MDR TB in Ethiopia: failure of the international response and how an NGO filled the gap

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I.O.M Workshop
‘Facing the Reality of MDR-TB’
New Delhi, India
TB in Ethiopia

#7 among the 22 highest TB-burdened countries.

#15 among the 27 highest MDR-TB-burdened countries

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<th>GNP</th>
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<tr>
<td><strong>Highest</strong></td>
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<tr>
<td>1. Norway</td>
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<td>2. Switzerland</td>
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<td>3. U.S.A.</td>
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<td>4. Japan</td>
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<td>5. Denmark</td>
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<td><strong>Lowest</strong></td>
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<tr>
<td>196. Guinea-Bissau</td>
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<td>197. Liberia</td>
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<td>198. Dem. Rep. of Congo</td>
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<td><strong>199. Ethiopia</strong></td>
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<td>200. Burundi</td>
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Over 75,000 MDR-TB cases estimated to have emerged in AFR in 2010

60% of whom would be sputum smear positive
Delivery and Discovery
Cambodian Health Committee TB and AIDS Programs

**CHC Rural TB:** June 1994-Dec 2010
Svay Rieng, Kampot, Kandal Provinces:
*~25,000 Cured*
Scale-up of CHC Community DOT approach
to entire country of **15 million**

**CHC Rural AIDS:** July 2004-March 2010
Svay Rieng and Kampot Provinces
*4242 in follow-up*

MDR Universal Access in Cambodia—
2006-on >300 patients countrywide
8 regional sites with ~230 NTP & CHWs trained
~900 patient supporters

**CHC Urban Centers of Excellence:** for TB and AIDS
in Phnom Penh
- *Pulmonary Ward rehabilitation* of KFSH (largest public hospital in Cambodia (900 HIV+ adults on ARV follow up))
- *Rural and Urban Children’s Program:*
  - *Maddox Chivan Children’s Center* for AIDS infected and Affected Children (opened Feb 2006): integrated care—~1000 so far have benefited; 321 in active follow up
  - KFSH Pediatric Ward rehabilitation and new outpatient clinic (381 HIV+ children on ARV)
  - Kompot: 600 HIV infected and affected children’s support
  - Svay Rieng: pediatric HIV cohort: 125; Prevalence of TB in 1000 rural children study
20% of Cambodian MDR-TB patients initiated therapy as outpatients with Patient Supporters in CHC-NTP Partnership

Extensive Outpatient Monitoring System Established

Svay Rieng, Cambodia
MDR TB in Ethiopia in 2008

Population ~80 million

129,000 new TB cases/year
(1.6% MDR & ~12% MDR in retreatment cases)
~6,000 new MDR cases/year

221 MDR cases documented by DST as of 8/08 in Addis Ababa area; FIND assistance to establish lab capacity

Green Light Committee (GLC) application initiated 2007 and submitted June 2008

GLC approval for 45 patients was in process in Sept 2008, with anticipated start date of October 2008

Cambodian Health Committee team visit to St Peter’s Hospital, Addis Ababa August 2008 to assist initiation of Ethiopian MDR program
South-South Partnership:
Didactic Training in Addis (Oct 2008),
And then Ethiopian MDR Team Trains in Cambodia

Battambang, Cambodia, December 2008
Limitations Faced in Ethiopia in Feb 2009:

- No second line TB drugs
- Isolation beds not available; construction of new ward delayed
- Human resource limitations
- 2nd line pharmacy not in place
- Only partial lab testing available

-Cambodian/Global Health Committee (CHC/GHC) received donation of capreo from Lilly (& later cycloserine (Chao Center) & paser (Jacobus)).
-Using models established in Cambodia, in the partnership with the Ethiopian MOH, initiated MDR care at St. Peter’s Hospital in converted space in Feb. 2009.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>6/2007</td>
<td>Green Light Committee (GLC) application process started</td>
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<td>6/2008</td>
<td>GLC application submitted</td>
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<td>8/2008</td>
<td>GLC application approved for cohort of 45—planned program start date Oct. 2008</td>
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<td>9/2008</td>
<td>CHC/GHC provides drugs for the first patient</td>
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<td>10/2008</td>
<td>First GHC MDR training of doctors, nurses and health workers in Addis Ababa</td>
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<td>12/2008</td>
<td>CHC training of Ethiopian MDR team in Cambodia</td>
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<td>2/2009</td>
<td>First cohort of 8 patients start therapy with GHC/Lilly drugs in GHC/FMOH program in converted space</td>
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<td>6/2009</td>
<td>Second cohort of 13 GHC patients started</td>
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<td>8/2009</td>
<td>Third cohort of 16 GHC patients started</td>
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<tr>
<td>9/2009</td>
<td>GLC drugs arrive</td>
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<td>10/2009</td>
<td>Fourth cohort of 14 patients started</td>
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<td>12/2009</td>
<td>Fifth cohort of 30 patients started</td>
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<tr>
<td>1/2010</td>
<td>1–3/2010 Sixth cohort admitted (13 patients)</td>
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<td>3/2010</td>
<td>4–6/2010 Seventh and Eighth cohorts admitted (44 patients, including 5 outpatient starts)</td>
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<td>6/2010</td>
<td>Construction completed on St Peter’s MDR ward, 245 further GLC courses approved</td>
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<td>7/2010</td>
<td>Program initiation in northern Ethiopia, Gondar (3 patients)</td>
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<td>9/2010</td>
<td>9–12/2010 Nine patients are admitted in Gondar</td>
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<td>11/2010</td>
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<td>12/2010</td>
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213 patients have been initiated on therapy  
(183 in Addis and 17 in Gondar with 15 outpatient starts)

7 patients completed treatment

18 patients died  
(6 died within the first 30 day; 1 suspected XDR)

188 patients are on active treatment  
(125 outpts and 46 inpatients in Addis; 17 in Gondar)

3 patients (presumed) XDR

1 treatment interruption
The First Cohort: the first 8
February 2009

Began back-log patients and MDR suspects among retreatment cases in a homeless shelter

19 yo with severe malnutrition, HIV negative and 3 prior failed treatments (Cat I and Cat II x 2), admitted with pulmonary and disseminated TB.
The First Cohort: June 2009

April 2011: 7/8 achieved cure; 1 death.
Yohannes

Arusha, Tanzania

Oct. 2009

- 25y/o medical student
- 3 prior Cat I & II treatment failures--out of school for 3 years
- Back in school in Gondar
Fetene

- 19 years old
- Multiple prior TB rx
- Severe malnutrition, and chronic diarrhea
- Extreme poverty; homeless
  - Lived at Missionaries of Charity
- Pulmonary TB and TB peritonitis
- Died at 56 days – severe intercurrent pneumonia, respiratory failure with limited reserve given advanced underlying lung disease
Random selection of admission X-Rays: Advanced, chronic patients with extensive bilateral disease
Of the historic 221 DST-confirmed MDRTB backlog patients in Addis Ababa awaiting 2nd line therapy in August 2008:

30% (66) initiated on therapy

The other 70% remaining:

20% (42) of list confirmed dead while awaiting therapy

50% (110) of list were unable to be located with the contact info in hand despite door to door search by GHC staff, many presumed dead

All coughing and smear + as they died
Review of 18 deaths

18 deaths (8.4% of 213 total)
Mean time to death: 79 days (range 1-298 days)
6/18 deaths (33.3%) dead <1 month
3/18 (16.7%) dead <1 week

Mean age: 31.5 (range 20-58)
Mean # of prior treatments: 2.24

Co-morbidities:
Severe malnutrition: 8 (44.4%)
HIV: 6 (33.3%)
Diabetes: 3 (16.7%)
Cor pulmonale 3 (16.7%)
Cirrhosis:1 (5.5%)
Interim Review of Causes of 18 deaths

Respiratory decompensation: 9: including 2 with probable tension pneumothorax, 1 with TB pericarditis, 1 with worsening CXR and others with probable superimposed pneumonia

Hypotension: 3 (progressive ascites/sepsis; tamponade)

Sudden death with cor pulmonale: 1

Micro status at time of death (for the 6 pts on Rx > 6 months): 3 culture converted 3 culture +

None of the causes of death directly attributed to adverse events attributable to MDR Rx
Daniel

- 25 year old student
- Lost 2 siblings to MDR-TB
- Multiple prior TB treatments
- Also had treatment in the private sector with 2nd line drugs
  - XDR suspect
- Severe cor pulmonale
- Died of respiratory failure in the setting of severe MRSA pneumonia with poor underlying reserve (11 months into treatment)
Expansion to Gondar:
New TB ward being constructed for MDR isolation:
opening date scheduled for **May 2010**

MD and nurse trained at GHC/St. Peters,
3 DST+ patients identified in May to begin

August 2010:
• 1 dead
• 1 very sick living with 11 family members
• 1 ill, but stable living with 2 children

but, August 2010
Gondar August 2010:
1 ill, but stable living with his 2 children

42 yo HIV+widower, MDR by DST, living with 2 children

August 2010:

1 very sick living with 11 family members including his 2 children

33 yo, 3 past courses of CAT 1/2 DST+ for MDR March 2010
Gizachew

Aug 2010, Gondar

Oct 2010, Addis

April 2011, Gondar
Gondar MDR Program update April 2011:

Since Aug 2010:
17 patients (8 current inpatients/9 outpts); no deaths
100% adherence: all on Lilly/GHC drugs

April 14, 2011
2 young pts in their 20s – first pt with a mother who died of disseminated MDR while waiting for rx to initiate. The 2nd pt is also a known contact (Mother died during TB rx, and his sister is in rx in Addis, 17th month; while he has recently begun rx in Gondar).
GHC community based care model

80% of the cohort now followed as outpatients
With ‘GHC’ community based care model: patient supporters, food, social support, full treatment support/supervision
Sewenet

- 8 year old
- Also co-infected with HIV
- Extreme poverty
- 2 prior failed TB treatments
- Now at 14\textsuperscript{th} month of treatment, back at school
April 15, 2011

Pt on 1st month of rx; multiple failed regimens, severe malnutrition, cor pulmonale oxygen dependent wt is 29 kg
GHC Ethiopia, Treatment Outcomes

- N= 214 pts enrolled (including 17 in Gondar)
  - Males: 50.51%
  - Females: 49.4%
  - Mean age: 30.176 (range 8-76)
  - Mean # of prior treatments: 2.65 (1-8)
  - HIV co-infection: 23.2%
  - Mean time to smear conversion: 38.46 days
  - Mean time to culture conversion: 66.26 days

- Patients on Active Treatment: 188
- Deceased patients: 18
- Cured or Completed: 7
- Defaulted (Treatment Interruption): 1
South-to-South transfer of an integrated approach of hospitalized based and community based treatment, which has proved highly successful in treating MDR in Cambodia has filled the gap in Ethiopia and provided access to MDR care and provides a model for expansion.

Rapid Scale-up is Possible
Challenges

**Drugs:**
necessary to overcome fear based approach, better forecasting and availability

**Funds:**
to those delivering the care:
for clinical care, ancillary medications, basic lab tests, staff support, food, outpatient monitoring

**Lab:**
reliable diagnosis and sample monitoring
Acknowledgements

GHC/CHC

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