Zero TB Cities: Karachi Update

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Executive Director, IRD
Zero TB CITIES is a global initiative targeted at creating “islands of elimination” with strong local ownership in high burden settings.

Zero TB implements evidence-based Search, Treat & Prevent approaches from around the world shown to be successful in controlling TB.
Zero TB Cities and districts – Current, new and potential:

Almaty, Kazakhstan**
Balti, Moldova
Chennai, India
Dhaka, Bangladesh*
Geissen, Germany
Hai Phong, Vietnam
Hanoi, Vietnam
Ho Chi Mihn City, Vietnam
Indore, India**
Karachi, Pakistan
Kathmandu, Nepal**
Kano, Nigeria**
Kisumu, Kenya
** Lagos, Nigeria **
Lima (Carabayllo), Peru
Manila, Philippines**
Melbourne, Australia**
Mexicali, Mexico
Mtata, South Africa**
Mumbai, India**
Muscat, Oman**
Odessa, Ukraine
Pattaya, Thailand**
Peshawar, Pakistan
Quetta, Pakistan**
Shenzhen, China*
Sofia, Bulgaria**
Tbilisi, Georgia**
Ulaanbaatar, Mongolia
Vladimir, Moscow

* First of multiple cities planned
** Discussions of alignment underway
Pakistan’s Zero TB Initiative
Global Fund Support
2016-2017 USD 40m – Zero TB Karachi +32 districts
2018-2020 USD 40m – Zero TB Karachi, Peshawar, Quetta + 32 districts
2 Zero TB Cities / 22 districts
~1200 staff
> 3 million symptom screened
>950,000 CXR screened
>61,000 Cases notified
55 mobile x-ray vans
Public Health Facilities  
Not-for-Profit (Private Sector)  
Zindagi Centers (Private Sector)
Public Health Facilities

1 PMDT Site
7 Childhood TB Management Sites
3 Comorbidities Management Sites
2 Post Exposure Treatment Sites
300+ Dedicated Field & Medical Personnel across all sites
18 FAST Sites
60 NTP Reporting Sites
320 UVGI Lights
8 Mobile X-ray Digital Vans
27 GeneXpert Machines
2 Dedicated Call Center
Not-for-Profit (Private Sector)

- 6 Private Hospitals
- 80 UVGI Lights
- 1 CT Scan
- 4 Mobile X-ray Digital Vans
- 2 Fixed Digital X-rays
- 8 GeneXpert Machines
- 3 Childhood TB Management Sites
- 3 Comorbidities Management Sites
- 1 Post Exposure Treatment Sites
- 100+ Dedicated Field & Medical Personnel across all sites
Zindagi Centers

- 23 Zindagi Satellite Sites
- 8 Main Zindagi Centers
- 1 Post Exposure Treatment Site
- 8 Mobile X-ray Digital Vans
- 8 Fixed Digital X-rays
- 11 GeneXpert Machines
- 150 UVGI Lights
- 40 Medical Reps
- 1,100 Private Health Providers
- 40 Counselors

Dedicated Call Center

Central Diagnostic Laboratory

TB ZERO TB
Spread the word!
Do not take 2 weeks of cough lightly!
Visit your nearest public and private hospital or Sehatmand Zindagi Centre today for free TB testing and Treatment!
#AaoTBMitao #TB

Spread the word!
Give treatment to people fighting TB - instead of punishment!
Do not take 2 weeks of cough lightly!
Visit your nearest public and private hospital or Sehatmand Zindagi Centre today for free TB testing and Treatment! ...
See More

Spread the word!
Do not take 2 weeks of coughing lightly!
Visit your nearest public, private hospital or Sehatmand Zindagi Centre for free TB testing and treatment in Karachi, Pakistan!
#AaoTBMitao
STOP TWO MINUTES TO SAVE YOUR LIFE
Free CHEST X-RAYS for TUBERCULOSIS
NO DISROBING NECESSARY
Social Enterprise Scale-up in Pakistan (2017-Current)

61
Newly designed & branded centers in 27 districts and 3 Provinces

28
Additional centers setup as part of Zero TB Karachi
GeneXpert Cartridge Use
Karachi Zero TB sites 2014 - 2018

Number of GeneXpert Tests

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
</table>
### Comparing Case Finding Approaches for Adults (Karachi) (Jan 2018 – Dec 2018)

<table>
<thead>
<tr>
<th>Cascade</th>
<th>Indus (Hospitals)</th>
<th>Indus (Community)</th>
<th>CHS (Community)</th>
<th>Indus+CHS* (Jail)</th>
<th>Indus+CHS* (Factory)</th>
<th>CHS (GPs)</th>
<th>Indus (Contacts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>197,346</td>
<td>86,622</td>
<td>111,909</td>
<td>10,071</td>
<td>10,221</td>
<td>41,276</td>
<td>5,069</td>
</tr>
<tr>
<td>Presumptive</td>
<td>17,839</td>
<td>6,147</td>
<td>9,584</td>
<td>597</td>
<td>686</td>
<td>5,174</td>
<td>-</td>
</tr>
<tr>
<td>B+ve (Rif+ Included)</td>
<td>1,708</td>
<td>396</td>
<td>172</td>
<td>23</td>
<td>5</td>
<td>57</td>
<td>16</td>
</tr>
<tr>
<td>Cases</td>
<td>2,332</td>
<td>475</td>
<td>669</td>
<td>106</td>
<td>13</td>
<td>283</td>
<td>49</td>
</tr>
<tr>
<td>Yield from presumptive</td>
<td>13%</td>
<td>8%</td>
<td>7%</td>
<td>18%</td>
<td>2%</td>
<td>6%</td>
<td>-</td>
</tr>
<tr>
<td>Yield from screened</td>
<td>1.2%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>1%</td>
<td>0.1%</td>
<td>0.7%</td>
<td>1%</td>
</tr>
<tr>
<td>NNS</td>
<td>85</td>
<td>182</td>
<td>167</td>
<td>95</td>
<td>786</td>
<td>146</td>
<td>103</td>
</tr>
</tbody>
</table>
Karachi: All Forms TB Notifications
2008 – 2018*

*Q4 2018 numbers are self counted from TB03 registers
Zero TB Karachi: Childhood TB as a Proportion of All Forms Case Notifications
2010 – 2018

*Q4 2018 numbers are self counted from TB03 registers*
<table>
<thead>
<tr>
<th>Screening Type</th>
<th>Zero TB Karachi</th>
<th>Lahore</th>
<th>Zero TB Peshawar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>212,132</td>
<td>81,705</td>
<td>36,966</td>
</tr>
<tr>
<td>Presumptive</td>
<td>13,631 (6%)</td>
<td>3,997 (5%)</td>
<td>2,909 (8%)</td>
</tr>
<tr>
<td>TB Diagnosed</td>
<td>1,568 (12%)</td>
<td>758 (19%)</td>
<td>297 (14%)</td>
</tr>
</tbody>
</table>

Karachi, Lahore, Peshawar: Childhood TB Program
July 1, 2016 – June 30, 2018
<table>
<thead>
<tr>
<th>Drug Susceptible TB</th>
<th>Drug Resistant TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTACTS EVALUATED</td>
<td></td>
</tr>
<tr>
<td>7,917</td>
<td>1,701</td>
</tr>
<tr>
<td>DIAGNOSED WITH TB</td>
<td></td>
</tr>
<tr>
<td>1,701</td>
<td>10</td>
</tr>
<tr>
<td>STARTED PREVENTATIVE TREATMENT</td>
<td></td>
</tr>
<tr>
<td>3,440</td>
<td>738</td>
</tr>
<tr>
<td>COMPLETED PREVENTATIVE TREATMENT</td>
<td></td>
</tr>
<tr>
<td>1,348</td>
<td>349</td>
</tr>
</tbody>
</table>
# Post Exposure Treatment Outcomes
**Oct 2016 – Feb 2018**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>6 Months INH</th>
<th></th>
<th>3HP</th>
<th></th>
<th>Grand Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Started on Treatment</td>
<td>875</td>
<td>100</td>
<td>1589</td>
<td>86</td>
<td>2464</td>
<td>91%</td>
</tr>
<tr>
<td>Outcome Available</td>
<td>875</td>
<td>100</td>
<td>1369</td>
<td>86</td>
<td>2244</td>
<td>91%</td>
</tr>
<tr>
<td>Treatment Completed</td>
<td>423</td>
<td>48</td>
<td>974</td>
<td>61</td>
<td>1397</td>
<td>57%</td>
</tr>
<tr>
<td>Not Completed Tx</td>
<td>442</td>
<td>51</td>
<td>382</td>
<td>24</td>
<td>825</td>
<td>33%</td>
</tr>
<tr>
<td>PET Stopped by Doctor</td>
<td>2</td>
<td>0.2</td>
<td>9</td>
<td>0.6</td>
<td>11</td>
<td>0.4</td>
</tr>
<tr>
<td>Shifted to another city</td>
<td>4</td>
<td>0.4</td>
<td>4</td>
<td>0.3</td>
<td>8</td>
<td>0.3</td>
</tr>
<tr>
<td>Diagnosed with Disease after Started on Tx</td>
<td>4</td>
<td>0.4</td>
<td>0</td>
<td>-</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Treatment Completion Rate</td>
<td>48%</td>
<td></td>
<td>71%</td>
<td></td>
<td>62%</td>
<td></td>
</tr>
</tbody>
</table>

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Image: IRD logo and TB icon.
Preventive Treatment Coverage in Korangi 2018

Total Notifications in Korangi Town: 3322

- Families Screened: 1341 (40%)
- Families with minimum 1 contact on Preventive Treatment: 741 (22%)
Korangi Town: All Ages All Forms Notifications
2010 – Q4* 2018

Stop TB Partnership
TB REACH
Unitaid
The Global Fund

20% decrease in notifications reported from Korangi Town

Korangi Town includes 5 BMUs: Indus Hospital, SZC Korangi, SGH Korangi, Sindh Anti TB Association, and Baldia Maternity Home

*Q4 includes only self counted numbers from high volume sites in Karachi
Korangi Town: All Forms Notifications of 3 High Volume BMUs
2008 – Q4* 2018

- In 2018: site contributed to 59% of Korangi’s total notifications
  - 17% decrease in all forms notifications from 2017
  - 9% decrease in B+
  - 59% decrease in B-
  - 17% increase in EPTB

- In 2018: site contributed to 23% of Korangi’s total notifications
  - 38% decrease in notifications from 2017
  - 33% decrease in B+
  - 41% decrease in B-
  - 46% decrease in EPTB

- In 2018: site contributed to 16% of Korangi’s total notifications
  - 13% increase in notifications from 2017
  - 14% decrease in B+
  - 50% increase in B-
  - 40% increase in EPTB

Korangi Town includes 5 BMUs: Indus Hospital, SZC Korangi, SGH Korangi, Sindh Anti TB Association, and Baldia Maternity Home
*Q4 includes only self counted numbers from high volume sites in Karachi
Indus Hospital: All Forms Notifications and Proportion of Korangi Residents
2008 – 2018

Notifications

Korangi Town Residents
Other Town Residents
% of Korangi Residents

Proportion of Korangi Residents

76% 68% 61% 57% 48% 45% 43% 43% 43% 40% 39%

0% 10% 20% 30% 40% 50% 60% 70% 80%
ZeroTB Interventions in Korangi: Number of CXRs and NNS (GHD&CHS) Q1 2017 – Q4 2018

<table>
<thead>
<tr>
<th></th>
<th>CXRs</th>
<th>NNS (All Forms)</th>
<th>NNS (B+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 Q1</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2017 Q2</td>
<td>8,294</td>
<td>25</td>
<td>47</td>
</tr>
<tr>
<td>2017 Q3</td>
<td>18,639</td>
<td>39</td>
<td>97</td>
</tr>
<tr>
<td>2017 Q4</td>
<td>21,909</td>
<td>62</td>
<td>137</td>
</tr>
<tr>
<td>2018 Q1</td>
<td>21,004</td>
<td>65</td>
<td>91</td>
</tr>
<tr>
<td>2018 Q2</td>
<td>16,251</td>
<td>56</td>
<td>82</td>
</tr>
<tr>
<td>2018 Q3</td>
<td>19,293</td>
<td>67</td>
<td>89</td>
</tr>
<tr>
<td>2018 Q4</td>
<td>23,749</td>
<td>92</td>
<td>117</td>
</tr>
</tbody>
</table>

NNS: # of CXRs/# of cases

ZTB Interventions include GHD performed CXRs (community and facility), CHS run community camps and CHS center CXRs
<table>
<thead>
<tr>
<th>Town</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bin Qasim Town</td>
<td>1.23</td>
</tr>
<tr>
<td>Orangi Town</td>
<td>0.93</td>
</tr>
<tr>
<td>Shah Faisal Town</td>
<td>0.89</td>
</tr>
<tr>
<td>Gulshan Town</td>
<td>0.82</td>
</tr>
<tr>
<td>Baldia Town</td>
<td>0.70</td>
</tr>
<tr>
<td>Landhi Town</td>
<td>0.70</td>
</tr>
<tr>
<td>Gadap Town</td>
<td>0.68</td>
</tr>
<tr>
<td>S.I.T.E. Town</td>
<td>0.63</td>
</tr>
<tr>
<td>Jamshed Town</td>
<td>0.60</td>
</tr>
<tr>
<td>New Karachi Town</td>
<td>0.53</td>
</tr>
<tr>
<td>Saddar Town</td>
<td>0.52</td>
</tr>
<tr>
<td>Liaqatabad Town</td>
<td>0.47</td>
</tr>
<tr>
<td>Kemari Town</td>
<td>0.45</td>
</tr>
<tr>
<td>North Nazimabad Town</td>
<td>0.43</td>
</tr>
<tr>
<td>Korangi Town</td>
<td>0.42</td>
</tr>
<tr>
<td>Malir Town</td>
<td>0.37</td>
</tr>
<tr>
<td>Lyari Town</td>
<td>0.30</td>
</tr>
<tr>
<td>Gulberg Town</td>
<td>0.29</td>
</tr>
</tbody>
</table>
1. Estimate the prevalence of culture-confirmed (diagnosed and undiagnosed) pulmonary TB in adults in 3 districts in Karachi
2. Estimate the annual risk of *Mycobacterium tuberculosis* infection in children aged 2-4 years in 3 districts in Karachi
3. Assess the feasibility of using IGRAs on a large scale in a low-income setting
Adolescent & Health Leadership Course

Communication Skills

Leadership

Community based intensified case finding for disease

Self Awareness

Planning

Health
I AM CHANGING LIVES
by leading Karachi’s war on TB

Rabia Maniar
Program Manager
I AM CHANGING LIVES
by treating the sickest patients

Maria Fakhar
Doctor
I AM CHANGING LIVES
by designing mobile apps for health

Maimoona Kausar
Software Developer
I AM CHANGING LIVES
by generating evidence for what works

Palwash Khan
Clinical Researcher
## Notifications by Partner under IHN Grant
### Q4 2016 – Q3 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>PR</th>
<th>SR: CHS</th>
<th>SR: GSM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 (only Q4)</td>
<td>1,256</td>
<td>562</td>
<td></td>
<td>1,818</td>
</tr>
<tr>
<td>2017</td>
<td>8,372</td>
<td>7,626</td>
<td></td>
<td>15,998</td>
</tr>
<tr>
<td>2018 (until Q3)</td>
<td>7,565</td>
<td>14,234</td>
<td>21,882</td>
<td>43,681</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17,193</td>
<td>22,422</td>
<td>21,882</td>
<td>61,497</td>
</tr>
</tbody>
</table>