Community Management of Drug Resistant TB

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Church of Scotland Hospital KwaZulu-Natal

July 2009
Province of KwaZulu-Natal
South Africa

Durban
Pietermaritzburg
Tugela Ferry
## Total DRTB at COSH

<table>
<thead>
<tr>
<th></th>
<th>MDRTB</th>
<th>XDRTB</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>2005</td>
<td>66</td>
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<td>2007</td>
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<td>153</td>
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<td>First Q 2009</td>
<td>11</td>
<td>10</td>
<td>21</td>
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<tr>
<td></td>
<td>364</td>
<td>488</td>
<td>852</td>
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</table>
DRTB by month of sputum collection

- **Month:** Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
- **# of cases:** 0, 5, 10, 15, 20, 25, 30, 35, 40

![Graph showing DRTB cases by month and year]

- **Legend:**
  - 2005
  - 2006
  - 2007
  - 2008
  - 2009

The graph illustrates the number of DRTB cases by month and year, with peaks and troughs throughout the year.
Current South African national policy: DR-TB

- Compulsory admission to specialised hospitals until smear/culture conversion.
- Up to Feb 2008, only one unit in KZN = KGV Hospital (Durban)

King George V : DBN
Current South African national policy: DR-TB

- Compulsory admission to specialised hospitals until smear/culture conversion.
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- Created major challenges
  - Limited bed capacity
  - Up to 2 weeks wait for a bed with delay in treatment initiation

- Even if we got a bed ……
  - KGV 200 km from Tugela Ferry
  - Multi-storey building
  - Communication with family difficult
  - Often on first pass out – pts never returned

King George V : DBN
Current South African national policy: DR-TB

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  - KGV 200 km from Tugela Ferry
  - Multi-storey building
  - Communication with family difficult
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- Ok at least can we have the meds?
  - Now what do we do with the patient?

King George V: DBN
Main issues when treating at home

- Specialized team
- Availability of MDRTB drugs
- 6 months Injection Phase
- Laboratory back-up
- Patient and Family DRTB & Drug literacy
- Adverse event monitoring
- Infection control at home
- Clinical Follow-up and assessment
- Screening of house hold contacts
- Defaulter tracing
- Record keeping and data collection
Decentralized MDRTB Hospital
Greytown

Serves : Umzinyathi District

Initiates MDRTB Rx
Comprehensive care for MDRTB
Supervises full duration of Rx
Admission (2m)
Literacy training
Rx Initiated

Mother Hospital

Umvoti – Greytown
COSH – Msinga
Dundee Hospital
Nqutu hospital

MDRTB Unit
Admission (2m)  
Literacy training  
Rx Initiated  
Home assessment  

Mother Hospital  

Home  

MDRTB Unit  

TB suspect submits sample  
Initiated on TB Rx  
Culture shows DRTB  
Patient traced  
Injection Team  
Family screening  
Adverse event  
Defaulter tracing  
Patient report
TB suspect submits sample
Initiated on TB Rx
Culture shows DRTB
Patient traced

Home

Admission (2m)
Literacy training
Rx Initiated

Inpatient

MDRTB Unit
Mother Hospital

TB suspect submits sample
Initiated on TB Rx
Culture shows DRTB
Patient traced

Home

Home assessment

Admission (2m)
Literacy training
Rx Initiated

Inpatient

MDRTB Unit

Out patient
Mother Hospital

TB suspect submits sample
Initiated on TB Rx
Culture shows DRTB
Patient traced

Injection Team

Admission (2m)
Literacy training
Rx Initiated

Home assessment

Daily home visit
Family Screening
Adverse event
Infection control

Home

Inpatient

MDRTB Unit

MDRTB
Follow up
Clinic

Out patient
Mother Hospital

TB suspect submits sample
Initiated on TB Rx
Culture shows DRTB
Patient traced

Injection Team

Patient report

Home assessment
Daily home visit
Family Screening
Adverse event
Infection control

Monthly follow-up

Home

Admission (2m)
Literacy training
Rx Initiated

Inpatient

MDRTB Unit

MDRTB Follow up
Clinic

Out patient
Mother Hospital

TB suspect submits sample
Initiated on TB Rx
Culture shows DRTB
Patient traced

Injection Team

Patient report

HBC program

Home assessment

Daily home visit
Family Screening
Adverse event
Infection control

Monthly follow-up

DOT supporter
(continuation Phase)

Home

Admission (2m)
Literacy training
Rx Initiated

Inpatient

MDRTB Unit

MDRTB
Follow up
Clinic

Out patient
Variations of Community Mgmt Models

- Limited Hospitalization
- No Hospitalization (with access to admission)
- Injection phase
  - Given at home
  - Given at clinic
Programme Overview - KZN

• King George V (KGV), Durban:

• 4 decentralised sites:
  – Greytown (24 beds + 15 injection teams)
  – Thulasizwe (110 beds)
  – Murchison (40 beds)
  – Manguzi (15 beds + 1 injection team)
<table>
<thead>
<tr>
<th>Intensive phase</th>
<th>Continuation phase</th>
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<tbody>
<tr>
<td><strong>MDR TB DIAGNOSIS &amp; REFERRAL</strong></td>
<td><strong>MONTHLY CLINIC</strong></td>
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<tr>
<td><strong>HOSPITALIZATION</strong></td>
<td>Physical examination</td>
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<tr>
<td>Collect baseline data</td>
<td>Urea and electrolyte</td>
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<tr>
<td>Initiate MDR treatment (ART)</td>
<td>Audiometry</td>
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<td>Patient education</td>
<td>Re-evaluation of treatment</td>
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<td><strong>DISCHARGE TO AMBULANT CARE</strong></td>
<td>Monitoring of side effects</td>
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<tr>
<td>Household assessment</td>
<td>Sputum collection for AFB, culture and DST</td>
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<tr>
<td>Patient/family education</td>
<td><strong>INJECTION TEAM</strong></td>
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<tr>
<td>Plan for continued care</td>
<td>Home visits 5x/week</td>
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<tr>
<td><strong>INJECTION TEAM</strong></td>
<td>Administer injections</td>
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<tr>
<td>Home visits 5x/week</td>
<td>Supervise morning dose</td>
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<tr>
<td>Administer injections</td>
<td>Monitor side effects</td>
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<td>Monitor side effects</td>
<td><strong>HOUSEHOLD MEMBER / DOT SUPPORTER</strong></td>
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<tr>
<td>Patient/family education</td>
<td>Daily DOT of evening dose</td>
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<tr>
<td><strong>HOUSEHOLD MEMBER / DOT SUPPORTER</strong></td>
<td>DOT of morning dose on weekends</td>
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<tr>
<td>Daily DOT of evening dose</td>
<td><strong>MONTHLY CLINIC</strong></td>
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<tr>
<td>DOT of morning dose on weekends</td>
<td>Weight and vital signs</td>
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<td><strong>EVALUATION OF OUTCOMES</strong></td>
<td>Monitoring of side effects</td>
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<td></td>
<td>Sputum collection for AFB, culture and DST</td>
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</table>
Selection criteria for decentralized MDR TB care

**DECENTRALISED CARE:**

- All non-complicated MDR TB cases:
  - initiate MDR TB treatment
  - receive patient education

**REFER TO KGV:**

- XDR
- Pregnancy
- <13 years
- Liver disease
- Uncontrolled diabetes
- Renal failure
- Psychiatric disorder
- Drug / alcohol abuse
- Previous MDR treatment
- Previous default
During Hospitalization

- MDR Rx initiated
- Drug tolerance evaluated
- Patient education
- VCT – ARV initiation
- Audiology baseline
- C&S monthly, Micro weekly
- Home & Social assessment (done by SW)
- DG application
- Preparation for community care
Selection criteria for community care

Decision taken by multi-disciplinary team

- Ambulant
- Low grade transmission - preferably smear negative
- Stable accommodation - i.e. not roaming
- Nutritional support - adequate food supply at home or food supplements from dietician
- Treatment support - household member or DOTS
- Patient / family education - side effects & infection control
- Feasible plan for administering injections
  - a) Injection team making household visits 5 days / week
  - b) patient returning to clinic 5 days / week
Community care decided by multi-disciplinary team

- Medical Doctor
- Nurse / MDR TB coordinator
- Social worker / dietician/ ARV counselor

Reports required on:
- Patient’s medical condition and treatment status;
- Education status (patient and family member);
- Household (accommodation, potential for infection control, family support, food availability)
- MDR treatment & follow-up (plan to administer injections, monthly follow up at clinic, monitoring of side effects and outcomes)
Household visits by injection team

- 5 days per week (including holiday seasons)
- Administer injectable drug
- DOT of morning dose
- Assess side-effects using check-list, weekly submission to Doctors at MDR TB Unit
- Check infection control practice in the home
- Reinforce significance of adherence
- Ask household members of signs and symptoms of TB
- Recommend VCT

Evening dose (and morning dose on weekends) is monitored by household member or DOT supporter
COSH DOTS Team – The Super TB Team
DOTS Office – Early morning start, collect treatment
Days treatment collected
Ready to roll

Injection team =
Staff Nurse
Bakkie
Coolbox
Rx
Recording file
The terrain the super team works in – vast, remote rural
On the way to our first patients home  Up there on the side of the mountain
Almost there
We have arrived at our first clients home
What he needs to take
Our first patient of the day
Oral doses first
Oral doses finished
Injectables next
Receiving the injectable
Recording of treatment
## TB Treatment

**Card Date:** MONTH: ____________ YEAR: ____________

<table>
<thead>
<tr>
<th>DRUGS</th>
<th>Kanamycin (Km)</th>
<th>Amikacin (Am)</th>
<th>Pyrazinamide (Pza)</th>
<th>Ethambutol (E)</th>
<th>Ofloxacin (Ofx)</th>
<th>Ciprofloxacin (Cfx)</th>
<th>Ethionamide (Eto)</th>
<th>Cycloserine (Cs)</th>
<th>Other (specify)</th>
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<tbody>
<tr>
<td>Dosage (mg)</td>
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<td></td>
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<tr>
<td>Days per week</td>
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</tbody>
</table>

- ✓ = Medication Taken
- X = Medication Not Taken

### ARV Treatment

- [ ] Regimen 1a
- [ ] Regimen 1b
- [ ] Regimen 2
- [ ] Other Regimen: ______________

- ✓ = Medication Taken
- X = Medication Not Taken

### Drug Names

| DRUG NAMES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
Safe Disposal Practice
Packed and ready to take back to hospital for disposal
Monitoring and recording side effects
Adverse event monitoring

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>V/ If Present</th>
<th>Comments (including frequency, duration, severity)</th>
<th>Action Taken*</th>
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<tbody>
<tr>
<td>Vision problems (recent change)</td>
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<tr>
<td>Deafness</td>
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<tr>
<td>Ringing in ears</td>
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<td></td>
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<tr>
<td>Rash</td>
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<td></td>
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<tr>
<td>Nausea/Vomiting</td>
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<td>Diarrhea</td>
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<td>Muscle pain</td>
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<tr>
<td>Muscle weakness</td>
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<td>Joint pain</td>
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<tr>
<td>Tingling/pain in legs/feet</td>
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<td>Rash with blisters</td>
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<tr>
<td>Abdominal pain</td>
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<td>Jaundice</td>
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<td>Swelling of legs/feet</td>
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<td>Difficulty sleeping</td>
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<td>Confusion</td>
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<td>Depression</td>
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<td>Psychosis/Inappropriate behavior</td>
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<td>Tremors/Seizures</td>
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<tr>
<td>Other</td>
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<tr>
<td>No complaints</td>
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</table>

*1= Patient to inform MO at next clinic appt; 2= Refer patient to local clinic as soon as possible; 3= Urgent referral to hospital
* The reviewing MO should be informed of all side effects
Note the open windows – effect of HE, this was not posed or pre arranged
Finished – on our way to the next patients home
Next patient – and so it continues
One is able to build very good relationships and repertoire between the team and their patients.
The setting is conducive
And you have better understanding of your patient – How do you take this mother and put her in a hospital some 200kms away for 6 mths, and leave these children at this home on their own
First clinic visit on community care

- Check / reinforce treatment adherence
- Assess side-effects and treat if necessary
- Check any social problems that may have a negative impact on treatment
- DOT taking place or not
- Any difficulty related to obtaining transport to attend follow up at MDR-TB centre
- Clinical examination & assessment
- Refill prescription
- Give next appointment
Monthly clinic visits

- Sputum collected for AFB and culture
- Weight & vital signs
- Patient examination
- Evaluate adherence
- Give monthly supply of medication
- Pregnancy test
  - on women of childbearing age without documented contraception (KAN, ET)
- Urea & Electrolyte
  - during intensive phase
- Further tests if required
  - e.g. FBC, LFT, TFT
- CXR when indicated
- Audiology
- Special attention to:
  - liver toxicity
  - psychiatric disorders
  - Allergies
  - hematological disorders
  - hearing / vestibular toxicity
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<th>SURNAME</th>
<th>NAME</th>
<th>HOS NO</th>
<th>GEN</th>
<th>FACILITY</th>
<th>FOLLOW-UP DATE / REMARKS</th>
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</table>
Continuation phase treatment

- Daily DOT of morning / evening dose by family member or DOT supporter
- Paid DOT supporter (R250/m) allocated
- Monthly clinic visits
- Outcome evaluation by medical doctor
Acute side effects

Patients referred to Dr for acute side effect between clinics

• Report to MDR TB team and file report with patient’s record at decentralized site
Default tracing

• Paramount to successful treatment!!!!
• Defaulters identified on appointment diary
• Patients not arriving for clinic appointment will be traced within 24 hours.
• Outcome of tracing must be reported on.
Contact tracing

• List all household contacts
• Screen all HH Contacts TB/DRTB
  – clinical signs & symptoms, culture & DST, chest X-ray
  – Screened 6 monthly for 2 yrs
• VCT offered to all HH contacts
• Injection team & DOTS continued vigilance
Recording and Reporting

Programme monitoring

• Patient load
• Screening
• Turn around time for laboratory tests
• Case finding
• Case holding
• Drug supply
• Integration with HIV services
• Treatment outcomes
• Side effects
• Length of treatment
Patient / Family education

- Infection control
- Recognition of side effects
- Importance of adherence & Rx completion
- Testing and counselling for HIV
  - for patient and household members
- ARV
  - treatment / adherence / side effects
- Household tracing
  - signs and symptoms of TB
Infection Control in the home

Household measures

- Ventilation / Open windows
- Isolation of patient
  - own bedroom where possible
- Cough hygiene
  - cover mouth when coughing
  - whenever possible, cough outside
- Refrain from close contact with children
- Maximise time in open-air environment
  - e.g. socialise outside
- Minimize contact with known HIV positive individuals
Infection Control during home visits

Injection team measures

• Brief home visits - when possible, evaluation should occur outside
• Educate patient on cough hygiene
• Surgical mask to patient if close contact required
• N95 respirator for medical staff and DOTS supporter
• If sputum collection is necessary:
  – Sputum collection should occur outside observing prescribed infection control precautions
Infection Control during patient transport

Tracing team measures

• Open windows in vehicle
• Educate patient on cough hygiene & infection control
• Surgical mask to patient
• N95 respirator for medical staff and driver
• Health workers should know their HIV-status:
  – Encourage testing and counselling for HIV
  – Commence ART when appropriate
  – Screen for TB regularly
Results So Far

• 166 patients on programme – (54%) Females / (46%) Males – first patient started November 2005
• 84% HIV pos, of those 85% put on ARV
• Still on Rx – 119
  – 46 intensive Phase
  – 73 continuation phase
  – Culture converted (73%)
• Outcomes of other 47
  – Cured - 18
  – Rx Completed – 4
  – Died – 19 (5 Converted - 14 Mths / 10 not converted / 2 XDR)
  – Defaulted – 1
  – Refused Rx – 2
  – Converted to XDR – 1
Community spread of DRTB

- 614 M/XDRTB index cases
- Total number of contacts screened 3206
- (1989 adult contacts managed to submit a sputum sample)
  - Number susceptible TB cases 15
  - Number MDRTB cases 24
  - Number XDRTB cases 28
Transmission Rates in the community (Adults)

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<th>As % of sputum producers (1989)</th>
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Reference literature report community spread of Susceptible TB to be between 1% and 8%
Thank you