

mHealth for maternal health

bridging the gaps

What's new in mHealth for maternal health?

15 presentations on using mHealth to improve client knowledge, health worker competence and the strength of health systems

Presentation outline

Client knowledge

Brooke Cutler, MAMA

Marcha Bekker, Praekelt Foundation

Patricia Mechael, mHealth Alliance

Koku Awoonor, MoTeCH Ghana

Kelly L'Engle, FHI 360

Health worker competence

Neal Lesh, Dimagi Inc.

Marion McNabb, Pathfinder International

Garrett Mehl, Drishti

Blami Dao, Jhpiego

Alain Labrique, Johns Hopkins School of Public Health

Shrey Desai, SEWA Rural

Lucy Silas, D-Tree International

Systems strengthening

Yvonne MacPherson, BBC Media Action

Subhash Chandir, IRD

Mike Frost, JSI

mHealth for maternal health

bridging the gaps

What's new in mHealth?

Client knowledge



MAMA

Mobile Alliance for Maternal Action

Brooke Cutler
MAMA Bangladesh overview



USAID
FROM THE AMERICAN PEOPLE

Johnson & Johnson

UNITED NATIONS
FOUNDATION

 **mHEALTH**
ALLIANCE

 **babycenter**

MAMA Bangladesh (*Aponjon*)

- *Aponjon* focuses **on improving client knowledge** by targeting pregnant women, new mothers, and other household decision-makers with vital health information via audio messages (85%) or SMS (15%).
- Messages are timed to estimated due date and are sent 2x weekly to mothers and 1x weekly to registered family members
- The service was launched nationally in **December 2012** by social enterprise Dnet and the MoHFW of Bangladesh
- It has **427,284** subscribers as of 03.24.14
- There are partnerships with all **6** Bangladeshi MNOs, & **3** large corporate partners
- Revenue comes via user fees (2 taka/msg), ads, corporate sponsorships and a 'Sponsor-a-Ma' campaign
- Aponjon is free to the poorest 20% of subscribers



Impact on the audience

2012 MAMA Bangladesh phone survey (small sample size; n=60):

- **88%** of respondents rated the service Excellent to Very Good
- **90+%** of the respondents felt the messages were meeting their info needs
- **95%** said they would recommend MAMA/Aponjon to others
- **Level of trust** on the Likert scale: **28%** indicated a 5 (highest) and **63%** a 4
- Substantially higher percentages of subscribers reported adopting recommended behaviors versus 2011 DHS national averages:

	Aponjon Subscriber	National Ave. BDHS 2011
Attended 4 ANC visits	63%	32%
Had a facility-based birth	45%	29%
Exclusively breastfed	83%	64%

- Additional phone surveys (n=180), household surveys (n≈400) and independent evaluation by ICDDR,B are forthcoming

Other projects: MAMA South Africa

Launched in **May 2013**, currently reaching almost **200,000 users** via **4** different channels:

- Free **SMS** through six inner-city clinics in Hillbrow, Johannesburg
- A dynamic community portal: **askmama.mobi**, free of charge to all **Vodacom** subscribers in SA
- **USSD-based** interactive quiz service
- Portal on **Mxit** - a popular mobile social network

Recent poll results on the askmama.mobi site:

- **77%** of users are unemployed
- **52%** receive a government assistance grant
- **47%** live in a household with a combined monthly income of \$180 USD or less
- **44%** live in a village or rural area



introducing
PRAEKELT
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We use mobile technology to create disruptive, life-enhancing services for the majority world.

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We build
communities

**PRAEKELT
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Using the most
personal &
ubiquitous
medium.

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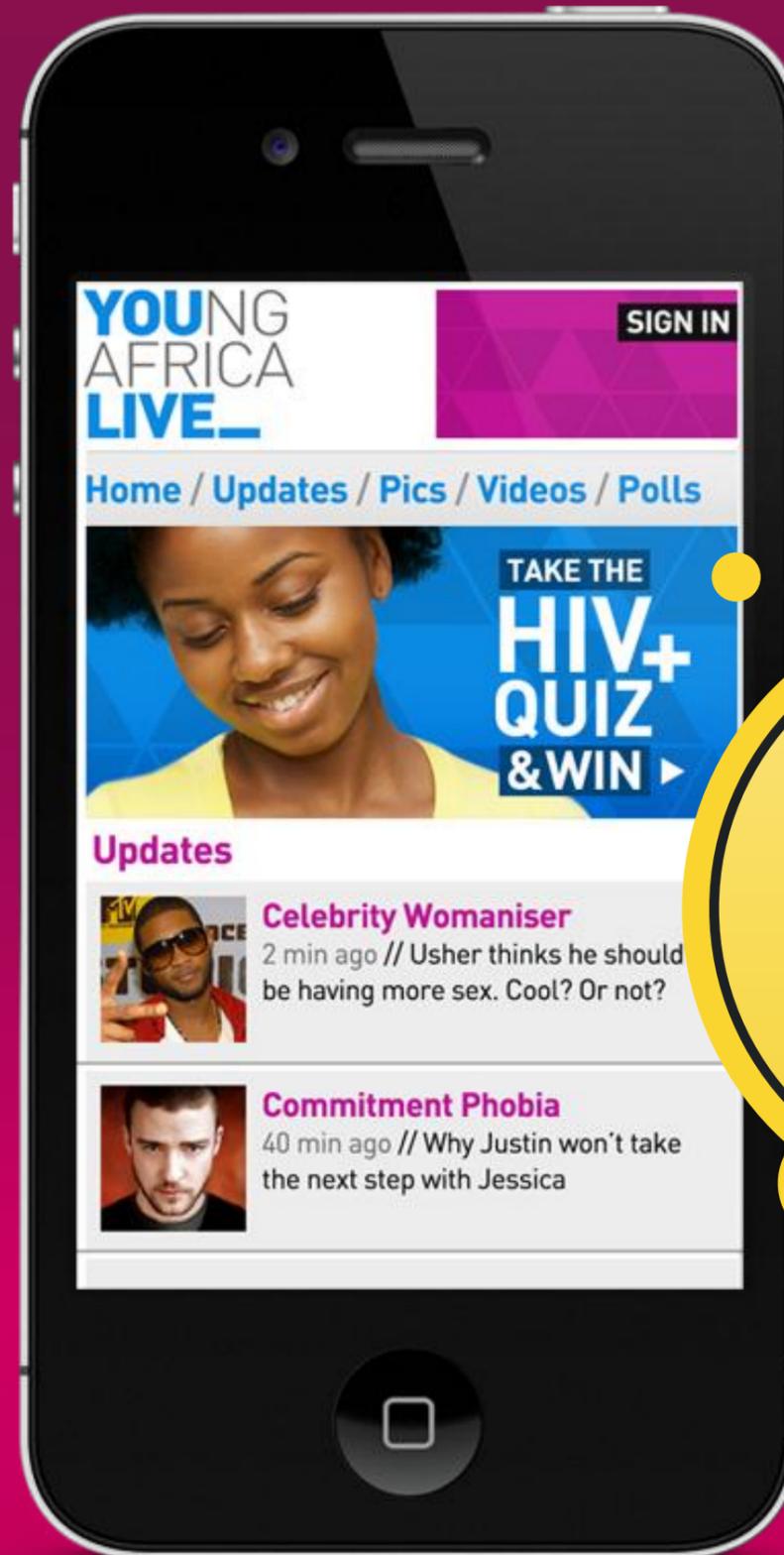
Creating Behavioral Contagions

**PRAEKELT
FOUNDATION**

2x EXAMPLES

YOUNG AFRICA LIVE.

PRAEKELT
FOUNDATION



MAMA

Mobile Alliance for Maternal Action

PRAEKELT
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thank
YOU

www.praekeltfoundation.org

www.yal.mobi

www.askmama.co.za

www.askmama.mobi

marcha@praekeltfoundation.org

@marchaneethling

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ICT4SOML:

**Leveraging ICTs to Save the
Lives of One Million Women
and Children in Nigeria**

Patricia Mechael, PhD MHS
Executive Director, mHealth Alliance
Faculty, Columbia University

@PattyMechael
@mHealthAlliance



The Nigeria Saving One Million Lives (SOML) initiative 2015 targets:

COMPONENT	DESCRIPTION	POTENTIAL LIVES SAVED
Maternal & Neonatal health	Scale up of Maternal, Newborn, and Child health interventions	Maternal – 84,000 Neonatal – 252,000 Child – 465,300
eMTCT	Increasing coverage of PMTCT interventions	75,000 (50,000 -100,000)
Essential Medicines	80% coverage of effective treatments for Diarrhoea, Malaria and Pneumonia	350,000 (157,000 – 500,000)
Immunization	Scale up routine immunization and Introduce new vaccines	150,000 (50,000 - 250,000)
Malaria Prevention	100% Scale up coverage of LLINs	455,000 (350,000 - 700,000)
Nutrition	Scale up of CMAM and other interventions	250,000 (100,000 - 400,000)
TOTAL LIVES SAVED		1.1m (adjusted for overlaps)

Enabling Environment

Baseline Assessment

- Situation Analysis
- m/eHealth Inventory
- Enabling Environment Assessment

Health ICT Strategy

- RMNCH ICT Framework
- Theory of Change, M&E Plan
- National Coordinating Mechanism

Address Enabling Environment Gaps

- Capacity
- Policy
- Standards & Interoperability

ICT-based Programming

Quick Wins

- NHMIS
- SURE-P CCT
- Supply Chain
- Demand Generation

GOALS



SUPPLY CHAIN

Leverage mobiles to reduce duration and frequency of stock outs of essential lifesaving commodities.



NHMIS

Improve quality, comprehensiveness, and timeliness of routine reporting from primary health facilities and increase utilization of HMIS data to strengthen health system improvement efforts.



mCCT

Advise ICT4SOML on implementation process and a plan for scale up of mobile payment for CCT projects across Nigeria.



DEMAND GEN.

Generate demand and awareness around use of mobiles for health services.

MILESTONES

QUARTER 1

➔ Integrate Commcare with mobile payments.

🔍 Baseline assessment of infrastructure, accessibility, staff and training needs for public and private.

➔ Integrate Commcare with mobile payments.

➔ Launch working group.

➔ Distribution of data tools.

➔ Training (facilities, wards, LGAs, state).

➔ Deploy mCCT.

🔍 Conduct formative research.

QUARTER 2

🔍 SDLC documentation for a Mobile Monitoring Tool Developed.

🔍 Establish DHIS2 Harmonization guidelines and HMIS national implementation plan.

🔍 Research links to agriculture and nutrition and landscape review of health-related mobile money uses in Nigeria.

🔍 Develop activity and planning roadmap.

🔍 Audit content.

QUARTER 3

➔ Mobile Monitoring Tool requirements defined and approved.

➔ Achieve interim submission milestones

➔ Have 7,000 pregnant women enrolled in 10 facilities.

🔍 Convene content review committee.

🔍 Established road map to inform future interventions.

🔍 Adapt and test content.

QUARTER 4

📧 Mobile Monitoring Tool tested and evaluated

➔ DHIS 2 implementation and reporting from 50% private facilities and 80% public facilities.

➔ Fully functional and evaluated intervention in 1 state.

🔍 Design Service + Business Model.

🔍 Oct 2014 full budgeted scale-up plan.

- Jun 2014 Health ICT Baseline Assessment
- Dec 2014 Institutionalization and scale up plans for selected Health ICT interventions
- 2015 Establish National Health ICT Advisory Council
- 2015 National Health ICT Framework
- Architectures and guidelines
 - M&E Framework
 - Standards and interoperability
 - Governance and policy
 - Capacity



mHealth for Maternal Health (bridging the gaps)
Koku Awoonor
7 – 8 April, 2014, Boston

Background

Partnership between GHS, Grameen Foundation & Columbia University funded by Bill & Melinda Gates Foundation

The objective of MoTeCH was to develop a **mobile-phone-based health information technology** and test the proposition that **improved health information** improves **health outcomes**.

Increase the **quantity & quality** of antenatal & neonatal care

Focus on **frontline community health facilities** and poor women in underserved rural areas

Started as a pilot in the Kassena–Nankana West district in UER.



BILL & MELINDA
GATES foundation



SAVING
LIVES
AT BIRTH:
A GRAND CHALLENGE
FOR DEVELOPMENT



What then is MoTeCH?



Using mobile phones to increase the **quantity** and **quality** of antenatal and infant health care in Ghana

Focus on frontline community health facilities and poor women in rural areas

MoTeCH Component #1: Mobile Midwife



- Provides weekly, relevant, actionable pregnancy care voice messages in local languages
 - ✓ 3 messages a week
 - ✓ Tailored to stage of pregnancy and first year of child's life
 - ✓ Women use their own or household/compound phones
 - ✓ Free service
- Provides maternal and child health information and encourages better and timely health-seeking behavior

Messages provide key MCH information for “pregnant parents” and reminders to seek timely care:

- Personal care during pregnancy
- Newborn care
- Recognition of danger signs
- Developmental milestones
- Nutrition and breastfeeding
- Malaria
- Immunization
- Postpartum family planning
- Diarrheal diseases
- Pneumonia

MoTeCH Component #2: Client Data Application



Data collection & Reporting

- Simplified paper registers
- Nurses record patient data onto mForms
- Upload data to central database
- Data validation ensures high data integrity
- Generates monthly reports for nurses and district officials

Alerts & Reminders

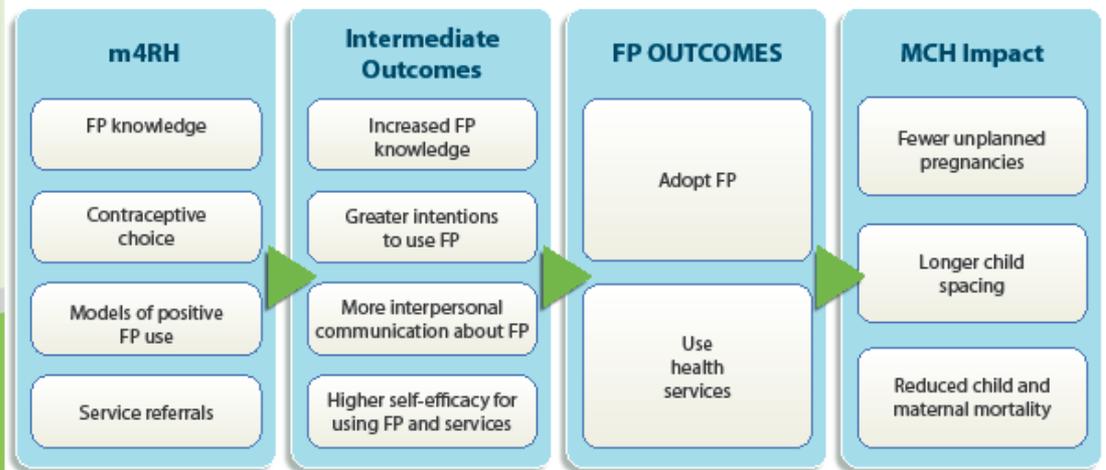
- Sends alerts and reminders to nurses and clients about patient care

Mobile for Reproductive Health (m4RH): Increasing Access to FP Information and Services in Tanzania, Kenya, & Rwanda

Kelly L 'Engle, PhD, MPH
mHealth for Maternal Health meeting, Boston, MA
7-8 April 2014

m4RH: Improving Client Knowledge and Attitudes about Family Planning

- Initiated in 2008 as research pilot in Kenya, Tanzania
- Provides essential, parallel info on 9 FP methods, FP locations, and FP “stories”
- Adapted for adolescent sexual and reproductive health in Rwanda
- Scaled up, integrated by JHU-CCP in Tanzania: 175,000 users and 1.2 million “hits”

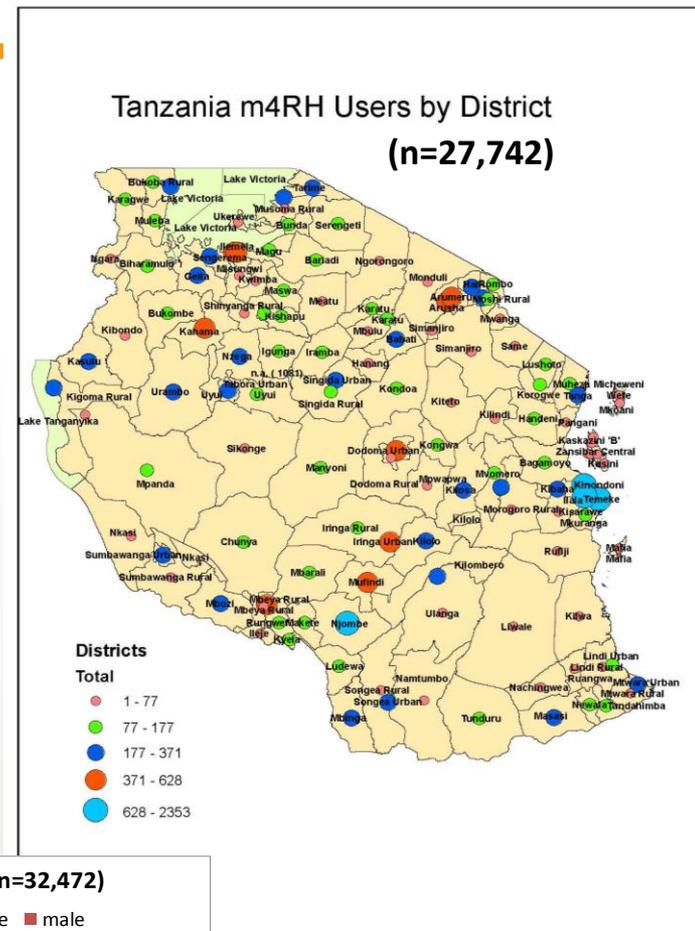


Basic Message: Implants are small rods placed under skin of woman’s arm. Highly effective for 3-5 years. For married and singles. May cause light irregular bleeding. When removed, can become pregnant with no delay. No infertility or birth defects.

m4RH Data on Reach and “Potential” Impact

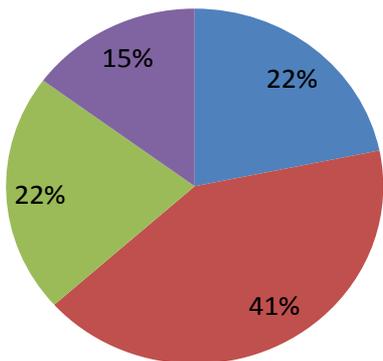
SMS Response: “Got an IUD so I don’t have to take pills everyday which many times I used to forget”; “Got to know clinics in my region hence access of services easy and from a reliable source “

Tel interview: “I like m4RH because there is privacy available, many people have mobile phones, you do not have to be seen going to the clinic.” - Female, Kenya, 20; “M4RH has been of lots of help to me, it has managed to make me and my wife to sit down and discuss family planning issues.” - Male, Tanzania, 23



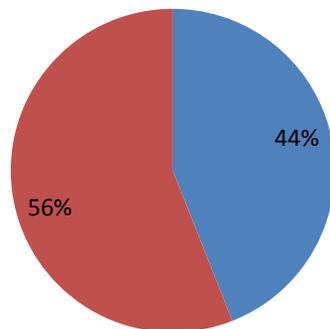
Age (n=32,246)

■ <19 ■ 20-24 ■ 25-29 ■ 30+



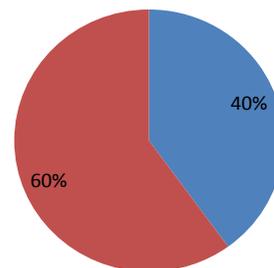
Marital Status (n=32,472)

■ married ■ single



Gender (n=32,472)

■ female ■ male



Building on m4RH

Content and Approach:

- ChatSalud Nicaragua
- mCENAS Pathfinder in Mozambique

Evaluation:

- m4RH Kenya Evaluation led by Abt Associates
- Potential for rigorous RCT in Tanzania

Sustainability:

- Catalytic Grant on m4RH sustainability



The screenshot displays the m4RH website interface. At the top left is the m4RH logo with the tagline 'Mobile 4 Reproductive Health'. To the right of the logo is a navigation menu with the following items: 'About', 'Planning & Design', 'Content', 'Technological Considerations', 'Promotion', and 'Evaluation'. Below the navigation is a large photograph of three people (two women and one man) smiling and looking at a mobile phone together. Below the photo is a section titled 'Inside m4RH: a Collection of Resources'. This section contains three main points, each with a circular icon and a yellow header box:

- Easy to use and implement**: The m4RH program has seen firsthand the potential of mobile phones to reach a wide audience with information about family planning and sexual and reproductive health. This online tool includes both background information and practical tools to support your program. Find all the information you need to introduce m4RH in your health programs or to adapt m4RH for your specific needs.
- Tools and resources**: Practical tools, information and resources are available so you can incorporate m4RH, or a program like m4RH, into your current work.
- Reaching a wider audience**: Together we can reach a wider audience with valuable information, and ultimately improve sexual and reproductive health outcomes globally.

mHealth for maternal health

bridging the gaps

What's new in mHealth?

Health worker competence



Continuum of Care Service (CCS)

An mHealth Intervention in Saharsa, Bihar, India with many partners including Care India, Bill and Melinda Gates Foundation, Government of Bihar, National Rural Health Mission, BBC Media Action, Dimagi, and Grameen Foundation.

Presented by Neal Lesh, CSO, Dimagi, Inc.

Project Overview

- About 550 FLWs using CommCare, for
 - Registration
 - Home Visit Scheduling
 - Case management
 - Due lists
 - BCC aids (audio/video)
 - Date arithmetic tools (EDD, BMI and Referral)
 - Case data sharing.
- Supervisor App provided to ANMs.
- MOTECH provides immunization scheduling, reporting, and integration with MCTS.

Evidence

- RCT underway, looking at client knowledge and practice.
- Analysis of CommCare data shows many trends, e.g.:
 - Substantial increase in % of pregnant women visited in first 24 hours.
 - Substantial increase in percent women enrolled in first trimester.
 - Small increase in % women who received at least 100 IFA tablets during pregnant.

Preliminary Analysis of 32 MNCH projects

Total	Projects with real-time visits only	Projects that include bulk uploads
# projects	23	9
# users	1,422	820
# visits	257,121	752,905

Per user		
Median # months on project	6.8	9.0
Median # total visits	88	607
Median # visits/month	12	111
Median % active days ¹	21.8	38.4
Median # cases registered	38	219
Median # cases followed-up ²	20	87
Median visit duration (mins)	4.8	1.4

1. At least one visit made in a day
2. Followed-up by the user that registered the case



 **Pathfinder**
INTERNATIONAL
A GLOBAL LEADER IN SEXUAL
AND REPRODUCTIVE HEALTH



m4Change Nigeria

mHealth for MNH Meeting

April 6-7, 2014

Marion McNabb, MPH

Senior Technical Advisor, mHealth



m4Change Project: Northern Nigeria

- Mobile decision support application (CommCare) for ANC in Abuja and Nasawara, Northern Nigeria
 - Launched in June 2012
 - 150 HCWs, 20 primary health centers
- Research examined effect on ANC quality (Jan – Dec 2013)
 - 266 client exit interviews; developed 25 point quality score
 - Quality increased from 13.3 to 17.2 points ($p < 0.0001$)
 - Technical: 7.77 to 8.44 points ($p < 0.0001$)
 - Health Counseling: 5.45 to 8.67 points ($p < 0.0001$)

Mobile Conditional Cash Transfer (mCCT) for MCH

- MOH, ICT4SOML and Subsidy Reinvestment and Empowerment Program (SURE-P)
- Innovation working group, mHealth Alliance, UN Foundation
 - Jan 2014- Dec 2015; 350 HCWs and 50 primary health centers (PHC)
 - Mobile app to track ANC, Delivery and Immunization visits
 - Payment approvals dashboard and reporting tool currently under testing
 - Transition payments from cash to mobile money
- Pathfinder Co-Leads National mCCT Working Group

Other Pathfinder MNCH mHealth Projects

Haiti (Oct 2013- Sept 2015)

- 2,500 CHW to use CommCare to support all aspects of work (MCH, HIV, TB, FP, Malaria, Nutrition, etc)
- Comprehensive mobile referral system (CHW ↔ facility)
- Maternal Health Emergency Referral System

Tanzania (Oct 2010 – Sept 2015)

- 300 CHWs with HIV, FP Application
- Maternal Health Emergency Referral System
- Client and CHW TB self screening by USSD

Kenya (Jan 2013 – Aug 2014)

- 266 CHWs with MCH, OVC Application
- Pay for performance delivered via mobile money



Photo Courtesy of S. Gilbert



A GLOBAL LEADER IN SEXUAL
AND REPRODUCTIVE HEALTH

Marion McNabb, MPH
Senior Technical Advisor, mHealth
mmcnabb@pathfinder.org



twitter.com/PathfinderInt



facebook.com/PathfinderInternational



Youtube/user/PathfinderInt



April 5, 2014

Smart Registry Platform

on behalf of FRHS, Columbia University, & WHO HRP

mHealth for Maternal Health, Boston, USA

Dr. Garrett Mehl



UNDP • UNFPA • UNICEF • WHO • World Bank
Special Programme of Research, Development
and Research Training in Human Reproduction

Paper Registers for Antenatal Care

1077 70
6

MEMO

GOVERNMENT OF KARNATAKA
DEPARTMENT OF HEALTH & FAMILY WELFARE SERVICES
RCH PROJECT

 **ANC REGISTER** 

NAME OF HOSPITAL P.H.C. Bherayan

FROM 2008 TO _____

2008-09



GOVERNMENT OF KARNATAKA
DEPARTMENT OF HEALTH & FAMILY WELFARE SERVICES
RCH PROJECT



ANC REGISTER

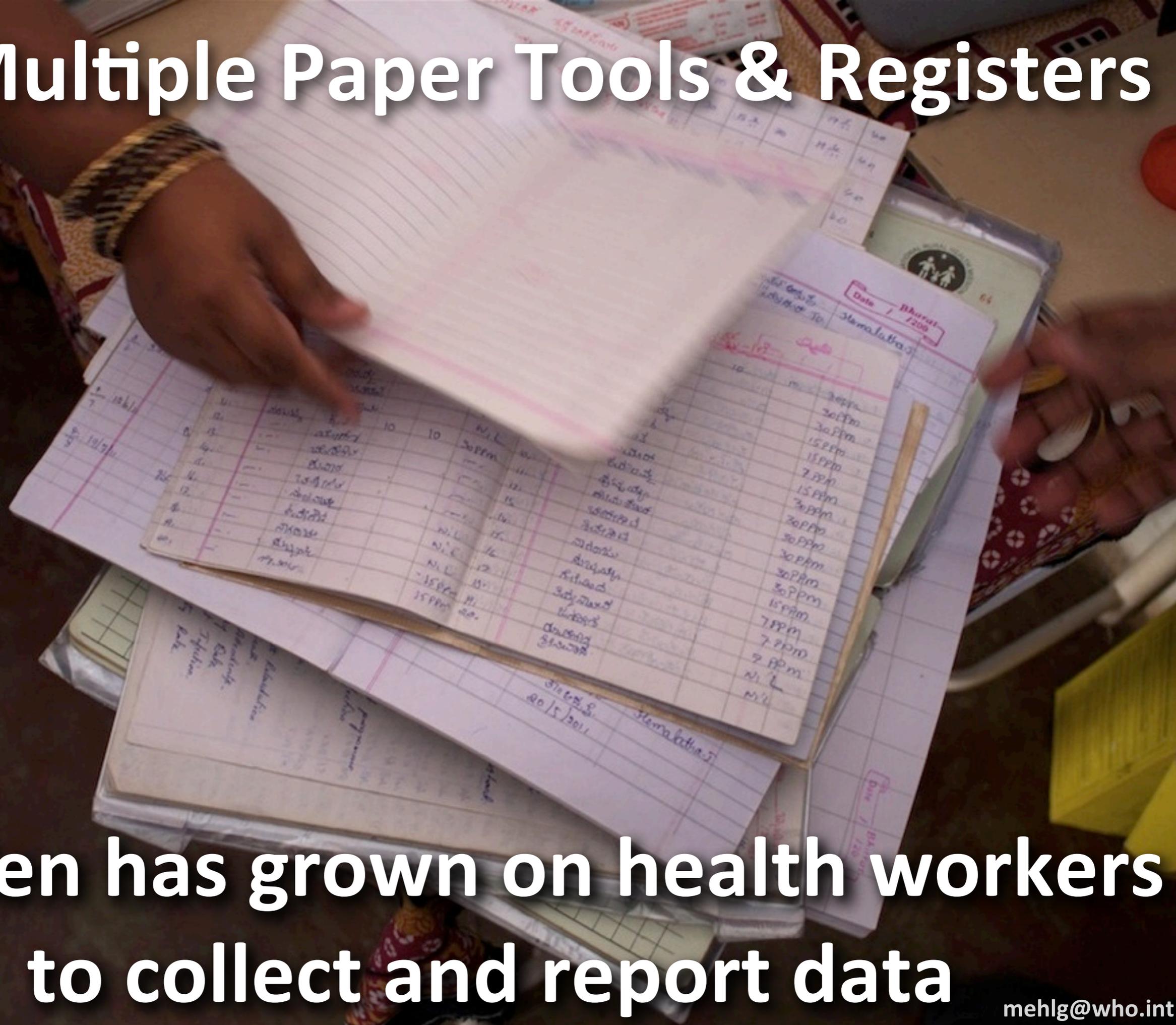
NAME OF HOSPITAL.....*ಬೆಂಗಳೂರು*.....

MONTH.....*ಎಪ್ರಿಲ್ - 11*.....

Sl. No.	EC No. On	Date of Registration	Name and Address (In Full)	Age	Religion	1. Education + 2. Occupation + 3. BPL/SC/ST	No. of living children		Gravida	Duration of Pregnancy in Weeks	LMP EDD	Service provided - Follow up FS / TT / Other											
							M	F				I	II	III	IV	V	VI	VII					
<i>1.</i>		<i>1/4/11</i>	[Redacted]	<i>22y</i>	<i>2030F</i>	<i>5th</i>	-	-	<i>01</i>	<i>12 weeks</i>	<i>21/1/11</i>	<i>20/4/11</i>	<i>20/5/11</i>	<i>17/5/11</i>	<i>20/6/11</i>	<i>5/7/11</i>							
		<i>30/3/11</i>	<i>wt. 30kg</i>																				
		<i>20/4/11</i>	<i>wt. 40kg</i>																				
		<i>20/5/11</i>	<i>wt. 41kg</i>																				
		<i>20/6/11</i>	<i>wt. 44kg</i>																				
		<i>5/7/11</i>	<i>wt. 45kg</i>																				
<i>0/9/11</i>		<i>1/4/11</i>	[Redacted]	<i>24</i>	<i>ST</i>	<i>10th</i>	<i>1</i>	<i>0</i>	<i>02</i>	<i>12 weeks</i>	<i>6/9/10</i>	<i>30/6/11</i>	<i>1/11</i>	<i>30/9/11</i>									
		<i>19/4/11</i>	<i>B.P. 110/70 mmHg</i>			<i>10/19/95</i>																	
		<i>1/5/11</i>	<i>wt. 63kg</i>			<i>BPL</i>																	
		<i>3/6/11</i>																					
<i>0/9/11</i>		<i>7/4/11</i>	[Redacted]	<i>26</i>	<i>2030F</i>	<i>PUC</i>	<i>1</i>	<i>0</i>	<i>02</i>	<i>12 weeks</i>	<i>8/10/10</i>	<i>3/12/10</i>	<i>13/2/11</i>	<i>3/3/11</i>	<i>14/3/11</i>	<i>6/4/11</i>							

Inaccessible data for health workers

Multiple Paper Tools & Registers



Burden has grown on health workers to collect and report data

Data collection, screening
service delivery and
reporting are four
separate
functions



WHO/UNAIDS/UNICEF/Global Fund Guidelines on Patient Monitoring

THREE INTERLINKED PATIENT
MONITORING SYSTEMS FOR HIV CARE/
ART, MCH/PMTCT
(including malaria prevention during pregnancy),
AND TB/HIV: STANDARDIZED MINIMUM
DATA SET AND ILLUSTRATIVE TOOLS

Revision 2012

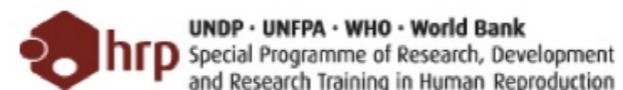


Consolidation of multiple registers into a “Smart Registry”, in India called Dristhi

No.	Register name	DRISTHI impact
1	Diary	
2	Eligible Couple Register	Yes
3	ANC Register	Yes
4	PNC Register	Yes
5	Birth Register	Yes
6	Infant Death Register	Yes
7	Maternal Death Register	Yes
8	1 to 5 years children disease and death register	Yes
9	General Death Register	
10	High Risk Pregnancy Register	Yes
11	Immunization Register	Yes
12	Vitamin A Register	Yes
13-16	Family Planning Register	Yes
17	Reproductive tract infection/Sexually transmitted infection register	
18	Village Blindness Register (VBR)	
19	Blood smear register	
20	TB Register	
21	School Health programme register	
22	<u>Janani Suraksha</u> Register	Partial
23	<u>Janani Suraksha</u> Expenditure Register	
24	<u>Madilu</u> Register	Partial
25	Untied Expenditure Register	
26	Stock and issue register	



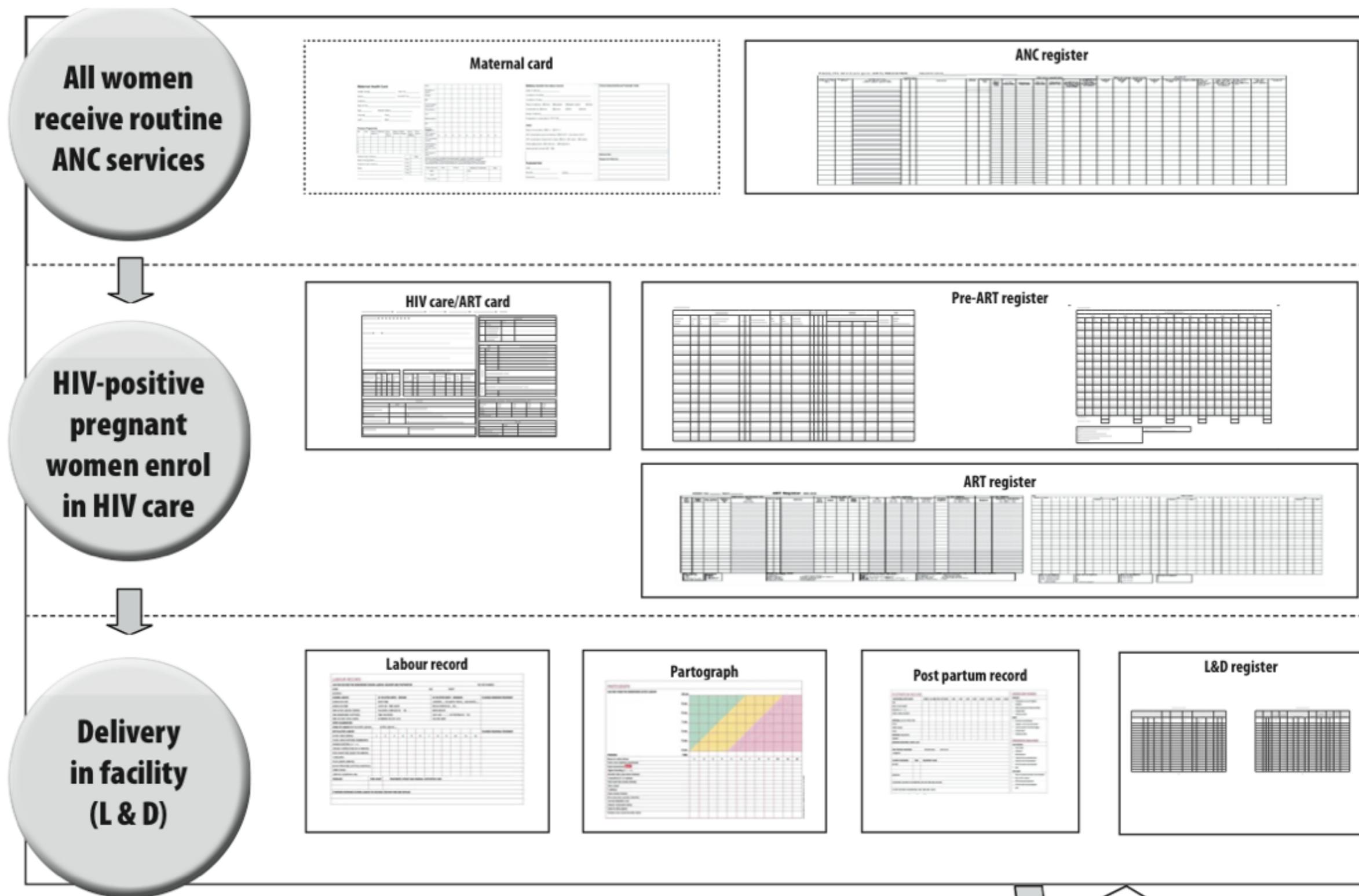
Smart Registry Platform



mehlg@who.int

Aligned with WHO guidance on Routine Client Information Systems

5

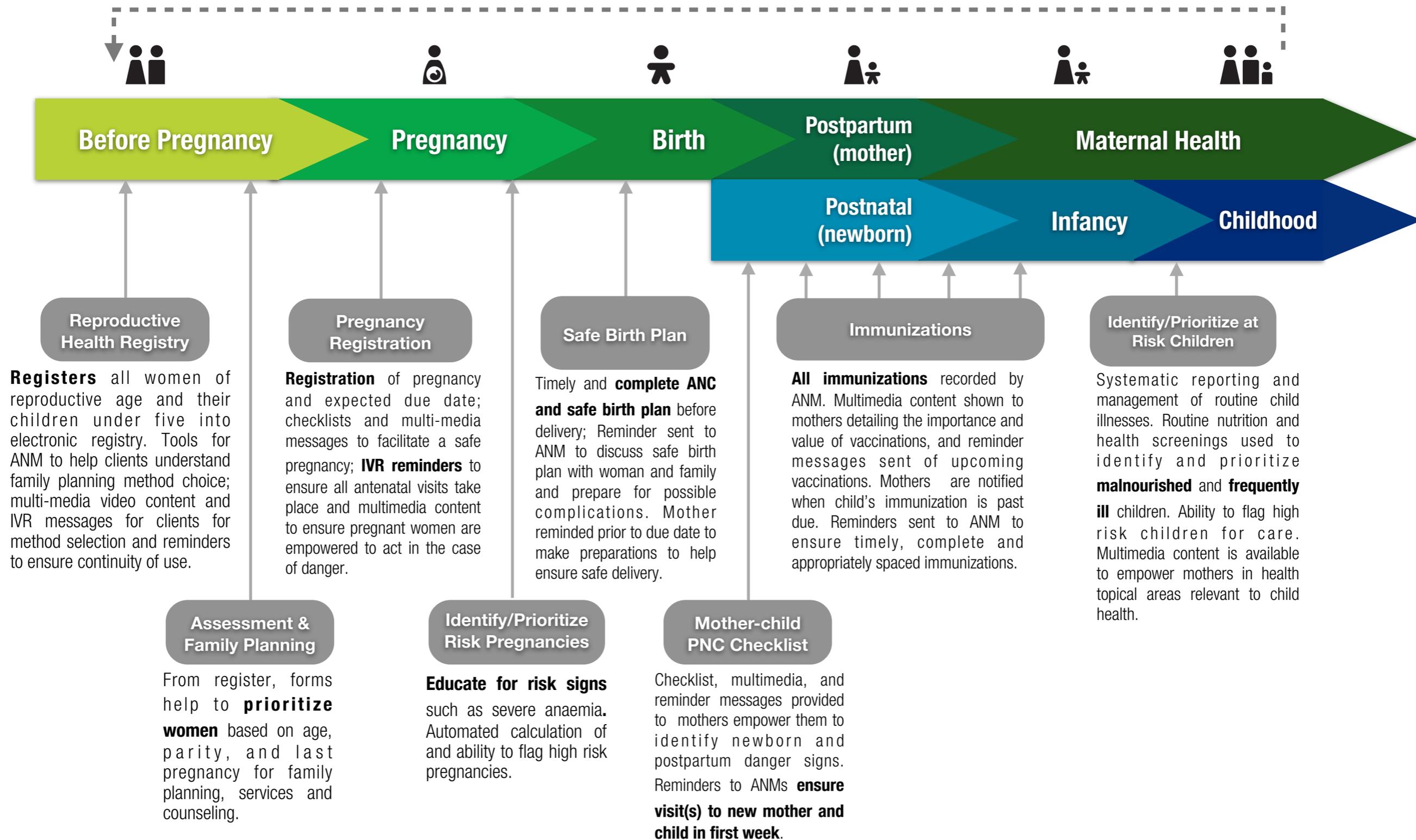


Smart Registry Platform

“Dristhi” project focus areas

- Coverage and quality of **family planning services**
- Coverage and quality of **antenatal care**
- Efficient identification, referral and management of **high-risk pregnancies**
- Timely identification and management of **postpartum complications** and **neonatal distress**
- **Immunization** coverage among infants

Smart Registry Platform for RMNCH India deployment



SRP Focus on RMNCH Service Delivery

- Focus on improving **case management** through:
 - Improved risk identification
 - Use of clinical protocols (decision support)
 - Improved client management
 - Workplan management
 - Motivational tools for health workers

Antenatal Care View

ANC: 26/01 - 25/02		Hb/IFA		Search ANC Register	
Sorted By: Name (A to Z), Village: All					
NAME	ID	ANC STATUS	HB	IFA	
 Adhiti (25) Rama Battiganahalli	ANC: 535 Thayi: 1234675	2 weeks LMP: 07/01/14 EDD: 14/10/14	19/11 5 g/dl Hb Test Due 07/01	24/10 ✓ 30 Tablets	IFA Tablets Due 08/12
 Anitha (26) Chendan Half Bherya	ANC: 21 Thayi: 1256783	19 weeks LMP: 14/09/13 EDD: 21/06/14	09/12 2 g/dl Hb Test Due 07/12	04/11 ✓ 100 Tablets	IFA Tablets Due 18/12
 Anitha (25) Anish Geradada (O/A)	ANC: OA32 Thayi: 3652365	20 weeks LMP: 04/09/13 EDD: 11/06/14	11/12 12 g/dl 10/10 7 g/dl Hb Test	25/12 ✓ 100 Tablets	IFA Tablets Due 25/01
 Anjali (24) Balagangadar Battiganahalli	ANC: 71 Thayi: 2539681	31 weeks LMP: 21/06/13 EDD: 28/03/14	17/11 5 g/dl 31/08 6 g/dl 13/01 5 g/dl Hb Test Due 13/09	08/10 ✓ 10 Tablets	IFA Tablets Due 22/11
 Arpitha (17) Kumar Udayagiri	ANC: 15 Thayi: 9972693	22 weeks LMP: 25/08/13 EDD: 01/06/14	10/12 5 g/dl 03/09 5 g/dl 31/08 14 g/dl Hb Test Due 17/11	14/10 ✓ 10 Tablets 08/10 ✓ 20 Tablets 30/09 ✓ 30 Tablets	IFA Tablets Due 15/12
 Asha (25) Shashidhar G A Guppe (O/A)	ANC: OA21 Thayi: 2535212	38 weeks LMP: 02/05/13 EDD: 06/02/14	02/09 5 g/dl 09/01 5 g/dl 06/01 12 g/dl Hb Test Due 25/07	08/10 ✓ 10 Tablets 18/09 ✓ 30 Tablets 08/09 ✓ 100 Tablets	✓ IFA 180 On 08/10

Electronic Form Monitoring Antenatal Care

ANC: 26/01 - 25/02 ANC Visits

Sorted By: Name (A to Z), Village: All

NAME	ID	ANC STATUS	ANC1	ANC2	ANC3	ANC4	Other
 Adhiti Rama Battiganahalli	(25) ANC: 535 Thayi: 1234675	2 weeks LMP: 07/01/14 EDD: 14/10/14	✓ 07/01	✓ 24/10			ANC Visit
 Anitha Chendan Half Bherya	(26) ANC: 21 Thayi: 1256783	19 weeks LMP: 14/09/13 EDD: 21/06/14	ANC 1 Due 07/12				ANC Visit
 Anitha Anish Geradada	(25) ANC: OA32 Thayi: 3652365	20 weeks LMP: 04/09/13 EDD: 11/06/14	✓ 10/07 BP 110/80 Wt. 52 kg	✓ 15/01 Wt. 70 kg		✓ 25/11	ANC Visit
 Anjali Balangadar Battiganahalli	(24) ANC: 71 Thayi: 2539681	31 weeks LMP: 21/06/13 EDD: 28/03/14			✓ 30/09	✓ 25/11	ANC Visit
 Arpitha Kumar Udayagiri	(17) ANC: 15 Thayi: 9972693	22 weeks LMP: 25/08/13 EDD: 01/06/14	✓ 29/08 Wt. 56 kg	ANC 2 Due 01/12	✓ 08/10		ANC Visit
 Asha Shashidhar G A Guppe	(25) ANC: OA21 Thayi: 2535212	38 weeks LMP: 02/05/13 EDD: 06/02/14	✓ 07/02	✓ 10/07	✓ 30/07	✓ 01/09	ANC Visit

Pulse rate ನೂರ ಬಾರಲ

Temperature ತಾಪಮಾನ

Weight ತೂಕ

Temperature (F) ತಾಪಮಾನ (F)

Weight (in kgs) ತೂಕ (ಕೆ.ಜಿ ಗಳಲ್ಲಿ)

75

Weight gain since last visit, ಕೊನೆಯ ಭೇಟಿಯ ನಂತರದಿಂದ ತೂಕ ಹೆಚ್ಚಾಗಿದೆಯೇ: 5 kgs ಕೆ.ಜಿ

Abdominal measurements taken? ಕಿಬ್ಬೊಟ್ಟೆಯ ಮಾಪನವನ್ನು ತೆಗೆದುಕೊಂಡಿದ್ದೀರಾ?

Abdominal Height ಉದರದ ಎತ್ತರ

Fetal heart rate ಭ್ರೂಣದ ಹೃದಯದ ದರ

Fetal movement ಭ್ರೂಣದ ಚಲನೆ

Any abdominal measurements abnormal? ಯಾವುದಾದರೂ ಕಿಬ್ಬೊಟ್ಟೆಯ ಮಾಪನವು ಅಪಸಾಮಾನ್ಯವಾಗಿದೆಯೇ?

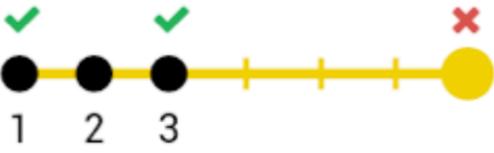
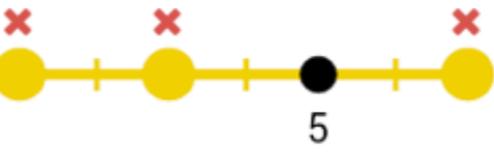
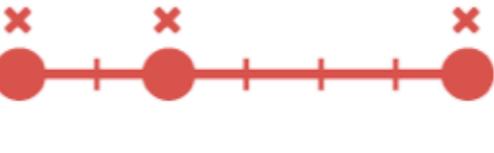
Abdominal Height ಉದರದ ಎತ್ತರ

Fetal heart rate ಭ್ರೂಣದ ಹೃದಯದ ದರ

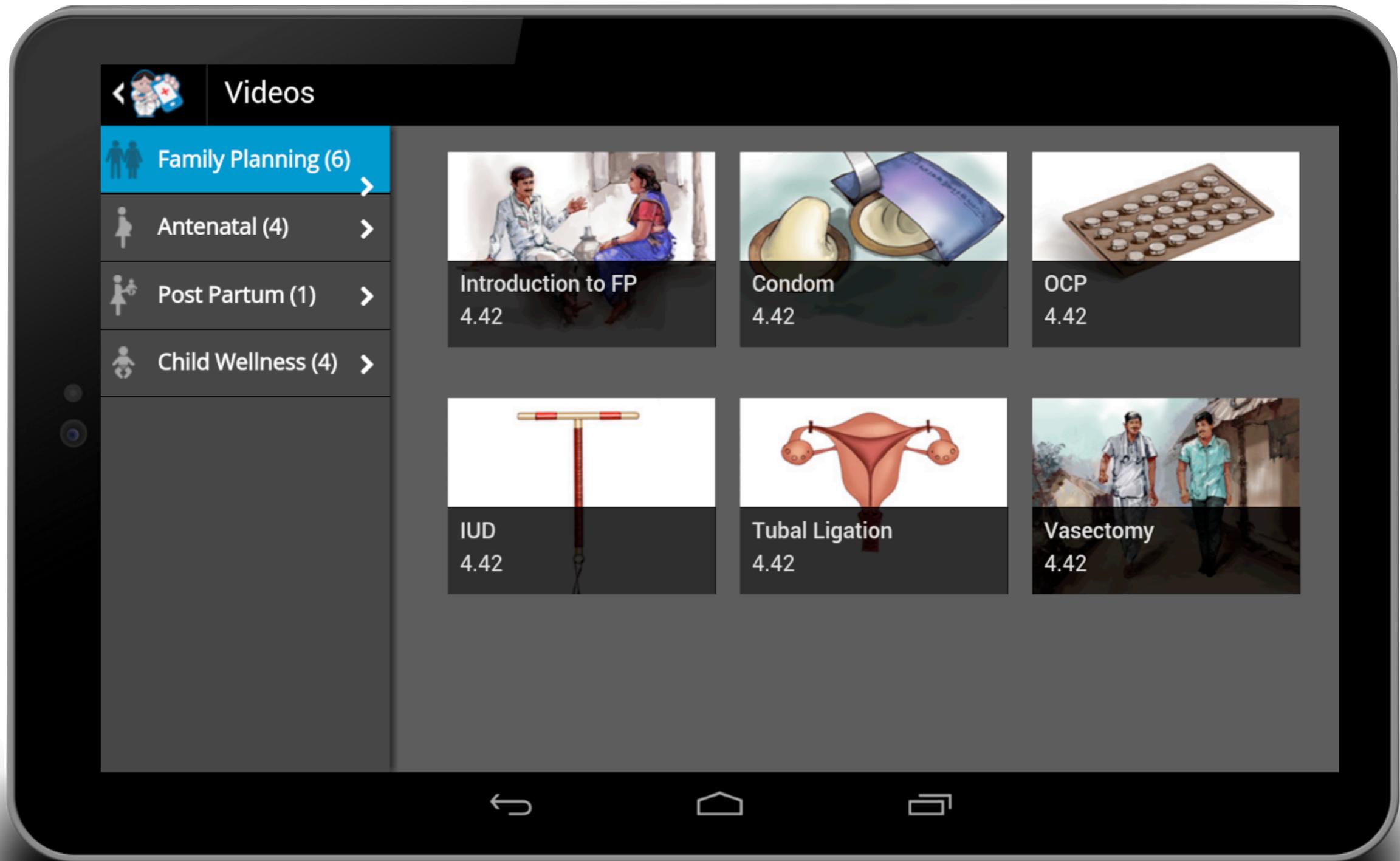
Fetal movement ಭ್ರೂಣದ ಚಲನೆ

Multiple pregnancy (twins, triplets)? ಬಹುಗರ್ಭಧಾರಣೆ

Postnatal Care View

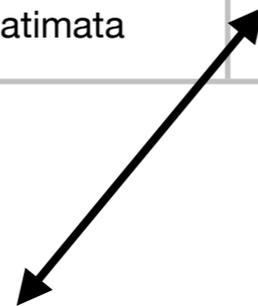
PNC: 26/08 - 25/09		PNC Visits		Search PNC Register	
Sorted By: Name (A to Z), Village: All					
NAME	THAYI NO.	DAYS PPCOMPLICATIONS	FIRST 7 DAYS	PNC VISITS	
  Nanditha (21) Rajesh Udayagiri (O/A)	2121212	67 DOB: 03/07		59	31/08 PNC Visit ✓ PNC: 31/08
  Radha (30) Guru Basavanapura (O/A)	2222222	39 DOB: 31/07			PNC Visit ✓ PNC: 03/08
  Ramadevi (38) Ramu Basavanapura (O/A)	3333333	37 DOB: 02/08 Hemorrhage			PNC Visit ✓ PNC: 07/08
  Ranjitha (24) Ravi Sambaravalli (O/A)	3250698	15 DOB: 24/08			PNC Visit
  Sarala (26) Shashikumar Geradada (O/A)	1234567	32 DOB: 07/08 Hemorrhage			PNC Visit ✓ PNC: 13/08
  Sudha (25)	3652314	12			

Smart Registry Media Content



ANC Health Registry

Clinic ID	Health ID	Name	Pregnant	EDD	ANC1	ANC2
5	65295	Oumou	No	13/12/13	8/9/13	
4	26246	Mariam	Yes	10/11/13	10/9/13	10/10/13
4	45250	Mina	No	8/10/13		
5	95241	Fatimata	Yes	15/11/13	8/4/13	



Facility Level

Health ID	95241
Name	Fatimata
Pregant	Yes
EDD	15/11/13
Number Children	3
Husband's Name	Amadou
Mobile	0724 422 4245

OpenMRS Health Record

Community Level

NAME	ID NO.	ANC STATUS	VISITS	TT	IFA
Ambika (24) Aravind Chikkabherya (0/a)	ANC: 456 Thayi: 4636857	40 weeks EDD: 25/02 LMP: 25/02	ANC 4 due 05/03 ANC 3: 02/03	TT 1, 2 04/03	Refill 30 due 02/04
Aparna (19) Lokesh Chikkabherya	ANC: 456 Thayi: 4636857	12 weeks EDD: 25/02 LMP: 25/02	ANC 2, 3, 4 done 04/03	TT 2 due 9/04 TT 1: 02/03	IFA 200 done 04/03
Asha (18) Manjnath Chikkabherya	ANC: 456 Thayi: 4636857	12 weeks EDD: 25/02 LMP: 25/02	ANC 2 due 15/04 ANC 1: 03/03	TT due 15/03	IFA due 15/05
Bhagya (22) Nayaka Chikkabherya (0/a)	ANC: 456 Thayi: 4636857	18 weeks EDD: 25/02 LMP: 25/02	ANC 4 due 15/04 ANC 3: 03/03	TT Booster done 04/03	IFA 200 done 04/03
Gayathri (26) Sathish Chikkabherya (0/a)	ANC: 456 Thayi: 4636857	26 weeks EDD: 25/02 LMP: 25/02	ANC 2 due 15/04 ANC 1: 03/03	TT 1, 2 done 04/03	IFA 200 done 04/03
Bema (19)	ANC: 456	26 weeks	ANC 1, 2, 3, 4	TT 1, 2	IFA 200

Smart Registry Platform

Routine registries matter for measuring equity, catalyzing universal access to health services and ensuring accountability, particularly to vulnerable populations

Thank you.

More Information:

Dr. Garrett Mehl
mehlg@who.int



UNDP · UNFPA · UNICEF · WHO · World Bank
Special Programme of Research, Development
and Research Training in Human Reproduction

THE EARTH INSTITUTE
COLUMBIA UNIVERSITY



innovating to save lives



an affiliate of Johns Hopkins University

Mobile mentoring for EmONC training in Guinea

Blami Dao MD, FWACS

Director Maternal and Newborn Health

Jhpiego, Baltimore

Project Description

Goal: compare 2 schemes of knowledge and skills retention after an emergency obstetric and newborn training

Activities

1. Two groups of trainees : mobile mentoring (30) versus face to face approach (15)
2. Post training knowledge and skills retention schemes:
 - mMentoring group: 20 SMS, voice calls during 6 weeks after the training and face to face supervision at 3 months
 - Control group: face to face follow up at 6 weeks and face to face supervision at 3 months

innovating to save lives



an affiliate of Johns Hopkins University

Data

- In intervention group all 30 mentees received all 20 SMS sent and 17% responded to all SMS
- Correct answers to SMS were 87% for infections prevention, 84 % for preeclampsia/eclampsia, 76 % for newborn resuscitation and 71% for postpartum hemorrhage.
- Each mentee called at least once one of the mentors for technical advice
- Control group performed better than the intervention group in term of knowledge and skills retention
- More participants in the intervention group implemented their action plans than in the control group

innovating to save lives

Jhpiego similar experiences

- Malawi: voice calls for clinical mentoring
- Ghana: mobile mentoring after BEmONC training for 24 midwifery educators and preceptors from 6 schools



JOHNS HOPKINS UNIVERSITY

Global mHealth Initiative

A Community of Excellence in mHealth Research, Innovation and Leadership

Case Study: mCARE

Alain B. Labrique, PhD, MHS, MS

Director, JHU Global mHealth Initiative

Associate Professor

Program in Global Disease Epidemiology and Control

Department of International Health

& Department of Epidemiology

Johns Hopkins Bloomberg School of Public Health

JHU School of Nursing (jt)

JHU School of Medicine (jt)

“**JiVitA**” Maternal and Child Health Research Project (WWW.JIVITA.ORG)

Public Health, Maternal and Child Health
and Nutrition Efficacy Research

to

Improve Health and Save Lives in
Bangladesh, South Asia and Globally.



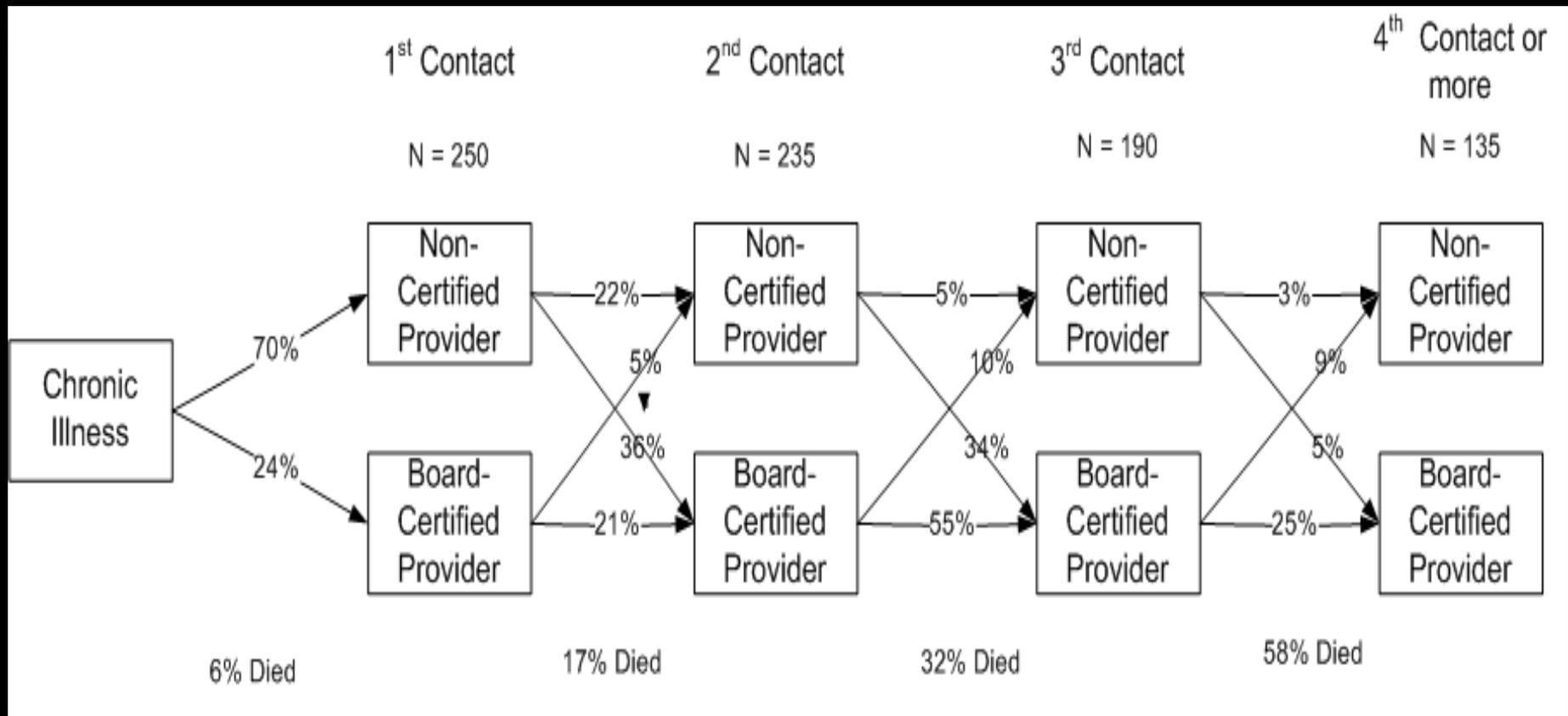
85%

35/1000

49.5%

Saiban na, angkaden

Complex pathways to mortality



Rural families **use mobile phones** during severe pregnancy crises

N=11,451 (2007-2010)



	Number	%
Total number of "Near Miss" events	611	5%
<i>Those using mobile phones</i>	337	55%
<i>†Phone used to:</i>		
call provider	241	72%
request medical advice	193	57%
arrange transport	110	33%
request financial aid	70	72%

† Total greater than 337. Categories are not exclusive.





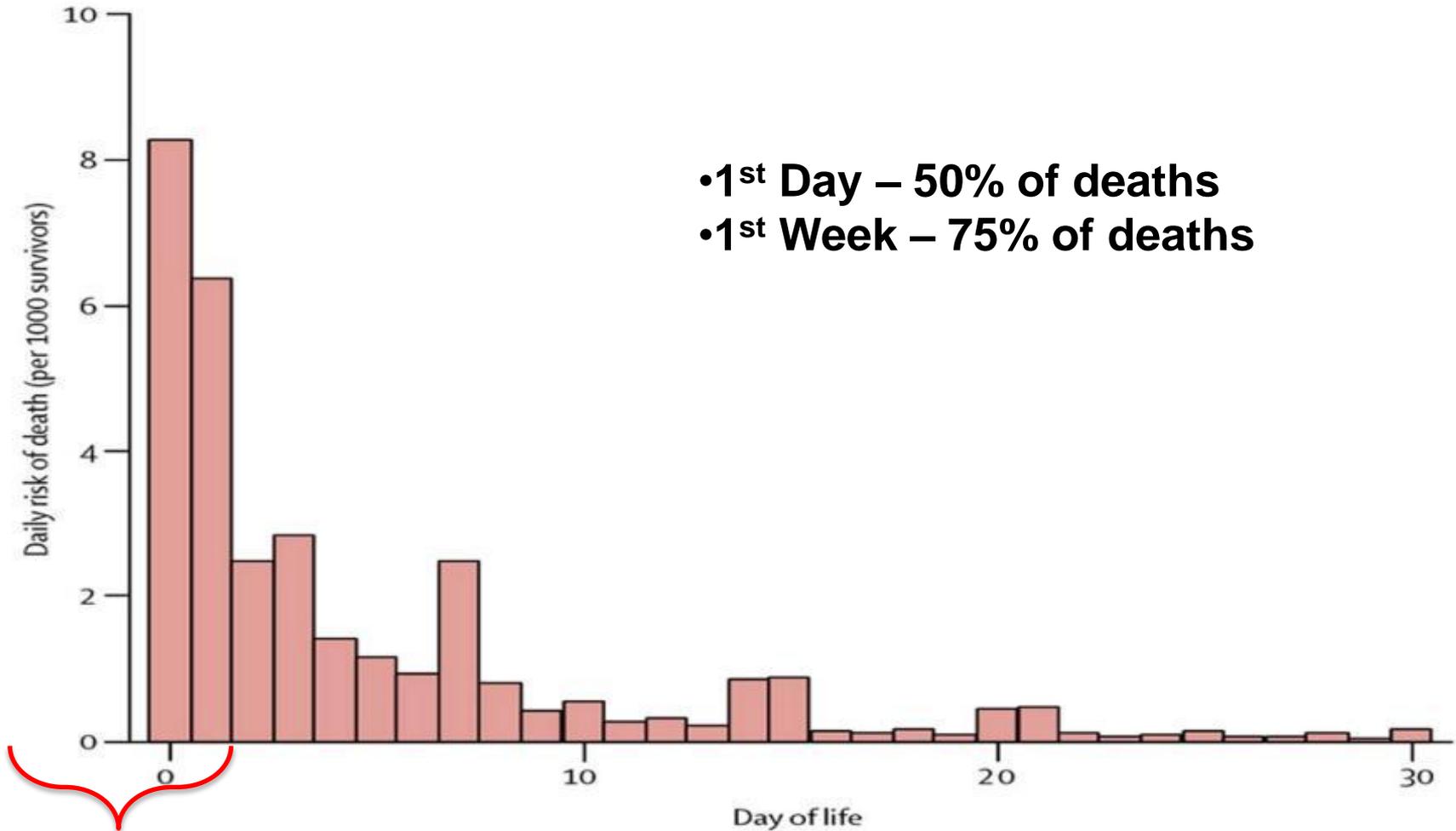
168,231 Woman Survey –

Gaibandha, Bangladesh
(January-March 2012)

- **71%** Households own phones
- **20%** Used a phone in past 30 days for emergency health purpose
- Phone owners **2.8 times** more likely to use phone for health call
- **ONLY 23%** Electricity in home!

Challenges in averting neonatal mortality – being at the right place, at the right time...

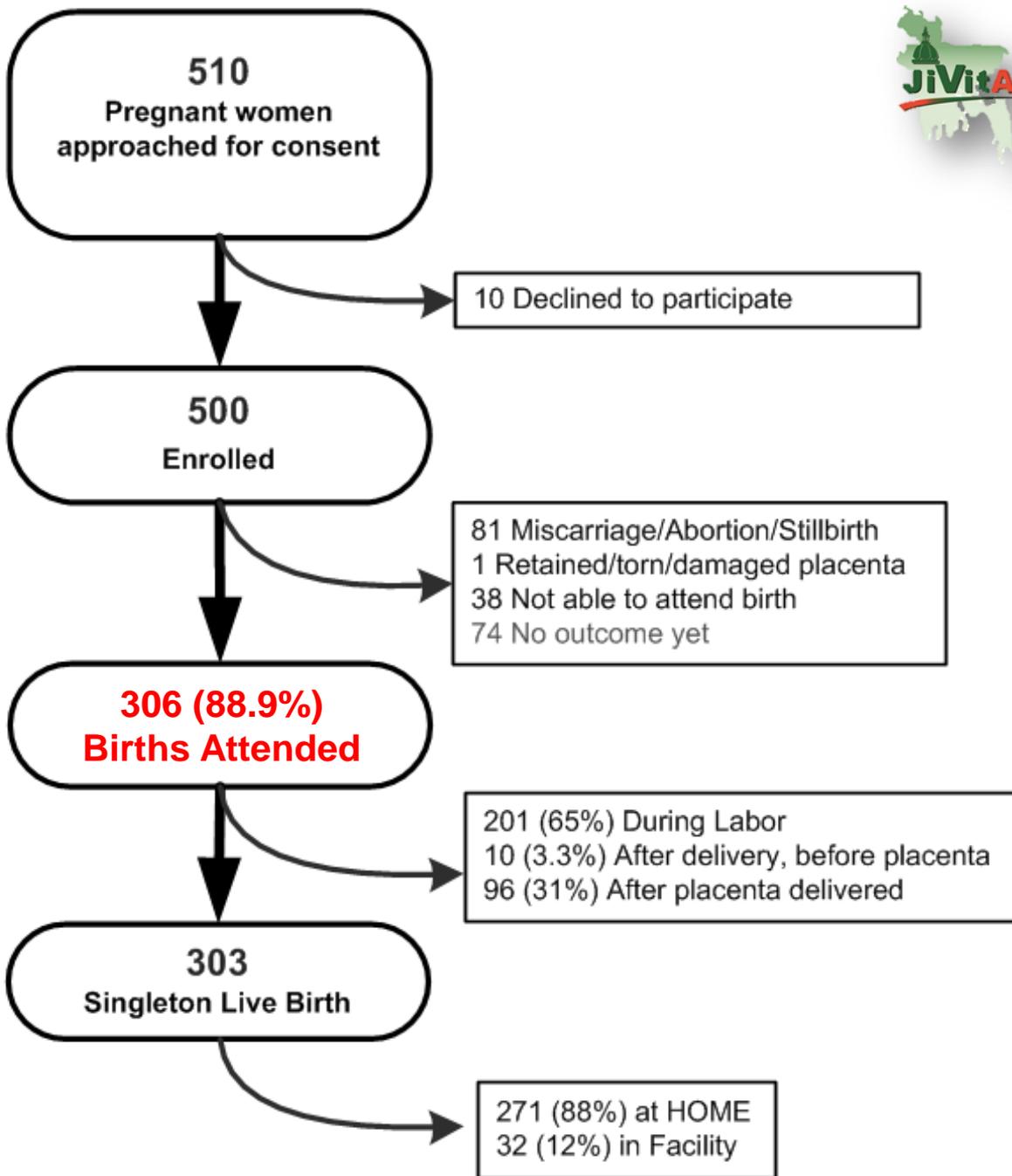
- 1st Day – 50% of deaths
- 1st Week – 75% of deaths



“Hot Zone”

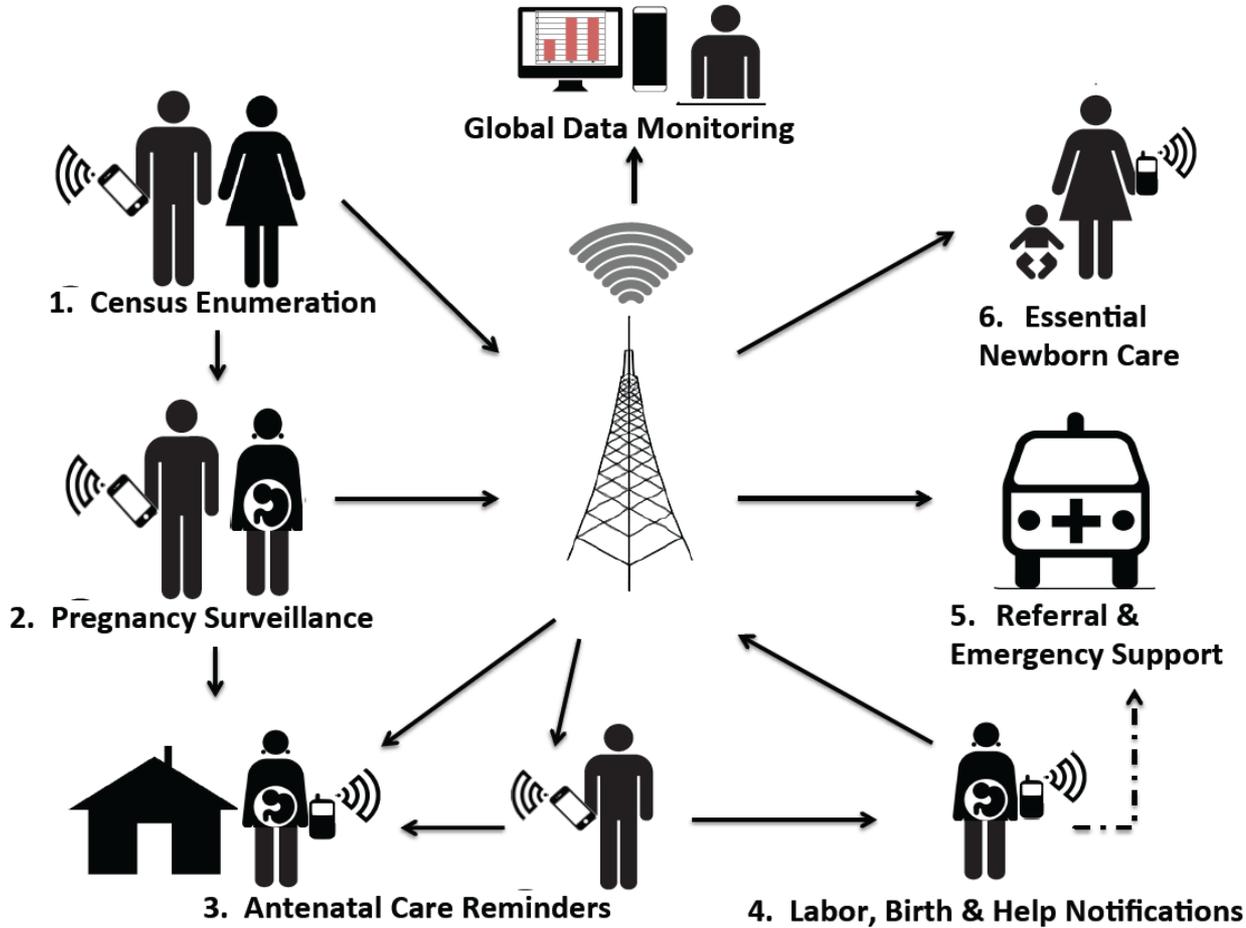


m-Labor Notification System Pilot Study



Source: Gernand, JiVitA Data 2011
(Unpublished)

mCARE: Community-Health Worker System to improve delivery of ANC/PNC and increase client demand



World Health Organization

mPower

JOHNS HOPKINS UNIVERSITY
Global mHealth Initiative



JOHNS HOPKINS
BLOOMBERG
SCHOOL OF PUBLIC HEALTH

UBS

UBS Optimus Foundation

Key Features

- Simplify & strengthen pregnancy registration
- Promote ANC through timely messaging
- Mobilize ecosystem around ANC
- “Background” calculation for EDD and autocalculation of possible preterm
- Engage client in labor / birth notification
- Mobilize care ‘system’ around emergency
- Engaging national health workforce from day 1

ImTeCHO= ImTeCHO

A joint initiative of SEWA Rural and Department
of health and family welfare, Gujarat, India

Shrey Desai, MD, MPH

Scope of intervention: MNCH services to be delivered by ASHAs

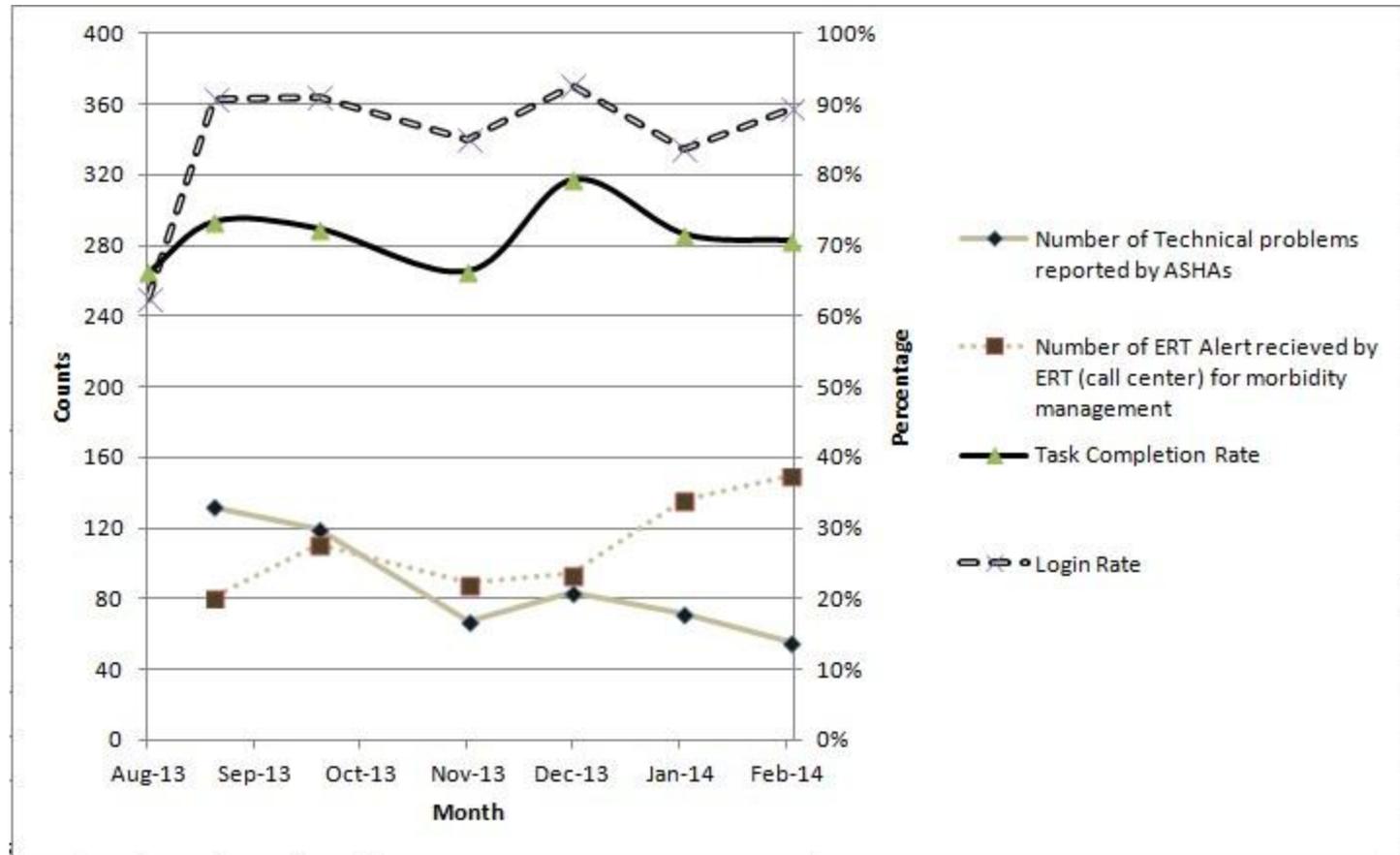
Intervention (called “ImTeCHO”) is a platform based on mobile phone technology to improve coverage of proven MNCH interventions through improving performance of ASHAs by providing support, supervision and motivation.

- Current users: 45 ASHAs and 10 health workers of PHCs since May, 2013 among 45 villages (population: 45,000)

Components of intervention

- Mobile as job-aid for **improving ASHAs' performance** (scheduling, detection of sickness and its management, motivation)
- **Improving client knowledge** (Use of multimedia)
- Web interface as job-aid to PHC staff to **improving functioning of health system** (financial transaction, supply management, supervision etc)
- Component-wise evaluation and action learning

Evidence: acceptability, uptake and usefulness of intervention



Upcoming efforts to build evidence

- Documentation of formative evaluation of each component (underway)
- Cluster randomized trial to assess effectiveness (will begin this year)



Maternal Health: mHealth for safer deliveries

Lucy Fulgence Silas
D-tree International
Tanzania



Goal: Reduce the 3 delays

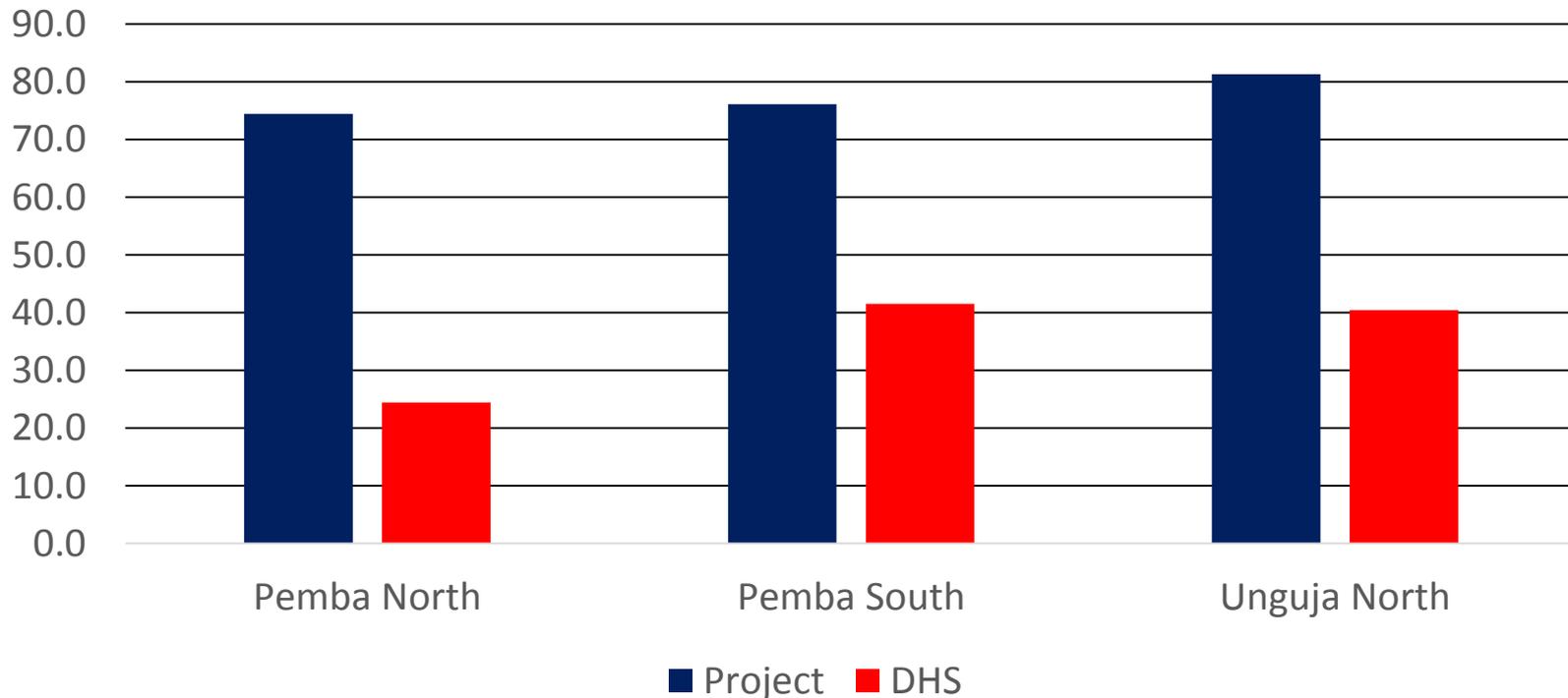
- Decision to seek care
- Arrival at health facility
- Provision of adequate care

Safer Deliveries

- TBA decision support
- transportation
- mobile banking
- permissions
- alert facility
- post partum f/u
- 223 CHWs in 6 districts

Results: Facility Deliveries

9,345 women registered



Overall 77% facility delivery

Does decision support work?



- In Tanzania adherence to IMCI protocols > 95%
- In Tanzania ANC protocols linked to newborn to deliver PMTCT
- In India ANM using protocols to improve care, efficiency
- In Malawi triage of children in Emergency for severe illness
- In Malawi community health workers perform significantly better using eCCM for children



photo courtesy of Marke Leong/WHO

Better Decisions Save Lives

mHealth for maternal health

bridging the gaps

What's new in mHealth?

Systems strengthening

BBC Media Action

BBC's international development organization

Aims to transform lives through media by giving people a voice and access to information

Reaches 200 million people

Active in 30 countries, 25 languages in Africa, Asia, Europe and Caucasus, Middle East and North Africa

All media platforms, linked with community activation and interpersonal communication



Health



Resilience and humanitarian response



Governance and Rights

The Ananya program, Bihar India

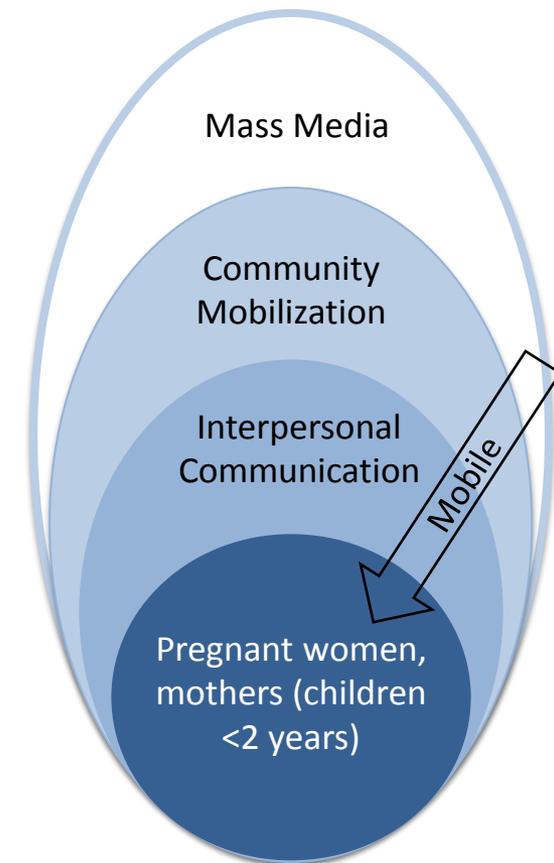
Goal: Significantly reduce maternal and infant mortality in the Indian state of Bihar by Dec 2015.

How: BBC Media Action is increasing demand for health services and promoting the adoption of healthy behaviors. Using a mix of mass, community and interpersonal communication platforms.

Bihar context: Population of 104 million people, including 23 million women of child bearing age and 200,000 community health workers. 53% live below the poverty line. 70% of women in rural Bihar are illiterate.

Mobile: 80% have access to a mobile phone, 85% of community health workers own their own phone. Handsets are old, technical (mobile) literacy is very low; e.g. 91% have never sent an SMS.

BBC Media Action solution: Design low tech, audio-based content that is handset and network independent so that all can access the services. Two mobile services designed specifically for community health workers and one for pregnant families. Negotiated 90% reduction in standard IVR call rates from all of the major mobile network operators.



Mobile phone services

Mobile Kunji

- Audio visual job aid for community health workers for use during their counseling sessions with families
- IVR-based content used along with a deck of 40 illustrated cards on a ring
- Each card communicates life-saving messages about maternal and child health
- A unique shortcode at the bottom of each card plays the related audio health message to rural families
- Designed to be used every day, it's toll free
- Public sector business model: calls charged to government



Mobile Academy

- A training course on maternal and child health, designed to enhance community health worker's communication skills
- IVR, accessed via a simple voice call
- Covers health messages from pregnancy until the child is 2 years of age
- Divided into chapters, lessons and quizzes. Total course is 190 minutes long
- Accumulative pass/fail score, printed certificate for all those who pass
- Private sector business model: billed to user, total cost of the course is \$1.50



Mobile Kilkari

- Time-sensitive audio content delivered to families weekly, for up to 64 weeks
- IVR, consisting of out bound calls to families' mobile phones
- Each call is 2 minutes in length
- Private sector business model: user subscription based. Maximum charge is \$1



Early results

Uptake:

Mobile Kunji: 160,440 unique users have listened to 6.2 million minutes

Mobile Academy: 42,913 unique users have listened to 6 million minutes. 21,577 have already graduated

Mobile Kilkari: 68,000 subscription requests in 6 months

Track monthly uptake @ <http://www.rethink1000days.org/>

Results:

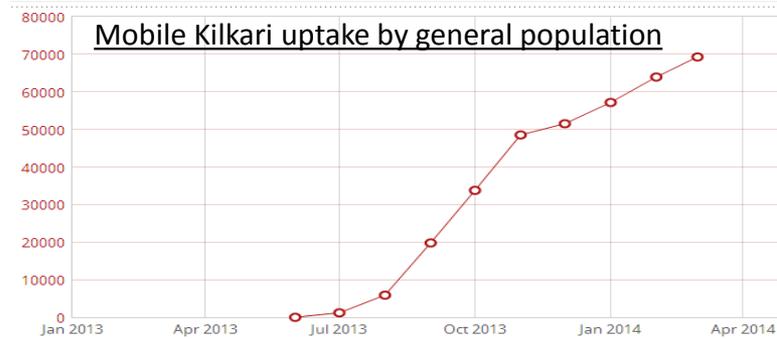
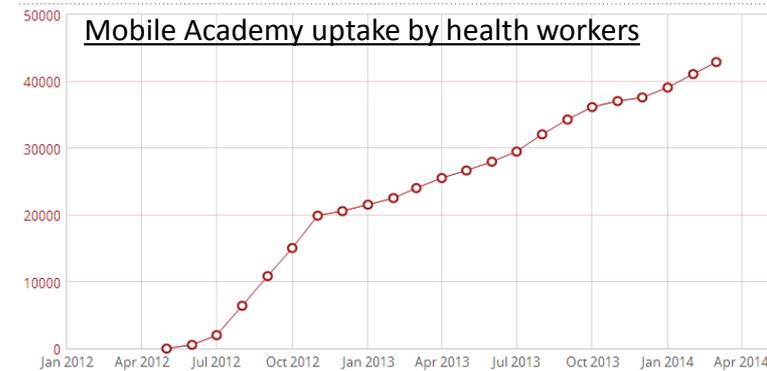
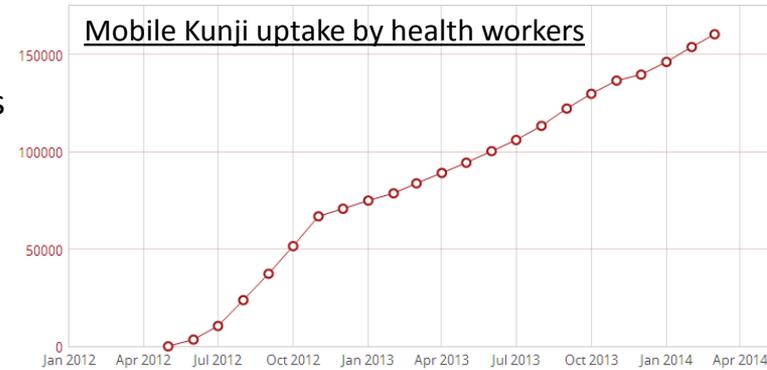
The percentage of mothers who received advice on:

- birth preparedness has increased from 29% to 54%
- complementary feeding has increased from 7% to 20%
- family planning has increased from 10% to 23%

(from March, 2012 to August, 2013)

Results still to come:

- Mobile Kunji usage and engagement study will evaluate its efficacy in improving knowledge and changing attitudes to maternal and child health – due in May
- Results of Ananya midline – due in June
- mHealth services have already scaled to other districts and states



Innovations for Maternal and Child Health



Zindagi Mehfooz (Safe Life) Program

Subhash Chandir
Team Leader, Maternal and Child Health
Interactive Research and Development, Pakistan
www.irdresearch.org

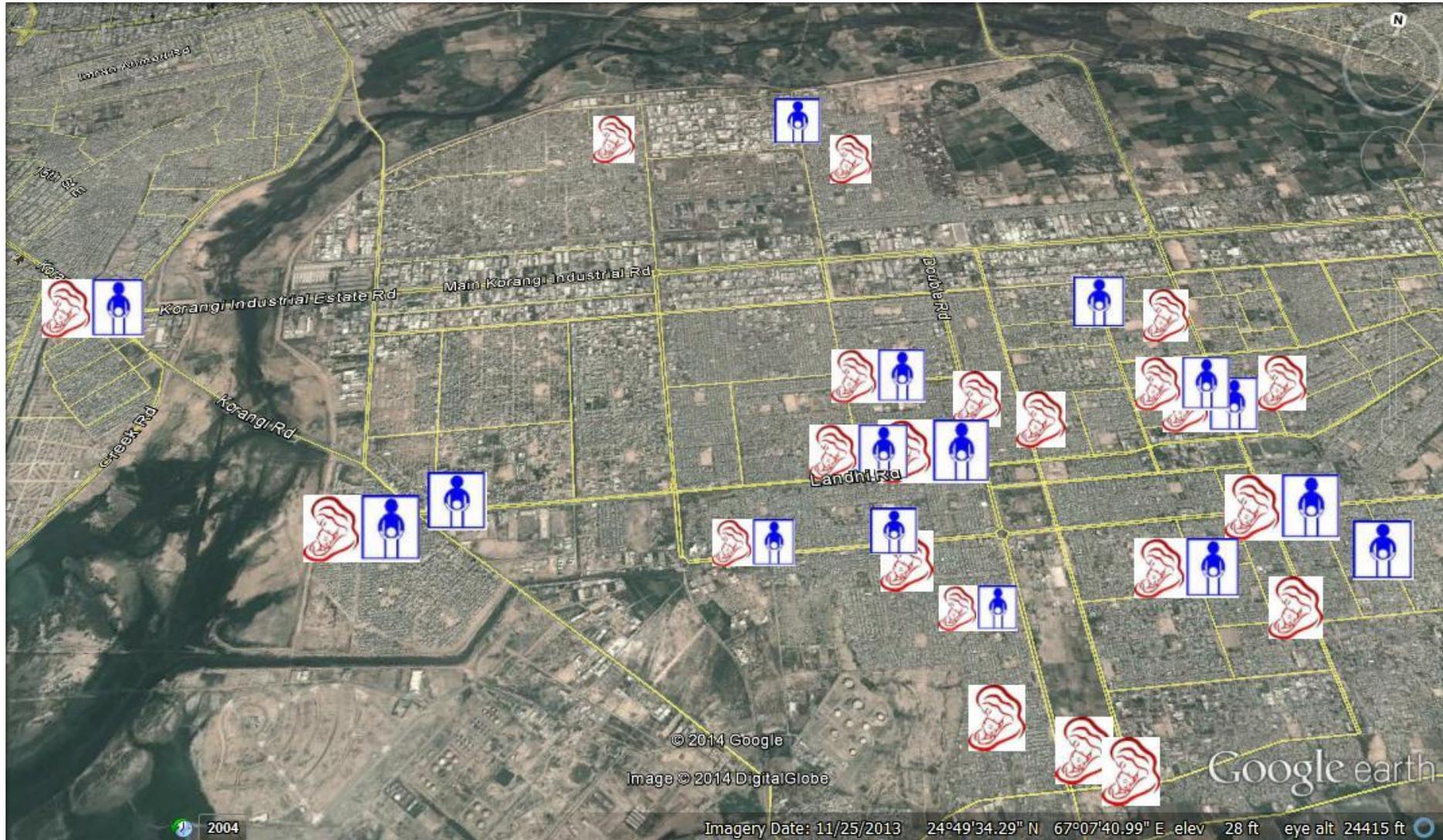
April 07, 2014 @ mHealth for Maternal Health Meeting, Boston

Zindagi Mehfooz (Safe life) Immunization Registry

- To improve immunization coverage and timeliness
- 15 Vaccinators at 12 immunization centers
- Features
 - Web interface
 - Mobile phone based data access and entry
 - RFID/QR code based identification
 - Interactive SMS reminders
 - Lottery based conditional cash transfers for mothers & vaccinators
 - Built in decision support system for routine & catch-up immunizations
 - GIS tracking of vaccinators



Aerial view of Immunization and Birthing Centers in Korangi Town, Karachi, Pakistan



 Birthing center



Immunization center

Age-appropriate Immunization Completion Rates by Vaccine Cohort

Jun 20, 2012 – Mar 20, 2014

Cohort		Penta 1		Penta 2		Penta 3		Measles 1		Measles 2	
Vacc.	n	Due	% V	Due	% V	Due	% V	Due	% V	Due	% V
BCG	8308	8002	81	6062	82	4708	80	4498	48	979	53
Penta1	3833			3626	72	2437	76	2413	48	718	53
Penta2	2151					2044	61	1608	37	455	50
Penta3	1997							1616	37	460	45
Measles1	2619									2299	37
Measles2	961										
Total	19869	8002	81	9691	78	9193	75	10135	44	4911	44

DHS -2013	437		65		57		39		45		NA
------------------	------------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------

Penta is Pentavalent, NA is not available, % V is percentage vaccinated.

Short list of mHealth Projects

- **Khushal Khandan (Happy family) program**
 - Virtual registry and SMS Reminders to improve uptake of antenatal care and immunization services
 - Performance based incentives for lady health workers
- **SMSTarseel**
 - System for sending/receiving SMS and call logs
- **electronic Cause of Death Integrated Registration System (eCODIRS)**
 - Birth and death data from community and hospital based sources
- **Interactive Video Educator app**
 - Animated videos to raise awareness on preventive and therapeutic measures
- **Pilot of Smart Registry Platform in Pakistan**
 - Integrated registry for delivery of reproductive, maternal, newborn and child health (RMNCH) services



cStock:



Making Community Stock Data Visible



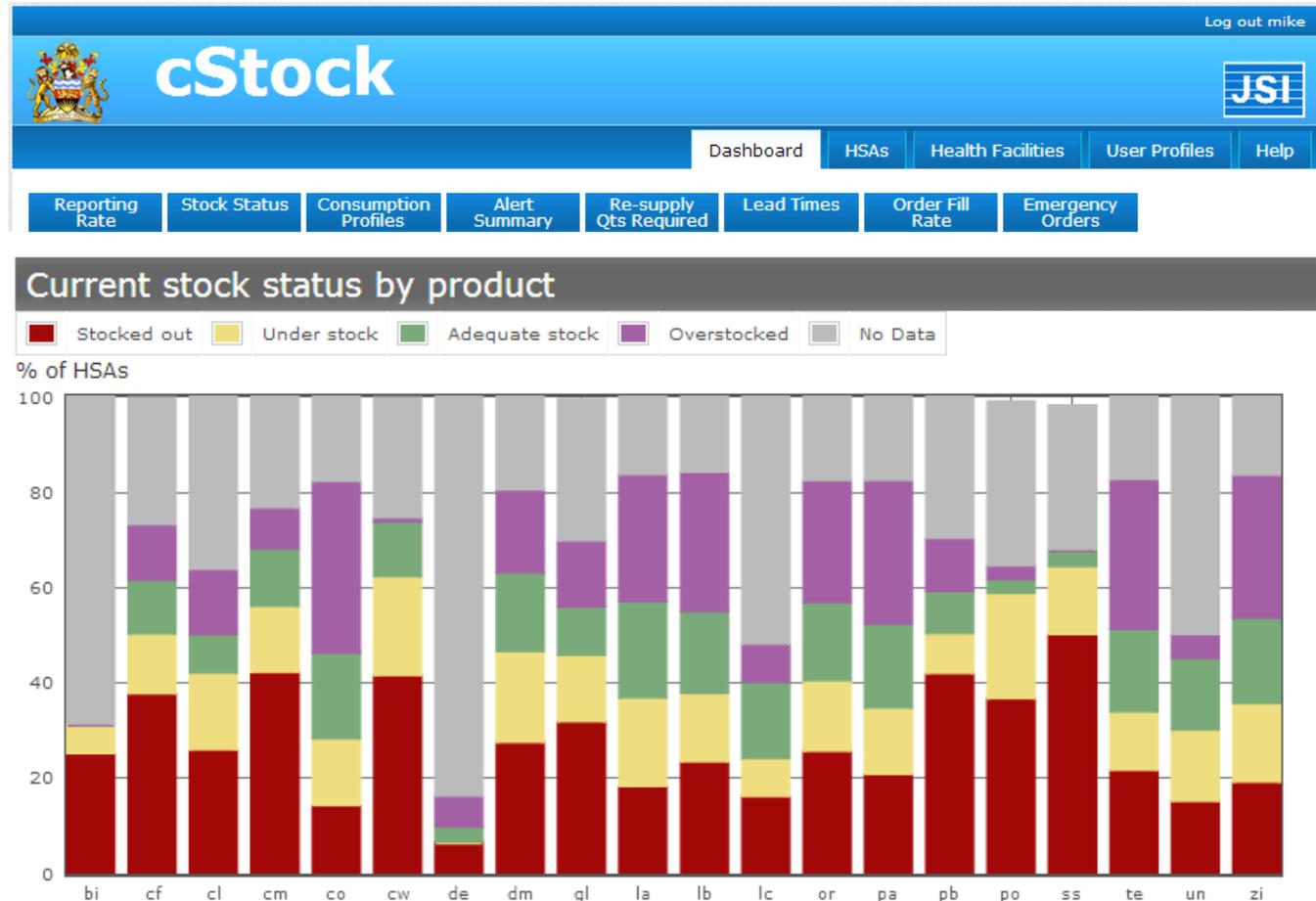
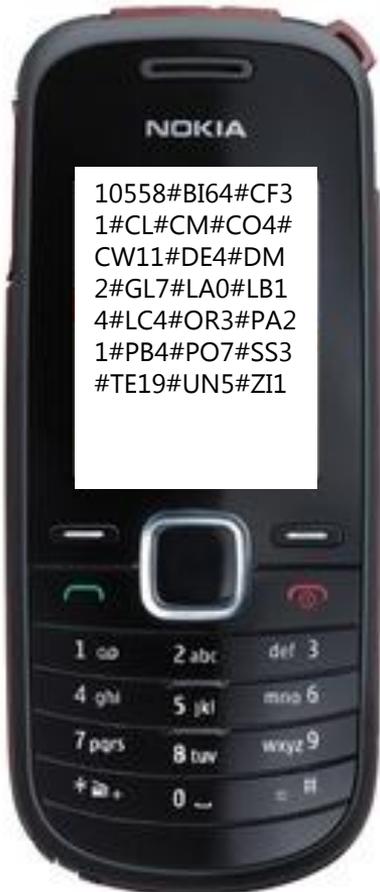
cStock: CHW Logistics Management (2500+ Users)

1. HSA sends SMS with **SOH** each month to toll free number

2. cStock **calculates the resupply quantity** and sends SMS to HC Pharmacy

3. Health Center receives request via SMS and notifies HSA either **“order ready”** or **“out of stock”**.

4. HSAs collect products and send SMS with **receipt**



Results



Product Availability

- ✓ **62%** of CHWs had the 4 tracer drugs* in stock day of visit (compared to 27% BL)
- ✓ HSAs in districts using cStock and DPATs had **14% fewer stock outs or low stocks** than other districts on day of visit

Data Visibility

- ✓ More than **80% of CHWs** report logistics data to **cStock** every month (vs. 43% at BL)

Use of Data

- ✓ **91% of Drug Store in Charges** use cStock to inform resupply quantities
- ✓ **56% of CHW supervisors** use cStock data for performance monitoring

Teamwork

- ✓ **100% of District & CHW Supervisors** reported finding product availability teams useful
- ✓ **92% of CHW Supervisors** know their recognition plan

*cotrimoxazole, LA1x6 and/or LA2x6, ORS



2011 – present
230+ facilities (10 regions)



2010 – present
4621 users



2011 – present
40,000 users



2011 – present
3000+users

