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AWACC
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Outline

• Introduction
• Care Cascade
• Dialogue
• Devices
• Concluding Thoughts
Question One

- What is happening to TB incidence in South Africa?
  a) Increasing
  b) Decreasing
  c) Remaining stable
Answer: b
Decreasing… but not rapidly enough to meet the 2030 Sustainable Development Goals
Introduction

- Vertical Health Programs:
  - PHC to UHC
    - HIV
    - TB: Drug Sensitive
    - DR-TB
- Rapid pace of Health Policy Changes
- Multiple Moving Parts
  - Lag time from research to policy and practice is getting shorter
Defining the Problem

• Poor Retention in Care: 23.5% Defaulters

• Sub-optimal Treatment outcomes: Cure Rates of ~55% for MDR-TB from the National TB Program

• Porous Care Cascade
• Even following proper diagnosis and treatment initiation, curative treatment completion remains problematic.

• There are myriad challenges to TB treatment adherence/persistence.

• The traditional response, facility-based witnessed dosing (i) is less frequently practiced, (ii) is highly resource intensive, and (iii) may create barriers to linkage and retention in care.
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The South African Tuberculosis Care Cascade JID 2017 Supplement Naidoo et al
Question Two

- Using the compartment model, what percentage of patients with Rif-Resistant TB have successful outcomes?
  - a) 60%
  - b) 45%
  - c) 22%
Answer

• C) 22%

• Patient attrition from disease to cure is high
Rif-Resistant TB Compartment Model

TB Burden: 24,472
Accessed TB Tests: 20,602 (84%)
Received Diagnosis: 18,206
Notified and Treated: 11,470
Treatment Success: 5,375 (22%)

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Adherence Guidelines for HIV, TB and NCDs

Policy and service delivery guidelines for linkage to care, adherence and retention in care

3 Sections:

- Part 1: Strategic document
- Part 2: Implementation guide
- Part 3: Appendixes
The Stepwise Approach

Linkage to care

A. Screened (Community and Health facilities)
   → Step 1: Screening

B. Tested
   → Step 2: Testing to enrolment

C. Enrolled in care

D. Eligible for treatment
   → Step 3: Enrolment to eligibility

E. Treatment initiated or treatment changed
   → Step 4: Eligibility to initiation
   → Step 5: Initiation to stable state

F. Stable on treatment
   → Step 7: Review adherence and treatment

G. Unstable on treatment
   → Step 6: Regular review
   → Step 6: Regular review

Retained in care or on treatment—with known outcomes

Registered deaths, known transfers and known disengaged from care

Unknown outcomes

Unascertained deaths

“Silent transfers”

Disengaged from care

Lost to follow-up with unknown outcomes

Department:
Health
REPUBLIC OF SOUTH AFRICA

PROVINCE OF KWAZULU-NATAL
Patient adherence plan

- Assist patients to make their own commitment during counselling sessions
  - accountable for adherence of treatment.
- Retrieved at every visit to review patient’s commitment
- Used during counselling sessions
  - Fast Track Initiation Counselling
  - Enhanced Adherence counselling
- Non clinicians to assist patients to complete adherence plan
Adherence education flip file

- Guides and assists health care service providers during counselling sessions to provide standardised adherence education
  - TB, HIV, hypertension, diabetes, healthy living and mental health.
- Can be used by:
  - Health care workers
  - Enrolled nursing assistants
  - Health promoters
  - Lay counsellors
  - Home based carers
  - Community health workers
  - WBOT leaders
  - Support group facilitators
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The 99DOTS Solution

Chosen By India’s CTD To Facilitate The Shift To Daily-Dosed FDCs
KEY FEATURES OF 99DOTS

• Calls are completely free for patients and can be made from any phone – mobile, land line, shared.

• Any call from a registered patient number is marked as a dose taken (personal, shared, land line).

• Numbers are not unique, but appear in an unpredictable sequence – ensures “pill-in-hand” adherence.

• When patients call, they hear “Thank you.”

• Calls immediately show up in the dashboard as taken doses.

• Automatic alerts and reminders to patients and supervisors for non-adherent patients.

• Adherence records available to field staff, medical officers, district staff and all other stakeholders in the program – via mobile devices.

• Open source ICT system – integratable with national health systems (India) and with other adherence monitors (MERM).

Two of your patients have missed doses
Raj (979XXXXXX)
& Om (812XXXXXX)
IMPROVED DOSING INSTRUCTIONS AND REDUCED RISK OF DISPENSING ERROR

2 pills / day
3 pills / day
4 pills / day
5 pills / day

Envelopes Also Clarify Phase And Weight Band
Advantages

- Affordability – about $3 for 6 months
- Easily integrated into existing drug manufacturer supply chain
- Suitable for multiple dosing and package formats
- Assistance with dosing instruction and reduction of dispensing error
- Accurate (high level of assurance that “pill in hand”)
- Open source ICT -- proven ability to integrate with national ICT systems and other monitoring technologies

Challenges / Questions

- Will patients accept (or be adequately incented to accept) the “burden” of calling with every dose?
- Reach -- borrowed phones and related access issues
- Challenges with access/availability to toll free lines

Status (Demo, Pilot, Scale-up in Resource-Limited Settings)

- India: Deploying 99DOTS for all TB/HIV patients (45,000)
- India: Mumbai RNTCP deploying 99DOTS for all 30,000 patients
- India: Pilots underway March in PPIA Sites in Patna and Mumbai
- India: Preliminary plans to scale-up 99DOTS to 5 additional states with daily FDC (additional 250,000 patients)
- Myanmar: Pilot (1,500 patients) underway with PSI
- Ethiopia: small pilot planned in 2017
Generates accurate detailed dosing histories.

Two versions – “real time” or store data for periodic download.

Modular design – mass-produced “modules” and customized, inexpensive (plastic or corrugated) containers.

Powered by **standard, disposable batteries** (6 month battery life) or rechargeable lithium batteries.

Fits wide range of blistered medications. Large “billboard” for patient instructions.

Separate audible and visible reminders of both dosing and refill.

Registers daily “heartbeat” – confirming operational status in absence of dosing event.

**Affordable**: Basic ($7 per patient), Real-time ($10 per patient). Highly re-usable.

**Low Patient Burden** Electronic Dose Monitor Designed Specifically For Clinical Practice Use In Resource-Limited Settings
## Ingestible Sensors: Summary

### Advantages
- Pill-specific accuracy – ideal for poly-pharmacy applications such as MDR-TB, TB/HIV
- Manufacturing issues favorably resolved and scalable in US/Europe
- Facilitates patient-centric observation
- Fits with any solid oral dose medication, including TB

### Challenges / Questions
- Current data collection/transmission approaches highly burdensome on patients (patch)
- Currently, very expensive
- Is global health an area of interest to these providers
- Is solution as currently designed feasible given technology infrastructure in resource-limited settings

### Status (Demo, Pilot, Scale-up in Resource-Limited Settings)
Comparison Of Adherence Assessment Measures According To Their Degree of Objectivity and Ease Of Implementation In Resource-Limited Settings

**DOSING MEASUREMENT METHODS: Our Summary**

- **More Objective/Less Objective:**
  - Bias or potential bias in adherence measurement

- **More Resource Intensive/Harder to Implement:**
  - Affordability
  - Patient burden
  - Cultural appropriateness
  - Technology/infrastructure fit

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**Evaluative Criteria**

- **More objective/less objective:**
  - Bias or potential bias in adherence measurement

- **More resource intensive/harder to implement:**
  - Affordability
  - Patient burden
  - Cultural appropriateness
  - Technology/infrastructure fit
CRITICAL ENABLER: ACCURATE, DETAILED DOSING HISTORIES . . . COMPILED IN A MANNER THAT IS AFFORDABLE, SCALABLE, AND ACCEPTABLE TO PATIENTS AND PROVIDERS
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- **Concluding Thoughts**
Moving Toward patient-centered Adherence monitoring and differentiated care

1) New Adherence Technology
   (Affordable, Scalable, Mechanisms To Collect Detailed Dosing Histories)

2) ICT Systems With Adherence Module
   (Integrated, Inter-operable Systems To Collect/Display Dosing Histories)

3) Adherence Counseling Tools
   (Automated Displays and Tools For Dose History-Enhanced Counseling)

4) Algorithm-Driven Differentiated Care
   (Identifies/Prioritizes Poor Adherers and Cues Provider Intervention)

Patient on Treatment, Adhering Well, and Retained In Care
Health System Efficiency Enhanced
Think outside the box…

• Invest in Patient Centred Adherence Support through updated counselling material, technology, better data to monitor adherence and human resources to support patients across the continuum of care!

• ABCD
Thank You.
Any Questions?
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