POPULATION HEALTH SURVEILLANCE
Vision

To design technology-enabled Continuous Surveillance System (CSS) that robustly tracks patients in the community and allows for continuity of care with the hospital.

- A system that collects real time data and prevents time lag in capturing vital/health events
- Unique patient identification system
- Links health encounters in different settings (eg; hospital, community) for integrated patient record
- Efficient and user friendly tools to be used by community health workers
- Reduced paperwork for community health worker
Background - Phase 1: Paper Based Surveys

1. Paper based system
2. Based on Sampling
3. No patient tracking system
1. Use of Android Phones (SurveyCTO)
2. Enumeration of all Household in catchment area
3. Unique HHID recorded in mobile phones
4. Geo-tagging of household
5. Collected baseline parameters like: U2 deaths, Institutional birth rates etc
Background - Phase 3: Continuous Surveillance System (CSS)

1. Use of improved Android Phones (CommCare)
2. Enumeration of all Household in catchment area
3. Unique HHID number plates
4. Unique Individual ID
5. GPS points of interest
System of HH numbering
Individual ID

- Kamal: LG040167-A-1
- Sita: LG040167-A-2
- Ramesh: LG040167-A-4
- Nirmala: LG040167-A-3

Family 1 (A)

LG040167
Next Step: Designing robust and integrated data system

Workflow Diagram

Behind the scenes, many different tools and partners are involved.

Partners:
- Possible
- SimPrints
- Dimagi
- Grameen Foundation
- Thoughtworks
Key Components: CommCare

- Mobile-phone based platform used to develop job aids for Community Health Workers
- Key features include: offline data collection, decision support, embedded counseling materials, and worker performance monitoring tools
- Configured by the Possible Health team
- Used to register new patients, follow up with existing patients, and guide referrals
Key Components: SimPrints

- Simprints has developed a high quality, very rugged fingerprint scanner

- Fingerprint data will be collected during enrollment and can be used to call up specific patient data

- Will eventually be integrated with Bahmni to manage identity across continuum of care
Key Components: MOTECH

- MOTECH serves as the connector between CommCare and Bahmni.
- Maintains shared lists of patients in the facility and for CHWL.
- Transmits care-related updates and requests.
MOTECH Workflow Overview

CHW’s work in community

Submits Form in CommCare

Creates or Updates Bahmni Patient Record

Most recent patient information is now available to clinicians

Live Sync between two systems

Clinical staff in Hospital

Updates Patient Records in OpenMRS

Creates or Updates CommCare Case Record

CHWs can follow up with patients, providing continuity of care
A woman is found to be pregnant at Bayalpata Hospital, and is registered in an Antenatal Care Program.

MOTECH detects that this woman is now actively enrolled in the ANC Program, and that the woman lives in a VDC and ward where there is a CHW.

A CommCare case is assigned to the CHW where the woman lives so the CHW can follow up with the woman’s care.
System Workflow
App Overview

Main Components:
- Enrollment
- Updates
- Care Delivery
- Bahmni Links

Key Features:
- Works offline
- Possible’s team can make updates to content
- Each CHWL has their own login information
Follow-up

- Configurable patient lists for follow up
- Data and patient records are linked over time
- Can search against various patient fields or use fingerprint scanner
Taking bio-metrics from patients in the field – Achham, Nepal
Care Delivery

- Forms of care delivery content available for each care area
- Only relevant topics are displayed for each patient
Assistance with Calculations

- System automatically does calculations
- Can integrate information/inputs from different interactions and sources

Visit 1

LMP

EDD: 3 Bhadra 2073

Weeks pregnant: 17
Months pregnant: 3

(14 March 2016)
Counseling Content

- Pictures, audio recordings, and video can be added
- Serve as counseling tools for the CHWL to use
- Can illustrate key points or provide background
Decision Support

- Care Delivery designed with skip logic
- Algorithms for making important decisions like referrals or classifying as high risk
- Can take into account multiple data sources, and eventually inputs from Bahmni
GPS

- GPS passively captured during enrollment and subsequent interactions.
- Can be used for monitoring, data visualization, and to help CHWLs find closest patients.

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<th>Distance</th>
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<tr>
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Next Steps
August: Launch of CHWL Application 1.0 with Biometrics

August will see visitors from:
- Dimagi
- Simprints
- MOTECH Suite

Goal of the month: Launch version 1.0 of the CHWL application. It includes:
- Revised House, Family, and Individual registration workflows
- Fingerprint scanner integration
- Pregnancy Surveillance and ANC care delivery modules
- Basic integration with Bahmni

Visit objectives:
- Finalization of the application
- Capacity building sessions to manage future app updates
- Data migration from the household survey
- Preparation for and training of the CHWLs and CHNs
Future Goals

One goal of the August launch will be to finalize and prioritize the next steps.

Short Term:
  - Monitor CHWL use of the application
  - Make updates to the app as appropriate
  - Add in more care delivery modules (chronic disease, surgical follow-up, Under 2 child monitoring)

Long Term:
  - More complex integration with Bahmni
  - Enhanced reporting
  - Supervisory app
  - Fingerprint scanning integration with Bahmni
  - Substantive app revisions