sciences
- Research uptake workshop
- Open day – Medical School.

Mpumalanga Province

Introduction

The NHLS in the Mpumalanga Province offers laboratory services to about 33 general hospitals, over 270 primary healthcare facilities, Correctional Services, the South African Defence Force and numerous private entities.

The service is provided through 21 NHLS laboratories spread throughout the province. The largest district in the province, namely Ehlanzeni, has nine laboratories, followed by Gert Sibande District with seven laboratories and then Nkangala District with five.

Service Delivery and Coverage

Coverage

The NHLS ensured accessibility to pathology services by maintaining a 100% daily coverage of primary healthcare facilities through its specimen collection service. Three new clinics were opened in the province and the collection services were extended to include the new facilities. Some small district hospitals without on-site NHLS services are covered through specimen collection twice a day. Carolina and Bethal hospitals were supplied with blood gas analysers to test electrolytes and haemoglobin to assist in managing their emergencies. Matibidi Hospital was provided access to the NHLS WebView for results. This improved patient management as doctors are able to get results as they are released by the referral laboratory.

Test volumes and turnaround times

The DoH in Mpumalanga requested about 5 672 623 tests in the 2015/16 financial year. This represents an 8% increase in volume when compared to the 5 286 569 tests performed in 2014/15.

Focused support to the NPP in the province continued. Table B64 indicates the volume of tests completed.

Table B64: Comparison of NPP tests 2014/15–2015/16

Test	Volumes 2014/15	Volumes 2015/16	% Difference
CD4	369 179	308 229	-20%
HIV Viral load	265 886	349 044	31%
Cervical cancer screen	59 287	74 090	25%
TB GeneXpert	131 612	127 180	-3%

The HIV viral load and cervical screening tests increased by 31% and 25% respectively. The increase in HIV viral load tests prompted the NHLS Mpumalanga to acquire new high throughput analysers to accommodate the demand. These analysers were placed in the Rob Ferreira Laboratory.



Figure B47: High throughput HIV viral load analyser – Cobas 8800

Mpumalanga achieved the following TATs:

- TB Microscopy: 94% of tests within 48 hours
- TB GeneXpert: 90% of tests within 48 hours
- HIV Viral Load: 78% of tests within 72 hours
- CD4: 78% of tests within 72 hours.

Set TAT targets for HIV viral load and CD4 were not met, mainly due to analyser incapacity and failure as well as human resource challenges. These challenges are being addresses to ensure better performance in the new financial year.

New analysers

In an attempt to continually improve service delivery through high technology equipment, the following laboratories were supplied with new analysers:

- In Tonga, Lydenburg, Standerton and Embhuleni, new Chemistry and Haematology analysers were installed, verified as fit for purpose, and put into use for patient specimen analysis
- A new CD4 testing analyser (an Aquios flow cytometry system) was installed at Witbank Laboratory to replace the XL flow cytometer
- A Vitek 2 system for automated microbiology was installed at Ermelo Laboratory. This laboratory provides microbiological testing for the whole of Gert Sibande District.

Accreditation

Nelspruit Laboratory was enrolled on the SLMTA Programme for a period of 18 months. The identified laboratory staff attended various workshops over the 18-month period and improvement projects were given to the participants after attending each workshop.

The baseline audit was conducted in 2013/14 where the laboratory scored 0 stars. Improvement was noted during the exit audit in 2014/15. The laboratory went through a full audit in November 2015 as part of a continuous improvement plan for the QMS in the laboratory.

Table B65: Nelspruit Laboratory audit results

Labs for Cohort 2	Date of Exit Audit	Exit Score	Audit Date	Audit Scores
Nelspruit	19–21 May 2014	171 (2 stars)	17–19 Nov 2015	194 (2 stars)

The laboratory achieved 2 star status with an improvement of 23 points on the score.

SANAS reassessment was undertaken at Witbank Laboratory and transition was made to ISO15189:2012 on 13–14 May 2015. Accreditation was recommended and maintained by the laboratory.

Ermelo Laboratory successfully completed the pre-SANAS audit and was subsequently recommended for a full SANAS audit, which is expected in the new financial year.

An improvement was noted in the quality compliance audits conducted in most laboratories within the province. The compliance performance improved on average from 73% in 2014/15 to 81% in 2015/16.

New Laboratories and Laboratory Upgrades

Rob Ferreira Hospital: To ensure continuous and efficient support for the NPP a new, dedicated, high throughput laboratory was acquired with the help of Rob Ferreira Hospital management. The building was revamped to meet requirements and two state-of-the-art viral load analysers (Cobas 6800 and Cobas 8800) were installed. Prior to the installation of these analysers, the laboratory was achieving only 8% of the viral load TAT. This subsequently improved to 81%.



Figure B48: Front entrance of the new Virology Laboratory at Rob Ferreira Hospital, Mpumalanga

Ermelo Laboratory: A budget of R3 million has been approved for the renovation of Ermelo Laboratory to improve the workflow of the Chemistry, Haematology and Microbiology departments. In addition, the asset store will increase in size and be consolidated in one area of the laboratory, with easy access to receipt of deliveries.

Delmas Laboratory: The Delmas Laboratory has been identified to receive a prefabricated laboratory. Currently the laboratory is housed in a small room in the maternity section of the hospital. The relocation of the Delmas Laboratory will improve the working environment and the workflow of the laboratory and ensure better service delivery.

Technical Skills and Staffing

The total staff in Mpumalanga as at 31 March 2016 was 192. Only 45% of this number has technical skills. These include laboratory managers and supervisors, medical technologists and technicians.

NHLS Mpumalanga managed to fill the following critical positions:

- Business manager: To manage and improve business, financial, customer and people and knowledge perspectives of the Mpumalanga Region
- Quality assurance supervisor: To improve the business perspective of the region by ensuring adherence to quality processes and drive the accreditation of Mpumalanga Laboratories
- Supervisor (Rob Ferreira Laboratory): To improve TATs of priority tests, such as CD4s, and assist in total management of the biggest laboratory in the province
- Laboratory managers:
 - Barberton Laboratory: To manage the operations of the laboratory and improve service delivery to the Umjindi area
 - Middelburg Laboratory: To manage the operations of the laboratory and improve service delivery to part of the Nkangala Health District
 - Piet Retief Laboratory: To manage the operations of the laboratory and improve service delivery in the Mkhonto subdistrict
 - KwaMhlana Laboratory: To manage the operations of the laboratory and improve service delivery in the Thembisile area.

Table B66 indicates the technical staff as at the end of March 2016. Technical staff members increased from 74 to 89 by comparison with the previous reporting period; an increase of 20%.

Table B66: Technical staff 2015/16

Job Title	Number
Laboratory managers	18
Laboratory supervisors	4
Medical technologists	22
Medical technicians	45
Pathologists	0
Total technical staff	89

Training

Continued skills development remained a focus for the province. To this end, a number of training interventions were undertaken.

Table B67: Courses provided and attendees

Intervention	Content	Target Group
First aid training	Legislative compliance	First aiders in the laboratory
Fire training	Legislative compliance	Fire wardens in the laboratory
Peripheral blood morphology	Business continuity, quality	Laboratory manager, supervisor, technologist, technician
Emotional intelligence	Business continuity	Business manager, laboratory manager and supervisor
Business writing skills	Business continuity	Business manager, laboratory managers and supervisor
Effective customer service	Business continuity	Laboratory support staff
Speed typing and keyboard practice	Business continuity	Laboratory support staff
Intern induction	Business continuity, risk	Intern medical technologists
Advanced GXP training	Better service delivery	Laboratory technicians and technologists
TrakCare refresher training	Better service delivery	Receiving clerks
Roche HIVVL super user	Service improvement	Medical technologists/technician in viral load laboratories
SLIPTA auditor training	Quality improvement	Identified auditors

Further to the above, two board examination preparatory workshops were held for intern technologists in the province.

Only five intern technologists wrote the Medical Technology Board examination during the reporting period and only one managed to pass the examination and was retained within the NHLS in Mpumalanga.

At the close of the financial year, there were 23 trainees, 14 interns and nine student technicians.

Stakeholder Relations

Stakeholder relations in the province are continuously managed through engagements at different levels and through different programmes.

SLA review meetings were held on a quarterly basis where the following were addressed:

- Services delivered during the period under review
- Perceived quality, efficiency, effectiveness and economy of laboratory service delivery
- Timeliness of payments made by the department to the NHLS
- Other management and administrative matters as determined necessary.

In addition, engagements were held with the following stakeholders:

Mpumalanga Department of Health

- TB Mass Screening Campaigns: The NHLS participated at Evander, Themba and Volksrust, with the objective of achieving the 90-90-90 target. Specimens for TB GeneXpert, CD4 and cervical cancer screening were collected.
- MDR outbreak meetings: TB-MDR at Bushbuckridge was discussed with the NICD representative. NICD feedback indicated an increase in TB-MDR and TB-XDR in Mpumalanga but the findings in Bushbuckridge were not suggestive of an outbreak.
- Thusano training for CEOs and clinical managers was conducted for Ehlanzeni, Gert Sibande and Nkangala Districts from 24–27 November 2015.

Non-governmental organisations

- Pulse Health (Advanced Clinical Care Plenary Meeting): The improvement of viral load uptake in Mpumalanga, reported to be at 47%, was discussed and data shared on HIV resistance.
- Right to Care (Cervical Cancer Programme): The need to receive pap smear rejection stats on a monthly basis, in order to improve diagnosis and treatment of cervical cancer, was discussed. Pap smear rejection statistics are subsequently shared with Right to Care on a monthly basis.

The NHLS partnered with the provincial DoH in an orientation and induction programme for community service doctors deployed in the province.

In an attempt to ensure continued support of the NPP, stakeholders were trained in the collection of pap smears and the use of the cytology request form. The objective was to ensure good quality pap smears to optimise abnormal cell pickup rate and patient treatment. This training took place in Nkangala district. Further to the above, provincial stakeholders in the Cervical Cancer Programme were engaged through an information sharing session where a report and statistics on cervical cancer were shared.

The NHLS CEO and the area manager of Mpumalanga met with the department head and other provincial senior managers to embed relationships.



Director: Megan Saffer

Performance Information by Subsidiary

SOUTH AFRICAN VACCINE PRODUCERS DIRECTOR'S OVERVIEW

Introduction

The South African Vaccine Producers (SAVP) has continued to supply strategic products, with excellent results. Excellent feedback was received from as far as Spain, including a report from Kenya stating "The antivenom has been busy saving lives in these serious snakebite areas".

The SAVP dispatched in excess of 13 000 units of antivenom in the 2015/16 financial year.

The cessation of antivenom production by Sanofi caused concern in the marketplace. SAVP received numerous queries pertaining to this and provided assurance that it has the capacity to increase output to meet market demands.

Adequate accumulation of the scarce Boomslang venom was acquired to ensure the continuous, uninterrupted supply of Boomslang antivenom. SAVP remains the sole manufacturer of Boomslang antivenom worldwide.

Stables

The stables have been revamped and a water supply system was partially installed. Horses from the temporary stables were relocated to the revamped stables. The temporary stables will be maintained until further notice.

A total of 572 units of horse blood were provided to the NHLS laboratories and an additional 1 169 units to external laboratories for diagnostic purposes. Furthermore, 530 units of horse serum were provided.

Small Animal Unit

The SAVP Animal Unit supplies specified pathogen-free animals for use within the NHLS/SAVP as per animal ethics clearance. It is also a major supplier of animals to other research organisations. The animal usage for routine testing within NHLS/SAVP remained constant throughout the year, in line with reduction, refinement and replacement principles. No research projects were proposed to the Animal Ethics Committee (AEC). Sales to outside institutions declined due to the revamping of the National Control Laboratory.



Performance Information by Institute

NICD DIRECTOR'S OVERVIEW

All too often, the need for robust surveillance systems to inform health policy and mitigate the effects of communicable disease outbreaks is overlooked in resource constrained countries. Rather, health departments tend to focus on addressing the more immediate curative healthcare needs of the population. It is, however, essential to realise that unless accurate data informs health policy, the successes and challenges faced by the healthcare system can be misinformed and scarce resources misallocated.

In 2015/16, the National Institute for Communicable Diseases (NICD) further strengthened its efforts at delivering on its mandate to conduct surveillance of communicable diseases in South Africa. This was in part facilitated by the commitment of the DoH to promote communicable disease surveillance in South Africa, resulting in the NICD now being directly funded by a grant from the DoH. Public confidence in the NICD is increasingly being enhanced and is manifested in the numerous enquiries received on a daily basis from the general public and healthcare workers, and frequent engagements with the media as a trusted source of information when faced with any communicable disease threat. Also, notably, the NICD was commended by all political parties at the National Health Portfolio Meeting in Parliament in 2015, for its service to South Africa and beyond.

The NICD has continued to evolve over the past five years in its transformation, from a predominantly laboratory-focused surveillance institution and research entity, to one in which active surveillance on key communicable threats forms the cornerstone of its activities. This has included decentralisation of its engagement with provincial health authorities through the placement of an NICD epidemiologist in the majority of the provinces. These epidemiologists, working closely with the centres at the NICD and their provincial counterparts in the provincial DoHs, have focused on strengthening the provincial departments' responses to the control of TB, which is the most important communicable-disease challenge in South Africa. Furthermore, the dedicated provincial epidemiologists have been pivotal in enabling more seamless interfacing between the NICD Outbreak Response Unit and the Provincial Communicable Disease directorates, ensuring prompt interventions and early containment of potential communicable disease outbreaks, such as that of diphtheria, experienced in KwaZulu-Natal, and the typhoid scare in Gauteng.

In addressing the challenge of TB in South Africa, the Centre for Tuberculosis (CTB) also reported for the first time in the history of the country, on the national burden of microbiologic-confirmed TB in South Africa from 2004 until 2012. These data were published in the prestigious *Lancet Infectious Diseases Journal*. Although the data showed a decline in the incidence of TB, which was temporally associated with an expansion of the anti-retroviral treatment programme in South Africa, the incidence of TB still remains among the highest in the world, with an overall incidence of 774 per 100 000; including provinces such as KwaZulu-Natal and the Northern Cape that report incidence figures of >1 100 per 100 000. The surveillance further unmasked the under-reporting of TB in the country, with approximately 25–30% of individuals with microbiologically confirmed TB not having been initiated on anti-TB treatment. The CTB also concluded a national survey on TB drug resistance in 2015, which sampled approximately 198 000 suspected TB cases. The results of this study will be instrumental in informing future TB treatment strategies in South Africa. The CTB was acknowledged for its expertise in laboratory-based TB surveillance by being awarded the status of a designated World Health Organization Reference Laboratory in 2016.

On the HIV surveillance front, the Centre for HIV and STI at the NICD continued, in collaboration with the World Bank, the DoH and HE2RO, in tracking adherence to antiretroviral therapy through use of the NHLS Corporate Data Warehouse. The centre has remained at the cutting edge of research on the HIV vaccine development front, which included further characterisation of broadly-neutralising antibodies against HIV, either as potential monoclonal antibodies or identifying future vaccine epitopes for the development of an HIV vaccine aimed at the control and prevention of HIV. The findings of this study were published in leading international journals, including *Nature Medicine*. In acknowledgement of this research, Prof. Lynn Morris was awarded the Medical Research Council Gold Scientific Achievement Award in 2015.



Executive Director: Prof. Shabir A Madhi

During 2015, the Centre for Enteric Diseases (CED) and Centre for Respiratory Diseases and Meningitis (CRDM) expanded their activities to include country-wide sentinel site active surveillance on pathogen-specific causes of diarrheal and pneumonia disease. This has become all the more important, with these two syndromes now being the leading causes of under-five mortality among children aged 1–59 months of age in South Africa, following the great achievements in the prevention of mother-to-child transmission of HIV in South Africa over the past few years. However, the challenge of the persistently high prevalence of maternal HIV infection in South Africa remains a major threat to children, with the CRDM having reported a much higher incidence of bacterial and respiratory viral hospitalisation among HIV-exposed uninfected children compared to their HIV-unexposed counterparts. These findings have important policy implications for South Africa in planning further reductions in under-five mortality rates.

The role of the NICD beyond the borders of South Africa is evident from it being a host to seven WHO reference laboratory facilities for the African region. Furthermore, the support which the NICD lends to other African countries is manifest in the extended role of the Centre for Emerging and Zoonotic Diseases (CEZD) in the post-Ebola epidemic aftermath, continuing its support of Sierra Leonean scientists in diagnostic capacity. CEZD was at the forefront of identifying the first laboratory confirmed cases of the Yellow Fever outbreak experienced in Angola since January 2016 – one of the largest Yellow Fever outbreaks in Africa for decades. In support of the DoH's aim to eradicate malaria from South Africa, the CEZD has continued to support the Malaria Programme in surveillance on resistance acquired by the major malaria vector *Anopheles arabiensis* in northern KwaZulu-Natal. This has guided policy on the need for a focus on insecticide resistance management, and alternative control techniques targeting outdoor-resting mosquitoes.

To further strengthen its surveillance activities, the NICD completed the commissioning of a Central Sequencing Facility with state-of-the-art equipment during 2015. The development of this local expertise at the NICD and in South Africa enables research and surveillance activities that depend on next-generation sequence solutions, including those related to addressing TB and HIV drug resistance, HIV antibody research, vaccine epitope identification and outbreak responses.

NICD activities during 2015/16 place it on a firm footing to continue promoting the health and well-being of South Africans, through surveillance of current and any imminent communicable disease threats in the country. This, however, would not have been achievable without the remarkable dedication of the staff who works at this institute, as has been witnessed during the first five years of my tenure as the Director of the NICD. With the imminent establishment of the National Public Health Institute of South Africa (NAPHISA), which will be mandated to establish robust communicable disease and non-communicable disease surveillance in South Africa, the NICD will likely provide a solid foundation to launch this much needed structure to further secure the health and well-being of South Africans.

NIOH DIRECTOR'S OVERVIEW

The National Institute for Occupational Health (NIOH) celebrated 60 years of operations during the reporting period. It is therefore an opportune time to reflect on past achievements, but more importantly to confidently look ahead to a future of decent work, of reducing absenteeism and of contributing to more sustainable, more equal and more productive workplaces. In the current challenging global economic and financial climate there are major challenges faced by the world of work and by the institute itself. However, the world of work is continually changing nationally, regionally and internationally and with advanced technology is presenting golden opportunities for the implementation of sustainable preventive practices in occupational and environmental health and safety (OEHS) and the greater preservation of workers overall health.

In the year under review the NIOH co-ordinated the writing of the all-important OHS Concept Paper. This document reviews the character of occupational health and safety systems (OHSS) around the world to determine what could be considered as international best practice. Due consideration is given to the role of the NIOH, since in the poorly resourced area of OEHS, the multi-disciplinary institute constitutes an important component for the development of effective OEHS systems. The NIOH and the broader OEHS community contributed to the consultative process towards the establishment of the National Public Health Institute of South Africa (NAPHISA), and is in the process of becoming part of NAPHISA. In addition, the NIOH facilitated contributions from the broader OEHS fraternity for the inclusion of OEHS in the National Health Insurance (NHI) consultative process. This process will continue in the next financial year.

In our review of OEHS systems, we identified an important gap with regards to gender concerns in the world of work. In order to find appropriate solutions, the NIOH embarked on an inclusive participatory gender audit supported by national and international gender experts. With support from government departments, trade unions, employer organisations and international agencies, we launched the NIOH Gender@Work Programme on 16 March 2016. We are deeply appreciative of the great support the NIOH has received from Mrs Joyce Mogale, the NHLS CEO, who participated in the launching ceremony and emphasised the great importance of working towards greater equity and skills development in workplaces.

Despite ongoing efforts by many workplace role players to improve access to occupational and environmental health and safety services (OEHS) large numbers of workers in South Africa in many industrial sectors remain inadequately protected from workplace hazards. Aspects of occupational and environmental health and safety (OEHS), designed to prevent occupational diseases and injuries, are often underdeveloped or at times totally lacking. Consequently, the need for OEHS services, including the specialised services provided by the NIOH, is substantial across industrial sectors, as well as in the informal economy. The NIOH, along with partners in and out of government, again undertook a very wide range of activities to address OEHS needs in many industrial sectors. These activities covered OEHS policy advice, teaching and training, as well as technical support to a steadily increasing number of government departments, trade unions and employers; research and different aspects of OEHS surveillance; teaching and training; information services; and the provision of specialised laboratory services. The NIOH initiated activities concerned with enabling workplace ethics for OEHS professional and endeavoured to find ways to translate good OEHS research findings to positive OEHS outcomes at workplaces. The engagement with governments, trade unions, employer organisations and the informal economy was strengthened mainly through collective teaching and training programmes and service delivery.

The NIOH supports the aspirational Sustainable Development Goals (SDGs) adopted by the United Nations in September 2015. The SDGs include decent work, health, gender equity, youth employment, sustainable economies and sustainable environments. All of these are of great importance for sustainable and productive workplaces. The SDGs are intended to promote human rights, engender greater equity and peaceful and inclusive societies, create decent and sustainable jobs and address the enormous environmental challenges of our time, including climate change. Environmental pollution, secondary to industrial and other workplace activities, contributes enormously to the burden of non-communicable diseases in many countries, including our own. This should further encourage all workplace stakeholders to greater compliance with OEHS legislation and with effective and efficient preventive interventions at workplaces.



Executive Director: Dr Sophia Kisting

Research

The NIOH aims to generate new knowledge through the rigour of good scientific research on key OEHS issues, especially those facing South Africa and the rest of the African continent. Taken together, the research projects of each division described in this Annual Report are testimony to the many OEHS issues requiring new knowledge, but also to the growing scope of the institute's research efforts and the strategic and greater engagement of younger researchers. It is notable that the research focus of the NIOH continues to broaden to include aspects of environmental health and health problems related to climate change, as well as important policy concerns. The scientific publications listed in the NIOH Annual Report demonstrate a focus on many of the priority OEHS issues facing our country. Among the topics covered were asbestos in brake dust, preventing tuberculosis in individuals with silicosis, tuberculosis prevention in healthcare workers, noise induced hearing loss and hearing conservation, occupations and lung cancer, water quality in hospitals, health effects in populations living around gold mine tailings, pesticides, and nanoparticles and health.

Specialised and other Services

The NIOH continues to provide laboratory-based, discipline-specific information services to many industrial sectors and government departments. Its laboratory services include asbestos identification and counting; diagnostic lung pathology; analytical chemistry (e.g. for biological monitoring specimens); the identification of components of dusts (respirable crystalline silica in particular); microbial air sampling; allergy diagnostics; nanoparticles and in vitro risk assessments. Discipline-specific services include occupational medicine, occupational hygiene, occupational toxicology, immunology and microbiology and occupational epidemiology. Information services are a core service of many national institutes of health around the world, partly because there is a scarcity of sources of information elsewhere, as is the case in South Africa. The extent and diversity of information services offered by the NIOH, many of them of with limited availability elsewhere in the country, is obvious from this report. The unique occupational health library continues to provide support and information well beyond the borders of South Africa.

The Biobank that is housed within the NIOH has grown significantly in the year under review, and is successfully housing thousands of specimens. The NIOH HIV and TB Programme made important contributions to both scientific research and service delivery, especially in the mining and health sectors in the past year. The Marketing and Communications Section has done particularly well in profiling the history of the institute and in strengthening engagement with OEHS programmes nationally and internationally. The Finance and General Services Section has made us all proud by maintaining the historic nature of the old building and making it a special home to the NIOH. At the same time, they continue to upgrade the building strategically and carefully and it has become a pleasure to work in it.

The Safety Health and Environment (SHE) and IT Programmes made significant strides with regards to the pioneering Occupational Health and Safety Information System (OHASIS). This user-friendly information system supports compliance with OEHS legislation, enables online training and provides information for research analysis. OHASIS has gone from strength to strength and is increasingly being rolled out to centres beyond the NHLS and NIOH. This bodes extremely well for the much needed strengthening of OEHS information systems and for research and evidence informed workplace interventions.

Looking to 2017 and beyond, the NIOH will continue to fight the decent work deficit in our country, and to support ongoing efforts to reduce workplace inequality and strengthen the protection of human rights. Given our heavy burden of disease, it is incumbent on the institute to help nurture a culture of greater prevention of OEHS diseases and injuries, as well as health challenges, such as hypertension, diabetes, TB and stress that are very often exacerbated by poor conditions of work. Important areas that will require more attention relates to OEHS gender concerns; OEHS for migrant workers, subcontracted workers, young workers and workers with disabilities. Concerted efforts were made throughout the year to provide subcontracted workers in the fields of security, cleaning and gardening services with training in various skills, but more strategic efforts are needed to reach more workers in precarious work.

The NIOH Choir has gone from strength over the last year and has provided the most beautiful renditions of national, regional and international songs at our major public events. We are proud of the contribution of each and every member of the choir and trust that they will continue to grow.

Retirements

Mrs Inakshi Naik left the NIOH in 2015 after 23 years of service. She joined the NIOH in 1992 working in the Analytical Services Section as a senior Medical Technologist. In 1998 she was appointed as the head of the Analytical Services Section, where she remained as the head until November 2011. She was actively involved in developing analytical capacity in environmental and biological monitoring in occupational and environmental health in South Africa. From December 2011 Mrs Naik was appointed as the OHS

Training Manager where she was involved in developing capacity in occupational health through training occupational health professionals. She developed training materials and conducted courses, workshops and seminars in topics such as fundamentals in occupational hygiene, recognition of occupational exposure related diseases and the management of chemical exposures in the workplace. Ina is especially missed for the wonderful teaching and training sessions she organised with such commitment.

Mr Gopolang Sekobe retired from the NIOH in September 2015, after five years as the Head of the Occupational Hygiene Division. He has a rich working life spanning a total of 40 years, which included work in provincial hospitals, the South African Institute for Medical Research as well as senior professional management positions in the Urban Training Project, a workers' education organisation associated with the National Council of Trade Unions (NACTU). As Chief Director: Occupational and Environmental Health, Department of Health, Mr Sekobe made a significant contribution to the development of occupational health capacity at provincial level. He represented the NDOH on the Parliamentary Asbestos Committee that was instrumental in organising the National Parliamentary Asbestos Summit. This summit brought together government departments, worker organisations and communities affected by asbestos from our different provinces. We will remember Mr Sekobe for the dignified manner in which he dedicated his skills to the furthering of the health of workers.

Ms Estelle Alma Garton retired in December 2015. Estelle began her career at the SAIMR in 1969 in the Cytology Department. In 1972 she gained her registration as a Medical Technician (Cytology). Estelle joined the NIOH in 1981 and worked in the Electron Microscopy Section where she continued to prepare and screen cytology specimens. Estelle became an expert in the identification of asbestos fibres using electron microscopy for service and research work. She was a co-author of five publications and took the first prize for the best poster at an eGoli branch meeting of the Medical Technologists Society of South Africa. During her career, Estelle demonstrated to and taught many healthcare professionals. Estelle is currently in Cape Town recovering from surgery. We wish her a speedy recovery.

The Immunology and Microbiology Section experienced a great loss in the current year with the retirement of specialist scientist, **Dr Cathleen Bartie**. Dr Bartie dedicated 32 years to waterborne pathogens and was a renowned expert in Legionella and amoeba-resistant pathogens. Her scientific rigour and commitment to water research provide the NIOH with an excellent foundation to strengthen preventive interventions. Dr Bartie played an important role in the research publications of the NIOH for its 50th anniversary. We therefore fondly remember her important contributions in this 60th year of the NIOH.

Acknowledgements and Appreciation

In this 60th year of the NIOH, we wish to acknowledge the significant contribution of so many towards the ongoing success of the OEHS interventions of the NIOH. We wish to acknowledge the significant and strategic support from the NHLS and from our government departments, in particular the departments of Health, Labour, Mineral Resources, Science and Technology, Environmental Affairs, Defence, Agriculture and the Correctional Services.

We further wish to acknowledge all the employer organisations and the growing number of trade unions who continue to challenge us to greater engagement for a positive impact on workplaces and better worker health.

Our appreciation goes to the many professional OEHS organisations, as well as other organisations that have provided collegial support and encouraged great collaborative work, including the WHO, ILO, UN Women, UNAIDS as well as our sister institutes in Africa and throughout the globe.

We owe a particular gratitude to current and former staff of the NIOH, both academic and non-academic, for making and maintaining the institute an internationally recognised, accessible centre of excellence in OEHS research, teaching and training and service delivery.

Conclusion

We invite the actors of the world of work and the broader South African public to join us on our journey of building on our collective strength to more optimally utilise the potential of all workplaces for better health and safety, for decent jobs and happier workplaces and for the protection of human rights, for greater productivity and ultimately for sustainable economies.

Capital Investment

Capital Expenses	2014/2015			2015/16		
	Budget	Actual	Over/Under Expenditure	Budget	Actual	Over/Under Expenditure
	R'000	R'000	R'000	R'000	R'000	R'000
	280 000	93 285	186 715	450 000	267 787	182 213
Total	280 000	93 285	186 715	450 000	267 787	182 213

Investment in capital expenditure was restricted due to cash constraints.

Revenue Collection

Sources of revenue	2014/2015			2015/16		
	Estimate	Actual Amount Collected	Under Collection	Estimate	Actual Amount Collected	Under Collection
	R'000	R'000	R'000	R'000	R'000	R'000
Total test revenue	5 581 681	3 488 885	2 092 796	5 763 268	4 570 070	1 193 198

Of the total revenue of R5.7 billion for 2015/16, an amount of R4.5 billion was collected relating to current year's debt. This equated to an overall recovery rate of 79% compared to 63% in the prior financial year.

There was a shortfall of R1.1 billion in collections for the 2015/16 financial year, mainly due to cash constraints from provinces. Of the R1.9 billion, R811 million was collected from the provinces within the first quarter of the 2016/17 financial year. Substantial payments of R179 million and R320 million from Gauteng and KZN respectively contributed to this figure. Meetings were held with the provinces to follow up on outstanding payments.

The NHLS is constantly engaging with the provinces to follow up on outstanding debts.



PART

C

GOVERNANCE

Introduction

The National Health Laboratory Service (NHLS) is a national public entity established in terms of the National Health Laboratory Service Act, 2000 (Act No. 37 of 2000) to provide quality, affordable and sustainable health laboratory and related public health services.

The NHLS is governed by a Board and a chief executive officer, and has a clear organisational structure consisting of a Head Office in Sandringham, Johannesburg, six areas (Mpumalanga and Limpopo, KwaZulu-Natal, Eastern Cape, Western and Northern Cape, Free State and North West, Gauteng) and three institutes (NICD, NIOH and National Cancer Registry). Each area is headed by a business area manager who reports directly to a chief operations officer. The creation of six regions is designed to ensure that the NHLS plans, agrees budgets and monitors laboratory services jointly with provincial health partners in order for laboratory services to be seen and accepted as part of the public health delivery system.

The NHLS ensures that its processes and practices are reviewed on an ongoing basis to ensure compliance with legal obligations, use of funds in an economic, efficient and effective manner and adherence to good corporate governance practices, which are characterised by reporting on economic, environmental and social responsibilities. Such reporting is underpinned by the principles of openness, integrity and accountability and is an inclusive approach that recognises the importance of all stakeholders with respect to the viability and sustainability of the NHLS.

Corporate governance is concerned with structures and processes for decision-making, accountability, control and behaviour beginning at the top level of the organisation, and sets the tone for behaviour down to the lowest levels.

Legislative and Governance Framework

The NHLS is required to comply, *inter alia*, with the following:

- NHLS Act, 2000 (Act No. 37 of 2000)
- General NHLS Rules in terms of Section 27 of the NHLS Act
- National Health Act, 2003 (Act No. 61 of 2003)
- Companies Act, 2008 (Act No. 71 of 2008)
- Protocol on Good Corporate Governance in the Public Sector
- Public Finance Management Act, 1999 (Act No. 1 of 1999), as amended (PFMA)
- Treasury Regulations issued in terms of the PFMA
- Preferential Procurement Framework, 2000 (Act No. 5 of 2000)
- Relevant legislation applicable to the health sector
- King Code of Governance Principles and King Report on Governance (King III)
- Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996).

Portfolio Committees

The NHLS is accountable to parliament through the Parliamentary Portfolio Committee on Health. During the reporting period, the NHLS met with the Parliamentary Portfolio Committee on Health in October 2015 and March 2016. The organisation's Annual Report (2014/15) was presented in October 2015, then the amended Strategic Plan for 2015/16–2019/20, the Annual Performance Plan, as well as the budget for 2015/16 were presented in March 2016.

The committee raised the issue of the NHLS's Human Resources section in the Annual Report not complying with the National Treasury Guidelines. We are pleased to report that the NHLS have now improved on the deficiency raised and have now complied with Treasury requirements.

Executive Authority

The Minister of Health serves as the executive authority of the NHLS. In terms of Section 7 of the NHLS Act, the minister is responsible for the appointment of Board members.

The Accounting Authority

INTRODUCTION

The NHLS Board serves as the accounting officer in terms of Section 49 of the Public Finance Management Act, 1999 (Act No. 1 of 1999).

In the period under review, the Board complied with its terms of reference (ToR), as detailed in the NHLS Rules, and provided strategic direction to the organisation, as required by King III.

The Board is scheduled to meet on a quarterly basis, and minutes of meetings are entered in the Minute Book as a true and accurate representation of what transpired at the meetings.

The Board is committed to business integrity, transparency and professionalism in all its activities, and supports the highest standards of corporate governance and the ongoing development of best practice.

ROLE OF THE BOARD

The Board is responsible for providing strategic direction and leadership, ensuring good corporate governance and ethics, determining policy, agreeing on performance criteria and delegating the detailed planning and implementation of policy to the Executive Committee (EXCO). It also evaluates and monitors management's compliance with policies and achievements against objectives. The Board furthermore considers submissions and recommendations made by management, and makes independent decisions based on its fiduciary responsibilities and the NHLS's strategic direction.

The Board follows a structured approach to delegation, reporting and accountability, which includes reliance on various Board committees. The chairperson guides and monitors the input and contribution of Board members.

The Board has unlimited access to professional advice on matters concerning the affairs of the NHLS, at the NHLS's expense. The Board has approved a Code of Corporate Practice and Conduct, which includes the ToR that provides guidance to Board members in discharging their duties and responsibilities. The Board evaluates its effectiveness on an annual basis and formulates plans to mitigate any shortcomings identified by the evaluation process.

BOARD CHARTER

The mandate of the Board is set out in the NHLS Act and has been encapsulated in the NHLS Board Charter. The mandate of the Board is in line with the requirements stipulated by the Protocol on Governance in Public Entities.

The Board, as the Accounting Authority, takes full ownership of the overall decision-making across the entity to ensure it retains proper direction and control of the NHLS. It has delegated certain powers to the CEO and to management, but reserved certain powers exclusively for the Board and these are set out in the Board Charter.

COMPOSITION OF THE BOARD

The NHLS has a unitary Board comprising a majority of non-executive members who are appointed by the minister in accordance with Section 7 of the NHLS Act. The minister also appoints the chairperson and vice-chairperson in terms of Section 9 of the Act. The Act stipulates that the Board should comprise 22 members, including the CEO, chairperson and vice-chairperson.

The roles of chairperson and CEO are separate, with responsibilities divided between them, so that no individual has unfettered powers of discretion. The chairperson is a non-executive and independent director (as recommended by good corporate governance practices, and is a standing member of all Board committees.

Table C1: Board composition

Name	Designation	Date Appointed	Qualifications	Area of Expertise	Board Directorships	Other Committees or Task Teams	No. of Meetings Attended (Total Held: 12)
Prof. Barry Schoub	Non-executive, Chairperson	01 May 2015	OMS, MBBCh, MMed (Micro), MD, DSc, FRCPath, FFPath, MAASAf, FRSAAf	Medicine and virology	Vice-Chairman: Poliomyelitis Research Foundation	Chair: Board GSEC	12
Prof. Gregory Hussey	Non-executive, Vice-Chairperson	01 September 2015	MBChB, MMed, DTM and MSc CTM FFCH	Medicine, research and academic	UCT Lung Institute; CosH Private Academic Hospital; Isisombululo Community Improvement Programme; Hussey Family Trust; University of Cape Town	NAPC and ARC	3
Prof. Eric Buch	Non-executive, Chairperson of NAPC	30 April 2015 (re-appointed)	MBBCh, MSc (Med), FFCH(cm)(SA), DTM&H, DOH	Medicine, research and academic	None	NAPC, RSC, RHRC and GSEC	10
Mr Ben Durham	Non-executive	01 November 2014	MSc, BSc, BSc Hons, currently pursuing PHD in Technology & Innovation Management	Science and technology innovation	None	NAPC and RSC	8
Dr Tim Tucker	Non-executive, Chairperson of RSC	30 April 2015 (re-appointed)	MBChB, FCPATH (SA) Viro, PHD, Dip Business Strategy	Medicine, research and virology	SEAD Consulting (Pty) Ltd	RSC, ITGC, NAPC and GSEC	9
Mr Michael Manning	Non-executive, Chairperson of ITGC	30 April 2015 (re-appointed)	BCom, BCom Hons, PGDip (Accounting) SAICA, CA(SA)	Accounting, auditing and finance management	Isele Trust Trustee, independent Audit Committee member of the Mine Health and Safety Council	ITGC, FinCom, GSEC	10
Mr Andre Venter	Non-executive, Chairperson of FinCom	02 January 2015 (re-appointed)	NDip Government Finance (RVQ13), Cert Financial Management in Public Sector, PGDip Public Health Management	Public finance management and accounting	None	FinCom, ARC, GSEC and RHRC	9
Dr Patrick Moonasar	Non-executive	01 February 2015	PHD (Public Health)	Medicine and research	None	ITGC	5
Mr Lunga Ntshinga	Non-executive, Chairperson of ARC	01 January 2016 (re-appointed)	BCom, PGDip (Business Management)	Accounting, auditing and finance management	Hlumisa Consulting; AGNUL Investments; Ikhwezi Lakusasa Transportation and Multi-purpose Primary Co-operative	ARC, FinCom and GSEC	10
Mr Thamsanqa Stander	Non-executive, Chairperson of GSEC	01 February 2015	ND Med Tech, ELDP	Governance and medical technology	Kasi 2 Kasi Trading & General Trading; Kasi Consciousness Revolution	GSEC, NAPC, RHRC and FinCom	12
Mr Stanley Harvey	Non-executive	01 February 2015	ND Med Tech	Medical technology	None	ITGC and ARC	11
Ms Ntombikayise Mapukata	Non-executive	01 February 2015	MDP, Dip (Labour Law), BTech, Dip (HR Management), ND Med Tech	Business management and medical technology	Kaobry Trading Enterprise (Pty) Ltd	RHRC and NAPC	10

Name	Designation	Date Appointed	Qualifications	Area of Expertise	Board Directorships	Other Committees or Task Teams	No. of Meetings Attended (Total Held: 12)
Mr Michael Shingange	Non-executive	01 February 2015	Cert Negotiating Skills, Dip Trade Union Movement, Cert Governance	Labour relations, governance and leadership dynamics	First Deputy President NEHAWU	RHRC and FinCom	6
Prof. Haroon Salojee	Non-executive	01 September 2015	MBBCH, FCPaed(SA), MSc	Medicine, research and academic	Soul City Institute; Starfish Greathearts	ARC	6
Prof. Willem Sturm	Non-executive	01 September 2015	MD, PhD	Medicine, research and academic	None	ITGC, NAPC and RSC	4
Ms Nelisiwe Mkhize	Non-executive	01 September 2015	MBA, PGDip (Business Management), BSc, ND Med Tech	Medical technology, business administration and management	None	FinCom, NAPC and RHRC	7
Prof. Mary Ross	Non-executive	01 September 2015	BSc (Hons), MBCHB, Dip (Data Metrics), Dip (Health Admin), DTM&H, DPH, DOH, FCPHM, FOM (UK), FPH (UK), FTM (RCP&S Glasgow), FACTM (Australia)	Minister of Health	None	RSC and NAPC	6
Dr Gerhardus Goosen*	Non-executive	01 November 2015	MBCHB, Dip Obst (SA)	Medicine	ALENTI 25 (NPO)	None	0
Dr Thokozani Mhlongo	Non-executive, Chairperson of RHRC	02 January 2015 (re-appointed)	BCur, BSc, MBCHB	Medicine	Njomani Projects cc	RHRC, FinCom and GSEC	10
Dr Jim McCulloch	Non-executive	01 February 2015	Final Microbiology, Final Chemical Pathology, ONC Statistics, HNC Chemistry, MSc Medicine, PhD Clinical Chemistry, CPA (UK)	Laboratory science	Executive Director: Thistle QA cc	NAPC	1
Ms Joyce Mogale	CEO	01 September 2015	MBA, PGDip (Public Health Management), BSc Hons, ND Med Tech, HND Med Tech	CEO, NHLS	Klein Karoo Akademie; Ububele Capital; Ruby Stone Boutique Hotel; Marubini Holding; Metso Mining & Construction (SA); Ninator Thyssen Krupp Industrial Solutions (SA); Cynimart Investments; JL Properties; Limpopo Gambling Board, Tirisano Trust; Ububele Trust; Umvuso Trust; Kamatsu Trust; TETMC Trust; Westvaal Trust	FinCom, RSC, ARC, RHRC, GSEC, ITGC, NAPC and EXCO	12

* Joined the NHLS Board in June 2016

Changes in Board Membership

Upon the expiration of a Board member's term of office, they become eligible for re-appointment for a further term, provided that no they are not appointed for more than two consecutive terms to serve in the same committee. The table below indicates the changes to Board membership that took place during the year under review:

Table C2: Changes in Board membership

Name	Constituency/Representing	Date of Appointment	Date of Resignation
Dr Jim McCulloch	Gauteng Province	01 February 2015	01 June 2015
Prof. Algonda Perez	Chairperson – representing Minister of Health	01 January 2013	01 April 2015
Dr Fazel Randera	Vice-Chairperson – representing Minister of Health	01 January 2013	11 May 2015
Prof. Koleka Mlisana	Council for Higher Education: Universities	01 May 2012	01 May 2015
Prof. Eric Buch	Council for Higher Education: University of Technology	*30 April 2015	
Mr Michael Manning	Western Cape Province	*30 April 2015	
Mr Lunga Ntshinga	Public Nominee: Finance	*01 January 2016	
Dr Tim Tucker	Public Nominee: Research	*01 January 2016	

Legend: * Reappointed

Board Meeting Attendance

The Board is required to hold at least four meetings per year. During the past 12 months, the Board convened 12 times (including special meetings). Only members of the Board voted at its meetings, and all its decisions were arrived at by consensus. In each of those meetings, the quorum of the meeting was met and members were given the opportunity to declare any personal conflict of interest to be recused from the deliberation on such matters.

Table C3: Board meeting attendance

Name	01–02 Jun 2015	10–11 Jun 2015	29 Jul 2015	19–20 Aug 2015	25 Aug 2015	22 Sep 2015 (Special)	28–29 Oct 2015	19 Nov 2015 (Special)	26 Jan 2016	27 Jan 2016 (Special)	10 Feb 2016 (Special)	24 Feb 2016
Prof. Barry Schoub	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Prof. Gregory Hussey *	N/M	N/M	N/M	N/M	N/M	A	A	A	✓	A	✓	✓
Mr Andre Venter	✓	✓	✓	✓	✓	✓	✓	A	A	A	✓	✓
Dr Patrick Moonasar	A	✓	✓	✓	A	A	✓	✓	A	A	A	A
Mr Lunga Ntshinga	✓	✓	A	✓	A	✓	✓	✓	✓	✓	✓	✓
Dr Tim Tucker	✓	✓	✓	✓	✓	✓	✓	A	A	A	✓	✓
Prof. Eric Buch	✓	✓	✓	✓	A	✓	✓	✓	✓	A	✓	✓
Mr Michael Manning	✓	✓	✓	✓	A	A	✓	✓	✓	✓	✓	✓
Ms Ntombikayise Mapukata	✓	✓	✓	✓	A	✓	✓	A	✓	✓	✓	✓
Mr Thamsanqa Stander	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mr Stanley Harvey	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓
Mr Ben Durham	✓	✓	✓	✓	A	✓	A	A	✓	A	✓	✓
Mr Michael Shingange	A	A	A	✓	A	✓	✓	A	✓	A	✓	✓
Ms Nelisiwe Mkhize *	N/M	N/M	N/M	N/M	N/M	✓	✓	✓	✓	✓	✓	✓
Prof. Mary Ross *	N/M	N/M	N/M	N/M	N/M	✓	✓	A	✓	✓	✓	✓
Prof. Haroon Saloojee *	N/M	N/M	N/M	N/M	N/M	✓	✓	✓	✓	✓	✓	A
Prof. Willem Sturm *	N/M	N/M	N/M	N/M	N/M	A	A	✓	✓	✓	✓	A
Dr Jim McCulloch **	✓	-	-	-	-	-	-	-	-	-	-	-
Dr Gerhardus Goosen	-	-	-	-	-	-	-	-	-	-	-	-
Ms Joyce Mogale	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Legend:

✓ Present, **A** Absent with apology, **N/M** Not a member, - Not appointed yet/no longer a member

* Appointed 01 September 2015 ** Retired/Resigned June 2015

BOARD COMMITTEES

The Board appointed several committees to help it meet its mandate, without abdicating its own responsibilities. The following Board committees were in place during the reporting period:

- Audit and Risk Committee (ARC)
- Remuneration and Human Resources Committee (RHRC)
- IT Governance Committee (ITGC)
- Governance, Social and Ethics Committee (GSEC)
- Finance Committee (FinCom)
- National Academic and Pathology Committee (NAPC)
- Research Committee (RSC)
- Executive Committee (EXCO).

The various Board committees have formal ToRs, embodied in their charters, which further defines the mandates, roles and responsibilities of each committee. The charters are reviewed and updated on an annual basis, where required.

Audit and Risk Committee

The Audit and Risk Committee is discussed on page 139 of this report.

Remuneration and Human Resources Committee

In terms of the NHLS Act, the RHRC assists the Board with the performance of its functions and exercising of its powers. The committee reports on employment equity, employee turnover, skills development and labour relations.

As part of the Continued Professional Development Programme, the Board from time to time invites corporate governance experts, as recommended by the Institute of Directors, to present topical matters and latest developments in corporate governance practices.

In terms of good corporate governance practices, the RHRC met on eight separate occasions during the financial year.

Table C4: RHRC meeting attendance

Name	Meeting Date							
	14 May 2015	05 Aug 2015	18 Aug 2015	21 Sep 2015	08 Oct 2015	23 Oct 2015	10 Nov 2015	03 Mar 2016
Dr Andre Venter	✓	✓	✓	✓	✓	✓	✓	✓
Mr Thamsanqa Stander	✓	✓	✓	✓	✓	✓	✓	✓
Prof. Eric Buch	A	✓	✓	A	✓	✓	A	✓
Ms Joyce Mogale	✓	A	✓	A	✓	✓	✓	✓
Ms Nelisiwe Mkhize *	N/M	N/M	N/M	N/M	N/M	N/M	N/M	✓
Mr Michael Shingange	A	A	✓	A	A	A	A	A
Ms Ntombikayise Mapukata	✓	✓	✓	✓	✓	A	A	✓
Mr Michael Manning Δ	-	-	✓	-	-	-	-	-
Mr Lunga Ntshinga Δ	-	-	✓	-	-	-	-	-

Legend:

✓ Present, A Absent with apology, Δ Attending by invitation, N/M Not a member, - Not appointed yet/no longer a member

* Appointed 01 September 2015

IT Governance Committee

The ITGC was established in terms of Section 12 of the NHLS Rules. It ensures that IT is a regular item on the Board's agenda and that it is addressed in a structured manner. In addition, the ITGC ensures that the Board has the information it needs to make informed decisions that are essential to achieve the ultimate objectives of IT governance, namely:

- The alignment of IT and business practices
- The delivery of IT value
- The sourcing and use of IT resources
- The management of IT-related risks
- The tracking, monitoring and measurement of IT performance.

The committee offers expert insight into and timely advice and direction on topics such as:

- The relevance of the latest developments in IT from a business perspective
- The alignment of IT with the business direction
- The formulation and achievement of strategic IT objectives
- The availability of suitable IT resources, skills and infrastructure to meet strategic objectives
- Optimisation of IT costs
- The role and the value delivery of external IT sourcing
- Risk, return and competitive aspects of IT investments
- Progress on major IT projects
- The contribution of IT to the business (i.e. delivering the promised business value)
- Exposure to IT risks, including compliance risks
- Containment of risks of critical systems.

The chairperson of the ITGC was appointed by the Board, and the committee comprises a minimum of three non-executive members. The Board chairperson, CFO and IT Executive have standing invitations to all ITGC meetings. The committee met three times in the reporting period.

Table C5: ITGC meeting attendance

Name	Meeting Date		
	18 May 2015	12 Aug 2015	04 Feb 2016
Mr Michael Manning	✓	✓	✓
Mr Stanley Harvey	✓	✓	✓
Mr Tim Tucker	✓	✓	✓
Dr Patrick Moonasar	✓	✓	A
Ms Joyce Mogale	✓	A	A
Prof Willem Sturm *	N/M	N/M	✓

Legend:

✓ Present, **A** Absent with apology, **N/M** Not a member

* Appointed 01 September 2015

** Retired/Resigned June 2015

Governance, Social and Ethics Committee

The GSEC was established to assist the Board in its oversight over corporate governance, social and ethical matters and in ensuring that the NHLS is and remains a committed, socially responsible corporate citizen. The commitment to sustainable development involves ensuring that the organisation conducts business in a manner that meets existing needs, without knowingly compromising the ability of future generations to meet their needs. The committee undertakes the following:

- Reviews and approves the policy, strategy and structure to manage governance, social and ethics issues in the organisation
- Oversees the monitoring, assessment and measurement of the NHLS's activities relating to social and economic development, including its standing in terms of the goals and purposes of:
 - The ten principles set out in the United Nations Global Compact Principles
 - The OECD recommendations regarding corruption
 - The Employment Equity Act, 1998 (Act No. 55 of 1998)
 - The Broad-Based Black Economic Empowerment Act, 2003 (Act No.53 of 2003)

- Oversees the monitoring, assessment and measurement of the NHLS's activities relating to good corporate citizenship, including its promotion of equality, prevention of unfair discrimination, addressing of corruption, contribution to development of the communities in which its activities are predominantly conducted or within which its services are predominantly marketed, and record of sponsorship, donations and charitable giving
- Oversees the monitoring, assessment and measurement of the NHLS's activities relating to the environment, health and public safety, including the impact of its activities and services
- Oversees the monitoring, assessment and measurement of the organisation's stakeholder relationships, including its advertising, public relations and compliance with consumer protection laws, to ensure that it adheres to its values
- Oversees the monitoring of the NHLS's labour and employment, including its standing in terms of the International Labour Organization Protocol on Decent Work and Working Conditions, its employment relationships, and its contribution toward the educational development of its employees
- Reviews the adequacy and effectiveness of the organisation's engagement and interaction with its stakeholders
- Considers substantive national and international regulatory developments, as well as practice in the fields of social and ethics management
- Reviews and approves the policy and strategy pertaining to the organisation's programme of corporate social investment
- Determines clearly articulated ethical standards (Code of Ethics) and ensures that the NHLS takes measures to achieve adherence to these in all aspects of its business, thus achieving a sustainable, ethical corporate culture
- Monitors that management develops and implements programmes, guidelines and practices congruent with its social and ethics policies
- Reviews the material risks and liabilities relating to the provisions of the Code of Ethics, and ensures that such risks are managed as part of the Risk Management Programme
- Obtains external assurance of the NHLS's ethics performance on an annual basis, and facilitates the inclusion of an assurance statement related thereto in the Annual Report
- Ensures that management has allocated adequate resources to comply with social and ethics policies, codes of best practice and regulatory requirements.

The committee met six times in the year.

Table C6: GSEC meeting attendance

Name	Meeting Date					
	26 Jun 2015	16 Sep 2015	20 Nov 2015	15 Dec 2015 (Special)	25 Jan 2016 (Special)	09 Feb 2016
Mr Thamsanqa Stander	✓	✓	✓	✓	✓	✓
Prof. Barry Schoub	✓	A	✓	✓	✓	✓
Mr Michael Manning	✓	✓	✓	✓	✓	✓
Mr Andre Venter	✓	✓	A	✓	A	✓
Prof. Eric Buch	✓	✓	✓	✓	✓	✓
Mr Stanley Harvey **	✓	-	-	-	-	-
Dr Tim Tucker	✓	✓	A	✓	✓	✓
Prof. Eric Buch	✓	✓	✓	✓	✓	A
Mr Lunga Ntshinga	✓	A	✓	A	✓	✓

Legend:

✓ Present, **A** Absent with apology, - Not appointed yet/no longer a member

** Retired August 2015

Finance Committee

The FinCom assists the Board in fulfilling its oversight responsibilities in matters relating to the financial practices and condition of the NHLS. It reviews the organisation's financial policies and procedures; keeps informed of its financial condition, requirements for funds and access to liquidity; and considers and advises the Board on matters relating to the NHLS's sources and uses of funds.

In terms of good corporate governance practices, FinCom met on nine separate occasions during the financial year.

Table C7: FinCom meeting attendance

Name	Meeting date								
	24 Apr 2015	26 May 2015	13 Aug 2015	18 Aug 2015 (Special)	31 Aug 2015 (Special)	16 Sep 2015 (Special)	26 Nov 2015	07 Dec 2015	16 Feb 2016
Mr Andre Venter	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dr Fazel Randera ***	✓	-	-	-	-	-	-	-	-
Mr Lunga Ntshinga	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mr Michael Manning	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mr Ben Durham **	✓	-	-	-	-	-	-	-	-
Ms Joyce Mogale	N/M	✓	A	A	A	A	✓	✓	✓
Mr Thamsanqa Stander	N/M	N/M	✓	A	✓	✓	✓	✓	✓
Ms Nelisiwe Mkhize *	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	✓
Mr Michael Shingange	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	✓
Dr Thokozani Mhlongo	✓	✓	✓	✓	✓	✓	✓	✓	✓
Prof. Barry Schoub Δ	-	✓	-	-	-	-	-	-	-

Legend:

✓ Present, **A** Absent with apology, Δ Attending by invitation, **N/M** Not a member, - Not appointed yet/no longer a member

* Appointed 29 January 2016

** Retired/Resigned June 2015

*** Resigned/retired May 2015

The National Academic and Pathology Committee

The functions of the NAPC are to facilitate education, by formulating policy with regard to:

- The conducting of basic research in association or partnership with any tertiary educational institution
- Co-operation with persons and institutions undertaking basic research in South Africa, and in other countries, through the exchange of scientific knowledge and the provision of access to the resources and specimens available to the NHLS
- The participation in joint research operations with government departments, universities, universities of technology, colleges, museums, scientific institutions and other persons
- Co-operation with education authorities and scientific or technical societies or industrial institutions representing employers and employees to promote of the instruction and training of pathologists, technologists, technicians, scientists, researchers, technical experts and other supporting personnel in universities, universities of technology and colleges
- Any other matter as may be referred by the Board.

As some of its duties, the committee monitors and manages the agreements entered into between the NHLS and tertiary education institutions, including:

- The development of policies and guidelines to determine the numbers of registrars for each discipline and the distribution of the registrar posts between the laboratories associated with each university health science faculty
- The development of policies and guidelines to determine the number of technologist training posts for each discipline and the distribution of posts between the identified laboratories
- Proposing guidelines relating to the part-time, honorary and guest appointment of NHLS employees by tertiary education institutions
- Monitoring the guidelines for consultant appointments of personnel of tertiary education institutions in the NHLS, as determined by the agreement between the NHLS and universities
- Ensuring that employees use the CPD programmes provided by tertiary education institutions to comply with CPD requirements
- Reviewing and managing arrangements for research being undertaken by tertiary education institutions in NHLS laboratories
- Advising EXCO on matters relating to indemnity for NHLS employees or tertiary education institutions working between the facilities of both partners
- Advising EXCO on matters relating to the discipline of NHLS personnel or a tertiary education institution working between the facilities of both partners

- Advising EXCO on financial matters, such as subsidies, bursaries and payment for academic related services
- Monitoring, evaluating and managing SLAs and performance measures
- Advising, monitoring and evaluating the resolution of disputes if they should arise
- Ensuring the integrity of the process of managing the partnerships
- Ensuring that professional ethics are adhered to
- Ensuring that the NHLS complies with the requirements of the HPCSA in respect of registration requirements, ethics and conduct.

The NAPC met on three separate occasions during the year.

Table C8: NAPC meeting attendance

Name	Meeting Date		
	24 Jun 2015	04 Nov 2015	01 Mar 2016
Prof Eric Buch	✓	✓	✓
Dr Tim Tucker	✓	✓	✓
Ms Joyce Mogale	✓	✓	✓
Mr Thamsanqa Stander	N/M	✓	✓
Ms Ntombikayise Mapukata	N/M	✓	✓
Mr Ben Durham	✓	✓	✓
Prof Willem Sturm	N/M	N/M	✓
Prof Mary Ross	N/M	N/M	✓
Ms Nelisiwe Mkhize	N/M	N/M	✓

Legend:

✓ Present, **N/M** Not a member

Research Committee

The RSC was established to ensure that the NHLS research mandate receives attention at Board level. Members of the committee may be called on from time to time to interact with external stakeholders and funding agencies.

The role of the committee is to advise the Board and the NAPC on research policies, strategies, initiatives and innovation that promote the research interests of the NHLS and that nurture and enable high quality research.

The objectives of the RSC are aligned with those stipulated in the South African Health Research Policy of 2001, the DoH Ten-point Plan and the National Health Research Committee (NHRC). This committee meets at least twice a year.

Table C9: RSC meeting attendance

Name	Meeting Date		
	23 Jun 2015	03 Nov 2015	29 Feb 2016
Dr Tim Tucker	✓	✓	✓
Prof. Eric Buch	✓	✓	A
Prof. Barry Schoub Δ	✓	N/M	N/M
Mr Ben Durham	✓	✓	✓
Prof. Willem Sturm	N/M	N/M	✓
Prof. Mary Ross	N/M	N/M	✓

Legend:

✓ Present, **A** Absent with apology, **Δ** Attending by invitation, **N/M** Not a member

Executive Management Committee

The Board appoints the executives of the NHLS and EXCO in terms of the NHLS Act. EXCO comprises:

- The Chief Executive Officer ,who acts as EXCO Chairperson

- The Chief Financial Officer
- The Chief Information Officer
- Human Resources Executive
- Executive Manager: AARQA
- Directors of Institutes
- Regional Managers;
- Head of Risk and Internal Audit attends EXCO meetings by invitation
- The Company Secretary provides secretarial support to EXCO.

EXCO is responsible for the management of the NHLS in accordance with its policies, and assists with execution of all of the Board's functions and the exercise of its powers.

During the year under review, the EXCO convened 12 times (including special meetings and workshops).

Table C10: EXCO meeting attendance

Name	13 Apr 2015	13 May 2015	15 Jul 2015	24 Aug 2015	08 Sep 2015 (workshop)	17 Sep 2015	12 Oct 2015	11 Nov 2015	20 Jan 2016	21 Jan 2016	18 Feb 2016	16 Mar 2016
Ms Joyce Mogale	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mr Sikhumbuzo Zulu	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dr Johan van Heerden	✓	✓	✓	A	✓	✓	A	✓	✓	✓	✓	✓
Mr Luvuyo Keyise*	✓	✓	-	-	-	-	-	-	-	-	-	-
Dr Sergio Carmona	✓	✓	-	-	-	-	-	-	-	-	-	-
Ms Nimee Dhuloo	✓	-	-	-	-	-	-	-	-	-	-	-
Dr Sophia Kisting	✓	✓	A	✓	A	A	✓	✓	✓	✓	✓	A
Ms Azraa Mohamed	✓	✓	✓	✓	✓	✓	A	A	✓	A	A	-
Mr Jone Mofokeng	✓	✓	✓	✓	-	-	-	-	-	-	-	-
Prof. Shabir Madhi	✓	A	A	A	A	A	✓	✓	A	A	A	A
Mr Boitumelo Choche	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
Mr Graham Motsepe	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
Mr Vishal Brijlal	A	✓	A	A	✓	A	A	A	-	-	-	-
Ms Adrene Hall	-	✓	✓	A	A	✓	✓	-	-	-	-	-
Mr Abel Makuraj	-	-	✓	✓	✓	✓	✓	-	-	-	-	-
Mr Shaun Grimett	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Prof. Wendy Stevens	-	-	✓	✓	A	A	A	✓	A	A	✓	A
Mr Jacob Lebudi	-	-	✓	A	✓	✓	✓	✓	✓	✓	✓	✓
Mr Bahule Motlonye	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ms Nasima Mohamed	-	-	✓	✓	✓	✓	✓	A	✓	A	✓	✓
Ms Tabita Makula	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mr Sibulele Bandezi	-	-	✓	✓	✓	✓	✓	✓	✓	A	✓	✓
Prof. Andrew Whitelaw	-	-	-	-	-	VC	✓	VC	✓	-	VC	✓
Ms Violet Gabashane	-	-	-	-	-	-	-	-	✓	A	✓	✓
Mr Stephen Monareng	-	-	-	-	-	-	-	✓	✓	✓	-	-
Dr Henry Pieter	-	-	-	-	-	-	-	-	-	-	✓	✓
Adv. Mpho Mphelo	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	A	✓

Legend:

✓ Present, A Absent with apology, - Not appointed yet/no longer a member, VC video conference

* Resigned

REMUNERATION OF BOARD MEMBERS

The remuneration of Board members are set out in the Annual Financial Statements on pages 203–204.

Compliance with Laws and Regulations

The observation of laws that govern the NHLS and its activities forms the foundation of its corporate governance principles and demonstrates stewardship and responsibility to all stakeholders. The NHLS therefore integrated legal, regulatory and public policy requirements into its strategic and operational processes in order to meet its contractual, moral and corporate citizenship obligations.

During the year under review, the organisation compiled a regulatory compliance universe which assists it in tracking compliance with applicable laws and regulations. The Board and management of the NHLS are confident that all policies and procedures comply with the applicable laws and regulations which govern its operations, except for the matter addressed below.

NON-COMPLIANCE WITH NHLS ACT

At the date of this report, the ownership of land and buildings had not been transferred into the name of the NHLS, as required by the NHLS Act. The Board has taken all appropriate measures to ensure the transfer process is effected by the Department of Public Works.

In respect of position vacancies at Board level, only the Minister of Health can appoint members. Two vacant positions are in the process of being filled, namely SALGA and the Council for Higher Education.

Fraud and Corruption

In an effort to protect public money and property, as well as the integrity, security and reputation of NHLS, the organisation implemented a Fraud Prevention and Response Plan. The plan was designed to assist staff in making sound decisions regarding the reporting of fraud, corruption and other criminal offences which might impact the NHLS and its operations, while maintaining the organisations high service delivery standards and its Code of Conduct.

Whistle-blowers are protected through the Tip-Offs Anonymous Fraud Hotline, which is managed by an independent service provider. This is in line with the Protected Disclosures Act, Act No. 26 of 2000.

The NHLS keeps a record of all alleged instances of fraud and corruption, and report these to the Board through the Audit and Risk Committee. During the period under review, the NHLS conducted a fraud risk assessment workshop and compiled a fraud risk register to assist it in raising awareness among staff around fraud prevention and the organisation's Code of Ethics.

Minimising Conflict of Interest

The Board members are required to declare their interest in order to conform to the provisions of the Companies Act 71 of 2008 and to ensure that they diligently discharge their fiduciary duties.

Management and general staff members are required by company policy to declare their interest and to ensure that in discharging their duties as required by their respective contracts and company policies there are no conflicts of interests. This is also applicable in the research and development of the company.

Code of Conduct

The company has adopted a Code of Conduct which regulates the behavior of staff members in the employ of NHLS in order to ensure discipline in the workplace.

Health, Safety and Environmental Issues

While the GSEC provides guidance on health, safety and the environment, the NHLS has systems and processes in place that deal specifically with these issues. Health and safety are reported on extensively in the National Institute for Occupational Health (NIOH) Annual Review 2015/16, published concurrently with this Annual Report.

Social Responsibility

Social responsibility is a value that is sincerely upheld by NHLS employees to ensure that a meaningful contribution is made to the communities in the vicinity of its operations, where need exists. In the absence of an allocated budget for CSI programmes, NHLS employees are sensitive and willing to care for those that are disadvantaged, through donations and volunteering. In 2015/16 the following activities were implemented:

- **Take a girl child to work** – NHLS Corporate hosted 20 girls from a nearby school, Waverley Girl's High, which is a public school and 100% African. The girls were given the opportunity to 'choose' their preferred jobs for the day and were allowed to explore the world of work under the supervision of a staff member in that position. The CEO and other volunteers had the opportunity to address the girls and to share their own experiences, as a way to motivate these youngsters
- **Blanket drive** – A culture of knitting has been adopted by NHLS ladies to donate knitted blankets to charities identified by employees during the winter season
- **Sanitary wear drive** – This is an ongoing drive to collect sanitary wear for donation to nearby schools that have identified a number of students who are in great financial distress
- **Blood drive** – This drive is done on a quarterly basis in support of the South African National Blood Service (SANBS), to enable them to meet shortages in blood supply in the country
- **Mandela Day** – Funds were raised through a car wash drive and donated to a preferred shelter. Other contributions, such as clothing, food parcels, furniture and stationery donated by staff, were handed over to an identified charity organisation.

STAKEHOLDER RELATIONS

Significant events and projects during 2015/16 would have not been possible without the valued contribution of national and international partners in the healthcare industry, including:

- National and provincial Department of Health
- WHO
- USAID
- CDC
- Namibian Institute of Pathology
- Aurum Institute
- SANBS
- Federation of South African Societies of Pathologists (FSASP)
- Siemens
- Roche Diagnostics.

Audit and Risk Committee Report

We are pleased to present our report for the financial year ended 31 March 2016.

AUDIT AND RISK COMMITTEE MEMBERS AND MEETING ATTENDANCE

The Audit and Risk Committee (hereafter referred to as the committee) consists of the members listed hereunder and should meet four times per annum, as per its approved terms of reference. During the current year, five meetings were scheduled and held. The committee confirms that it discharged its responsibilities in terms of NHLS Audit and Risk Committee Charter.

Table C11: Committee meeting attendance

Names	Meeting Dates				
	28 May 2015	28 July 2015	20 October 2015	08 December 2015	10 March 2016
Mr Lunga Ntshinga	✓	A	✓	✓	✓
Mr Andre Venter	✓	✓	✓	✓	✓
Mr Stanley Harvey *	N/M	✓	✓	✓	✓
Mr Malcom Brown **	A	✓	A	-	-
Prof Barry Schoub Δ	✓	-	-	-	-
Ms Joyce Mogale	✓	✓	✓	✓	✓
Prof Haroon Saloojee	N/M	N/M	N/M	N/M	✓
Prof Gregory Hussey	N/M	N/M	N/M	N/M	✓

Legend:

✓ Present, **A** Absent with apology, Δ Attending by invitation, **N/M** Not a member, - Not appointed yet/no longer a member

* Appointed

** Retired/Resigned December 2015

There was one retirement or resignation from the committee during the period under review.

The composition of the committee is in line with Section 77(a) of the PFMA and Treasury Regulation 27.1.

AUDIT AND RISK COMMITTEE RESPONSIBILITY

The committee reports that appropriate formal ToR have been adopted as its charter, in line with the requirements of Section 55(1) (a) of the PFMA and Treasury Regulation 27.1. The committee further reports that it has conducted its affairs in compliance with this charter.

ENTERPRISE-WIDE RISK MANAGEMENT

The NHLS Board, through the Audit and Risk Committee, is responsible for oversight over the entity's enterprise-wide risk management practices and processes to ensure that the entity's Risk Management Policy and Strategy are in place and have been implemented.

Enterprise-wide risk management is integrated into the day-to-day activities of the NHLS and is centred on identifying, assessing, managing and monitoring all identified risk. These measures were in place for the financial year under review, and up to the date of the approval of the Annual Report.

A well designed enterprise-wide risk management system has been implemented to provide assurance that the goals and objectives of the NHLS are achieved. This system takes into account that identified risks are often interlinked and connected to external factors, and can therefore not be managed in isolation. For this reason, a Risk Management Framework has been put in place to review aspects relating to the economy, and the efficiency and effectiveness of the NHLS's risk management processes. The accountability for managing risk is assigned to management in the appropriate levels to ensure proper responses.

The NHLS has defined three broad risk categories, namely strategic risks, operational and/or divisional risks and emerging risks.

Strategic Risks

Effective mechanisms are in place to identify and monitor strategic risks and its impact on the NHLS's ability to deliver on its mandate and achieve its strategic objectives. During the review period, the NHLS conducted a strategic risk assessment workshop and developed a strategic risk register, which is being monitored and assessed on an ongoing basis. In addition, the Board and Audit and Risk Committee review the strategic risk register on a quarterly basis in order to monitor the effectiveness of enterprise-wide risk management.

Operational and/or Divisional Risks

Operational risks are mitigated by ensuring that the appropriate infrastructure, internal controls, systems and personnel are in place within the organisation. This is achieved through the organisation's Code of Ethics; an effective internal control system; the segregation of compatible functions; delegation of authority; prudent financial and management reporting; as well as the continuous monitoring of performance against key performance indicators. Operational and divisional risks are overseen by EXCO as well as the various area and business managers within the organisation. During the period under review, the NHLS conducted operational and/or divisional risk assessment workshops and developed an operational risk register, which is monitored and assessed on an ongoing basis. Monthly reports are submitted to EXCO.

Emerging Risks

Emerging risks originate from macro-economic and national challenges pertaining to the NHLS's operating environment. The emerging risks identified during 2015/16 were incorporated into both the strategic and operational risks registers of the entity.

INTERNAL AUDIT

The NHLS has a co-sourced internal audit function in place, which reports administratively to the CEO and functionally to the chairperson of the committee to ensure that it remains independent. The Internal Audit Charter, the three-year rolling Strategic Audit Plan, annual Operational Audit Plan and internal audit budget were approved by the committee for the period under review.

The Strategic and Operational Audit Plans are based on the key risks identified, specific aspects highlighted by the committee and internal audit, as well as aspects relating to the system of internal control, as identified by the external auditors. The Operational Audit Plan is flexible to ensure that it is responsive to changes in the operating environment and emerging risks.

Comprehensive reports on internal audit findings are presented to management on a regular basis, while consolidated reports are submitted to the committee on a quarterly basis.

INTERNAL CONTROL

Management and the Risk Management Unit are responsible for identifying internal controls that are necessary to mitigate risks faced by the NHLS. Internal Audit is the third line of defence and provides assurance on the effectiveness of the system of internal control. However, the ultimate responsibility for the system of internal control lies with the Board of Directors.

The system of internal control was designed to mitigate risks and identify, evaluate, manage and provide reasonable assurance against near misses and losses. It consists of control self-assessments to allow for actions to be taken to correct deficiencies as they are identified. A combined assurance approach is in place to assist in addressing key enterprise risks. The NHLS system of internal control was assessed during 2015/16 and found to be satisfactory.

During the year under review, the entity's enterprise-wide internal controls have been assessed as satisfactory.

EVALUATION OF GROUP ANNUAL FINANCIAL STATEMENTS

The committee has:

- Reviewed and discussed the audited Group Annual Financial Statements to be included in the Annual Report, with SizweNtsalubaGobodo (SNG) and the Accounting Authority
- Reviewed SNG's management report and management's response thereto
- Reviewed changes in accounting policies and practices
- Reviewed the entity's compliance with legal and regulatory provisions
- Reviewed significant adjustments resulting from the audit.

The committee agrees that the adoption of the going concern premise is appropriate in preparing the group Annual Financial Statements for the 2015/16 financial year.

CONCLUSION

The committee concurs with and accepts the external auditor's report on the group Annual Financial Statements and is of the opinion that the audited group Annual Financial Statements should be accepted. The committee has therefore recommended the adoption of the group Annual Financial Statements by the NHLS Accounting Authority at their meeting held on 27 July 2016.



Lunga Ntshinga

Chairperson: Audit and Risk Committee



PART

D

HUMAN RESOURCE
MANAGEMENT

Introduction

2015/16 has been extremely difficult and very stressful for the organisation in terms of employee morale, engagement and commitment. The year began with the remnants of labour unrest, which is an indication of the extent to which the challenges extended. This set the tone for all future Bargaining and Labour Relations Forum interactions. Despite these challenges, the organisation managed to turn the corner and ended the year with the appointment of a new Executive for Human Resources, whose immediate mandate is to return the credibility and reputation of the Human Resources Division within the NHLS. In addition, progress was made in the following areas:

- Phase 1 of the Remuneration and Reward Project (R&R) was implemented in November 2015 for employees at grades A–C and the process will be completed in 2016/17 with the implementation of the entire process for other grades, including the Performance-Proficiency Matrix Assessment for all health professionals
- The design, development and finalisation of the Workforce Planning Framework was completed, and will be ready for piloting in the new financial year under the leadership of the Executive for Human Resources.



HR Executive: Dr Mojaki Mosia

Despite the challenges, the NHLS remains an important role player in the communities in which it operates, with a total employee complement of over 6 500 and a total annual remuneration bill of over R2 billion. Staff, organisational and team commitment are arguably very strong and high, given that employees remained loyal despite the challenges. Praise, appreciation and gratitude go to them for standing by the NHLS during this tough time. During the period, respective teams and laboratories continued to deliver excellent service to their customers.

Staff resignations remained at 5.6%, while disciplinary cases for misconduct were at 0.3% (actual number 123) of the total workforce. At the same time, 562 individuals were meaningfully engaged on the training platform from the following disciplines: Bachelor of Health Science students, intern medical technologists, medical technician students, phlebotomy technician students and laboratory students; at a cost of over R13 million for the year. In addition, 103 biomedical scholarships were offered to various students from disadvantaged communities and 90 bursaries were extended to NHLS employees wishing to further their studies.

The year ahead is full of opportunities to position the NHLS to deliver on its Strategy 2020, especially goal number 7, which is to strengthen its position through adequate, competent and motivated human capital. To this end the following are key priorities:

- The implementation of the People Strategy for the NHLS – an overarching strategy which sets out the broad people-oriented framework and principles for the next five or more years. It will provide a blueprint for all people interventions within the NHLS's operating model; as well as what must be done to strengthen the organisation's position to have adequate, competent and motivated human capital
- The People Strategy outlines and reflects the NHLS's key values, strategic intent and employment value proposition for talent, while taking the organisation to the position of an African centre of excellence for innovative laboratory medicine.
- The People Strategy is intended to ensure that all people in leadership positions understand the NHLS's overall relationship with employees and what they must uphold. To this end, a 360 degree leadership assessment will be introduced for executives and area managers. This will confirm how well leadership provides clarity of strategic direction and inspires 'possibility thinking'
- To develop strategies and mechanisms to retain talent within the NHLS, the full implementation of the Remuneration and Reward Project, as well as the updated Remuneration and Reward Policy will commence. In the new financial year, the Performance-Proficiency Assessment Matrix for all health professional roles will be finalised as well as the new Policy on Talent Management
- To ensure successful facilitation of the People Strategy and implementation thereof by leadership, the reconfiguration and realignment of Human Resource's structure and the re-profiling of its roles is critical. This will improve capacity to deliver consistent professional and efficient services across the country.
- Co-ordination and structuring of training and development for all employees through a centralised Learning Academy within the guidelines of the Integrated Talent Management Policy and Performance Management Policy.

Human Resources Oversight Statistics

EMPLOYEE-RELATED COST

Table D1: Personnel cost

	Total Expenditure for the Entity R'000	Personnel Expenditure R'000	Personnel Expenditure as a % of Total Expenditure (%)	No. of Employees	Average Personnel Cost per Employee R'000
Total remuneration cost	6 685 987	2 566	38%	6 949	369

Significantly, the above table reveals that personnel expenditure at 38% of total expenditure is a substantial component of the organisation's expenditure. Not only is the NHLS providing employment to a significant number of people, but it is improving the lives of many South Africans who are connected to employees. The NHLS can pride itself in being an employer that ensures that decent wages are provided and lives are supported, with its lowest earning level being R84 000 per year – a level which makes the NHLS a market leader in its grade A–C categories.

PERSONNEL COST BY SALARY BAND

Table D2: Personnel cost – employees and ex-employees by salary band

Salary Band	Personnel Expenditure R'000	% of Personnel Expenditure to Total Personnel Cost(%)	No. of Employees	Average Personnel Cost per Employee R'000
Top Management	13 196	1%	8	1 664
Senior Management	139 885	5%	120	110
Professional qualified	1 191 103	46%	2 220	6
Skilled	443 925	17%	1 438	9
Semi-skilled	474 250	18%	2 134	6
Unskilled	58 582	2%	369	36
Training	245 046	10%	660	20
Total	2 565 987	100%	6 949	369

The above table reflects employee cost as a percentage of total employee expenditure. A point to highlight is the fact that 63.72% of the NHLS's compensation cost is for health and general professionals in the 'Professional qualified' and 'Skilled' categories; these are the NHLS's critical delivery roles.

TRAINING COSTS

Table D3: Training costs

Training Type	Personnel Expenditure R'000	Training Expenditure R'000	Training Expenditure as a % of Personnel Cost (%)	No. of Employees Trained	Average Training Cost per Employee (R)
Non-PIVOTAL* programmes (short courses, workshops, seminars, congresses and continuous professional development interventions)	2 565 987	8 864	0.35%	4 629	1 915
PIVOTAL programmes for non-employees (higher education qualifications)	-	3 862	-	103	37 500
PIVOTAL programmes for non-employees participating in learnerships, on-the-job training and workplace experience	13 344	13 344	-	562	23 744

* PIVOTAL = Professional, Vocational, Technical and Academic learning programmes that result in occupational qualifications or part qualifications on the National Qualifications Framework

The NHLS's commitment to the development of its staff and the capacitation of new staff, with the intent of fulfilling the need ahead of demand, is undisputable. In addition to the regular training for learnership and professional registrations, 103 scholarships were awarded to needy students across the country studying towards the National Diploma in Biomedical Technology and the Bachelor of Health Science, and bursaries were given to NHLS staff wishing to pursue their career development by way of formal qualifications.

In addition to training provided internally, the NHLS also delivered training on Minimum Standards for Reference Laboratories to 265 employees from 11 SADC member states in terms of a memorandum of understanding.

EMPLOYMENT AND VACANCIES

Table D4: Employment and vacancies

Level	2014/15 No. of Employees	2014/15 Approved Posts	2015/16 No. of Employees	2015/16 Vacancies	% of Vacancies
Top Management	8	9	7	2	22%
Senior Management	119	153	125	28	18%
Professional qualified	2 135	2 591	2 180	411	16%
Skilled	1 316	1 643	1 419	224	14%
Semi-skilled	1 949	2 385	2 153	232	10%
Unskilled	373	394	345	49	12%
Training	793	790	758	32	4%
Total	6 693	7 965	6 987	978	12%

From Tables D4 and D5 it is clear that staff turnover has now stabilised, with the vacancy rate going below 15%, despite the fact that austerity measures were in place.

EMPLOYMENT CHANGES

Table D5: Employment changes

Salary Band	Employment at Beginning of Period	Appointments	Terminations	Employment at End of the Period
Top Management	8	1	1	7
Senior Management	119	43	17	125
Professional qualified	2 135	130	71	2 180
Skilled	1 316	494	222	1 419
Semi-skilled	1 949	675	132	2 153
Unskilled	373	51	25	345
Training – Med Students	793	-	-	758
Total	6 693	1 394	468	6 987

A total of 1 394 appointments were made in the 2015/16 period, comprising both permanent and non-permanent staff. The difference between the opening period numbers (plus appointments, less reported termination of 468) and the closing balance is 632. This is as a result of end of contract and sessional terminations during the reporting period. These are reported as end of contract not termination in the NHLS system.

APPOINTMENTS PER CONTRACT TYPE

Table D6: Appointments per contract type

Contract Type	Count
Permanent staff	1 342
Post-retirement and sessional	20
Temporary staff	32
Total	1 394

The NHLS engages post-retirees and sessional employees in the field of pathology, whenever a situation arises where this scarce skill is required. These types of employees are only recruited for a specified period, or until an assignment has been completed.

REASONS FOR STAFF LEAVING

Table D7: Reasons for staff leaving – Permanent staff

Reason	Number	% of Total No. of Staff Leaving (%)
Death	14	0.2
Resignation	354	5.6
Dismissal	23	0.3
Retirement	66	1.0
Ill health	11	0.2
Total	468	7.3

LABOUR RELATIONS: MISCONDUCT AND DISCIPLINARY ACTION

Table D8: Labour relations – misconduct and disciplinary action

Nature of Disciplinary Action	Number
Verbal warning	29
Written warning	34
Final written warning	37
Dismissal	23
Total	123

Despite the challenges, it is clear that majority of NHLS staff uphold the policies, procedures and values of the organisation. This conclusion is drawn from the total number of disciplinary cases, given that it was an extremely difficult year when one would have expected an increase in unreasonableness. Of the 123 disciplinary cases that were concluded, only 23 (18%) resulted in dismissals. This figure represents 0.3% of the total NHLS staff complement. All the matters were handled in line with the policy of the organisation.

EQUITY TARGET AND EMPLOYMENT EQUITY STATUS

Table D9: Equity target and employment equity status – males

Level	Male								Total
	African		Coloured		Indian		White		
	Current	Target	Current	Target	Current	Target	Current	Target	
Top Management	2	2	0	0	1	1	1	1	4
Senior Management	29	30	3	5	13	10	17	14	62
Professional qualified	429	425	60	63	66	64	109	100	664
Skilled	377	380	34	35	25	22	12	8	448
Semi-skilled	498	502	61	63	43	41	16	13	618
Unskilled	202	198	8	8	1	3	1	3	212
Total	1 537	1 537	166	174	149	141	156	139	2 008

Table D10: Equity target and employment equity status – females

Level	Female								Total
	African		Coloured		Indian		White		
	Current	Target	Current	Target	Current	Target	Current	Target	
Top Management	1	2	0	0	0	0	1	1	2
Senior Management	31	35	2	4	10	2	22	17	65
Professional qualified	814	814	114	116	190	175	382	365	1 500
Skilled	762	763	61	63	59	50	66	59	948
Semi-skilled	1 103	1 105	183	186	49	46	105	102	1 440
Unskilled	123	124	7	8	1	1	1	0	132
Total	2 834	2 843	367	377	309	274	577	544	4 087

As at the end of March 16 the total workforce profile is 6095. Excluded: temps less than 18 months, students, post retirements and sessionals. Included: permanent staff plus fixed term contracts with more than 18 months. Targets reflected as per NHLS EE plan 2014/17.

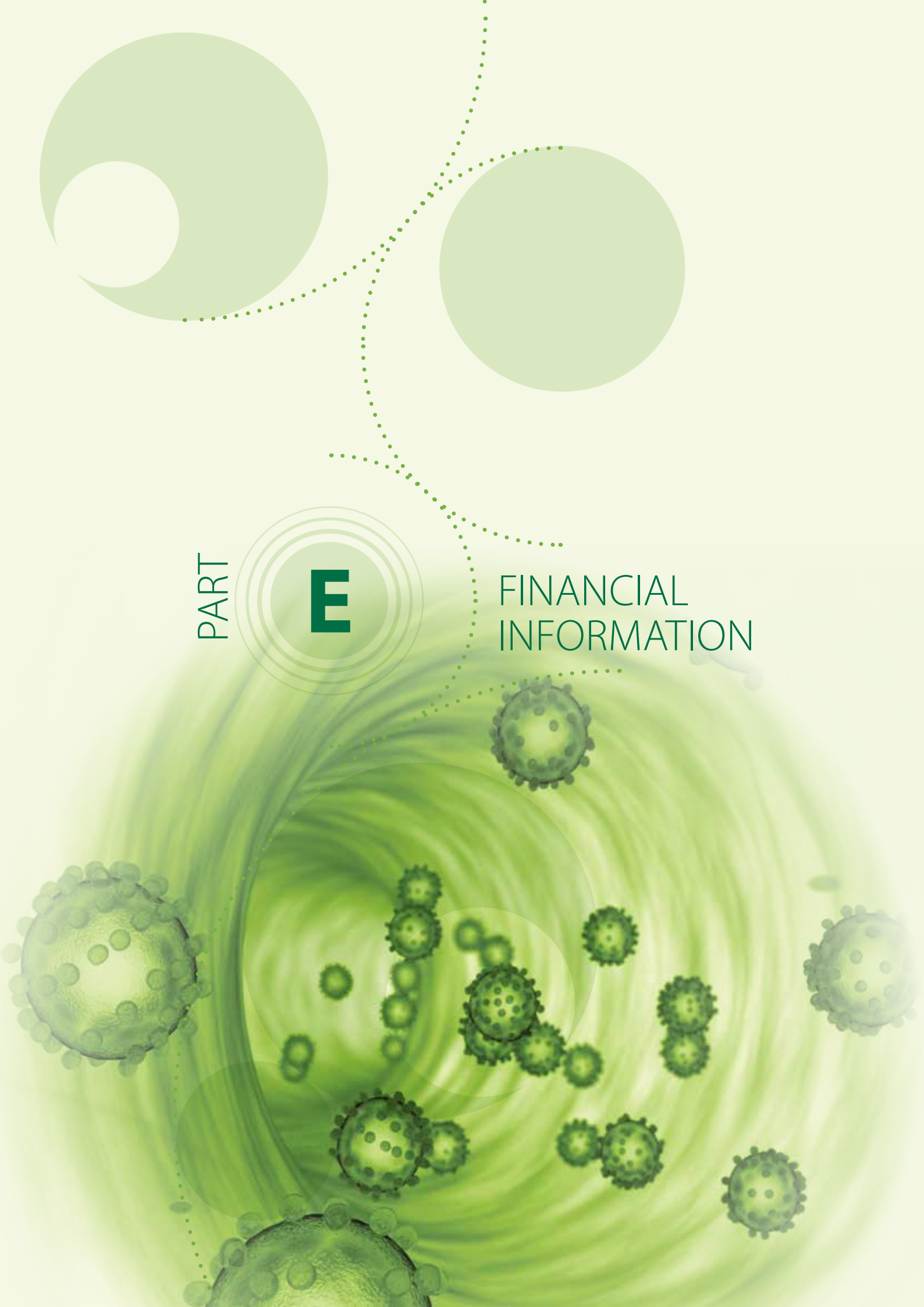
Table D11: Equity target and employment equity status – people with disabilities

Level	Staff with Disabilities			
	Male		Female	
	Current	Target	Current	Target
Top Management	0	1	0	0
Senior Management	0	2	0	1
Professional qualified	0	8	9	0
Skilled	3	5	5	3
Semi-skilled	3	4	7	2
Unskilled	0	2	1	2
Total	6	22	22	8

PART

E

FINANCIAL
INFORMATION



General Information

Country of incorporation and domicile	South Africa
Legal form of entity	Schedule 3A public entity
Nature of business and principal activities	Healthcare, research and training
Registered office	1 Modderfontein Road Rietfontein Sandringham Johannesburg 2000
Postal address	Private Bag X 8 Johannesburg 2131
Controlling entity	National Department of Health
Bankers	First National Bank Ltd Rand Merchant Bank Ltd Investec Ltd Nedbank Ltd
External Auditors	SizweNtsalubaGobodo Inc Chartered Accountants (SA)
Attorneys	Hogan Lovells Gildenhuys Malatji Inc.
Preparer	The Audited Group Annual Financial Statements were internally compiled by: Ben Wikner Manager – Group Accounting
Published	31 July 2016
Website	www.nhls.ac.za
Practice number	PR5200296
Legislation governing NHLS operations	The National Health Laboratory Service Act, 2000 (Act No. 37 of 2000) The general rules issued in terms of Section 27 of the Act The Public Finance Management Act (PFMA), 1999 (Act No.1 of 1999) National Treasury regulations issued in terms of the PFMA

Index

The reports and statements set out below comprise the Audited Group Annual Financial Statements presented to the Board members:

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The following supplementary information does not form part of the Audited Group Annual Financial Statements and is unaudited:

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Chief Financial Officer's Report

OVERVIEW: STATEMENT OF FINANCIAL PERFORMANCE

Overview of results

A Summary of the financial performance for the 2015/16 fiscal year is as follows:

- NHLS generated a surplus for the year amounting to R279 million compared to R180 million in the previous financial year.
- Revenue grew from R5.7 billion to R6.4 billion. Revenue from provincial departments amounted to 13% of total revenue generated.
- Production costs including direct labour and material grew from R4.2 billion to R4.8 billion. This equated to a 14% increase, mainly due to increases in volume, price increase and fluctuation in the exchange rate. Labour constituted 37% of the total revenue compared to 35% in the previous financial year. Average revenue per capita increased by 7% which is in line with inflation.
- General or support expenses increased marginally by 0.75% which was lower than inflation. This decrease in support costs was largely due to an increase in productivity as well as process efficiencies.
- Assets increased from R4.1 billion to R4.6 billion which translates to a 12% increase, mainly due to a 13.8% increase in accounts receivables and 14% in the bank account. The closing bank account balance ended at R739 million compared to R651 million in the previous financial year.
- The current liabilities remained constant due to an increase in leave provision and a decrease in trade payables balance. The leave provision had an overall increase of 46% to R688 million and trade payables decrease by 18% to R914 million.

The organisation has continued the trend of strengthening the stability of delivery operations during the current financial year. As the NHLS strategic plan implementation unfolds, we envisage that the organisation will improve the diagnostic laboratory model, to deliver on its mandate and further improve the financial performance.

Cash flow

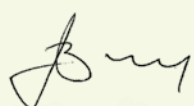
During the current financial year, the NHLS received R5.9 billion from customers. Of the R5.9 billion, R2.5 billion was utilised for personnel costs and R3.2 billion was utilised for goods and services. Compared to the prior financial year, payments from customers amounted to R4.8 billion, while R2.1 billion was utilised for personnel costs and R2.4 billion utilised for goods and services. The long outstanding accounts payable balances from the procurement of goods and services significantly reduced resulting in a reduction of creditor's days from 156 days to 98 days year on year.

Budget variance analysis

The total revenue is 12% over budget with a Rand value of R700 million due to a 2% increase in the demand for diagnostic laboratory services in the current financial year. This positive variance is mainly attributable to HIV viral load and HIV PCR which increased by 20% and 30% respectively.

Personnel costs are in line with budgetary figures in the current financial year.

Material expenditure remained constant at 31% as a percentage of revenue.



Sikhumbuzo Zulu CA(SA)
Chief Financial Officer



Chief Financial Officer: Sikhumbuzo Zulu CA(SA)

Summary of Group salient information

Financial performance (R'000)	12 months 2012	12 months 2013	12 months 2014	12 months 2015 Restated	12 months 2016
Revenue	4 050 400	4 530 697	5 208 377	5 706 961	6 442 194
Other revenue	260 641	436 383	428 326	266 490	329 969
Total revenue	4 311 041	4 967 080	5 636 703	5 973 451	6 772 163
Gross margin/(loss)	1 101 808	1 460 231	1 244 684	1 475 998	1 602 546
Operating surplus/(deficit)	599 448	(105 900)	(217 260)	15 179	86 215
Net surplus/(deficit)	626 982	(64 082)	(152 199)	179 747	279 287
Cash position (R'000)					
Net cash generated from operations	571 991	262 297	(157 987)	374 197	177 986
Net increase/(decrease) in cash	401 311	85 982	(316 762)	303 214	87 809
Cash-on-hand available for NHLS operations	464 279	544 008	278 598	588 171	570 756
Cash-on-hand available for grants held in trust	114 453	120 706	69 354	62 995	168 219
Total reported cash-on-hand	578 732	664 714	347 952	651 166	738 975
Subsidies received from government (R'000)					
Government funding of national institutes	79 209	85 495	104 885	125 280	678 926
Teaching and research (R'000)					
Teaching income generated by universities	41 348	48 545	17 491	57 299	106 526
Investments in capex activities (R'000)					
Capital expenditure	190 067	177 411	186 042	47 641	155 344
Capex spend as % of turnover	5%	1%	3%	1%	2%
Liquidity ratio analysis					
Current ratio [current assets/current liabilities]	3.5:1	4.2:1	2.4:1	2.6:1	2.5:1
Acid test ratio [current assets – inventory/current liabilities]	3.4:1	4.1:1	2.3:1	2.5:1	2.5:1
Other ratio analysis					
Growth in revenue %	15%	18%	12%	10%	13%

Revenue increased by 14% on average over a period of five years. This resulted in a R2.39 billion increase since 2012 which is mainly due to the increase in consumption and technology changes in production.

The total net surplus generated over the last five years amounted to R1.02 billion which allows the NHLS to ensure continued sustainability and investment in capital expenditure and maintenance.

Healthy liquidity ratios are continuously being maintained at a ratio of current liabilities being fully recovered by current assets.

Statement of Responsibility and Approval of the Financial Statements

The Accounting Authority is required by the Public Finance Management Act, (Act No. 1 of 1999) (as amended by Act No. 29 of 1999)(PFMA), to maintain adequate accounting records and is responsible for the content and integrity of the Audited Group Annual Financial Statements and related financial information included in this report. It is the responsibility of the Accounting Authority to ensure that the Audited Group Annual Financial Statements fairly present the state of affairs of the entity as at the end of the financial year and the results of its operations and cash flows for the period then ended. The external auditors are engaged to express an independent opinion on the Audited Group Annual Financial Statements and were given unrestricted access to all financial records and related data.

The Audited Group Annual Financial Statements have been prepared in accordance with Standards of Generally Recognised Accounting Practice (GRAP) including any interpretations, guidelines and directives issued by the Accounting Standards Board and International Financial Reporting Standards (IFRS) where statements of GRAP are not yet effective. The Group Annual Financial Statements have been prepared using the accrual basis of accounting.

The Audited Group Annual Financial Statements are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The Board members acknowledge that they are ultimately responsible for the system of internal financial control established by the economic entity and place considerable importance on maintaining a strong control environment. To enable the members to meet these responsibilities, the Accounting Authority sets standards for internal control aimed at reducing the risk of error or deficit in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the economic entity and all employees are required to maintain the highest ethical standards in ensuring the economic entity's business is conducted in a manner that, in all reasonable circumstances, is above reproach. The focus of risk management in the economic entity is on identifying, assessing, managing and monitoring all known forms of risk across the economic entity. While operating risk cannot be fully eliminated, the economic entity endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The Board is of the opinion, based on the information and explanations given by management and by the entity's internal and external auditors, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the Audited Group Annual Financial Statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement or error.

The Board has committed to business integrity, transparency and professionalism in all its activities. As part of this commitment, the Accounting Authority supports the highest standards of corporate governance and the ongoing development of best practice.

The Board has reviewed the economic entity's cash flow forecast for the year to 31 March 2017 and, in the light of this review and the current financial position, they are satisfied that the economic entity has or has access to adequate resources to continue in operational existence for the foreseeable future subject to the timeous settlement of debt by all public sector healthcare providers.

The entity is wholly dependent on all public healthcare providers for continued funding of operations. The Audited Group Annual Financial Statements are prepared on the basis that the entity is a going concern and that the National Department of Health has neither the intention nor the need to liquidate or curtail materially the scale of the entity.

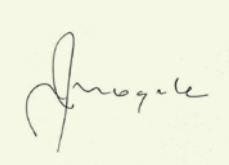
APPROVAL OF GROUP ANNUAL FINANCIAL STATEMENTS

Although the Accounting Authority are primarily responsible for the financial affairs of the entity, it is supported by the economic entity's external auditors. The external auditors are responsible for independently reviewing and reporting on the economic entity's Audited Group Annual Financial Statements. The Audited Group Annual Financial Statements have been examined by the economic entity's external auditors and their report is presented on pages 155–158.

The Audited Group Annual Financial Statements set out on pages 159–207, which have been prepared on the going concern basis, were approved by the Accounting Authority in terms of section 51(1)(f) of the PFMA on 29 July 2016 and were signed on its behalf by:



Barry Schoub
Chairperson: Accounting Authority



Joyce Mogale
Chief Executive Officer

Independent auditor's report to Parliament on the National Health Laboratory Service

REPORT ON THE CONSOLIDATED AND SEPARATE FINANCIAL STATEMENTS

Introduction

1. We have audited the consolidated and separate Financial Statements of the National Health Laboratory Service set out on pages 159–205, which comprise the consolidated and separate statement of financial position as at 31 March 2016, the consolidated and separate statement of financial performance, statement of changes in net assets and statement of cash flows and the statement of comparison of budget and actual amounts for the year then ended, as well as the notes, comprising a summary of significant accounting policies and other explanatory information.

Accounting Authority responsibility for the consolidated and separate Financial Statements

2. The board of directors, which constitutes the accounting authority is responsible for the preparation and fair presentation of these consolidated and separate Financial Statements in accordance with the South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act, Act No 1 of 1999 (PFMA), of South Africa and for such internal control as the accounting authority determines is necessary to enable the preparation of consolidated and separate Financial Statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility

3. Our responsibility is to express an opinion on these consolidated and separate Financial Statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements, and plan and perform the audit to obtain reasonable assurance about whether the consolidated and separate Financial Statements are free from material misstatement.
4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated and separate Financial Statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the consolidated and separate Financial Statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated and separate Financial Statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated and separate Financial Statements.
5. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

6. In our opinion, the consolidated and separate Financial Statements present fairly, in all material respects, the financial position of the public entity as at 31 March 2016 and their financial performance and cash flows for the year then ended, in accordance with SA Standards of GRAP and the requirements of the PFMA.

Emphasis of matter

7. We draw attention to the matter below. Our opinion is not modified in respect of this matter.

Restatement of corresponding figures

8. As disclosed in note 37 to the Financial Statements, the corresponding figures for 31 March 2015 have been restated as a result of an error discovered during 31 March 2016 in the Financial Statements of the public entity at, and for the year ended, 31 March 2015.

Report on other legal and regulatory requirements

9. In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) and the general notice issued in terms thereof, we have a responsibility to report findings on the reported performance information against predetermined objectives of selected programmes presented in the Annual Performance Report, compliance with legislation and internal control. We performed tests to identify reportable findings as described under each subheading but not to gather evidence to express assurance on these matters. Accordingly, we do not express an opinion or conclusion on these matters.

PREDETERMINED OBJECTIVES

10. We performed procedures to obtain evidence about the usefulness and reliability of the reported performance information of the following selected programmes presented in the annual performance report of the public entity for the year ended 31 March 2016:
- Programme 3: National Institute for Occupational Health on pages 30–32
 - Programme 4: Laboratory Service on pages 32–33.
11. We evaluated the usefulness of the reported performance information to determine whether it was presented in accordance with the National Treasury's Annual Reporting principles and whether the reported performance was consistent with the planned programmes. We further performed tests to determine whether indicators and targets were well defined, verifiable, specific, measurable, time bound and relevant, as required by the National Treasury's Framework for managing programme performance information (FMPPI).
12. We assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.
13. The material findings in respect of the selected programmes are as follows:

Programme 3: National Institute for Occupational Health

Usefulness of reported performance information

14. Performance indicators should be well defined by having clear definitions so that data can be collected consistently and is easy to understand and use, as required by the FMPPI. A total of 43% of the indicators were not well defined.
15. The processes and systems that produced the indicator should be verifiable, as required by the FMPPI. A total of 43% of the indicators were not verifiable.
16. Performance targets should be specific in clearly identifying the nature and required level of performance as required by the FMPPI. A total of 49% of the targets were not specific.
17. The FMPPI requires that performance targets should be measurable. A total of 49% of the targets were not measurable.
18. The period or deadline for delivery of targets should be specified as required by the FMPPI. A total of 49% of the targets were not time bound.

Reliability of reported performance information

19. The FMPPI requires auditees to have appropriate systems to collect, collate, verify and store performance information to ensure reliable reporting of actual achievements against planned objectives, indicators and targets. Adequate and reliable corroborating evidence could not be provided for the reported achievements against planned targets of 49% of the indicators.

Programme 4: Laboratory Service

Usefulness of reported performance information

20. Performance indicators should be well defined by having clear definitions so that data can be collected consistently and is easy to understand and use, as required by the FMPPI. A total of 45% of the indicators were not well defined.
21. The processes and systems that produced the indicator should be verifiable, as required by the FMPPI. A total of 45% of the indicators were not verifiable.

- 22. Performance targets should be specific in clearly identifying the nature and required level of performance as required by the FMPPI. A total of 45% of the targets were not specific.
- 23. The FMPPI requires that performance targets should be measurable. A total of 45% of the targets were not measurable.
- 24. The period or deadline for delivery of targets should be specified as required by the FMPPI. A total of 45% of the targets were not time bound.

Reliability of reported performance information

- 25. The FMPPI requires auditees to have appropriate systems to collect, collate, verify and store performance information to ensure reliable reporting of actual achievements against planned objectives, indicators and targets. Adequate and reliable corroborating evidence could not be provided for the reported achievements against planned targets of 45% of the indicators.

Additional matter

- 26. We draw attention to the following matter:

Achievement of planned targets

- 27. Refer to the annual performance report on pages 28–34 for information on the achievement of the planned targets for the year. This information should be considered in the context of the material findings on the usefulness and reliability of the reported performance information in paragraph(s) 14 to 25 of this report.

COMPLIANCE WITH LEGISLATION

- 28. We performed procedures to obtain evidence that the public entity had complied with legislation regarding financial matters, financial management and other related matters. Our material findings on compliance with specific matters in key legislation, as set out in the general notice issued in terms of the PAA, are as follows:

Annual Financial Statements

- 29. The Financial Statements submitted for auditing were not prepared in accordance with the prescribed financial reporting framework and supported by full and proper records as required by section 55(1) (a) and (b) of the Public Finance Management Act.
- 30. Material misstatements of non-current assets, current assets, liabilities, expenditure and disclosure items identified by the auditors in the submitted Financial Statements were subsequently corrected and the supporting records were provided, resulting in the Financial Statements receiving an unqualified audit opinion.

Expenditure Management

- 31. Effective steps were not taken to prevent irregular expenditure, amounting to R28.9 million as disclosed in note 38 of the AFS, as required by Section 38(1)(c)(ii) of the PFMA and Treasury Regulation 9.1.1.

INTERNAL CONTROL

- 32. We considered internal control relevant to our audit of the Financial Statements, the Annual Performance Report and compliance with legislation. The matters reported below are limited to the significant internal control deficiencies that resulted in the findings on the annual performance report and the findings on compliance with legislation included in this report.

Leadership

- 33. The public entity did not develop and implement proper performance planning and management practices to provide for the development of performance indicators and targets that follow the SMART principles as set out in the FMPPI.

Financial and performance management

34. The entity did not implement controls over the monthly processing and reconciling of transactions that led to the Financial Statements to be corrected.
35. The entity did not prepare regular, accurate and complete financial reports that are supported and evidenced by reliable information as the entity did not have an adequate system for identifying and recognising all irregular expenditure.

OTHER REPORTS

Performance audits

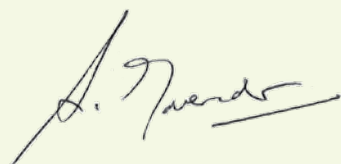
36. The performance audits instituted in the prior years for KZN Department of Health have been finalised. The performance audits for the Gauteng Department of Health is still in progress.

Investigations

37. An independent consulting firm performed an investigation at the request of the public entity which covered the period October 2010 to November 2013. The investigation was initiated based on the alleged financial misconduct relating to the procurement of specific public entity assets under the contract with a supplier. The public entity is in the process of instituting legal action against the supplier.
38. An independent consulting firm is performing a forensic investigation on one of the supplier's contract at the request of the public entity, which covers the period 26 September 2008 to 31 March 2016. The investigation was initiated based on a request from management. The outcome of the investigation is expected within the 2016/17 financial year.

Audit-related services and special audits

39. Four agreed-upon procedure engagements were performed solely to confirm that the donor funds have been utilised according to donor funding conditions.



Per: Loganathan Govender

SizweNtsalubaGobodo Inc.

Registered Auditor
20 Morris Street East
Woodmead
Johannesburg

Date: 29 July 2016

**Sizwe
Ntsaluba
Gobodo**



AUDIT • ADVISORY • FORENSICS

Statement of Financial Position

as at 31 March 2016

		Economic entity		Controlling entity	
		2016 R'000	2015 Restated* R'000	2016 R'000	2015 Restated* R'000
Note					
ASSETS					
Current Assets					
Inventories	2	104 218	88 970	100 306	85 017
Trade and other receivables	3	3 153 797	2 853 416	3 151 664	2 851 429
Receivables from non-exchange transactions	4	1 127	8 943	1 127	8 943
Cash and cash equivalents	5	738 975	651 166	736 393	648 725
		3 998 117	3 602 495	3 989 490	3 594 114
Non-current Assets					
Property, plant and equipment	6	270 602	335 698	268 685	333 589
Intangible assets	8	113 537	15 739	113 537	15 739
Heritage assets	9	170 006	170 456	169 579	170 029
		554 145	521 893	551 801	519 357
Total assets		4 552 262	4 124 388	4 541 291	4 113 471
LIABILITIES					
Current Liabilities					
Other financial liabilities	10	-	3 820	-	3 820
Trade and other payables	11	914 172	1 080 795	912 933	1 079 751
Employee benefit obligation	12	21 003	22 317	21 003	22 317
Deferred income	13	4 137	52 264	4 137	52 264
Provisions	14	688 063	467 569	688 063	467 569
		1 627 375	1 626 765	1 626 136	1 625 721
Non-Current Liabilities					
Other financial liabilities	10	68 896	-	68 896	-
Employee benefit obligation	12	933 220	854 140	933 220	854 140
		1 002 116	854 140	1 002 116	854 140
Total Liabilities		2 629 491	2 480 905	2 628 252	2 479 861
Net Assets		1 922 771	1 643 483	1 913 039	1 633 610
Stated capital	15	332	332	332	332
Accumulated surplus		1 922 439	1 643 151	1 912 707	1 633 278
Total Net Assets		1 922 771	1 643 483	1 913 039	1 633 610

Statement of Financial Performance

for the year ended 31 March 2016

		Economic entity		Controlling entity	
		2016 R'000	2015 Restated*	2016 R'000	2015 Restated*
	Note				
Revenue	20	6 442 194	5 706 961	6 422 137	5 691 436
Cost of sales	21	(4 839 648)	(4 230 963)	(4 824 775)	(4 219 638)
Gross surplus		1 602 546	1 475 998	1 597 362	1 471 798
Other income	22	329 969	266 490	329 963	266 489
Operating expenses		(1 846 300)	(1 727 309)	(1 840 922)	(1 725 943)
Operating surplus	23	86 215	15 179	86 403	12 344
Investment revenue	26	193 256	166 223	193 172	166 223
Finance costs	27	(184)	(1 655)	(147)	(1 655)
Surplus for the year		279 287	179 747	279 428	176 912

*See Notes.

Statement of Changes in Net Assets for the year ended 31 March 2016

	Stated capital R'000	Capital replacement reserve R'000	General reserve R'000	Accumulated surplus R'000	Total net assets R'000
Economic entity					
Opening balance as previously reported	332	8 000	34 505	1 468 835	1 511 672
Adjustments					
Prior year adjustments	-	-	-	(47 936)	(47 936)
Balance at 01 April 2014 as restated*	332	8 000	34 505	1 420 899	1 463 736
Surplus for the year	-	-	-	179 747	179 747
Transfer of general reserve to accumulated surplus	-	(8 000)	-	8 000	-
Transfer of capital replacement reserve to accumulated surplus	-	-	(34 505)	34 505	-
Total changes	-	(8 000)	(34 505)	222 252	179 747
Balance at 01 April 2015 as restated*	332	-	-	1 643 152	1 643 484
Surplus for the year	-	-	-	279 287	279 287
Total changes	-	-	-	279 287	279 287
Balance at 31 March 2016	332	-	-	1 922 439	1 922 771
Note(s)	15	16	17		
Controlling entity					
Opening balance as previously reported	332	8 000	31 206	1 465 096	1 504 634
Adjustments					
Prior year adjustments	-	-	-	(47 936)	(47 936)
Balance at 01 April 2014 as restated*	332	8 000	31 206	1 417 160	1 456 698
Changes in net assets					
Surplus for the year	-	-	-	176 912	176 912
Transfer of general reserve to accumulated surplus	-	-	(31 206)	31 206	-
Transfer of capital replacement reserve to accumulated surplus	-	(8 000)	-	8 000	-
Total changes	-	(8 000)	(31 206)	216 118	176 912
Balance at 01 April 2015 as restated*	332	-	-	1 633 279	1 633 611
Surplus for the year	-	-	-	279 428	279 428
Total changes	-	-	-	279 428	279 428
Balance at 31 March 2016	332	-	-	1 912 707	1 913 039
Note(s)	15	16	17		

Statement of Cash Flows

for the year ended 31 March 2016

	Note	Economic entity		Controlling entity	
		2016 R'000	2015 Restated* R'000	2016 R'000	2015 Restated* R'000
CASH FLOWS FROM OPERATING ACTIVITIES					
Receipts					
Sale of goods and services		5 736 077	4 766 378	5 716 077	4 750 538
Interest income		193 256	166 223	193 172	166 223
		5 929 333	4 932 601	5 909 249	4 916 761
Payments					
Employee costs		(2 531 903)	(2 137 835)	(2 499 145)	(2 129 174)
Suppliers		(3 219 260)	(2 418 914)	(3 232 293)	(2 413 617)
Finance costs		(184)	(1 655)	(147)	(1 655)
		(5 751 347)	(4 558 404)	(5 731 585)	(4 544 446)
Net cash flows from operating activities	29	177 986	374 197	177 664	372 315
CASH FLOWS FROM INVESTING ACTIVITIES					
Purchase of property, plant and equipment	6	(44 457)	(47 386)	(44 276)	(46 920)
Proceeds from sale of property, plant and equipment	6	(186)	461	(186)	461
Purchase of intangible assets	8	(110 887)	(255)	(110 887)	(255)
Proceeds from sale of other intangible assets	8	277	-	277	-
Net cash flows from investing activities		(155 253)	(47 180)	(155 072)	(46 714)
CASH FLOWS FROM FINANCING ACTIVITIES					
Repayment of other financial liabilities		65 076	(23 666)	65 076	(23 666)
Finance lease payments		-	(137)	-	(137)
Net cash flows from financing activities		65 076	(23 803)	65 076	(23 803)
Net increase/(decrease) in cash and cash equivalents					
Cash and cash equivalents at the beginning of the year		651 166	347 952	648 725	346 927
Cash and cash equivalents at the end of the year	5	738 975	651 166	736 393	648 725

* See Notes

Statement of Comparison of Budget and Actual Amounts for the year ended 31 March 2016

Budget on Accrual Basis

	Approved budget R'000	Adjustments R'000	Final budget R'000	Actual amounts on comparable basis R'000	Difference between final budget and actual R'000	Reference
CONTROLLING ENTITY						
STATEMENT OF FINANCIAL PERFORMANCE						
REVENUE FROM EXCHANGE TRANSACTIONS						
Rendering of services	5 737 010	-	5 737 010	5 734 631	(2 379)	1
Miscellaneous sales	7 003	-	7 003	8 580	1 577	
Fair value adjustments:						
Notional interest	-	-	-	22 608	22 608	
Royalties received	-	-	-	363	363	
Discount received	-	-	-	658	658	
Recoveries	220 627	-	220 627	7 227	(213 400)	
Teaching income	46 767	-	46 767	106 526	59 759	2
Sundry income	-	-	-	10 746	10 746	
Grants income recognised	408 566	-	408 566	181 835	(226 731)	
Interest received	40 000	-	40 000	193 172	153 172	
Total revenue from exchange transactions	6 459 973	-	6 459 973	6 266 346	(193 627)	
REVENUE FROM NON-EXCHANGE TRANSACTIONS						
Transfer revenue						
Government grants and subsidies	-	-	-	678 926	678 926	
Total revenue	6 459 973	-	6 459 973	6 945 272	485 299	
EXPENDITURE						
Personnel	(2 640 715)	-	(2 640 715)	(2 556 127)	84 588	3
Depreciation and amortisation	(88 526)	-	(88 526)	(118 168)	(29 642)	
Finance costs	(33)	-	(33)	(147)	(114)	
Lease rentals on operating lease	-	-	-	(65 441)	(65 441)	
Bad debts written off	-	-	-	(720 045)	(720 045)	4
Repairs and maintenance	-	-	-	(105 657)	(105 657)	
Sale of goods/inventory	-	-	-	(39)	(39)	
General expenses	(3 377 703)	-	(3 377 703)	(3 095 783)	281 920	5
Total expenditure	(6 106 977)	-	(6 106 977)	(6 661 407)	(554 430)	
Operating surplus	352 996	-	352 996	283 865	(69 131)	
Loss on disposal of assets and liabilities	(135)	-	(135)	(4 437)	(4 302)	
Surplus for the year	352 861	-	352 861	279 428	73 433	
Actual amount on comparable basis as presented in the Budget and Actual Comparative Statement	352 861	-	352 861	279 428	73 433	

VARIANCE ANALYSIS

1. The total revenue increased by 14% year-on-year from R5.6 billion to R6.4 billion. Upward volumes drove the increased turnover. Other income increased by 160% year-on-year due to the NICD/NIOH/NCR budget allocation that is being funded by the National Treasury.
2. Teaching income variances rose due to the use of an Educational Services Fee formula that uses actual data received from universities at the end of their academic year to calculate the amount of revenue generated for teaching services.
3. Personnel costs incurred during the 2015/16 financial year are in line with the approved budget.
4. A bad debt provision for KZN of R738 million has contributed mainly to the R734 million net variance between actual and budget due to the continued payment of a monthly flat rate.
5. General expenses relate to direct materials and other overheads. Material spend for the year is R2.1 billion (2015: R1.8 billion) which represents a 14% increase year-on-year. The increase is attributable to volume and price increases. Volumes increased by 2% driven mainly by priority programme tests. The increase in prices was highly influenced by the exchange rate.

Accounting Policies

1. PRESENTATION OF THE ECONOMIC ENTITY FINANCIAL STATEMENTS

The Group Annual Financial Statements have been prepared in accordance with the effective Standards of Generally Recognised Accounting Practice (GRAP) as issued by the Accounting Standards Board. Where standards of GRAP are not yet effective, the following standard setters are used:

- a) International Public Sector Accounting Standards (IPSASB);
- b) International Accounting Standards Board (IASB), including the Framework for the Preparation and Presentation of Financial Statements;
- c) Financial Reporting Standards Council (FRSC).

The Group Annual Financial Statements have been prepared using the accrual basis of accounting.

The Group Annual Financial Statements have been prepared on the historical cost accounting basis. Historical cost is generally based on the fair value of the consideration given in exchange for assets.

Standards and interpretations of GRAP approved but not yet effective

The list below does not incorporate those standards that have no impact on the operations of the NHLS.

At the date of authorisation of the Group Annual Financial Statements, the following relevant GRAP standards and interpretations were in issue but not yet effective:

GRAP 20: Related party disclosures – In assessing this new standard, management have determined that related party disclosures exist for the NHLS as it is subject to overall direction from the executive government and ultimately parliament, and operate together to achieve the policies of government.

Effective date: No effective date has been determined by the Minister of Finance.

GRAP 108: Statutory receivables – In assessing this new standard, management have determined that statutory receivables exist in the financial records of the NHLS. A statutory receivable is a receivable that arises from legislation and the transaction amount for a statutory receivable is levied or charged in accordance with legislation, supporting regulations or similar means. The NHLS came into existence through an Act of parliament and governed by rules that stipulate the setting of fees and tariffs approved by the Minister of Health.

Effective date: No effective date has been determined by the Minister of Finance.

IGRAP 17: Interpretation of the Standard of GRAP on Service Concession Arrangements Where a Grantor Controls a Significant Residual Interest in an Asset – In assessing this new interpretation of the standard, management has determined that there may be instances at the NHLS where the grantor has entered into a service concession arrangement, but only controls, through ownership, beneficial entitlement or otherwise, a significant residual interest in a service concession asset at the end of the arrangement, where the arrangement does not constitute a lease.

Effective date: No effective date has been determined by the Minister of Finance.

Management is still in the process of assessing the impact of these standards and interpretations on the operations of NHLS. The standards and interpretations where applicable will be adopted in the year they become effective.

A summary of the significant accounting policies, which have been consistently applied, are disclosed below.

1.1 Consolidation

Basis of consolidation

Consolidated Audited Group Annual Financial Statements are the Audited Group Annual Financial Statements of the economic entity presented as those of a single entity.

The Consolidated Group Annual Financial Statements incorporate the Annual Financial Statements of the National Health Laboratory Service (NHLS) controlling entity and those of the controlled entity, the South African Vaccine Producers (Pty) Ltd (SAVP).

The reporting date of the NHLS is the same as its controlled entity SAVP.

Control exists when the controlling entity has the power to govern the financial and operating policies of another entity so as to obtain benefits from its activities.

The results of the controlled entity, are included in the Consolidated Audited Group Annual Financial Statements from the effective date of acquisition or date when control commences to the effective date of disposal or date when control ceases.

All intra-entity transactions, balances, revenues and expenses are eliminated in full on consolidation.

1.2 Significant judgements and sources of estimation uncertainty

In preparing the Audited Group Annual Financial Statements, management is required to make estimates and assumptions that affect the amounts represented in the Audited Group Annual Financial Statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the Audited Group Annual Financial Statements. Significant judgements include:

Trade and other receivables

The economic entity assesses its trade receivables for impairment at the end of each reporting period.

Detailed disclosure appears in note 3 to the Statement of Financial Position.

Allowance for slow moving, damaged and obsolete stock

An allowance to write stock down to the lower of cost or net realisable value is made. The write down is included in the inventory note 2 to the Statement of Financial Position.

Provisions

Provisions were raised and management determined an estimate based on the information available. Additional disclosure of these estimates of provisions are included in note 14.

Post-retirement benefits

The present value of the post-retirement obligation depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost (income) include the discount rate. Any changes in these assumptions will impact on the carrying amount of post-retirement obligations.

The economic entity determines the appropriate discount rate at the end of each year. This is the interest rate that should be used to determine the present value of estimated future cash outflows expected to be required to settle the pension obligations. In determining the appropriate discount rate, the economic entity considers the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the terms of the related pension liability.

Other key assumptions for pension obligations are based on current market conditions. Additional information is disclosed in note 12.

Allowance for doubtful debts

Impairment losses on trade and other receivables are recognised in surplus and deficit when there is objective evidence that it is impaired. The impairment is measured as the difference between the debtors carrying amount and the present value of estimated future cash flows discounted at the effective interest rate, computed at initial recognition. Detailed disclosure appears in note 3 to the Statement of Financial Position.

1.3 Property, plant and equipment

The cost of an item of property, plant and equipment is recognised as an asset when:

- it is probable that future economic benefits or service potential associated with the item will flow to the economic entity; and
- the cost of the item can be measured reliably.

Property, plant and equipment is initially measured at cost.

The cost of an item of property, plant and equipment is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Trade discounts and rebates are deducted in arriving at the cost.

Where an asset is acquired through a non-exchange transaction, its cost is its fair value as at date of acquisition.

Where an item of property, plant and equipment is acquired in exchange for a non-monetary asset or monetary assets, or a combination of monetary and non-monetary assets, the asset acquired is initially measured at fair value (the cost). If the acquired item's fair value was not determinable, it's deemed cost is the carrying amount of the asset(s) given up.

When significant components of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it. If a replacement cost is recognised in the carrying amount of an item of property, plant and equipment, the carrying amount of the replaced part is derecognised.

The initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located is also included in the cost of property, plant and equipment, where the entity is obligated to incur such expenditure, and where the obligation arises as a result of acquiring the asset or using it for purposes other than the production of inventories.

Recognition of costs in the carrying amount of an item of property, plant and equipment ceases when the item is in the location and condition necessary for it to be capable of operating in the manner intended by management.

Major inspection costs which are a condition of continuing use of an item of property, plant and equipment and which meet the recognition criteria above are included as a replacement in the cost of the item of property, plant and equipment. Any remaining inspection costs from the previous inspection are derecognised.

Property, plant and equipment are depreciated on the straight-line basis over their expected useful lives to their estimated residual value.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses.

The useful lives of items of property, plant and equipment have been assessed as follows:

Item	Depreciation method	Average useful life
Buildings	Straight-line	5–50 years
Mobile units	Straight-line	6–10 years
Plant and machinery	Straight-line	5 years
Furniture and fixtures	Straight-line	6–10 years
Motor vehicles	Straight-line	5 years
Office equipment	Straight-line	3–10 years
Computer equipment	Straight-line	3–5 years
Assets less than R5000	Straight-line	0 years
Grant assets	Straight-line	0 years
Laboratory equipment	Straight-line	4–10 years

The residual value, and the useful life and depreciation method of each asset are reviewed at the end of each reporting date. If the expectations differ from previous estimates, the change is accounted for as a change in accounting estimate.

Reviewing the useful life of an asset on an annual basis does not require the entity to amend the previous estimate unless expectations differ from the previous estimate.

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The depreciation charge for each period is recognised in surplus or deficit unless it is included in the carrying amount of another asset.

Derecognition

Items of property, plant and equipment are derecognised when the asset is disposed of or when there are no further economic benefits or service potential expected from the use of the asset.

The gain or loss arising from the derecognition of an item of property, plant and equipment is included in surplus or deficit when the item is derecognised. The gain or loss arising from the derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.

1.4 Heritage assets

Heritage assets are assets that have a cultural, environmental, historical, natural, scientific, technological or artistic significance and are held indefinitely for the benefit of present and future generations.

Recognition

The economic entity recognises a heritage asset as an asset if it is probable that future economic benefits or service potential associated with the asset will flow to the economic entity, and the cost or fair value of the asset can be measured reliably.

Initial measurement

Heritage assets are measured at cost. Where a heritage asset is acquired through a non-exchange transaction, its cost is measured at its fair value as at the date of acquisition.

Subsequent measurement

After recognition as an asset, a class of heritage assets is carried at its cost less any accumulated impairment losses.

Impairment

The economic entity assesses at each reporting date whether there is an indication that it may be impaired. If any such indication exists, the economic entity estimates the recoverable amount or the recoverable service amount of the heritage asset.

Transfers

Transfers from heritage assets are only made when the particular asset no longer meets the definition of a heritage asset. Transfers to heritage assets are only made when the asset meets the definition of a heritage asset.

Derecognition

The economic entity derecognises heritage asset on disposal, or when no future economic benefits or service potential are expected from its use or disposal.

The gain or loss arising from the derecognition of a heritage asset is included in surplus or deficit when the item is derecognised (unless the Standard of GRAP on leases requires otherwise on a sale and leaseback).

1.5 Intangible assets

An intangible asset is identifiable if it either:

- is separable, i.e. is capable of being separated or divided from an entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable assets or liability, regardless of whether the entity intends to do so; or
- arises from binding arrangements (including rights from contracts), regardless of whether those rights are transferable or separable from the economic entity or from other rights and obligations.

A binding arrangement describes an arrangement that confers similar rights and obligations on the parties to it as if it were in the form of a contract.

An intangible asset is recognised when:

- it is probable that the expected future economic benefits or service potential that are attributable to the asset will flow to the economic entity; and
- the cost or fair value of the asset can be measured reliably.

The economic entity assesses the probability of expected future economic benefits or service potential using reasonable and supportable assumptions that represent management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

Where an intangible asset is acquired through a non-exchange transaction, its initial cost at the date of acquisition is measured at its fair value as at that date.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred.

An intangible asset arising from development (or from the development phase of an internal project) is recognised when:

- it is technically feasible to complete the asset so that it will be available-for-use or sale.
- there is an intention to complete and use or sell it.
- there is an ability to use or sell it.
- it will generate probable future economic benefits or service potential.
- there are available technical, financial and other resources to complete the development and to use or sell the asset.
- the expenditure attributable to the asset during its development can be measured reliably.

Intangible assets are carried at cost less any accumulated amortisation and any impairment losses.

An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows or service potential. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at each reporting date.

Reassessing the useful life of an intangible asset with a finite useful life after it was classified as indefinite is an indicator that the asset may be impaired. As a result the asset is tested for impairment and the remaining carrying amount is amortised over its useful life.

Internally generated brands, mastheads, publishing titles, customer lists and items similar in substance are not recognised as intangible assets.

Amortisation is provided to write down the intangible assets, on a straight-line basis, to their residual values as follows:

Item	Useful life
Patents, trademarks and other rights	20 years
Computer software, internally generated	5–10 years

Intangible assets are derecognised:

- on disposal; or
- when no future economic benefits or service potential are expected from its use or disposal.

The gain or loss arising from the derecognition of an intangible asset is included in surplus or deficit when the asset is derecognised (unless the Standard of GRAP on leases requires otherwise on a sale and leaseback).

1.6 Investments

Controlling entity Audited Group Annual Financial Statements

In the entity's separate Audited Group Annual Financial Statements, investments are carried at cost less any accumulated impairment.

The cost of an investment in the controlled entity is the aggregate of:

- the fair value, at the date of exchange, of assets given, liabilities incurred or assumed, and equity instruments issued by the entity; plus
- any costs directly attributable to the purchase of the controlled entity.

An adjustment to the cost of a business combination contingent on future events is included in the cost of the combination if the adjustment is probable and can be measured reliably.

1.7 Financial instruments

Classification

Classification depends on the purpose for which the financial instruments were obtained/incurred and takes place at initial recognition. Classification is re-assessed on an annual basis, except for derivatives and financial assets designated as at fair value through surplus or deficit, which shall not be classified out of the fair value through surplus or deficit.

Initial recognition and measurement

Financial instruments are recognised initially when the entity becomes a party to the contractual provisions of the instruments.

The entity classifies financial instruments, or their component parts, on initial recognition as a financial asset, a financial liability in accordance with the substance of the contractual arrangement.

For financial instruments which are not at fair value through surplus or deficit, transaction costs are included in the initial measurement of the instrument.

Regular way purchases of financial assets are accounted for at trade date.

Subsequent measurement

Financial liabilities at amortised cost are subsequently measured at amortised cost, using the effective interest method.

Impairment of financial assets

At each end of the reporting period the economic entity assesses all financial assets, other than those at fair value through surplus or deficit, to determine whether there is objective evidence that a financial asset or group of financial assets has been impaired.

For amounts due to the economic entity, significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy and default of payments are all considered indicators of impairment.

Impairment losses are recognised in surplus or deficit.

Impairment losses are reversed when an increase in the financial asset's recoverable amount can be related objectively to an event occurring after the impairment was recognised, subject to the restriction that the carrying amount of the financial asset at the date that the impairment is reversed shall not exceed what the carrying amount would have been had the impairment not been recognised.

Where financial assets are impaired through use of an allowance account, the amount of the loss is recognised in surplus or deficit within operating expenses. When such assets are written off, the write-off is made against the relevant allowance account. Subsequent recoveries of amounts previously written off are credited against operating expenses.

Loans to/(from) economic entities

These include loans to and from controlling entities and controlled entity, are recognised initially at fair value plus direct transaction costs.

Loans from economic entities are classified as financial liabilities measured at amortised cost.

Receivables from exchange transactions

Trade receivables are measured at initial recognition at fair value, and are subsequently measured at amortised cost using the effective interest rate method. Appropriate allowances for debt for estimated irrecoverable amounts are recognised in surplus or deficit when there is objective evidence that the asset is impaired. Significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy or financial reorganisation, and default or delinquency in payments (more than 30 days overdue) are considered indicators that the trade receivable is impaired. The allowance recognised is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the effective interest rate, computed at initial recognition.

The carrying amount of the asset is reduced through the use of an allowance account, and the amount of the deficit is recognised in surplus or deficit within operating expenses. When a trade receivable is uncollectible, it is written off against the allowance account for trade receivables. Subsequent recoveries of amounts previously written off are credited against operating expenses in surplus or deficit.

Payables from exchange transactions

Trade payables are initially measured at fair value, and are subsequently measured at amortised cost, using the effective interest rate method.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and demand deposits, and other short-term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value. These are initially measured at fair value and subsequently recognised at amortised cost.

1.8 Inventories

Inventories are initially measured at cost except where inventories are acquired through a non-exchange transaction, then their costs are their fair value as at the date of acquisition.

Subsequently inventories are measured at the lower of cost and net realisable value.

Inventories are measured at the lower of cost and current replacement cost where they are held for;

- distribution at no charge or for a nominal charge; or
- consumption in the production process of goods to be distributed at no charge or for a nominal charge.

Net realisable value is the estimated selling price in the ordinary course of operations less the estimated costs of completion and the estimated costs necessary to make the sale, exchange or distribution.

Current replacement cost is the cost the economic entity incurs to acquire the asset on the reporting date.

The cost of inventories comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

The cost of inventories of items that are not ordinarily interchangeable and goods or services produced and segregated for specific projects is assigned using specific identification of the individual costs.

The cost of inventories is assigned using the weighted average cost formula. The same cost formula is used for all inventories having a similar nature and use to the economic entity.

When inventories are consumed, the carrying amounts of those inventories are recognised as an expense in the period in which the related revenue is recognised. If there is no related revenue, the expenses are recognised when the goods are distributed, or related services are rendered. The amount of any write-down of inventories to net realisable value or current replacement cost and all losses of inventories are recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realisable value or current replacement cost, is recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

The amount of any reversal of any write-down of inventory, arising from an increase in net reusable value or current replacement cost are recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

1.9 Impairment of cash-generating assets

Cash-generating assets are assets managed with the objective of generating a commercial return. An asset generates a commercial return when it is deployed in a manner consistent with that adopted by a profit-oriented entity.

Impairment is a loss in the future economic benefits or service potential of an asset, over and above the systematic recognition of the loss of the asset's future economic benefits or service potential through depreciation/(amortisation).

Carrying amount is the amount at which an asset is recognised in the Statement of Financial Position after deducting any accumulated depreciation and accumulated impairment losses thereon.

A cash-generating unit is the smallest identifiable group of assets managed with the objective of generating a commercial return that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets.

Fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

Recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs to sell and its value in use.

1.10 Impairment of non-cash-generating assets

Cash-generating assets are assets managed with the objective of generating a commercial return. An asset generates a commercial return when it is deployed in a manner consistent with that adopted by a profit-oriented entity.

Non-cash-generating assets are assets other than cash-generating assets.

Impairment is a loss in the future economic benefits or service potential of an asset, over and above the systematic recognition of the loss of the asset's future economic benefits or service potential through depreciation/(amortisation).

Carrying amount is the amount at which an asset is recognised in the Statement of Financial Position after deducting any accumulated depreciation and accumulated impairment losses thereon.

A cash-generating unit is the smallest identifiable group of assets held with the primary objective of generating a commercial return that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets.

Costs of disposal are incremental costs directly attributable to the disposal of an asset, excluding finance costs and income tax expense.

Depreciation/(Amortisation) is the systematic allocation of the depreciable amount of an asset over its useful life.

Fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

Recoverable service amount is the higher of a non-cash-generating asset's fair value less costs to sell and its value in use.

Useful life is either:

- (a) the period of time over which an asset is expected to be used by the economic entity; or
- (b) the number of production or similar units expected to be obtained from the asset by the economic entity.

Identification

When the carrying amount of a non-cash-generating asset exceeds its recoverable service amount, it is impaired.

The economic entity assesses at each reporting date whether there is any indication that a non-cash-generating asset may be impaired. If any such indication exists, the economic entity estimates the recoverable service amount of the asset.

Irrespective of whether there is any indication of impairment, the entity also tests a non-cash-generating intangible asset with an indefinite useful life or a non-cash-generating intangible asset not yet available for use for impairment annually by comparing its carrying amount with its recoverable service amount. This impairment test is performed at the same time every year. If an intangible asset was initially recognised during the current reporting period, that intangible asset was tested for impairment before the end of the current reporting period.

Value in use

Value in use of non-cash-generating assets is the present value of the non-cash-generating assets remaining service potential.

The present value of the remaining service potential of a non-cash-generating asset is determined using the following approach:

Recognition and measurement

If the recoverable service amount of a non-cash-generating asset is less than its carrying amount, the carrying amount of the asset is reduced to its recoverable service amount. This reduction is an impairment loss.

An impairment loss is recognised immediately in surplus or deficit.

Any impairment loss of a revalued non-cash-generating asset is treated as a revaluation decrease.

When the amount estimated for an impairment loss is greater than the carrying amount of the non-cash-generating asset to which it relates, the economic entity recognises a liability only to the extent that is a requirement in the Standards of GRAP.

After the recognition of an impairment loss, the depreciation/(amortisation) charge for the non-cash-generating asset is adjusted in future periods to allocate the non-cash-generating asset's revised carrying amount, less its residual value (if any), on a systematic basis over its remaining useful life.

1.11 Stated capital

An equity instrument is any contract that evidences a residual interest in the assets of an economic entity after deducting all of its liabilities.

Ordinary shares are classified as equity. Stated capital is carried at par value.

1.12 Employee benefits

Short-term employee benefits

The cost of short-term employee benefits, (those payable within 12 months after the service is rendered, such as paid vacation leave and sick leave, bonuses, and non-monetary benefits such as medical care), are recognised in the period in which the service is rendered and are not discounted.

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non-accumulating absences, when the absence occurs.

The expected cost of surplus sharing and bonus payments is recognised as an expense when there is a legal or constructive obligation to make such payments as a result of past performance.

Recognition and measurement

When an employee has rendered a service to an entity during an accounting period, the entity shall recognise the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service:

- a) as a liability (accrued expense), after deducting any amount already paid. If the amount already paid exceeds the undiscounted amount of the benefits, an entity shall recognise that excess as an asset (pre-paid expense) to the extent that the pre-payment will lead to, for example, a reduction in future payments or a cash refund; and
- b) as an expense, unless another Standard requires or permits the inclusion of the benefits in the cost of an asset.

Defined contribution plans

Payments to defined contribution retirement benefit plans are charged as an expense as they fall due.

Payments made to industry-managed (or state plans) retirement benefit schemes are dealt with as defined contribution plans where the entity's obligation under the schemes is equivalent to those arising in a defined contribution retirement benefit plan.

Defined benefit plans

For defined benefit plans the cost of providing the benefits is determined using the projected credit method.

Actuarial valuations are conducted on an annual basis by independent actuaries separately for each plan.

Consideration is given to any event that could impact the funds up to end of the reporting period where the interim valuation is performed at an earlier date.

Past service costs are recognised immediately to the extent that the benefits are already vested, and are otherwise amortised on a straight-line basis over the average period until the amended benefits become vested.

Gains or losses on the curtailment or settlement of a defined benefit plan are recognised when the entity is demonstrably committed to curtailment or settlement.

When it is virtually certain that another party will reimburse some or all of the expenditure required to settle a defined benefit obligation, the right to reimbursement is recognised as a separate asset. The asset is measured at fair value. In all other respects, the asset is treated in the same way as plan assets. In surplus or deficit, the expense relating to a defined benefit plan is presented as the net of the amount recognised for a reimbursement.

The amount recognised in the Statement of Financial Position represents the present value of the defined benefit obligation as adjusted for unrecognised actuarial gains and losses and unrecognised past service costs.

Any asset is limited to unrecognised actuarial losses and past service costs, plus the present value of available refunds and reduction in future contributions to the plan.

Other post-retirement obligations

The entity provides post-retirement healthcare benefits to some retirees.

The entitlement to post-retirement healthcare benefits is based on the employee remaining in service up to retirement age and the completion of a minimum service period. The expected costs of these benefits are accrued over the period of employment. Independent qualified actuaries carry out valuations of these obligations.

1.13 Provisions and contingencies

Provisions are recognised when:

- the economic entity has a present obligation as a result of a past event;
- it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation; and
- a reliable estimate can be made of the obligation.

The amount of a provision is the best estimate of the expenditure expected to be required to settle the present obligation at the reporting date.

Provisions are reviewed at each reporting date and adjusted to reflect the current best estimate. Provisions are reversed if it is no longer probable that an outflow of resources embodying economic benefits or service potential will be required, to settle the obligation.

A provision is used only for expenditures for which the provision was originally recognised.

Provisions are not recognised for future operating deficits.

If an entity has a contract that is onerous, the present obligation (net of recoveries) under the contract is recognised and measured as a provision.

Contingent assets and contingent liabilities are not recognised. Contingencies are disclosed in note 31.

1.14 Commitments

Items are classified as commitments when an entity has committed itself to future transactions that will normally result in the outflow of cash.

Disclosures are required in respect of unrecognised contractual commitments.

Commitments for which disclosure is necessary to achieve a fair presentation should be disclosed in a note to the Financial Statements, if both the following criteria are met:

- Contracts should be non-cancellable or only cancellable at significant cost (for example, contracts for computer or building maintenance services); and
- Contracts should relate to something other than the routine, steady, state business of the entity – therefore salary commitments relating to employment contracts or social security benefit commitments are excluded.

1.15 Revenue from exchange transactions

Revenue is the gross inflow of economic benefits or service potential during the reporting period when those inflows result in an increase in net assets, other than increases relating to contributions from owners.

An exchange transaction is one in which the entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of goods, services or use of assets) to the other party in exchange.

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

Measurement

Revenue is measured at the fair value of the consideration received or receivable, net of trade discounts.

Sale of goods

Revenue from the sale of goods is recognised when all the following conditions have been satisfied:

- the economic entity has transferred to the purchaser the significant risks and rewards of ownership of the goods;
- the economic entity retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- the amount of revenue can be measured reliably;
- it is probable that the economic benefits or service potential associated with the transaction will flow to the economic entity; and
- the costs incurred or to be incurred in respect of the transaction can be measured reliably.

Rendering of services

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associated with the transaction is recognised by reference to the stage of completion of the transaction at the reporting date. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- the amount of revenue can be measured reliably;
- it is probable that the economic benefits or service potential associated with the transaction will flow to the economic entity;
- the stage of completion of the transaction at the reporting date can be measured reliably; and
- the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

When services are performed by an indeterminate number of acts over a specified time frame, revenue is recognised on a straight-line basis over the specified time frame unless there is evidence that some other method better represents the stage of completion. When a specific act is much more significant than any other acts, the recognition of revenue is postponed until the significant act is executed.

When the outcome of the transaction involving the rendering of services cannot be estimated reliably, revenue is recognised only to the extent of the expenses recognised that are recoverable.

Service revenue is recognised by reference to the stage of completion of the transaction at the reporting date. Stage of completion is determined by the proportion that costs incurred to date bear to the total estimated costs of the transaction.

Interest and royalties

Revenue arising from the use by others of entity assets yielding interest and royalties is recognised when:

- it is probable that the economic benefits or service potential associated with the transaction will flow to the entity; and
- the amount of the revenue can be measured reliably.

Interest is recognised, in surplus or deficit, using the effective interest rate method.

Interest income is accrued on a time-proportion basis, taking into account the principal outstanding and the effective interest rate over the period to maturity. Interest is also received for designated, specific research purposes from contracts, grants and donations. In all cases such income is recognised in the Statement of Financial Performance in the financial period in which the company becomes entitled to the use of such funds.

Royalties are recognised as they are earned in accordance with the substance of the relevant agreements.

Service fees included in the price of the product are recognised as revenue over the period during which the service is performed.

1.16 Revenue from non-exchange transactions

Revenue comprises gross inflows of economic benefits or service potential received and receivable by an entity, which represents an increase in net assets, other than increases relating to contributions from owners.

Conditions on transferred assets are stipulations that specify that the future economic benefits or service potential embodied in the asset is required to be consumed by the recipient as specified or future economic benefits or service potential must be returned to the transferor.

Control of an asset arises when the entity can use or otherwise benefit from the asset in pursuit of its objectives and can exclude or otherwise regulate the access of others to that benefit.

Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services, or use of assets) to another entity in exchange.

Non-exchange transactions are transactions that are not exchange transactions. In a non-exchange transaction, an entity either receives value from another entity without directly giving approximately equal value in exchange, or gives value to another entity without directly receiving approximately equal value in exchange.

Restrictions on transferred assets are stipulations that limit or direct the purposes for which a transferred asset may be used, but do not specify that future economic benefits or service potential is required to be returned to the transferor if not deployed as specified.

Stipulations on transferred assets are terms in laws or regulation, or a binding arrangement, imposed upon the use of a transferred asset by entities external to the reporting entity.

Transfers are inflows of future economic benefits or service potential from non-exchange transactions, other than taxes.

Recognition

An inflow of resources from a non-exchange transaction recognised as an asset is recognised as revenue, except to the extent that a liability is also recognised in respect of the same inflow.

As the entity satisfies a present obligation recognised as a liability in respect of an inflow of resources from a non-exchange transaction recognised as an asset, it reduces the carrying amount of the liability recognised and recognises an amount of revenue equal to that reduction.

Measurement

Revenue from a non-exchange transaction is measured at the amount of the increase in net assets recognised by the entity.

When, as a result of a non-exchange transaction, the entity recognises an asset, it also recognises revenue equivalent to the amount of the asset measured at its fair value as at the date of acquisition, unless it is also required to recognise a liability. Where a liability is required to be recognised it will be measured as the best estimate of the amount required to settle the obligation at the reporting date, and the amount of the increase in net assets, if any, recognised as revenue. When a liability is subsequently reduced, because the taxable event occurs or a condition is satisfied, the amount of the reduction in the liability is recognised as revenue.

1.17 Investment income

Investment income is accrued on a time-proportion basis, taking into account the principal outstanding and the effective interest rate over the period to maturity. Interest is also received for designated, specific research purposes from contracts, grants and donations. In all cases such income is recognised in the Statement of Financial Performance in the financial period in which the company becomes entitled to the use of such funds.

1.18 Irregular expenditure

Irregular expenditure is recognised as expenditure in the Statement of Financial Performance. If the expenditure is not condoned by the relevant authority it is treated as an asset until it is recovered or written off as irrecoverable.

1.19 Conditional grants and receipts

Revenue received from conditional grants, donations and funding are recognised as revenue to the extent that the entity has complied with any of the criteria, conditions or obligations embodied in the agreement. To the extent that the criteria, conditions or obligations have not been met a liability is recognised.

1.20 Budget information

General purpose financial reporting by an economic entity shall provide information on whether resources were obtained and used in accordance with the legally adopted budget.

The approved budget is prepared on an accrual basis and presented by functional classification linked to performance outcome objectives.

The approved budget covers the fiscal period from 01/04/2015 to 31/03/2016.

The budget for the economic entity includes all the entities approved budgets under its control.

The Audited Group Annual Financial Statements and the budget are prepared on the same basis of accounting. Therefore a comparison with the budgeted amounts for the reporting period has been included in the Statement of Comparison of Budget and Actual Amounts.

The Statement of Comparison and Actual Amounts has been included in the Audited Group Annual Financial Statements as the recommended disclosure when the Audited Group Annual Financial Statements and the budget are on the same basis of accounting as determined by National Treasury.

1.21 Sundry Income

Teaching Income

Teaching income is recognised on the accrual basis. This policy decision is attributable to the uncertainty associated with the flow of economic benefits arising from teaching-related transactions to the entity. The management decision taken complies with the requirements of the statement on revenue recognition.

Miscellaneous Sales

Miscellaneous sales are generated when the NHLS recovers funds for rental lease agreements and other charges which need to be recovered from the use of its own facilities such as those used by Contract Laboratory Services.

1.22 Related Parties

Parties are considered to be related if one party has the ability to control the other party or exercise significant influence over the other party in making financial and operating decisions or if the related party entity and another entity are subject to common control. Related parties include:

- a) Entities that directly, or indirectly through one or more intermediaries, control, or are controlled by the reporting entity; and
- b) Key management personnel, and close members of the family of key management personnel.

A related party transaction is a transfer of resources, services or obligations between a reporting entity and a related party, regardless of whether a price is charged. Related party transactions exclude transactions with any other entity that is a related party solely because of its economic dependence on the reporting entity.

Related party transactions and outstanding balances or commitments owing between the reporting entity and related parties are disclosed in note 32 to the Financial Statements. Remuneration of key management personnel is disclosed in note 36 of the notes to the Group Annual Financial Statements.

Notes to the Audited Group Annual Financial Statements

2. INVENTORIES

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Raw materials	238	69	-	-
Work in progress	3 199	2 575	-	-
Finished goods	479	1 305	-	-
Consumable stores	112 184	96 818	112 188	96 814
	116 100	100 767	112 188	96 814
Inventories (write-downs)	(11 882)	(11 797)	(11 882)	(11 797)
	104 218	88 970	100 306	85 017

Inventory write-downs comprise provisions for obsolete stock aged three months and older.

3. TRADE AND OTHER RECEIVABLES

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Trade debtors	5 436 883	5 418 356	5 434 750	5 416 369
Pre-payments	2 623	1 916	2 623	1 916
Other receivables	106 800	85 432	106 800	85 432
Less: Provisions for impairment	(2 474 735)	(2 697 325)	(2 474 735)	(2 697 325)
Provision for teaching services	82 226	45 037	82 226	45 037
	3 153 797	2 853 416	3 151 664	2 851 429

Fair value of receivables from exchange transactions

The Accounting Authority considers that the carrying amount of trade and other receivables approximates to their fair value.

The NHLS raises a doubtful debt provisions on private debtors (Medical Aid debtors and individual patients who are covered by Medical Aid).

Trade receivables from exchange transactions past due but not impaired

Trade and other receivables for the economic entity which are past due but not impaired as at 31 March 2016, are R422 million (2015: R538 million).

The ageing of amounts past due but not impaired is as follows:

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
One month past due	170 856	187 010	170 856	186 836
Two months past due	133 517	313 304	133 517	313 267
Three months past due	117 666	37 309	117 666	37 298
	422 039	537 623	422 039	537 401

3. TRADE AND OTHER RECEIVABLES (CONTINUED)

Outstanding debt from KwaZulu-Natal Department of Health

Following the audit from the Office of the Accountant General an amount of R2.3 billion relating to pathology services rendered to KZN DoH was queried for the period from 01 April 2008 to 31 March 2014. R1.8 billion has been confirmed as payable by KZN DoH. Discussions regarding payment arrangements are currently underway.

Reconciliation of provision for impairment of trade and other receivables

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Opening balance	2 697 325	1 929 498	2 697 325	1 929 498
Provision for doubtful debt	397 369	581 507	397 369	581 507
Amounts written off as uncollectible	(771 339)	(274)	(771 339)	(274)
Provision for debtors interest	151 311	180 727	151 311	180 727
Provision for credit notes	69	5 867	69	5 867
	2 474 735	2 697 325	2 474 735	2 697 325

The creation and release of provision for impaired receivables have been included in operating expenses. Amounts charged to the allowance account are generally written off when there is no expectation of recovering additional cash.

4. RECEIVABLES FROM NON-EXCHANGE TRANSACTIONS

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Public contributions and subsidies	1 127	8 943	1 127	8 943

5. CASH AND CASH EQUIVALENTS

Cash and cash equivalents consist of:

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Cash on hand	28	28	28	28
Bank balances	14 198	15 407	13 878	12 966
Short-term deposits	724 749	635 731	722 487	635 731
	738 975	651 166	736 393	648 725
Cash and cash equivalents held by the NHLS that are not available for use by the NHLS	168 219	62 995	165 637	60 554

Credit quality of cash at bank and short-term deposits, excluding cash on hand

The interest earned on cash at bank and short-term deposits was on average 5.65% (2015: 5.18%) per annum and these deposits have an average maturity of 30 days.

6. PROPERTY, PLANT AND EQUIPMENT

Economic entity	2016			2015		
	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000
Land	3 208	-	3 208	3 208	-	3 208
Leased buildings	128 508	(54 541)	73 967	131 652	(49 056)	82 596
Plant and machinery	5 686	(5 671)	15	5 709	(5 294)	415
Furniture and fixtures	15 083	(12 464)	2 619	13 331	(10 355)	2 976
Motor vehicles	14 553	(13 292)	1 261	10 672	(10 603)	69
Office equipment	32 631	(26 106)	6 525	26 771	(22 313)	4 458
Computer equipment	252 993	(184 811)	68 182	231 530	(131 203)	100 327
Leased vehicles	-	-	-	3 044	(3 044)	-
Owned buildings	9 343	(2 989)	6 354	8 821	(2 191)	6 630
Capital work in progress	-	-	-	61	-	61
Laboratory equipment	578 502	(487 517)	90 985	575 989	(462 953)	113 036
Mobile units	32 943	(20 464)	12 479	33 471	(18 599)	14 872
Buildings – air systems	18 551	(13 544)	5 007	19 025	(11 975)	7 050
Total	1 092 001	(821 399)	270 602	1 063 284	(727 586)	335 698

Controlling entity	2016			2015		
	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000
Land	3 208	-	3 208	3 208	-	3 208
Leased buildings	128 508	(54 541)	73 967	131 652	(49 056)	82 596
Plant and machinery	5 686	(5 671)	15	5 709	(5 294)	415
Furniture and fixtures	14 929	(12 344)	2 585	13 177	(10 256)	2 921
Motor vehicles	14 553	(13 292)	1 261	10 672	(10 603)	69
Office equipment	32 589	(26 064)	6 525	26 729	(22 273)	4 456
Computer equipment	252 579	(184 505)	68 074	231 186	(130 964)	100 222
Leased vehicles	-	-	-	3 044	(3 044)	-
Owned buildings	9 343	(2 989)	6 354	8 821	(2 191)	6 630
Laboratory equipment	574 610	(485 387)	89 223	572 304	(461 135)	111 169
Mobile units	32 943	(20 464)	12 479	33 471	(18 599)	14 872
Buildings – air systems	18 487	(13 493)	4 994	18 961	(11 930)	7 031
Total	1 087 435	(818 750)	268 685	1 058 934	(725 345)	333 589

6. PROPERTY, PLANT AND EQUIPMENT (CONTINUED)

Reconciliation of property, plant and equipment – Economic entity

2016	Opening balance R'000	Additions R'000	Disposals R'000	Transfers received R'000	Reclass R'000	Depreciation R'000	Total R'000
Land	3 208	-	-	-	-	-	3 208
Leased buildings	82 596	-	(1 599)	-	(657)	(6 373)	73 967
Plant and machinery	415	-	-	-	-	(400)	15
Furniture and fixtures	2 976	159	(16)	-	478	(978)	2 619
Motor vehicles	69	1 224	-	-	43	(75)	1 261
Office equipment	4 458	2 492	(199)	-	2 792	(3 018)	6 525
Computer equipment	100 327	22 633	(302)	-	10	(54 486)	68 182
Owned buildings	6 630	-	-	-	504	(780)	6 354
Capital work in progress	61	-	-	(61)	-	-	-
Laboratory equipment	113 036	17 949	(1 772)	61	(2 828)	(35 461)	90 985
Mobile units	14 872	-	(241)	-	-	(2 152)	12 479
Buildings – air systems	7 050	-	(122)	-	110	(2 031)	5 007
Total	335 698	44 457	(4 251)	-	452	(105 754)	270 602

Reconciliation of property, plant and equipment – Economic entity

2015	Opening balance R'000	Additions R'000	Disposals R'000	Reclass R'000	Depreciation R'000	Total R'000
Land	3 208	-	-	-	-	3 208
Leased buildings	87 055	1 926	-	-	(6 385)	82 596
Plant and machinery	1 374	-	-	-	(959)	415
Furniture and fixtures	3 631	622	(30)	(2)	(1 245)	2 976
Motor vehicles	105	-	-	(3)	(33)	69
Office equipment	4 257	951	(41)	858	(1 567)	4 458
Computer equipment	29 345	4 910	(110)	74 138	(7 956)	100 327
Leased motor vehicles	97	-	-	-	(97)	-
Owned buildings	4 055	2 971	-	-	(396)	6 630
Capital work in progress	306	(245)	-	-	-	61
Laboratory equipment	111 482	33 087	(683)	2	(30 852)	113 036
Mobile units	16 979	176	(113)	-	(2 170)	14 872
Buildings – air systems	6 475	2 988	(37)	-	(2 376)	7 050
Total	268 369	47 386	(1 014)	74 993	(54 036)	335 698

6. PROPERTY, PLANT AND EQUIPMENT (CONTINUED)

Reconciliation of property, plant and equipment – Controlling entity

	Opening balance R'000	Additions R'000	Disposals R'000	Reclass R'000	Depreciation R'000	Total R'000
2016						
Land	3 208	-	-	-	-	3 208
Leased buildings	82 596	-	(1 599)	(657)	(6 373)	73 967
Plant and machinery	415	-	-	-	(400)	15
Furniture and fixtures	2 921	159	(16)	478	(957)	2 585
Motor vehicles	69	1 224	-	43	(75)	1 261
Office equipment	4 456	2 492	(199)	2 792	(3 016)	6 525
Computer equipment	100 222	22 597	(302)	10	(54 453)	68 074
Owned buildings	6 630	-	-	504	(780)	6 354
Laboratory equipment	111 169	17 804	(1 772)	(2 828)	(35 150)	89 223
Mobile units	14 872	-	(241)	-	(2 152)	12 479
Buildings – air systems	7 031	-	(122)	110	(2 025)	4 994
Total	333 589	44 276	(4 251)	452	(105 381)	268 685

Reconciliation of property, plant and equipment – Controlling entity

	Opening balance R'000	Additions R'000	Disposals R'000	Reclass R'000	Depreciation R'000	Total R'000
2015						
Land	3 208	-	-	-	-	3 208
Leased buildings	87 055	1 926	-	-	(6 385)	82 596
Plant and machinery	1 374	-	-	-	(959)	415
Furniture and fixtures	3 552	621	(30)	(2)	(1 220)	2 921
Motor vehicles	105	-	-	(3)	(33)	69
Office equipment	4 254	950	(41)	858	(1 565)	4 456
Computer equipment	29 317	4 786	(110)	74 138	(7 909)	100 222
Leased motor vehicles	97	-	-	-	(97)	-
Owned buildings	4 055	2 971	-	-	(396)	6 630
Laboratory equipment	109 880	32 501	(683)	2	(30 531)	111 169
Mobile units	16 979	176	(113)	-	(2 170)	14 872
Buildings – air systems	6 447	2 989	(37)	-	(2 368)	7 031
Total	266 323	46 920	(1 014)	74 993	(53 633)	333 589

Other information

52 166 assets have been fully depreciated and are recorded at R0 Netbook Value (NBV). Due to severe cash constraints experienced by the NHLS, old equipment across a number of fixed asset categories has been retained and is currently in full use. The NHLS has a policy to replace assets at specified intervals. However, due to cash flow challenges, and due to budget cuts, the NHLS was not able to replace the assets.

7. NON-COMPLIANCE WITH SECTION 28(5) OF THE NHLS ACT

National Health Laboratory Service Act, Section 28, Subsection 5 'Assets and liabilities' paragraph 2 states that the registrar of deeds must register the immovable property and make such entries or endorsements in any relevant register, title deeds or other document.

The following properties reflect in the entity's asset register but have not yet been transferred into the name of the NHLS. The process of transfer of the properties into the name of the NHLS is unfolding.

- 1) 1884 Mount Road, Port Elizabeth; all the necessary paperwork to enable the successful registration of this property has been obtained, the conveyancers are ready to lodge;
- 2) Portion 1 of Erf 4354 Johannesburg Township – lodged on 20 June 2016;
- 3) Portion 8 of Erf 4354 Johannesburg Township – lodged on 20 June 2016;
- 4) Portion 2 of Erf 4354 Johannesburg Township – lodged on 22 June 2016;
- 5) Portion 3 of Erf 4354 Johannesburg Township – lodged on 22 June 2016;
- 6) The remaining extent of portion 70 and 85 of the Farm Rietfontein 61 R; all the necessary paperwork to enable the successful registration of this property has been obtained, the conveyancers are ready to lodge; and
- 7) Erf 1955 (a portion of Erf 1056) Green Point, Cape Town; negotiations are ongoing between the NHLS and the Western Cape Government to relocate the NHLS from Green Point to a purpose built laboratory in Oude Molen which will be owned by the NHLS.

8. INTANGIBLE ASSETS

Economic entity	2016			2015		
	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000
Patents, trademarks and other rights	60	(24)	36	60	(21)	39
Computer software	135 635	(22 134)	113 501	26 655	(10 955)	15 700
Total	135 695	(22 158)	113 537	26 715	(10 976)	15 739

Controlling entity	2016			2015		
	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000	Cost R'000	Accumulated depreciation and accumulated impairment R'000	Carrying value R'000
Patents, trademarks and other rights	60	(24)	36	60	(21)	39
Computer software	135 635	(22 134)	113 501	26 621	(10 921)	15 700
Total	135 695	(22 158)	113 537	26 681	(10 942)	15 739

8. INTANGIBLE ASSETS (CONTINUED)

Reconciliation of intangible assets – Economic entity

	Opening balance R'000	Additions R'000	Disposals R'000	Reclass R'000	Amortisation R'000	Total R'000
2016						
Computer software	15 700	110 887	(277)	-	(12 809)	113 501
Patents, trademarks and other rights	39	-	-	-	(3)	36
Total	15 739	110 887	(277)	-	(12 812)	113 537

Reconciliation of intangible assets – Economic entity

	Opening balance R'000	Additions R'000	Disposals R'000	Reclass R'000	Amortisation R'000	Total R'000
2015						
Computer software	112 182	255	-	(74 996)	(21 741)	15 700
Patents, trademarks and other rights	42	-	-	-	(3)	39
Total	112 224	255	-	(74 996)	(21 744)	15 739

Reconciliation of intangible assets – Controlling entity

	Opening balance R'000	Additions R'000	Disposals R'000	Reclass R'000	Amortisation R'000	Total R'000
2016						
Computer software	15 700	110 887	(277)	-	(12 809)	113 501
Patents, trademarks and other rights	39	-	-	-	(3)	36
Total	15 739	110 887	(277)	-	(12 812)	113 537

Reconciliation of intangible assets – Controlling entity

	Opening balance R'000	Additions R'000	Reclass R'000	Amortisation R'000	Total R'000
2015					
Computer software	112 182	255	(74 996)	(21 741)	15 700
Patents, trademarks and other rights	42	-	-	(3)	39
Total	112 224	255	(74 996)	(21 744)	15 739

9. HERITAGE ASSETS

Economic entity	Cost/ Valuation R'000	2016 Accumulated impairment losses R'000	Carrying value R'000	Cost/ Valuation R'000	2015 Accumulated impairment losses R'000	Carrying value R'000
Historical buildings	170 006	-	170 006	170 456	-	170 456

Controlling entity	Cost/ Valuation R'000	2016 Accumulated impairment losses R'000	Carrying value R'000	Cost/ Valuation R'000	2015 Accumulated impairment losses R'000	Carrying value R'000
Historical buildings	169 579	-	169 579	170 029	-	170 029

Reconciliation of heritage assets – Economic entity

2016	Opening balance R'000	Additions R'000	Disposals R'000	Transfers R'000	Total R'000
Historical buildings	170 456	-	-	(450)	170 006

Reconciliation of heritage assets – Economic entity

2015	Opening balance R'000	Additions R'000	Disposals R'000	Transfers R'000	Total R'000
Historical buildings	170 456	-	-	-	170 456

Reconciliation of heritage assets – Controlling entity

2016	Opening balance R'000	Additions R'000	Disposals R'000	Transfers R'000	Total R'000
Historical buildings	170 029	-	-	(450)	169 579

Reconciliation of heritage assets – Controlling entity

2015	Opening balance R'000	Additions R'000	Disposals R'000	Transfers R'000	Total R'000
Historical buildings	170 029	-	-	-	170 029

Age and/or condition of heritage assets

NHLS Braamfontein buildings are recognised as Gauteng provincial heritage sites (SARHA identifier 9/2/228/0034) by the South African Heritage Resource Agency (SAHRA) in accordance with the heritage assessment criteria stipulated under Section 3(3) of the National Heritage Resources Act.

With respect to the Sandringham campus complex, offices are over 60 years old and occupy an area of over 5 000 square meters. As such, all buildings occupying this Erf are considered heritage buildings. The NHLS are in the process of registering these buildings with the SAHRA in accordance with the heritage assessment criteria.

10. OTHER FINANCIAL LIABILITIES

Other financial liabilities comprise amounts owed to suppliers for the acquisition of laboratory equipment, IT equipment and IT software. The liabilities are interest-free and are payable within the next 36 months.

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
At amortised cost				
Other financial liabilities	68 896	3 820	68 896	3 820
Current liabilities				
At amortised cost	-	3 820	-	3 820
Non-current liabilities				
At amortised cost	68 896	-	68 896	-

11. TRADE AND OTHER PAYABLES

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Trade payables	530 266	432 763	530 069	432 409
Accrued expenses	273 370	475 259	272 508	474 773
Other payables	110 536	172 773	110 356	172 569
	914 172	1 080 795	912 933	1 079 751

The Accounting Authority considers that the carrying amount of trade and other payables approximates their fair value. Trade payables are non-interest bearing and are normally settled on 30-day payment terms. Payments amounting to R331.0 million (2015: R379.8 million) were not made within the NHLS's terms and conditions agreed with its suppliers.

12. EMPLOYEE BENEFIT OBLIGATIONS

The amounts recognised in the Statement of Financial Position are as follows:

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Carrying value				
Present value of the defined benefit obligation – wholly unfunded	(954 223)	(876 457)	(954 223)	(876 457)
Non-current liabilities	(933 220)	(854 140)	(933 220)	(854 140)
Current liabilities	(21 003)	(22 317)	(21 003)	(22 317)
	(954 223)	(876 457)	(954 223)	(876 457)

NHLS provides post-employment healthcare benefits. Members who joined NHLS before 01 January 2003, and KZN members who joined NHLS before 01 October 2006 are eligible for a subsidy of medical scheme contributions in retirement.

Changes in the present value of the defined benefit obligation are as follows:

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Opening balance	876 457	737 155	876 457	737 155
Interest cost	76 066	70 533	76 066	70 533
Service cost	21 844	20 994	21 844	20 994
Benefits paid	(23 219)	(19 351)	(23 219)	(19 351)
Actuarial (gain)/loss	3 075	67 126	3 075	67 126
	954 223	876 457	954 223	876 457

Calculation of actuarial gains and losses

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Change in real discount rate	37 267	(64 113)	37 267	(64 113)
(Higher)/Lower than expected healthcare cost inflation including changes in members' benefit options	7 703	(25 744)	7 703	(25 744)
Unexpected changes in membership	131 942	22 732	131 942	22 732
Change in subsidy policy (past service cost)	(179 987)	-	(179 987)	-
	(3 075)	(67 125)	(3 075)	(67 125)

Key economic assumptions used

For practical reasons, these assumptions are determined before the valuation date. The economic assumptions used in this valuation are based on the market information as at end February 2016. The economic assumptions have been set in relation to the duration of the liability as at 31 March 2015. At that date, the duration of the liability was 21.1 years and thus a duration of 21 years was used to set economic assumptions.

12. EMPLOYEE BENEFIT OBLIGATIONS (CONTINUED)

Assumptions used at the reporting date:

	Economic entity		Controlling entity	
	2016	2015	2016	2015
Discount rates used	11.30%	8.80%	11.30%	8.80%
CPI inflation	8.80%	6.50%	8.80%	6.50%
Salary inflation	10.30%	8.00%	10.30%	8.00%
Expected increase in healthcare costs	10.80%	8.50%	10.80%	8.50%

Rate of discount

The discount rate of 11.30% per annum is primarily determined by reference to current market yields on government bonds.

Consumer Price Index inflation:

While not used explicitly in the valuation, the actuaries have assumed the underlying future rate of consumer price index inflation (CPI inflation) to be 8.80% per annum. This assumption has been based on the relationship between the nominal bond curve and the real bond yield.

Income at retirement:

Income at retirement is relevant to the extent that the contribution tables are based on income. The actuaries have assumed that an individual member's income would increase by 8.00% per annum, based on the underlying assumption that individual remuneration increase including merit and promotional increases would exceed CPI inflation by an average of 1.5% per annum over the long-term. The actuarial assumption is that income at retirement would be 65% of final salary.

Healthcare cost inflation:

The current contribution tables of the medical schemes would continue to apply in the future, with allowances of inflationary increases of 10.30% per annum. In consultation with the NHLS, assumptions made by the actuaries state that healthcare cost inflation exceed CPI inflation by an average of 1.5% per annum over the long term.

Sensitivity analysis

Assumed healthcare cost trends rates have a significant effect on the amounts recognised in surplus or deficit. A one percentage point change in assumed healthcare cost trends rates would have the following effects:

	Economic entity		Controlling entity	
	2016 One percentage point increase	2015 One percentage point decrease	2016 One percentage point increase	2015 One percentage point decrease
Effect on the aggregate of the service cost and interest cost	21.4%	16.7%	21.4%	16.7%
Effect on defined benefit obligation	19.9%	15.7%	19.9%	15.7%

Amounts for the current and previous four years are as follows:

	2016 R'000	2015 R'000	2014 R'000	2013 R'000	2012 R'000
Defined benefit obligation	954 223	876 457	737 155	643 441	498 565
Plan assets	954 223	876 457	737 155	643 441	498 565

13. DEFERRED INCOME

Non-reimbursable grant funds are recognised only once expenditure relating to the grant has been incurred.

Unspent conditional grants and receipts comprises

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Unspent conditional grants and receipts				
Research grants	4 137	52 264	4 137	52 264
Movement during the year				
Balance at the beginning of the year	52 264	57 992	52 264	57 992
Additions during the year	133 708	136 473	133 708	136 473
Income recognition during the year	(181 835)	(142 201)	(181 835)	(142 201)
Closing balance	4 137	52 264	4 137	52 264

14. PROVISIONS

Reconciliation of provisions – Economic entity

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Reversed during the year R'000	Total R'000
2016					
Student bursary provision	-	3 975	-	-	3 975
Leave pay provision	126 596	104 253	(90 195)	-	140 654
Salaries provision	94 140	56 341	-	-	150 481
Bonus provision	5 563	-	-	(367)	5 196
DoH utility charges provision	241 270	164 397	-	(17 910)	387 757
	467 569	328 966	(90 195)	(18 277)	688 063

Reconciliation of provisions – Economic entity

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Reversed during the year R'000	Total R'000
2015					
Student bursary provision	7 901	-	-	(7 901)	-
Leave pay provision	129 674	106 599	(109 677)	-	126 596
Salaries provision	76 526	17 614	-	-	94 140
Bonus provision	6 111	21 009	(21 557)	-	5 563
DoH utility charges provision	196 707	44 563	-	-	241 270
	416 919	189 785	(131 234)	(7 901)	467 569

14. PROVISIONS (CONTINUED)

Reconciliation of provisions – Controlling entity

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Reversed during the year R'000	Total R'000
2016					
Student bursary provision	-	3 975	-	-	3 975
Leave pay provision	126 596	104 253	(90 195)	-	140 654
Salaries provision	94 140	56 341	-	-	150 481
Bonus provision	5 563	-	-	(367)	5 196
DoH utility charges provision	241 270	164 397	-	(17 910)	387 757
	467 569	328 966	(90 195)	(18 277)	688 063

Reconciliation of provisions – Controlling entity

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Reversed during the year R'000	Total R'000
2015					
Student bursary provision	7 901	-	-	(7 901)	-
Leave pay provision	129 674	106 599	(109 677)	-	126 596
Salaries provision	76 526	17 614	-	-	94 140
Bonus provision	6 111	21 009	(21 557)	-	5 563
DoH utility charges provision	196 707	44 563	-	-	241 270
	416 919	189 785	(131 234)	(7 901)	467 569

The leave pay provision relates to vesting leave pay to which employees may become entitled upon leaving the employment of the economic entity. The provision arises as employees render a service that increases their entitlement to future compensated leave and is calculated based on an employee's total cost of employment. The provision is utilised when employees become entitled to and are paid for the accumulated leave pay or utilise compensated leave due to them.

The bonus provision relates to employees who are on the cost to company package and elect to structure part of their package as a 13th cheque. The provision is utilised when employees become entitled to and are paid for their services to the entity. The bonus payable is determined by applying a specific formula based on the employees' total cost to company.

The DoH utility charges provision relates to utilities and maintenance fees owing to the DoH for various provincial hospital facilities around the country. Significant adjustments to the provision pertain to changes in the rate charged per square metre as well as the reversal of the utilities provision relating to the Eastern Cape province.

15. STATED CAPITAL

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Issued				
332 000 Ordinary shares at par value of R1 each	332	332	332	332

The economic entity's sole shareholder is the South African Government. There have been no shares issued since the incorporation of the NHLS.

16. CAPITAL REPLACEMENT RESERVE

The capital replacement reserve was created as a result of the establishment of the NHLS, which assumed control over state-owned laboratories on incorporation. During the prior financial year, a transfer of the total balance of funds took place from the capital replacement reserve to accumulated surplus account. No funds have been set aside since the establishment of the NHLS to support this reserve.

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Capital replacement reserve	-	8 000	-	8 000
Transfer to accumulated surplus	-	(8 000)	-	(8 000)
	-	-	-	-

17. GENERAL RESERVE

The general reserve was created as a result of the establishment of the NHLS, which assumed control over state-owned laboratories on incorporation. During the prior financial year, a transfer of the total balance of funds took place from the general reserve to the accumulated surplus account. Since fund accounting is not allowed in terms of GRAP this reserve now forms part of the accumulated surplus.

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
General reserve	-	34 505	-	31 206
Transfer to accumulated surplus	-	(34 505)	-	(31 206)
	-	-	-	-

18. INVESTMENTS

	Controlling entity	
	2016 R'000	2015 R'000
South African Vaccine Producers (Pty) Limited		
Percentage holding	100 %	100 %
Carrying amount	10	10
Impairment	(10)	(10)
	-	-

19. LOAN TO GROUP COMPANY

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Controlled entity				
South African Vaccine Producers (Pty) Ltd	-	-	36 764	40 858
	-	-	36 764	40 858
Impairment of loans to controlled entity	-	-	(36 764)	(40 858)
	-	-	-	-

The controlling entity has subordinated its rights to claim payments of debts of R36.764 million (2015: R40.858 million) owing to it by the South African Vaccine Producers (Pty) Limited until the assets of the subsidiary, fairly valued, exceed its liabilities. The report of the Accounting Authority contains further details regarding the subsidiary.

Loan to SAVP impaired

As of 31 March 2016, loans to economic entities of R36.764 million (2015: R40.858 million) were impaired and provided for.

The ageing of these loans is as follows:

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Over 12 months	-	-	36 764	40 858
	-	-	36 764	40 858

20. REVENUE

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Sale of goods	20 057	15 525	-	-
Rendering of services	5 734 631	5 551 023	5 734 631	5 551 023
Miscellaneous other revenue	8 580	15 133	8 580	15 133
Government grants and subsidies	678 926	125 280	678 926	125 280
	6 442 194	5 706 961	6 422 137	5 691 436
The amount included in revenue arising from exchanges of goods or services are as follows:				
Sale of goods	20 057	15 525	-	-
Rendering of services	5 734 631	5 551 023	5 734 631	5 551 023
Miscellaneous other revenue	8 580	15 133	8 580	15 133
	5 763 268	5 581 681	5 743 211	5 566 156
The amount included in revenue arising from non-exchange transactions is as follows:				
Transfer revenue				
Government grants and subsidies	678 926	125 280	678 926	125 280

21. COST OF SALES – RESTATED

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Direct material expenses	2 536 985	2 231 493	2 532 236	2 229 197
Employee costs	2 264 846	1 965 155	2 255 072	1 956 457
Depreciation and amortisation costs	37 817	34 314	37 467	33 983
	4 839 648	4 230 962	4 824 775	4 219 637

22. OTHER INCOME

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Fair value adjustments: Notional interest	22 608	48 559	22 608	48 559
Royalties received	363	224	363	224
Discount received	664	750	658	749
Debt impairment recovered	2 791	343	2 791	343
Internal recoveries	4 436	11 402	4 436	11 402
Teaching income	106 526	57 299	106 526	57 299
Sundry income	10 746	5 712	10 746	5 712
Grant income recognised	181 835	142 201	181 835	142 201
	329 969	266 490	329 963	266 489

23. OPERATING SURPLUS

Operating surplus for the year is stated after accounting for the following:

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Operating lease charges				
Premises				
- Contractual amounts	3 798	3 840	3 798	3 819
Motor vehicles				
- Contractual amounts	1 555	881	1 555	881
Equipment				
- Contractual amounts	67 288	64 503	67 159	64 354
	72 641	69 224	72 512	69 054
Deficit on sale of property, plant and equipment	(4 437)	(553)	(4 437)	(553)
Amortisation on intangible assets	12 735	21 631	12 735	21 631
Depreciation on property, plant and equipment	105 806	54 150	105 433	53 746

24. EMPLOYEE RELATED COSTS

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Basic	1 870 582	1 637 681	1 863 168	1 631 060
Bonus	14 536	14 786	14 487	14 723
Medical aid – company contributions	137 839	122 673	137 157	122 052
UIF	10 871	10 553	10 811	10 494
WCA	9 737	6 296	9 685	6 263
SDL	12 955	344	12 870	344
Leave pay provision charge	25 719	14 182	25 615	14 175
Training	303	310	123	175
Other allowances	144 108	131 022	144 108	131 022
External bursaries	7 427	(2 500)	7 416	(2 518)
Other short-term costs	71 556	58 841	71 079	58 420
Defined contribution plans	257 000	297 554	256 291	296 920
Long-term benefits – incentive scheme	3 354	3 010	3 317	2 961
	2 565 987	2 294 752	2 556 127	2 286 091

25. DEBT IMPAIRMENT

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Contributions to debt impairment provision	(185 461)	669 973	(189 555)	669 781
Debt impairment written off	909 600	106 061	909 600	106 061
	724 139	776 034	720 045	775 842

Contributions to debt impairment provision consists of provision for doubtful debt, provision for the loss in the subsidiary company, SAVP and fair value adjustments.

Debt written off consists of stale medical aid claims due to late billing as well as write-offs due to data-capturing errors, debt that is uneconomical to pursue, death of patients, uncontactable patients and debt that falls over the prescribed period.

During the current financial year, R771 million of KZN provincial government's debt was written off which dated back to 2006 following a long-outstanding billing dispute with the province.

A doubtful debt provision was utilised to cover the write-off of KZN provincial government's debt. Further details are contained in Note 3.

26. INVESTMENT REVENUE – RESTATED

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Interest revenue – Restated				
Bank	51 018	27 086	50 934	27 086
Interest received – debtors	142 238	139 137	142 238	139 137
	193 256	166 223	193 172	166 223

27. FINANCE COSTS

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Other interest paid	184	1 655	147	1 655

28. AUDITORS' REMUNERATION

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Audit Fees – current year	5 650	8 400	5 624	8 400
Audit Fees – prior year under provision	407	6 489	156	6 253
Fees for other services	374	806	374	806
Expenses	1 242	-	1 242	-
	7 673	15 695	7 396	15 459

Auditors' remuneration consists of external and internal audit remuneration. Internal audit services are co-sourced.

29. CASH GENERATED FROM/(USED IN) OPERATIONS – RESTATED

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Surplus/(Deficit)	279 287	179 747	279 428	176 912
Adjustments for:				
Depreciation and amortisation	118 570	75 781	118 197	75 377
Loss on sale of assets and liabilities	4 437	553	4 437	553
Debt impairment	724 139	776 034	720 045	775 842
Movements in retirement benefit assets and liabilities	77 766	139 302	77 766	139 302
Movements in provisions	220 494	50 650	220 494	50 650
Changes in working capital:				
Inventories	(15 248)	(7 928)	(15 289)	(6 833)
Trade and other receivables	(300 381)	(421 812)	(300 235)	(422 126)
Debt impairment	(724 139)	(776 034)	(720 045)	(775 842)
Other receivables from non-exchange transactions	7 816	(3 346)	7 816	(3 346)
Trade and other payables	(166 628)	366 978	(166 823)	367 554
Deferred income	(48 127)	(5 728)	(48 127)	(5 728)
	177 986	374 197	177 664	372 315

30. COMMITMENTS

Authorised capital expenditure

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Capital expenditure contracted for after the reporting date but not yet incurred is as follows:				
- Property, plant and equipment	81 304	26 057	81 304	26 057
Not yet contracted for and authorised by the Board				
- Property, plant and equipment	23 630	15 296	23 630	15 296
	104 934	41 353	104 934	41 353

This committed expenditure relates to property, plant and equipment and will be financed by available bank facilities, retained surpluses, existing cash resources and funds internally generated.

Operating leases – as lessee expense

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Minimum lease payments due				
- within one year	71 145	61 928	71 145	61 928
- in second to fifth year inclusive	69 527	35 046	69 527	35 046
	140 672	96 974	140 672	96 974

Operating lease payments represent rentals payable by the economic entity for certain of its office properties. Leases are negotiated for an average term of five years and rentals are fixed for an average of three years. No contingent rent is payable.

31. CONTINGENCIES

Contingent liabilities

The WSU has claimed that the salaries of HODs, Medical Scientists and Technologists are owed by the NHLS for the period 2007–2013. The amount is disputed by the NHLS as the staff for which the claim is being made are not the employees of the NHLS.

The intention of the NHLS is to defend all other cases and the legal opinion is of the view that the NHLS is in a favourable legal position to succeed.

The economic entity's lawyers consider the likelihood of the action against the entity being successful as unlikely.

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Claims lodged for damages:				
Legal fees on ex-employee cases	150	6 771	150	6 771
WSU salaries dispute	15 309	-	15 309	-
Gauteng DoH counter-claim	-	1 711 480	-	1 711 480
	15 459	1 718 251	15 459	1 718 251

31. CONTINGENCIES (CONTINUED)

Contingent assets

An employee and a vendor are alleged to have committed fraud and/or theft against the NHLS for a period of about 13 years from 2002 until June 2013. The NHLS conducted a disciplinary process and the employee was dismissed. The matter was reported to the Commercial Crimes Unit and a civil process has been instituted against the employee and the vendor.

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Prof. A Wadee and SA Cosmetics cc & Abed Suniman	18 290	18 290	18 290	18 290

The NHLS is in the process of registering all its foreign donor funded projects for VAT in order to be able to claim VAT input, which is not recoverable from donors. Once registrations have been finalised and the VAT input is determined this will result in the assets being recognised by the NHLS.

32. RELATED PARTIES

Relationships	Designation	Representative of
Non-executive Board Members		
Barry Schoub	Chairperson	Minister of Health
Gregory Hussey	Vice-Chairperson	Minister of Health
Mary Ross		Minister of Health
Nelisiwe Mkhize		Minister of Health
Willem Sturm		Minister of Health
Haroon Salojee		Minister of Health
Andre Venter		National Department of Health
Patrick Moonasar		National Department of Health
Michael Manning		Western Cape Province
Eric Buch		Council for Higher Education: Universities of Technology
Stanley Harvey		Northern Cape Province
Ntombikayise Mapukata		Eastern Cape Province
Timothy Tucker		Public Nomination: Research
Thamsanqa Stander		Free State Province
Jim McCulloch **		Gauteng Province
Lunga Ntshinga*		Public Nomination: Finance
Vacant position		South African Local Government Association
Ben Durham		Department of Science and Technology
Michael Shingange		Organised Labour
Gerhardus Goosen		Mpumalanga Province
Vacant position		Council for Higher Education: Universities
Executive Board Member		
Joyce Mogale *	Chief Executive Officer: NHLS	National Health Laboratory Service

* New appointment/re-appointment

** Resigned/retired

The NHLS is controlled by the National Department of Health by virtue of the powers conferred to the Minister of Health by the National Health Laboratory Service Act, No. 37 of 2000.

Sales to related parties' transactions relates to the provision of pathology, research and teaching services. Purchases from related parties are as a result of goods and services purchased in the ordinary course of business.

Accounts Receivable

	Economic entity 2016		Controlling entity 2016		Economic entity 2015		Controlling entity 2015	
	Owed	Services billed	Owed	Services billed	Owed	Services billed	Owed	Services billed
By Region								
Western Cape	23 652	605 218	23 652	605 218	20 667	612 588	20 667	612 588
Eastern Cape	146 503	584 375	146 503	584 375	144 937	583 386	144 937	583 386
Northern Cape	33 208	115 604	33 208	115 604	33 485	110 903	33 485	110 903
Gauteng	1 806 221	1 576 520	1 806 221	1 576 520	1 266 983	1 433 274	1 266 983	1 433 274
North West	45 901	286 382	45 901	286 382	104 357	289 094	104 357	289 094
Limpopo	60 382	362 211	60 382	362 211	33 378	337 305	33 378	337 305
Mpumalanga	61 286	351 585	61 286	351 585	88 110	332 854	88 110	332 854
Free State	40 307	278 264	40 307	278 264	59 384	280 738	59 384	280 738
KwaZulu-Natal	3 148 350	1 609 670	3 148 350	1 609 670	3 532 218	1 584 472	3 532 218	1 584 472
National	11 499	32 715	11 499	32 715	10 817	24 593	10 817	24 593
Total	5 377 309	5 802 544	5 377 309	5 802 544	5 294 336	5 589 207	5 294 336	5 589 207
By Segment								
Hospitals	4 283 230	3 183 936	4 283 230	3 183 936	4 268 462	3 461 778	4 268 462	3 461 778
Health clinics	253 923	456 820	253 923	456 820	199 642	465 280	199 642	465 280
Correctional services	9 005	18 044	9 005	18 044	12 939	15 600	12 939	15 600
Anti-retroviral programmes	501 027	1 940 869	501 027	1 940 869	472 340	1 440 882	472 340	1 440 882
Universities	44 250	72 335	44 250	72 335	2 776	35 102	2 776	35 102
Defence	3 422	26 517	3 422	26 517	7 871	25 500	7 871	25 500
Municipalities	272 352	62 140	272 352	62 140	316 327	109 759	316 327	109 759
Other public entities	10 100	41 883	10 100	41 883	13 979	35 306	13 979	35 306
Total	5 377 309	5 802 544	5 377 309	5 802 544	5 294 336	5 589 207	5 294 336	5 589 207

Accounts Payable

	Economic entity 2016		Controlling entity 2016		Economic entity 2015		Controlling entity 2015	
	Owing	Purchases	Owing	Purchases	Owing	Purchases	Owing	Purchases
By Region								
Western Cape	3 937	23 639	3 937	23 639	1 507	20 770	1 507	20 770
Eastern Cape	118	1 967	118	1 967	59 342	4 273	59 342	4 273
Gauteng	1 088	50 421	1 088	50 421	2 567	50 040	2 567	50 040
North West	48	554	48	554	12	391	12	391
Limpopo	12	214	12	214	747	790	747	790
Free State	-	858	-	858	-	550	-	550
Mpumalanga	-	37	-	37	824	824	824	824
KwaZulu-Natal	84	1 124	84	1 124	69 394	6 658	69 394	6 658
Total	5 287	78 814	5 287	78 814	134 393	84 296	134 393	84 296
By Segment								
Hospitals	-	-	-	-	132 042	11 754	132 042	11 754
Universities	4 238	24 666	4 238	24 666	1 104	39 924	1 104	39 924
Municipalities	763	22 543	763	22 543	-	13 032	-	13 032
National public entities	139	11 350	139	11 350	1 196	17 115	1 196	17 115
Provincial public entities	8	165	8	165	51	2 471	51	2 471
Other public entities	-	-	-	-	-	-	-	-
Contract laboratory services	139	20 090	139	20 090	-	-	-	-
Total	5 287	78 814	5 287	78 814	134 393	84 296	134 393	84 296

33. RISK MANAGEMENT

Financial risk management

The economic entity's activities expose it to a variety of financial risks: liquidity risk, interest rate risk and credit risk.

Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash and the availability of funding through an adequate amount of committed credit facilities. Due to the dynamic nature of the underlying businesses, economic entity treasury maintains flexibility in funding by maintaining availability under committed short-term investments. At year end the investment in short-term deposits amounted to R739 million.

The economic entity's risk to liquidity is a result of the funds being available to cover future commitments. The economic entity manages liquidity risk through an ongoing review of future commitments and credit facilities.

Interest rate risk

The economic entity's interest rate risk arising from short-term investments and finance leases is minimal in view of the immaterial amounts involved.

Fair value

At 31 March 2016, the carrying amounts of cash, accounts receivable, accounts payable and accrued expenses approximated their fair values due to the short-term maturities of these assets and liabilities.

The carrying amount of financial assets and financial liabilities approximate their fair values.

Credit risk

Credit risk is managed on a group basis.

Credit risk consists mainly of cash deposits, cash equivalents and trade debtors. The entity only deposits cash with major banks with high quality credit standing and limits exposure to any one counterparty to the exception of government departments.

Concentrations of credit risk with respect to trade receivables are limited due to the majority of receivables being owned by government departments. However, due to the current payment disputes with the KZN Provincial Department of Health and Gauteng Department of Health, a total doubtful debt allowance of R2.09 billion has been raised. Trade receivables are interest bearing and are generally on 30-day payment terms. All interest on overdue debt has been provided for in full due to various communications received from the relevant government departments indicating they will not be in a position to honour the the additional interest owed to NHLS.

Financial assets exposed to credit risk at year end were as follows:

Financial instrument

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Trade receivables and non-exchange receivables	3 154 924	2 862 359	3 152 791	2 860 372

34. FINANCIAL ASSETS BY CATEGORY

Economic entity

	Financial assets at amortised cost R'000
2016	
Trade and other receivables	3 153 797
Other receivables from non-exchange transactions	1 127
Cash and cash equivalents	738 975
	3 893 899

The accounting policies for financial instruments have been applied to the line items below:

Economic entity

	Financial assets at amortised cost R'000
2015	
Trade and other receivables	2 853 416
Other receivables from non-exchange transactions	8 943
Cash and cash equivalents	651 166
	3 513 525

Controlling entity

	Financial assets at amortised cost R'000
2016	
Trade and other receivables	3 151 664
Other receivables from non-exchange transactions	1 127
Cash and cash equivalents	736 393
	3 889 184

Controlling entity

	Financial assets at amortised cost R'000
2015	
Trade and other receivables	2 851 429
Other receivables from non-exchange transactions	8 943
Cash and cash equivalents	648 725
	3 509 097

35. FINANCIAL LIABILITIES BY CATEGORY

The accounting policies for financial instruments have been applied to the line items below:

Economic entity

	Financial assets at amortised cost R'000
2016	
Trade and other payables	914 172
Other financial liabilities	68 936
	983 108

Economic entity

	Financial assets at amortised cost R'000
2015	
Trade and other payables	1 080 794
Other financial liabilities	3 820
	1 084 614

Controlling entity

	Financial assets at amortised cost R'000
2016	
Trade and other payables	912 933
Other financial liabilities	68 936
	981 869

Controlling entity

	Financial assets at amortised cost R'000
2015	
Trade and other payables	1 079 750
Other financial liabilities	3 820
	1 083 570

36. PRESCRIBED OFFICERS AND BOARD MEMBERS' EMOLUMENTS

Emoluments were paid to the board members or any individuals holding a prescribed office during the year.

Prescribed Officers

2015–2016	Salaries R'000	Retirement contribution R'000	Medical contribution R'000	Expense allowance R'000	Other R'000	Total R'000
S Madhi	2 498	-	69	-	-	2 567
J Mogale	1 686	50	-	500	12	2 248
M Saffer (SAVP Director)	536	44	-	2	34	616
S Grimmett	962	76	45	12	2	1 097
J van Heerden	1 825	-	-	-	19	1 844
A Hall	770	66	41	-	-	877
S Zulu	1 653	-	-	-	-	1 653
M Mphelo	1 079	-	-	-	-	1 079
S Kisting	1 324	-	-	346	23	1 693
M Mosia	236	21	8	-	-	265
	12 569	257	163	860	90	13 939

2014–2015	Salaries R'000	Retirement contribution R'000	Medical contribution R'000	Expense allowance R'000	Other R'000	Total R'000
S Madhi	2 475	-	66	-	1	2 542
N Sangweni	1 353	121	26	-	1	1 501
M Saffer (SAVP Director)	510	44	-	-	27	581
L Keyise	1 362	125	70	2	4	1 563
K Reddy	779	73	59	2	4	917
J van Heerden	1 812	-	-	1	25	1 838
S Pillay (CEO)*	1 614	125	-	-	412	2 151
M Kistnasamy*	580	47	17	60	308	1 012
L Matras (Interim CFO)*	1 270	-	-	-	-	1 270
S Zulu (CFO)**	108	-	-	-	-	108
M Mphelo**	85	-	-	-	-	85
S Kisting**	675	-	-	-	5	680
J Mogale (Interim CEO)**	719	-	-	-	-	719
M Randera (Acting CEO)**	180	-	-	-	-	180
	13 522	535	238	65	787	15 147

* Resigned/retired

**New appointment

Service contracts

Prescribed Officers are subject to written employment agreements. The employment agreements regulate duties, remuneration, allowances, restraints, leave and notice periods of these executives. None of these service contracts exceed five years.

36. PRESCRIBED OFFICERS AND BOARD MEMBERS' EMOLUMENTS (CONTINUED)

Non-executive Board Members

2015–2016	Members' fees R'000	*Other fees R'000	Total R'000
B Schoub (Chairperson)	344	2	346
M Shingange	67	6	73
T Stander	257	11	268
E Buch	208	1	209
T Mhlongo	-	155	155
N Mapukata	164	26	190
L Ntshinga	205	48	253
M Ross	49	1	50
S Harvey	143	1	144
N Mkhize	37	9	46
T Tucker	217	2	219
	1 691	262	1 953

2014–2015	Members' fees R'000	Other fees*	Total R'000
Algonda Perez (Chairperson)	203	-	203
Fazel Randera	190	7	197
Eric Buch	172	-	172
Thokozani Mhlongo	3	68	71
Tlou Semenya**	-	95	95
Lunga Ntshinga	218	52	270
Lufuno Nevondwe**	189	86	275
Tim Tucker	167	1	168
	1 142	309	1 451

*Other fees relate to travel re-imbursement and out-of-pocket expenses.

**Board member retired/resigned/term expired.

37. RESTATEMENT OF PRIOR PERIOD

The restatement results in adjustments as follows:

- Teaching salaries due to the Walter Sisulu University per agreement not accounted for.
- Teaching income due to the public entity that has not been accounted for in previous years based on agreements.
- Reclassification of computer equipment from intangible assets.

37. RESTATEMENT OF PRIOR PERIOD (CONTINUED)

	Economic entity	Controlling entity	Economic entity	Controlling entity
	2015 R'000	2015 R'000	2014 R'000	2014 R'000
Statement of Financial Position				
(a) WSU provisions	(17 614)	(17 614)	(76 525)	(76 525)
(b) Teaching income – debtor	16 447	16 447	28 590	28 590
(c) Computer equipment cost	135 420	135 420	-	-
(c) Software cost	(135 420)	(135 420)	-	-
(c) Computer equipment – accumulated depreciation	60 424	60 424	-	-
(c) Software – accumulated depreciation	(60 424)	(60 424)	-	-
Statement of Financial Performance				
WSU teaching salaries	17 614	17 614	76 526	76 526
Teaching income	(16 447)	(16 447)	(28 590)	(28 590)

38. IRREGULAR EXPENDITURE

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Opening balance	349 057	7 912	349 057	7 912
Deviations from the Procurement Policy (a)	135 630	210 094	135 630	210 094
Expired contracts/no contracts	-	131 051	-	131 051
Less: Amounts condoned (a)	(245 628)	-	(245 628)	-
Less: Tax certificates, supplier declarations obtained	(7 912)	-	(7 912)	-
Less: Valid contracts provided	(202 257)	-	(202 257)	-
	28 890	349 057	28 890	349 057

Analysis of expenditure awaiting condonation per age classification

	Economic entity		Controlling entity	
	2016 R'000	2015 R'000	2016 R'000	2015 R'000
Current year	28 890	341 145	28 890	341 145
Prior years	-	7 912	-	7 912
	28 890	349 057	28 890	349 057

- (a) Quality management systems in relation to certification and accreditation, and the particular standards applicable to medical laboratories are essential for quality to ensure clinical governance and compliance. Medical laboratories are directed by standards containing technical specifications or precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose.

The management of resources that support the core processes of the laboratory when these are being applied within the NHLS they contribute to increasing the reliability and effectiveness of the goods and services delivered. The National Treasury state “that sole source procurement may occur when there is evidence that only one supplier possesses the unique and singularly available capacity to meet the requirements of the institution”. It is in this context that the majority of the suppliers in the NHLS have been selected based on these set standards and as such, these cannot be considered as being irregular expenses as the need for this procurement was thus limited and specific to the NHLS.

Irregular expenditure was condoned after the financial year end, but before the authorisation of the group Annual Financial Statements.

Detailed Statement of Financial Performance

	Note	Economic entity		Controlling entity	
		2016 R'000	2015 Restated* R'000	2016 R'000	2015 Restated* R'000
REVENUE					
Sale of goods		20 057	15 525	-	-
Rendering of services		5 734 631	5 551 023	5 734 631	5 551 023
Miscellaneous other revenue		8 580	15 133	8 580	15 133
Government grants and subsidies		678 926	125 280	678 926	125 280
		6 442 194	5 706 961	6 422 137	5 691 436
Cost of sales	21	(4 839 648)	(4 230 963)	(4 824 775)	(4 219 638)
Gross surplus		1 602 546	1 475 998	1 597 362	1 471 798
OTHER INCOME					
Fair value adjustments: Notional interest		22 608	48 559	22 608	48 559
Royalties received		363	224	363	224
Discount received		664	750	658	749
Recoveries		7 227	11 745	7 227	11 745
Teaching income		106 526	57 299	106 526	57 299
Sundry income		10 746	5 712	10 746	5 712
Grant income recognised		181 835	142 201	181 835	142 201
Interest received	26	193 256	166 223	193 172	166 223
		523 225	432 713	523 135	432 712
Expenses (Refer to page 207)		(1 846 300)	(1 727 309)	(1 840 922)	(1 725 943)
Operating surplus	23	279 471	181 402	279 575	178 567
Finance costs	27	(184)	(1 655)	(147)	(1 655)
Surplus for the year		279 287	179 747	279 428	176 912

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Detailed Statement of Financial Performance (continued)

	Note	Economic entity		Controlling entity	
		2016 R'000	2015 Restated* R'000	2016 R'000	2015 Restated* R'000
Operating expenses					
Advertising		1 930	1 337	1 930	1 337
Assets expensed < R5 000		7 509	4 291	7 493	4 286
Auditors remuneration	28	7 673	15 695	7 396	15 459
Debt impairment		724 139	776 034	720 045	775 842
Bank charges		1 175	855	1 149	835
Cleaning		30 952	27 208	30 823	27 100
Computer expenses		9 108	5 965	9 108	5 965
Conferences and seminars		2 321	3 969	2 288	3 943
Consulting and professional fees		40 009	38 253	39 722	38 091
Project management expenses		2 031	482	2 031	482
Training expenses		8 864	5 874	8 864	5 874
Software development expenses		27 889	17 712	27 889	17 712
Consumables		13 244	12 600	13 183	12 539
Debt collection		1 546	1 196	1 546	1 196
Delivery expenses		772	963	772	953
Depreciation, amortisation and impairments		80 722	41 467	80 700	41 395
Discount allowed		17 960	21 620	17 960	21 620
Employee costs		293 733	332 302	293 623	332 302
Entertainment		3	27	3	27
Research trust		156	39	156	39
Archiving and storage		4 039	3 468	4 039	3 468
Fines and penalties		18	4	18	4
Insurance		4 720	2 332	4 720	2 332
Lease rentals on operating lease		65 453	43 683	65 441	43 548
Legal expenses		1 917	3 289	1 897	3 274
Loss on disposal of assets		4 437	553	4 437	553
Medical expenses		1 046	2 345	1 046	2 345
Motor vehicle expenses		582	592	582	592
Other expenses		7 202	26 583	7 202	26 583
Packaging		5 620	4 108	5 574	4 032
Petrol and oil		5 259	6 177	5 259	6 177
Postage		58	69	58	69
Printing and stationery		34 354	34 489	34 270	34 433
Promotions		1 098	258	1 098	258
Promotions and sponsorships		46	34	46	34
Repairs and maintenance		58 805	55 556	58 752	55 535
Security		8 493	7 389	8 493	7 389
Software expenses		92 148	59 834	92 148	59 831
Staff welfare		5 623	6 006	5 570	5 925
Subscriptions		4 206	2 772	4 206	2 748
Telephone and fax		88 010	70 450	87 955	70 387
Travel – local		34 374	47 352	34 374	47 352
Travel – overseas		569	38	569	38
Utilities		146 487	42 039	146 487	42 039
		1 846 300	1 727 309	1 840 922	1 725 943

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**NATIONAL HEALTH
LABORATORY SERVICE**



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