What is mPossible?
Health Systems Innovations from Person to Population

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The World is Changing Rapidly
Untethered, yet connected:
Diverse application of wireless and mobile technologies designed to improve health research, health care services and health outcomes
mHealth is not a single **THING**. Mobile tools can be used to strengthen different parts of the health system.

**mHealth Technical Evidence Review Group for RMNCH**


“Providing governments and implementing agencies objective, evidence-based guidance for the selection and scale of mHealth strategies across the reproductive, maternal, newborn and child health continuum”

- mTERG Mission Statement 2012

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**ICT4D**

- What is the problem?
- What is possible?
- What is viable?
- What do users want?
- What is sustainable?
12 Common Applications of mHealth

mHealth doesn’t work in a Vacuum

THREE LAYERS OF mHEALTH STRATEGIES

**Patient**
Knowledge and Self-Efficacy
- INFORMATION
- DEMAND CREATION
- SUPPORT SYSTEMS

**Provider**
Competence and Accountability
- WORK MANAGEMENT
- DECISION SUPPORT
- ENUMERATION
- SURVEILLANCE

**Health System**
Adequacy
- SUPPLY CHAIN
- STAFF AND FACILITY PERFORMANCE MONITORING
- REFERRAL SUPPORT

mHealth is not about the technology. It’s a Health Systems Catalyst

EFFECTIVE COVERAGE

Shift focus from “Does mHealth work?” to “Does mHealth optimize what we know works?”

INTERVENTION OF KNOWN EFFICACY

Jo Y, Labrique AB et al. PLOS One 2013
Eras of mHealth

I
Innovation and Experimentation
II
Discordant Proliferation
III
Scrutiny and Consolidation
IV
Integration and Scale
Targeting the CLIENT

Global PPP

Expectant women/new mothers sign up for service

Users receive 2 health-related SMS or Audio Message weekly

NGO Partnership and "Freemium" Model of Subscription

"If you have any bleeding during this month, seek medical attention right away"

"Your baby needs an immunization this week to stay healthy. Available free at all EPI clinics"

US, Bangladesh, South Africa, Russian Federation, India
Targeting the WORKFORCE
Mobile Academy for Frontline Health Workers

Use of technology as a standalone, audio-based and accessible tool to train Bihar’s 200,000 community health workers to deliver life-saving information to millions of families

- Mobile Academy is a training course on maternal and child health
- Covers 20 modules - from pregnancy until the child is 2 years of age
- Designed to improve CHWs’ knowledge of life-saving, promotive health and enhance their communication skills
- Divided into chapters: lessons and quizzes
- Accumulated parallel scores
- Printed certificates for all those who pass

Mobile Academy

https://www.youtube.com/watch?v=hAgzvD7WNFg
Targeting the SYSTEM
Integrating MULTIPLE layers

Patient – Provider - System
"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.
Rural families *use mobile phones* during severe pregnancy crises
N=11,451 (2007-2010)

![Table showing number and percentage of features used by families using mobile phones](image)

Source: Labrique, mHealth Summit, Washington DC, 2011

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### m-Labor Notification System

510 Pregnant women approached for consent

- 10 Declined to participate
- 500 Evaluated

- 306 (88.9%) Births Attended
- 383 Singleton Live Birth

- 81 Missed appointments/Stillbirth
- 81 Missing or delayed delivery

15% Unable to attend birth

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**The “Status Quo”**

Inefficiencies draining limited resources

Burden on health workers to collect, aggregate and report data

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Source: Gernand, JiVitA Data 2011 (Unpublished)
Inaccessible, Unusable data

Tremendous time and effort is invested in manual data summarization and reporting.

19 registers contain 473 separate data fields!

Only 60 fields would be required for a digital system to process the same information.

Multiple DAYS spent EACH WEEK aggregating data.
FIVE layers of aggregation occur before data is digitized.

ANC / PNC Rates Very Low

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

**mCARE Pilot Phase (2013-2015)**

<table>
<thead>
<tr>
<th></th>
<th>CONTROL</th>
<th>TOTAL</th>
<th>mCARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women Enrolled</td>
<td>n = 312</td>
<td>n = 6621</td>
<td>n = 3112</td>
</tr>
<tr>
<td>Registered Pregnancies</td>
<td>n = 281</td>
<td>n = 691</td>
<td>n = 410</td>
</tr>
<tr>
<td>Pregnancies Included in Analysis</td>
<td>n = 250</td>
<td>n = 503</td>
<td>n = 363</td>
</tr>
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</table>

**Result:** mCARE tripled ANC and doubled PNC in Rural Bangladesh

**Constraints – targeted solutions**
- No Denominators
- Unsystematic Surveillance
- Missed opportunity for early ANC
- No scheduled reminders for ANC/PNC
- Data on service utilization not verifiable
- Lack of Systematic M&E procedures
- Timeliness of ANC/ENC and Referral a challenge
mCARE showed **10% Increase** in Breastfeeding and **8% Increase** in Exclusive Breastfeeding

Client-driven, SMS-based, direct-to-server “short-code” notification

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Harnessing a Mobile System to Achieve Universal Vaccination

mTikka: Virtual Vaccine Registry & Schedule Adherence System

A Gates GCE7 Study in Collaboration with the MOHFW, Bangladesh & mPOWER Health
mTikka improves vaccination COVERAGE

<table>
<thead>
<tr>
<th>Vaccination status by type</th>
<th>Intervention Rural</th>
<th>Control Rural</th>
<th>DID and OR (95% CI)</th>
</tr>
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<tbody>
<tr>
<td>Fully vaccinated (BCG + Penta3 + MR)</td>
<td>58.9 (57.7, 60.0)</td>
<td>45.9 (44.9, 46.9)</td>
<td>13.0 (11.2, 14.8)</td>
</tr>
</tbody>
</table>

Vaccination coverage (in %) among infants over 298 days in intervention and control areas with difference-in-difference (DID) and logistic model odds ratio (OR)

Ref: Uddin et al. (2015) Vaccine

mTikka improves TIMELY vaccination

<table>
<thead>
<tr>
<th>Vaccination status</th>
<th>Mother's recall</th>
<th>Vaccination card</th>
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</thead>
<tbody>
<tr>
<td>[6.8%]</td>
<td>22%</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

Vaccination coverage (in %) among infants by 3 months of age in intervention and control areas, by mother's recall or vaccination card data.


Globally, similar Frontline Health Worker solutions have evolved.

Few to none are Enterprise-Grade.
The Smart Register is meant to look familiar, similarly laid out as the Health Worker’s traditional paper register.
Area of Importance: Data Use beyond targets and indicators

What have we learned?

Keep it simple.
Think **inside** the box: use what you already have.

Innovation is **happening**. Find it.

Take high-tech OUT of its “safe” zone... ? Perhaps...
mHealth is interdisciplinary and requires mixed methods

Iterative development, rapid evaluation and rigorous measurement are all needed.

"At the most basic level, human-centered design is about knowing... When we better understand the realities of these women's lives, we are able to design and deliver solutions that are more useful to them."

– Melinda Gates, May 20, 2015

New Principle for Scale?
Strive to DELIGHT
Measuring impact is essential part of scaling up and should **NOT be an afterthought**, or relegated to “budgetary leftovers”.

On the Horizon... a new WHO M&E Workbook...

Develop Common Indicators and Measurement Standards for mHealth Projects

A pragmatic approach that promotes high-quality reporting of mHealth innovation research, across varied study designs to facilitate evidence synthesis and development of guidance

- **Domain 1**: Research Methodology Reporting
- **Domain 2**: Essential mHealth (Technology, Functionality, Delivery) Reporting

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
<th>No.</th>
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<tr>
<td>Domain 1.1</td>
<td>General Reporting and Methodology Criteria</td>
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<td>Domain 1.2</td>
<td>Quantitative Criteria</td>
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<tr>
<td>Domain 1.3</td>
<td>Qualitative Criteria</td>
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<tr>
<td>Domain 2</td>
<td>mHealth Criteria</td>
<td>14</td>
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</tbody>
</table>
Building for SCALE is not simple or cheap. Most “pilots” were not built to scale.

http://tinyurl.com/WHO-MAPS
Each axis has a scorecard

Users add up the scores for each SAQ and calculate the “axis score”

Summary Scorecard

- Allow users to identify areas requiring attention
- Can be used to assess progress over time

Simplicity may be the key to initial scale-up and integration.
Engage Government from the beginning of the innovation cycle.

A Country-level Readiness Assessment Toolkit for ICT Innovations
Helping to Consolidate efforts Globally
And other partners…

MREGISTRY.ORG
A Global mHealth Registry

Learn from each other’s successes and failures. Build on other’s work, not recreating the ‘wheel’.

mHealthEvidence.org / mHealthKnowledge.org
$10,000 - $150,000 Seed funding

“All or nothing” model

Gift IDC (10%) Negotiated
caringcrowd.com

Degree to which the mHealth strategy changes the status quo
Draw inspiration from Botswana and Bangladesh to Baltimore to understand what is m......POSSIBLE

Thank you.

http://tinyurl.com/mpossible-video