Eswatini NTCP and Baylor Global TB Pilot Project on DR-TB Contact Management

WHO Child and Adolescent Working Group

October 2018

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Objectives

• Review current status of DR and DS-TB care and treatment in Eswatini

• Describe pathway toward project initiation

• Overview of Pilot Project
  – Goal: improve comprehensive contact management for children exposed to DR-TB

• Early enrollment and observations
Overview of TB Situation

Prevalence rate
Incidence rate
Notification rate
## Drug resistance survey preliminary results

<table>
<thead>
<tr>
<th>Variable</th>
<th>New</th>
<th>Retreatment</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2009/2010 MDR-TB prevalence</strong></td>
<td>7.7</td>
<td>33.9</td>
<td>19.3</td>
</tr>
<tr>
<td><strong>2017 MDR Prevalence</strong></td>
<td>3.7 (2.6; 5.2)</td>
<td>10.9 (6.2; 17.3)</td>
<td>4.7 (3.5; 6.2)</td>
</tr>
</tbody>
</table>
Eswatini: TB Notifications 2011-2017

TB/HIV > 70% of cases

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Notified Cases</th>
<th>DR-TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>9180</td>
<td>584</td>
</tr>
<tr>
<td>2012</td>
<td>7731</td>
<td>384</td>
</tr>
<tr>
<td>2013</td>
<td>6665</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>5582</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>505</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>408</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>336</td>
<td>318</td>
</tr>
</tbody>
</table>

Total notification rate: Green line
Eswatini: Proportion of Child TB

Proportion of DR-TB Cases = 3%

GeneXpert Introduced

Year | Cases | Proportion
-----|-------|------------
2011 | 1144  | 12%        
2012 | 829   | 11%        
2013 | 671   | 10%        
2014 | 502   | 9%         
2015 | 297   | 7%         
2016 | 217   | 6%         
2017 | 171   | 5%         

(N=9180) (N=7731) (N=6665) (N=5582) (N=4567) (N=3806) (N=3226)
National Efforts to Increase Child TB Case Finding

- Re-focus attention on clinical diagnosis with GXP and MTB Culture as complementary tools
- Contact tracing and IPT registers developed and rolled out.
- Main emphasis has been DS-TB contact management
- Began planning a DR-TB Contact Management Pilot
Project Development

• Review of existing evidence
• Consultation with international experts
• Discussion among NTCP and Baylor
• Presentation of existing data and plan at the tuberculosis TWG
• NHRRB Approval for Pilot
DR-TB Contact Management Pilot Sites

1. Good Shepherd = Urban referral hospital
2. Mankanyane = Rural referral hospital
3. Baylor Clinic = Urban outpatient clinic
4. Emkhuzweni Health Center = Rural Health Center
1. Register *confirmed* index case with DR-TB
2. Home assessment performed to discuss
   1. Infection control
   2. Document all household contacts
   3. Contact screening and collection of sputum for symptomatic individuals
   4. Schedule clinic evaluation for children and adolescent contacts (0-18 years)
Clinical Documentation

• Developed Clinical Tools for implementation
  – Self contained clinical folder for longitudinal follow-up
  – Card for families with scheduled visits and medication information

• Adapted patient information into local language
Household Contact Assessment

<table>
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<tr>
<th>0 – 14 Years Old</th>
<th>15+ Years Old</th>
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<tr>
<td>Current cough?*</td>
<td>Current cough?*</td>
</tr>
<tr>
<td>Fever for ≥ 2 weeks?</td>
<td>Fever/Night sweats for ≥ 2 weeks?</td>
</tr>
<tr>
<td>Poor weight gain/FTT?</td>
<td>Loss of weight?</td>
</tr>
<tr>
<td>History of a TB contact?</td>
<td>History of a TB contact?</td>
</tr>
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</table>

* Cough for ≥ 2 weeks; or of any duration + another symptom/contact.

Evaluation for TB

- Positive
  - TB Confirmed
    - Clinical TB
      - Treat Alt. Condition (PNA) vs. Monitor
    - Repeat Clinical Assessment
Household Contact Assessment: Negative symptom screen

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Assess CXR
1) If Abnl Evaluate TB
2) If Normal Proceed

1) Child < 5 or HIV +
2) Intense Exposure

No to Either = Monitor
Yes to Both = Prevent

Negative Or Disease Excluded
### Quantifying Exposure

#### Assessment for Risk of Exposure

<table>
<thead>
<tr>
<th>Relationship to source patient:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate hours spent with source patient in two weeks prior to Dx:</td>
<td></td>
</tr>
<tr>
<td>Location of contact?</td>
<td></td>
</tr>
</tbody>
</table>

**Ask the following ten questions: for each “yes” response, give one point:**

1. Is the index case the child’s mother? □ Yes □ No
2. Is the index case the child’s primary caregiver? □ Yes □ No
3. Does the index case sleep in the same bed as the contact? □ Yes □ No
4. Does the index case sleep in the same room as the child? □ Yes □ No
5. Is the index case coughing? □ Yes □ No
6. Does the index case have pulmonary TB? □ Yes □ No
7. Does the index case have GXP positive sputum? □ Yes □ No
8. Does the index case live in the same household as the child? □ Yes □ No
9. Does the index case see the child every day □ Yes □ No
10. Is there more than one adult TB case in the child’s household? □ Yes □ No

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Mandalakas et al, IJTLD, 2012

Score of 6 or higher with clinician judgment = Intense Exposure
No Measurement of Infection

• TST and IGRA not currently available in the public sector
  – Also rarely used
• Limiting treatment to high risk individuals
  – Age < 5
  – PLHIV
• TST/IGRA sensitivity reduced in these high-risk populations
• Children in this group often also have co-morbidities
  • helminth infection and malnutrition
Treatment Regimen and Monitoring

**Mono**
- Levofloxacin 15-20 mg/kg
- 6 months

**H**
- Levofloxacin 15-20 mg/kg
- 6 months

**Or PDR**
- INH 15-20 mg/kg
- 6 months

**MDR**
- Levofloxacin 15-20 mg/kg
- INH 15-20 mg/kg
- 6 months

### Suggested Follow-Up

<table>
<thead>
<tr>
<th>Preventative therapy (Months)</th>
<th>Clinical Monitoring (Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Baseline</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

Active screening for TB symptoms at each visit
Active drug side effect monitoring with tools for grading and reporting
### Contact Characteristics (N=23)

<table>
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<tr>
<th>Variable</th>
<th>Contact Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIV Status</strong></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>2 (9%)</td>
</tr>
<tr>
<td>Negative</td>
<td>18 (78%)</td>
</tr>
<tr>
<td>Unknown/Exposed</td>
<td>3 (13%)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 5</td>
<td>17 (74%)</td>
</tr>
<tr>
<td>5-18</td>
<td>6 (26%)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>16 (69%)</td>
</tr>
<tr>
<td><strong>Prior TB Treatment</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1 (4%)</td>
</tr>
<tr>
<td><strong>Prior TB Exposure</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12 (52%)</td>
</tr>
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</table>
Patient-Clinic Distribution

- Emkhuzweni: 14
- Mankanyane: 1
- Good Shepherd: 5
- Baylor: 3
Caregivers are generally bringing their youngest children for TB disease evaluation. Two caregivers discontinued (taste).
TB Disease Evaluation

- Positive TB Symptom Screen: 5/23 (26%)
  - 4/5 negative by Xpert, 1/5 symptom resolution (likely viral) and normal CXR

- None of the 23 child contacts have been diagnosed with DR-TB
  - Several with ongoing disease work-up
Potential Adverse Events

- Active assessment of all potential medication side effects from clinical booklet
- Guidance to include severe adverse events in aDSM reporting
- Only 2 have reported mild, transient headache

<table>
<thead>
<tr>
<th>CNS</th>
<th>Description</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>(mild/intermittant) self resolved</td>
<td>LFX+INH</td>
</tr>
<tr>
<td>Headache</td>
<td>(mild/intermittant) self resolved</td>
<td>LFX</td>
</tr>
</tbody>
</table>
Barriers

1. Transport
2. CXR quality and interpretation
3. Bitter taste of medication if crushed

Facilitators

1. Strong clinicians and care teams at selected sites
2. Differentiated models provide clinical care (facilitated transport vs. home visits vs. financial support)
3. Caregiver motivation
4. New guidance

HOW TO CARE FOR PEOPLE EXPOSED TO DRUG-RESISTANT TUBERCULOSIS: A PRACTICAL GUIDE
Conclusion

• New program but we hope to build on these 4 sites to improve contact management nationally

• Although more WHO guidance is still needed on treatment regimens

• Hope to share more results in the next meeting
Clinical Team
• Cedric Wawa
• Jean Claude Kilola
• Didier Diayezu
• Alex Kay

Eswatini NTCP Leadership
• Themba Dlamini
• Sisi Dube
• Welile Sikhondze

Baylor College of Medicine: Global TB Program
• Alex Kay
• Anna Mandalakas
• Caitlyn Jasumback

Sentinel Project
• Jennifer Furin

Patients and Families