Achieving Economies of Scale with a Common Digital Health Solution for Africa/Asia

“We believe that mobile technology in the hands of frontline and community health workers is a game changer for global health: a critical tool to realise the new Sustainable Development Goals for health and nutrition.”

Martha Newsome, Partnership Leader – Sustainable Health
Black Bag or Mobile Phone

- WHO shortfall of 4.2 million health workers by 2015
- Task shifting and CHWs fill the gap
What is the problem we’re trying to solve?

- **Information**
  - 4.1.1 Lack of population enumeration
  - 4.1.2 Delayed reporting of events
  - 4.1.3 Quality/ unreliability of data
  - 4.1.4 Communication roadblocks
  - 4.1.5 Access to information or data

- **Availability**
  - 4.2.1 Supply of commodities
  - 4.2.2 Supply of services
  - 4.2.3 Supply of equipment
  - 4.2.4 Diversity of treatment options

- **Quality**
  - 4.3.1 Quality of care
  - 4.3.2 Health worker competence
  - 4.3.3 Quality of Commodity
  - 4.3.4 Health worker motivation
  - 4.3.5 Continuity of care
  - 4.3.6 Supportive supervision

- **Acceptability**
  - 4.4.1 Alignment with local norms
  - 4.4.2 Addressing individual beliefs and practices
  - 4.4.3 Stigma

- **Utilization**
  - 4.5.1 Demand for services
  - 4.5.2 Geographic Inaccessibility
  - 4.5.3 Low adherence to treatments
  - 4.5.4 Loss to follow up

- **Efficiency**
  - 4.6.1 Workflow management
  - 4.6.2 Effective resource allocation
  - 4.6.3 Unnecessary referrals/ transportation
  - 4.6.4 Planning and coordination
  - 4.6.5 Timeliness of care

- **Cost**
  - 4.7.1 Expenses related to commodity production
  - 4.7.2 Expenses related to commodity supply
  - 4.7.3 Expenses related to commodity disbursement
  - 4.7.4 Expenses related to service delivery
  - 4.7.5 Client-side expenses

Courtesy of Dr. Alain Labrique, Johns Hopkins University
Vision Statement

Empower the most vulnerable households and community health workers/volunteers through use of common, shared, multi-functional and collaboratively designed mobile health solutions to deliver community-based health interventions.

Principles for our Work:

- Coherence and quality of approach and programe/project management
- ALWAYS in partnership with others and building on global learning
- Designed to meet the needs of community users but also provide the basis for maturing the evidence base
- Initially affordable yet based on sustainable costing models and scalable technology
- Considers data governance issues
- Uses and strengthens government partners’ information systems
- Favors open source solutions and emerging global standards
Digital Health Theory of Change

Global Goals for Sustainable Development

Natl & Intl Goals to which project contributes

Outcomes to which project primarily contribute

Outputs & immediate outcomes

Deployment activities

Foundational activities

- Lower maternal and child U5 mortality rates
- Lowered child U5 morbidity
- Improved maternal and child U5 nutritional status

Improved preventive health behavior among pregnant women and caregivers at the household level

More timely and effective use of health services on the part of pregnant women and caregivers

More sustainable, effective and efficient CHW/V workforce

Improved linkages between facility and community services for quality improvement

CHW/V adherence to behavior change communication protocols

CHW/V adherence to case management protocols*

Referral closure rates between CHW/V and facilities

CHW/V motivation & retention

ICT System performance & scalability

Appropriate and timely use of program monitoring information

Access to health information & complementary social services

Communicate project-roadmap, benefits, project management

Develop solution based on user needs

Ensure client expectation met

Undertake user acceptance testing

Train users on all aspects of solution

Build and sustain user capacity & ownership

Activity tracking, as part of M&E

Develop Operating Plan

Refine business needs & requirements

Establish programme management team

Design budget & sustainable financial model

Training, curriculum and partner development

Consolidate sustainability plan and relationships w partners

Develop M&E plan and conduct baseline

Improved preventive health behavior among pregnant women and caregivers at the household level

More timely and effective use of health services on the part of pregnant women and caregivers

More sustainable, effective and efficient CHW/V workforce

Improved linkages between facility and community services for quality improvement

• Lower maternal and child U5 mortality rates
• Lowered child U5 morbidity
• Improved maternal and child U5 nutritional status
### Five Programmatic Approaches Supported by mHealth

#### Timed and Targeted Counselling (ttC)
Deploys CHWs trained in a behaviour-change communication method to encourage families to improve their understanding of health and nutrition. Visits are targeted to times in pregnancy and early childhood when the desired health behaviours are most relevant.

#### Integrated Community Case Management (iCCM)
A widespread WHO-endorsed and standard approach intended to deliver basic medical care for ill children outside of the health facility. CHWs are equipped to diagnose and treat the most common and life-threatening conditions – fever, diarrhoea and acute respiratory infection.

#### Positive Deviance (PD) Hearth
Programme teams start by studying the families who, despite economic or other hardships, manage successfully to rear well-nourished children. Using this information and an understanding of locally available nutritious foods, groups of mothers of malnourished children together learn and prepare these menus to support a change in household-based habits.

#### Community Management of Acute Malnutrition (CMAM)
Used in emergencies or in settings where there are high levels of acute malnutrition. CMAM uses case-finding and triage to match malnourished children with treatment suited to their medical and nutritional needs and achieve their rehabilitation.

#### Growth Monitoring and Promotion (GMP)
A longstanding public health approach whereby children under 5 are weighed and measured periodically to detect varying degrees of compromised nutritional status. GMP programmes are the entry point to refer children and their families to more focused programmes like PD Hearth or CMAM.
Business Model Framework

Social Enterprise Model

Op Model 4: Non Profit Open Source
Op Model 3: Non Profit Tech Services
Op Model 2: NGO / Commercial Partnership
Op Model 1: Commercial Partnership
Op Model 5: Commercial Open Source

Multiple Technology Contributors

Non Profit
For Profit

Single Technology Contributor
Toward Economies of Scale

**Goal:** Reduce ramp-up time, level of effort & overall costs

**GLOBALLY DESIGNED**

**Theory of Change**

**Global Specifications**

**Solution Development**

**LOCALLY CONFIGURED & DEPLOYED**

**Local Configuration**

**Training of Trainers/Users**

**Deployment**
Motech Suite Integration/Interoperability

Health Information Exchange
- TS
- CR
- SHR
- HMIS
- FR
- HWR

Interoperability Layer
- MOTECH

Point of Service Applications
- CommCare
## Project Reach
Nov 2015

### TRAINING USERS AND BENEFICIARIES

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>PROJECT</th>
<th>NUMBER OF USER TRAININGS IMPLEMENTED</th>
<th>CURRENT NUMBER OF USERS</th>
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NOTE: EboVAC Salone in Sierra Leone started in October 2015 and therefore is not included in this table.
mHealth Functionality – MOTECH Suite

**HEALTH**
- Timed & Targeted Counseling
- Community Case Management
- Positive Deviance Hearth

**NUTRITION**
- Growth Monitoring & Promotion
- Community Mgmt of Acute Malnutrition

**Registration:** caregivers/volunteers, community members, mothers & children

**Visits/Assessments:** Pregnancy, Postpartum, Newborn, Infant, Child, Illness, Vaccines, Weight, Nutrition/Feeding, Hygiene, Water Supply, etc.

**Referrals to Clinic:** Based on caregiver assessment of danger signs, illness, symptom assessment, etc.

**Immunizations**
- Drug Stock Control
- Immunizations

**Counter-Referrals:** Clinic recommendations to caregiver for follow-up care and return visits to clinic

**Counseling Messages:** Multi-media or text messages related to behavior changes needed for improved health, as related to the specific foci of each programming model

**Close Case:** Clinic / caregiver assessment that care is no longer needed for this particular issue
# Multi-functional Solutions

## Areas of Programmatic Support & Interoperability Offered by World Vision mHealth Projects

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<thead>
<tr>
<th>Country</th>
<th>Program</th>
<th>Behaviour-change communication or message diagnostics</th>
<th>Sensors &amp; point-of-care diagnostics</th>
<th>Registry &amp; tracking</th>
<th>Data collection &amp; reporting</th>
<th>Electronic health records</th>
<th>Electronic decision support &amp; communication</th>
<th>Provider-to-provider communication &amp; schedule</th>
<th>Provider work-planning &amp; education</th>
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* Currently World Vision does not have projects that offer these two areas of functionality; however, requirements are being prepared to include CHW training and education into some MoTECH Suite projects, and recently funded project designs have incorporated sensors and/or point-of-care diagnostics.
Initial WV mHealth Evaluation Results
Motech Suite/CommCare Pilots

Afghanistan mPhone Project -
*USAID-funded Child Survival Health program 2008-2013*

- Significant improvement between intervention and control groups in antenatal attendance (20 percent) and skilled delivery at a health facility (22.3 percent)
- Having a birth plan (12.6 percent) that included improved coordination with the health facility (12.6 percent),
- Saved money and arranged transport, and knowledge of two or more pregnancy danger signs (12.9 percent).

Mozambique mHealth Project -
*Gates-funded Grand Challenges 2010-2012*

- Use of mobile technology by CHWs was associated with high recognition of danger signs during pregnancy (6%) and postpartum (14%), for an overall complication identification rate among participants of 20% (global average is 15% according to WHO).
- Prevalence of birth preparedness (64%) in association to danger sign recognition, is higher than in studies from Uganda (35%), Kenya (7%), two studies in Ethiopia (20%, 22%), and India (48%).
India Results: 2013-15

India – Starting Strong

• **Methods**
  – Comparison between baseline and mid-term in programme areas *only*
  – Population-based probabilistic cluster sampling of >1000 households per round

• **Interpretation**
  Good progress against key maternal health and nutrition indicators

• **Limitations**
  Pre/Post comparison only; comparison group measured at baseline is available for endline in 2017
  mHealth related monitoring data to show causal chain unavailable
Reminders increase timeliness of visit by 85%.

Pregnant women that have access to CommCare are 20% more likely to access antenatal care & 22% more likely to have skilled deliveries.

Health workers completed 20% more of protocols and increased their knowledge of health danger signs by 22%.

Performance of low literate CHWs improved through multimedia.

Improved CHW’s credibility, including 90% improvement in social respect in community (self-reported).

Improved client and family members’ engagement during household visits.

CommCare reduced the average time it took to submit data to a program coordinator from 45 days to 8 hours.

Improved CHW form data completeness from 67% to 84%.

Since 2008, 20 peer-reviewed publications about CommCare, makes CommCare the most evidence-based mobile platform for FLWs.
Challenges to mHealth at the Last Mile

- Fragmentation (pilotitis)
- Duplication of effort & reinventing the wheel
- Steep learning curve for programme staff
- Partnering challenges
- Capacity gaps including IT support
- Unsustainable business models
- Poor connectivity & coverage
- Growing but still incipient evidence base
Key Elements of Scale

- Partnering for Fundamental Sustainability
- Interoperability linked to long term viability
- IT Minimum Standards
- Contribution to Evidence Base
Key Recommendations

1. Projects must, from inception, envision & build a roadmap to achieve interoperability
2. Community-systems strengthening must be a priority
3. Projects must, from inception, consider how to achieve a sustainable cost model
4. mHealth and ICT4D ecosystems must be studied prior to project launch
5. Increase Government (MoH and other agency) involvement in initial pilot design & deployment
6. Projects must begin with and maintain minimum IT standards
7. Increase partnerships with like-minded orgs
8. Bolster evidence base by refining M&E framework and offering generic M&E tools
WHAT IF EVERY DIGITAL HEALTH INVESTMENT WERE...

- Triggered and selected according to the needs of the health system?
- Mandated and driven by the Ministry of Health?
- Enabled by committed, long-term funding and robust program management so solutions have time and support to iterate, evolve, and embed into existing systems and practices?
- Built around realistic, long-term funding models?
- Integrated into existing national platforms?
- Selected and designed to conform to agreed standards?
- Designed and implemented with the participation of the end users and long-term implementers?

WHAT DOES IT TAKE TO INSTITUTIONALIZE A PRODUCT OR SERVICE?

**TRIGGER**

**LEVERS FOR INSTITUTIONALIZATION**

<table>
<thead>
<tr>
<th>CASE FOR ACTION</th>
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<tbody>
<tr>
<td>The right leader</td>
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<td>The right solution</td>
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<tr>
<td>The right approach</td>
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<td>The right capacity</td>
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ENGAGING NATIONAL GOVERNMENTS

- It is critical and prudent to engage with governments as early as possible to secure buy-in for sustainability

- Different levels of engagement and sequencing
  - Political, Administrative and Technical Staff (civil service)
  - Regulatory, Legal, Cultural

- Articulate the benefits of the technology not only in terms of its functionality but the health benefits efficiency gains and cost savings

- Identify champions and early adopters

- Leveraging trust and relationships building

- Assess capacity gaps and support ministry capacity building

- Alignment with ministry strategies while advocating for changes and/or improvements, where necessary
Collective Impact & Multi-Stakeholder Collaborative Frameworks

Mult-Layered Governance Model

**GLOBAL BACKBONE**
- Cross-sectorial representation on the board
  - Academia & Research
  - Multilaterals
  - NGOs
  - Private Sector
  - Foundations
  - National Governments

**REGIONAL BACKBONE** (if relevant)
- Cross-sectorial regional representation on the steering committee
  - Region A Steering Committee
    - National Government “C”

**LOCAL BACKBONE**
- Government hosted backbone coordinating local implementing partners
  - Country A
  - Country B
  - Country C

Let’s Make Sure Today’s CHWs have the best black bags ever!

Martha Holley Newsome – Partnership Leader, Sustainable Health, WV International
Martha_newsome@wvi.org
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WV Health & Nutrition Project Models & Approaches
http://wvi.org/health/project-models-and-approaches

Global mHealth Report:

Thank You!!