A private sector social business model: TBXpert and TB REACH

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Annecy April 17 2013
On behalf of UNITAID TBXpert PPM and TB REACH 3 Teams Dhaka, Jakarta and Karachi
TB REACH and TBXpert Grant Timelines

- 2010 Dec - WHO endorses GeneXpert MTB/RIF
- 2011 Jan - TB REACH 1 Karachi
- 2011 Oct - TB REACH 2 Karachi, Dhaka (Jan 12)
- 2012 Jun - UNITAID TBXpert grant
- 2012 Aug - GeneXpert cartridge price reduction
- 2012 Nov - TB REACH 3 Dhaka, Jakarta, Karachi
- 2013 Jun –Enrollment start date
January 1, 2011 – December 31, 2012

TB REACH PPM Project Yields

<table>
<thead>
<tr>
<th></th>
<th>Pakistan</th>
<th>Bangladesh</th>
<th>Both Sites</th>
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<tbody>
<tr>
<td>Verbally Screened</td>
<td>1,417,613</td>
<td>331,137</td>
<td>1,748,750</td>
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<tr>
<td>SS+/B+ Patients</td>
<td>2,536</td>
<td>491</td>
<td>3,027</td>
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<tr>
<td>All Forms Patients</td>
<td>3,982</td>
<td>690</td>
<td>4,672</td>
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Karachi, Pakistan:
• 24 months of screening at FP clinics and private hospital OPDs
• 15 months of screening at private diagnostic laboratories

Dhaka, Bangladesh:
• 12 months of screening at private diagnostic laboratories
• Over 1.7 million verbal screening encounters
Process and Technology Innovations

- Local cable TV adverts
- Lay screeners
- Performance incentives
- Patient lottery prizes

- Chest X-ray screening
- Sputum submission instructions
- Rapid MTB/RIF test
- XpertSMS automated GeneXpert Reporting

- CAD4TB
- All Electronic Medical Records
- POC HbA1c
- Voiceprint authentication
A Gender-based Approach to TB Screening?

- **Male:Female Ratio (MFR) of:**
  - Screened: 1.07
  - Suspects: 1.23
  - SS+/B+ Patients: 0.96
  - SS+/B+ Patients, 15-19yrs: 0.41

- **Females <30yrs = 34% of SS+/B+ patients in Karachi**
  - Males <30yrs = 24%

- **Epidemiology justifies novel case-finding approaches targeting young girls and women**
TB REACH 3

Computer Aided Detection 4 TB (CAD4TB)

- Developed by UMC Radboud
- Several individual detection systems for various normal and abnormal structures.
- All individual systems are combined to provide a score of probability of the presence of abnormalities and their relation to active TB.
TB REACH 3
HbA1c Analyzer

• Point of care diagnosis of diabetes
• Result in <10 minutes
• Helps with glycemic control, minimizing further complications
TB REACH 3

Desktop Spirometry

- Point of care diagnosis of COPD and asthma
- Requires skilled technician
TB REACH 3

Business Approach

• Free
  – MTB/RIF test
  – Sputum smears
  – TB treatment

• Not free:
  – chest X-ray
  – Diabetes
  – spirometry
  – HCV test
  – non-TB medicines
  – O2 and nebulizers
  – CO for smoking cessation

• All profits reinvested into screening, testing and treatment programs

• Spread financial risks across business partners

• Seek private and public investments for expansion
TB REACH 3
Diagnostic & Treatment Algorithm

NTP Facilities
- Walk-ins
- Suspects unable to pay

SS-, CXR Suggestive Suspects

Verbal Screening
- Private facilities or Screening Centres

Ability to Pay

Chest X-ray
- CAD4TB & Radiologist

Normal X-ray

Abnormal X-ray

Collect an Instructed Sputum Specimen

Unable to Provide Sputum

GeneXpert
- MTB/RIF Assay

>2mL Sputum + Reagent Remaining

MTB Negative

MTB Positive

Error / Invalid / No Result

RIF Resistant

RIF Sensitive

RIF Indeterminate

Refer to pulmonologist or ID consultant for evaluation & Tx

Refer for DST & Tx

Tx at FP clinic or NTP facility
TB REACH 3

Case-Finding Activities

- **FP Clinics**
  - Young Girls - Life Skills Program
  - Contact Tracing

- **Private Hospitals**
  - Xpert: 3

- **Screening Centers**
  - CXR
  - Xpert: 14

- **Specialist Clinics**

- **Private Lab**
  - Xpert: 2

- **Peripheral NTP Centers**

- **Public Facilities**
  - Smear, CXR
  - Xpert: 5

- **Charity Hospitals**
  - Smear, CXR
  - Xpert: 3

- **Walk-ins**
Estimated Yields for Year 1 per City

3,000,000
Verbal Screening Encounters

240,000
Lung Disease & DM Suspects

96,000*
Screened with CXR

38,400
Abnormal CXR

30,700
Xpert Tested

4,610
B+ TB

240
RIF Resistant Patients

*Willingness to pay - does not decrease under universal insurance (Jakarta)
TAQ ASSOCIATES
TARIQ ALEXANDER QAISER

TB & MDR TB TREATMENT
THE GHORI CLINIC @
THE INDUS HOSPITAL

(COMPLETED 2010)

SUSTAINABILITY
ECONOMY &
HUMAN
DIGNITY

Clinic elevation & wooden louvres

View to North East

View to South West

Clinic work spaces

Clinic elevation & wooden louvres
THE LIFE CENTER

Life - Breath
THE LIFE CENTER - KORANGI, KARACHI
Voiceprint Authentication for Screeners, Treatment Supporters, Family Physicians, Consultants, Managers

• A biometric process – more secure
• No need to enter a username and a password
• Reduced costs and complexity over fingerprinting

Voiceprint image courtesy of National Institute of Standards and Technology
Complementary Grants and Investments
Sustainability Beyond TBXpert and TB REACH

Grants
- Center for Health Market Innovations
  - USD 110,000
- GFATM – NTP
  - Smoking cessation in TB
  - USD 100,000
- United Nations Foundation
  - Mother and child health
  - USD 100,000
- Others in early discussions

Investments
- Technology companies
  - Digital Health Exchange
- Social entrepreneurs
  - Life Centers
- Pharmaceutical industry
  - Diabetes
  - Asthma
  - COPD
  - Smoking cessation
  - Hepatitis C therapy
Summary

- Potential to improve standards of lung health and diabetes care in the private sector
- Moderate-risk, high-gain investments in social enterprise models for the private sector have the potential to be sustainable
- Acceptable to NTPs, consortium partners
- Approach based upon experience - TB REACH projects in Karachi and Dhaka
IRD TBXpert PPM Business and M&E Team

Country TB REACH 3 Project Team
- Screening Management Team
- Treatment Management Team

Health Worker Cooperative
- Screening Supervisors
- Screeners
- Treatment Supervisors
- Treatment Supporters

Business Management Team

Social Enterprise
- Screening Centre Staff

Family Practitioners
- Private Laboratories
- Private Hospitals
- Public Hospitals
- DR-TB Centers
- DOTS Centers
- Charity Hospitals

Specialists