Community case finding for TB: Approaches and Outcomes

Helen Ayles
ZAMBART Project
On behalf of ZAMSTAR Study Team
Burden of Undiagnosed TB

HIV prevalence 26%, TB prevalence 960/100,000
Clinic with DOTS programme
A community randomized trial of two interventions delivered to ~1,200,000 people while strengthening the existing health systems.
Enhanced Case Finding

• 3 linked strategies
  – Community mobilisation intervention: information, education and sputum collection points
  – Schools intervention: education so that message can be disseminated from children to community
  – Open Access sputum collection points at the clinic

• 2 guiding principles
  – Every person in the community should be able to give a sputum sample within 30 minute walk of their home
  – Results should be available within 48 hours
Burden of Undiagnosed TB

- Community interventions
- Open access

- TB suspect
- Sought help
- asked for sputum
- Gave sample
- Got result
- TB
- Started on TB treatment
Community Mobilisation

> 1000 Drama performances
> 60,000 IEC materials distributed per year
Sports events
Megaphones, door-to-door leafleting
ECF – Open Access/fast Track

- Visible spot or advertising within health centre
- Avoids queuing and waiting rooms
  - Additional benefit as triage for infection control
- Anecdotal switch from community to open access (Zambia)
- Slightly different model in SA- remote labs
ECF - Schools

• 71 schools involved in programme
• Raise TB awareness in schools
  – Making use of drama and educational theatre
  – Drawing/colouring, quizzes,
  – Debates, competitions
  – Anti TB (AIDS) Clubs
• Encourage children to take message to community about sputum collection points in the community and at clinic
Can Children be useful in Community case finding?

- Rapid participatory approach
- 10 days in 3 Zambian ECF sites

<table>
<thead>
<tr>
<th></th>
<th>#</th>
<th>Age</th>
<th>Grade</th>
<th>Stay with parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>74</td>
<td>10-17</td>
<td>4-9</td>
<td>49</td>
</tr>
<tr>
<td>Girls</td>
<td>76</td>
<td>10-16</td>
<td>5-9</td>
<td>51</td>
</tr>
</tbody>
</table>

Participatory exercises in 6 schools (2 per site) with boys & girls (drawing, narratives, dice game, role plays, KII with parents & teachers)
Key Findings

• Knowledge of TB symptoms
  – Detailed knowledge of symptoms – most commonly mentioned: coughing (prolonged, with blood); chest pains; loss of weight; loss of appetite; night sweats. Occasionally used term ‘TB suspect’.

• Knowledge of TB transmission

• Knowledge of TB diagnosis
  – Familiar with: community referral to clinic if someone is coughing & sputum testing (detail of process – sputum bottles, lab technician, ZAMBART “sputum man”)

• Knowledge of TB treatment
Findings contd

• Faith in TB treatment
  – “If you are taking TB medication, [you will] start feeling better. You stop, you won’t get better or cured”, 8-12 year old children, workshop.

• Knowledge of TB-HIV link
  – Strong emphasis on difference between TB & HIV (e.g. HIV not associated with airborne transmission, coughing, being curable but associated with transmission through blood, sex, from mother-to-child, sharp instruments & considered more severe & incurable with more symptoms)
  – Not much emphasis on link between TB & HIV; some confusion about this and about ART (e.g. about length of treatment, whether a cure for HIV)
  – Children confused about ART e.g. “ARVs are a virus that causes disease – if ARVs enters you, you get HIV”, 8-12 year old children, workshop.
Response at Home

• “I also told my aunt…She complains that when she coughs there is blood in the sputum. When I was taught about TB and HIV, I knew my aunt was suffering from TB. I advised her to go to the clinic so her sputum can be examined. I also told her about the symptoms of TB” (15 year old boy, Shampande Basic)

• “When I tell my brother about TB, he shouts at me and tells me he doesn’t want me to tell him anything about TB. He shouts at me in anger” (Girl, 12 years, Ngungu). She then goes to tell her mother who listened and said it was good she was learning about this.
ECF – Overall Strategy Finds cases

- Data from laboratory registers
  - Able to compare usual route with ECF
  - Incomplete data as relies on routine system and many not recorded

<table>
<thead>
<tr>
<th></th>
<th>Zambia</th>
<th>SA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sputa</td>
<td>31458</td>
<td>18558</td>
<td>50016</td>
</tr>
<tr>
<td>Pos</td>
<td>3164</td>
<td>2756</td>
<td>5920</td>
</tr>
<tr>
<td>ECF</td>
<td>10683</td>
<td>4983</td>
<td>15666</td>
</tr>
<tr>
<td>Pos</td>
<td>798</td>
<td>441</td>
<td>1239</td>
</tr>
<tr>
<td>% found by ECF</td>
<td>33.96</td>
<td>26.85</td>
<td>31.32</td>
</tr>
<tr>
<td>% Pos found by ECF</td>
<td>25.22</td>
<td>16.00</td>
<td>20.93</td>
</tr>
</tbody>
</table>
## People come to ECF sites

<table>
<thead>
<tr>
<th></th>
<th>Zambia</th>
<th>South Africa</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>14,362</td>
<td>6,521</td>
<td>20,883</td>
</tr>
<tr>
<td>Community</td>
<td>5,269</td>
<td>5,395</td>
<td>10,664</td>
</tr>
<tr>
<td>Open Access</td>
<td>8,130</td>
<td>18</td>
<td>8,148</td>
</tr>
<tr>
<td>School</td>
<td>962</td>
<td>1,096</td>
<td>2,058</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

Data from ECF registers
What age group is attracted by ECF?

- Does not seem to attract the older population as much as the younger ones
- 53% males
Who comes?

- Although we would take sample from anyone >90% identified as TB suspect
- Only 29% had previously accessed clinic for their symptoms
## Who has TB?

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>N(%)</th>
<th>Adj OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>20,883</td>
<td>1,689 (8.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Country</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zambia</td>
<td>1037</td>
<td>(7.2%)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>652</td>
<td>(10%)</td>
<td>1.57</td>
<td>1.42-1.76</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>1077</td>
<td>(9.7%)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>611</td>
<td>(6.5%)</td>
<td>0.66</td>
<td>0.59-0.73</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;16</td>
<td>97</td>
<td>(4.2%)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>17-24</td>
<td>272</td>
<td>(8.9%)</td>
<td>2.41</td>
<td>1.90-3.08</td>
</tr>
<tr>
<td>25-34</td>
<td>632</td>
<td>(10.1%)</td>
<td>2.72</td>
<td>2.18-3.40</td>
</tr>
<tr>
<td>35-44</td>
<td>396</td>
<td>(8.8%)</td>
<td>2.15</td>
<td>1.71-2.72</td>
</tr>
<tr>
<td>45-60</td>
<td>199</td>
<td>(6.4%)</td>
<td>1.48</td>
<td>1.15-1.91</td>
</tr>
<tr>
<td>&gt;60</td>
<td>48</td>
<td>(4.9%)</td>
<td>1.20</td>
<td>0.84-1.72</td>
</tr>
<tr>
<td>Previous TB</td>
<td>283</td>
<td>(10.1%)</td>
<td>1.23</td>
<td>1.07-1.41</td>
</tr>
<tr>
<td>TB suspect</td>
<td>1662</td>
<td>(8.8%)</td>
<td>5.29</td>
<td>3.60-7.77</td>
</tr>
</tbody>
</table>
Did we achieve our targets?

• Did we get results to participants within 48hrs?
  – 8,520 (40.8%) received results of both smears within 48hrs of first contact but missing data in 7216 (35%)

• What proportion of participants received results?
  – 12,487 (59.8%) received results but missing data in 7,913 (38%)

• What proportion of participants started treatment?
  – 1151/1663 smear pos (67.7%) (missing data on rest at present)

• Outcomes still to be analysed
Cost

• Mean cost per ECF site is $22,937 per year (range $17,051 - $28,272)
• Cost per suspect seen (overall 12 sites and 3 years) = $39.64
• Cost per smear positive case found = $488.89
What else in case finding?

- Second arm of trial
  - Household counselling
- Primary/secondary endpoints
  - Prevalence of TB
  - Transmission of infection
- Digital CXR +/- CAD +/- Xpert
Acknowledgements

- ZAMSTAR Team
- Ginny Bond and Jean Hunleth
- Peter Godfrey-Faussett and Nulda Beyers
- Emilia Vynnyky
- CREATE Consortium

This study is supported by a subcontract from Johns Hopkins University with funds provided by Grant No. 19790.01 from the Bill and Melinda Gates Foundation. The contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of the Bill and Melinda Gates Foundation.