



Republic of Mozambique

Ministry of Health

Molecular platform integration

Experience and expert opinion

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Summary



- Overview of Mozambique
- National Health Service
- Molecular network
- Horizons and Opportunities
- Integration Experience

Mozambique Profile

Overview and Landmark



34 millions Population (50 million 2044)

45% Population under 14 years

2.6% Population growth rate

5.6 Average kids per couple

5.5 millions Patients per year (lab)

10.5 millions Exams per year (lab)

2 500 Professionals (lab)





National Health Service

Profile & Level of attention

- Public & Private & Community Subsystems
 - Managerial structure divided in **Central, Provincial** and **District** levels
 - Around **1900** Health Facilities
 - Almost **70 Hospitals**: 4 Central, 7 Provincial, 9 General, 60 District*
 - **4 Levels** of attention*: Primary, Secondary, Tertiary and Quaternary care
- ✓ Primary care: **health centers**
 - ✓ Secondary care: **district and general hospitals**
 - ✓ Tertiary care: **provincial hospitals**
 - ✓ Quaternary care: **central and specialized hospitals**



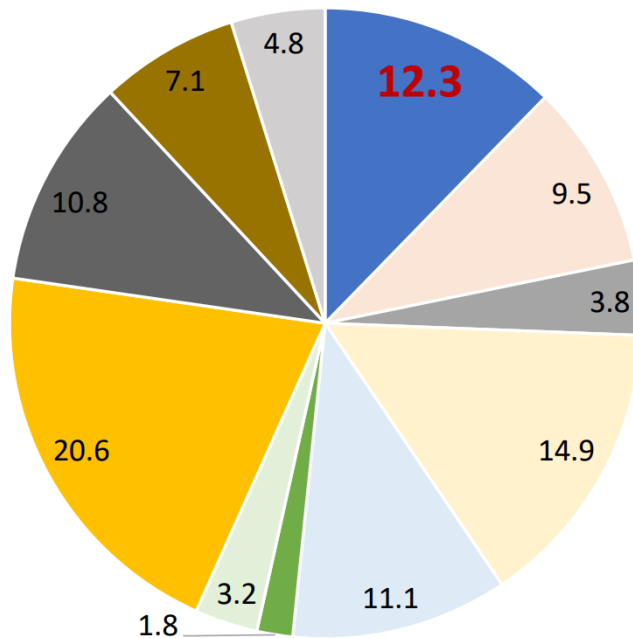
National Health Service



Mortality

Community based data

- 1st HIV
- 2nd Cancer
- 3rd Trauma
- 4th Cardiovascular disease
- 5th GI infection
- 6th Pneumonia



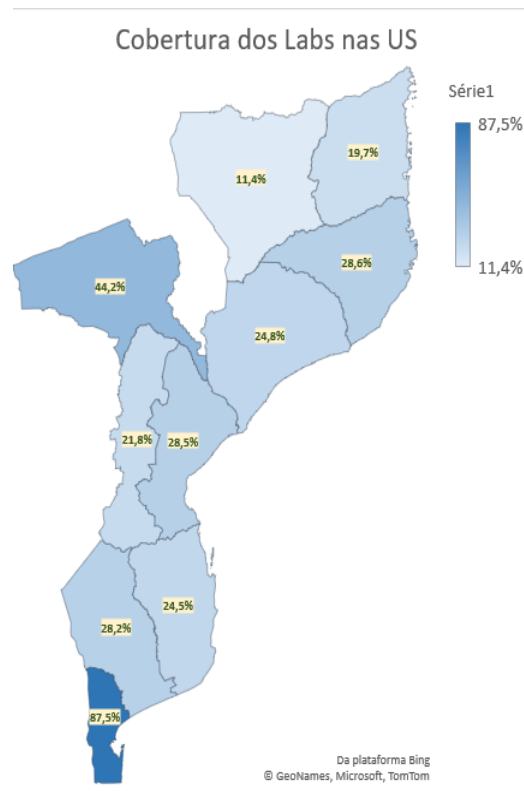
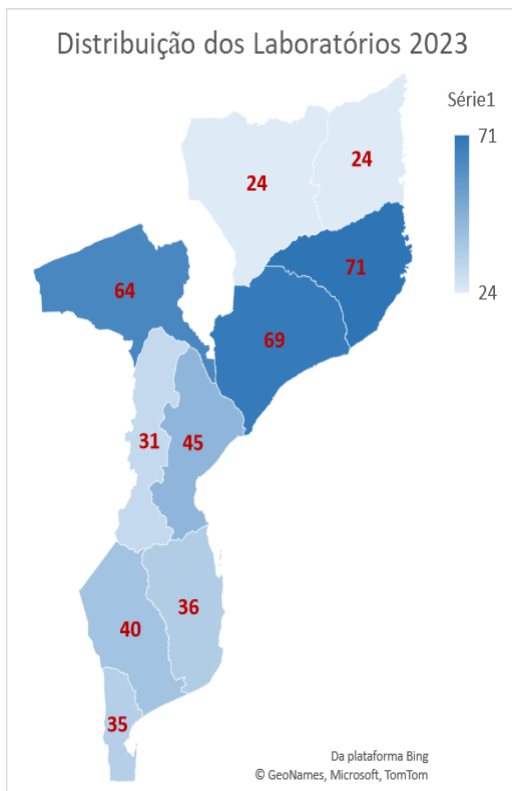
- Cancro
- Doencas Cardiovasculares
- Diarreia
- HIV
- Trauma
- Malaria
- Causas maternas
- Outros
- Outras infeccoes
- Pneumonia
- Tuberculose

Laboratory Network



Overview

- Over 511 Labs
- 27% coverage
- Over 2467 Lab staff
- LIS less 10% labs
- Over 1812 instruments
- 370 POC molecular
- 40 conventional VL



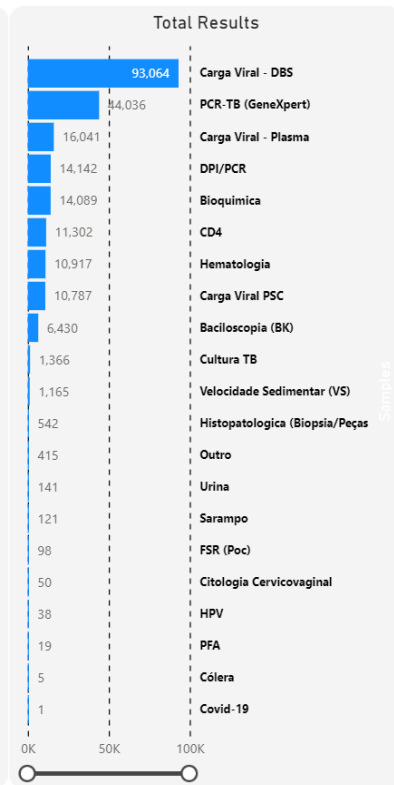
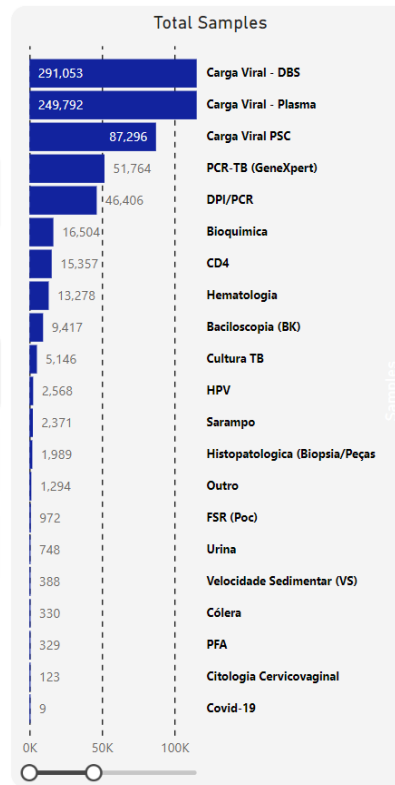
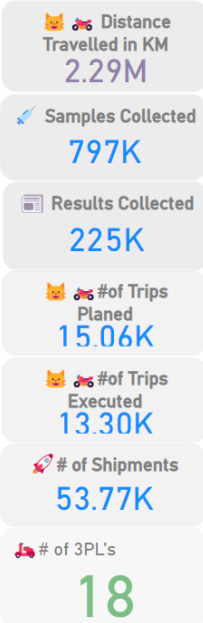
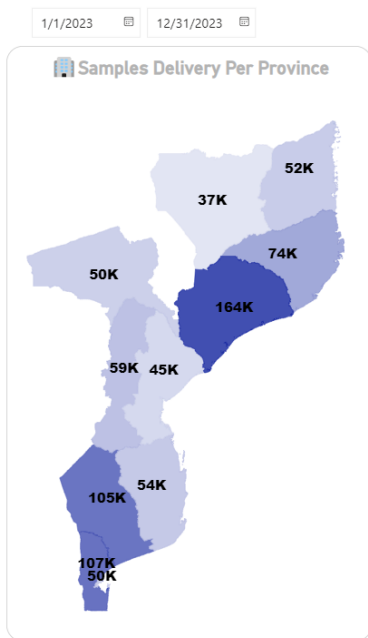
Laboratory Network

Referral Sample System



USAID
FROM THE AMERICAN PEOPLE

- 157 District
- 1866 HF





Laboratory Network

Molecular Laboratory

- 14 molecular labs
- 40 Conventional
- 2.8-3.4 million tests
- 68-72% utilization
- 135 M-PIMA
- 235 GXPERT
- 03 new labs



Regiões/Províncias				
Locais de Testagem	Rede Convencional Laboratórios	Equipmentos	Rede POC US POC	Equipmentos
Centro	5	16	61	61
Manica	1	3	11	11
Sofala	2	5	16	16
Tete	1	3	6	6
Zambézia	1	5	28	28
Norte	2	6	28	28
Nampula	1	4	16	16
Niassa	0	0	3	3
Cabo Delgado		2	9	9
Sul	9	18	46	46
Gaza	2	6	17	17
Inhambane	0	0	7	7
Maputo Cidade	4	6	10	10
Maputo Província	2	6	12	12
Nacional	14	40	135	135



Clinical Lab

Priorities and Opportunities

- Microbiology: **bacteriology**, **AMR**, hospital surveillance
- Immunochemistry: endocrinology, **immunology**, rheumatology
- Oncology: serology (biomarkers) and **molecular biology**
- Flow cytometry: cellular immunology and oncology & MRD
- Hematology coagulation: **HGBinopathies**, **Hemophilias**, coagulation disorders
- Immunology & Serology: **infectious** (ITS, febrile syndrome, virology)

- **Integrate diagnostic platforms** (e.g.: molecular biology: HIV, TB, Hepatitis, HPV, cancer, genetics)



Needs and Capacities

Gaps to Address

- **Blood transfusion** and transplant BKV
- Infectious diseases: **STDs, Hepatitis, TB**
- **AMR**
- Oncology: lung, Thyroid, Ovarian, Colorectal

DONOR SCREENING	INFECTIOUS DISEASES	SEXUAL HEALTH	TRANSPLANT	RESPIRATORY	ANTIMICROBIAL STEWARDSHIP
MPX	HIV-1 [†]	HPV**	CMV	SARS-CoV-2 [^]	MTB-RIF/INH*
WNV	HBV	CT/NG	EBV	SARS-CoV-2 + Influenza A/B [^]	MG Resistance
DPX	HCV	TV/MG	BKV	MTB*	GC Resistance
HEV*	HIV-1/2 Qual			MAI*	
CHIKV/DENV*				MPLX Respiratory	
Zika					
Babesia					
Malaria					
		<u>GENOMIC and ONCOLOGY</u>			
			EGFR v2		
			EZH2		
			BRAF		
			KRAS		
			Factor II/V		
			PIK3CA		
			BRAF/NRAS		
			KRAS v2		



Integration

Roadmap and Checkpoints

Multi-Testing Integration



- **Strategic** – guideline for testing integration
- **Operational** – instructions to guide NHS
- **Technical** – TWG checklists and lab processes science tools and lean tools
 - ✓ To establish requisites to incorporate innovation and tests
 - ✓ To develop checklist to guide the integration process
 - ✓ To define how to assess lab processes to include tests and M&E

Integration

Implementation



- a.* Initiative aligned **WHO goals** around **90% screened** and **99% treated** for HPV
- b.* Prevent **cervical cancer** through the utilization of **existing lab platforms**
- c.* Roadmap to **eliminate cervical cancer** introducing of **HPV-DNA testing**
- d.* **SALVA** is the initiative funded by **Pepfar/CDC**, **HPV-DNA as primary screening**



- Integrated in SRS and tested in Cobas 6800 from Mavalane hospital molecular lab
- The lab does **HIV** (VL-Plasma, PSC, EID-DBS) and **HPV** (Cervical vaginal liquid sample)



Integration

Implementation

Steps: *LabScan*

- Lean base approach to optimize patient journey

Sample: transportation, reception and preparation, processing, validation, post analytic



72 hours TAT in lab and patients back to HF in 15 days after, improving TAT over time

Khanimambo

Thank you

Acknowledges

- MoH – DNAM colleagues
- Partners of implementation
- Donors
- Suppliers
- Technical and scientific experts support

