Digital Health Solutions to facilitate patient-centered care

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TB Patient Pathway

- 1. Operational process
- 2. Information process
- 3. Reporting process

Diagnosis

Care and Treatment support

Surveillance and monitoring

Treatment Adherence
DIGITAL HEALTH IN THE PATIENT PATHWAY

1. Cough Cough...?
   - Social media channels promote and raise awareness on TB

2. Mobile phones help healthcare workers to find patients

3. Connected diagnostics instantly share lab results

4. Sample

5. Digital tools support clinical decision-making and educate patients

6. Digital tools assist stock management and procurement of medicines

7. Digital adherence technologies promote patient's self-management

8. Social networks allow cured TB patients to

9. KNCV places the patient at the center of digital health, contributing to integrated data collection, management, and data utilization to support quality care and enable data drive decision making
Digital Solution Playbook

What is the problem?
- Identify the challenges

What is the role of digital technology?
- Map the challenges to a digital solution

Health system readiness
- Operational and infrastructure readiness

Select and adapt technology
- Involve actual users of the system to adapt to fit context

Address delivery systems of care
- Enable supporting structures
Patient challenges with DOT

Daily (or weekly) transport to clinic leads to high costs & logistic issues

Loss of income due to missing work for daily (or weekly) clinic visits

Visiting a TB facility can increase stigma against a patient
Provider challenges with DOT

Heavy workload for HCW in case of directly observing so many patients

Heavy workload for HCW in case of house visits to observe patients at home

DOT: Not all patients require the same level of monitoring and support
Importance of treatment adherence

Missing doses of medication during tuberculosis treatment has serious negative effects

1. Patients are more likely to stop their TB treatment
2. Patients can develop resistance to anti TB drugs
3. Patients are five times more likely to get TB again
Ending the tuberculosis epidemic will require further expansion of the scope and reach of interventions for tuberculosis care and prevention (EndTB strategy)
In pursuit of reliable patient-centered care

Availability & timeliness of dosing data

- Standard facility-based DOT
- DAT-supported treatment
- Community-based treatment
- Self-administered treatment

Patient autonomy
Countries: Ukraine, Philippines and Tanzania

Objectives:

- Assess impact on treatment outcomes using DAT
- Demonstrate the feasibility and acceptability of implementing DATs by providers and patients
- Demonstrate how to use dosing histories to differentiate care and support patients most in need
SureAdhere (Video Supported Treatment)

99DOTS (MEMS via phone call / SMS)

evriMED (MEMS via SIM-enabled sensor)
• 99DOTS envelopes wrapped around anti-TB medication

• Easy and low-cost to manufacture and produce

• Include additional instructions for patient dosing (& motivation)

• Upon dispensing medication, patients reveal hidden phone numbers or codes

• Hidden phone numbers / codes are unpredictable to patients but known by the system

• Patients report adherence with a free call or text from any phone they have access to
• Anti-TB medication stored in sensor-enabled boxes

• Devices provided by WisePill, containers & accessories sourced locally or internationally

• Include additional instructions for patient dosing (& motivation)

• Upon opening box, sensor sends a signal to the platform

• Devices can be programmed to include visual (LED) or audio (small speaker) cues to prompt dosing
• Mobile application that uses video recording and mobile communication to remotely monitor and support TB medication intake.

• Unlike synchronous, “live” video, such as Whatsapp and Viber, for SureAdhere, patients are guided to record videos of themselves taking their daily medication.

• Videos are auto synced with the adherence platform and reviewed by the patient’s health care provider and marked as complete- logging the patient medication intake.

• VOT is the closest approach to “remote” Directly Observed Treatment.
Healthcare providers: Timely & detailed patient-specific adherence data enables provision of differentiated care

Patients: Improved patient-centered approach & system feedback empowers patient ownership of treatment

Decision makers: Availability of adherence data & analysis improves informed decision making & monitoring at national & global levels

Integrated systems: Ability to link with existing health information systems strengthens programs, combining diagnostic, treatment & surveillance data
User centered DAT design

Mapping Key workflows of facility Process

- Patient registration / initiation on treatment
- Patient visit to facility after initiation (refill? Daily DOT?)
- Follow up with patient if they do not come in?

Feedback on design of sleeves and boxes

- Structure?
- Size?
- Colors?
- Icons?
- Font type and size?

Feedback on adherence platform

- What reports/visualizations would be helpful?
- What is the most important piece of real-time information you could have about your patients?
Easy to use, real time patient adherence calendar

How do does this support patient centered care?
Example of a differentiated care pathway

Does a certain intervention have the anticipated effect?

- No, Follow-up call after missed dose does not lead to successful dosing implementation
- Yes, Conducting a home visit improves the dosing implementation
- Action: Move the home visit to an earlier step in the pathway
Differentiated Care & Task Lists

Attention Required
31% require HIGH attention

- Medium/Low: 22%
- End Date Passed: 45%
- High: 31%

Task Lists

High Attention
These patients haven't called the toll-free numbers recently

End Date Passed
These patients need their cases to be closed or extended
Differentiating Patient support

Home visit required
Patients who have missed 3+ consecutive doses

Follow-Up Call Needed
Patients who have missed 2 consecutive doses

End Date Passed
End Date Passed Patients
• Customized follow up and reminder messages sent to patients when they miss taking their medication for the day

• *Messages sent to HCWs listing patients who need follow up
  *Redacted example for patient confidentiality
With the adherence platform, health care workers can access information on adherence levels of all patients in their health facility (aggregated data).

Machine algorithms on the adherence platform help to automatically identify which patients need more attention/support.

With the app, healthcare workers have access to real-time adherence information per patient.
The adherence platform can send healthcare workers automated alerts and reports about their patients, prompting action.

The health care worker can use the app (adherence calendar) to structure patient counselling during follow-up visits.

With the adherence platform, national TB program coordinators can identify trends across or compare the results between different health facilities.