



Needs Assessment

The broad objectives and the implementation plan for the Needs Assessment



Objectives

- To understand the gaps in the healthcare value chain so they can be supported by innovative solutions
- To get a perspective on the healthcare innovations landscape from various stakeholders— challenges and opportunities
- To understand the broad buckets of challenges in the space and figure out areas where ACT can play a role
- Publish the learnings for strengthening the larger ecosystem

Design and implementation plan

- **Objectives:** Assess challenges in the health systems, and understand scope of successful introduction of innovations to address them
- **Approach:** Conduct surveys with various stakeholders, and supplement with in-depth interviews
- **Methodology:** Pilot across a small population and test the survey; roll-out to wider network
- **Sample:** ACT's network of 100+ public and private hospitals segmented by location, capacity, VC network etc.

Stakeholders



Hospitals



VCs



Start-ups

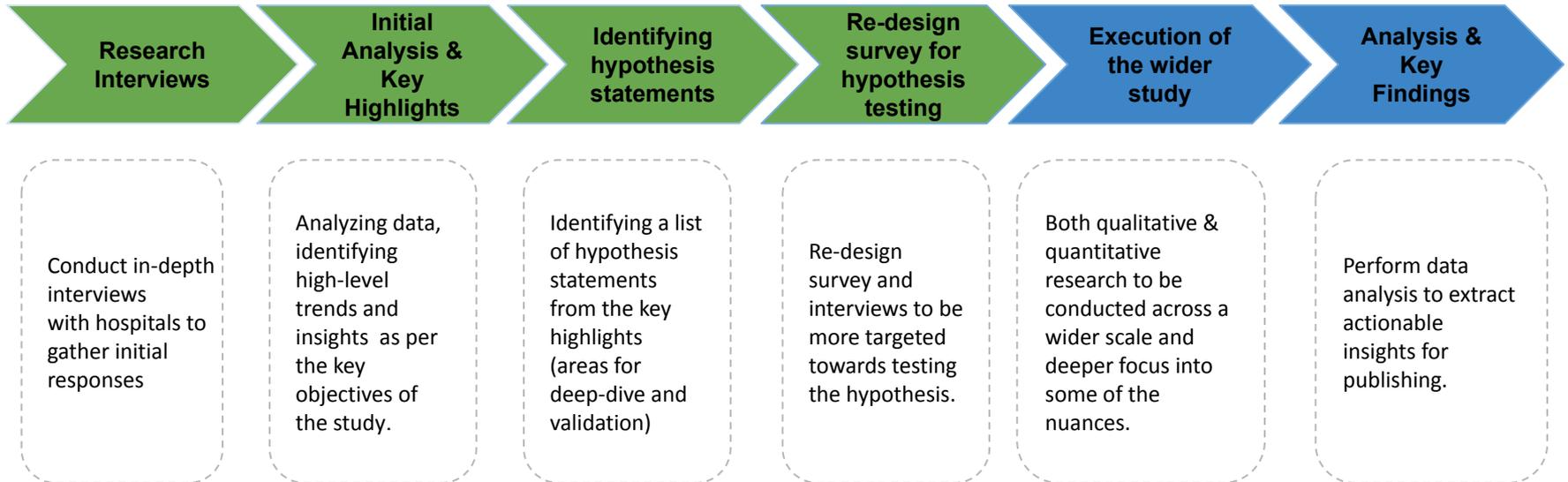


NGO's



Govt. (NHM)

Research Methodology



Key objectives & expected output of the Needs Assessment



Respondent	Objectives	Output
Doctor	<p>To understand the challenges faced by healthcare professionals at primary care, and while screening, diagnosing and treating patients for cancer, TB, diabetes or mental health.</p> <p>Assessing the potential use of technology for bridging these gaps.</p>	<p>Identify customer-backwards problem spaces where technology-based innovative solutions can assist in better screening and / or diagnosis and / or treatment</p> <p>Identify areas of need or gaps into which R&D should be focused - provide guidance or an additional input to start-ups and young companies building for this market basis the findings</p>
Management	<p>To understand the processes (procurement, decision making, awareness, implementation) for technology adoption in healthcare facilities and identify enablers and bottlenecks</p>	<p>Prepare a guide for start-ups with the enablers and bottlenecks in getting a product adopted to help them navigate Indian healthcare system in their GTM better</p>
Both	<p>To understand deeply the perception of healthcare professionals' and administrators' respective dispositions towards new-age medtech solutions / digital health platforms</p>	<p>Summary of attitude towards potential new-age solutions, whether they vary with age / seniority / geography etc.</p> <p>Identify the characteristics of early adopters of technology and the characteristics of the technology based products that get adopted faster in Indian healthcare systems</p>



Sampling profile of the pilot study

We interviewed 45 doctors from 23 hospitals across 12 states



Sampling Profile Dashboard

ZONES

5

STATES

12

HOSPITALS

23

CONVERSATIONS

45

AVG. EXPERIENCE
(Years)

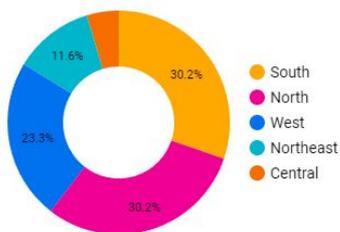
19

RANGE. EXPERIENCE
(Years)

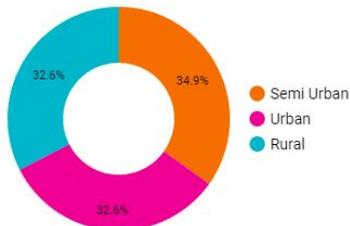
MIN 1

MAX 38

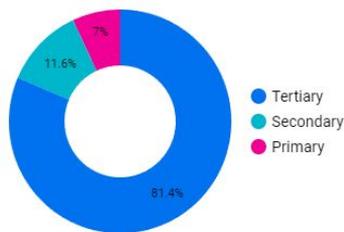
ZONE DISTRIBUTION



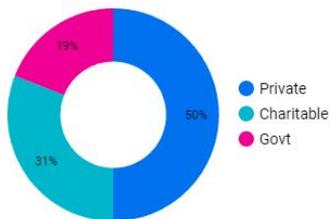
AREA CLASSIFICATION



POINT OF CARE



FACILITY TYPE



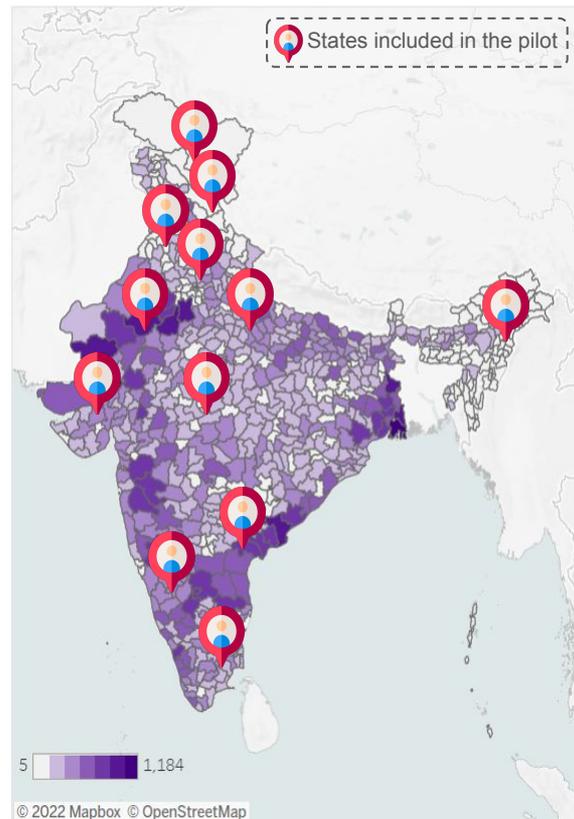
ZONE-WISE DISTRIBUTION

Zone	Hospital
1... North	8
2... West	6
3... South	6
4... Northeast	2
5... Central	1

DOCTORS FROM EACH FOCUS AREA

Archetype	Doctor
1.. Mental Health	11
2.. Tuberculosis	11
3.. Diabetes	9
4.. Cancer	8
5.. General Physician	3
6.. Management	3

Total Health Centers (All) State Level





Key Insights from Management interviews



Process for need discovery

Department heads initiate the process by stating the need and identifying the solution

Top-down

Dean finds a solution useful in other hospital or via seminars

Bottom-up

Channels used to keep a tab on the latest developments

- Whatsapp groups
- Emails
- Peers
- CMEs
- Medical journals
- Recommendation by a 'Star Doctor'
- Seminars by educational institutes
- Conferences by medical associations
- Webinars conducted by big hospitals
- Pharma companies

Process for adopting a new product.*

Step 1

Doctor

Establishes need & benefit

Step 2

Dean / HoD

Cost check

- <10k - Principal is the decision maker
- >10k - case is presented to the committee

Evaluation based on

- Usefulness to the **patients** - how many more patients
- Usefulness to the **students** - improves the teaching method

Step 3

Purchasing Committee#

Cost & benefit

- Who is the beneficiary & their paying capacity
- How much a patient going to be charged
- Getting the best possible solution for the available money
- Have at least received 3 quotations

Process for clinical trials

Step 1

Doctor

Establishes need & benefit

Step 2

Ethics Committee

Reviews the project draft

- Scientific Context
- Supporting data
- Inclusion & exclusion criteria for the study
- Risk to participant
- Confidentiality

Cost will be incurred by the party wanting to conduct the trial

An MoU will be signed between all the parties

* For private & charitable hospitals

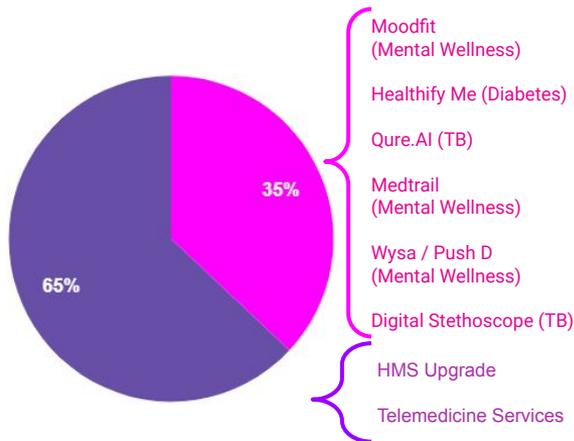
A tender process is followed in case of government facilities



Key Insights on perception of healthcare practitioners about tech-based solution

35% of the respondents are using MedTech or Digital Platforms, and a majority of the remaining are open to try one in the future

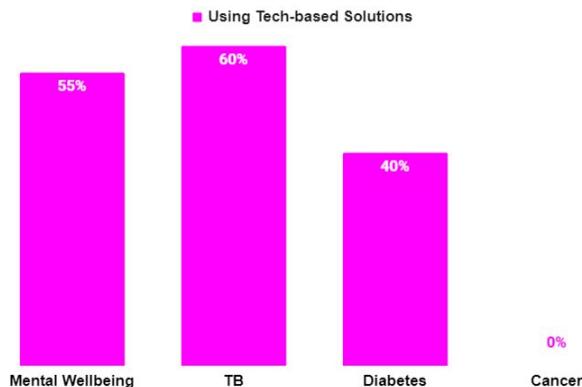
Currently using tech-based solutions or have used it in the past



Overall adoption across disease areas

Out of the **35% adopters** of modern tech-based solutions, nearly **75%** of them are from **urban areas** compared to only **25%** from **rural & semi urban areas**.

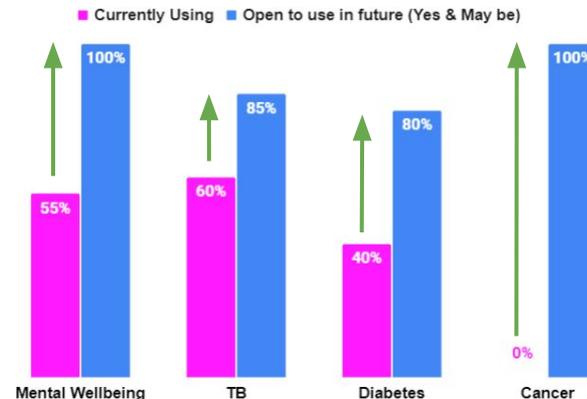
Current adoption across disease areas



Disease areas with very high or very low adoption

Doctors working in **Mental Wellbeing & Tuberculosis** seem to have adopted tech-based products more than **Diabetes & Cancer**.

Potential shift in adoption in the future



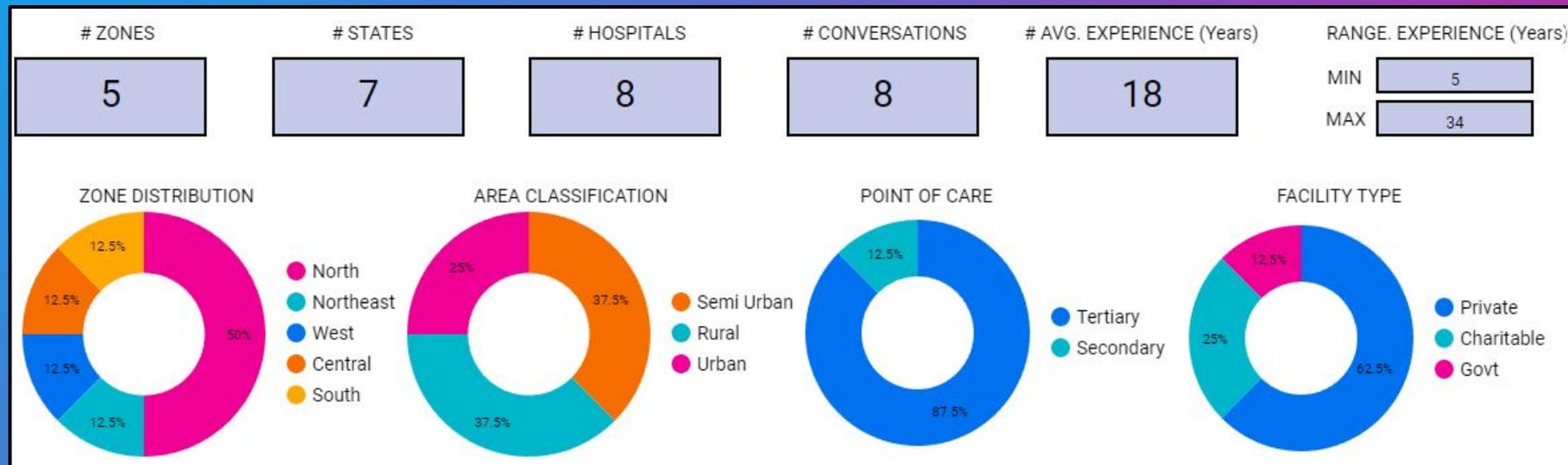
Disease areas with high potential increase in adoption

There is a sense of potential increase in the adoption of modern tech-based solutions across all the four disease areas. And, **Cancer** and **Mental Wellbeing** seems to have the **highest potential** shift in adoption in the future (**close to a 100%**).



Key Insights on the four disease verticals

Cancer



"It is good to encourage tech-startups like "Niramai" and "Periwinkle" for Indian population, but major issue is in early detection. People are not aware and are not willing to do well established tests like "Pap Smear" and "Mammography" test especially in rural areas."

- Chairman, Oncology - Sir Gangaram Hospital, Delhi

Referral network for cancer is not very effective for rural population

Types of Cancer prevalent - Oral Cancer, Head & Neck, Ovarian & Uterine, Cervix, Lung Cancer
Easy to detect in early stage - Breast Cancer, Cervix, Oral, Head & Neck Cancer
Difficult to detect in early stage - Lung, Ovarian, Gastro-intestinal, Lymphoma, Bone Cancer

“These types present with vague symptoms and the patient cannot realize of having a lethal disease. Often leading to late diagnosis.”

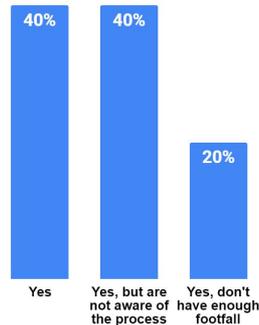
Referral System

- Doctors try to send the patient to a facility near their home.
 - **Urban** - This approach is working in urban areas
 - **Rural** - Not feasible since treatment centers are not present in rural areas. Patients have to travel huge distances leading delayed or no treatment

“I have heard about solutions like NavyaCare and Niramai and surely will be very effective. We need a lot of investments in diagnostic services. In our case at Agra, we don't even have a PET CT and have to look at NCR for diagnostic options.”

“Radiation and chemotherapy is very difficult type of a treatment for the patient. Without counselling and family support, it is extremely difficult to cope with the side-effects, and managing treatment compliance.”

Open for trials?



General Trends

- Full service oncology department is present in all the hospitals participating in the study, except 2 which didn't have radiation facility
- Since most facilities part of this study are tertiary care centers - patients come there for treatment, only 10 - 20% come for second opinion
- All cancer can be cured, if detected early by the primary care physician / GP - need to increase the awareness of the early symptoms

Treatment modalities & cost involved

1. **Surgery** - One time expense - Expensive
2. **Radiation** - One time expense - can be managed by the middle and upper class
3. **Chemo** - cheap due to generics
4. **Targeted Therapy** - Expensive (Can cost 2-3L/ months for 1 year or more)
5. **Immunotherapy** - Expensive

Lack of trained GPs, technicians & facilities coupled with lack of awareness in patients especially in rural areas is leading to delayed diagnosis

Challenges faced by Patients

Accessibility

- Diagnostic & treatment services **concentrated in urban** areas only
- **Long waiting hours** for testing & diagnosis for patients

Affordability

- Very **expensive treatment** coupled with **low paying capacity**

Availability

- **Lack of infrastructure, trained cancer physicians, technicians**, oncologists at rural centers
- **Unable to take an off from work** for treatment - Daily wage workers

Challenges faced by healthcare practitioners

Screening

Patient

- **Lack of will, awareness and myths** is a major challenge for **pro-active screening**.

Infrastructure & Services

- Tests are **not available for early detection** for most type of cancers
- **Lack of counseling** - Prepare them for the possible outcomes & implications of not getting proper treatment

Diagnosis

Patient

- Patient **unwilling** to accept the diagnosis

Mis-diagnosis

- **Delay in diagnosis / misdiagnosis** by the primary care doctor

Resource Constraint

- **Time constraints** on doctors - limited time & high volume of patients
- **Lack of diagnostic facilities** at primary care centers

Treatment

Patient

- **Low compliance, follow-up and high drop-out rate** during the treatment stage.
- **Malnourishment** in poor population leads to **low tolerance during treatment**

Infrastructure & Services

- **Lack of palliative care**
- **Lack of counseling** to help the patient deal with the side-effects of treatment
- **Lack of research & innovation in treatment** - no discovery of new modalities of treatment

Need to strengthen primary care facilities so that patient load can be reduced at tertiary care



Initiatives to address challenges

Doctor level

- **Regular workshops** for primary care doctors / GPs to help them identify & diagnose cancer at an early stage
- Integration and better access to **trained cancer physicians & oncologists** at primary care in rural population

Community level

- Dedicated efforts for **free of cost screening** and **awareness camps** to ensure timely detection **at primary care**
- **Adopt a geography / village** for focussed efforts to eradicate cancer and generate consistent data on cancer incidences

Patient level

- **Awareness & counselling** around cancer causes, importance of early detection & compliance to treatment
- **Financial support** to the patient for treatment
- **Ensure job security** of patients undergoing treatment, especially for poor population
- Interventions to support patients for **treatment compliance**



Additional comments from respondents

*“A lot of **patients stop taking chemotherapy after 3 to 4 sessions** when their health starts to improve.”*

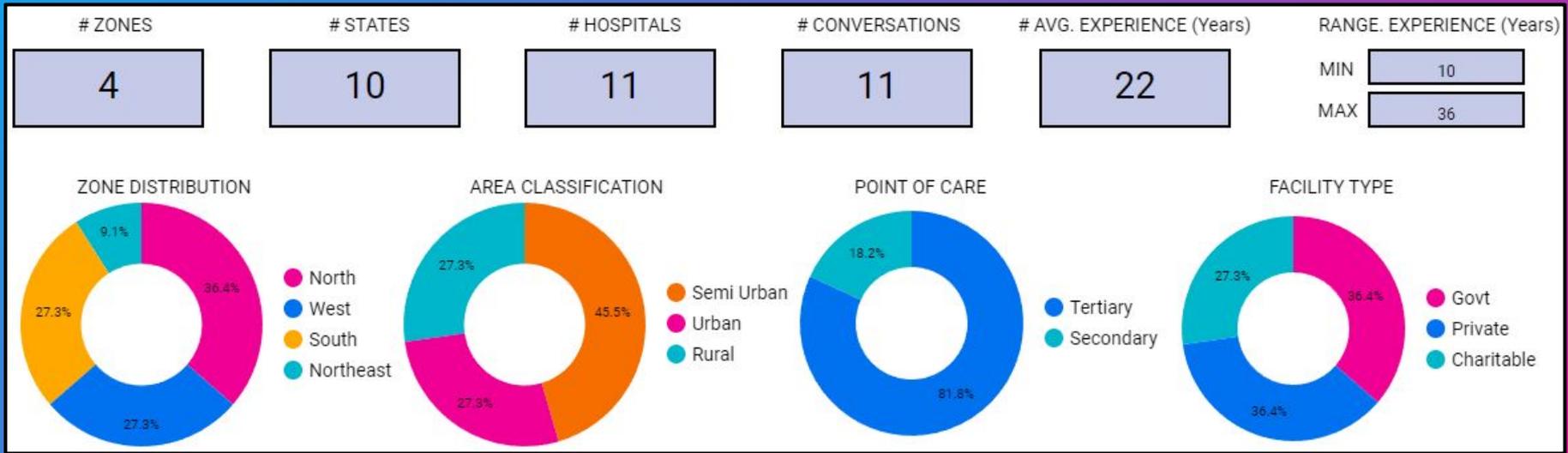
*“One major challenge is to **keep the patient anchored to the same doctor** throughout the treatment.”*

*“**Affordability for PET scan & CT scan** is a challenge among patients.”*

*“A complete diagnosis of a new patient requires 30 - 45 mins, but **doctors have huge time constraint** and have to complete the diagnosis under 15 mins”*

*“Generally, an **insurer denies** bearing the cost of **targeted & immunotherapy**.”*

Tuberculosis



“The biggest challenge for a patient who comes to a government facility for diagnosis is time constraint. The whole process from visiting the OPD, getting tested, and collecting report requires at least one week. Ideally, Gene Expert or CBNAAT should have a turnaround time of 48 hours. But practical scenario is that the patient load is very high, and the number of testing facilities are less.”

- Pulmonologist, New Delhi

Tech innovations & research is expected to be more effective during screening & diagnosis for TB



Patient's concerns

Chronic Cough, Long standing fever, Anorexia, Weight loss, Chest pain, breathlessness

Tech based products currently in use

Qure AI, Stellar diagnostics, X Ray, DNA Test, CBNAAT, Truenat, Digital Stethoscope, Spirometry, Virtual Bronchoscopy

A digital storage box for medicine - To record the count every time it is open- For adherence

Stage	Tech devices can be most effective	Most research should be done
Screening	3	3
Diagnosis	4	3
Treatment & Follow-up	4	5

Open for trials?

(Asked 3 doctors)

100%, said yes

"Diagnosis & treatment is free and largely available across districts because of govt scheme NTEP. But the patient must come forward for screening. Awareness will play a big role in detection."

"Some tools that monitor the compliance of the patient and sends regular feedback to the practitioner will be extremely valuable. 99 Dots is an available solution, but any tool that is more user-friendly and seamless could be valuable."

General Trends

- TB gets transmitted faster within family & people staying in closed spaces
- **X-ray** not very successful because of **poor sensitivity** - People can have a lot of scars on their lungs because of various issues but will show as TB - 65% X rays come as abnormal but only 5% people will have TB
- **CBNAAT & Truenat devices** are provided to all TU's (Tuberculosis Unit) & PHC's under the **government NTEP**

Steps for screening

- X Ray
- Sputum examination
- HRCT
- CT Scan
- Molecular test
- CBNAAT

Low tolerance to medicines and poor compliance during the treatment pose a major challenge for TB treatment

Challenges faced by Patients

Accessibility

- **Northeastern Region:** **Remoteness** of villages and **travel time** to the hospital is a major challenge
- **Long waiting hours** for testing & diagnosis for patients

Affordability

- **Low paying capacity**
- Patient has to get the test done **multiple times** during the treatment

Availability

- **Lack of infra / tech, trained physicians, technicians** for early detection in rural areas
- **Time availability** of patients to undergo complete diagnosis

Challenges faced by healthcare practitioners

Screening

Patient

- **Lack of awareness** to get proactive screening done in rural areas
- **Hesitancy** to provide **sputum** sample

Infrastructure & Services

- **Lack of screening facilities** and **trained staff** at peripheral centers
- **Lack of counseling** to prepare patients for the possible outcomes & implications of not getting proper treatment
- **Sputum Examination** - Collecting, storing and transporting the specimen to the testing center in a safe manner

Diagnosis

Mis-diagnosis

- **Delay in diagnosis / misdiagnosis** by the primary care doctor based on X-ray

Resource Constraint

- **Time constraints** on doctors - limited time & high volume of patients
- **Lack of diagnostic facilities** at primary care centers

Treatment

Patient

- **Low compliance** and **high drop-out** rate as patients' health improves
- Poor health of patient leading to **low tolerance during treatment**

Infrastructure & Services

- **Irregular supply** of drugs to rural areas
- **Lack of counseling** - To help them cope with the side effects of TB drugs (can be **toxic & draining**)
- **Isolating** the patient post-diagnosis

Capacity building of primary care doctors and deployment of diagnostic devices at primary care should be done to ensure better care delivery

Initiatives to address challenges

Doctor level

- **Regular capacity building workshops** for primary care doctors / GPs

Infrastructure

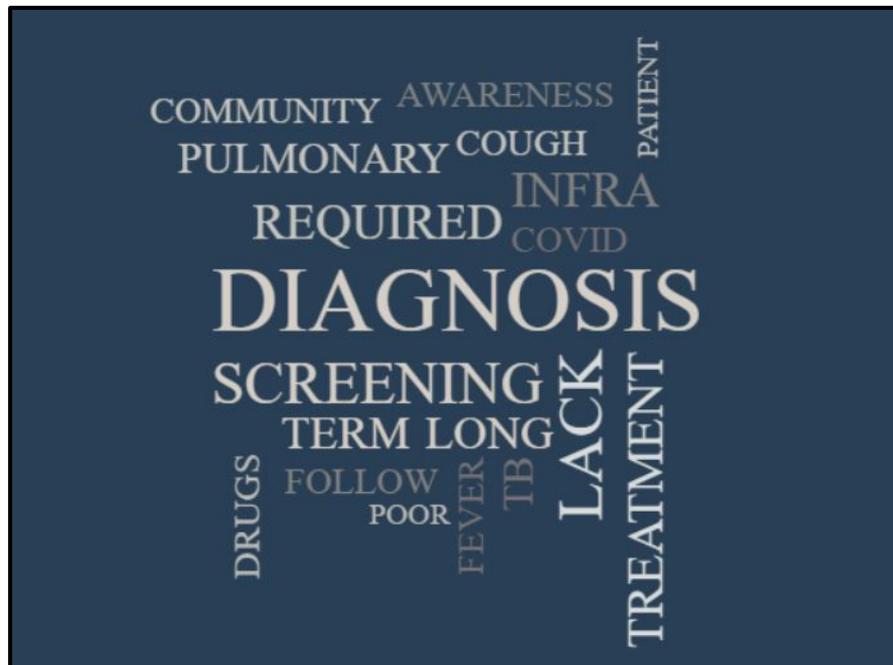
- **Diagnostic tools / technology** must be deployed at the **primary care** centers in **peripheral locations**

Community level

- **Regular screening** to ensure timely detection **at primary care**
- Campaigns to **de-stigmatize** the disease

Patient level

- **Awareness campaigns** to improve treatment compliance
- **Financial support** to the patient for treatment
- **Counselling services** for patients & family





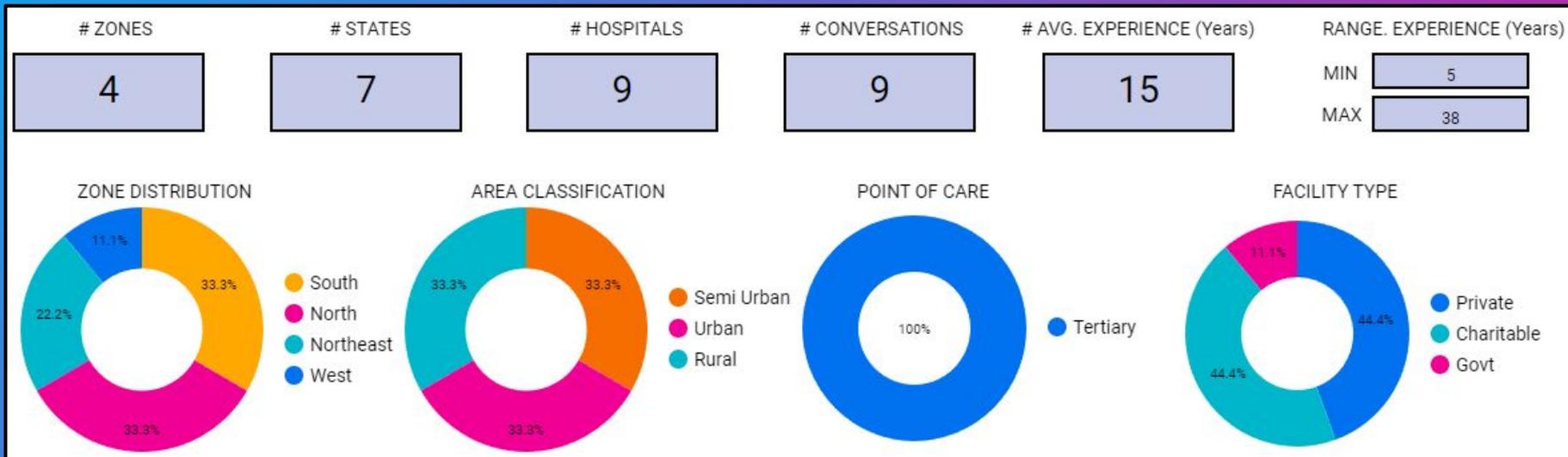
*“In Ludhiana, **TB is more prevalent in the younger female groups** and mostly detected at an advanced stage.”*

*“There are cases of lung cancer or other respiratory disease which are initially **wrongly diagnosed as TB by the local GP.**”*

*“**Difficult to do follow-ups** with patients who opt for the **DoTs program.**”*

*“A lot of the **diagnostic devices and resources** have been **transferred to COVID care centers.**”*

Diabetes



“Primary challenge to treating diabetes is the treatment cost and compliance.

Many patients think once the sugar levels are controlled due to medication they can stop the treatment.

Making them understand that it is a lifelong treatment and that adhering to the treatment plan is the biggest challenge.”

- Diabetologist, Medical Superintendent - HIMSR, New Delhi

Diagnosis of diabetes is mostly accidental

Areas of concern patients visit for

- Excessive Weight Loss
- Frequent Urination
- Loss of Appetite
- Delayed wound healing
- General body weakness
- Tingling sensation in feet and limbs

Stage at which research should be done more

Treatment Phase

Stage at which technology interventions should be done more

Post-treatment phase to help manage lifestyle and maintain sugar levels

Open for trials?-

Responded **YES**

“E-prescriptions through platforms like Practo is helpful in managing patient records. However, complete transition to digital tools or platform will require seamless integration throughout treatment and compliance stage.”

Tech-based products currently in use

- Glucometer
- CGMS (*Continuous Glucose Monitoring System*)
- Lifestyle Management Apps (Eg. "Healthify Me")
- Managing Patient Records (Eg. "Practo")
- Insulin Pumps

How can community level support be made more effective

- **Targeted awareness** drives can be positioned in schools, colleges to target **younger crowd**.
- More focus on **prevention** rather than treatment during awareness campaigns.
- **Counselling for family members** and **patients** to help them adjust to a healthier lifestyle, and improve compliance with the treatment plan
- **Regular screening** at PHC / CHC level

General Trends

- Doctors / dietitians educate the patients on lifestyle management; Tech applications are not being recommended
- Accessibility and affordability to insulin in rural & remote areas is a challenge
- Low awareness about the disease is a driving factor for delayed diagnosis

Treatment affordability is a challenge for poor - being a lifelong treatment

Challenges faced by patients

Accessibility

- Access to **screening centers & diagnostic equipments** (remote locations)

Affordability

- **High cost of the medicines, monitoring equipment** and certain **diagnostic tests** like HBA1C for poor population

Availability

- **Lack of counselling and awareness programs**

Challenges faced by healthcare practitioners

Screening

- **Lack of awareness**
 - **About the disease** and its implications
 - To get **proactive screening** done
- **Lack of acceptance** among uneducated patients

Diagnosis

- **Accessibility of HBA1C** tests in remote areas
- **Denial** / difficulty in accepting the diagnosis

Treatment

- **Low** motivation for **follow-ups** and poor **compliance**
- **Reluctance for insulin, storage** and **delivery** at the right dosage
- **Maintaining patients' historical data** for sugar levels



“Access and availability of screening services and regular supply of medicines in remote locations especially Northeastern regions is still a challenge.”

“The number of diabetes across India is huge, and only specialist doctors won't be able to cater to this scale. Every general physicians especially in poor resource setting should be trained and equipped to diagnose and treat diabetes.”



*“Difficult for a patient to **manually maintain the chart** for sugar levels.”*

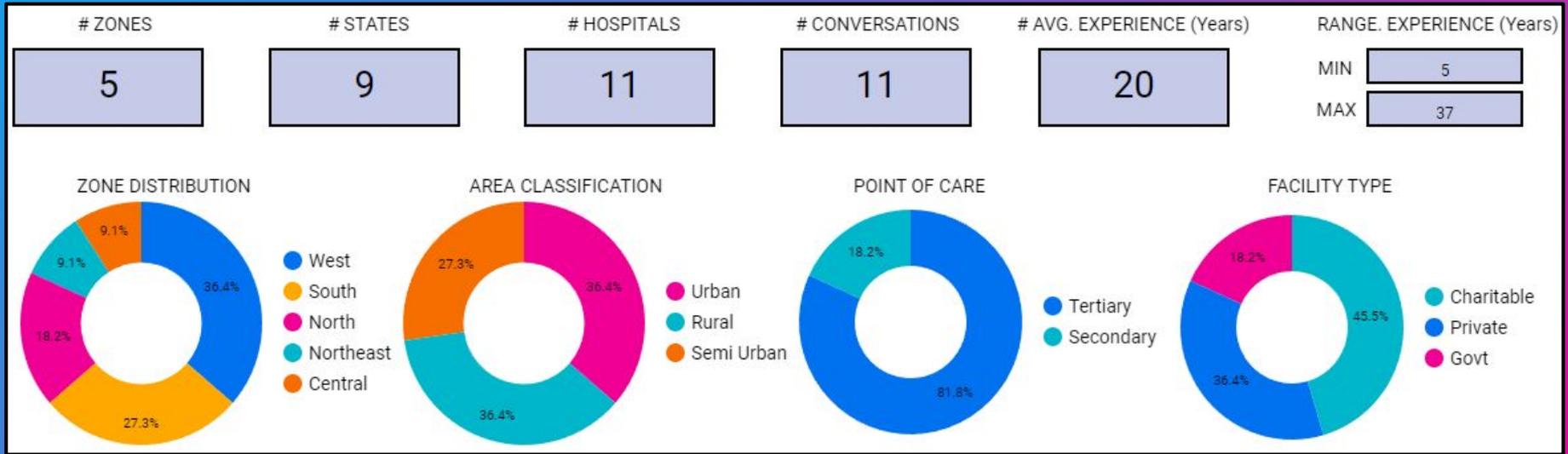
*“**Tech adoption for treatment compliance** may be a challenge since majority of **diabetic patients are elderly** people.”*

*“Patients are **mostly referred from other departments.**”*

*“Availability of **C-peptide tests** is a challenge.”*



Mental Wellness



"I have used Moodfit app's free version and is one of my favourite apps because it is very holistic in treating depression and acts as a co-therapist during the treatment. I recommend it to my patients and whoever uses it, finds it highly effective. The app makes the patient feel cared for."

- Chairman, Psychiatry - Sir Gangaram Hospital, Delhi



Mental wellbeing practitioners are prescribing tech-based applications to patients for mindfulness and stress management

Patient's concerns

Most Prevalent - Depression, Anxiety, Stress, Substance abuse

Others - OCD, Mood disorders, Insomnia, Personality disorder, Learning disability

Technology based products currently in use

- Mood-fit
- Headspace
- iBreadth
- Sleep laboratory by Philips
- RTMS by Neurosoft - Transcranial Magnetic Stimulation
- Wysa
- Push D
- Telemedicine

Stage	Tech devices can be most effective	Most research should be done
Screening	4	3
Treatment & Follow-up	7	8

Open for trials?-

(Asked 2 doctors)

100% said yes, given the facility they are practicing it approves

General Trends

- Consulting a psychiatrist is a common social stigma
- Physical consultation over online consultation is preferred, especially during the initial diagnosis
- Females are more prone to anxiety & depression due to additional responsibilities & discrimination
- Substance abuse is very common among male patients

Steps for screening

- **Physical examination** - Check for deficiencies & comorbidities
- **Psychological assessment** - Patient background, history, and assessment scales
 - 6 - 10 sessions required (on average) for treatment

"We have tele-appointments for patients who are already in treatment. It is not feasible for new patients. Sometimes connectivity is a challenge for patients in remote locations."

Lack of a strong referral system and unavailability of mental health practitioners leads to poor healthcare delivery in rural & semi-urban areas

Challenges faced by Patients

Accessibility

- **Social stigma, privacy concerns, lack of family support** and belief in **faith healers / tantrics** is a major challenge faced by patients to avail mental health treatment.

“There are some specific regions where belief among faith healers is very high. Most of these patients come to us for treatment after many years of visiting faith healers and seeing no improvements.”

Affordability

- **Long-term treatment plan** and need for **multiple visits** imposes financial burden

Availability

- **Low availability of** mental health facilities in rural areas

Challenges faced by healthcare practitioners

Screening

Patient

- **Lack of awareness & willingness** to undergo screening in rural areas

Infrastructure & Services

- Lack of a **strong referral system**
- **Low awareness in primary care practitioners** on available screening tests. And, these tools not being available in **local languages** adds to the challenge.
- **Lack of counseling services** to the patient & the family members

Diagnosis

Patient

- **Lack of trust** in doctors and **willingness to accept** the diagnosis
- **Difficult to collect data** on patient history & background

Infrastructure & Services

- **Lack of training** for primary care practitioners - inability to recognise the disease leading to **misdiagnosis**
- **Time availability** of doctors for each patient is low for a detailed session
- **Threat to doctors** from aggressive patients

Treatment

Patient

- **Poor compliance and follow-up**, especially among patients with **substance abuse** problem.
- **Fear of side effects** from drugs
- **Risk of secondary disease** due to patient's poor self-care

Infrastructure & Services

- **Irregular supply of medicines** in rural areas
- **Lack of counseling & community support services**

“There are cases with schizophrenia and mentally retarded children, where family surrenders and asks to admit them in an institution. Unfortunately, there are a very few such good institutions.”

Regular counseling to patients and family members needs to be done to help them understand the condition and benefits of the treatment



Initiatives to address challenges

Doctor level

- **Regular workshops** for primary care doctors / GPs to help them identify & diagnose early illness accurately
- **Connect primary care centers** with tertiary care centers to improve care delivery
- Develop **screening tools in local languages**

Patient level

- **Counseling** for patients & family members
- **Awareness** around mental wellness addressing societal, personal stigmas and myth busting
- **Financial support** to the patient for therapy & medicines required for treatment

Community level

- **Regular screening** to ensure detection **at primary care**
- **Home visits** for treatment (for identified patients)
- **Develop guided screening tool** for community workers to get better inputs, preferably in local languages



"Assessment through online application is very difficult. Primary challenge is how to cross-verify whether the inputs made by the patient is accurate. Example - a patient my input that he is doing well, but he might be very ill or be on the verge of taking an extreme step."

"Technology can play a major role in psycho-education and creating awareness. We have tried creating content and online campaigns, but it has not been effective. Media portraying stories of people who recovered from mental illness could be more effective a narrative."



*“**Female substance abuse** is hidden in Punjab. They don't come forward & **de-addiction centers** are not there for females.”*

*“**Admitting patients for complete diagnosis** is very difficult (difficult to convince) .”*

*“Challenges in providing a **disability certificate** post clinical / psychological assessment.”*

*“It is **time consuming & challenging** to conduct clinical **assessments through online platform**.”*



Recommendations

Summary of interventions suggested by healthcare practitioners

Awareness & counselling driving behaviour change

- **Integrated awareness & screening campaigns** on the causes of the disease, prevention, importance of early detection, implications of not getting a treatment
- **Counselling support to the patient & their family** to help them cope with the emotional & physical stress

Regular screening in rural areas

- **Adopting a geography & conduct regular screening programmes**
- **Capacity building of CHW / ASHAs** to deliver primary healthcare services at home

Strengthening primary care centers

- **Deploying diagnostic, treatment devices & trained staff** to use them at the periphery centers
- **Regular training of the doctors** from primary care facilities to ensure they are able to identify early signs of an illness

Establishing credibility for new tech

- **Product displaying significant improvement** over the existing products - **Backed by strong evidence based data / use case** published in reputed journals
- **Backed by IMA / a “Star Doctor”** & is able to answer the concerns related to **ease of usage, safety & accuracy of the result**

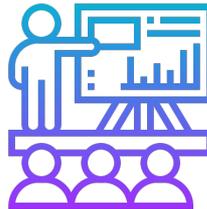


Limitations in the pilot study & the way forward

Lesser number of interviews with primary care physicians during the pilot study

Common challenges identified around primary care delivery -

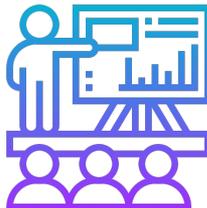
- **Infrastructure** and **resource** availability in primary care centers
- **Late** or **misdiagnosis** by primary care physicians
- **Referral** system at primary care
- **Capacity building** of primary care physicians
- Driving **community initiatives** by primary care centers
- Awareness and adoption of **latest technologies and practices**



Phase 2 to focus more on connecting with healthcare practitioners from **Primary and Secondary Care**

Broad areas to be addressed through these interviews and surveys:

- Availability of **infrastructure & resources**
- **Referral** system & centers for diagnosis & treatment
- Access and **adherence** to diagnosis / treatment **protocols**
- **Gaps / challenges** in screening, diagnosis and treatment
- **Need** or requirement for **MedTech & Digital Platforms**
- **Decision-making** and **bottlenecks** for adopting new technology
- **Community initiatives** & services





Thank you