DEVELOPING AN ADAPTED DIRECTLY OBSERVED TREATMENT PROGRAMME FOR TUBERCULOSIS USING AN INTERVENTION MAPPING APPROACH

DEPARTMENT OF HEALTH RESEARCH DAY
ST MARCO HALL: POLOKWANE
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BY
TE MABUNDA: DEPARTMENT OF HEALTH – LIMPOPO PROVINCE; UNIVERSITY OF VENDA - SA
PROFESSOR LB KHOZA: UNIVERSITY OF VENDA - SA
PROFESSOR B van den BORNE: UNIVERSITY OF MAASTRICHT - NETHERLANDS
TB IN LIMPOPO PROVINCE

- Limpopo not yet met the WHO targets
- High rate of MDR TB in Limpopo at 2.4% for new cases and 6.8% for retreatment cases (MRC MDR TB Survey 2002)
- TB/HIV co-infection rate 70% globally; 65% in SA and 62% in Limpopo Province.
- Limpopo provides TB services at all government facilities free of charge
- Limpopo implements the DOTS strategy
- Standardised treatment protocols and guidelines followed in TB management.
LIMPOPO PROVINCE TREATMENT OUTCOME: NEW SMEAR POSITIVE CASES:
2004 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Cure rate (%)</th>
<th>Treatment success (%)</th>
<th>Death rate (%)</th>
<th>Failure rate (%)</th>
<th>Default rate (%)</th>
<th>Transfer rate (%)</th>
<th>Not evaluated (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>63.5</td>
<td>74.8</td>
<td>7.4</td>
<td>1.4</td>
<td>5.1</td>
<td>6.9</td>
<td>4.4</td>
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<td>2005</td>
<td>57.2</td>
<td>68.6</td>
<td>8.7</td>
<td>2.0</td>
<td>8.6</td>
<td>8.8</td>
<td>3.5</td>
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<tr>
<td>2006</td>
<td>60.4</td>
<td>70.4</td>
<td>8.7</td>
<td>1.7</td>
<td>8.0</td>
<td>8.7</td>
<td>2.5</td>
</tr>
<tr>
<td>2007</td>
<td>62.2</td>
<td>71.8</td>
<td>9.0</td>
<td>2.5</td>
<td>7.4</td>
<td>7.5</td>
<td>1.5</td>
</tr>
<tr>
<td>2008</td>
<td>66.9</td>
<td>74.0</td>
<td>9.0</td>
<td>2.3</td>
<td>8.1</td>
<td>6.3</td>
<td>0.4</td>
</tr>
<tr>
<td>2009</td>
<td>70.2</td>
<td>74.4</td>
<td>9.2</td>
<td>1.9</td>
<td>7.7</td>
<td>5.8</td>
<td>0.9</td>
</tr>
<tr>
<td>2010</td>
<td>73.3</td>
<td>75.6</td>
<td>9.0</td>
<td>2.6</td>
<td>6.3</td>
<td>5.2</td>
<td>1.3</td>
</tr>
</tbody>
</table>
PROBLEM STATEMENT

• TB control in Limpopo remains a challenge. Despite the fact that the province has been implementing the DOT programme for the past decade, following the National TB Control Programme guidelines and protocols, and implementing DOTS, TB detection rates and outcomes remain low.

• The TB programme in the province does not have a formal DOT programme to follow in the implementation and administration of DOT, which is why the current DOT programme needs to be adapted to improve the TB indicators in Limpopo province.
PURPOSE AND OBJECTIVES

• **Purpose:**
  To develop an adapted Tuberculosis Directly Observed Treatment (DOT) programme to improve TB control in Limpopo province.

• **Objectives:**
  - To critically analyse the effectiveness of the existing TB DOT programme in Limpopo Province, South Africa.
  - To identify psychosocial and environmental correlates of non-adherence to treatment in the current TB DOT programme in Limpopo Province, South Africa.
  - To develop an adapted TB DOT programme in Limpopo Province, South Africa.
  - To validate the developed programme.
METHODOLOGY

• Setting – Limpopo Province: South Africa
• Design – Qualitative
• Population – Health Care Workers (HCWs), DOT Supporters (DSs) and TB patients in Limpopo province
• Ethical clearance – University of Venda and Department of Health: Limpopo Province
• Sampling – Purposive and convenient sampling. Two crisis districts, Mopani and Capricorn.
• Data collection – Focus Group Discussions and in-depth interviews using semi-structured interview guides.
• Data analysis – verbatim transcriptions from audiotape and manual analysis
POSITIVE FINDINGS

- Facility Based DOT and Community Based DOT implemented in the province.
- DOT is an enabler in helping patients to complete treatment and be cured
- Trained DSs utilised to provide DOT
- DSs are happy to assist their communities
- HCWs and patients appreciate DSs’ contribution to positive outcomes
CHALLENGES IDENTIFIED

• Late presentation for treatment
• Patients seek traditional medicine and visit Private Practitioners (PPs) first
• Late referral by Traditional Health Practitioners (THPs) and PP
• Patients discontinues medication and default
• Low index of suspicion by HCWs
• Lack of stipends for DSs
• Stigma
• Non-integrated TB and HIV treatment
• Non-supportive HCWs to DSs and patients
• Patients refuse DOT supervision
• Lack of sufficient DSs
• Long waiting times at the health facilities
• Transport costs
• HCWs overburdened
STEPS OF THE INTERVENTION MAPPING APPROACH

Based on the Intervention Mapping Approach by Bartholomew et al. with its six steps, namely:

• Needs assessment
• Preparing matrices of change objectives
• Selecting theory-based intervention methods and practical strategies
• Producing an intervention programme
• Planning programme adoption, implementation and sustainability
• Planning for evaluation
PLANNING THE NEEDS ASSESSMENT WITH A LOGIC MODEL ADAPTED FROM PRECEDE

Phase 3 – **WHY?**

Determinants (Predisposing, enabling and reinforcing factors)

Phase 2 – *What factors cause or contribute to the health problem?*

Determinants (Predisposing, enabling and reinforcing factors)

Behavioral Factors

Phase 1 – *What is the health problem and its quality of life effects?*

Environmental Factors

Health Problems and Quality of Life
APPLICATION OF THE PRECEDE MODEL

**Behavioural determinants**
- Fear of TB/HIV association
- Negative attitude towards taking medication
- Feeling better after initial phase of treatment
- Lack of knowledge about symptoms and treatment
- Misperceptions about symptoms
- Misperceptions about treatment – that they have to complete treatment
- Attitudes towards modern medicine and alternative medicine (Health Belief system)

**Behaviour of patient**
- Late presentation
- Initial defaulting
- Treatment defaulters
- Visiting THPs and PPs first
- Refusing DOT supervision

**Health and quality of life**
- Cure rates up
- Mortality down
- MDR/XDR down
- TB infection down
- TB/HIV co-infection down

**Environmental determinants**
- HCWs: Lack of knowledge and skills
- Fear of getting infection, particularly M(X)DR TB
- DSs: Little or no stipend – volunteering
- Community and family:
  - Fear of contracting HIV and TB – stigma
  - Lack of knowledge of caring and how the treatment works (TB is curable)
- THPs and PPs: Loss of income, lack of recognition by HCWs

**Environment**
- HCWs: HCWs overburdened
- Low index of suspicion by HCWs
- Non-supportive HCWs to DSs and patients
- Lack of adequate supervision by PCs, DCs, SDCs and clinic supervisors
- DSs: Lack of sufficient DOT Supporters (DSs)
- Community and family:
  - Stigma: Lack of acceptance by family and community
  - Community reactions and perceptions
- THPs and PPs: Late referral by THPs and PPs
## Determinants and Performance Objectives for a Patient’s Behavioural Factors

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Performance Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows: that coughing is associated with infectious TB; the signs and symptoms of TB; that TB is curable; that treatment is free; the purpose of sputum tests</td>
<td>Late presentation: Immediately seeks care at the facility after two weeks’ of coughing; Presents/explains all symptoms experienced to the clinic; Provides a sputum specimen to the clinic; Returns for results; If tested positive for TB, gets tested for HIV; Discloses TB and HIV status to partner and family.</td>
</tr>
<tr>
<td>Knows: there are positive outcome expectations of treatment (a positive HIV diagnosis is not a death sentence); the association of TB and HIV is a cue to get HIV diagnosis and treatment; that respectful care will be received from clinics</td>
<td></td>
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<tr>
<td>Knows that: patients can access care from traditional healers and clinic concurrently; confidentiality is guaranteed; family and community can be counselled to accept them</td>
<td></td>
</tr>
<tr>
<td>Describes social norms of being able to discuss illness and get care; Feels positive about modern medicine and treatment.</td>
<td></td>
</tr>
<tr>
<td>Is prepared for feeling better; Is supported to sustain treatment</td>
<td></td>
</tr>
<tr>
<td>Performance Objectives</td>
<td>Knowledge (K)</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
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</tbody>
</table>
| 1. Immediately seeks care at the facility after two weeks’ of coughing               | K.1.a. Describes that coughing is associated with infectious TB and what that means | OE.1.a Expects that if diagnosed with TB it is not a death sentence;  
K.1.b Describes the association between TB and HIV.  
K.1.c. Identifies signs and symptoms of TB.  
K.1.d. Relates that TB is curable and that effective treatment is free  
K.1.e. Describes the purpose of sputum test | A.1.a. Expresses positive feelings about modern health care – in particular TB and HIV care. | R.1.a. Experiences reinforcement from HCW for going for testing;  
R.1.b. Experiences reinforcement from DS for going for testing;  
R.1.c. Experiences reinforcement from family for going for testing. | SN.1.a. Recognizes that family members expect patient to go for TB testing when they have been coughing;  
SN.1.b. Expect that family members would go for testing if they have developed coughs  
SN.1.c. Recognizes that HCW expect patients to go for TB testing if they have been coughing for two weeks  
SN.1.d Recognizes that friends and peers in the community consider the signs and symptoms of TB seriously |
## PROGRAMME COMPONENT FOR CHANGING PATIENT BEHAVIOUR

<table>
<thead>
<tr>
<th>Activity</th>
<th>Theoretical Methods</th>
<th>Possible materials and practical strategies</th>
<th>Performance and Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education with regard to early presentation</td>
<td>Programme advocacy</td>
<td>Media like TV advertisements</td>
<td>Early diagnosis leads to early institution of treatment</td>
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<tr>
<td></td>
<td>Counselling including value clarification</td>
<td>Radio talks</td>
<td>TB is curable</td>
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<td></td>
<td>Observed-in-session</td>
<td>Print media</td>
<td>Complete your treatment</td>
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<tr>
<td></td>
<td></td>
<td>Pamphlets</td>
<td>Kick TB out of Limpopo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posters</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promotional materials, for example, key holders, caps, T-shirts</td>
<td></td>
</tr>
<tr>
<td>Counselling sessions to patients by HCWs before starting treatment</td>
<td>Persuasive communication</td>
<td>Media like TV advertisements</td>
<td>TB is curable</td>
</tr>
<tr>
<td></td>
<td>Skills training in communication</td>
<td>Radio talks</td>
<td>TB treatment is free at all government facilities</td>
</tr>
<tr>
<td></td>
<td>Value clarification</td>
<td>Print media</td>
<td>Stop TB – complete your treatment</td>
</tr>
<tr>
<td></td>
<td>Vicarious conditioning</td>
<td>Pamphlets</td>
<td>Stop TB because you can</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posters</td>
<td>Use DOTS to stop TB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promotional materials, for example, key holders, caps, T-shirts</td>
<td></td>
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# PROGRAMME FRAMEWORK FOR PATIENTS

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Activities/ tasks to be accomplished</th>
<th>Responsible persons/ implementers</th>
<th>Resources</th>
<th>Duration</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of training needs for patients</td>
<td>What type of training is required for improving treatment adherence and the TB DOT support for patients?</td>
<td>Who are the stakeholders responsible for implementing the activity?</td>
<td>What resources are needed to implement the activities to be achieved?</td>
<td>How long should the activity take to be completed?</td>
<td>What budget is needed for this activity?</td>
</tr>
<tr>
<td>For example: Workshop to identify areas for training</td>
<td>For example: DCs SDCs Patients</td>
<td>For example: Human resources</td>
<td>For example: 16 hours</td>
<td>For example: R600 x 2 days x 30 participants = R36 000</td>
<td></td>
</tr>
</tbody>
</table>
RECOMMENDATIONS FOR THE HEALTH SYSTEM

• Adoption and implementation of the programme by the Limpopo Department of Health TB programme
• Adoption of one Community Care Giver who is trained to render a comprehensive service
• Implementation of a standardised stipend to Community Care Givers
• Full integration of TB and HIV services in the province
• Adopt user friendly policies such as implementing the fast queue for patients
• Provide opportunities for capacity building and skills development for all stakeholders providing TB care.
ACKNOWLEDGEMENTS

• SANPAD South Africa and Netherlands
• Research promoters from SA and Netherlands
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• University of Venda for opportunity and funding
• Department of Health - Limpopo province for permission to conduct study
• SANPAD Project team members
• Fellow doctoral and masters students in the project.