NATIONAL INTEGRATED SPECIMEN
TRANSPORTATION SYSTEM:
THE ZIMBABWEAN STORY

18 August 2022
Background History

MOHCC has approximately 1,672 health facilities providing ART services and 1,634 providing PMTCT services. Of the 1672 health facilities, only about 130 have a functional diagnostic laboratory.

In the yester year, fragmented transportation including patient referral, patients carrying their own samples, EHTs, courier service, partner-initiated models.

Overall principle = Undocumented **Hub & Spoke Model** in operation in both funded and unfunded districts in the country.

In light of this weakness, the MOHCC and its Stakeholders designed a structured and dedicated HUB & SPOKE IST system which is currently operational.
Integrated Specimen transportation-Hub and spoke model

Referral Lab
The Lab will be receiving samples from the facilities directly and from the hubs.

In total, 341 clusters were mapped and optimized using mapping software for collection of samples. District, Mission and some Rural Hospitals with labs were defined as hubs. As already described, the hubs are the testing centers for either TB, malaria, EID POC or VL POC. In the original IST concept note, the hub and spoke model with 341 clusters would require 280 motorbikes and 8 vehicles for full saturation and implementation of the system across the country.
Network of Facilities to be serviced by IST

<table>
<thead>
<tr>
<th>Key</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility to Hub: IST Rider</td>
<td>Hub to VL Lab: IST provincial</td>
</tr>
<tr>
<td></td>
<td>Vehicle/Rider Relay</td>
</tr>
<tr>
<td></td>
<td>Referral to Tertiary level: Vehicle</td>
</tr>
</tbody>
</table>
Increase in demand for diagnostic testing arising from scale-up of programs including VL, EID, TB, malaria and EDHC
Maximise the use of capacities invested in the robust diagnostic system in an efficient way
IST not leaving any samples behind enables access laboratory testing even without traveling to the laboratory
IST responsible for moving all these samples and returning results to the peripheral facilities
Taking the service to the people, hence equity
Addressing dynamic diagnostic testing including POC and conventional lab testing

** Each rural cluster** has been planned to be serviced by a rider, **2-3 times every week**. This takes into consideration distances and terrains involved. **Non rider days alternatives are made such as DBS, specimen storage, synchronised collection appointment with riders’ days**

In the **urban clusters** where distances are shorter, each cluster will be serviced by a rider **at least 4-5 times per week.**
IST Operational Milestones in Zimbabwe

2017
Consultant recommendation to demonstrate 3 models, 3 districts

May 2019
STSW Follow-up meeting: Kadoma – tools, SOPs, costed plan developed

Nov 2018
Selection of Hub and Spoke Model and Mapping DNO

Sept 2020
IST Concept Note developed.

July 2021
Dedicated IST
92% saturation
(163 PEPFAR-BRTI in 40 districts, 94 Global Fund-BRTI in 23 districts)

Feb 2022
Dedicated IST
92% saturation
(108 PEPFAR-BRTI in 40 districts, 94 Global Fund-BRTI in 23 districts)

July 2022
Dedicated IST
92% saturation
8 Global Fund-supported IST provincial vehicles operationalized
National IST Coverage 2021 - 2022

IST Saturation By July 2022

IST Saturation By end of 2021

2020 IST Bike Saturation

2019 IST Bike Saturation

National IST coverage gradually increased over the years
Operational Programme Management
Rider Operational Oversight

Remote Monitoring
Utilizes remote monitoring tools such as Geo tracker to monitor rider movements, ODK logging system and Power BI for analysis and dissemination of data

WhatsApp, Email platforms and Phone calls for communications and resolution of matters

Physical Monitoring
Use of transmittal registers to confirm rider schedule pick up and times

Oversight through local IST management at provincial and district level as well as regional officers
Rider Training and Capacitation

- Initial Orientation and training workshop conducted
- Yearly refresher training
- Local laboratory has oversight of rider and provides on job training, continuously strengthening Rider's roles as per need
- Riders procedural instructions and Job aids in place
- Specialized training Government Authority certificate

- Triple packaging
- Maintaining specimen integrity - Temperature monitoring
- Biosafety
- Waste management
- Specimen tracking
- Bike maintenance
Rider daily supervision by Lab managers

Route schedule preparation and execution

Route schedules shared with all stakeholders in rider catchment

Continuous rider training to improve operations (triple packaging, safety, specimen pick up and drop off, transmittal registers etc)
DATA COLLECTION IN IST

Riders also enter the facilities they visit daily in ODK together with information on the samples they have collected and results distributed disaggregated by sample type.

This information is downloaded on a weekly basis and is used in formulating a weekly report.
GPS Satellite Tracker

- Bikes have satellite trackers installed which enable the monitoring of rider behavior and location at any point in time.
Bike Fuel Management, Lessons Learnt

Fuel is issued to each rider or driver according to distances involved within their route schedules

Mini depots

Fuel orders done on a monthly basis through Regional IST officers for their respective regions following acquittals with supporting documentation

Fuel is issued to riders/vehicles on a weekly basis

Buffer stocks available in case of emergency

Dead mileage for fueling

Missed pick-ups resulting from fueling commitments

Containerized fuel and associated risks

Triangulated reconciliation (ODK distance vs fuel ordered)
Bike Service & Maintenance

Service based on mileage covered by bike or vehicle from scheduled routes

These known distances are considered in planning and scheduling service ahead of time

Only registered service providers are engaged to ensure that bikes are serviced by competent personnel

Minor, Major service and Repairs done as scheduled and per rising need
IST Programme Monitoring & Evaluation
<table>
<thead>
<tr>
<th>IST Programme Indicators</th>
<th>Target</th>
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<tbody>
<tr>
<td><strong>Coverage</strong></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>90%</td>
</tr>
<tr>
<td>Proportion of patient specimens transported this month from health facilities to hub laboratories disaggregated by specimen type.</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>90%</td>
</tr>
<tr>
<td>Proportion of patient specimens transported this month from the hub laboratories and health facilities to the referral testing laboratory disaggregated by specimen type.</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>100%</td>
</tr>
<tr>
<td>Proportion of health facilities visited by IST rider for the purpose of specimen collection this month</td>
<td></td>
</tr>
<tr>
<td><strong>Bike Functionality</strong></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>90%</td>
</tr>
<tr>
<td>Proportion of functional motorbikes this month</td>
<td></td>
</tr>
<tr>
<td><strong>Specimen Quality and Integrity</strong></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>1%</td>
</tr>
<tr>
<td>Number of specimens rejected at the hub this month</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>1%</td>
</tr>
<tr>
<td>Number of specimens rejected at the referral lab this month</td>
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</table>
IST has been consistently transporting VL-EID, TB and Other specimens as shown by the time series analysis.

- Other specimens include Malaria, FBC, CD4, Stool and Covid-19 samples
- Routine specimen transportation is also based on demand and availability of local testing capacity, eg RDTs, microscopy sites
Motorbike Functionality

Bike functionality in GF and PEPFAR District: April 2021 to June 2022 showing overall 92% Bike functionality. Bike functionality has been above 90% target most of the time.
Investments in IST resulting in Improvements in Pre & Post TAT

Overall TAT has been decreasing and increase in the number of bikes available for specimen transported contributed to the reduction.
Rejection Rates between April 2021 and June 2022

There has been a gradual decrease in number of rejections over time.

Strengthened CLI where both clinic staff and IST rider verify that every sample has an accompanying form.

Clinic staff encouraged not to pre-package specimens to enable effective verification.
Leveraging on IST Vehicles

IST vehicles freed riders from long relay trips enabling more frequent visits to facilities.

They have been instrumental in the movement of waste from facilities and labs to disposal sites.

They are bringing efficiencies in the movement of loaned reagents and specimens referred between labs.
Implementation of borderless IST

Ongoing and being made easier as IST saturation increases.

- Riders’ schedules being revised to go beyond district borders where applicable considering distances to:
  - Reduce rider distances
  - Improve pre- and post-analytic TAT
  - Reduce operational costs
  - Operational efficiencies to be realized

Review of route schedules to:

- Complement efforts to improve access,
- Maximize impact
- Generate efficiencies
# Tracking Systems

## SPECIMEN AND RESULT TRANSMITTAL REGISTER

### Specimen Collection and Transportation Details

- **Name of District:**
- **Sending Facility:**
- **Date of Specimen Collection:**
- **Time:**
- **Specimens Collected by:**
- **Date of Pick-up:**
- **Time:**
- **Name of Riders:**
- **Number of Specimens:**
- **Serial Numbers:**
- **Type of Specimens:**
- **Tests Requested:**
- **Specimens Log:**
- **Description of Specimens:**
- **Comments:**

### Specimen Reception and Result Management Details

- **Name of District/Facility:**
- **Name of Referral Laboratory:**
- **Name of Testing Laboratory:**
- **Specimens Received at Referral Laboratory:**
- **Date:**
- **Time:**
- **Results Expected From Testing Laboratory:**
- **Result of Testing:**
- **Comments:**

### Results Management Details

- **Result of Testing:**
- **Result Received at District/Laboratory:**
- **Date:**
- **Time:**
- **Results Received at District/Laboratory:**
- **Date:**
- **Time:**
- **Results Received at Referral Laboratory:**
- **Date:**
- **Time:**
- **Comments:**

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**IST ODK**

- **SurveyCTO**
  - **Bike Mileage Logbook**
    - Form ID: b4822/10114, Complete submissions: 00024 (last May 13, 2022 at 11:00:38 AM)
  - **Specimen and Results form Revised**
    - Form ID: h11092020, Complete submissions: 12247 (last May 13, 2022 at 11:00:23 AM)
  - **IST ROBINS VISITS TOOL**
    - Form ID: robs10114, Complete submissions: 5123 (last May 13, 2022 at 11:00:23 AM)
  - **TIME SHEET**
    - Form ID: t52010114, Complete submissions: 958 (last May 13, 2022 at 11:00:23 AM)
  - **TEST - Specimen and Results form Practice**
    - Form ID: h11092020, Complete submissions: 0 (last Apr 11, 2022 at 14:54:05 PM)

Advanced: publishing form and dataset data to the cloud.
Tracking systems cont’d…

Electronic Sample Transport system

System capability testing and internal reviews ongoing. Pilot by end of June

Transition from tedious and manual monitoring from paper-based transmittal registers

Real time access and monitoring of data allowing specimen movements to be easily tracked at every stage

Cost savings - no need for printing costs associated with hard copies of transmittal registers

Improved program performance monitoring as needed

Expected Outcomes
IST Riders as CLI Change Agents

IST riders as Clinic- Lab Interface agents

- Future sustainability through reduced printing costs
- Missing Results Tracking form
- Collaborate with CLI to strengthen electronic result utilization
- Relaying of messages between clinic and lab
- Follow up with facilities & LIMS in instances where results not received
- Confirm electronic result receipt through SMS notification at facilities
- Confirmation of numbers from facilities
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Mitigation</th>
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<tr>
<td>Inclement weather during the rainy season</td>
<td>Raise awareness among riders to assess risks on certain routes affected by inclement weather</td>
</tr>
<tr>
<td>Rider accidents</td>
<td>Planning specialized rider training – GA for riders (specialized riding skills, terrain management, night riding, basic motorcycle maintenance)</td>
</tr>
<tr>
<td>Non-availability of riders due to sick leave, covid isolation, vacation leave</td>
<td>Recruit dedicated relief riders per district</td>
</tr>
<tr>
<td>Day-to-day rider monitoring</td>
<td>Strengthen use of electronic monitoring systems (GPS tracking, ODK system) and physical supervision of riders by district lab personnel and placement of 10 provincial IST coordinators to replace the current 4 regional coordinators</td>
</tr>
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</table>
“Every Challenge is a Chance to Become a Champion”

Bad, Rural Roads due to under-development

Bike Breakdowns due to roads with pot-holes increasing maintenance intervals

Flooding of Road Access Points affecting route schedules

Bridges washed away during rainy season
Fuel price hike sparks mayhem - NewsDay Zimbabwe
https://www.newsday.co.zw/2022/03/fuel-price-hike-sparks-mayhem

11/03/2022: The Zimbabwe Energy Regulatory Authority on Wednesday increased fuel prices for the second time in five days, with petrol going up from US$1.51 per litre to US$1.67 and diesel...
Thank you