



Hospital based Multicentric Diabetes Registry (HMDR)

Presented By

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INTRODUCTION



Background:

Chronic diseases place a heavy burden not only on patients and their families, but on healthcare systems around the world. Such pressure on the infrastructure and organization of the systems often leads to poor management of chronic conditions. The resulting complications reduce quality of life and dramatically increase healthcare costs. The personal and social repercussions are enormous. Diabetes management has a number of dimensions, each of which is multifaceted in itself. The rapidly increasing burden of diabetes throughout the world is alarming.

Need for the study:

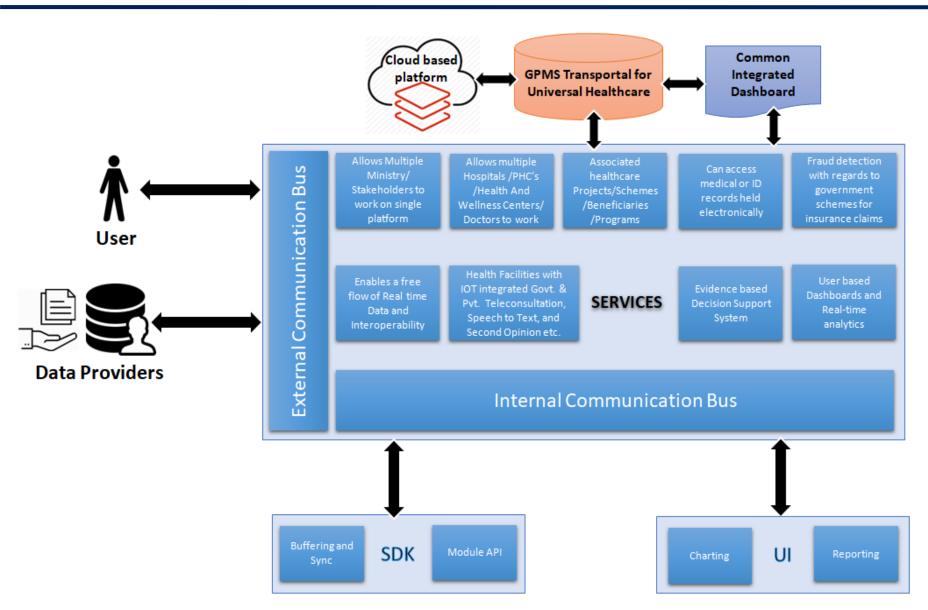
India shows a rising tide of non-communicable chronic diseases and it has become important to evolve strategies to ensure effective prevention, diagnosis and treatment of this rising burden. However it cannot be done if data is not available. A registry will able to consistently provide data on real-world practice, monitoring and managing disease. Registries play an important role in medical research.

Objective:

The Primary objective of this registry is to collect prospective data on the demographics, anthropometry, treatment management, and outcomes of patients with Diabetes that can be used to improve the knowledge of epidemiology, clinical preset complication management, and outcome of diabetes in India.

GPMS TRANSPORTAL FOR UNIVERSAL HEALTHCARE





Hospital Based Multicentric Diabetes Registry



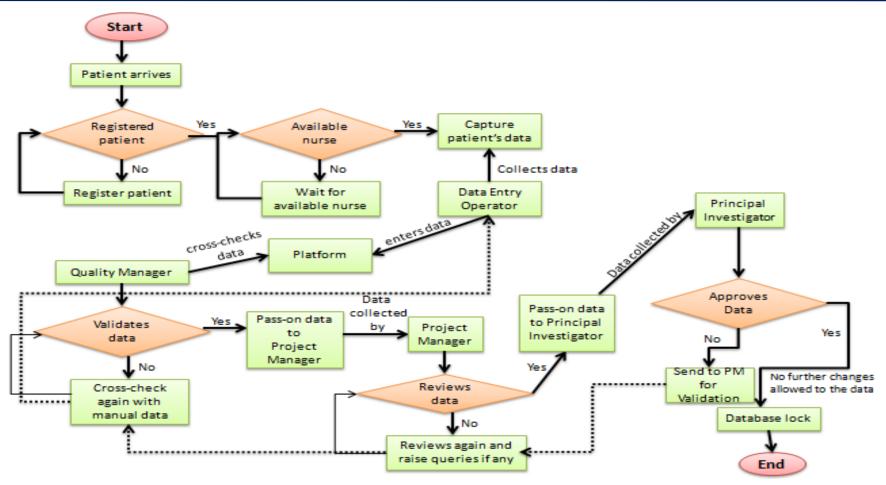
GPMS Transportal For National Diabetes Registry

Participating Centers with Name and designation of investigators

SI No	Principal Investigators	Co Investigators	Study site	Roles
1	Dr. Mala Dharmalingam	Dr. Pramila Karla	M.S.Ramaiah Medical College and Hospitals, Bengaluru, Karnataka	Coordinating agency
2	Dr. K.R. Raveendra		Victoria Hospital (BMC), Bangalore, Karnataka	
3	Dr. Prasanta Kumar Bhattacharya	Dr.MD Jamil	NEIGRIHMS, Shillong, Meghalaya	
4	Dr. Sujoy Ghosh	Dr.Kaushik Pandit	SSKM Hospital, Kolkata, West Bengal	
5	Dr. Gurinder Mohan	Dr.Richa Ghay Thaman	SGRDUHS, Amritsar, Punjab	
6	Dr. Sreejith. N. Kumar	Dr. Veena	NIMS Medicity, Trivandrum, Kerala	
7	Dr.Ravi Kiran M	Dr.Vedantha Srinivas	SRM Institute for Medical Sciences, Vadapalani, Chennai	

DIABETELOGY REGISTRY – PROCESS FLOW (Tentative)





Data entry: Will be entering the data collected by nurses into our platform.

Quality Manager: Will cross check data entered into the system with the manually provided data.

Project Manager: Will review and raise the queries if any.

Principal Investigator: Will approve the final data and no further changes will be allowed to the approved data(database lock).

GPMS TRANSPORTAL – DATA VALIDATION



Data Validation

- 1. Data Type particular data type with number of letters/digits as per the requirement norm, restriction on special characters
- 1. Field Level Validation specific business rule/condition, list of values for selection, date pick up, automatic result generation as per the formula usage
- 2. Form Level Validation mandatory fields check, default value for unfilled fields, automatic record id generation, Pincode search, Aadhar Number verification and fetching updated information, warning symbolization for suspicious/erroneous information
- 3. Approval/Reject/Edit/Delete functionality as per the user group roles

GPMS TRANSPORTAL – DATA SECURITY



Data Security

- 1. Login with OTP verification
- 2. Login with CAPTCHA verification
- 3. User Level Access Confined to only his/her entered data
- 4. Organization Level Access Admin role for creating master data
 - Department user for updating his/her department data
 - Supervisor role for data completion and verification
 - Superuser role for approval/rejection of records of all the departments
- Location Level Access Access to records of his/her location (organization/region/taluka/district/ state/country)
- 6. Data Encryption and decryption Password protection
- 7. Data Sharing Public/Private/Restricted/Sharing feature
- 8. Data Forwarding Escalation process

GPMS TRANSPORTAL – DATA SECURITY – Cont'd

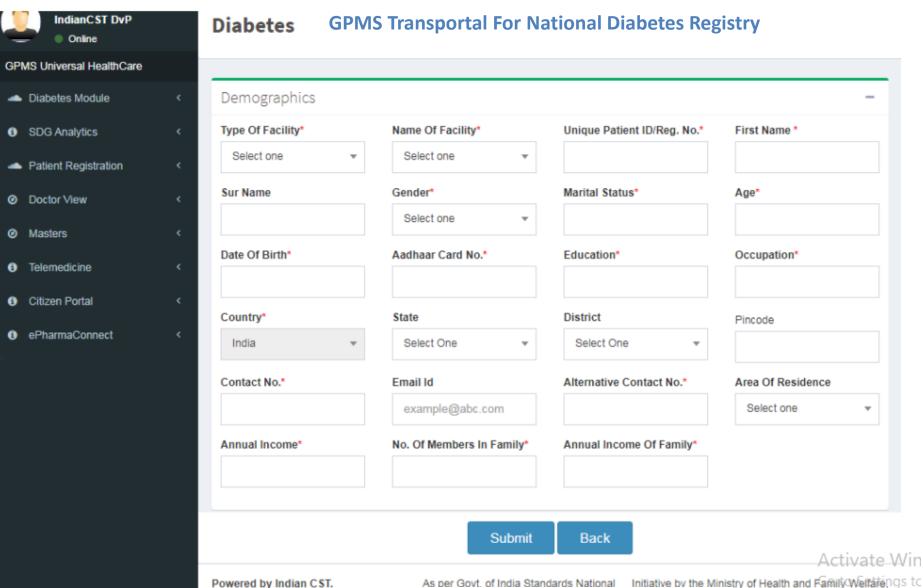


Data Security

- 1. File Downloading/View Permission/OTP verification
- 2. Analytics with indication of Percentage
- 3. Records with hidden columns display
- 4. Records with replacement of original record id
- Records with unactual data (XXXXXXX3456)
- 6. Blockchain mechanism
- 7. Cloud infrastructure with sandbox approach
- 8. HTTPS enabled
- Hosting on India's Super Computing infrastructure at CSIR4PI

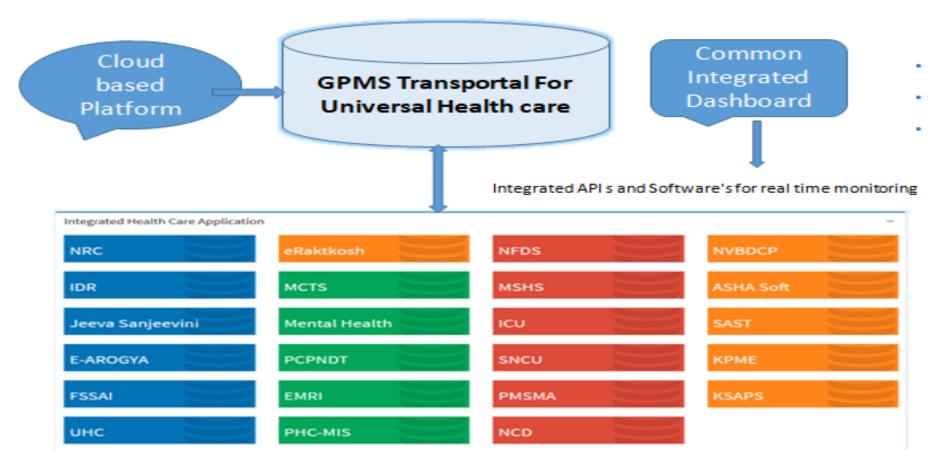
GPMS UNIVERSAL HEALTHCARE PLATFORM – Sample Screen





GPMS INTEGRATED HEALTHCARE SYSTEM



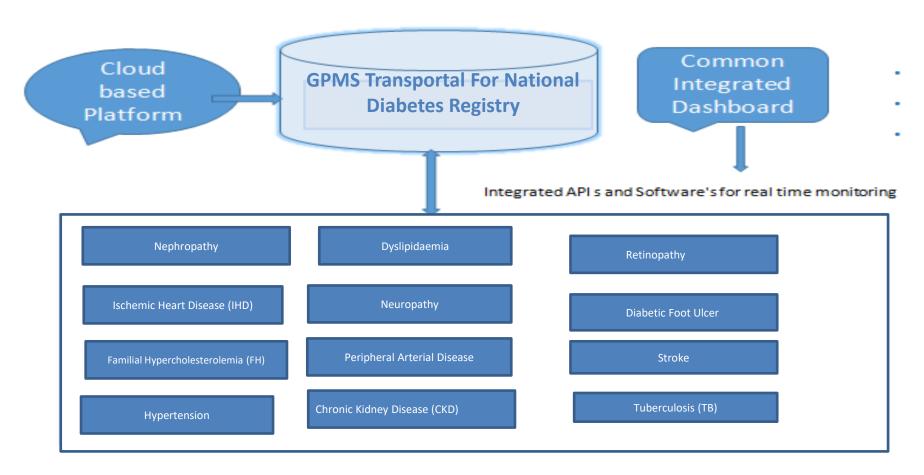


GPMS - single platform integrated all existing health related software application and databases in the system through Application Programming Interface (APIs), which enables real-time data capture at source and aggregation at institutional, district and state levels, providing decision digital support system

Hosted at India's own super-computing facility at CSIR 4PI

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Indian CST - MOU with Health and family welfare Gov of Karnataka

MEMORANDUM OF UNDERSTANDING

BETWEEN

HEALTH AND FAMILY WELFARE DEPARTMENT, GOVERNMENT OF KARNATAKA AND

INDIAN CENTRE FOR SOCIAL TRANSFORMATION, Bengaluru

This memorandum of Understanding (MOU) made and entered into and is effective as of April 27th 2017 by and between **HEALTH AND FAMILY WELFARE DEPARTMENT**, **GOVERNMENT OF KARNATAKA** ("hereinafter referred to as HFWD") an organ of the Government of Karnataka, represented by its Principal Secretary Dr. Shalini Rajneesh (which expression shall unless it be repugnant to the context on meaning thereof be deemed to mean and include its successors and assigns), the **First Part**.

AND

Indian Centre for Social Transformation, is a Public Trust registered on 26th December 2009 (vide Document No. 228 of Book IV in the office of the Sub Registrar Halasur, Bangalore) represented herein by Shri. Raja Seevan, Founder Trustee authorized by the board of Trustees (which expression shall unless it be repugnant to the context or meaning thereof be deemed to mean and include it's successors and assigns) incorporated and registered underthe Indian Trusts Act, 1882 and having its registered office at #13/A, Shrungar Shopping Complex, 80 Feet Road, M.G. Road, Bengaluru – 560001, the Second Part.

Hence for the implementation of the programme, it has been decided to enter into an MOU and has been ordered as follows:

GOVERNMENT ORDER: NO HFW 76 FPE 2017, Bangalore Dated: 06/5/2017

As described in the preamble to integrate all the running applications in one place (**Integrated Single Dashboard**) as per Karnataka Transparency in public procurement rules 2000, 28E (iii) (Single Source Selection) of part 7 A Rupees Five Lakhs has been provided and government has agreed to enter into an MOU with **Indian Centre for Social Transformation** Bangalore & period of MOU would be 10 years from the date of signing the MOU 27/04/2017.

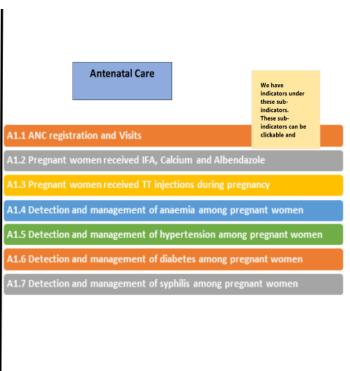
Further, as mentioned above integration of software has to be complete as per the schedule mentioned below:-

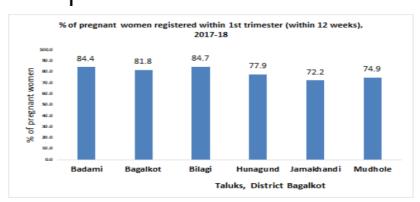
This MOU supersedes all the earlier MOU's and is now made effective for a period of 10 (Ten) years and shall come into effect from the date of signing of the MOU, namely 27th April 2017 and shall be valid till 27th April 2027.

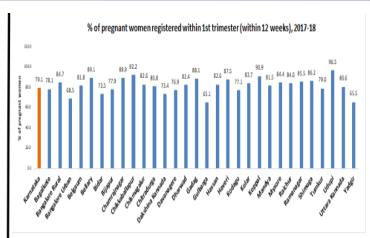
SDG 3.0 – STATE OF KARNATAKA



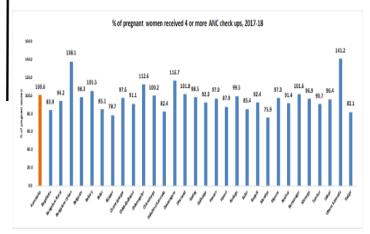








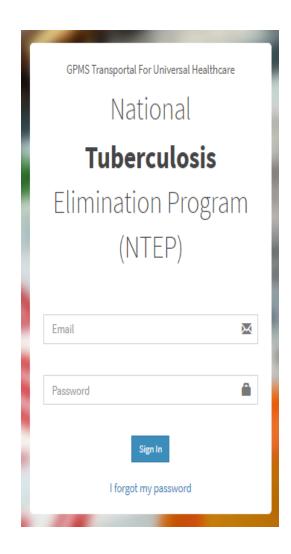
NOte: Percentages are calculated amogn the pregnant women who registered for ANC Source: HMIS Data



NOte: Percentages are calculated amogn the pregnant women who registered for ANC Source: HWIS Data







TB Control Program	=		09:04:56 PM
® Dashboard	District Tuberculosis Disease Control Officers Off	fice	
■ Form One ★ Add Form One and Two	ACF Employee Daily Activity Program Field In Form - 1 And Form	- 2 (National Tuberculosis Elimination Program (NTEP))	GPMS Transportal For
+ New Add Form One and Two	Form - 1		
View Form OneView Form Two	State	District	Primary Health Centre
■ Form Three Report	~	~	
Form Four and Five <	Sub Centre	Name of Target Population	
ևա Analytics	~		
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	Address	Total Number Of Family Members	
	Numbers Of People Tested	Numbers Of Childrens Below Six Years	Numbers Of Diabetes Patients
	numbers of reopie residu	rambers of childrens below six rears	Numbers of Diabetes racients
	Numbers Of Presumptive TB Patients	Number Of Sputum Samples Collected From Presumptive TB	
		Patients	
Patients Already O	n TB Treatment	Private	
Number Of House	Visited	Date	
От ⊚х		dd-mm-yyyy	
Remarks			
	Hosted at India's o	own super-computing facility at CS	SIR 4PI
	https://indiancet.c	om/India/TBControlProgram/	index php

GPMS TB TRANSPORTAL - ACTIVE CASE FINDING REGISTRY CONT'D



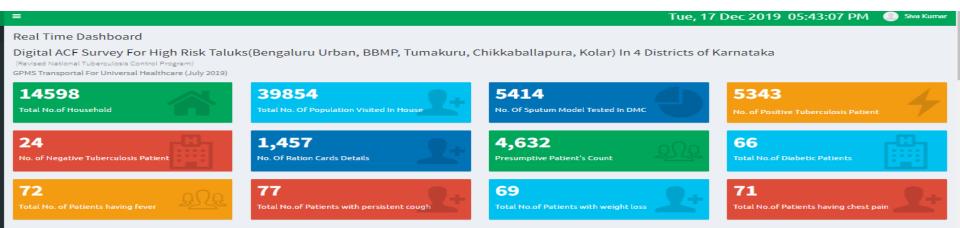
rimary Healt how 10 ∨ en	h Center Field tries	d Activity					Integra modul		ith Lab	
Action	Patient Name	Ration Card	Age [♦]	Sex [♦]	Address	Fever	Cough	DMC1	DMC2	DMC3
View/Update	sumesh		45	Male	73, 1st floor,sudhakar nagar,Bangalore urban	coming soon	coming soon	Lab	X-Ray	CBNAAT
View/Update	subhadra		40	Male	73, 1st floor,sudhakar nagar,Bangalore urban	coming soon	coming soon	Lab	X-Ray	CBNAAT
View/Update	madhavan		5		73, 1st floor,sudhakar nagar,Bangalore urban	coming soon	coming soon	Lab	X-Ray	CBNAAT
View/Update	Test		35	Male	Test	coming soon	coming soon	Lab	X-Ray	CBNAAT

GPMS TB TRANSPORTAL ACF SURVEY – STATE OF KARNATAKA

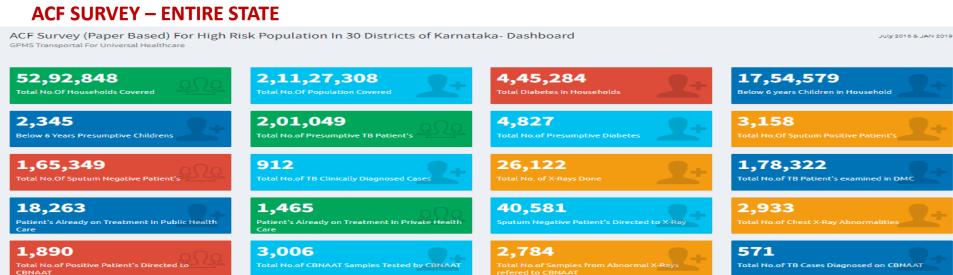


ACF SURVEY – FOUR STATES

2,765



Hosted at India's own super-computing facility at CSIR 4PI



325

Total No.of Diagnosed EPTB Cases

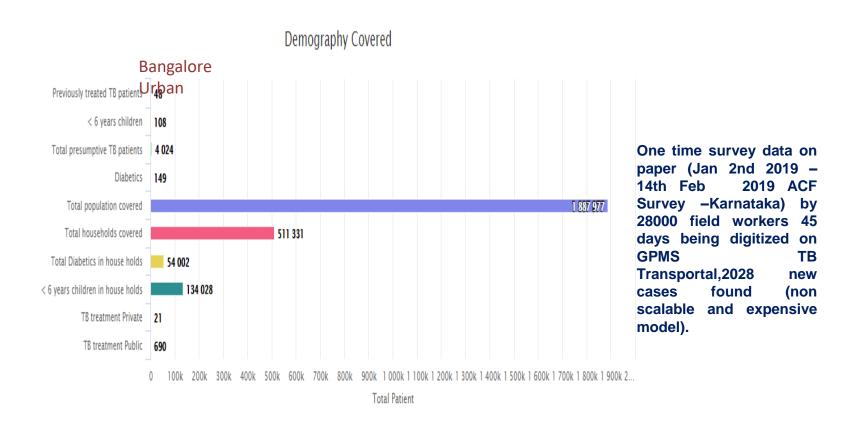
4,965

Total No.of TB Patients Diagno

NATIONAL TUBERCULOSIS ELIMINATION PROGRAM



Government of Karnataka - Active Case Finding (ACF) TB Survey January -2019 -Analytics report



https://indiancst.com/India/TBControlProgram/index.php

Case Finding of Presumptive TB Patients

AI/ML Potential non-invasive technology for mass screening of TB Patients

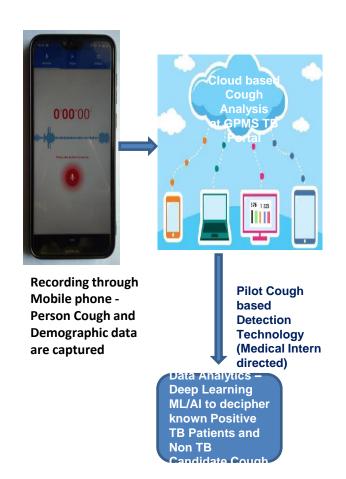


Indian Centre For

Popularizing the number to be called by a citizen who Social Transformation



- Persistent cough
- Fever for 2 weeks
- Significant weight loss
- Chest pain in last 1 month
- Blood in sputum during last 6 months
- Make a call to Toll-Free Number
- Phone calls that are made to the number should be captured by the portal with location and pin code.
- Integration of the Tele-medicine module. (Option to record cough through)
 - Video option
 - SMS option(for contacting patients)
 - **Voice option**
- Connecting each call made by Presumptive Patient with the nearest DOTS/PHI center. A call is made for the cough to be recorded and stored in the database for Data analytics -Machine /Deep learning/AI

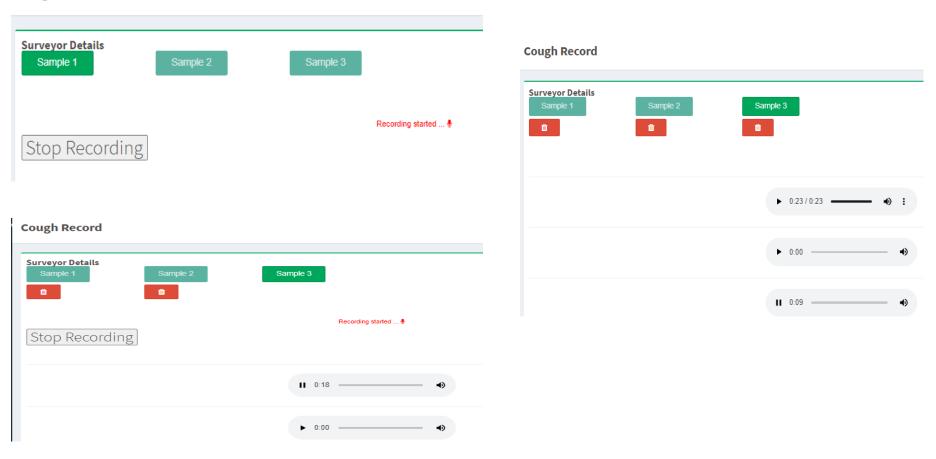


GPMS TB Transportal- Survey- Recording the cough Samples



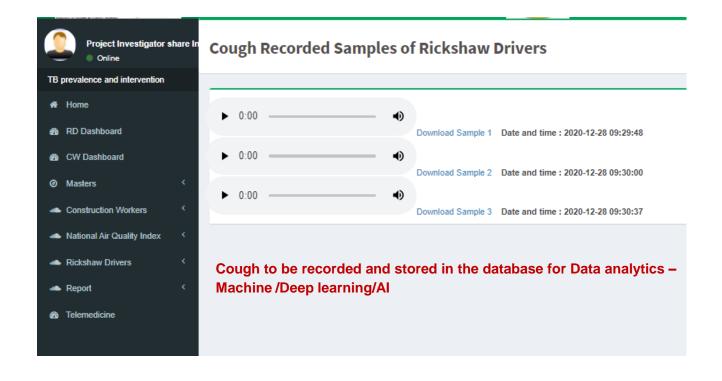
Cough to be recorded and stored in the database for Data analytics –Machine /Deep learning/AI

Cough Record



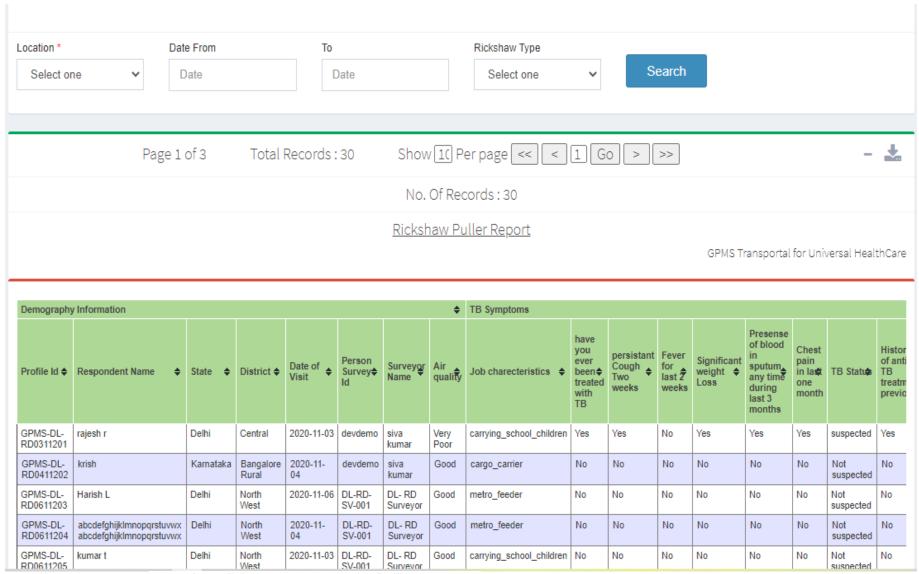
GPMS TB Transportal- Cough Based AI/ML





GPMS TB TRANSPORTAL ACF SURVEY REPORT

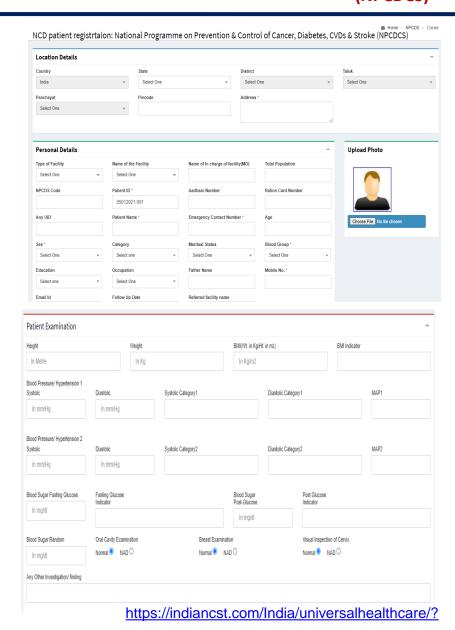




NCD PATIENT REGISTRY



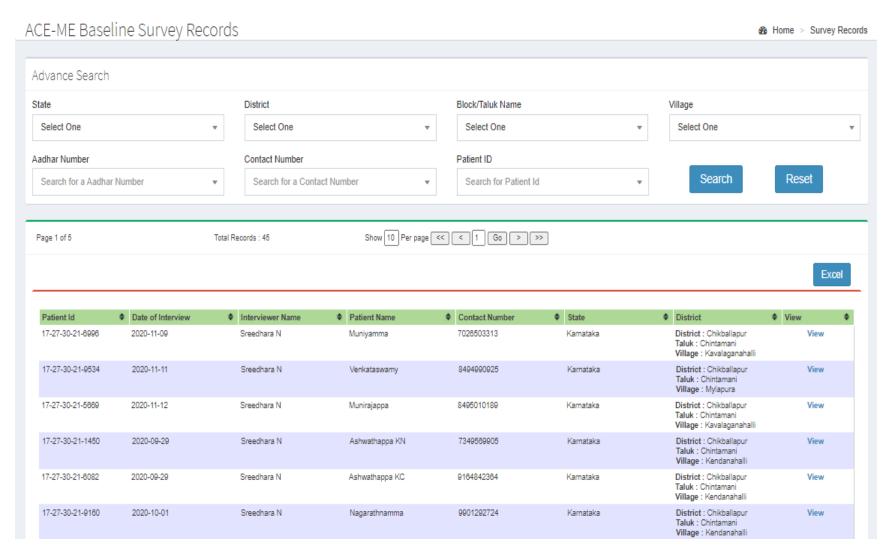




Personal History					
Any known NCD Ri	sk Factor				
Any Known NCD (DM/HTN/CVD/Ca)		Do you smoke or cor khaini ?	nsume smokeless products such as		
DM Cancer CV	о О нтн ⊙		onsume in the past O Sometimes	Yes ○ No ○ Sometimes	•
		Daily			
Measurement of waist (in	cm)	Shortness of breath		Coughing more than 2 weeks	
Please enter waist in co	m	Yes ○ No		Yes O No 🖲	
Blood in Sputum		History of fits		Difficulty in opening mouth	
Yes ○ No ●		Yes ○ No •		Yes ○ No	
Ulcers/patch/growth in the	e mouth that has not healed in tw	o weeks Any Changes in tone	of your voice		
Yes ○ No ●		Yes ○ No			
Family Note					
Diabetes	Hypertension	CV	rn.	Stroke	Cancer
Yes O No ®	Yes O No 💿		s○ No ®	Yes O No O	Yes O
reening Outcome					
reening outcome					
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NCD PATIENT REGISTRY - VIEW



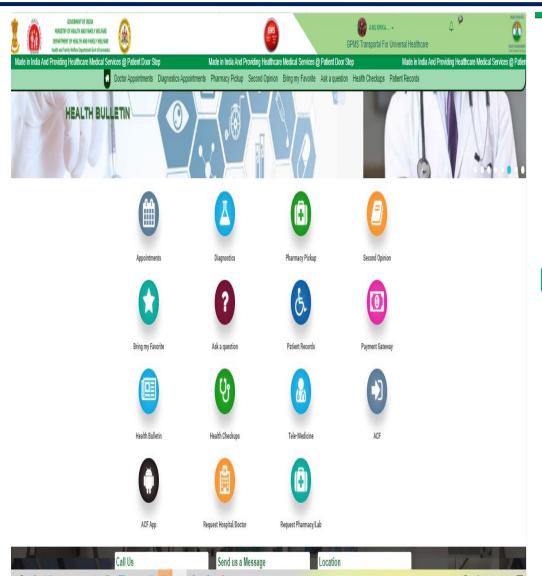


Hosted at India's own super-computing facility at CSIR 4PI

https://indiancst.com/India/universalhealthcare/?

CITIZEN PORTAL FOR PROVIDING HEALTHCARE MEDICAL SERVICES





Basic Health Check Up

- BLOOD GROUPING
- CBC
- LIPID PROFILE
- URINE ROUTINE
- S.CREATINE
- E.C.G
- LIVER FUNCTION TEST(LFT)
- FBS
- PPBS
- X-RAY CHEST(Optional / Riskbased)
- PHYSICIAN CONSULTATION

BOOK

Master Health Check Up

- PHYSICIAN CONSULTATION
- CARDIOLOGIST CONSULTATION
- GYNECOLOGIST CONSULTATION
- DIETICIAN CONSULTATION
- DENTIST CONSULTATION
- CBC
- FBS
- PPBS
- BLOOD UREA
- 55000 01151
- SERUM CREATININE
- LIVER FUNCTION TEST(LFT)
- E.O.G
- · X-RAY CHEST(Optional / Riskbased)
- ULTRASOUND ABDOMEN
- URINE ROUTINE

Diabetic Health Check Up

- OPHTHALMOLOGIST CONSULTATION
- DIETICIAN CONSULTATION
- E.C.G
- LIPID PROFILE
- URINE ROUTINE
- S.CREATINE
- HBAIC
- PPBS
- FBS
- PHYSICIAN CONSULTATION

воок

Cardiac Health Check Up

- CARDIOLOGIST CONSULTATION
- LIPID PROFILE
- FBS
- PPBS
- SERUM CREATININE
- E.O.G
- 2D ECHO
- TREADMILL TEST (TMT)
- . HCV, HBV, RV (For Angiogram)
- C.T ANGIOGRAM / ANGIOGRAM

BOOK

Female Health Check Up

- GYNECOLOGIST CONSULTATION
- DIETICIAN CONSULTATION
- CBC
- ULTRASOUND ABDOMEN
- URINE ROUTINE
- SERUM CREATININE
- SERUM CALCIUM
- FBS
- THYROID PROFILE
- PAP SMEAR
- LIPID PROFILE

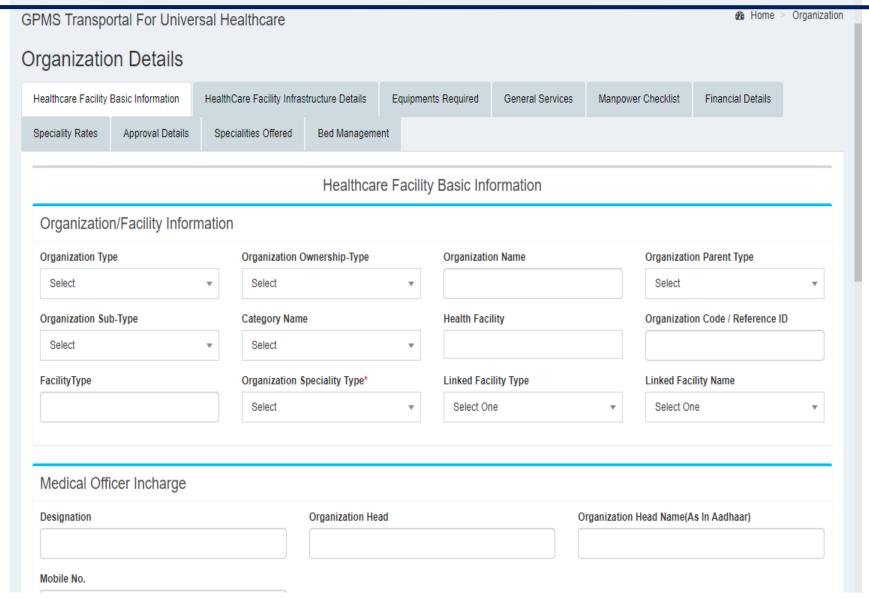
BOOK

Senior Citizen Health Check Up

- CARDIOLOGIST CONSULTATION
- PHYSICIAN CONSULTATION
- OPHTHALMOLOGIST CONSULTATION
- DIETICIAN CONSULTATION
- · GYNECOLOGIST CONSULTATION
- DENTIST CONSULTATION
- CBC
- SERUM CREATININE
- BLOOD UREA
- FBS
- PPBS
- LIVER FUNCTION TEST(LFT)
- VITAMIN D
- SERUM CALCIUM
- LIPID PROFILE

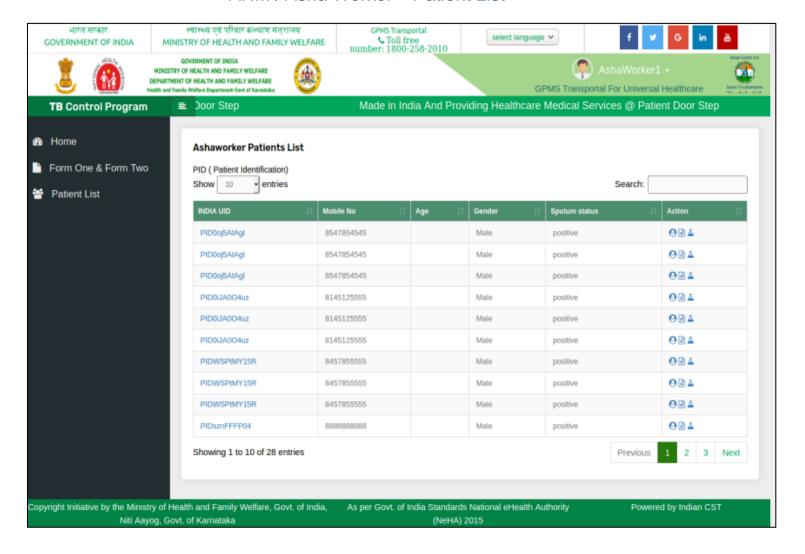
GPMS TRANSPORTAL – FACILITY / ENTITY REGISTRATION





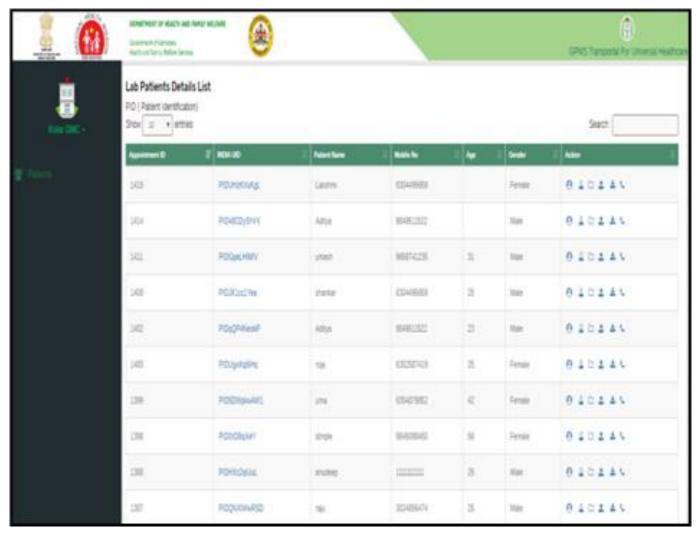


ANM / Asha Worker - Patient List





DMC / LAB

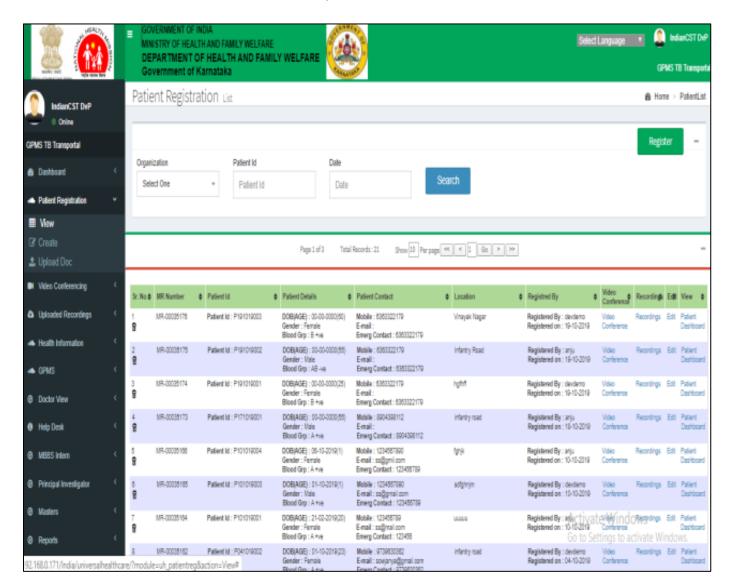




Doctor (PHC) / SC/ CHC/ DHO DEPARTMENT OF HEALTH AND FAMILY WELFARE Covernment of Kamataka GPMS Transportal For Universal Healthcar Health and Fernily Welfare Services Hospital Patients List PID (Patient Identification) Show 10 v entries Search: INDIA UID Patient Name Gender Sputum status DMC2 test status DMC3 test status Action 9 6 8 1 0 1 8 6 PIDUHzKVuKqL Lakshmi Female positive negative 9 6 8 1 6 1 8 6 6 PIDUH2KVuKqL Lakshmi Female positive negative 00810484 PID48CDyShVV Aditya Male 00810184 PIDUgxiNp6Hq гоја. Female positive 00810184 PIDGWMbDeVDU Male shankar positive 00810180 PID(SktJS4sn krishna. Male positive 000104648 PIDqQP4NeokP Aditya Male positive positive positive 00810101 PIDZK4D3tvaV Dasaradh Male positive 00010404 PIDHXz2qiUuL anudeep Male negative 00810101 PID0rD8igXeY Female dimple



Volunteer / Medical Interns





PLOS ONE

GPMS TB Transportal-Learning Surveillance System

PLOS ONE | https://doi.org/10.1371/journal.pone.0243610 December 14, 2020

RESEARCH ARTICLE

Envisioning a learning surveillance system for tuberculosis

Suman Gadicherla^{1©}, Lalitha Krishnappa^{1©}, Bindu Madhuri^{2©}, Susanna G. Mitra^{3©}*, Arkalgud Ramaprasad^{3,4©}, Raja Seevan^{2©}, S. D. Sreeganga^{3©}, Nibras K. Thodika^{3©}, Salu Mathew^{2©}, Vani Suresh^{2©}

- 1 Department of Community Medicine, M S Ramaiah Medical College, Bengaluru, Karnataka, India, 2 Indian Centre for Social Transformation (Indian CST), Bengaluru, Karnataka, India, 3 Ramaiah Public Policy Center, Bengaluru, Karnataka, India, 4 Professor Emeritus of Information and Decision Sciences, University of Illinois at Chicago, Chicago, Illinois, United States of America
- These authors contributed equally to this work.
- * susanna.mitra@rppc.ac.in

Data Availability Statement: The data underlying the results presented in the study are available from Global Project Management System Tuberculosis Transportal URL: https://fairsharing.org/biodbcore-001382/DOI:10.25504/fairsharing.4apevr.



Indian CST has proven ability of IT product development in Bioinformatics & Open Source Drug Discovery



Software for identification of novel drug target Insilco for pathogenic bacteria and viruses



A novel platform software tool for facilitating new drug discovery in collaboration with CSIR-IGIB

Structure based drug discovery for designing leads for the non-toxic metabolic targets in multi drug resistant *Mycobacterium tuberculosis*

Divneet Kaur, Shalu Mathew, Chinchu G. S. Nair, Azitha Begum, Ashwin K. Jainanarayan, Mukta Sharma and Samir K. Brahmachari ™

Journal of Translational Medicine 2017 **15**:261 https://doi.org/10.1186/s12967-017-1363-9 © The Author(s) 2017

Received: 6 August 2017 | Accepted: 8 December 2017 | Published: 21 December 2017



Journal of Genetics

June 2019, 98:60 | Cite as

Meta-analysis of genomic variants and gene expression data in schizophrenia suggests the potential need for adjunctive therapeutic interventions for neuropsychiatric disorders

Authors Authors and affiliations

S. Anirudh Chellappa, Ankit Kumar Pathak, Prashant Sinha, ASHWIN K. Jainarayanan, Sanjeev Jain,

Samir K. Brahmachari 🖂





















Open Innovation Center, Indian CST, Publication in OSDD with CSIR-IGIB

THANK YOU