TB Active Case Finding in western Kenya

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Background

- Kenya
  - 13th on high-burden countries list
  - TB Incidence: 353 per 100,000
  - Roughly ¼ country cases are located in western Kenya
- Moi University School of Medicine, Moi Teaching and Referral Hospital, AMPATH
  - Eldoret, 5th largest city, located in western highlands
  - Long history of working with the network of health centers throughout western Kenya
Cough Monitor Program
The original Problem (2004):
TB At MTRH - emblematic

- 50% of UG District cases are registered at MTRH
- MTRH 2003 Quarter 2
  - 402 cases of TB registered
  - 80 smear positive
  - 19% defaulter rate
  - Blinded seroprevalence survey reported 70% co-infection
- Long distance from the Central TB Program
  - 200 miles by poor roads
Barriers: Access to Care

Barriers to care delivery

– Cost
  • 50KSh to open a chart at the health center
    – Urban wage 100-300KSh per day
    – Unemployment rate locally 50%
    – Casual workers and urban workers paid less

– Perception of cough
  • Cough itself is not a serious problem

– Perception of TB
  • Diagnosis of TB implies a diagnosis of HIV/AIDS
Community Based Cough Monitor Program

- Active case finding in the community
- Performed by lay individuals chosen from the community
- Community Sensitization
- Screening with a standardized questionnaire
  - Questionnaire from the literature validated in multiple settings (pre HIV era)
  - Any positive answer prompts on site sputum collection
- Attached to a diagnostic and treatment facility
  - CM delivers sputa to the diagnostic center and returns results to the patients
  - CM facilitates registration of smear positives
Cough Monitor Screening Form

Date: ___________  Name of Cough Monitor: __________________________________
Facility: ___________________________  District: ___________________________

Patient Name: ___________________________  Age: ____ (years)  Sex: M  F
Phone Number: ___________________________

SCREENING QUESTIONS:

YES  NO  1. Have you ever been told that you have tuberculosis?

YES  NO  2. Has anyone who lived in your household (even if no longer alive) ever been told that they had tuberculosis?

YES  NO  3. Do you have a cough that has lasted more than 2 weeks?
   ► If yes, for how long: _____ months and _____ weeks

YES  NO  4. Have you ever coughed up blood in the last year?
   ► If yes, how long ago did coughing up blood start: _____ months and _____ weeks

YES  NO  5. Do you have fever that has lasted more than 3 weeks?
   ► If yes, for how long: _____ months and _____ weeks

YES  NO  6. Have you lost weight in the last year?
   ► If yes, how long ago did weight loss start: _____ months and _____ weeks

If Patient answered 'No' to all questions, do not need to obtain sputum
If Patient answered 'Yes' to any question above, fill out below:

Lab Registration Number: ___________________________

Spot Sputum (S1):
Collected on date: ___________________________
   ► Result: Negative  1+  2+  3+  Other: ___________________________
   Unable to obtain sputum because ___________________________

Morning Sputum:
Collected on date: ___________________________
   ► Result: Negative  1+  2+  3+  Other: ___________________________
   Unable to obtain sputum because ___________________________

If either sputum was positive:
The patient was registered on date: ___________________________
   ► The TB registration number is: ___________________________
The patient was not registered because ___________________________
Example: Flier (English Version)

Cough, cough, cough?

Screen yourself for Tuberculosis today for free!

Tuberculosis is Curable!!!
Care is Free!!

FACTS ABOUT TUBERCULOSIS (TB):

- TB is a very common cause of cough.
- If cough lasts for 3 weeks, get screened.
- Other warning signs of TB include coughing up blood, recurrent fevers, or weight loss.
- Anybody can get TB!
- TB is spread through the air, not on clothes, objects or by touching.
- TB patients are normally cured and live long healthy lives.
- Having TB does not mean you have HIV or AIDS.

Please come to Room 58 for a free screening.

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Cough Monitor Program

• Working in collaboration with the DLTLD programmatic system
  – Identification of sites
  – Identification of CM for hire

• Field Supervisors
  – Supervision in association with the DLTLD
  – Data collection

• Small case holding component
  – CM responsible for follow-up sputum collection
CM Addresses Barriers to Care

- Cost
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- No cost to patient for screening and once diagnosed no cost for registration for TB care

- Free cough screening for TB in community reduced time to diagnosis.

- Massive education campaign through CM and fliers
Microscope for replacement
Another problem Identified:
Smear Diagnostics Program Weak

• Training
  – DLTLD had training program but no funds to “go on the road”
  – No functional QA program

• Infrastructure Poor
  – No microscopes
  – Broken 100X lens
  – No technician

• Funded training by DLTLD
• Developed local lab manuals
• Initiated a QA program that the DLTLD adopted

• Purchased necessary items for labs
Original Program – 2004-5

• Uasin Gishu District
• Funded by UNION FIDELIS grant- one year grant
• Start with 20 CM and 7 lab techs and scaled up to 50 CM by 6 months
Screening –
Burnt Forest Rural Health Center
Smear Positive –
Burnt Forest Rural Health Center

Smear Positive Rate: 2003=7%  2004=8%
## FIDELIS ROUND 3 and 5

<table>
<thead>
<tr>
<th></th>
<th>Total Suspects Screened with Sputum</th>
<th>New Smear Positives</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIDELIS Round 3</td>
<td>15,267</td>
<td>1,733</td>
</tr>
<tr>
<td>FIDELIS Round 4</td>
<td>57,627</td>
<td>7,211</td>
</tr>
</tbody>
</table>

Completion of therapy rate in Round 3 = 90%

We did not keep data at that time of how many persons underwent questionnaire screening.

Round 3= July 04-Mar 05
Round 5 = July 05- Dec 07
Sustainability

• AMPATH (Academic Model for Providing Access to Healthcare)-initially started as HIV care program for western Kenya
• Funded under PEPFAR USAID
• Over 150,000 registered patients, 50% ART
• Comprehensive Care Program – AMRS, PMTC, OVC, Food equity Program, Microeconomics
• Remember – Co-infection rate in Kenya 49% but at MTRH up to 70% originally
Cough Monitor Program Sites

- Mixed settings
  - Dispensaries
  - Rural Health Centers
  - District Hospitals
  - Urban Health Centers

- Chosen by the DLTLD
  - Nonfunctioning Unit
  - Potential for many cases

2009-2010 site map
<table>
<thead>
<tr>
<th>YEAR</th>
<th>No. SITES</th>
<th>Smear +</th>
<th>Smear -</th>
<th>TOTAL</th>
<th>% Positivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>66</td>
<td>2,089</td>
<td>11,185</td>
<td>13,327</td>
<td>15.9%</td>
</tr>
<tr>
<td>Year 2</td>
<td>52</td>
<td>2,332</td>
<td>16,695</td>
<td>19,017</td>
<td>13.9%</td>
</tr>
<tr>
<td>Year 3</td>
<td>67</td>
<td>2,507</td>
<td>18,691</td>
<td>21,198</td>
<td>13.4%</td>
</tr>
<tr>
<td>Year 4 up to May 1.</td>
<td>65</td>
<td>1,278</td>
<td>8,975</td>
<td>10,253</td>
<td>14.2%</td>
</tr>
</tbody>
</table>
# Results by District 2009-2010

<table>
<thead>
<tr>
<th>District</th>
<th>Smear +</th>
<th>Smear -</th>
<th>Suspects Screened</th>
<th>% Positivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bungoma</td>
<td>668</td>
<td>5809</td>
<td>6477</td>
<td>10.3%</td>
</tr>
<tr>
<td>Uasin Gishu</td>
<td>792</td>
<td>5107</td>
<td>5899</td>
<td>13.4%</td>
</tr>
<tr>
<td>Busia</td>
<td>350</td>
<td>2178</td>
<td>2528</td>
<td>13.8%</td>
</tr>
<tr>
<td>Keiyo</td>
<td>92</td>
<td>1411</td>
<td>1503</td>
<td>6.1%</td>
</tr>
<tr>
<td>Teso</td>
<td>135</td>
<td>1335</td>
<td>1470</td>
<td>9.2%</td>
</tr>
<tr>
<td>Lugari</td>
<td>119</td>
<td>939</td>
<td>1058</td>
<td>11.2%</td>
</tr>
<tr>
<td>Baringo</td>
<td>181</td>
<td>879</td>
<td>1060</td>
<td>17.1%</td>
</tr>
<tr>
<td>Kisumu</td>
<td>124</td>
<td>713</td>
<td>837</td>
<td>14.8%</td>
</tr>
<tr>
<td>Kapsabet</td>
<td>46</td>
<td>320</td>
<td>366</td>
<td>12.6%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>2507</td>
<td>18,691</td>
<td>21198</td>
<td>13.4%</td>
</tr>
</tbody>
</table>
Program Development

• Development of SOPs
  – Training manuals for CM and field coordinators
  – Data collection manual
  – Site evaluation
  – Closure of non productive sites

• Improved supervision

• Improved Collaboration with local DLTLD
  – CM program is well liked now with requests to add sites
Limitations

• Focus is still on smear positive cases
  – What about the effect of smear negatives on transmission? (MRL: 15% sm – are culture +)
  – What information to give patients about re-screening if symptoms continue? Patient demoralization due to “not fixing the problem, i.e. I am still coughing. What can you do for me?”
  – Pediatric cases
• Shifting funders with their own “restrictions”
  – Sites close when the funder changes
• To date, unable to access community impact
  – Number of cases diagnosed above baseline, but are we affecting transmission and ultimately disease incidence?
Challenges

• Demoralization of health facility staff
  – Focus on nonfunctioning units
• Demand for incentives to perform job duties
• Limited Field Supervision
  – 4 FS cover our entire area
• Falsification of records
  – One episode in a lab screening- identified through our QA program
• Corruption
  – Early Project manager embezzled from the program. RSPO strengthened oversight for field work
• Limited funding
• Kenyan Labor laws
• Many more..........
Cough Monitor Financing

- Funded by FIDELIS Round 3 - Uasin Gishu District ($190,000)
- Funded by FIDELIS Round 5- North Rift Province ($200,000)
- PEPFAR funding- $100,000/year
- Global fund Round 5 - $50,000/ year available for 18 months
- Global Fund Round awarded but awaiting disbursement for > 18 months- allow fro expansion to over 400 sites.
- TB Reach – addition of 3 goals beyond smear positive active case finding
  - Smear negative – culture addition
  - Smear negative – GenXpert
  - Pediatric TB age target age < 5 years
Cough Monitor program initiatives

- MTRH wards
- ANC/PMTC clinics
- Diabetes clinics
- Contact tracing – Does contact tracing layered onto a community based active case finding model find additional cases?
MTRH Wards- Infection Control

• Cough Monitor sweeps through the ward each AM with a bed list
• All new admissions are screened with questionnaire
• CM collects sputum for patients with any positive responses, transports to the lab and returns results
• AIM: all symptomatic patients screened day 1 of hospitalization
PMTC pilot

- MMED Project – R. Kosgei
- 187 Pregnant HIV + women- enrolling in PMTC, ART naïve, CD4 mean > 300
- Same questionnaire -20% symptom +
- All smear and culture negative
- 10 chest radiograph positive (miliary, cavitary, infiltrate)
- Convenience sample- rural site
- Led to one year pilot of PMTC/ANC CM program- ongoing
Contact Tracing Additive to Active Case Finding?

- **Cluster-Randomized Trial**
  - Sites cluster-randomized by district
  - Districts stratified by previous rates of smear positivity and urban vs. rural location
  - 27 sites (in 6 districts) to perform structured contact tracing in addition to usual case-finding activities
  - 22 sites (6 districts) to continue “business as usual”
Acknowledgements- Partial listing

• TB Projects Office
  – Lydia Kamle
  – Stephen Kiptoo
  – 4 Field Coordinators
  – 98 CM current roster
  – 11 lab technologists

• AMPATH Collaborators
  – Dr. Nathan Buziba
  – Dr. Lameck Diero
  – Dr. Wilfred Injera
  – Dr. Rose Kosgei
  – Dr. Paul Ayuo
  – Dr. Haroun Mengech

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  – Todd Fojo
  – Daria Swarzko
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• The UNION- MOU to Promote Operational Research
• TB Reach Wave 2 – “A” rating
STOP TB NOW

Asante Sana
Thank you

Questions?