Dramatic results in TB treatment:
Building a low cost, effective, scalable & replicable model
April 2011
TB: The biggest health crisis confronting India

- India has 3.5 million TB patients, 25% of the world’s total burden.
- 2 persons die of disease every 3 minutes in India.
- 100,000 infected women are thrown out by families to die of disease and starvation.
- 300,000 children drop out of school because they, or a parent, have TB.

* TB India 2007, Government Of India, Mar2007
Challenges in TB treatment

1. Terrible social stigma
   - loss of jobs
   - loss of homes and family life
   - denial of education to children
   - tenants thrown out by landlords
   - patients go into denial mode or hide the disease

2. No effective vaccine (compare with ‘2 drops for Polio!’)

3. long duration of treatment

4. Inaccessible DOTS centers, open at ‘usual’ working hours;
   Scarcity of treatment centers results in high default rates, causing relapse & drug-resistance
   - WHO WILL PAY THE BUS FARE ??
TB: The biggest socio-economic crisis for India and other developing countries

- Patients lose productivity and are often thrown out of jobs because of the stigma attached to TB. Consequent loss of wages is $300 million/year.*

- The Indian economy suffers indirect loss of $3 billion/year because of TB. The reasons for this loss are loss of productivity and absenteeism.

- Nearly one-third of over 11,000 (business leaders from across the world) expect tuberculosis to affect their business in the next five years. One out of ten expects the effects to be serious.#

*TB India 2007, Government of India, Mar 2007
#World Economic Forum, Feb 2008
TB and Poverty

• “Tuberculosis in the child of Poverty”
  Nobel laureate Bishop Desmond Tutu

• “Ongoing poverty reduction programs must also include reducing TB.”
  Jackson, S, Sleigh, A.C., Wang, G.J, Liu, X.L.,
  International Journal of Tuberculosis and Lung Diseases, October 2006
Government model breaks down in “last mile” to slums

The DOTS* model: network of three types of facilities

**TB Hospitals:** Adequate
- Government facilities providing comprehensive diagnostics and treatment recommendation
- Warehouse for medicine supplies, provided free by government & donors

**Diagnostic Centers:** Adequate
- Sputum tests for initial/rapid diagnosis
- 5 DCs required for every hospital; typically present

**Treatment Centers:** Inadequate in slums
- Local “last mile” centers, distributing medication and ensuring compliance
- 5 TCs required for every DC; currently, only 1-4, with limited hours of operation
- Scarcity of TCs results in high default rates, causing relapse & drug-resistance

*“Directly Observed Therapy - Short Course”*
OpASHA’s 14-point model for the “last mile”

14 elements of OpASHA’s distinctive approach

1. Internationally accepted standard DOTS therapy prescribed by World Health Organization and followed by India all over the country.

2. Close coordination with Revised National TB Control Program.
   - Hospitals & Diagnostic centers
   - TB medicines
   - Over-the-counter drugs like pain-killers and antacids to take care of the side effects
   - NTP also provides the following
     – Consumables and stationery like file covers and stock registers
     – Disposable plastic cups
     – Protein supplements
     – Tea and snacks for participants at awareness campaigns
   - A grant two years after the patient is enrolled for treatment.
OpASHA’s 14-point model for the “last mile”

3. Dense network of treatment centers consisting of strategically selected, high-traffic community centers (e.g., places of worship and popular locally owned stores), so that patients are no farther than a 10 minute walk from the nearest center; extended operating hours based on specific community needs.

4. Leverage trusted community leaders (e.g. priests, traditional healers) to work as DOTS providers and spread key messages to their community.

5. Rapid response testing and education of immediate circle (e.g., family members and neighbors) of identified patients.
Results: Higher Detection Rates

Annual Detection Rate of New Sputum + Cases
South Delhi

Prior to Operation ASHA

Detection Rate/100,000 population

2005 2006
82 82

2007 2008 2009
104 151 160

With Operation ASHA
OpASHA’s 14-point model for the “last mile”

6. Corps of highly-trained, well-compensated, full-time counselors (equipped with motorcycles, as required), to ensure compliance and “turn off the tap” for drug resistance (i.e., treat normal TB fully to prevent MDR/XDR)

7. Provision of Over-the-Counter drugs to treat side effects of TB drugs and provide camouflage.

8. Highly effective **Performance-based remuneration**.

9. Robust feedback loop involving government officers from field level to state level to ensure proper adherence to duty by our staff. Stringent quality control by external auditors.

<table>
<thead>
<tr>
<th>Results:</th>
<th>OpASHA</th>
<th>Other Organizations</th>
</tr>
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<tbody>
<tr>
<td>Default Rate</td>
<td>3%</td>
<td>Up to 60%</td>
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</table>
OpASHA’s 14-point model for the “last mile”

10. Stringent quality control with internal and external audit.

11. Low-cost, highly leveraged operating model so that cost of full treatment (7-month course) only $30 per patient

(PREVENT MDR-TB WITH ONLY 30$!)
Our Model is Efficient, Scalable & Replicable

85% of expenses go toward core programs

<table>
<thead>
<tr>
<th>Avoided costs</th>
<th>Core Program 85%</th>
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<tbody>
<tr>
<td>Medicines</td>
<td>Fundraising 9%</td>
</tr>
<tr>
<td></td>
<td>Administration 6%</td>
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</table>

Portion of expenses on programs: 85%
Each Center will become Self-Sustaining after 2 years

A government of India program makes every center self-sustaining after two years.

Annual cost of operating one center incurred by Operation ASHA: years 1, 2 and beyond

The Government of India awards grant per patient, two years after completion of treatment. In addition, the Government provides free medicines, diagnostics and physician services from day one.
OpASHA’s 14-point model for the “last mile”

14. Biometric devices for automated compliance tracking deployed at 17 South Delhi centers, (for 940 patients, and 35,000 transactions done)

Result: With state-of-the-art compliance-tracking, we have 0.5 % default rate, thus eliminating Drug-Resistant TB
Aggressive Expansion to Provide Services to 80 million People by 2014

Total number of Enrolled Patients

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>26</td>
<td>400</td>
<td>1,600</td>
<td>3,000</td>
<td>5,000</td>
<td>10,000</td>
<td>20,000</td>
<td>30,000</td>
<td>40,000</td>
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Population base served exclusively by Operation ASHA: 0.01, 0.2, 1, 2, 3.5, 7, 14, 21, 28 in million

Total Population of areas served by Operation ASHA: 0.05, 1, 2.3, 6, 10, 20, 40, 60, 80 in million
Cost borne by the Government: $2,340
- Cost of Medicines (in retail): $2,200
- Diagnostic tests: $70
- Physician: $70

Investment by Operation Asha: $400
- Counselor's salary per patient: $240
- Admin cost: $80
- Miscellaneous: tests like LFT/ food: $80

Total Cost of treatment = $2,740
TB treatment leads to increase in productivity, which in turn raises annual income by USD $150* = annuity of $1,875 at a discount rate of 8%; it also saves in indirect expenses to the economy* = $1,500 for DS-TB (Saving in Indirect expenses to the economy for MDR-TB = four times as much = $6,000)

* Annual TB Report, Government of India, 2007

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<tr>
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<th>Drug-sensitive TB</th>
<th>MDR TB</th>
</tr>
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<tbody>
<tr>
<td>Cost per patient for OpASHA</td>
<td>$30</td>
<td>$400</td>
</tr>
<tr>
<td>Cost of medicine to patient</td>
<td>$90</td>
<td>2200</td>
</tr>
<tr>
<td>Leverage</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Return on investment per patient</td>
<td>$3375</td>
<td>$7875</td>
</tr>
<tr>
<td>SROI: On OpASHA’s investment</td>
<td>11,250%</td>
<td>3,937%</td>
</tr>
<tr>
<td>Total investment</td>
<td>$135</td>
<td>$2,740</td>
</tr>
<tr>
<td>SROI: on total investment by all partners</td>
<td>2,500%</td>
<td>310%</td>
</tr>
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Our Work in MDR TB

- Started treating MDR-TB patients in March 2009, in collaboration with RNTCP
- 17 patients enrolled so far
- 2 patients (both girls, 15 and 16 years) completed treatment in March 2011 with minor side effects
- Utilizing the OpASHA pipeline and community based model to deliver MDR-TB treatment
- Challenges faced
  - adherence because of long duration of therapy
  - intensive counseling needed, several hours every 2-3 month
  - frequent blood and sputum tests
  - daily injections for 6 months
- Lessons learnt
  - have a patient friendly approach
  - A patient friendly model
  - Understand the psyche of patients and families
  - **Intensive counseling** is the hallmark of successful MDR TB treatment
Economics of TB treatment

• Investment by the Global Fund:
  - 17% of total grants given by the Global Fund go towards TB
• Investments by governments:
  - Minimal
• Result: **Catastrophic**
  - Will not meet the target of eradicating TB by 2050
Full implementation of Global Plan: 2015 MDG target reached but TB not eliminated by 2050

- Elimination 16%/yr
- Global Plan 6%/yr
- Current trajectory 1%/yr

Current rate of decline
Aggressive Cost Containment:-

• Innovative use of technology
• follow established low-cost high impact community driven models
• Add MDR-TB treatment to DS-TB treatment, utilizing the community model, encourage public private partnerships to take up the challenge of MDR-TB treatment

Role of Governments: (inflexible, large bureaucracy)
Maybe hand over field work to all of us!
• Must encourage NGOs to deliver treatment, especially in challenging areas i.e. in urban slums, villages, mountainous areas, to indigenous people, and hard to reach areas like Siberia and Roma settlements in Europe

For NGOs:
• Absolute transparency and accountability

• Think - Who will bear the cost?
• Provide sustainable solutions
“Whatever you do,
To the least of My brothers,
That you do unto Me.”

The Holy Bible