Electronic health management information systems (eMIS) - A digital health innovation for primary level care in Bangladesh

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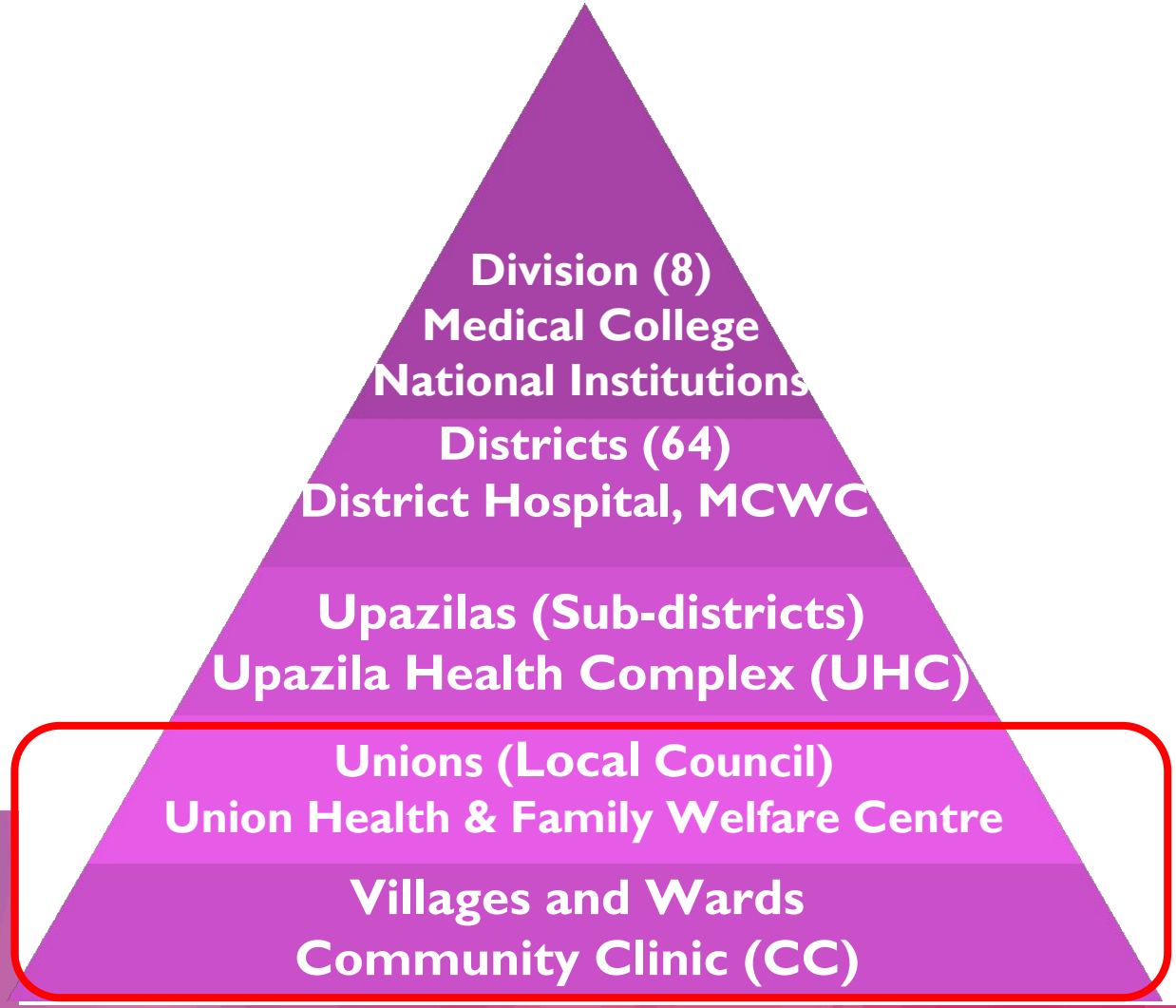
USAID FROM THE AMERICAN PEOPLE

MEASURE Evaluation

icddr,b KNOWLEDGE FOR GLOBAL LIFESAVING SOLUTIONS

Save the Children

Ministry of Health and Family Welfare (MOHFW) of Bangladesh's Facilities at Different Administrative Level



Total Population: ~165 Million, Rural: 64.3%
E-MIS Coverage: 9 District, 19 Million

Community System

Community Health Worker's (CHW) Register:
Family Welfare Assistant (FWA)
Health Assistant (HA) – EPI + IPC

E-supervision system for CHW's Supervisors:
Family Planning Inspector (FPI)
Health Inspector (HI, AHI)

Facility System

UH&FWC is Primary Level Health Care Facility
Population Coverage: 25,000 – 30,000

Family Welfare Visitor (FWV)
Sub-Assistant Community Medical Officer (SACMO) Uses E-MIS e-registers

Background of eMIS Initiative

Issues:

- Inability to track patient along continuum of care
- Reporting delay, slow and error-prone extraction of information.
- Lack of Synchronization between program strategy and information system e.g Data is not being used in planning.

Union level health facility UH&FWC

Registers used at the UH&FWC

Solution:

- The paper registers are **simplified** and **combined** for better record keeping and patient tracking.
- Appropriate indicators are incorporated into registers
- **Digitalization** of registers ensures ***accurate real time*** information for ***evidence-based planning*** and ***performance monitoring***.

eMIS aligned with Digital Health Intervention v1.0 (WHO)

A shared language to describe the uses of digital technology for health

Healthcare Provider 2.0

- Client Registration and Identification
- Client Health Record
- Provider Decision Support
- Worker Activity Planning

Health System Manager 3.0

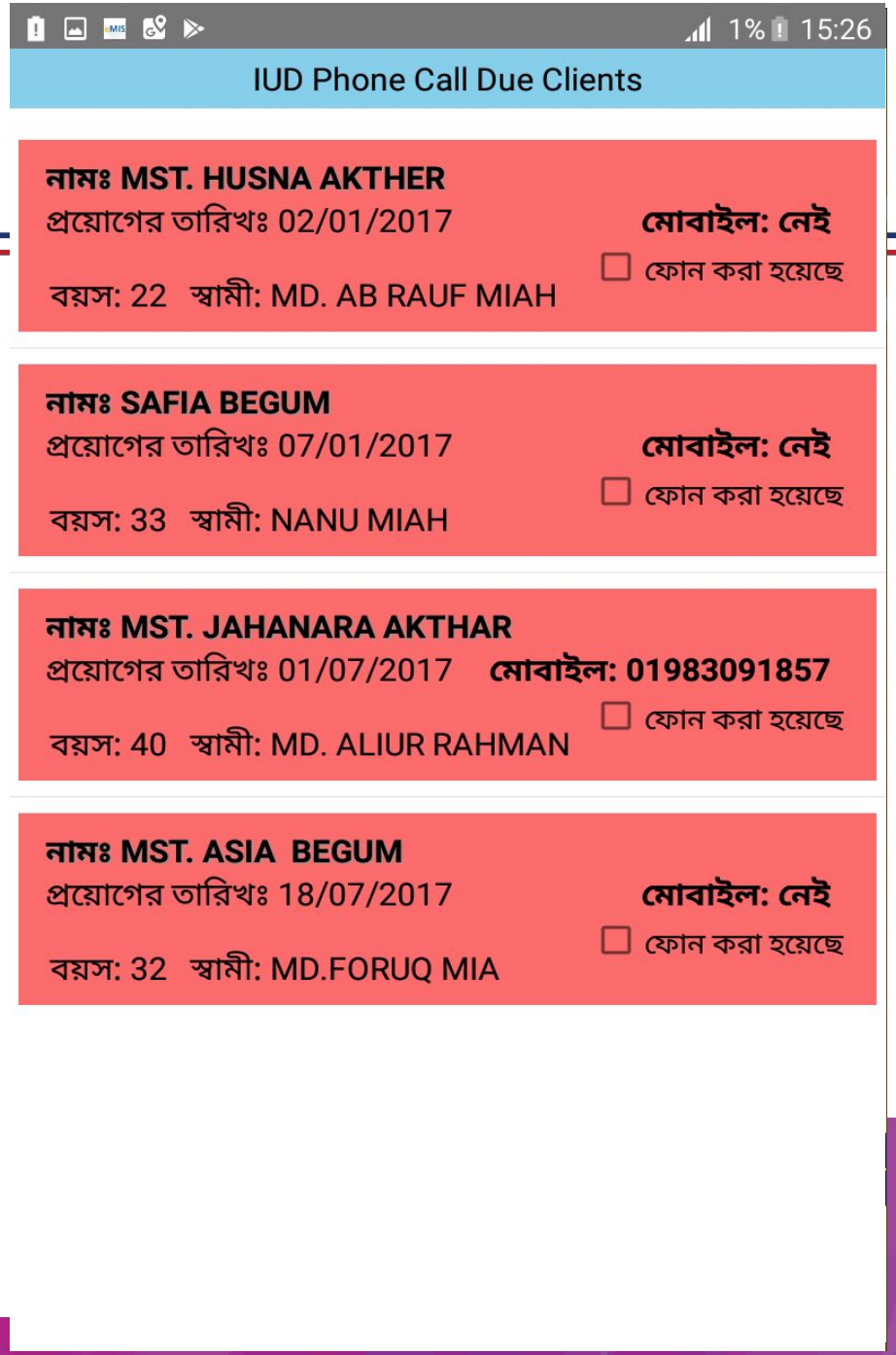
- Human Resource
- Supply Chain Management
- Equipment and Asset Management
- Facility Management

Data Services 4.0

- Data Collection, Management and Use
- Data Coding
- Location Mapping
- Data Exchange

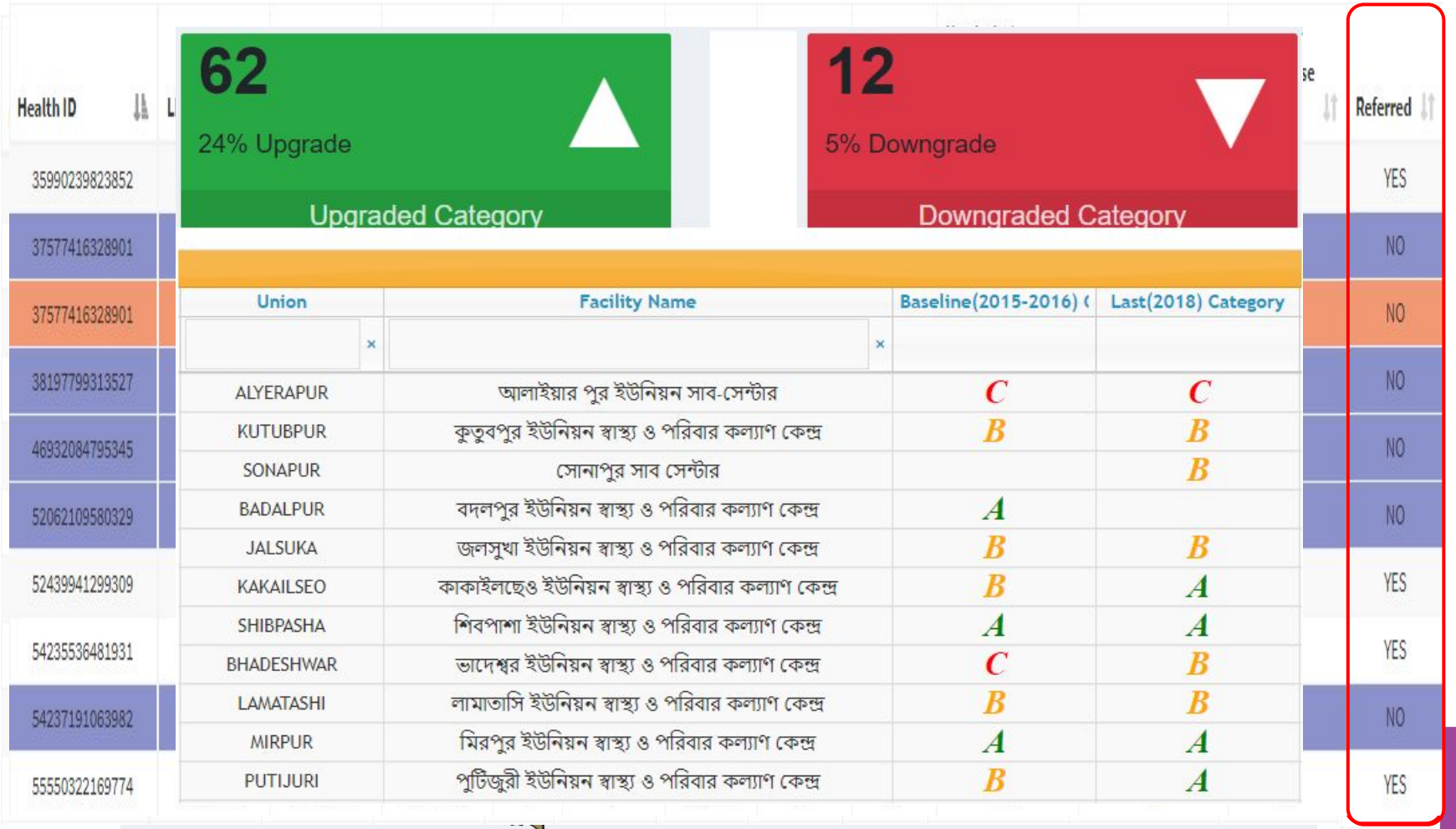
eMIS for Healthcare Providers

- Client unique identity
- Manage client's clinical
- Provide prompts and a based according to protocol
- Longitudinal tracking of clients' health status and services
- Screen clients by risk or other health status
- Schedule healthcare provider's activities



eMIS for Health System Managers and Supervisors

- Monitor performance of healthcare provider(s)
- Manage inventory and distribution of health commodities
- Assess health facilities

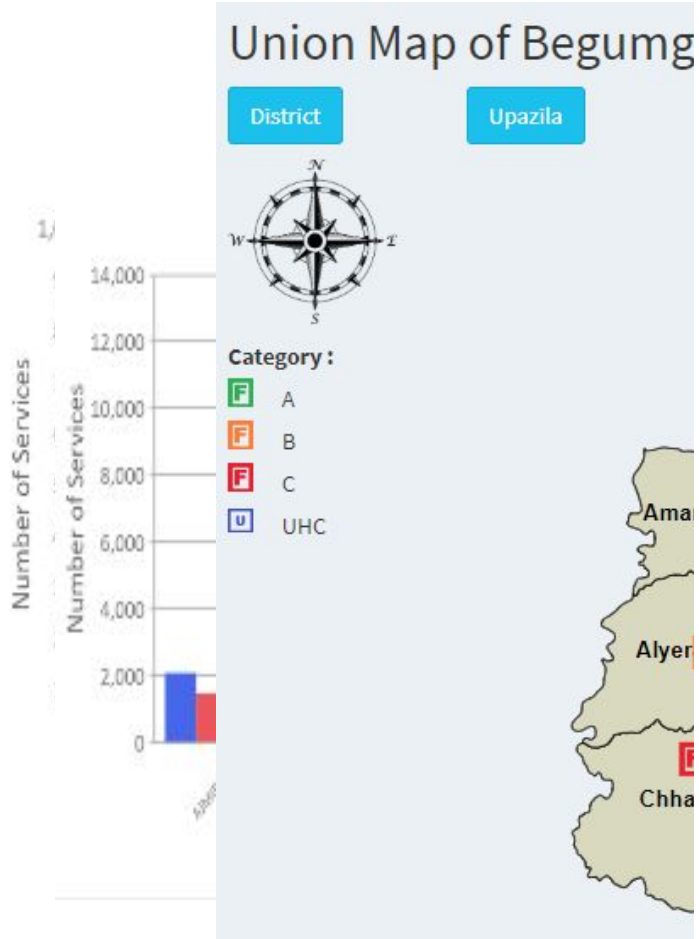


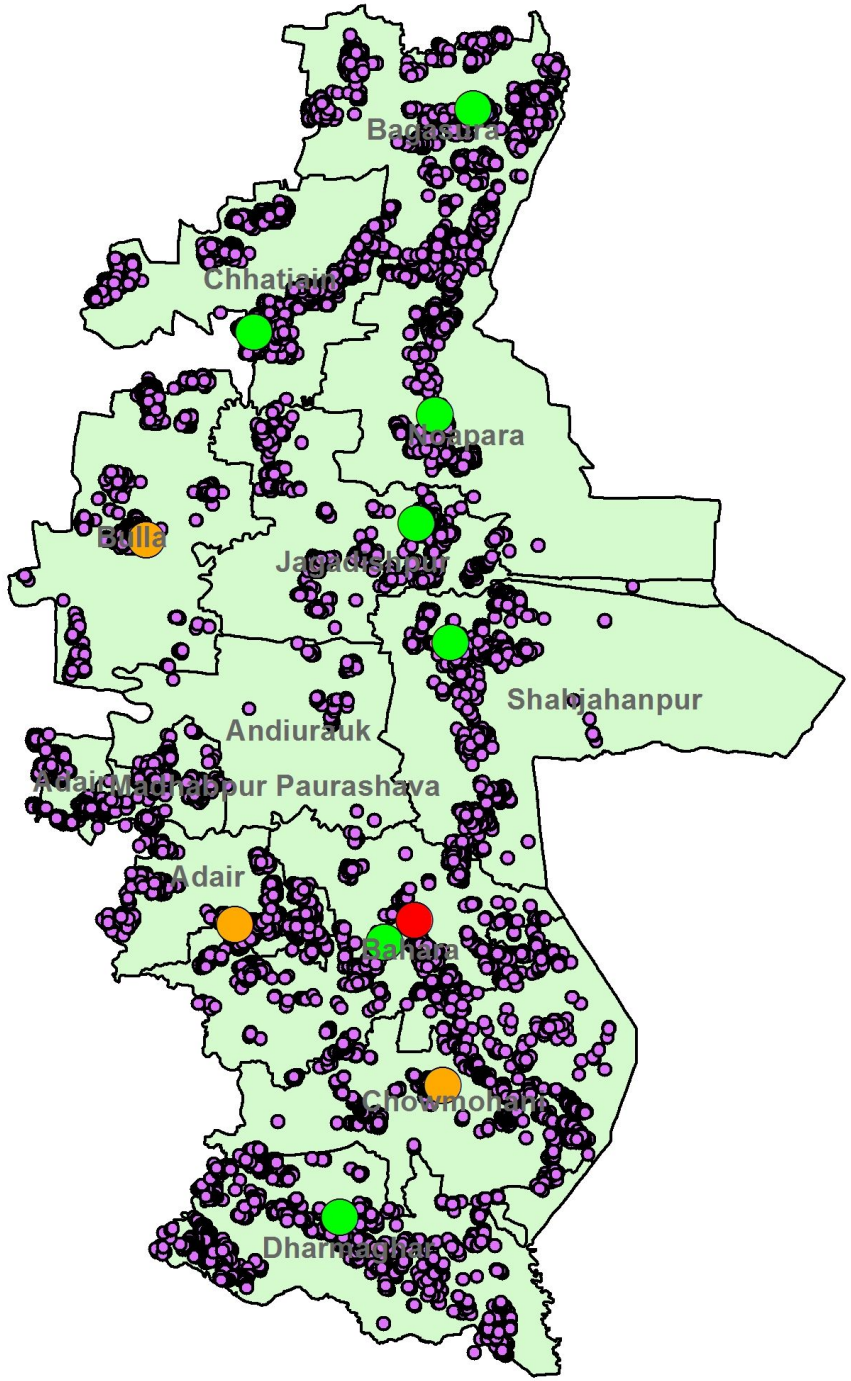
Pregnant Woman with High BP Jan'17 – Mar'18

Facility Categorization

eMIS Data Services

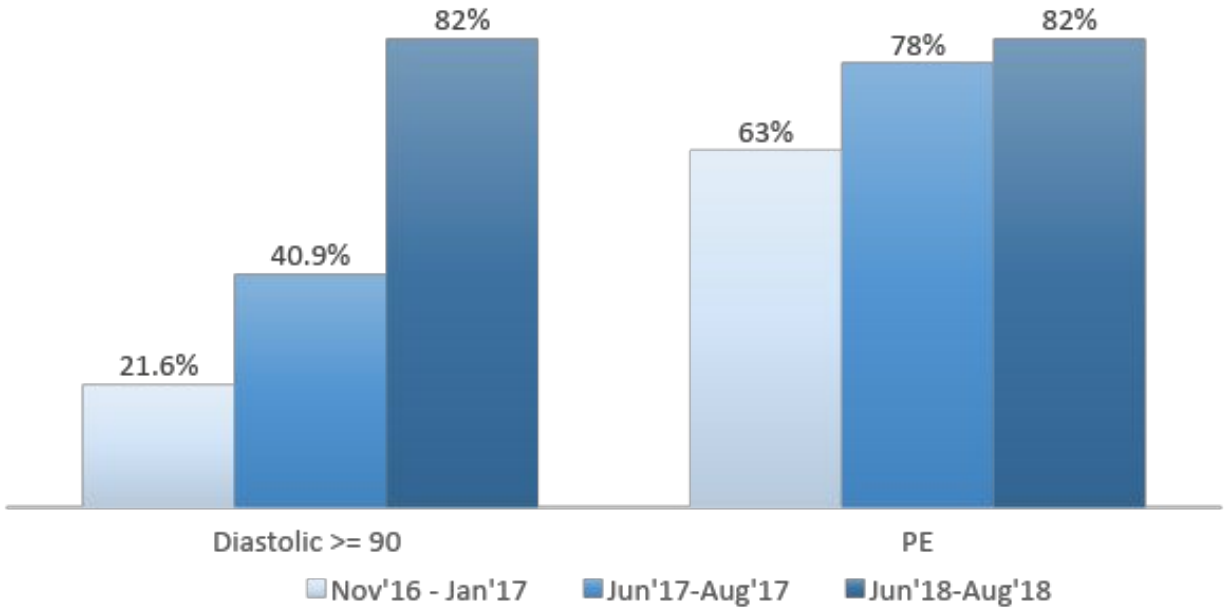
- Non routine data collection and management
- Data visualization
- Automated analysis to generate new information
- Map location of clients and household
- Map location of facilities and care providers
- Data exchange with other health systems e.g . DHIS2, SCMP





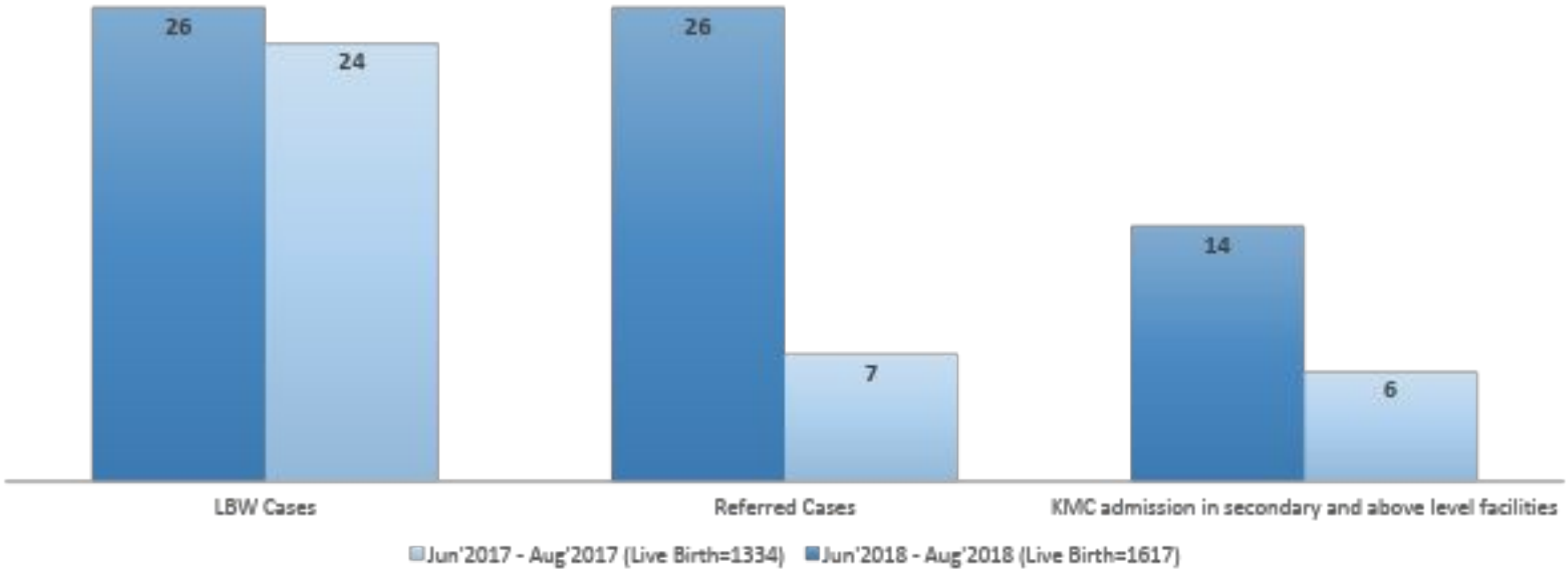
eMIS Results: Increased Referral of pregnant women detected with high BP and Pre-eclampsia

- According to the national guideline of Bangladesh, at the primary level facilities (UH&FWC), after 20 week of pregnancy
  - Diastolic pressure 90 or above requires referral to secondary level facility for **Gestational Hypertension**
  - Diastolic pressure 90 or above + Presence of Albumin in urine requires referral to CEmOC facility for **Pre-Eclampsia**



N1 = **12,549** (Nov'16 - Jan'17)
N2 = **15,392** (Jun'17 – Aug'17)
N3 = **15,275** (Jun'18 – Aug'18)
67 UH&FWCs
E-MIS automated Decision Support System (DSS)
Operational from Jun'17

eMIS Results: Increased newborn referral for low birth weight cases



eMIS automated Decision Support System (DSS) for Premature/LBW operational from June 2018

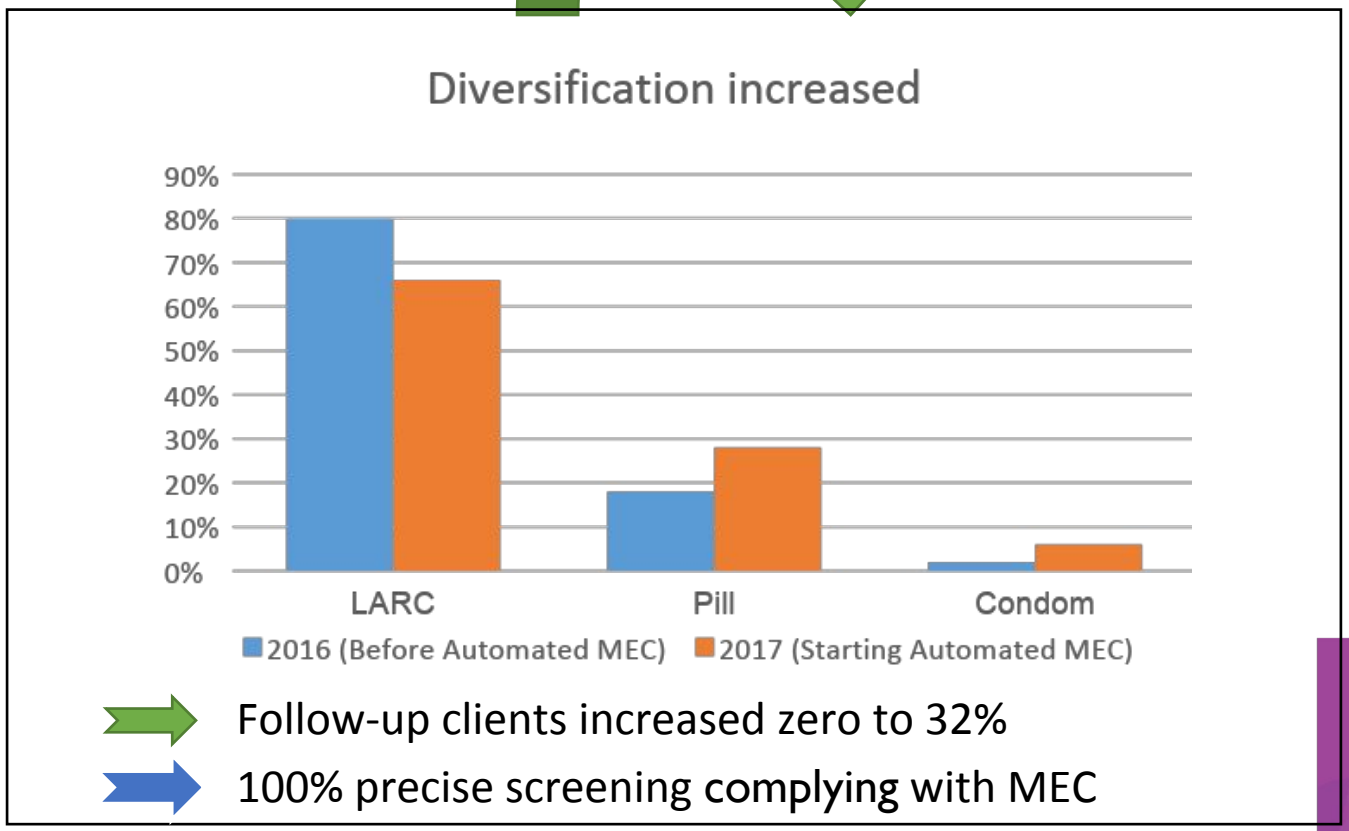
Automated screening tool following MEC reduces manual decision making complexities

Manual screening complexities

- Wrong Method
- Time consuming
- Less diversification

During manual screening

Applying automated MEC



Follow-up clients increased zero to 32%

100% precise screening complying with MEC

Way Forward

- Government of Bangladesh scaling up the initiative in two divisions
- By 2019 coverage will reach 40 districts with population coverage of 75 Million
- Linkage with other health system initiative like HRIS, Asset Management

THANK YOU

MEDIC MOBILE™

Using digital tools to improve the referral coordination process between the community and health facility in rural Kenya

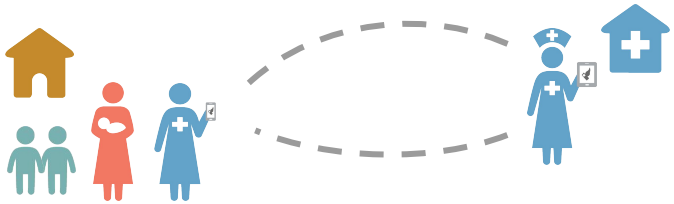
Maryanne Mureithi, Senior Service Designer

December 11th, 2018

Medic Mobile

We build world-class software for health workers providing care in the hardest-to-reach communities. We believe that health impact can be accelerated through the use of technology.

Designed for Integrated Care



Medic Mobile supports:

- Client Registration & Enrollment
- Care Coordination
- Decision Support
- Activity Planning & Scheduling
- Referral Coordination
- Performance Management
- Community Event Reporting
- Risk Profiling
- Predictive Analytics

In these health areas:

- Family Planning
- Antenatal Care
- Postnatal Care
- Immunization
- Nurturing Care
- iCCM
- Nutrition
- TB and HIV
- CBDS/ EBS

Key Metrics
(In the last 12 months)

1,004,928
U5 Symptomatic Assessments

223,061
Pregnancies Supported

Community Health Innovation Network

Medic Mobile has partnered with Living Goods to leverage emerging technologies to integrate community health care with health facilities and to extend the reach of high quality diagnostic technologies to global patients at the community level.

Case study: Closed loop for referrals

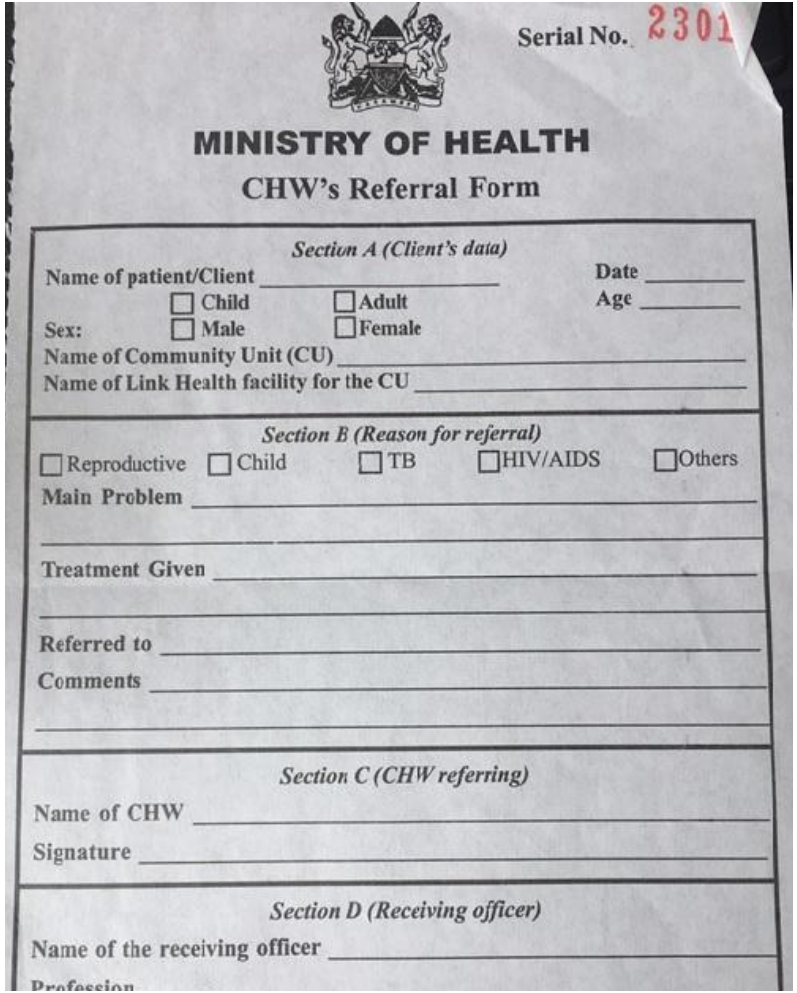
LivingGoods

The importance of referrals

- Cases are often high priority
- Time-sensitive
- Patients who do not complete a referral may receive little or no follow up from the CHV
- Closing the loop is important as a matter of health equity

WHO Digital health interventions classification

2.6: Referral coordination



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MINISTRY OF HEALTH

CHW's Referral Form

Section A (Client's data)

Name of patient/Client _____ Date _____

☐ Child ☐ Adult Age _____

Sex: ☐ Male ☐ Female

Name of Community Unit (CU) _____

Name of Link Health facility for the CU _____

Section B (Reason for referral)

☐ Reproductive ☐ Child ☐ TB ☐ HIV/AIDS ☐ Others

Main Problem _____

Treatment Given _____

Referred to _____

Comments _____

Section C (CHW referring)

Name of CHW _____

Signature _____

Section D (Receiving officer)

Name of the receiving officer _____

Profession

Referral pain points

- Inadequate communication between health workers
- Lack of referral tools
- Loss of referral tools
- Self reported data; unreliable
- Patient experiences; long queues

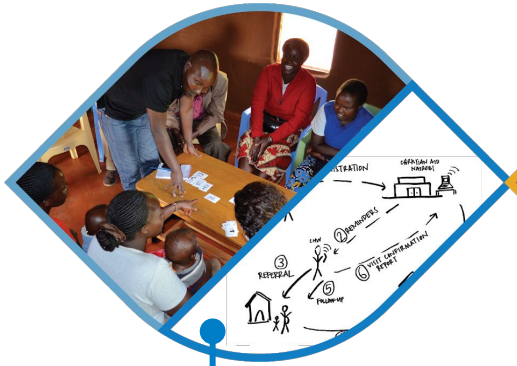
Design Challenge

How might we leverage technology to close the loop for existing referrals?

Human Centered Design Phases

1. DISCOVER

Ask questions, be inclusive, listen, learn a lot



2. DEFINE

Prioritize needs, refine the problem statement, focus in on key requirements

3. IDEATE

Brainstorm a range of ideas to meet user needs

4. PROTOTYPE

Build and test scrappy prototypes to quickly validate ideas

5. TEST

Get feedback from users

DEPLOY

6. ITERATE

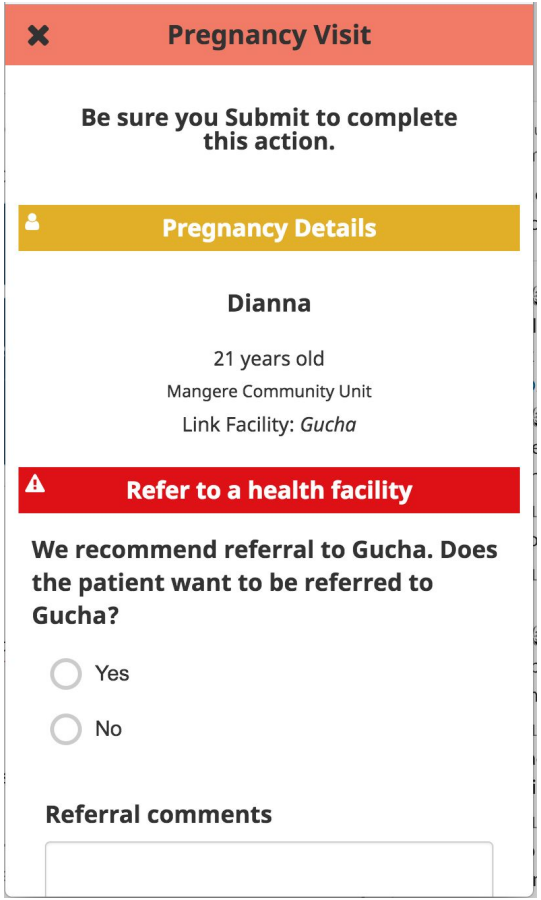
Synthesize learnings, refine solution.

7. LEARN

Measure impact, observe user behavior; allow the solution to evolve over time.

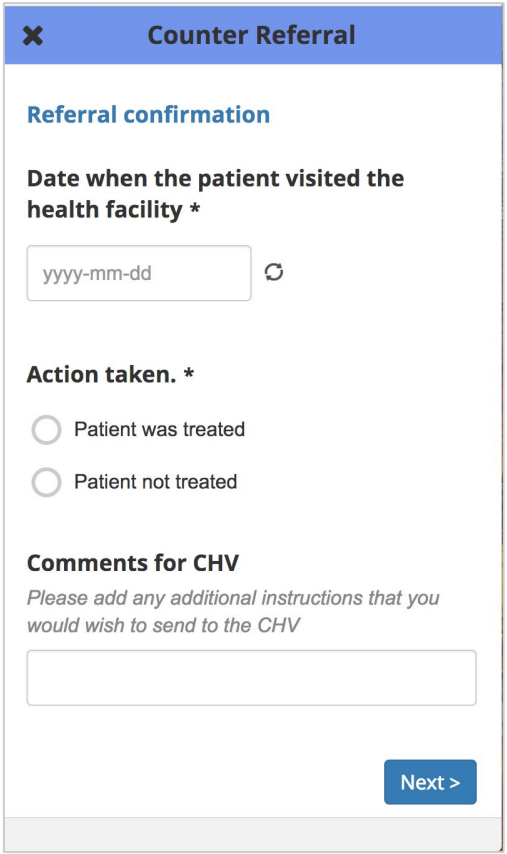
The MVP for CHWs

- Digitised referral forms and recommendations
- Referrals trigger tasks at the facility
- SMS notification sent to CHW once a nurse confirms the referral at facility
- CHW in-app targets will include widgets for referral confirmation rate
- Follow-up tasks are sent to CHW
- The CHW can continue to do their daily work offline

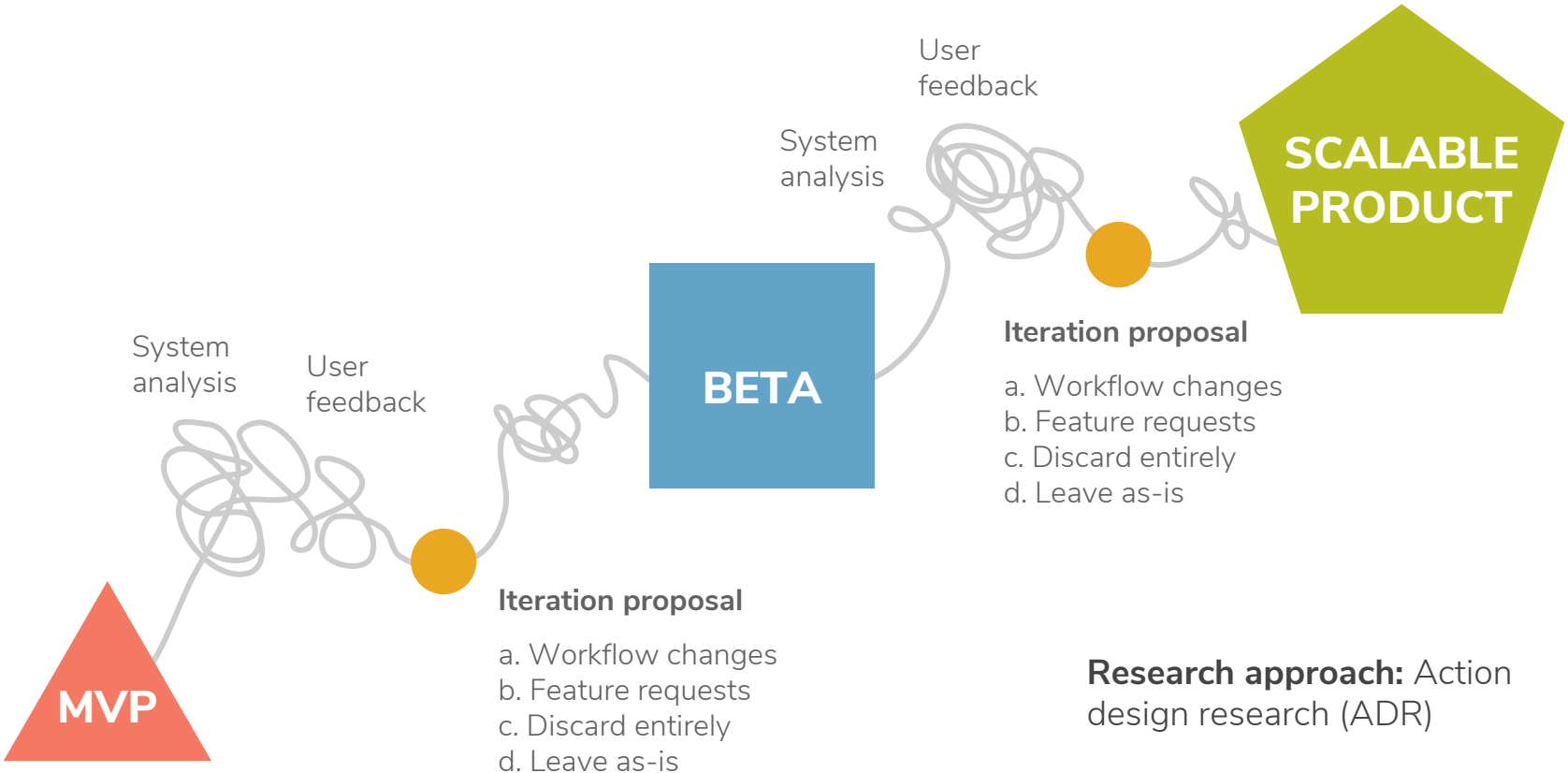


The MVP for Nurses

- Tasks generated to indicate patient in need of referral
- Nurses can complete referral tasks at point-of-care or at a later time
- Nurse can include instructions for patient care which can be sent to the CHW via SMS
- Facility staff can report if patient visited the health facility but did not receive care
- The nurse can work offline



From an MVP to a scalable product



Research approach: Action design research (ADR)

Early learnings

- Health workers are enthusiastic about the tool
- Digital intervention is working as expected
- Communication among health workers has improved
- Internet connection continues to be a challenge
- Optimizing the app performance for facility users

"I'd like to receive feedback when a CHW conducts follow up." -Nurse

"The App guides us when filling the MOH 100 hard copies." -CHW

"We now take referrals very seriously." -CHW

How we have kept the health workers engaged

- Involved in the design process
- Easy access to records and data for monthly reporting
- Indicators that they track on dashboards
- Improved communication among health workers

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MOBILE™
We are all health workers