What’s next for laboratory network optimization?

Zachary Katz, FIND

Laboratory network optimization to improve service delivery for TB. 31st October, The 50th Union World Conference on Lung Health, Hyderabad, India

www.finddx.org
Vision for diagnostic network optimization

- a **standardized methodology** that is accepted as a key component of a data-driven approach to national strategic planning (across diseases), as well as the design and optimization of diagnostic networks using existing data sources.

- to enable low barriers to uptake and sustainable use, it is imperative that a **user friendly tool** to facilitate this analysis is **openly accessible, freely available** to national programs and partners, and whose **use is endorsed and supported** by major donors and global organizations.
TB-NODE: Main workstreams 2019-2020

2019
- Complete Kenya and Philippines
- Complete India – 3 states, national PMDT
- Evaluation framework
- Combine with transmission modelling, Kenya

2020
- Complete two countries with new tool
- Open access tool development
- Implementation guidance development
- Measure impact
Diagnostics are essential to guide patient care and treatment, but diagnostic services are often lacking where patients first seek care.

Network design that is better aligned with patient health seeking behavior is expected to reduce barriers to care and improve efficiency of investments and service delivery.

Improved access and efficiency are both key to achieving national and global disease control targets.

Currently, decisions are often based on MS Excel work with current testing and case-detection data (usually for individual disease programs), possibly with simple visualization tools like Google Maps.
Open access tool: bringing together full network optimization capability with access and usability in LMICs

Supply Chain Guru® (SCG)

- Proprietary software requiring license; desktop and web versions
- Leading supply chain management software in corporate sector and significant experience in global health applications
- Multi-disease
- Mapping and visualization of current and future demand and network structure, incl. multi-echelon
- Flexible input tables
- Robust performance for large data sets
- Customizable outputs / data dashboards
- Ability to link to external data systems

LabEQIP

- Open access, web-based tool
- Multi-disease (TB/HIV and other diseases)
- Designed for national programs
- Includes key SCG functionalities – flexible inputs, customizable, robust with large datasets
- Set up to be able to link to external data systems, e.g. ForLab (not part of initial build)
Strategic partnership established between FIND, PSM/Chemonics and LLamasoft for open access tool development and roll out, including:

- Joint product requirements for open access tool including TB and HIV
- Web-based tool, available free of cost to end users in LMICs
- Tool development funded by a Bill & Melinda Gates Foundation grant to FIND
- Hosting/maintenance supported by PSM/Chemonics with USAID/PEPFAR funding
- Steering committee mechanism established to guide tool development and roll out with provision of ad hoc members for advice from various stakeholders

Contracting between the Parties is completed

Tool build started Sept 2019 and expected to be completed by mid 2020

Two country pilot of open access tool planned for late 2020
Key functions

**Demand:** How many tests do we expect at each health facility in the future? What about as we change testing algorithm and demand assumptions?

- Simple and detailed demand estimation

**Network Optimization:** how can a full diagnostic network be organized to most efficiently offer services?

- Example questions include: how many machines should we have, where should they be located, how should samples be referred from health facilities to machines? Flows could be multi-echelon (e.g. Health Facility to Hub to Lab to Higher Level Lab).

**Vehicle Route Optimization (VRO)** (or at least costing estimate for multi-stop routes)

- If the samples are transported using multi-stop routes, what will be the expected cost?
Illustrative example of workflow and screens: Inputs

Models can be created and analyzed separately for each country.

Repeatabl workflow guides the users through data inputs and model build.

Access via username/login based on user profile
Customized dashboard for different users
Ability to share results, link to external data sources
Illustrative example of workflow and screens: Outputs

- Customized view for different users
- Multiple data visualization formats
- Customizable dashboard
Impact framework for availability, access, quality and efficiency – for baseline vs post-redesign

**AVAILABILITY**

- On-site (Xpert)
- Via referral (Xpert)

**ACCESS**

- Proportion of notified TB PATIENTS WHO RECEIVED DIAGNOSTIC TESTING WITHIN DEFINED HSD

- Proportion of HEALTH FACILITIES within defined health service distance bands from diagnostic testing (Xpert)
Proportion of sites with utilization rates

**Red:** <4 tests/day for GX4 and <12 tests/day for GX16

**Yellow:** 4-8 tests/day for GX4 and 12-24 tests/day for GX16

**Green:** 8-12 tests/day for GX4 and 24-36 tests/day for GX16

**Blue:** 12-16 tests/day for GX4 (over single shift capacity limit)

**Purple:** over 16 tests/day for GX4
Thank you BMGF!

Questions?