27TH ANNUAL CONFERENCE OF THE UNION

PAKISTAN’S EXPERIENCE WITH BUILDING AN ENHANCED DIGITAL TB SURVEILLANCE SYSTEM

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#ENDTB!
Conventional Method of Recording and Reporting TB Data in Pakistan
BACKGROUND

In 2018, the National TB program, with support of WHO & the University of Oslo, introduced the DHIS2 aggregate data collection platform, which is being managed centrally by the Common Management Unit (CMU) for HIV, TB and Malaria under the Ministry of Health.
Aggregate Data in DHIS 2
CURRENT STATUS OF CASE BASED TB NOTIFICATION

Currently the National TB program is implementing two tools for TB surveillance:

- **DHIS2** based aggregated data collection system:
  150+ districts in Pakistan> Manual TB registration forms are sent to the district office > data entry operator feeds the data for TB cases initiated on treatment into the DHIS2 system.

- **Electronic Nominal Recording Reporting System (ENRS)**
  captures individual DR TB cases through the entire cascade of care only for DR TB confirmed cases starting from Notification, monitoring, treatment outcome.
CURRENT STATUS OF CASE BASED TB NOTIFICATION

<table>
<thead>
<tr>
<th>Level</th>
<th>Target</th>
<th>Current Scale</th>
<th>Collection Tools</th>
<th>Data Type</th>
<th>Data Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td></td>
<td></td>
<td>Data not collected at this level</td>
<td>DHIS2 Dashboard</td>
<td></td>
</tr>
<tr>
<td>Provincial level</td>
<td>4</td>
<td></td>
<td>Data not collected at this level</td>
<td>DHIS2 Dashboard</td>
<td></td>
</tr>
<tr>
<td>District level</td>
<td>160</td>
<td>160</td>
<td>DHIS2 Web Application</td>
<td>Aggregated</td>
<td>DHIS2 Dashboard</td>
</tr>
<tr>
<td>Facility Level</td>
<td>1600</td>
<td>1600</td>
<td>ENRS Excel Tool</td>
<td>Case Based (DR TB); Aggregated (DS TB)</td>
<td>No digital tool for data use</td>
</tr>
<tr>
<td>Community level</td>
<td>Pilot sites</td>
<td></td>
<td>DHIS2 Tracker-Mobile App</td>
<td>Case Based</td>
<td>No digital tool for data use</td>
</tr>
</tbody>
</table>

The table shows the current status of case-based TB notification at different levels, including the target audience, current scale, collection tools, data type, and data usage.
Pilot of DHIS2 Tracker by the National TB Control Program

National TB Control Program (NTP) Pakistan piloted the DHIS2 Tracker Capture in Islamabad in November 2021.

Data entry by field staff on monthly basis at the office level – no challenges faced so far.

Hard data is collected from the health facilities for online data entry to ensure 100% of data matches with hard forms.
Implementation Models of DHIS2 in TB-PPM Interventions

1. TB PATIENT GOES TO DOCTOR/GP
2. DOCTOR SENDS PATIENT INFORMATION TO PPM HUB
3. PPM HUB CALLS THE PATIENT FOR DETAILS
4. PPM HUB SENDS THE INFORMATION TO DFS
5. DFS VISITS THE DOCTOR TO FILL OUT THE TB-01 FORM
6. PATIENT INFORMATION IS UPLOADED TO DHIS2
Implementation Models of DHIS2 in TB-PPM Interventions

**ACTIVE CASE FINDING (ACF)**
Predictive Modeling and Spatial Analysis to Conduct Chest Camp at Targeted Locations

**E-TB PHARMACY APP**
Tracking un-notified TB cases from Pharmacies and increasing onboarding of private healthcare providers

**SPECIMEN TRANSPORTATION (ST)**
Transporting Sputum Samples, of suspected TB cases, from far-flung areas to GeneXpert Sites

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dhis2
Other digital innovations for better data collection and data use
eTB – Mobile application to notify TB cases buying ATTs from private pharmacies

The multi-platform Pakistan’s First Mobile Application – eTB to track, notify and follow up the TB Patients. This mobile application can record the prescription level patient data from private providers or of patients purchasing ATTs from private pharmacies and medical stores. Once the patient’s data will be uploaded, a notification will be sent to the call centre associated to the mobile application to follow up on the notified patients.
### PROGRESS UPDATE

<table>
<thead>
<tr>
<th>INTERVENTION DISTRICTS</th>
<th>DOPASI CONTRIBUTION Q2 – 2021</th>
<th>DOPASI CONTRIBUTION Q3 – 2021</th>
<th>DOPASI CONTRIBUTION Q4 – 2021</th>
<th>DOPASI CONTRIBUTION Q1 – 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faisalabad</td>
<td>753</td>
<td>1332</td>
<td>1612</td>
<td>1496</td>
</tr>
<tr>
<td>Lahore</td>
<td>427</td>
<td>1285</td>
<td>1350</td>
<td>869</td>
</tr>
<tr>
<td>Multan</td>
<td>583</td>
<td>815</td>
<td>983</td>
<td>920</td>
</tr>
<tr>
<td>Rawalpindi</td>
<td>305</td>
<td>819</td>
<td>1274</td>
<td>846</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2068</strong></td>
<td><strong>4251</strong></td>
<td><strong>5219</strong></td>
<td><strong>4131</strong></td>
</tr>
</tbody>
</table>

[20-30% Average Increase in District Notifications]
**eDRTB** - Pakistan’s first mobile application to support DRTB Treatment and enable comprehensive data management of DR TB patients from the time of identification of till the final treatment outcome.
ePreventTB

An expand version of the WHO Prevent TB platform to provide comprehensive workflow-based systems including treatment adherence, patient-centric module, e-Learning for health staff, conversational AI, direct chat with patients, pushing notification/alerts/reminders to the patients, optical character recognition (OCR) for capturing data directly from manual forms, adverse side effect reporting and many more.
MATCH AI

The MATCHAI platform has been developed by The Royal Tropical Institute (KIT) and EPCON for TB case finding. This solution uses spatial, programmatic, and contextual data to better predict where missed people with TB are most likely to be found at the district and sub district level. The objective of MATCHAI conceptual framework is to help close the TB case detection gap by focusing on high impact district and sub-district locations.
One Impact hosted by Dopasi

The OneImpact hosted by Dopasi Community Engagement and Community-Led Monitoring platform help the people affected with TB:
- to get access to relevant behaviour change communications,
- connect with other TB champions to get guidance,
- near me features to identify nearest health facilities
- report on different TB service quality gaps which can in identifying barriers to TB services
- help resolve those barriers more promptly
- The app offers support through conversational AI in local languages
CHALLENGES IN BUILDING AN ENHANCED DIGITAL TB SURVEILLANCE SYSTEM IN PAKISTAN

- The two main systems being used i.e DHIS2 and ENRS are not integrated and hence currently both the systems are being used in parallel
- Lack of single, integrated platform for reporting and analysing PPM and ACF interventions in real time, that can be used by all partners in Pakistan
- Inadequate server capacity (shared server hosting with other programs) and lack of in-house technical support team for configuring the DHIS2 system and its maintenance, which creates delays and restricts ongoing enhancements
- Lack of adequate finances and Human resource, and weak IT infrastructure at facilities for digital notification
- Challenges with limited digital literacy, and insufficient ongoing capacity building and training of health staff
- Real-time data entry can pose challenges once initiated
Way forward

• Develop a mobile based real-time case-based TB notification at the lowest unit (pilot already initiated)
• Monitoring of entire cascade of care starting from presumptive case screening enabling a national case-based TB notification system
• Enabling Private sector notification directly into the case-based notification system
• Integration of the existing mobile platforms like eTB, eDRTB, ePrevent TB and CLM platforms with the DHIS2 based system
• Integration of cross-border TB efforts (being implemented by UNHCR) into the centralised TB notification system
Thankyou!