



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



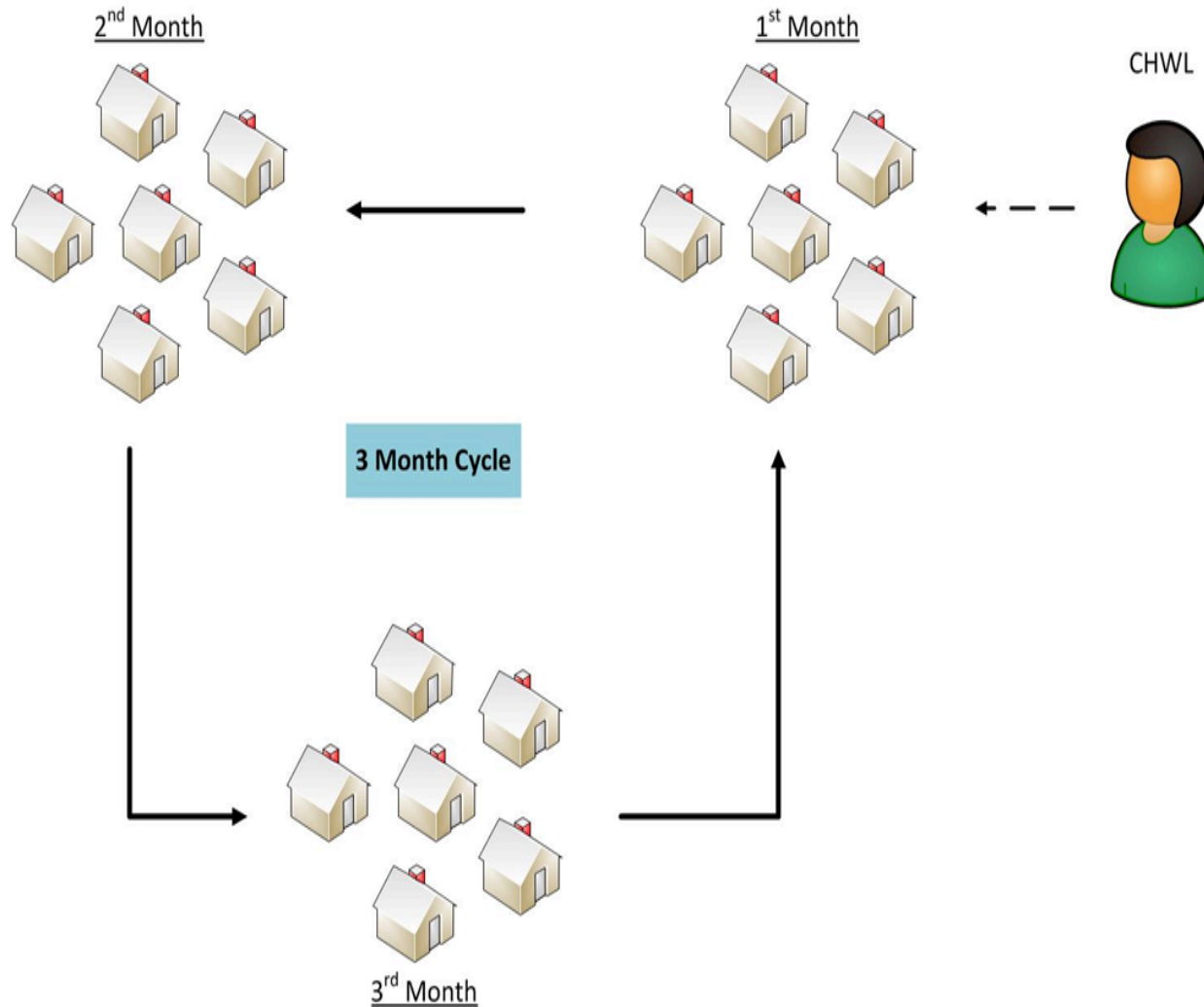
1. Paper based system
2. Based on Sampling
3. No patient tracking system

Background - Phase 2: Digital Household Census



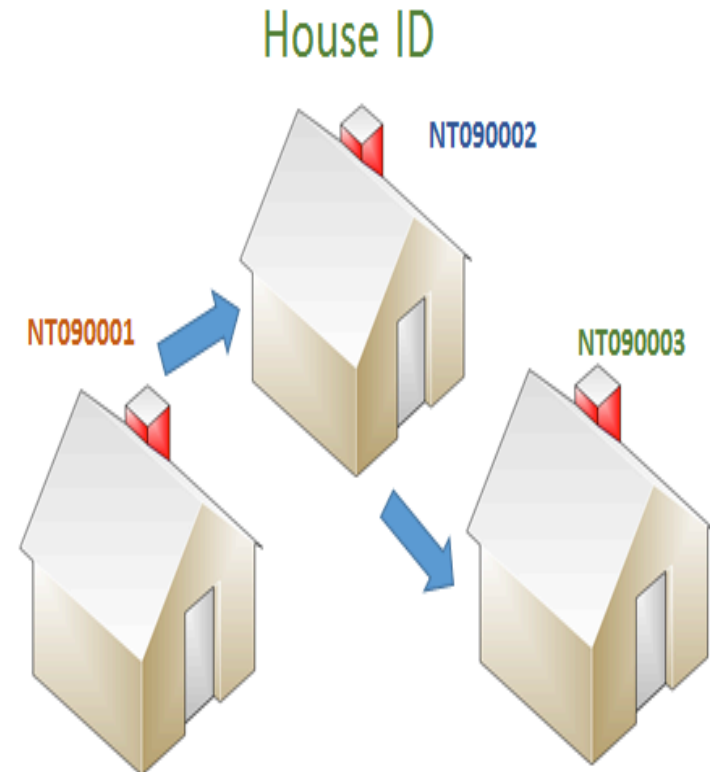
1. Use of Android Phones (SurveyCTO)
2. Enumeration of all Household in catchment area
3. Unique HHID recorded in mobile phones
4. Geo-tagging of household
5. Collected baseline parameters like: U2 deaths, Institutional birth rates etc

Background - Phase 3: Continuous Surveillance System (CSS)

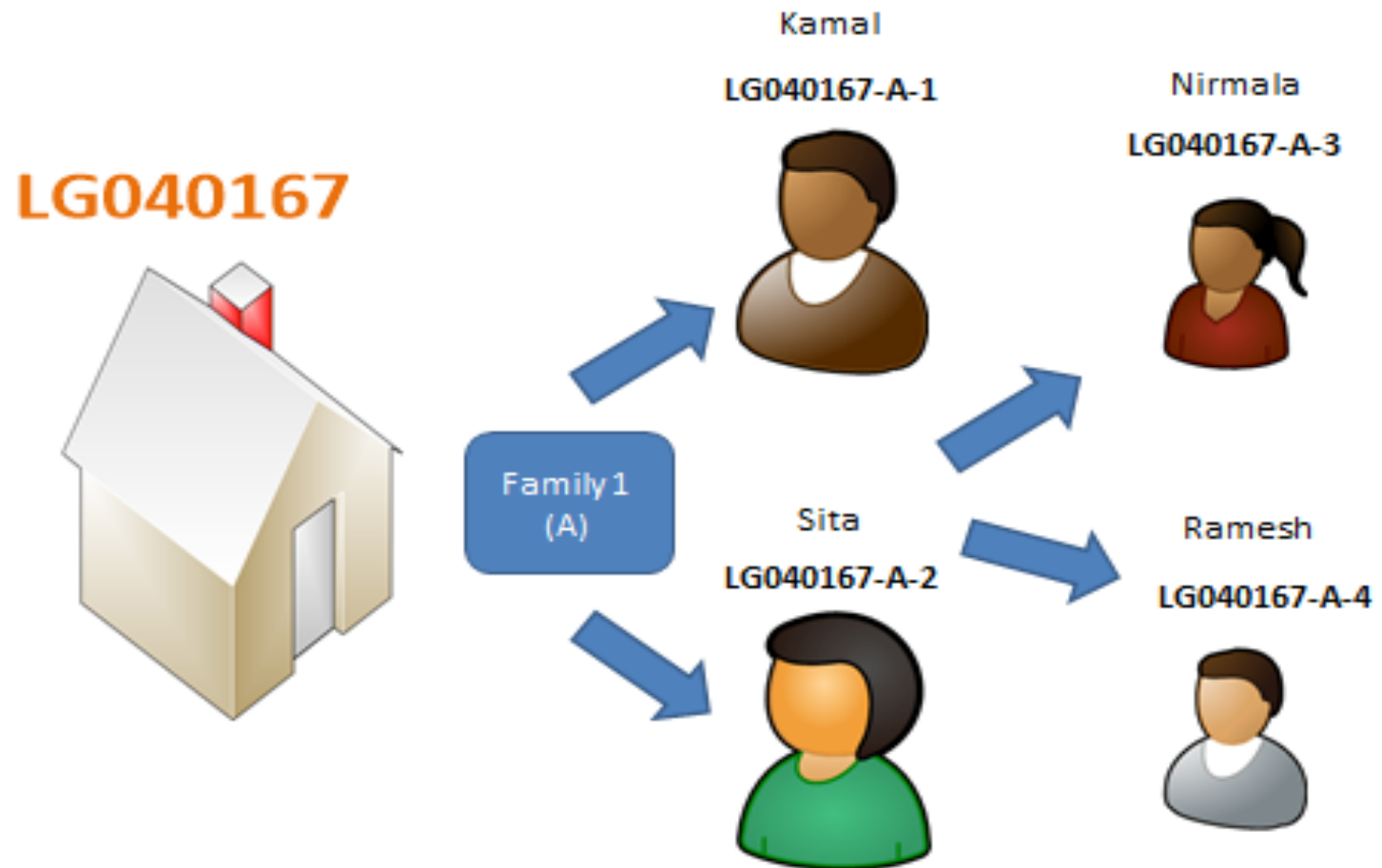


1. Use of improved Android Phones (CommCare)
2. Enumeration of all Household in catchment area
3. Unique HHID number plates
4. Unique Individual ID
5. GPS points of interest

System of HH numbering



Individual ID



Next Step: Designing robust and integrated data system

Workflow Diagram

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

Partners:

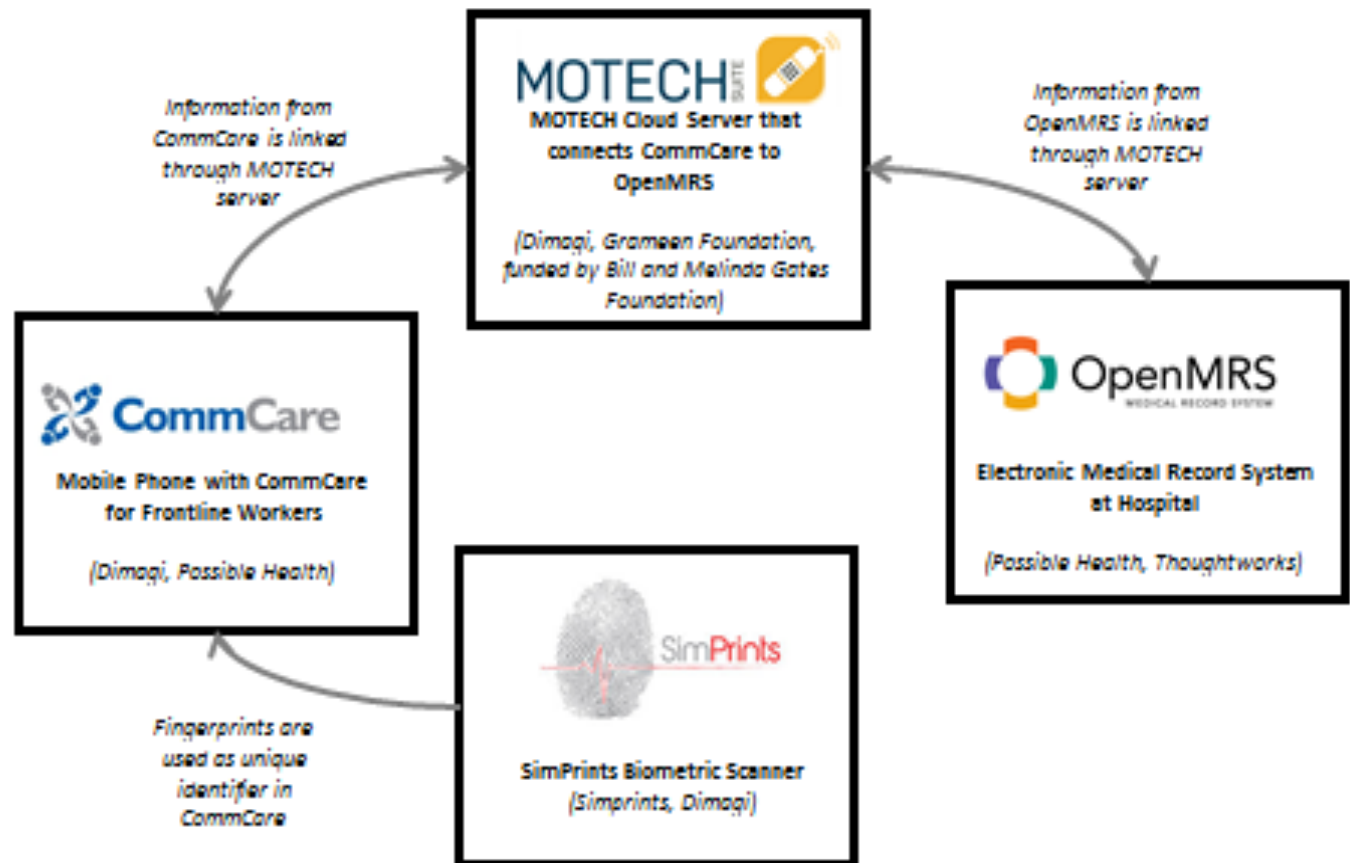
Possible

SimPrints

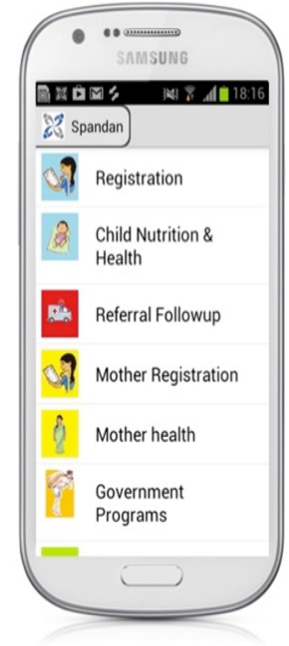
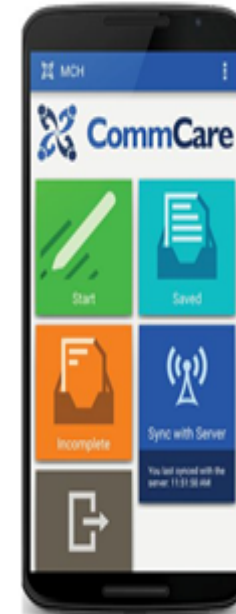
Dimagi

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



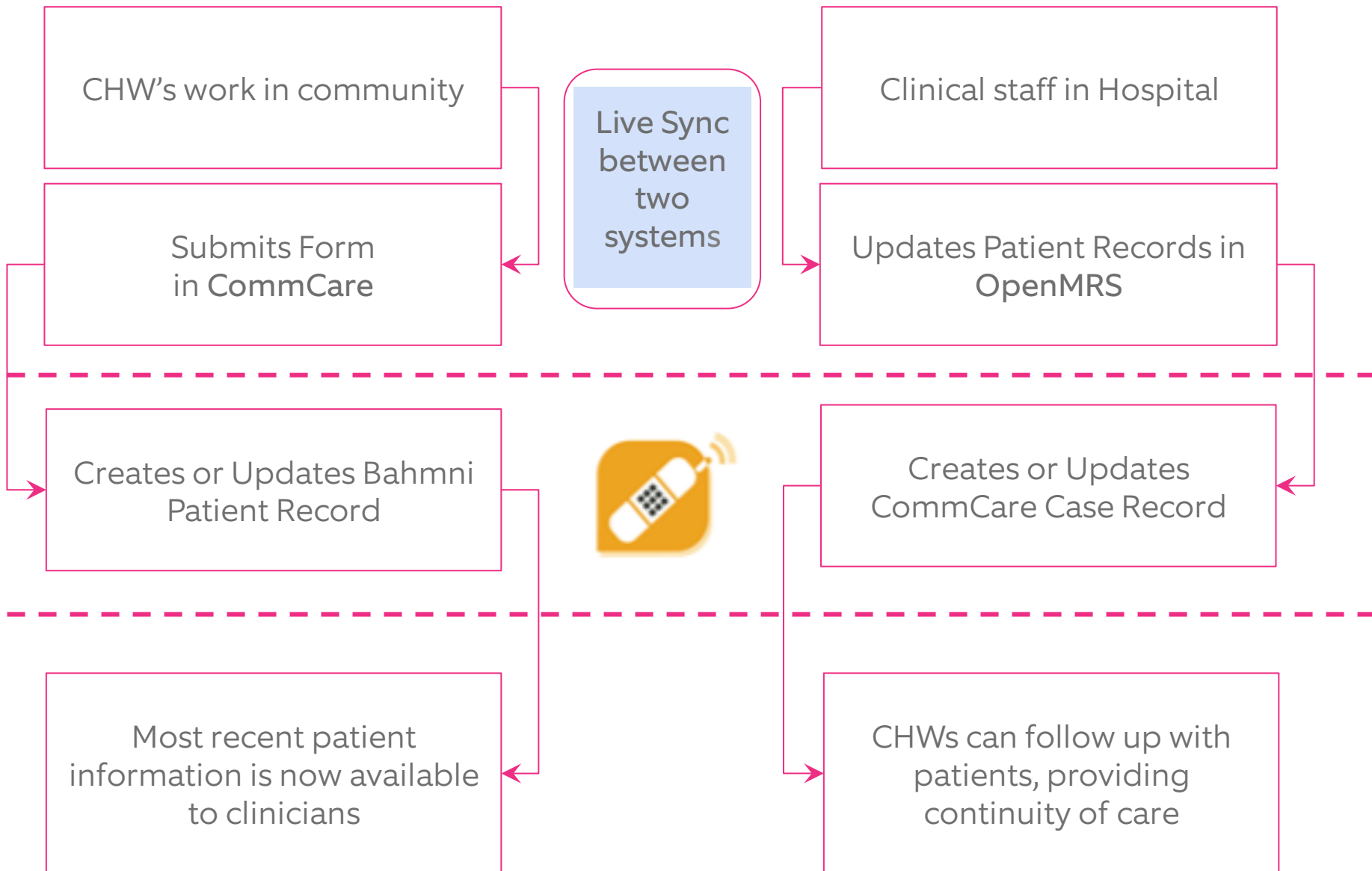
- Simprints has developed a high quality, very rugged fingerprint scanner
- Fingerprint data will be collected during enrollment and can be used to call up specific patient data
- Will eventually be integrated with Bahmni to manage identity across continuum of care

Key Components: MOTECH



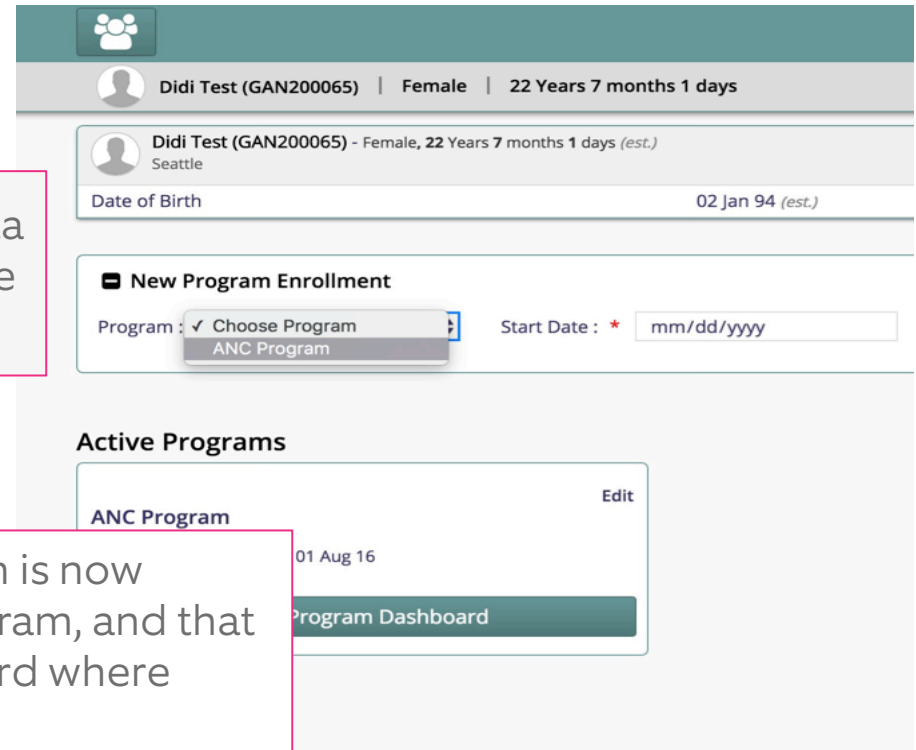
- MOTECH serves as the connector between CommCare and Bahmni.
- Maintains shared lists of patients in the facility and for CHWL.
- Transmits care-related updates and requests

MOTECH Workflow Overview



MOTECH Workflow Example

A woman is found to be pregnant at Bayalpata Hospital, and is registered in a Antenatal Care Program



The screenshot displays the MOTECH interface for a patient named Didi Test (GAN200065), a 22-year-old female. It shows her date of birth as 02 Jan 94 (estimated). Under the 'New Program Enrollment' section, the 'ANC Program' is selected. The 'Active Programs' section lists the 'ANC Program' with an 'Edit' button and a date of 01 Aug 16. A 'Program Dashboard' button is also visible.



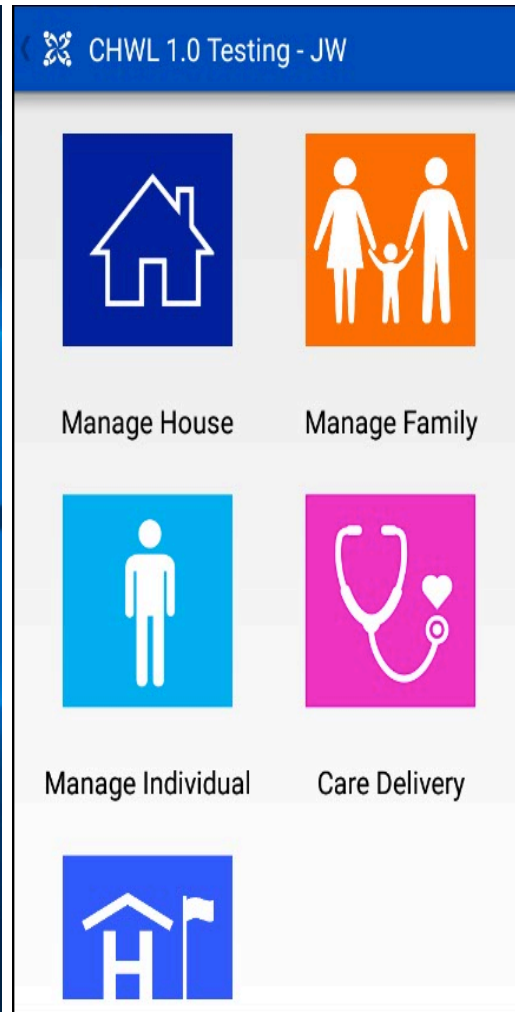
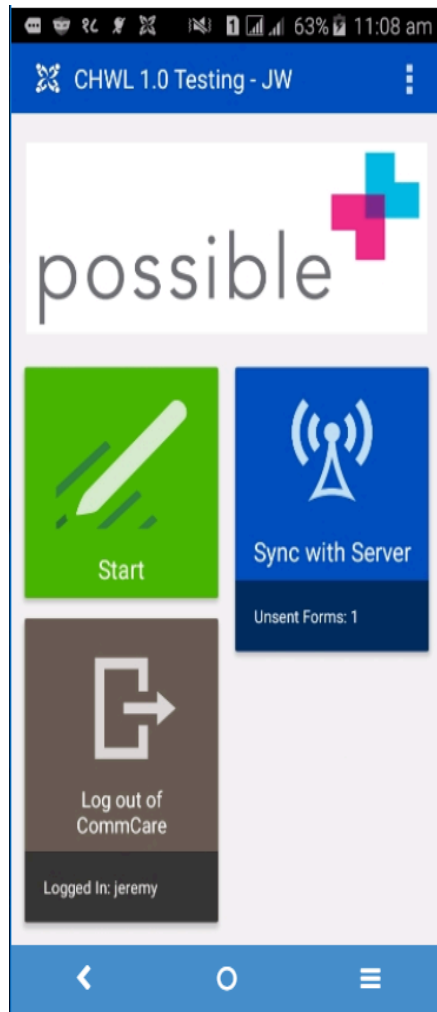
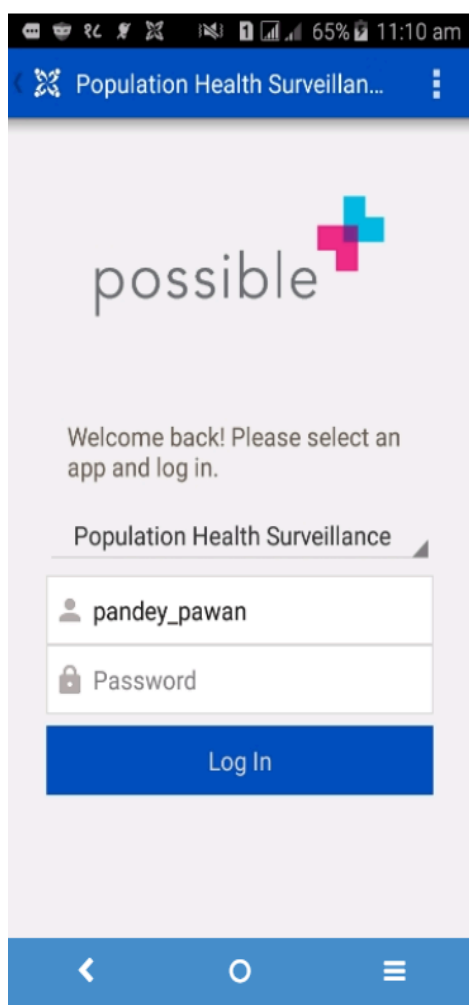
MOTECH detects that this woman is now actively enrolled in the ANC Program, and that the woman lives in a VDC and ward where there is a CHW

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

Manage Individuals	
Person ID	Person's Name
BP020052-1	maryam
BP020052-A-1	sachit
BP020052-A-2	maria
BP020052-B-1	jeremy
KB020588-A-1	neena
KB020588-A-2	megan wright
KB020588-A-3	jami young

ANC

Continue

Full Name

Aisha Rai

Woman's ID

PL030008-A-2

Gender

F

Telephone Number

123456789

Dob

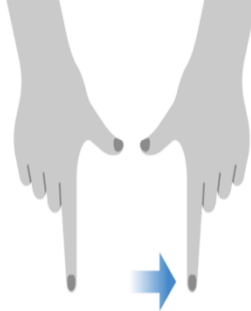
13/03/07

Show Address

Address

29.23328826
81.21818209 593.0
8.0

Identify



Good Image
Please scan next finger

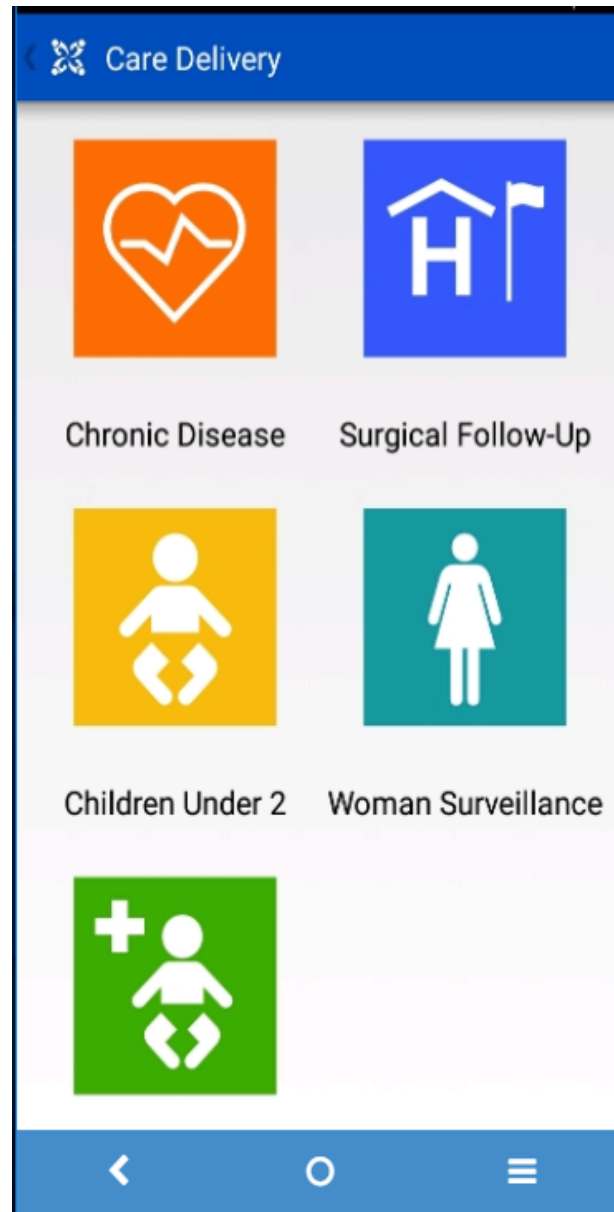
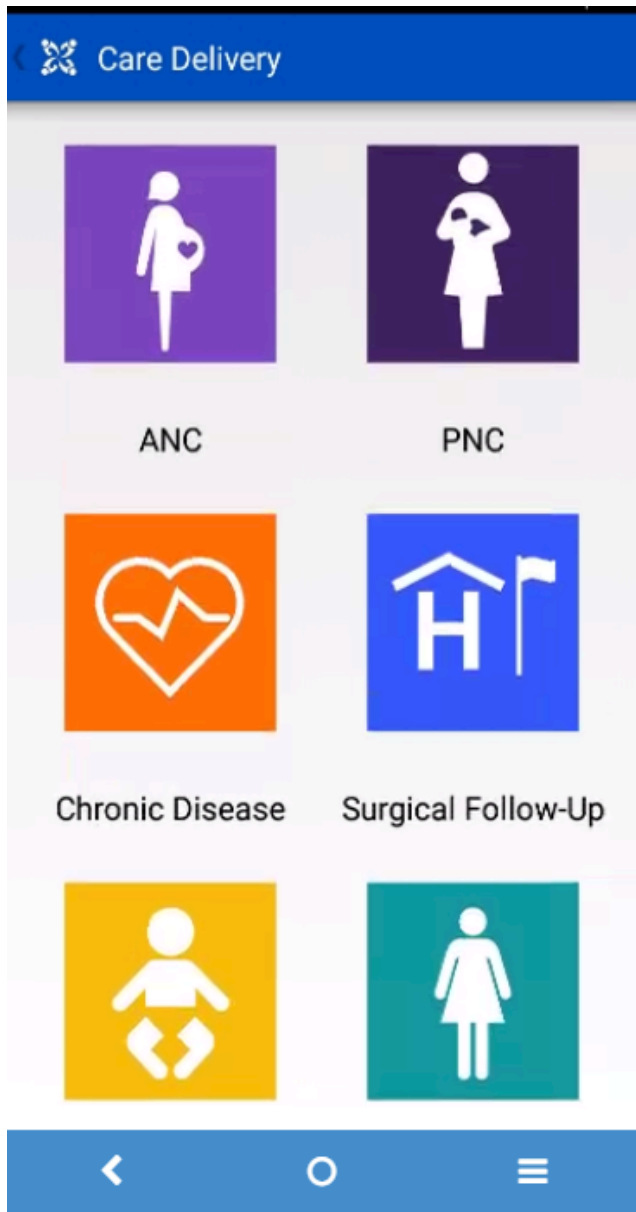
RE-SCAN?

- 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



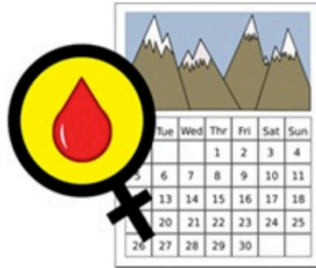
- Forms of care delivery content available for each care area
- Only relevant topics are displayed for each patient

Assistance with Calculations

ANC

Visit 1

LMP



+ 01 + Chaitra + 2072 - - -

(14 March 2016)

ANC

Visit 1

EDD : 3 Bhadra 2073

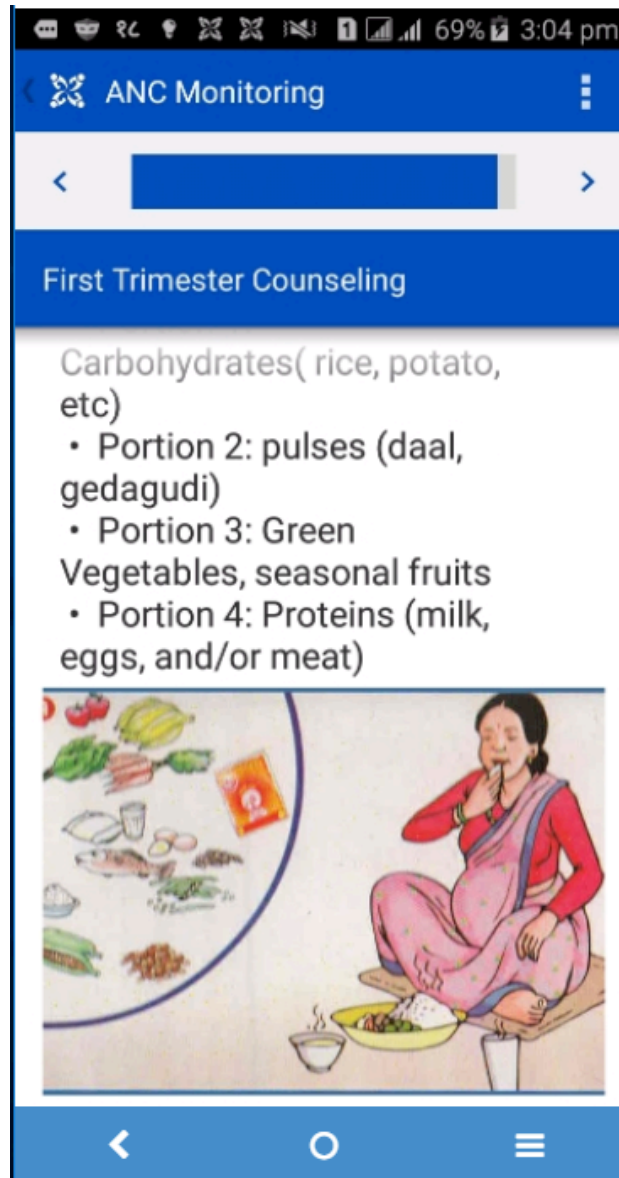
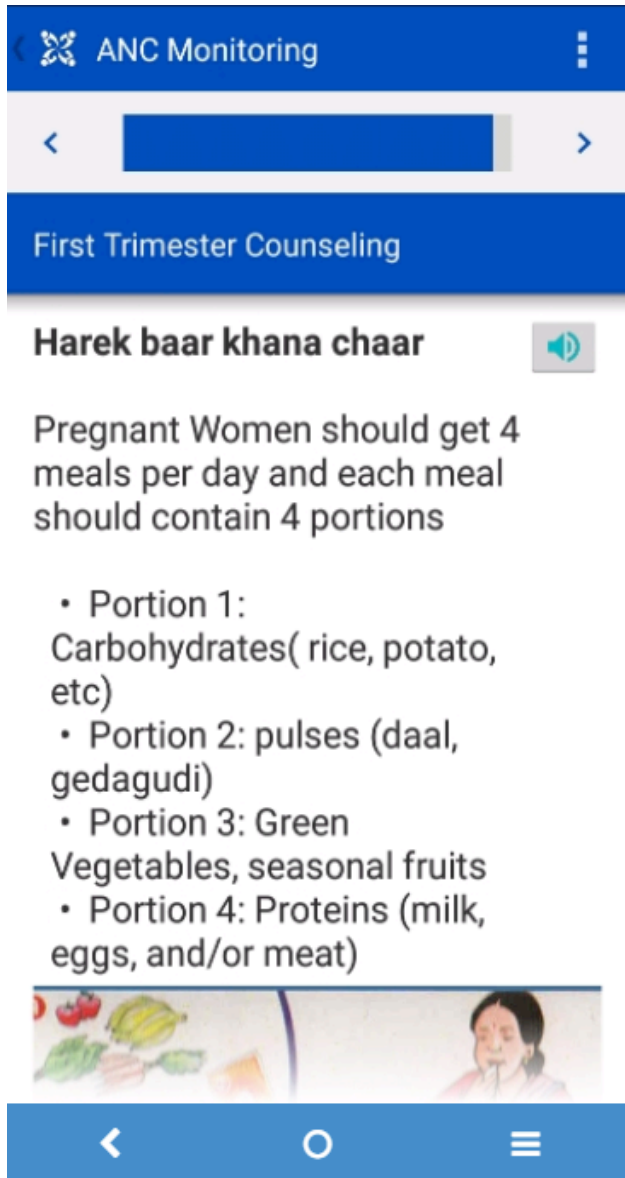
Weeks pregnant: 17

Months pregnant: 3



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

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

ANC Monitoring

< [] >

Visit 1

Has she ever delivered via a C-Section?

☒ Yes

☐ No

ANC Monitoring

< [] >

Visit 1

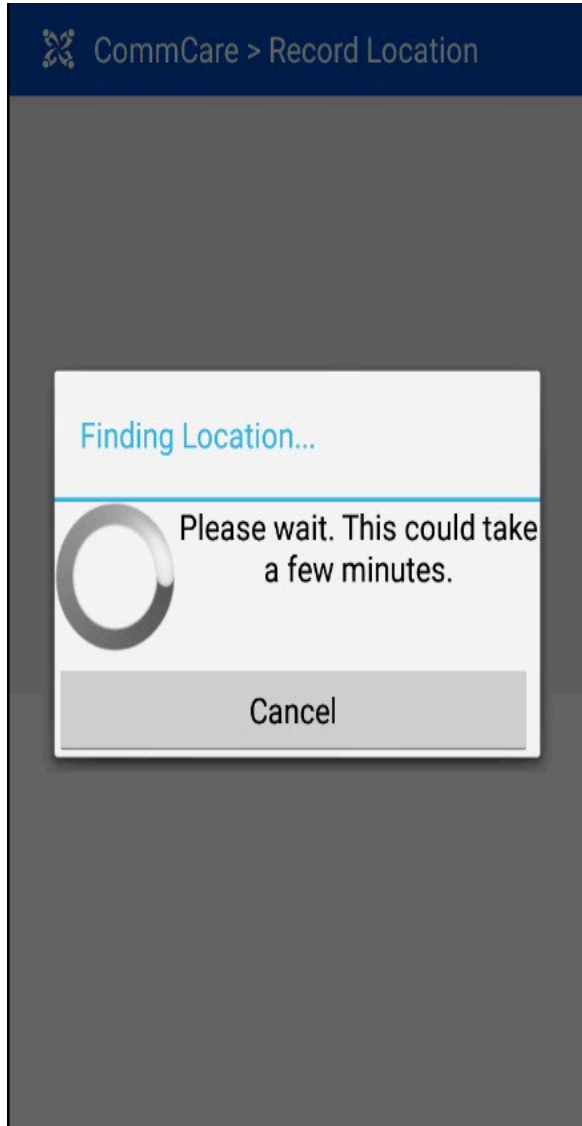
She is a high risk pregnancy.
Please refer her for follow-up.

Referrals

Parent Full Name Distance Referral Type

- 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



Full Name	Distance
Sunita Tamang	0 km
Sunil Tamang	0 km
Bishal Gurung	0 km
Krishna Gurung	0 km
Aisha Gurung	0 km
Niharika Lama	0 km
Mohammad Yadavas	0 km
Aisha Rai	0 km

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

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