mHealth: from the Lab to the Patient

Linkage solutions for MDR-TB in South Africa

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National Priority Programmes Unit (NPP), NHLS

25 September 2014

NHLS: a vital link

CHC/PHC

Primary Health Care Nurses

Doctors

Injection teams

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Contact tracers

MDR-TB treatment initiation sites

Primary aim (overall)

MDR-TB mHealth in South Africa

To develop a comprehensive mHealth solution to improve linkage to care for RIF (R) patients identified by GeneXpert technology to ensure their rapid access to appropriate MDR-TB treatment.

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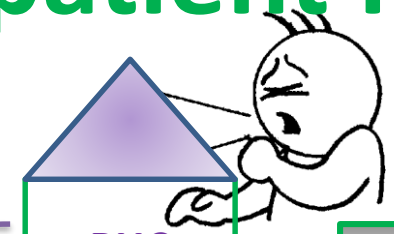
MDR-TB patient flow



ID numbers

PHC

GeneXpert

Patient Registered

Patient Returns

W. Cape

RIF resistant

2nd sputum

Total TAT = 5 days

± 3 days

± 5 days

Patient counselled and sent home with mask

Sub-District TB coordinator

- Appointment at MDR-TB Tx site
- Patient informed of appointment

MDR-TB

Linkage B/D

mHEALTH

Source: L.E. Isherwood

mHealth interventions

Automated messaging and reporting of MDR-TB

1. NATIONAL HEALTH LABORATORY SERVICE — **Bi-directional SMS printers** — **Active**
2. NATIONAL HEALTH LABORATORY SERVICE — **MDR-TB "TTIA"** — **November 2014**
   Time-to-Treatment Initiation APP
3. emocha® MOBILE HEALTH INC. — **Emocha (M&E)** — **November 2014**
4. M4JAM — **M4JAM (Micro-jobbing)** — **New**

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Bi-directional SMS printers

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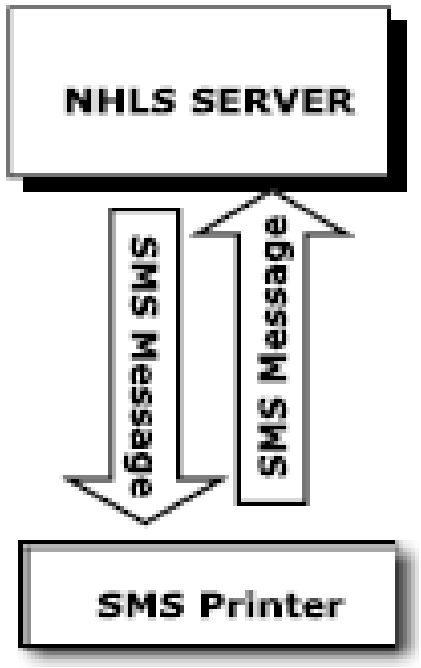
SMS bi-directional printers



- **Phase 1: 2096 Health Care Facilities** ✓
- **Phase 2: 90 Correctional Services (60)**
- **Phase 3: All Health Care Facilities** ✗

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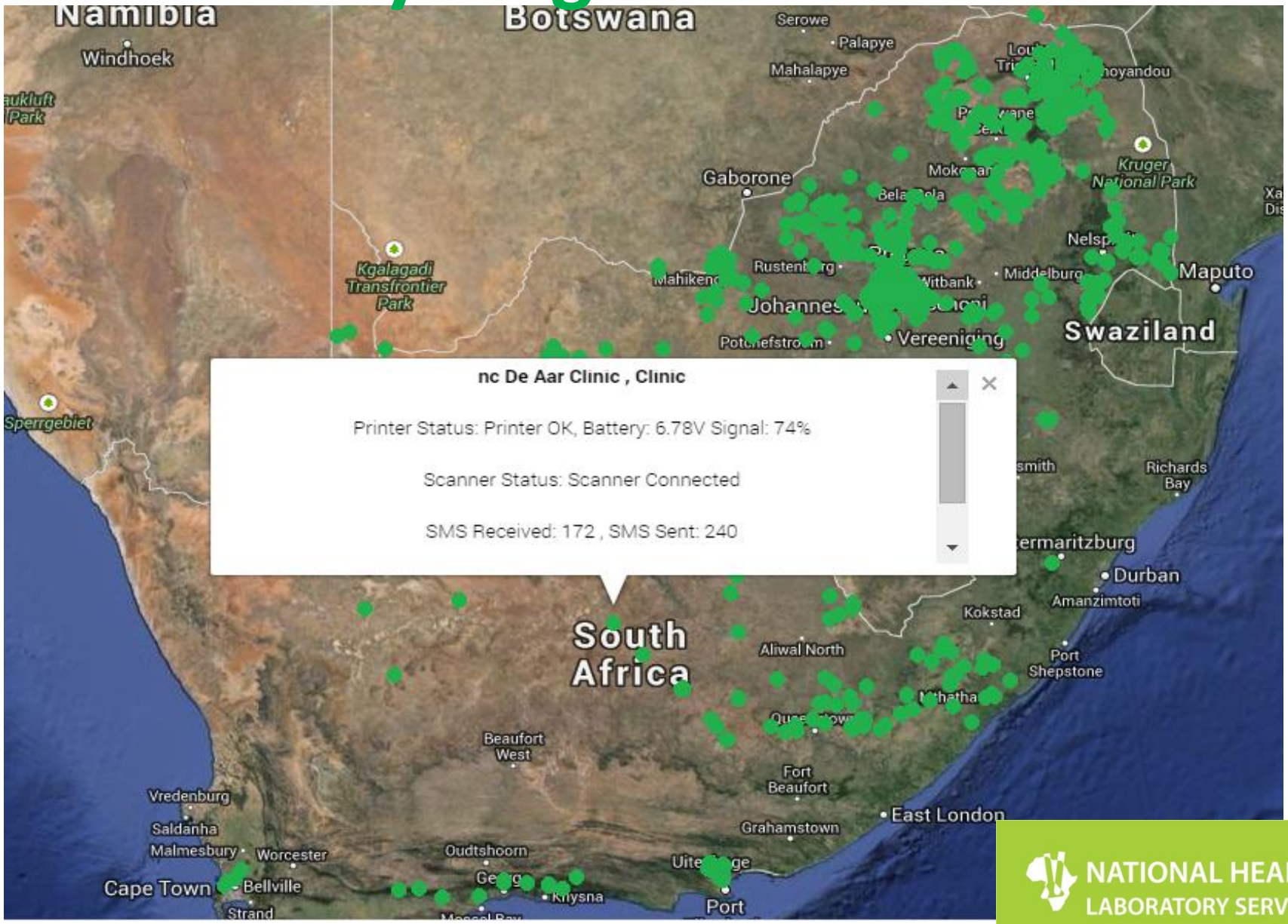
Connectivity “Big Brother”



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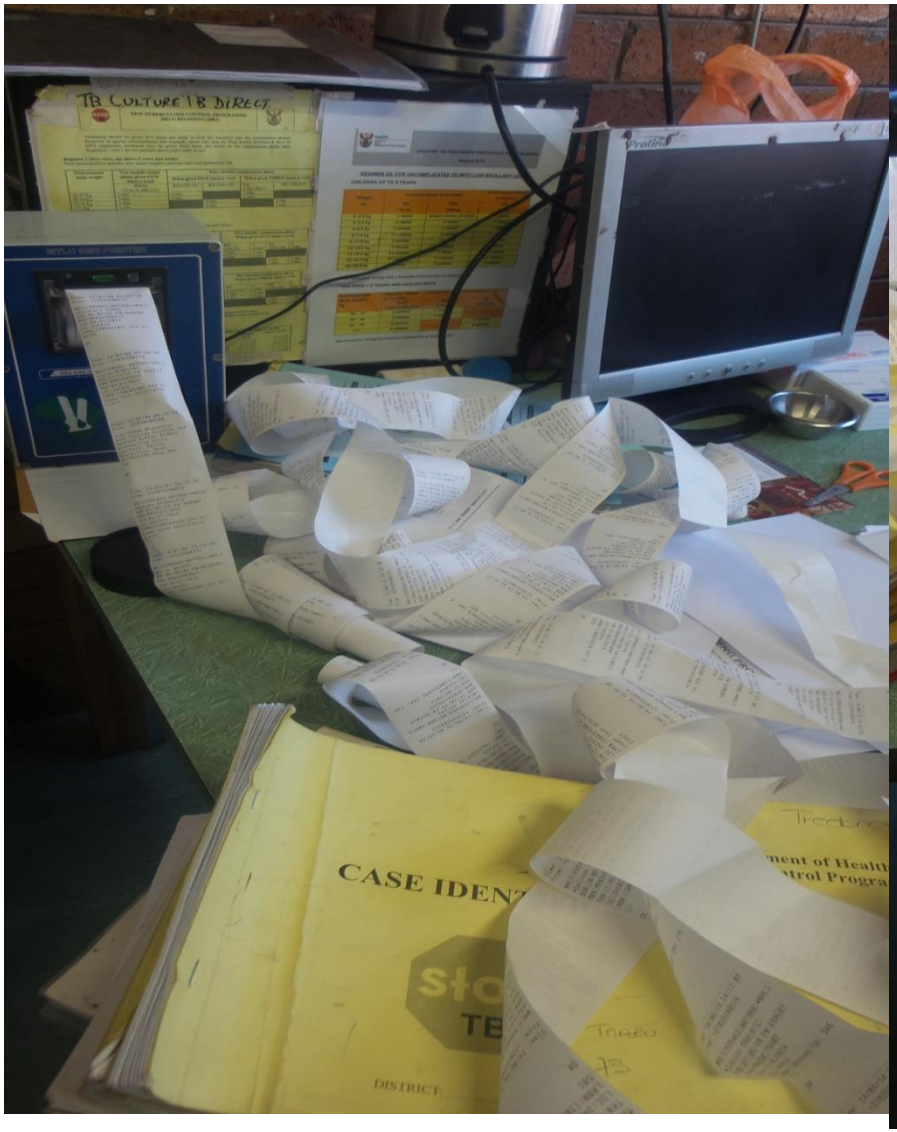
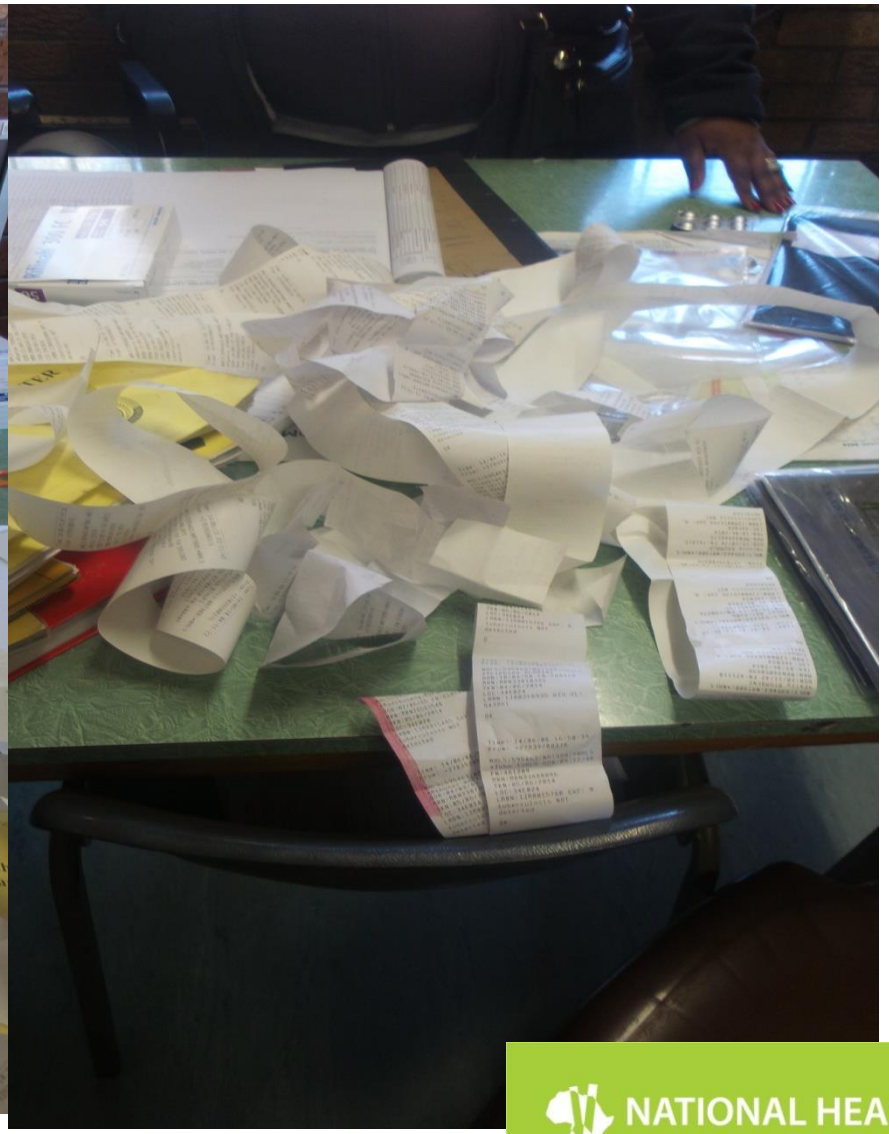
Challenges





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MDR-TB "TTIA"
(Time-to-Tx Initiation APP)

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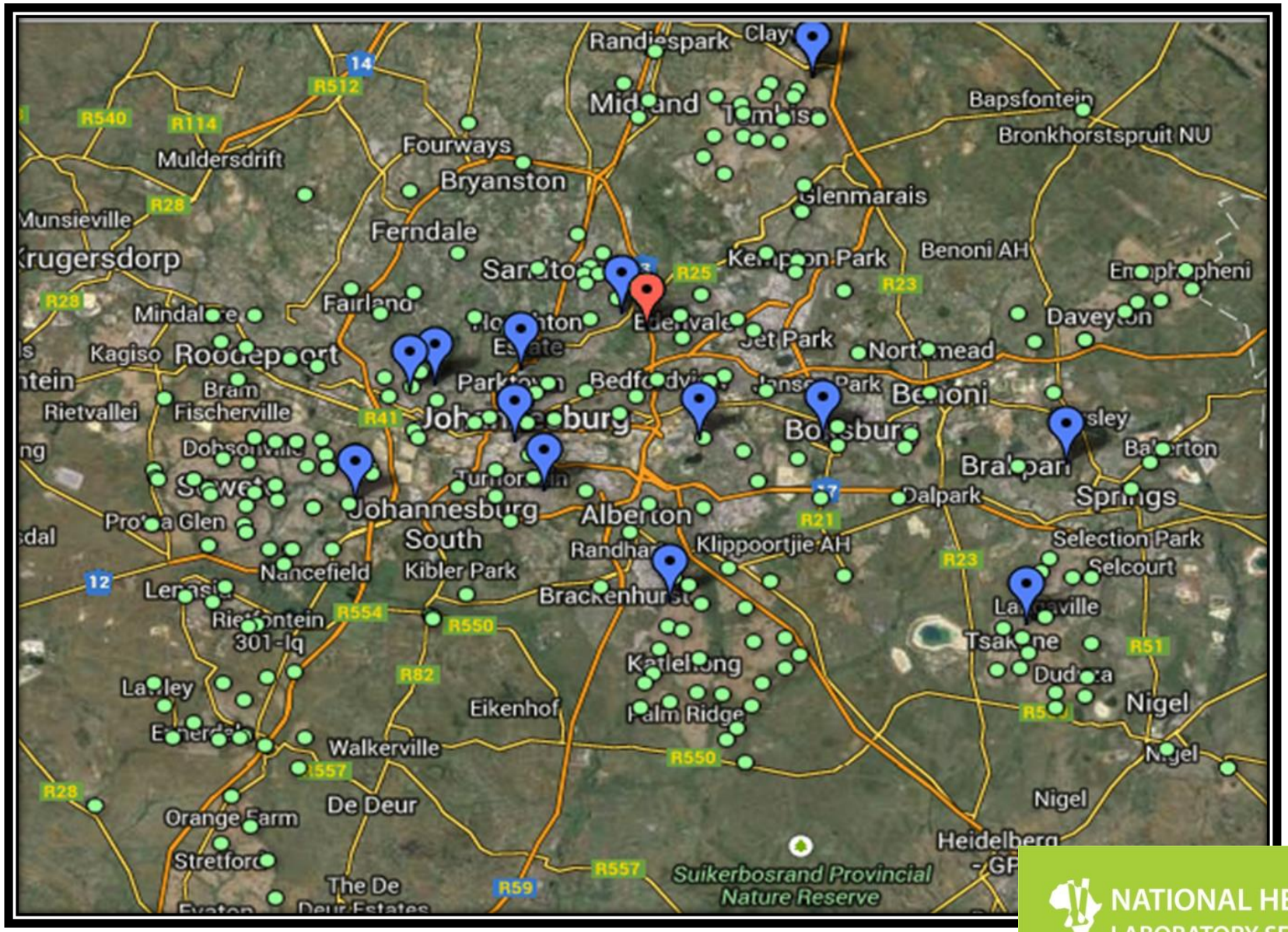
MDR-TB TTI: COJ & Ekurhuleni



With compliments: Floyd Olsen

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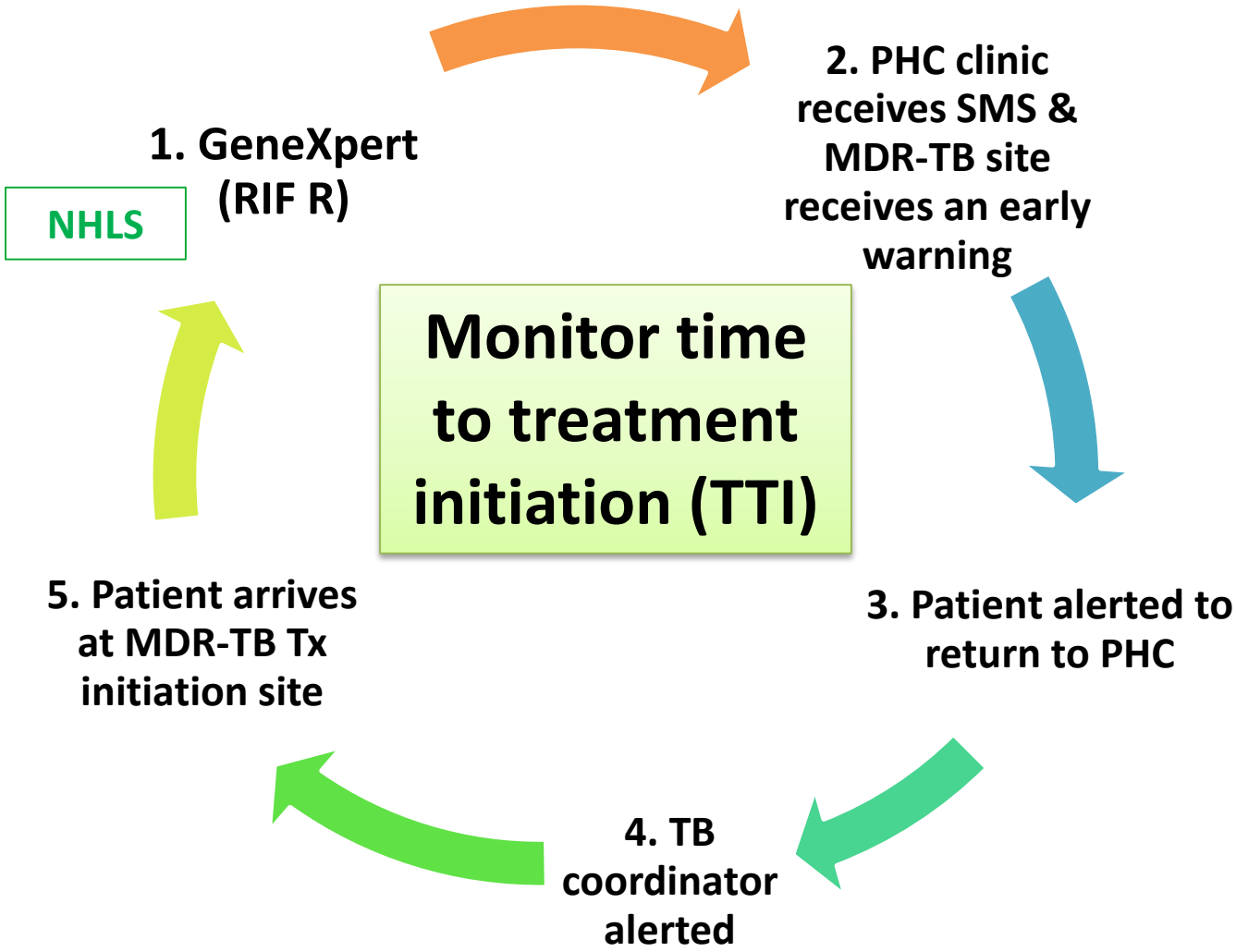
Work flow for TTIA



Schematic work flow for "TTIA"

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Aim & reporting

- Name
- Surname
- Date of Birth
- Folder Number
- MRM Number
- Preferred Facility
- HiV Positive Status
- AntiRetroviral Status
- Diagnosis Date
- Initiated on Treatment Status
- Initiated on Treatment Date
- Time taken to IOT
- Visit Facility
- Visit Date
- Drugs List
- Comments List
- Comments

AIM:

Provide stakeholders with the TAT of treatment access from date of diagnosis

Reports to pre-defined list of recipients

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Study progress

- APP designed
- PDA (tablet/smartphone) interface designed
- 14 x Nexus tablets on order
- NHLS-TLC (engineers) agreement finalised
- Implementation aimed for November 2014

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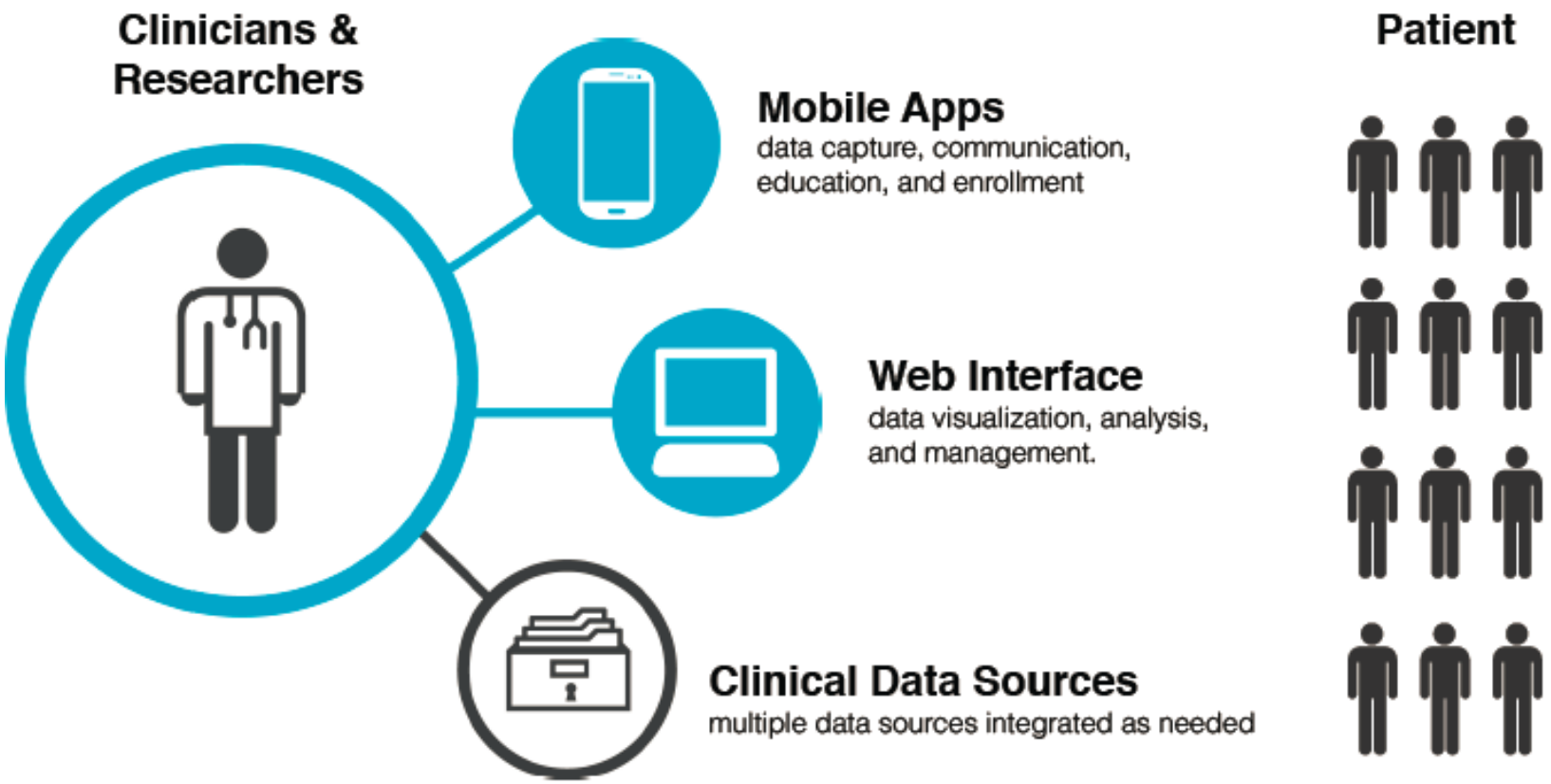

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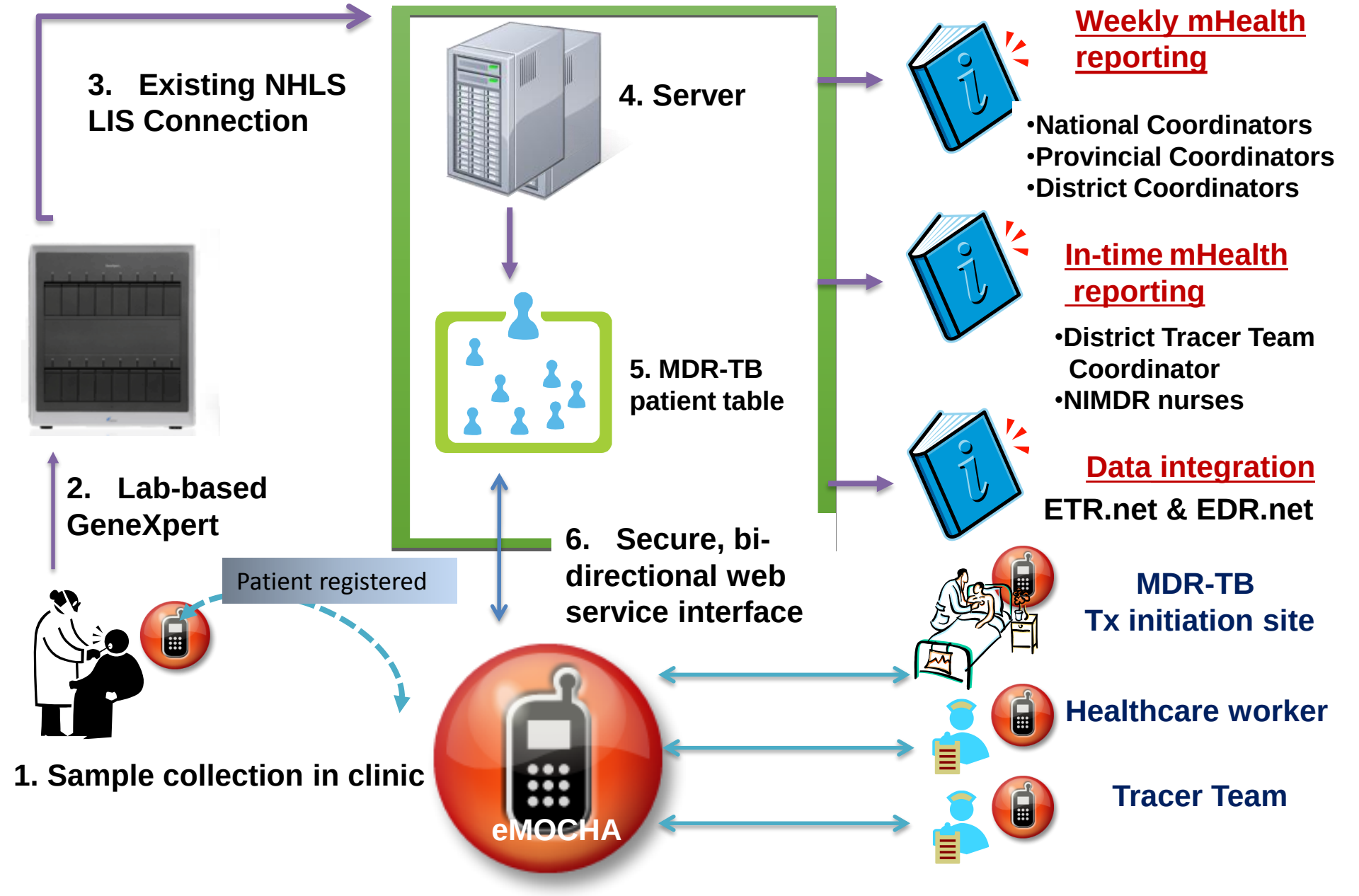

Intended workflow for automated component of mHealth Solution

Plan to roll-out to all MDR-TB facilities across all 9 provinces

- Ugu District, Kwa-Zulu Natal
- Murchison Hospital (first site)
- Peripehral primary health care clinics
- Contact Tracers
- Injection Teams
- Patient
- Implementation commences: October 2014

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Challenges identified at site visits

- Work overload at health facilities (High volumes of work/little staff)

- Frequent movement of patients: multiple registrations in TB registers

- Lack of unique patient identifier across all health facilities (SA-ID highly recommended)

- Limited MDR-TB initiation sites

- Poor communication between treatment initiation sites and down-referral clinics

- Lack of efficient hospital filing systems (in some facilities)

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Other challenges

• Biggest problem that prevents implementation programs is that staff do not take responsibility within their facilities.

•There should be accountability by all staff

•Phone/tablet must be linked to a clinic. Devices disappear

•Sustainability of projects through funding

•Viruses infiltrate into IT equipment

•Unauthorised access to patient information.

•Functionality in clinic: need a smart device and a system where nurse gets a secure SMS (patient confidentiality)

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Study progress

- Global Funding received: as from September 2014
- DoH agreement in place for Murchison Hospital
- MDR-TB hospital staff are fully aware of the project
- MOU between NHLS and emocha finalised
- IP address has been secured
- First ‘proof-of-concept’ data exchange completed
- TTI APP fully developed by emocha
- Emocha due to arrive beginning of November 2014 for implementation planning
- Plan: TTIA, followed by M&E APPs
- Step-wise implementation throughout all 9 provinces

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www.m4jam.com

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Community involvement through incentivization

- **The Market: specific to South Africa**
- Official unemployment is 25.5%,
- 69.2 mill active SIM cards
- 32.9 mill people with some form of telephone
- 14.1 mill smart phones (estimated)
- Data cost declining, free WIFI penetration increasing
- Advertising & market research on the decline
- Tougher legislation changing the landscape for marketers
- Social engagement continues to grow
- Chat based platforms: highest levels of engagement

Micro jobbing can be the game changer for Developing Markets

Courtesy: Wendy Stevens, National Priority Programme Unit, NHLS

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Expert networks (overall)

Assessing gaps in TB treatment access and adherence

EDR/ETR.net integration

Database development of all TB facilities

Proposed by
L. Isherwood:
National mHEALTH & eHEALTH Task Team in South Africa

Informal stakeholder meeting on 25 August 2014: NHLS, NICD, CHAI, Vitalwave, Jhpiego, Johns Hopkins University, UCT

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