The Role of Community Health Workers in Counting all Children

Anne Liu, MSPH MS
Health Systems Manager
August 8, 2012 | Washington DC
National Conference on Health Statistics
The MVP: Diversity in a Standardized Program

- 14 Site Clusters
- 79 Villages
- 1300 Clinical Staff and CHWs
- 400,000 Community Members
Kenya: New Registrations in the First 3 Months
Under 5 Registrations in the Millennium Villages

- Under 5 Registrations
- Estimated # Under 5s
“Community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers.”

WHO 1989

“...any health worker carrying out functions related to health care delivery; trained in some way in the context of the intervention; and having no formal professional or paraprofessional certificated or degreed tertiary education.”

Lewin et al 2005
Lehmann and Sanders 2007
Who are the Community Health Workers?

- Literate
- Locally-Based
- Men and Women
- Paid and Full-Time
- All Ages
- Nominated by Community
Figure 2: CHW Operations

Supplies, such as:
- MUAC Tapes
- ORS and Zinc packets
- Artemisinin-based Combination therapies (ACTs) for malaria
- Deworming Tablets
- Antibiotics for pneumonia
- Sputum containers for TB sputum collection
- Bar of soap
- Others

Bicycle for CHW travel

Rapid Diagnostic Test Kit

Cell phone
Millennium Villages CHW Program

CHW visits a household at least once every 90 days

Health Education
Health Surveillance and Referrals
Community Case Management and Commodities Distribution

Feedback, Management, Prompts for Follow-up Visits

Health Data Collection by paper forms or phone
**BIRTH AND DEATH REGISTRATION FORM**

**ChildCount+ Form A: REGISTRATION**

Focus on: Household Heads, Children Under 5, and Pregnant Women

**GENERAL REGISTRATION:** For any household member without a HEALTH ID that needs to be recorded in the CHW data system.

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<th>Family Name [Sur-name]</th>
<th>Sex (M/F)</th>
<th>Birth Date [DD/MM/YY]</th>
<th>— or — Age [m.y]</th>
<th>Household Head HEALTH ID</th>
<th>Mother’s HEALTH ID [U = Unknown]</th>
<th>Delivered In Health Facility? [Y/N-U]</th>
<th>Weight at Birth [kg]</th>
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**DEATH —or— STILLBORN / MISCARRIAGE:**

**Death with HEALTH ID**

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<th>HEALTH ID</th>
<th>Reg</th>
<th>Date of Death [DD/MM/YY]</th>
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**Death without HEALTH ID**

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<th>First Name</th>
<th>Family Name [Sur-name]</th>
<th>Sex</th>
<th>Birth Date [DD/MM/YY] or Age [m.y]</th>
<th>Date of Death [DD/MM/YY]</th>
<th>Household Head HEALTH ID</th>
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**Stillbirth / Miscarriage**

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<th>Mother’s HEALTH ID</th>
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<th>Type [SB-MC]</th>
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VERBAL AUTOPSY TO DETERMINE CAUSE OF DEATH

How to prompt a VA

Paper VA Form

CHW visits Households

Create

Death Registry

Verbal Autopsy Specialist

Give VA Forms

Doctor Clinical Officer

Determine Medical / Social Cause of Death

Malaria

Algorithm: Fever AND no stiff neck AND (either Convulsions OR Unconscious)

<table>
<thead>
<tr>
<th>Question</th>
<th>Required Response</th>
<th>Factor Confirm</th>
<th>Sub-factor Confirm</th>
<th>Disease Confirm</th>
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<td>Fever</td>
<td>Yes 1</td>
<td>AND</td>
<td>Y / N</td>
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<td>No stiff neck</td>
<td>Yes 2</td>
<td>AND</td>
<td>Y / N</td>
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<td>Convulsions OR Unconscious</td>
<td>Yes 1</td>
<td>OR Y / N</td>
<td>Y / N</td>
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Android VA Form using ODK Clinic

Health ID of deceased
Last/family name
First/given name
Middle name
Gender of deceased
Date of birth (of deceased)
Birthdate estimated?
Health ID of Head of Household
Name of village of deceased
Interviewer/enumerator

Go To Start
Figure 3. Daily SMS Based Health Reports and Registrations

New Children Registrations
Nutrition Screenings
Malaria RDT Results
Measles Vaccines

Berg, Wariero, Modi 2009
CHW visits a household at least once every 90 days

- Health Education
- Health Surveillance and Referrals
- Community Case Management and Commodities Distribution
- Health Data Collection by paper forms or phone

Feedback, Management, Prompts for Follow-up Visits
USING MOBILE HEALTH TO BYPASS PAPER FORMS

CHW Activities:
Household Visits and Service Delivery

Senior CHW or Health Facilitator
Community Health Committee
Village Clinic

Health Coordinator

CHW Manager

HEALTH DATA

CHW visits a household at least once per month.

Health Education
Health Surveillance and Referrals
Community Case Management and Commodities Distribution

Feedback, Management, Prompts for Follow-up Visits

Health Data Collection
“The purpose of collecting and analyzing ChildCount+ data is to generate ‘real-time’ information to inform and guide health services delivery by identifying systemic problems and responding appropriately”

“ChildCount+ data should be viewed along-side clinic-based data and other sources (surveys, verbal autopsy, etc.)”
5 GOALS FOR CHILDCOUNT+

- Register every child
- Monitor for malaria, diarrhea, and pneumonia
- Record all births and death
- Screen for malnutrition every 90 days
- Full child immunization report

**Malaria Rapid Diagnostic Test Report**

- **MRDT** +28 Y N D CV
- Code: Patient ID Positive (MN) Negative (MN) Symptoms
  - V = Vomiting, F = Fever, D = Diarrhea, A = Appetite Loss, C = Chronic Cough
  - MN = Malaria Negative
  - CV = Convulsions, UF = Unable to Feed

**SMS Health Reports**

- **Child Registration**
  - new diallo fatimata f 110408 amie 324245
  - CODE Last First Guardian(F) DOB(stomachy) Guardian Contact
  - PATIENT REGISTERED: +28: DIallo Fatimata 4/13M
  - Mother: Amie, Village: Kangaba

**Nutrition Screening Report**

- **MUAC** +28 105 E V D
- CODE: Patient ID MUAC (mm) Edema (E) Symptoms
  - V = Vomiting, F = Fever, D = Diarrhea
  - A = Appetite Loss, C = Chronic Cough
  - MN = Malaria Negative
  - CV = Convulsions, UF = Unable to Feed

**Nutrition**

- MUAC +28 Fatimata Diollo F/13M has SAM+. Please bring child in for IMMEDIATE inpatient care.

**MEASLES**

- Vaccinated: 7574
- Eligible: 8083
- Coverage: 94%
**Register every child under age 5:** Create a “living” registry of all children under age five and pregnant women in a community.

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**ChildCount+ Form A: REGISTRATION**

*Focus on: Household Heads, Children Under 5, and Pregnant Women*

**GENERAL REGISTRATION:** For any household member without a HEALTH ID that needs to be recorded in the CHW data system.

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<th>Locality Code</th>
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<th>Family Name (Sur-name)</th>
<th>Sex (M/F)</th>
<th>Birth Date (DD/MM/YY)</th>
<th>Age (mo.)</th>
<th>Household Head HEALTH ID</th>
<th>MOB</th>
<th>Delivery in 36 months to 5 years</th>
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<th>Weight at birth (kg)</th>
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**PRIMARY GOAL: COUNT ALL CHILDREN**
NEW LAST FIRST GENDER(M/F) Date Of Birth(DDMMYY) Parent

new diallo fatimata f 080408 Amie

Once this message has been received, RapidSMS checks to see if this child exists in the system. If the child is not in the system, a new patient record linked to a CHW is created and a message is sent back to the CHW. For example:


Figure 4. Percentage of SMS messages rejected by system due to improper formatting
CHILDCOUNT+ AND MGV-NET: HOW IT WORKS

- **Master Person/HH Index**
  - Management Dashboard and Excel Pivot Tables
- **MGV-Net Server at Central Location**
  - District Health Information System
  - ChildCount+
  - Other mHealth Applications
- **OpenMRS Server or Thin Client at Clinic**
  - CHW
- **Clinician Village/Cluster/Sub-District**
  - CHW

Incorporating the use of mobile technology and cloud-based solutions to improve health care delivery and surveillance.
SO HOW DO YOU SET UP CHILDCOUNT+?

**Requirements**
- Network coverage
- Contracts for calls and SMS
- ID system for clients
- Working server
- CHWs trained on
  - Case management algorithms
  - ChildCount+ forms
- Supervision system
- Tech support

**ChildCount+ (CC+)**
- Phone Distribution/ User Registration/ Supervisor training
- Training on phones & Client Registration SMS formats
- Registration of target Client by SMS
- Training on SMS formats for case management algorithms, visits & other data
- Usage, Feedback & Reports

**Phone replacement agreements with CHWs**
- Agreement on program scope
- Preparation of CC+ forms
- Identification of target clients: ANC mothers? All Under-5s? All Women? Everyone?
- SCOPE: Case Management: Diarrhoea/ Fever-malaria/pneumonia ; Surveillance: Nutrition/ANC-PMTCT/ Immunization
- Trained Supervisors
- Episodic standard reports
- Interactive Database query by SMS
- Link to clinics & MGV-Net
EVERY CHILD COUNTS – THE USE OF SMS IN KENYA TO SUPPORT THE COMMUNITY BASED MANAGEMENT OF ACUTE MALNUTRITION AND MALARIA IN CHILDREN UNDER FIVE

BY: MATT BERG, ICT COORDINATOR MILLENIUM VILLAGES PROJECT and RESEARCH COORDINATOR, THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

DR. JAMES WARIERO, SAURI HEALTH COORDINATOR MILLENIUM VILLAGES PROJECT

VIJAY MODI, PROFESSOR OF MECHANICAL ENGINEERING, COLUMBIA UNIVERSITY

15 October 2009

Matt Berg, Director of ICT

James Wariero, Regional Health Systems Adviser

Vijay Modi, Professor of Mechanical Engineering at Columbia University
Under 5 Registrations in the Millennium Villages

- Under 5 Registrations
- Estimated # Under 5s
A FOUNDATION OF MANAGEMENT AND SUPERVISION

CHW Activities:
Household Visits and Service Delivery

- Referral for Advanced Care
- Prompts for Follow-Up Visit at Home
- Updates on Community Health
- "Social" Supervision
- Raw Health Data Transfer
- Technical and Supportive Supervision
- Performance Reports, Inform Health Priorities
- Operations Management, Task-Setting, Performance Reviews

CHW Manager
- Supervision / Inform Health Priorities
- Performance Reports, Inform Health Priorities

Senior CHW or Health Facilitator
- Community and Clinic Reports and Concerns
- Health Coordinator
- Community Health Committee
- Village Clinic

Health Coordinator
- Information on Community Health
- Raw Health Data Transfer
- "Social" Supervision
- Updates on Community Health
- Technical and Supportive Supervision
- Performance Reports, Inform Health Priorities

Health Data Collection
- Health Education
- Health Surveillance and Referrals
- Community Case Management and Commodities Distribution
- CHW visits a household at least once per month.
VALIDATING DATA IN THE COMMUNITY
UPGRADING TO SMART PHONES?
ACKNOWLEDGEMENTS

**e/mHealth Team**
- Matt Berg – Director of ICT, CC+ Founder
- Casey liams-Hauser – eHealth Implementation Support
- Mourice Barasa – Regional eHealth Coordinator
- Richard Attendoh – Regional eHealth Coordinator
- Bennett Nemser – MV Epidemiologist / Project Manager
- Saira Qureshi – eHealth Project Coordinator
- Nadi Kaonga – eHealth Project Coordinator
- Ryan Burbach – eHealth Project Coordinator
- Dr. Andrew Kanter – eHealth Adviser
- Dr. Prabhjot Singh – Director of MV Systems Design

**CHW Team / Health Team**
- Jackline Aridi – Regional CHW Adviser
- Yombo Tankoano – Regional CHW Adviser
- Ingrid Nanne – Regional CHW Program Coordinator
- James Wariero – Regional Health Systems Adviser
- Mosa Moshabelo – Regional Health Systems Adviser
- Dr. Sonia Sachs – Director of MV Health

For More Information on CC+: www.childcount.org
THANK YOU

aliu@ei.columbia.edu