

Dramatic Results in treatment of tuberculosis: Building an effective, scalable and replicable model

Presented by:
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Presented at:

Seventh International Conference:

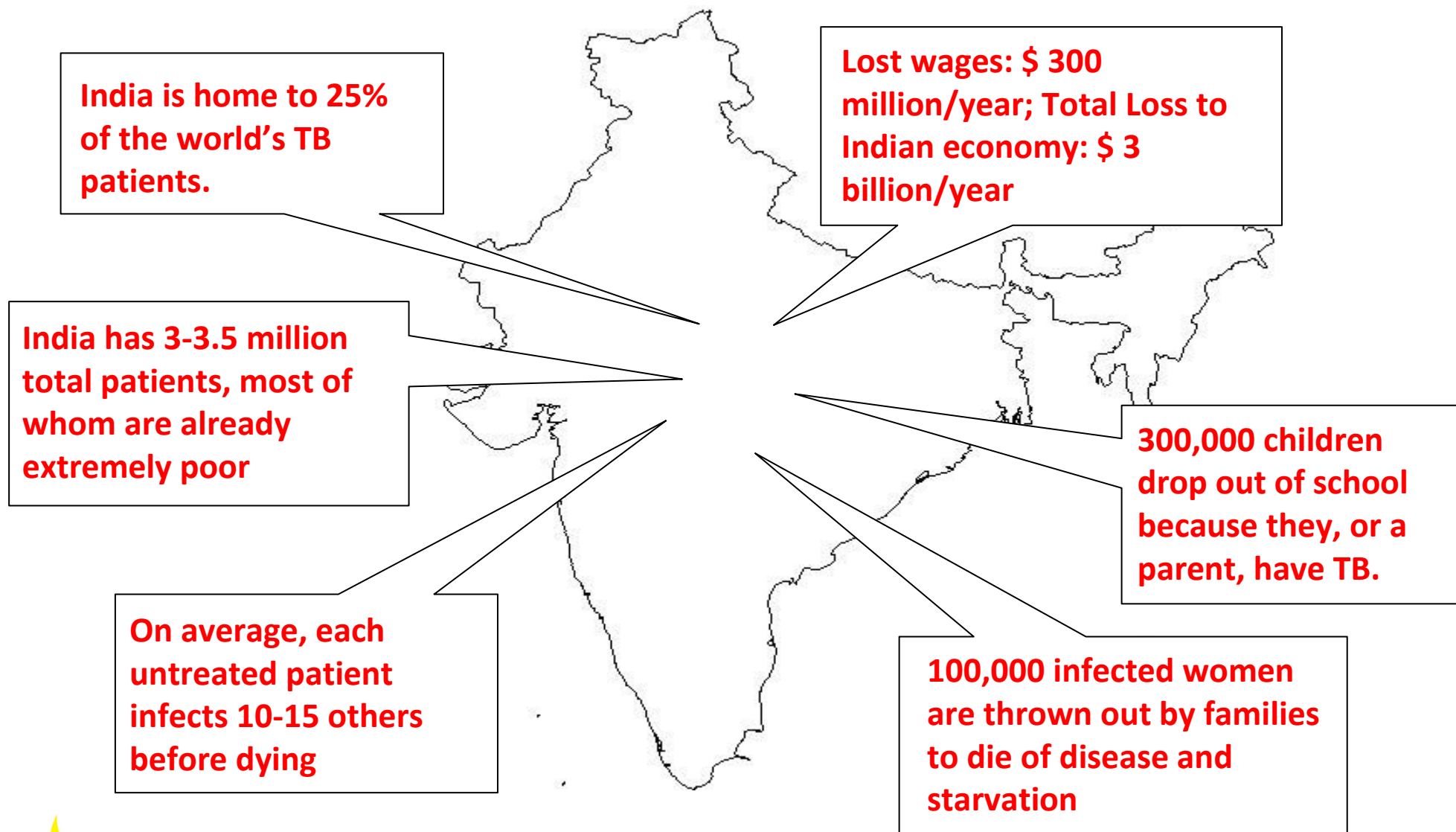
***Finding Innovative Strategies to Alleviate Poverty
and Mitigate Climate Change in India***

**Organized by India Development Coalition of America
held in Chicago, from October 31- November 1, 2009**



Operation ASHA
Fighting Tuberculosis in India

TB : The biggest health crisis confronting India

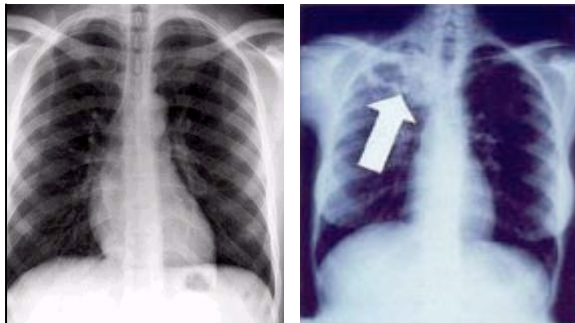


TB: A brief introduction

TB (Pulmonary Tuberculosis) is a bacterial infection that “punctures” the lungs

Healthy Infected

Chest X-Ray



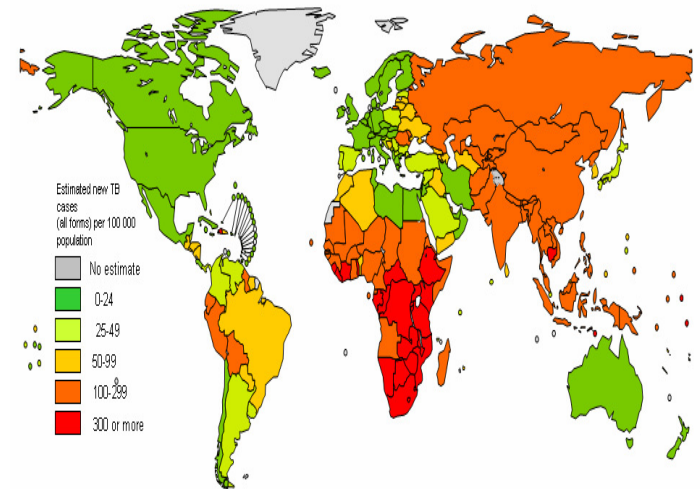
Lung Cross-Section



It is an airborne disease, and is usually transmitted through sneezing, coughing, spitting etc.

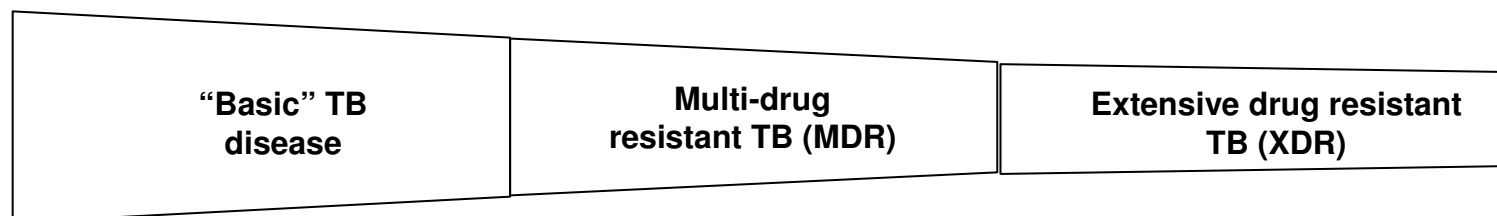


There are almost 25 million people around the world with active TB, concentrated in Asia and Sub-Saharan Africa



TB: A brief introduction (Contd.)

Types of TB

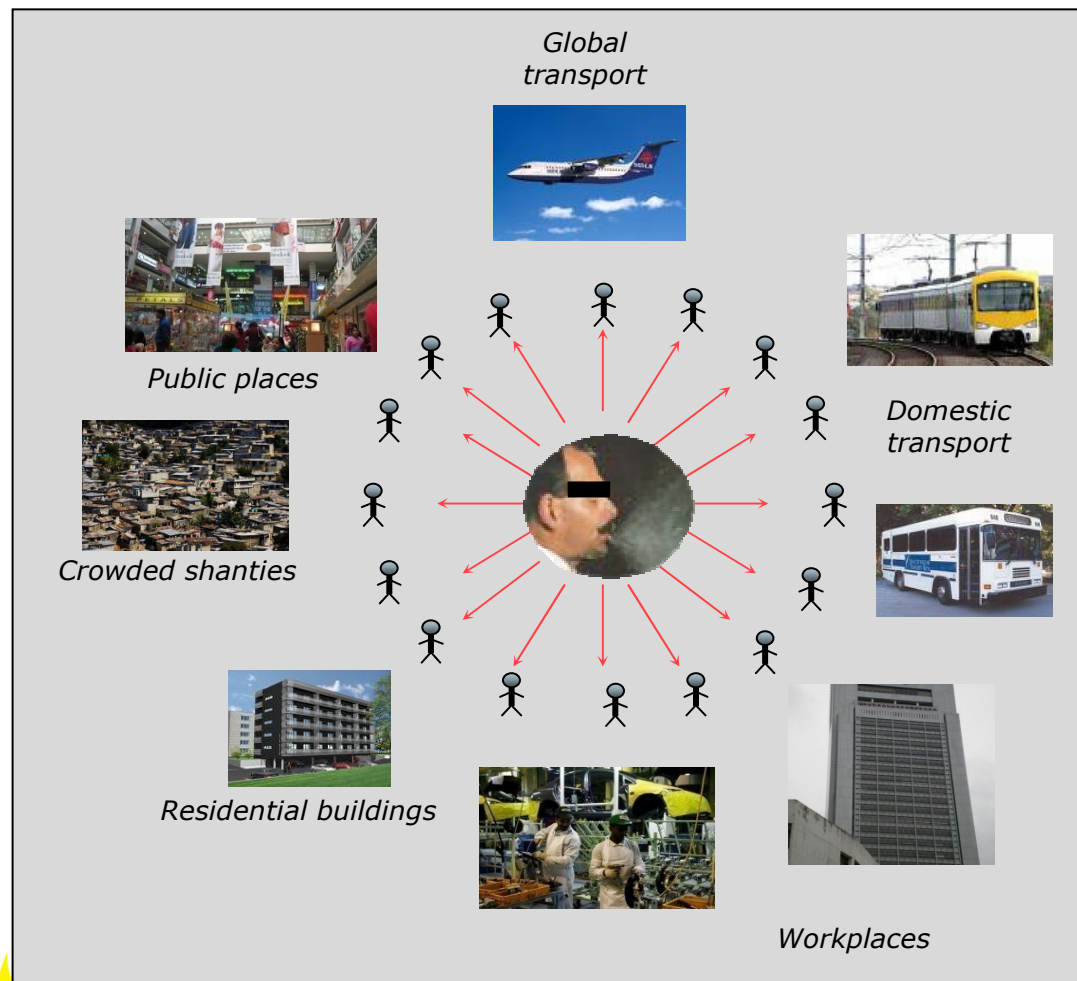


Description	"Basic" TB disease	Multi-drug resistant TB (MDR)	Extensive drug resistant TB (XDR)
Description	<ul style="list-style-type: none"> Occurs to LTBI carriers with immune deficiency Patient under treatment infectious for 3-4 weeks Untreated patient infects 10-15 others 	<ul style="list-style-type: none"> Occurs to patients not complying with protocol Resistant to the two first-line antibiotics MDR can be just as infectious as the basic TB 	<ul style="list-style-type: none"> Highly virulent strain, resistant to three or more of the six second-line drugs Virtually untreatable
Primary cause	<ul style="list-style-type: none"> Exposure to patient 	<ul style="list-style-type: none"> Failure to treat "basic" TB 	<ul style="list-style-type: none"> Failure to treat MDR-TB
Num. patients worldwide (vs. India)	<ul style="list-style-type: none"> 13 MM total (3-3.5 MM) 8 MM new cases annually (2 MM) 	<ul style="list-style-type: none"> 5-10% of basic TB cases (150-300,000) 	<ul style="list-style-type: none"> 20-25% of MDR cases
Mortality rate	<ul style="list-style-type: none"> 5-10% 6-9 month program of two main antibiotics 	<ul style="list-style-type: none"> 80% Cocktail of up to 6 second-line drugs 	<ul style="list-style-type: none"> Virtually 100% N/A (virtually untreatable)
Treatment/cost per patient	<ul style="list-style-type: none"> Rs. 15,000 (often subsidized) 	<ul style="list-style-type: none"> Rs. 575,000 (most patients in poor countries die) 	



TB is highly contagious, and threatens more people as mobility increases

Each TB patient typically infects 10-15 others



- **Single sneeze from infected individual releases 40,000 aerosol droplets; each droplet can transmit TB**
- **TB is leading killer of vulnerable populations (e.g., women of reproductive age), and leading cause of death among HIV/AIDS patients**
- **In industrialized countries, about half of the TB cases occur in individuals traveling to/from countries with higher prevalence**

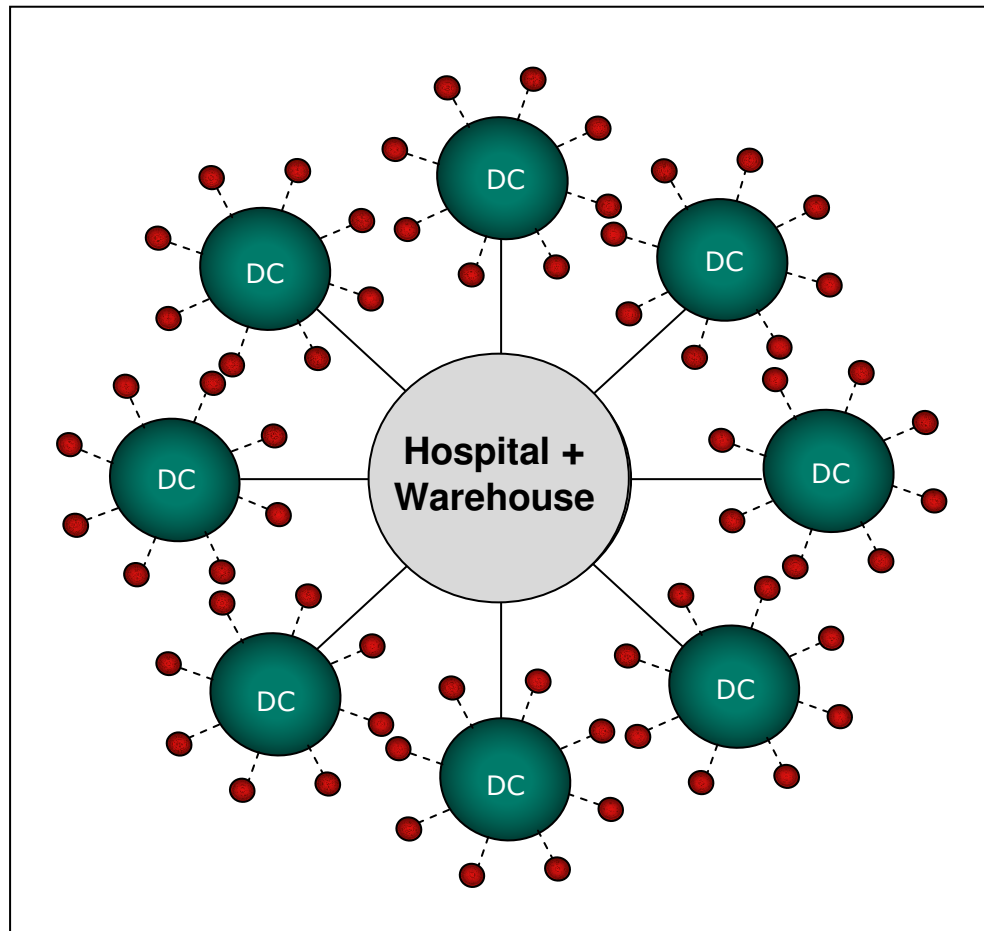
An effective TB program requires

- Preventing spread to others
- Treating patients fully, thereby preventing drug resistance



Government model provides medication and facilities, but breaks down in the “last mile” connectivity 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

Operation ASHA employs an innovative 13-point model to tackle the “last mile” connectivity for urban slums

13 elements of ASHA’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
 - A grant two years after the patient is enrolled for treatment.



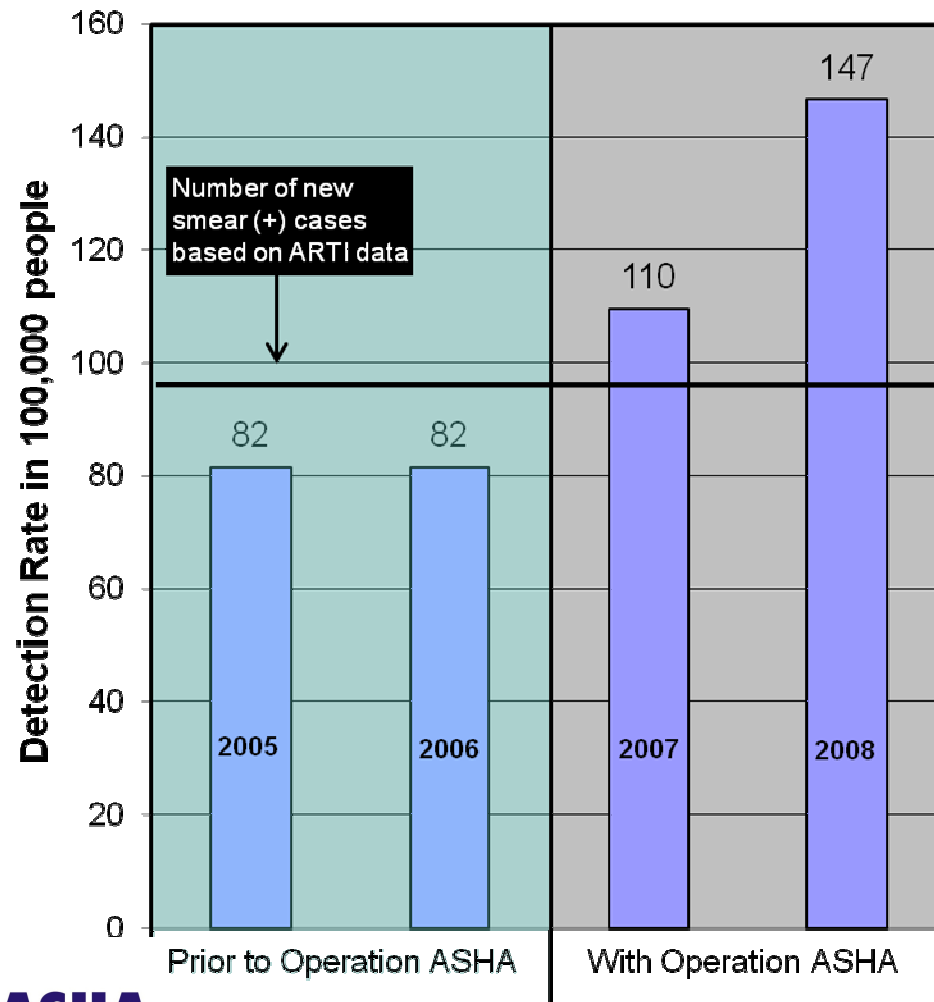
Operation ASHA employs an innovative 13-point model to tackle the “last mile” connectivity for urban slums (Contd.)

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



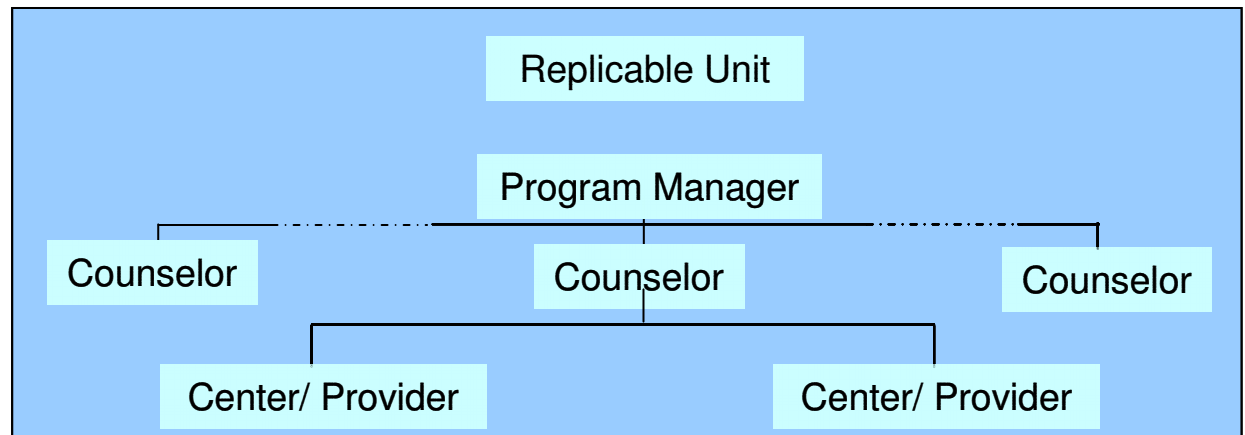
Results: Higher detection rates

Annual Detection Rate of New Sputum + Cases
South Delhi



Operation ASHA employs an innovative 13-point model to tackle the “last mile” connectivity for urban slums (Contd.)

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. Highly effective Performance-based remuneration.
8. Robust feedback loop involving government officers from field level to state level to ensure proper adherence to duty by our staff.
9. Stringent quality control by external auditors.

Results:	<u>Operation Asha</u>	<u>Other Organizations</u>
Default Rate	2%	Up to 60%
Treatment Success Rate: Sputum smear (+)	91%	85%



Operation ASHA employs an innovative 13-point model to tackle the “last mile” connectivity for urban slums (Contd.)

10. Low-cost, highly leveraged operating model so that cost of full treatment (7-month course) only Rs. 750 per patient

Results: Significantly lower cost per patient and higher “SROI”

	<u>Operation ASHA</u>	<u>Other NGOs</u>
Cost per patient	USD 15	USD 300
Leverage	25	2-3
SROI: On NGO’s investment	12,500%	600%
SROI: on total investment by all partners	500%	300%

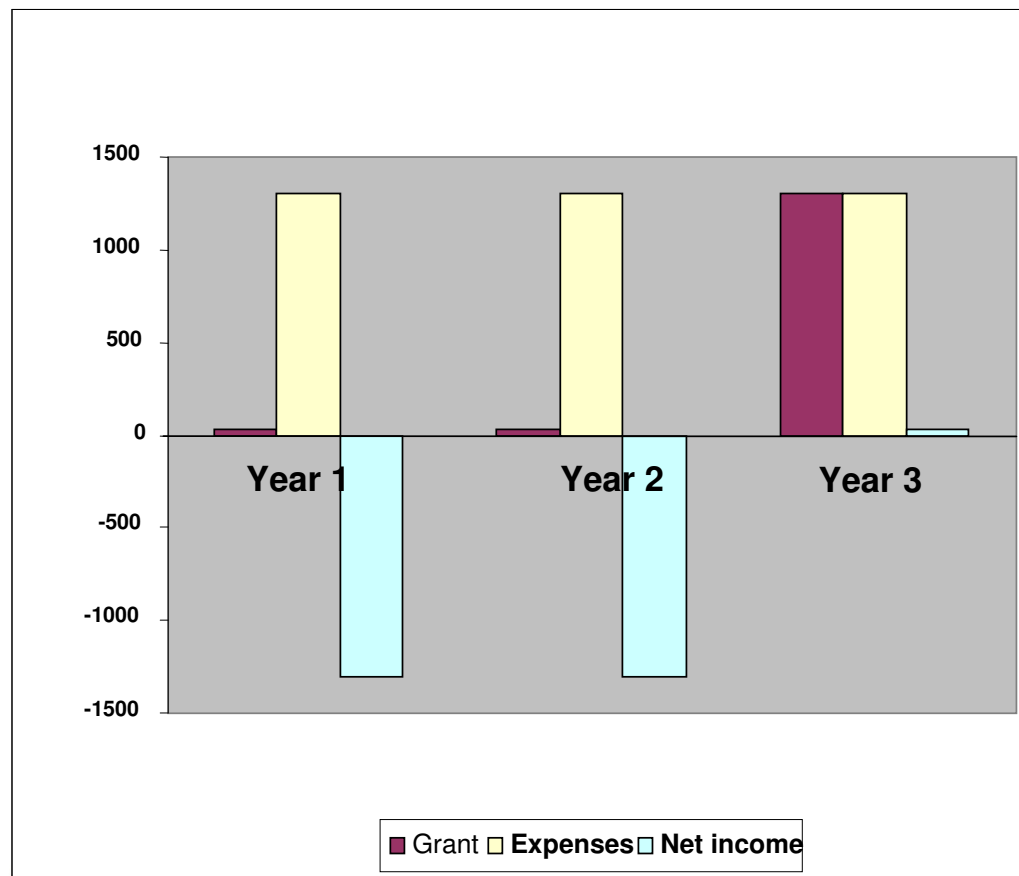
Assumptions: TB treatment leads to increase in productivity, which in turn raises annual income by \$150; it also saves Rs. \$1,500 in indirect expenses to the economy*; Discount rate = 8%



Each Center will become self-sustaining after 2 years, thanks to a Govt. of India program

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

Annual cost of operating one center (85-90 patients) incurred by Operation ASHA: years 1,2 and beyond



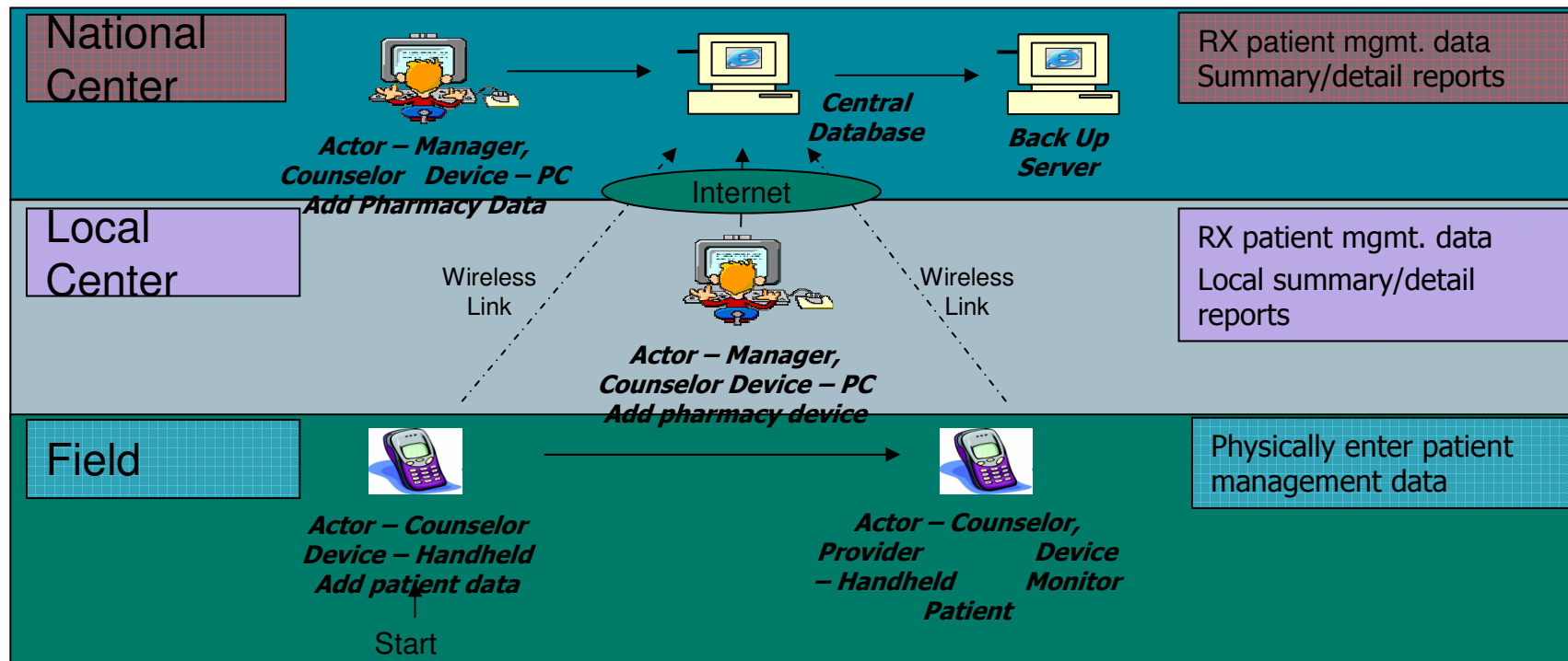
The Government of India awards grant of \$15 per successfully treated patient, two years after completion of treatment



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12. Biometric devices for automated compliance tracking (to be deployed)

Result: With state-of-the-art compliance-tracking, we expect a 0% default rate, thus eliminating Drug-Resistant TB, which is almost fatal



Operation ASHA employs an innovative 13-point model to tackle the “last mile” connectivity for urban slums (Contd.)

13. Process-based franchise-like operation with detailed manuals.

Result: Rapid replication

Replication done in

- South Delhi (13 centers operating)
- Moradabad (6 centers operating)
- Sambhal (2 centers operating)
- East Delhi (3 centers operating)
- West Delhi (2 centers operating)
- Gurgaon (1 center operating)
- Ludhiana (3 centers operating)
- Alwar (1 center operating)

Proposed

Jalandhar -4

Amritsar – 4

Alwar – 3

Bhiwadi – 2

Gurgaon – 3

Panipat – 3

Karnal – 3

Ambala -3

Kurukshetra - 3



Replication of Operation ASHA model by eminent NGOs

- Ongoing Work:
 - ✓ David Bloom, Chairman, Population Studies and International Health Department at Harvard is replicating our model in Mumbai.
 - ✓ Prajnopaya Foundation, Boston, USA (of which the Chief Patron is Nobel Laureate His Holiness the Dalai Lama: Operation ASHA will do the work in areas selected by Prajnopaya.
- In pipeline:
 - ✓ Jeffrey Sachs, chair of the United Nations' Millennium Development Goals Committee (of which TB eradication is a part), was all praises for our work. He is keen to replicate our model in urban slums in Africa.
 - ✓ Richard Cash, Professor at Harvard School of Public Health, who works with BRAC (Bangladesh Rural Action Committee) is interested in adopting elements of our model to help BRAC deliver better results in urban slums. (BRAC is one of the largest TB control NGO in the world with population coverage exceeding 10 million)
- Future Plan: Operation ASHA will establish a training academy in New Delhi. Here, its leaders will train leaders and managers from other developing countries on replicating our model.



Victory unto Victory

“Operation ASHA is one of the best three public health care models in the world.”

*Dr. Barry Bloom
Dean, Harvard School of Public Health*

"I have seen Operation ASHA's centers in Delhi. Their work is truly remarkable. May this serve as an inspiration to reach an even larger number of persons in need."

*Dr. Ken Castro, MD
US Assistant Surgeon General, Division of Tuberculosis Elimination*

"I found Operation ASHA's work fascinating and excellent, and hope that it can expand as quickly as possible."

*Dr Mario C. Raviglione
Director, Stop TB Partnership, World Health Organization*

"It's commendable and inspirational that you've chosen to work in such a challenging and needy environment."

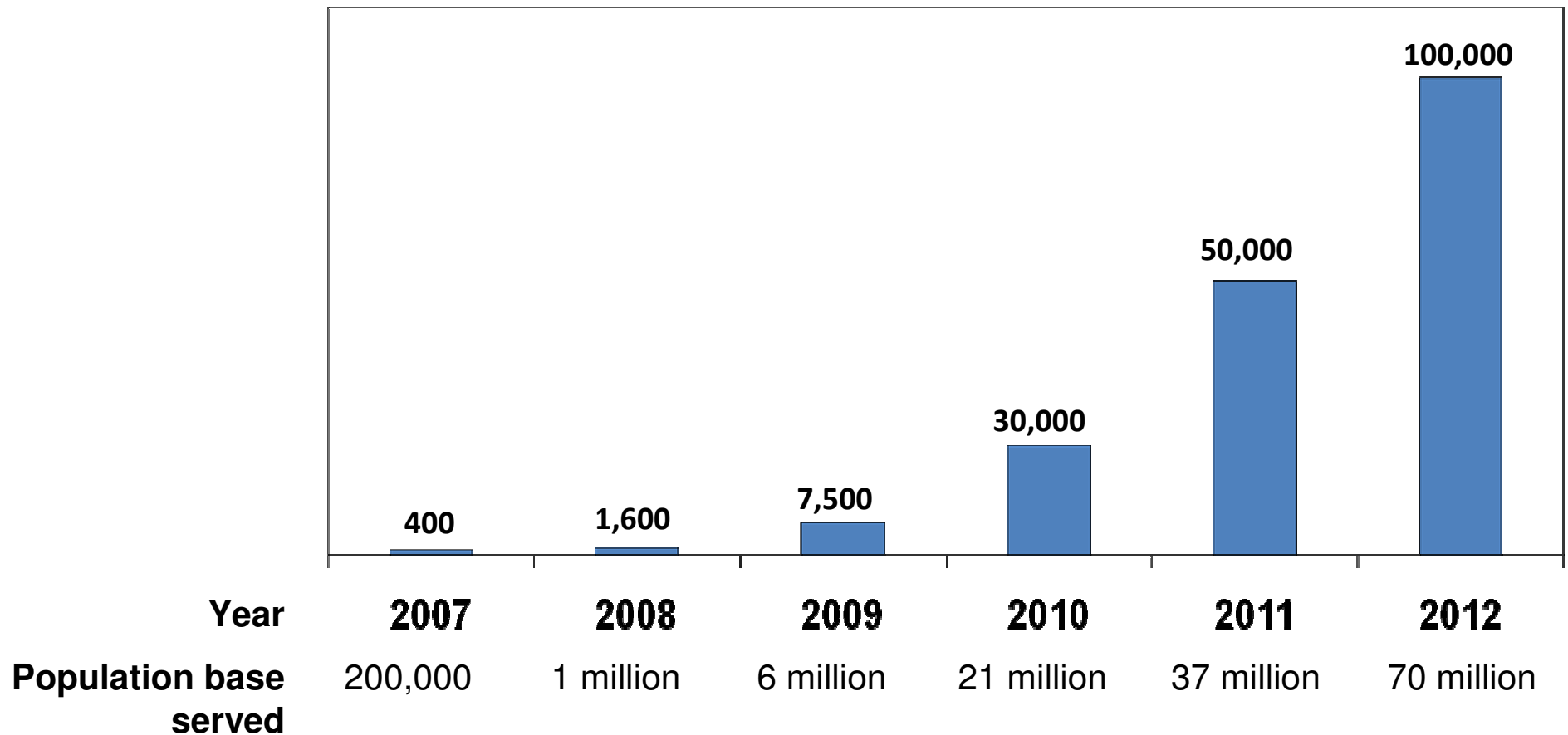
*Robin Mardeusz
Health Development Officer, USAID
New Delhi, India*



Operation ASHA
Fighting Tuberculosis in India

After two very successful years, we plan to aggressively expand and treat 100,000 patients by 2012

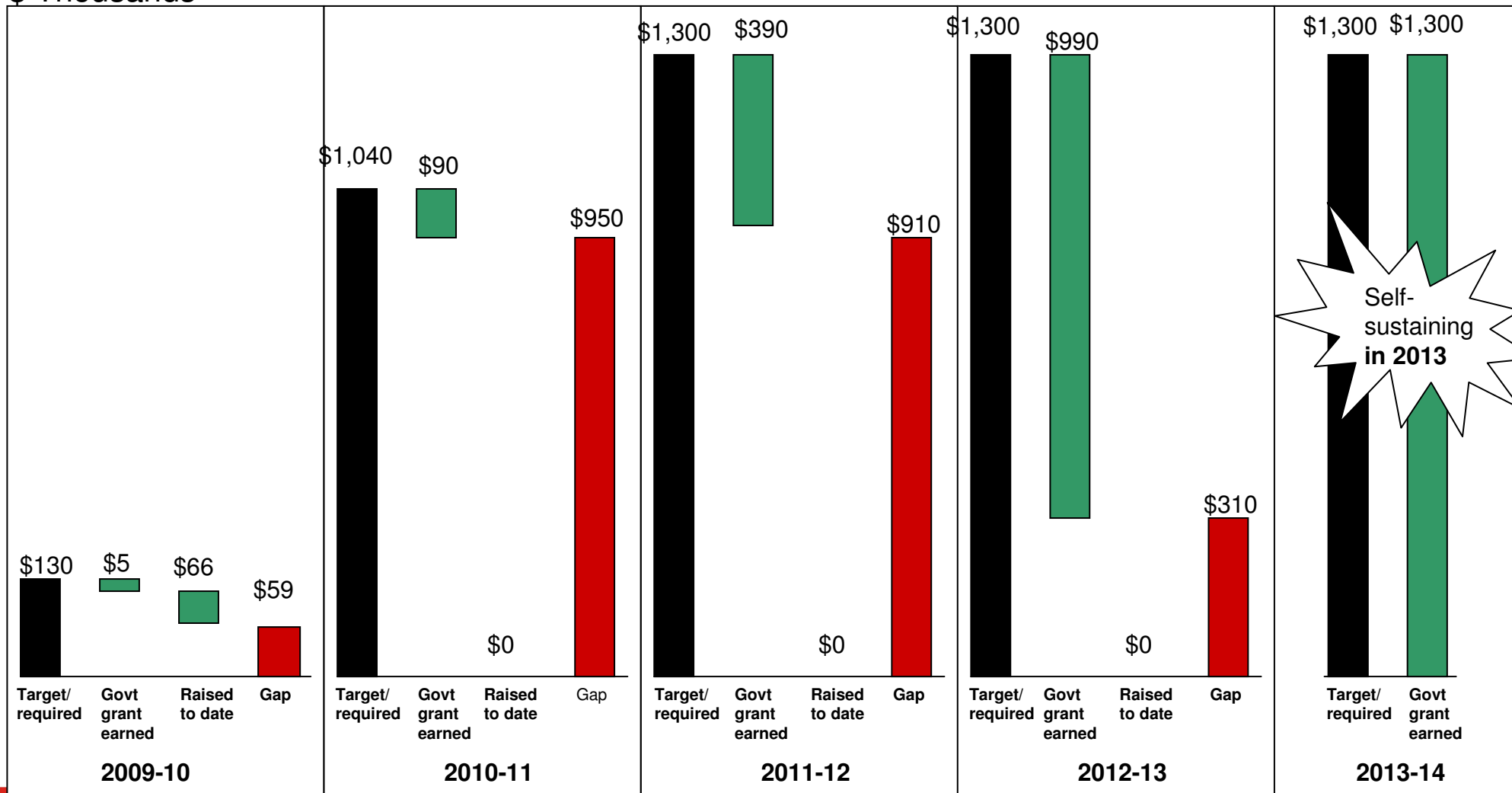
Total number of Enrolled Patients



We will become self-sufficient by 2013, but have significant funding needs in the interim



Funding Requirements, net of government grants and commitments to date
\$ Thousands



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