LABORATORY MAPPING EXERCISE

MALAWI EXPERIENCE.

Malawi Ministry of Health.

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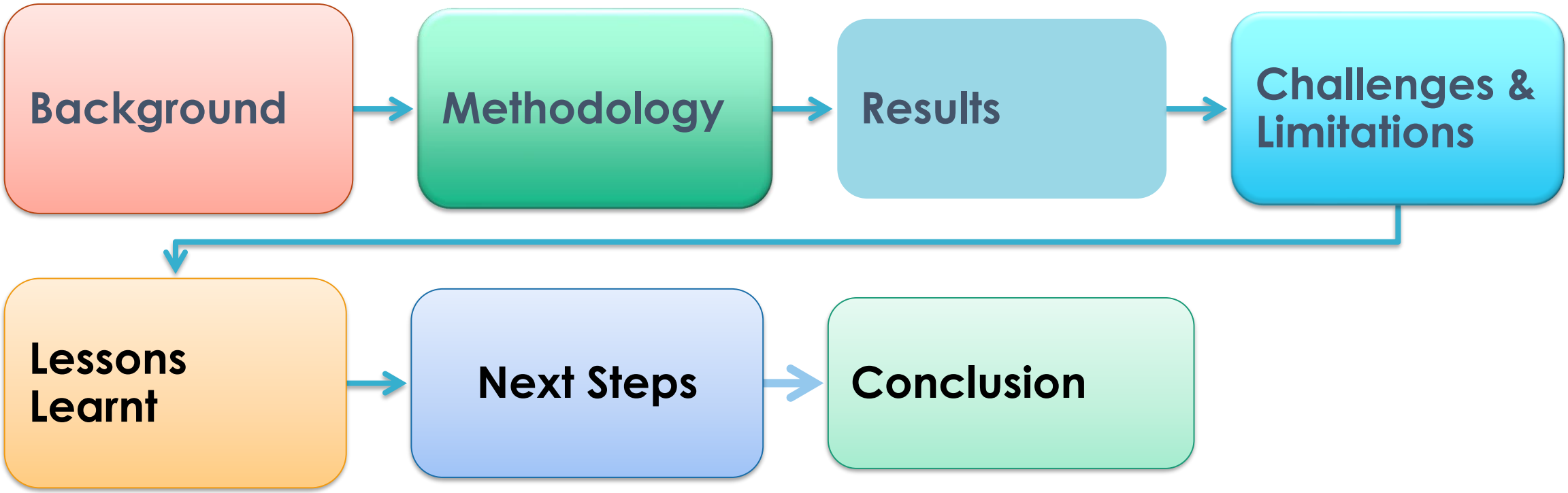
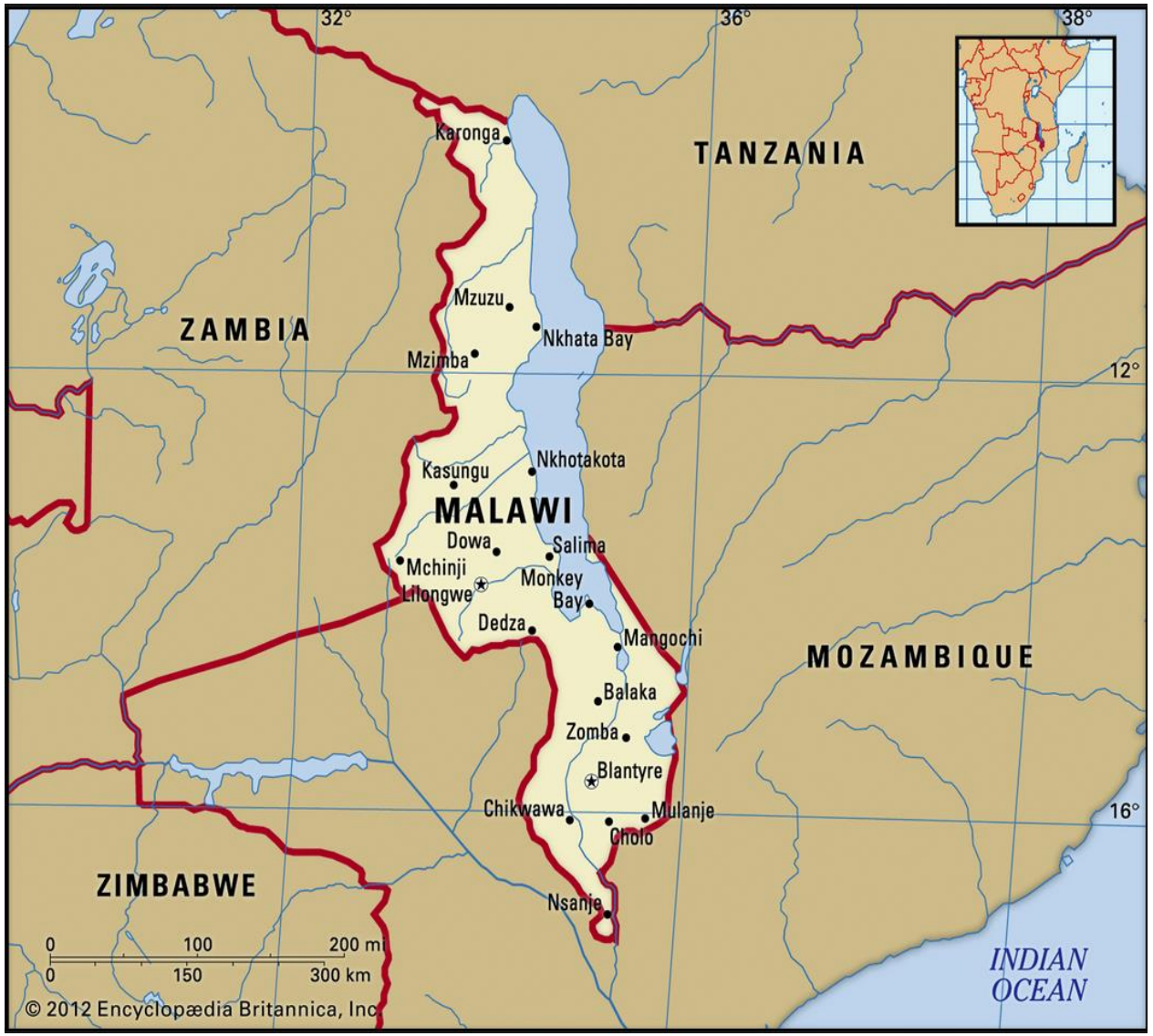
Presentation outline

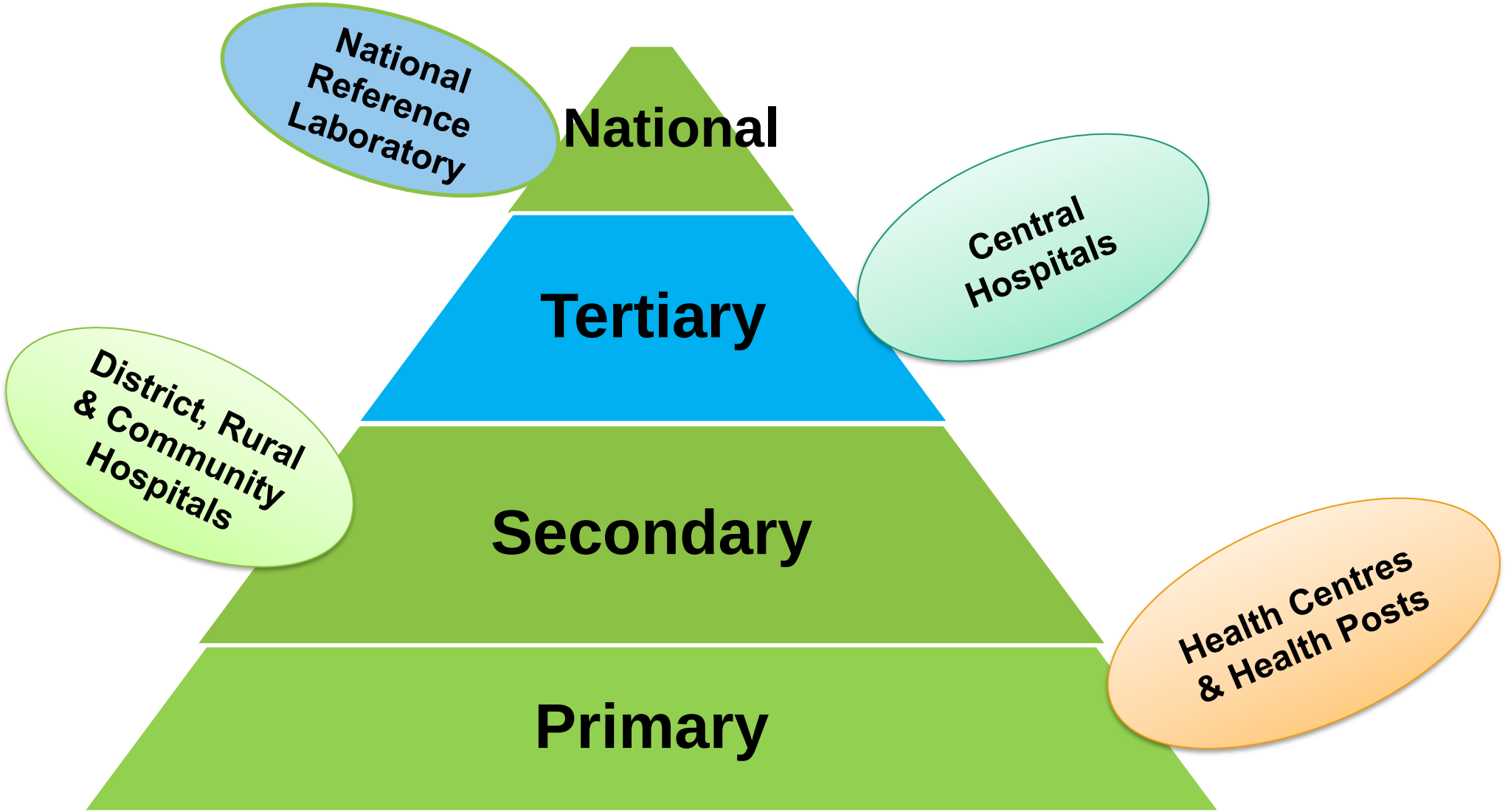


Background: Malawi Country Profile

- Landlocked Country in the Southern part of Africa
- Boarders with Tanzania, Zambia and Mozambique
- Covers an area of 118,484 sq Km, 20% covered by water
- Population of about 20.41m (2022 National Statistics)



Background: Laboratory Service Delivery Levels



Background: Role of Medical Laboratories

- Laboratory services constitute a critical component in health care service delivery

- Supporting disease diagnosis and treatment monitoring, surveillance, disease control and research

- The Ministry of Health is committed to strengthening laboratory systems by increasing accessibility to quality laboratory testing while ensuring affordability

Laboratory Mapping – the way to go!

- Embraced through LabNet Lead training course
- Comprehensive GIS-linked process for data collection, storage, and analysis for laboratory capacities, systems, and networks within a country

Laboratory Mapping – Our Motivation

- Gap identification
- Capacity building
- Resource mobilization & allocation
- Network optimization
- Public health response and preparedness during disease outbreaks
- Data sharing and availability through creation of a public portal domain.

Methodology (1)

- Target setting; level 4;100% (n=1), level 3; 100% (n=4), level 2, 100% (n = 109) level 1; 80% (n = 390)

- Resource mobilization

- Training of data collectors by a team of experts from Africa CDC and ASLM

Methodology (2)

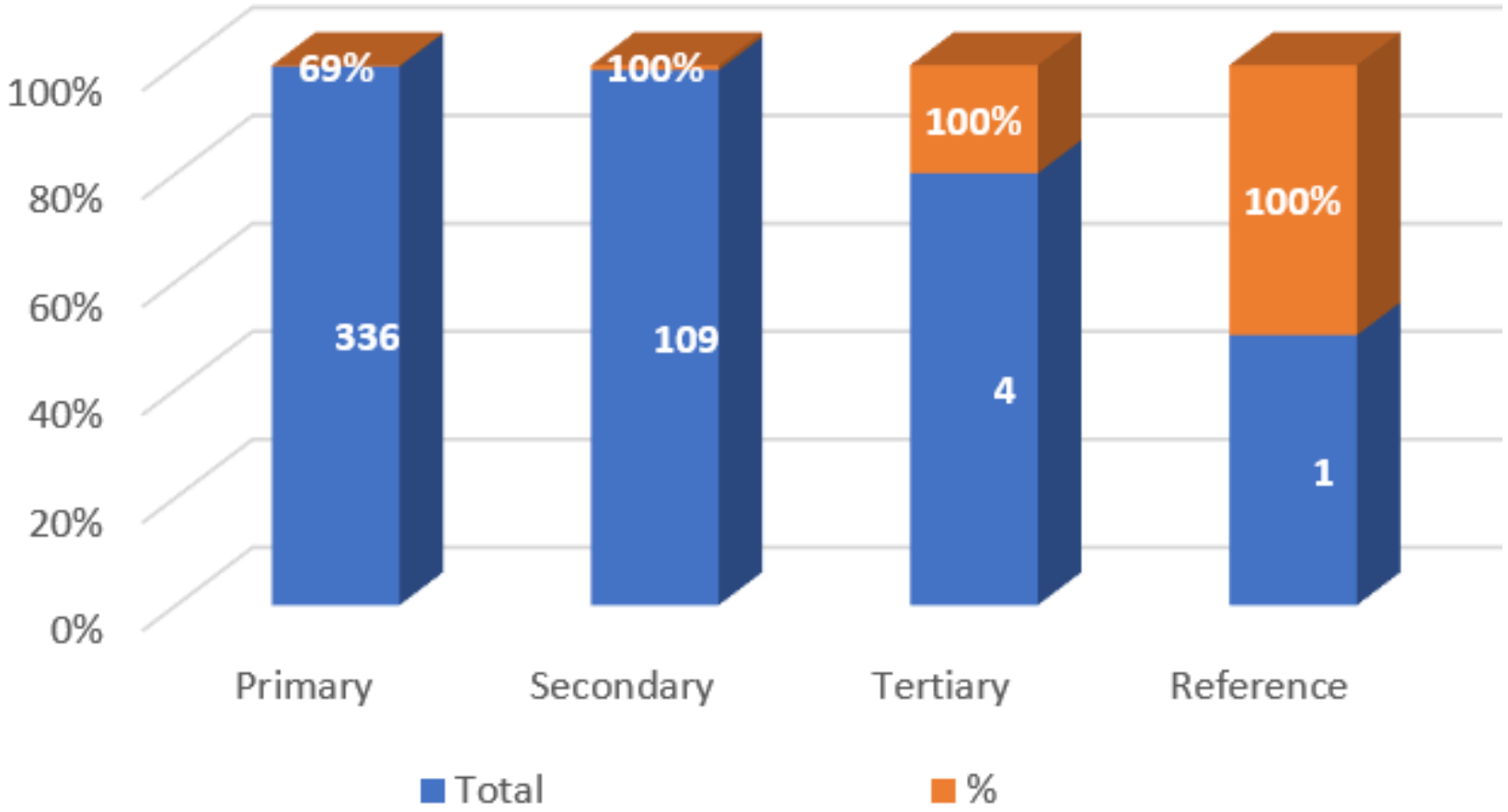
- Data collection
  - Involved representatives from human and animal health, and various laboratory implementing partners
  - Data collection period: Six weeks (4 and 2 weeks for first and second phase respectively)
- Data collection tool : Used ODK
  - Laboratory GIS Locations, laboratory level, Human resource, equipment, supply chain, Biosafety & Biosecurity, QMS
- Data validation
- Data analysis using Microsoft Excel

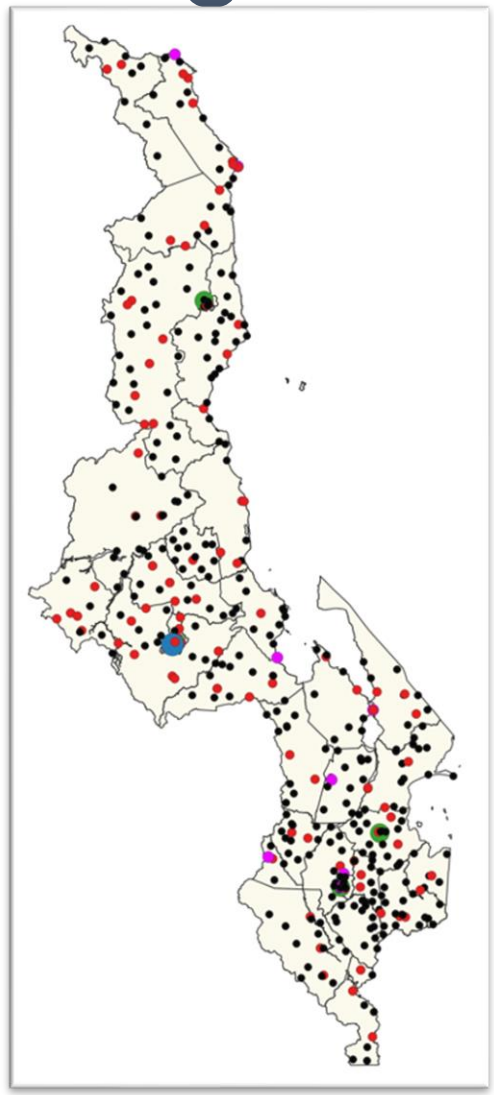
Laboratory Mapping: Malawi Experience

GIS coordinate capturing at Msumbe Health Centre

Msumbe Health center

Results (1): Total Number of Laboratories Mapped at Each Level Versus Their Targets





N = 462

Results (2): Human resource distribution across the laboratory levels

Cadre	Primary		Secondary		Tertiary		National		Other		TOTAL
	No	%	No	%	No	%	No	%	No	%	
Pathologists	0	0	0	0	1	25	0	0	3	75	**4**
Microbiologists	1	13	1	13	1	13	3	38	2	25	**8**
Laboratory Specialists	5	17	7	23	0	0	3	10	15	50	**30**
Laboratory Technologists	36	9	195	50	97	25	24	6	39	10	**391**
Laboratory Technician	96	19	337	67	37	7	10	2	23	5	**503**
Laboratory Assistant/Microscopists	398	77	113	22	0	0	0	0	8	2	**519**
Phlebotomists	66	87	8	11	1	1	0	0	0	0	**76**
TOTAL	**602**	**39**	**661**	**43**	**137**	**9**	**40**	**3**	**90**	**6**	**1531**

Results (3): Facilities with testing equipment

Equipment	Primary (N=336)		Secondary (N=109)		Tertiary (N=4)		National Reference (N=1)		Other (N=12)		
	No	%	No	%	No	%	No	%	No	%	TOTAL
Microscope	278	83%	109	99%	4	100%	1	100%	9	75%	**401**
Genexpert	47	14%	72	65%	4	100%	1	100%	9	75%	**133**
Sequencer	0	0%	0	0%	0	0%	1	100%	1	8%	**2**
Thermocycler and accessories	0	0%	5	5%	2	50%	1	100%	3	25%	**11**
Enzyme-linked immusorbent assay (ELISA)	0	0%	7	6%	1	25%	1	100%	2	17%	**11**
Biochemistry analyzer	20	6%	76	69%	4	100%	0	0%	7	58%	**107**
Hematology analyzer	39	12%	87	79%	4	100%	0	0%	8	67%	**138**

Challenges & Limitations

- Poor road conditions
- Difficulties to categorize stand alone laboratories, these were categorized as “OTHER”
- The ODK data collection tool lacked inclusion of some key laboratory equipment e.g Conventional PCR platforms

Poor Road Conditions

- Road to Nthalire Health Centre

Lessons Learnt

- Comprehensive training and orientation is essential for accurate data collection
- Data Validation; ensured data reliability and correctness (garbage in, garbage out).
- A considerable amount of time needed to be spent on data validation
- Consider best time of the year e.g. rainy vs dry seasons
- Laboratory mapping is an ongoing process

Next Steps: How are we going to use the data collected?

- Informed decision making for the Ministry of Health and resource mobilization with implementing partners and funders who are supporting laboratory services in Malawi

- Present findings to Diagnostic Technical Working Group and Senior MoH management team with recommendations for improvement

Conclusion

- Laboratory mapping provides an objective way to visualize capacities within the laboratory network for evidence-based decision making and strengthening of the network.
- Powerful means for resource mobilization and allocation
- Validation of the mapping data is a critical step for accurate data analysis output
- Laboratory mapping should be treated as an ongoing process

Acknowledgements

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Thank you

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