

**27<sup>TH</sup> ANNUAL CONFERENCE OF  
THE UNION**

**PAKISTAN'S EXPERIENCE WITH  
BUILDING AN ENHANCED DIGITAL  
TB SURVEILLANCE SYSTEM**

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**YES!**



**WE CAN  
#ENDTB!**

# Conventional Method of Recording and Reporting TB Data in Pakistan

**TB-03 CARE FACILITY (BMU) / DISTRICT TB REGISTER** **TB-03**

Date of Registration	TB Registration no.	Patient name (First)	Patient name (last)	Gender M/F/TG	Age (Yrs)	CNIC	Address	Contact #	Date Treatment Started	Site PTB/EPTB/Both	NEW	Previously Treated					Transfer in	HIV Test Result (R/NR/UK)	Investigations - 0' Month		
												Relapse	Treatment After Failure	Treatment After Lost To Follow Up	Other	H/O ATT Unknown			AFB sm	MTB	RR
27/7/22	71	صاء	محمد شعیب	F	26y	37405 76092657	قاسم آباد ویسٹ	0313 5586936	27/7/22	P	✓							2988	1006	ND	
6/7/22	72	نہال	ظفر	F	17y	37405 45165960	قاسم آباد ویسٹ	0355 1524688	6/7/22	P	✓	✓						1104	1006	ND	
6/7/22	73	شیخ زوب	حور شید	F	5y4	32102 8654006	مکان سارنگھلی	0333 8573971	6/7/22	EP	✓							ND	ND	ND	
13/7	74	علیہ	استخوان	F	15y	37405 68115285	قاسم آباد ویسٹ	0317 0509988	13/7	P	✓							17	1006	ND	
19/7/22	75	عقرب	علامہ	F	16y	38405 76339649	قاسم آباد ویسٹ	0343 1505884	19/7/22	P	✓							17	1006	ND	
7/7/22	76	صبا	سائبر	F	18y	37405 17797302	قاسم آباد ویسٹ	0311 8907666	"	P	✓							17	1006	ND	
27/7	77	شیراز	محمد علی	M	25y	37405 83002857	قاسم آباد ویسٹ	0333 529763	22/7	P	✓							37	1006	MT	
21/7/22	78	عزت اللہ	عزت اللہ	M	30y	AC374133 76620	قاسم آباد ویسٹ	0316 5188852	29/7/22	P	✓	✓						37	1006	ND	
14/7/22	79	صالح	صالح	M	30y	13102 04370477	ضیاء آباد ویسٹ	0316 5387855	30/7/22	P	✓							37	1006	ND	
7/7/22	80	اسرار	بادشاہ	M	18y	37405 10913363	قاسم آباد ویسٹ	0340 534896	"	P	✓							61	1006	ND	

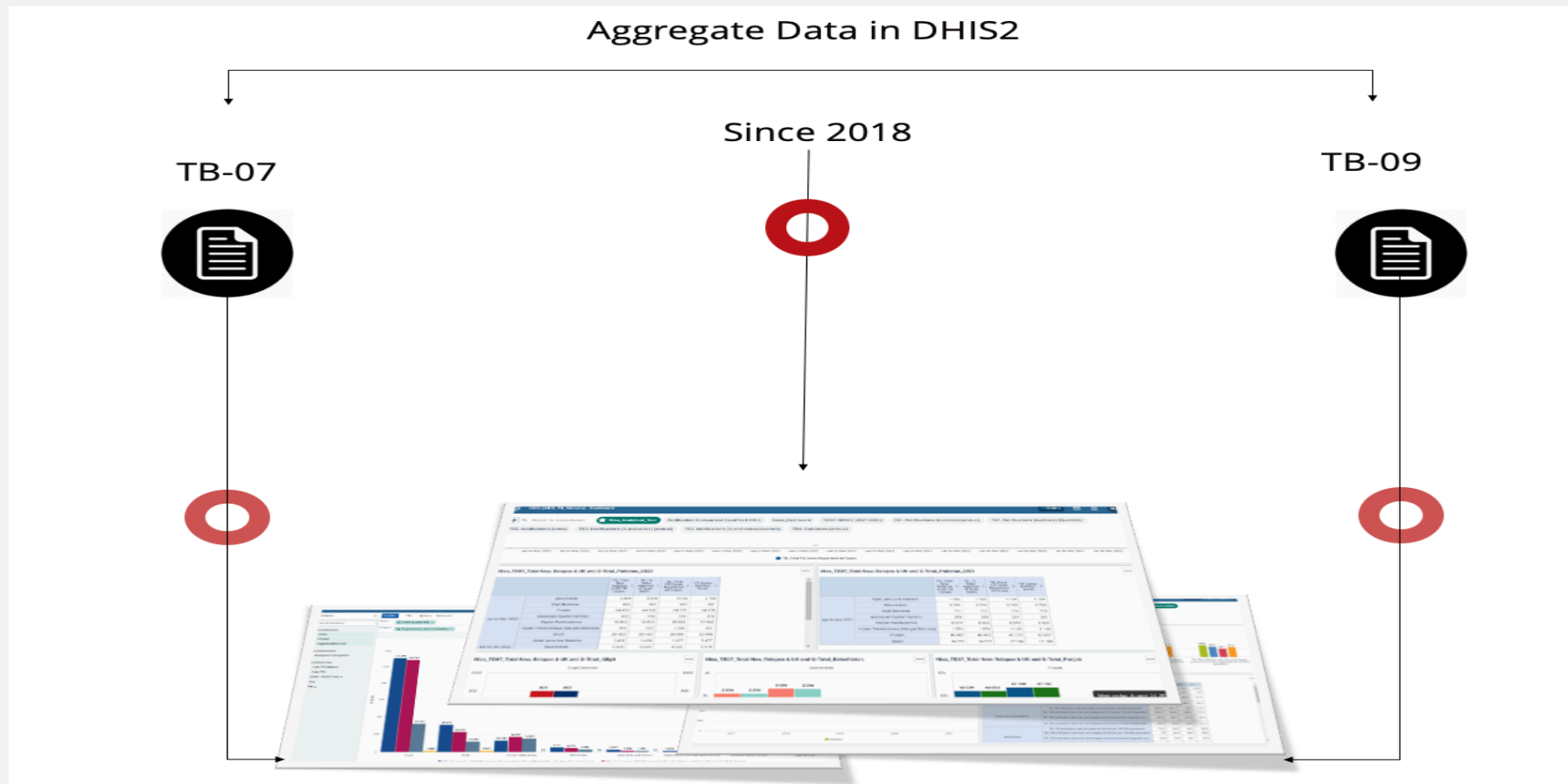
*Note: The image shows multiple overlapping copies of this TB register form, illustrating the conventional method of recording and reporting TB data in Pakistan.*

# BACKGROUND

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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

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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

	TARGET	CURRENT SCALE	COLLECTION TOOLS	DATA TYPE	DATA USAGE
National level 	Data not collected at this level				DHIS2 Dashboard
Provincial level 	4	Data not collected at this level		DHIS2 Dashboard	
District level 	160	160	DHIS2 Web Application	Aggregated	DHIS2 Dashboard
Facility Level 	1600	1600	ENRS Excel Tool	Case Based (DR TB); Aggregated (DS TB)	No digital tool for data use
Community level 	Pilot sites		DHIS2 Tracker-Mobile App	Case Based	No digital tool for data use

# Pilot of DHIS2 Tracker by the National TB Control Program

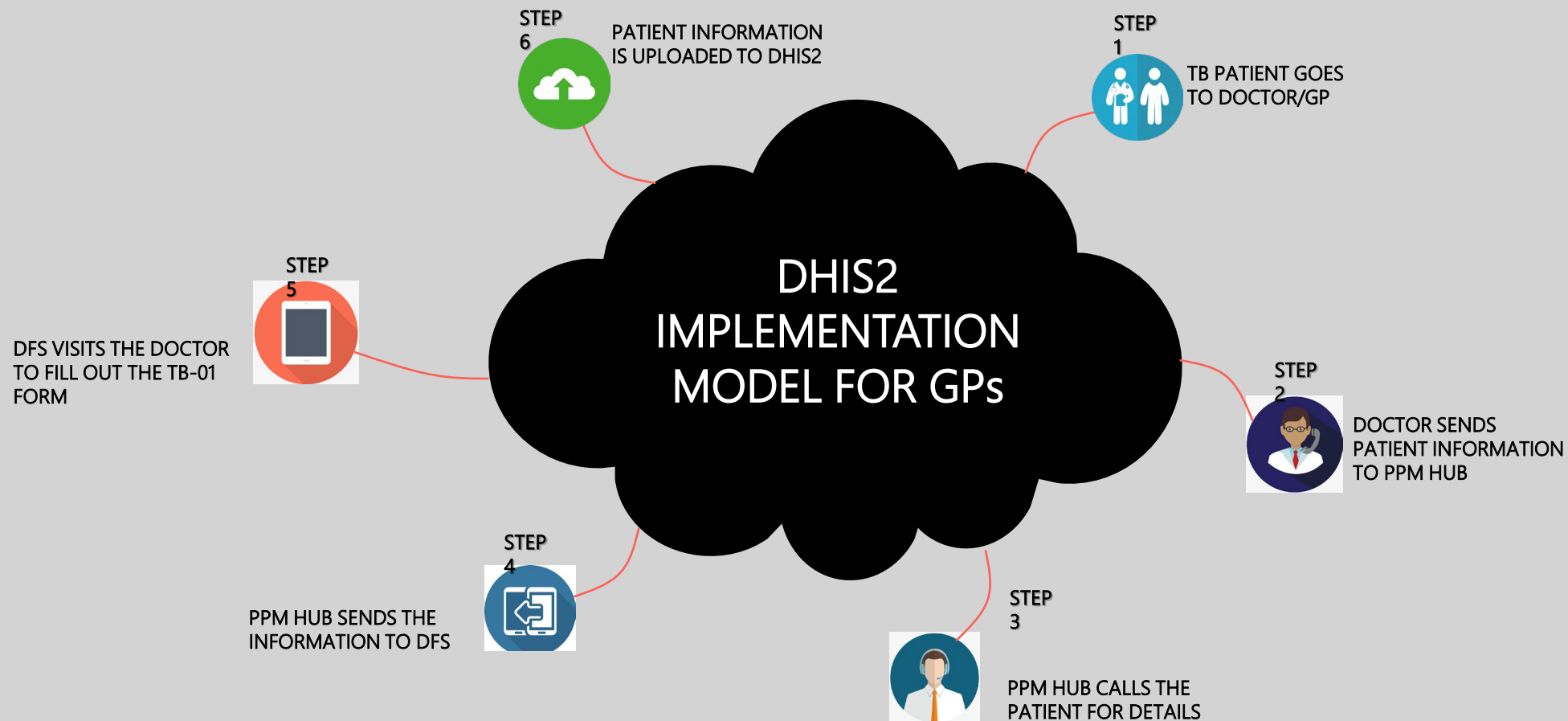
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National TB Control Program (NTP) Pakistan piloted the DHIS2 Tracker Capture in Islamabad in November 2021

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





# 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




dhis2

## SPECIMEN TRANSPORTATION (ST)

Transporting Sputum Samples, of suspected TB cases, from far-flung areas to GeneXpert Sites



The background features a complex network of interconnected nodes and lines, rendered in a 3D perspective. The nodes are represented by various geometric shapes, including cubes and spheres, in shades of dark grey, black, and light grey. The connecting lines are thin and light-colored, creating a dense web of connections. A semi-transparent white circle is positioned on the right side of the image, containing the text "Other digital innovations for better data collection and data use".

Other digital innovations  
for better data collection  
and data use

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# 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

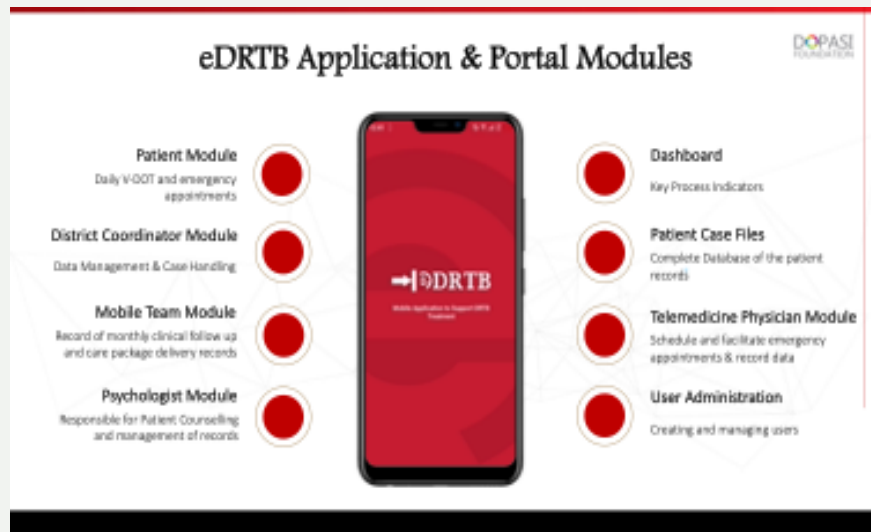


## PROGRESS UPDATE

<b>INTERVENTIO DISTRICTS</b>	<b>DOPASI CONTRIBUTIO Q2 – 2021</b>	<b>DOPASI CONTRIBUTIO Q3 – 2021</b>	<b>DOPASI CONTRIBUTIO Q4 – 2021</b>	<b>DOPASI CONTRIBUTION Q1 – 2022</b>
Faisalabad	753	1332	1612	1496
Lahore	427	1285	1350	869
Multan	583	815	983	920
Rawalpindi	305	819	1274	846
<b>Total</b>	<b>2068</b>	<b>4251</b>	<b>5219</b>	<b>4131</b>

**[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 expanded 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

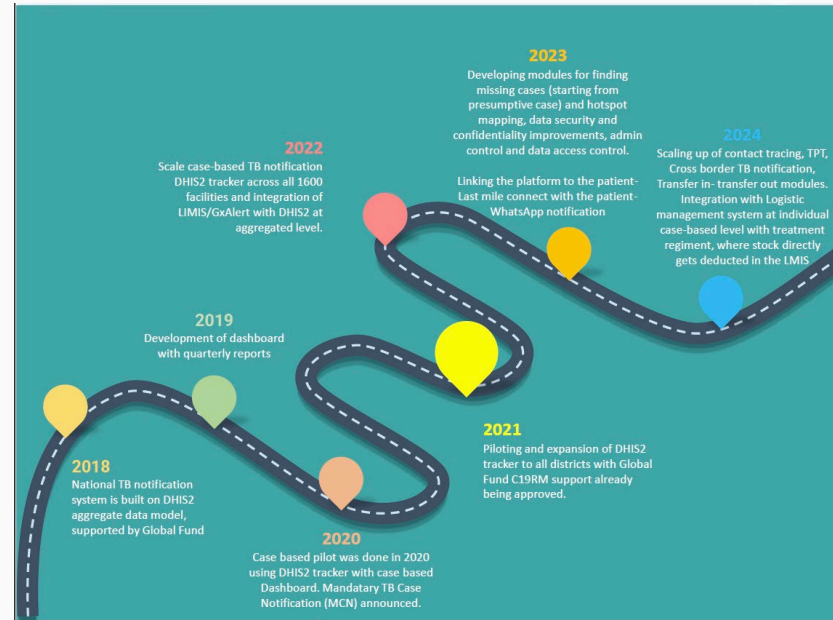
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- The two main systems being used i.e DHIS2 and ENRS are not integrated and hence currently both the systems are being used in parallel
- Lack of single, integrated platform for reporting and analysing PPM and ACF interventions in real time, that can 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

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- 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!