Using Information and Communication Technology to Strengthen Sexual and Reproductive Health Research

From Research to Practice
Training Course in Sexual and Reproductive Health Research
Geneva Workshop

16 September, 2014
WHO Headquarters, Geneva, Switzerland

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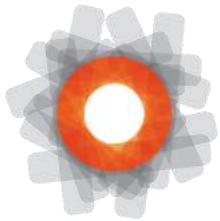


Maternal Health Task Force

Presentation Outline

1. Defining 'information and communication technology,' and positioning it within a historical health research landscape
   - Where have we been, what do we know, and where are we now?
   - New ICT frameworks
2. Ways to use technology to strengthen SRH research: strategies, resources, examples
   - Stronger data collection and reporting
   - Better communication
   - Smarter health system research
3. Open up for discussion: Do you use technology in your research?
4. Continuing the conversation

What are we talking about?

Technology is a catch-all phrase these days, and can mean anything from an immunization to a portable ultrasound.

In the context of this presentation, “information and communication technology” means an

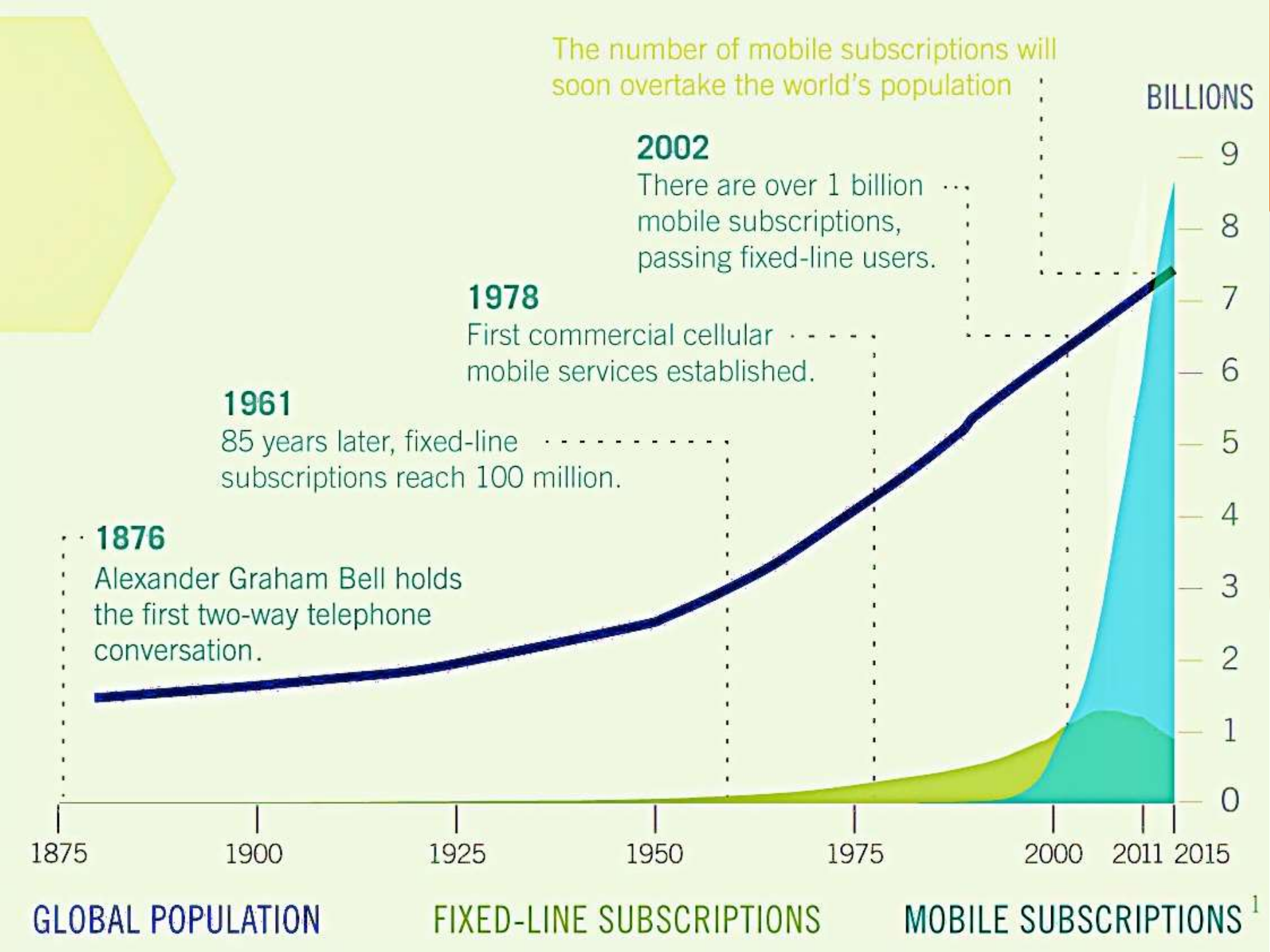
electronic, **web-based** or **mobile**

platform, *application* or *device*

that can be used to implement Sexual and Reproductive Health Research more effectively than other mechanisms.

The historical evolution of ICTs within a health landscape

- Exponential growth in terms of what we can do, and what we can know
- In comparison, the evidence base supporting the use of ICTs to enhance research and practice, lags way behind
  - Early interest in evaluating the technology itself
  - Shift towards evaluating how technology optimizes the delivery of what we know works
  - Transition from pilot projects, to integration of technology into health programs
- Informal vs. formal uses of technology in health research projects


The number of mobile subscriptions will soon overtake the world's population
BILLIONS
2002
There are over 1 billion mobile subscriptions, passing fixed-line users.
1978
First commercial cellular mobile services established.
1961
85 years later, fixed-line subscriptions reach 100 million.
1876
Alexander Graham Bell holds the first two-way telephone conversation.
9
8
7
6
5
4
3
2
1
0
1875
1900
1925
1950
1975
2000
2011
2015
GLOBAL POPULATION
FIXED-LINE SUBSCRIPTIONS
MOBILE SUBSCRIPTIONS [1]

Source: GSMA Intelligence

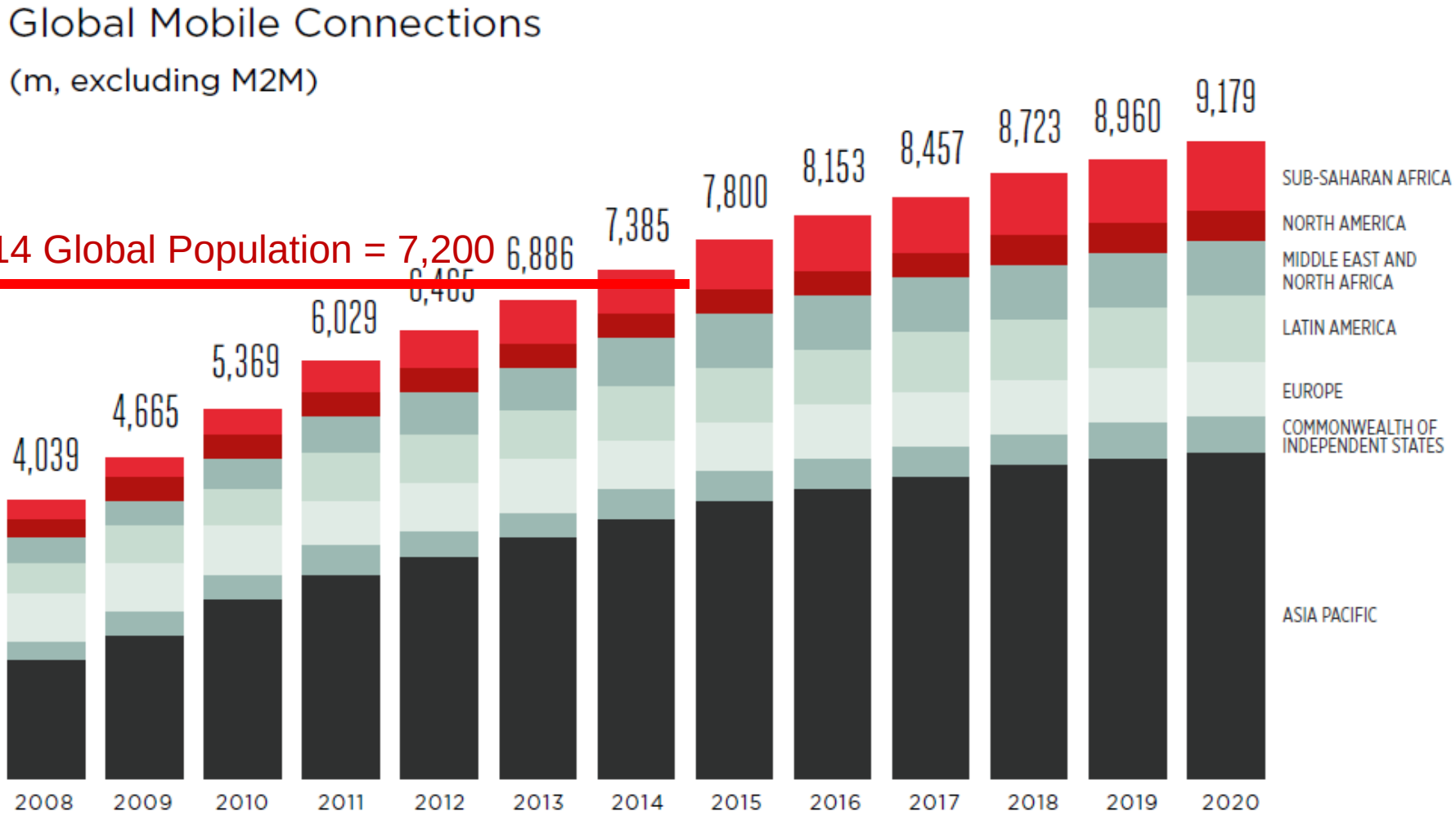
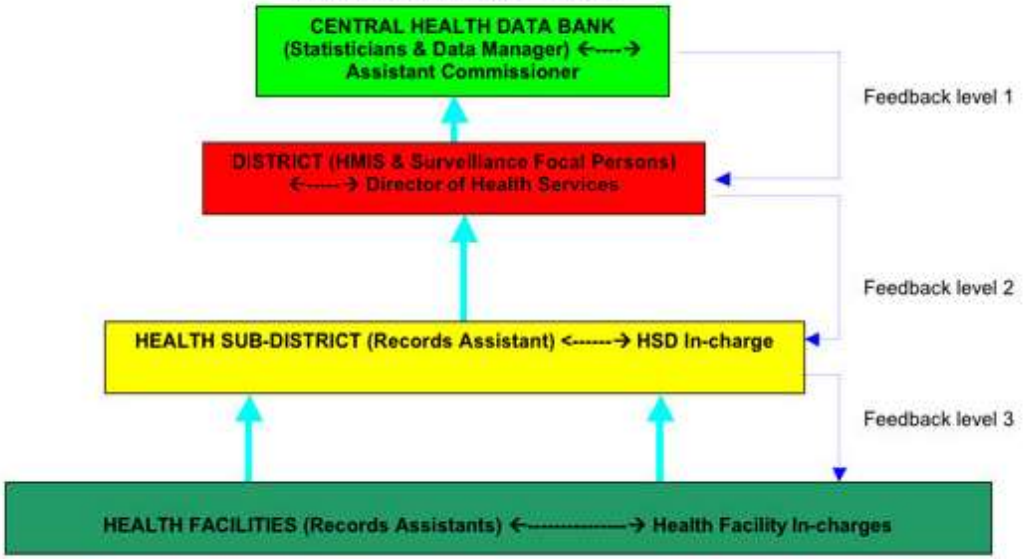
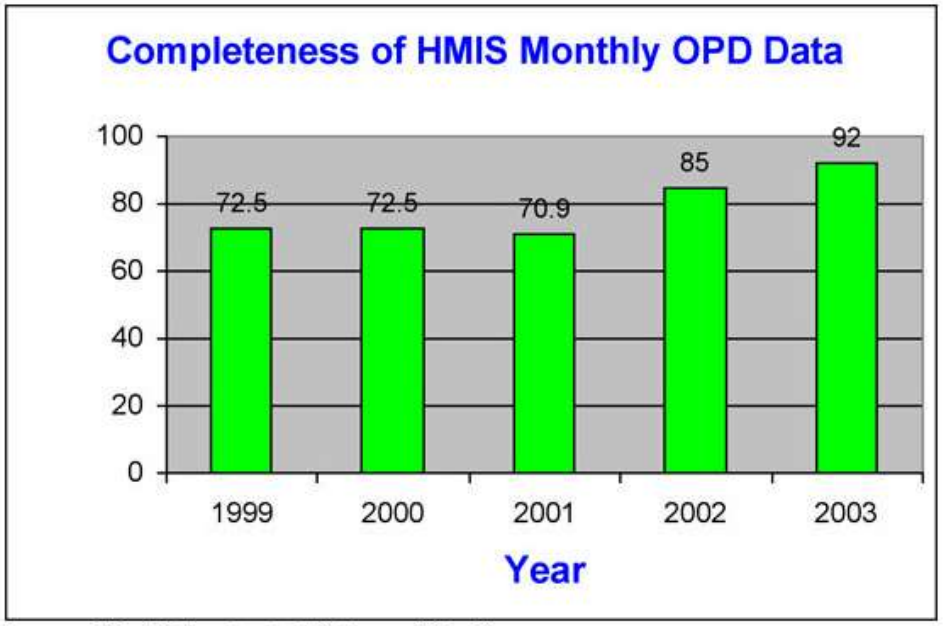
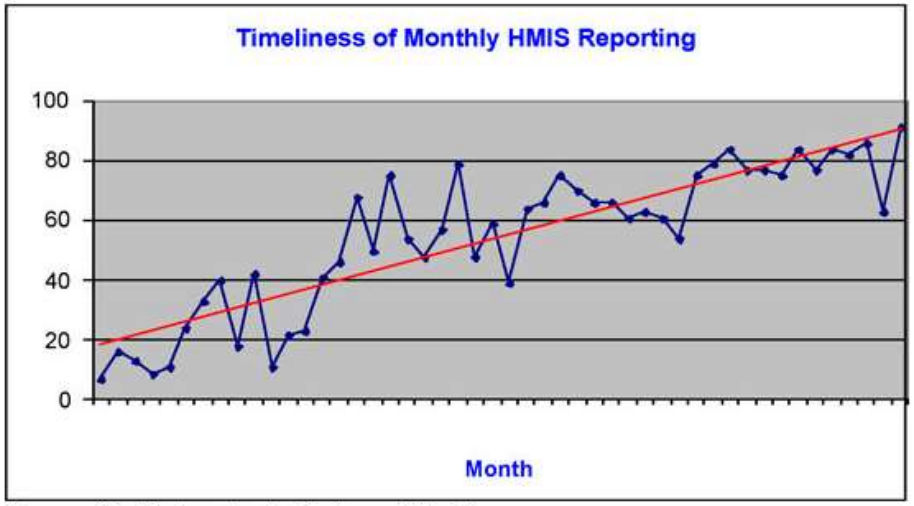


Figure 1. HMIS Reporting Tree





Source: Health Databank, Ministry of Health



Source: Health Databank, Ministry of Health


Why talk about technology?

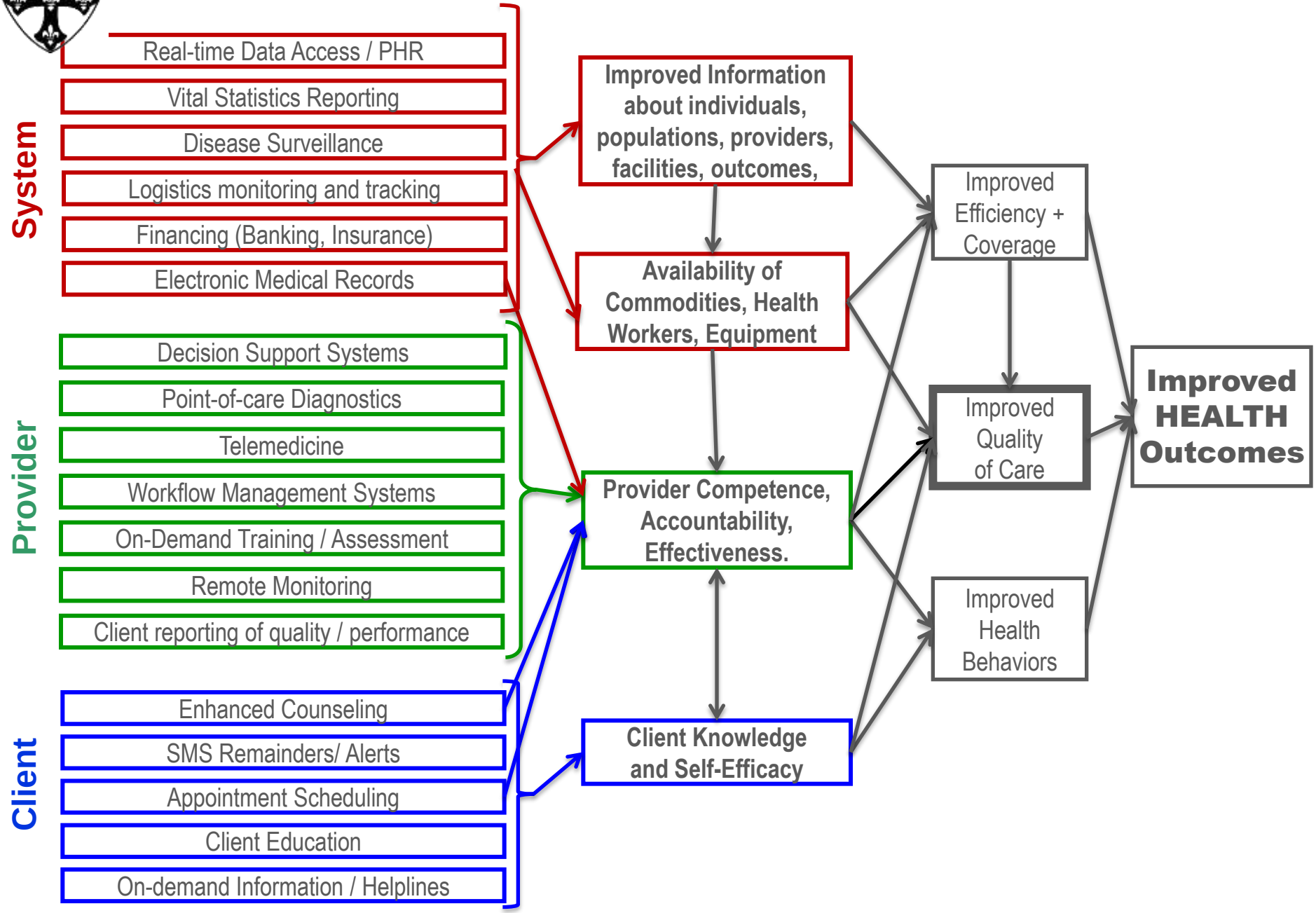
USAID mHealth compendia

- Behavior Change Communication
- Data Collection
- Finance
- Logistics
- Service Delivery

ICT frameworks

This framework lays out 12 common technological applications used as health systems strengthening innovations across the reproductive health continuum.

Harvard School of Public Health



Improved information

- The transition from paper-based to digital systems of collecting and reporting data is one of the earliest examples of ICTs in health practice and research
- Commonly understood to reduce reporting turnaround **time** and improve data **quality**, namely, consistency of data and the efficiency with which it is reported; no need for an RCT!
- There is much consensus that ICTs can help improve data collection on quantitative measures, but what about qualitative measures?
  - Thies et. al 2008 used a mix of SMS and voice to implement mixed methods
- Concerns about digitizing broken systems

BMC Medical Informatics and Decision Making

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Technical advance

Open Access

The use of mobile phones as a data collection tool: A report from a household survey in South Africa

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Published: 23 December 2009

BMC Medical Informatics and Decision Making 2009, **9**:51 doi:10.1186/1472-6947-9-51

Received: 11 June 2009
Accepted: 23 December 2009

This article is available from: http://www.biomedcentral.com/1472-6947/9/51

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Abstract

Background: To investigate the feasibility, the ease of implementation, and the extent to which community health workers with little experience of data collection could be trained and successfully supervised to collect data using mobile phones in a large baseline survey

Methods: A web-based system was developed to allow electronic surveys or questionnaires to be designed on a word processor, sent to, and conducted on standard entry level mobile phones.

Results: The web-based interface permitted comprehensive daily real-time supervision of CHW performance, with no data loss. The system permitted the early detection of data fabrication in combination with real-time quality control and data collector supervision.

Conclusions: The benefits of mobile technology, combined with the improvement that mobile phones offer over PDA's in terms of data loss and uploading difficulties, make mobile phones a feasible method of data collection that needs to be further explored.

Example: Magpi (formerly Episurveyor) tool

- Several strengths:
  - Impressive roster of diverse uses
  - Can survey through devices, email, smartphone form, SMS
  - Don’t need to be very tech-savvy to create and send basic forms
  - Responses linked to GPS locator (its original strength) that connects to a dashboard
  - Can schedule messages, specify segments
- Open questions:
  - Training field workers and respondents?
  - 2-way communication?
  - Data analysis and visualization not helpful for presentation

Communicating better

- What's the one piece of technology you are all probably already using, to some extent, in your daily work?
- Recent meeting in Boston on mHealth for maternal health emphasized the myriad of ways mobile phones are being used:
  - Can track people/disease and create direct access to clients
  - Better accounting of provider's actions and workflows
  - Able to track multiple aspects of a health system's functioning, such as commodities and supply chain management

Integrating Mobiles into Development Projects

CLICK HERE TO START

This handbook was prepared for the U.S. Agency for International Development by FHI 360 and OpenRevolution as part of Associate Award AID-OAA-A-12-00073 under the FIELD-Support Leader Award EEM-A-00-06-00001-00. It does not necessarily reflect the views of USAID or the U.S. Government.

By Josh Woodard, Jordan Weinstock, and Nicholas Lesher

AUGUST 2014

Example: MAMA platform

- Several strengths:
  - Demand-driven platform with locally-owned brands
  - M&E in real time is ideal for implementation/operational research
  - Articulated interest in working with researchers to use data to bridge programs and research
- Open questions:
  - Possible expansion to 2-way messaging?
  - What about the most marginalized women?
  - Data security? Ethical implications of partnering with private sector?

MAMA
Mobile Alliance for Maternal Action

Smarter health system research

- More and more, we need to understand "**how** to implement and scale-up interventions of proven efficacy and **how** to deliver health services more effectively within our current infrastructure, i.e. to optimize existing health service delivery" (Jaffar et al 2010)
- Includes several elements:
  - Training managing and supporting health care workers
  - Referral systems
  - Scale-up
  - Enabling better integration of services
- Capacity to implement this complex research is the major limitation

Converging Health Systems Frameworks: Towards A Concepts-to-Actions Roadmap for Health Systems Strengthening in Low and Middle Income Countries

George Shakarishvili, Rifat Atun, Peter Berman, William Hsiao, Craig Burgess, and Mary Ann Lansang

Debates around health systems have dominated the international health agenda for several decades. A wealth of contributions has been made to define, describe and explain health systems through multiple conceptual frameworks proposed to date. The array of health systems frameworks arguably provides an opportunity for identifying different appropriate approaches to meeting various country-specific challenges. At the same time, multiplicity of health systems frameworks also creates confusion at the country level as to which conceptual model to refer to for designing health systems strengthening interventions. Additionally, most debates have focused on conceptualizing health systems objectives, functions and performance measurement approaches, with rather less focus on identifying practical approaches to collective actions to strengthen health systems. The paper reviews multiple health systems frameworks available to date. The review finds that the frameworks, despite variations in terms of focus, scope, categorization and taxonomy, contain sufficient complementary elements to develop a comprehensive synergistic model. The paper proposes a converged conceptual framework for health systems as a departure point for further discussions. A frameworks-to-actions roadmap for collective approach to health systems strengthening is also proposed as the basis for developing a translational reference for harmonized planning and implementation of health systems strengthening interventions.

Example: ACT for Birth

- Several strengths:
  - Takes an integrated, evidence-based approach to quality improvement: audits at facilities; connections to communities; training on intrapartum care
  - Appropriate application of technology to optimize what we know works
  - Data on maternal, neonatal deaths and stillbirths is used to inform decision-making on improving quality of care
    - Referrals
    - Causes of death
    - Missed opportunities for care
- Open questions
  - How does this system interact with other systems within the facility?
  - How can we link the technology to improved information, and then to improved quality? How should we evaluate this?
  - If it was successful, what were the contextual factors that enabled its success? (Aka, **how?**)

Save the Children

ICTs: the time is right

- More **policy** commitment to ICTs, highlighted in recent PMNCH Partners Forum
- Many **new tools** to apply ICTs your research projects, esp. in real-time for implementation and operational research
- The **private sector** is motivated to bring in new sources of financial and physical capital to projects, and can also provide lower-cost technological options
- Many **governments** are investing in creating, scaling and strengthening their ICT infrastructures
  - Bangladesh, Uganda, Rwanda, South Africa, India
- Lots of **NGOs** working with technology are looking to make sure that they are grounding their programs in evidence and contribute to the emerging evidence base
- However, this is not to say ICTs should be adopted universally or without considering issues of data privacy and security, especially as it relates to **ethics**

Discussion

- Do you use technology in your research?
  - If so, why? How do you use it? How helpful (or not) have you found it?
  - If you do not use technology, why not?

Continuing the conversation

- **The Maternal Health Task Force** (MHTF) believes that a strong, well-informed and integrated community with equitable access to high-quality technical evidence is critical to our goal of eliminating preventable maternal mortality and morbidity worldwide.
- **BetterCareTogether** (BCT) provides a social networking platform for maternal and newborn healthcare providers to connect with one another, share and discuss evidence-based resources and generate new ideas about how to deliver better care.

Thank you!

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