Specimen Referrals for SARS-CoV-2 Testing

ASLM Special COVID-19 ECHO
Session #14 on 2 June
Specimen Referral Systems (SRSs) Overview

• Goals of SRS within a diagnostics network:
  • Increase access to diagnostics services (offsite)
  • Timeliness
  • Quality
  • Biosafety/biosecurity
  • Cost efficiency (for routine systems)

• SRSs have been strengthened by funding from HIV and TB programs, as well as disease prevention, detection, surveillance
SRS Scores within JEE underscore challenges

• Effective SRS underpins laboratory’s ability to support the International Health Regulations (IHR 2005)
• This support is measured by the Joint External Evaluation (JEE), used to monitor and evaluate a country’s capacity to meet IHR
• JEE scores national laboratory system capacity to detect disease on four key criteria, of which one is the specimen referral and transportation system
• Joint External Evaluation (JEE) scores for SRS across 41 countries in Africa:
  • Average score 2.4 out of 5
  • 80% of countries scored 1 to 3
Can SRSs help countries achieve testing targets?

• In this context, how can countries plan for accessing limited testing sites within the diagnostics network for SARS-CoV-2?

• Africa CDC targets for COVID diagnostics network:
  • Currently at 1,300 tests* per million population
  • Target of 16,000 tests* per million population

• Even challenging logistics for SRS in the US (link to New York Times article)

*Tests are defined by results that are returned and actioned upon/patients managed
Country Examples and Panelists

- **Botswana** - Maruping Maruping, Principal Medical Scientist, National Health Laboratory, Ministry of Health
- **Malawi** - James Kandulu, Deputy Director of Diagnostics, Ministry of Health
- **Zambia** - Aaron Lunda Shibemba, National Coordinator Pathology and Laboratory Services, Ministry of Health & Head Pathology and Microbiology, University Teaching Hospital
- **Infectious Disease Detection and Surveillance (IDDS) Project** (USAID-funded multi-country project) - Chana Rabiner, Infectious Disease Health Systems Advisor
Botswana SRS Overview

- Population 2.1 million
- One testing facility
- Five tier system - Clinics, Primary Hospitals, District Hospitals and Referral and Reference
- Covid19 samples have adopted the already existing referral system
- Samples transported through couriers and emergency samples through Hospital vehicles.
- Results sent to the facilities through IPMS, emails, fax
Botswana SRS (continued)

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<tr>
<th>Category</th>
<th>Value</th>
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<tr>
<td>Total Samples Received by NHL</td>
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<tr>
<td>Cumulative Lab Tests performed</td>
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<td>Total Negative Cases</td>
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<td>Cumulative deaths</td>
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<td>Cumulative 2019-nCoV Total Cases</td>
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<td>Cumulative Suspected + Contacts</td>
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<tr>
<td>Cumulative Screened</td>
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<tr>
<td>Cumulative Arrivals</td>
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</tbody>
</table>
Malawi SRS Overview

• Population of 18.5 million
• Eleven (11) molecular laboratories activated for testing SARS-CoV-2
  • Using ABI 7500, Quant Studio7 and 11 Abbott m2000 systems
• 66 lab officers trained on RT-PCR testing
• NP/OP swabs are used for covid-19 testing
• Testing algorithm: require 2 genes positive results
• From 2/04/20 – 01/06/20: 5,148 specimens have been tested with 336 confirmed cases
Malawi SRS (continued)

- Specimen collection done by District Rapid Response Team
- Specimens collected at home of the suspected cases
- Currently transported to testing laboratories by utility/ ambulance vehicles
- Riders for Health personnel oriented on specimen transportation
- Proposed: Using of combined Flexible and on-demand trips
- Feedback of results through respective District Health Office
Zambia SRS Overview

• Population: 17.35 million
• Number of specimens tested: 28,248 as of 31st May
• Type of specimens: Nasopharyngeal swabs
• Testing Algorithm: Zambia has adopted Nucleic Acid test (NAT) for both diagnosis and follow up
• All specimen are referred for testing. There is no referral of patients or onsite testing.
• Specimens collected: Mortuary, Health Facilities and community
• Testing in 8 Laboratories (UTH- Virology Lab-RT-PCR and Cobas 6800, UTH TB Lab-GeneXpert, Macha Research Trust-RT-PCR, TDRC-RT-PCR, Chipata Central Hospital-GeneXpert, Chinsali General Hospital-GeneXpert, UNZA-Vet-RT-PCR, ADH-Cobas 6800)
• Courier system: pre-existing SRS is not being used due to long turnaround time. A new emergency system was created using provincial initiative.
• Results are returned via email & LIMs – DISA Lab*
USAID Infectious Disease Detection and Surveillance (IDDS) Project Overview

• Improve the quality of detection and real-time surveillance systems for existing and emerging pathogens
• IDDS Diagnostic Network Strengthening
• COVID-19 Emergency Response Activities
  – Specimen Transport, Training and Technical Assistance for Specimen Collection and Integrity
  – TA on molecular diagnostics, decentralization of testing, and procurement
• Countries
  – Bangladesh, Philippines, Vietnam, Indonesia, and Thailand (regional)
  – Senegal, Cameroon, Mali, and Tanzania
• Transport Examples
• Key Challenges
  • Coordination
  • Travel bans, quarantines, and quick transitions
  • Distance
  • Security
  • Coping with fear
  • Specimen Integrity and needed commodities
  • Optimizing networks (centralization vs. decentralization)

• Lessons Learned
  • Plan for now and the future (national strategy)
  • Ensure quality and safety
  • Flexibility and scaling for surge
First Question for Panelists

• How will the SRS contribute to your national testing targets within your COVID-19 response plan?
  • Does your country have national testing targets? If so, what are they?
  • Approximately how many specimen collection facilities are there in your country? And how many testing facilities?
  • Currently, approximately what % of the specimens are being referred for testing vs. referral of patients or onsite testing?
Resources

• Global Laboratory Initiative Specimen Referral Toolkit: http://www.stoptb.org/wg/gli/srt.asp