



Using Mobile Data Capture for Community and Facility Surveys in Malawi, Ethiopia, and Rwanda



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Supply Chains 4 Community Case Management

SC4CCM will **identify, demonstrate, and institutionalize** supply chain management practices that **improve the availability** and use of selected essential health products in community-based programs



SURVEY OBJECTIVE

To evaluate the **impact of interventions implemented in select districts**, designed to improve performance of community health supply chains, compared to a group of non-intervention districts over time.



DATA COLLECTION

QUALITATIVE

Focus groups

Key informant
interviews

QUANTITATIVE

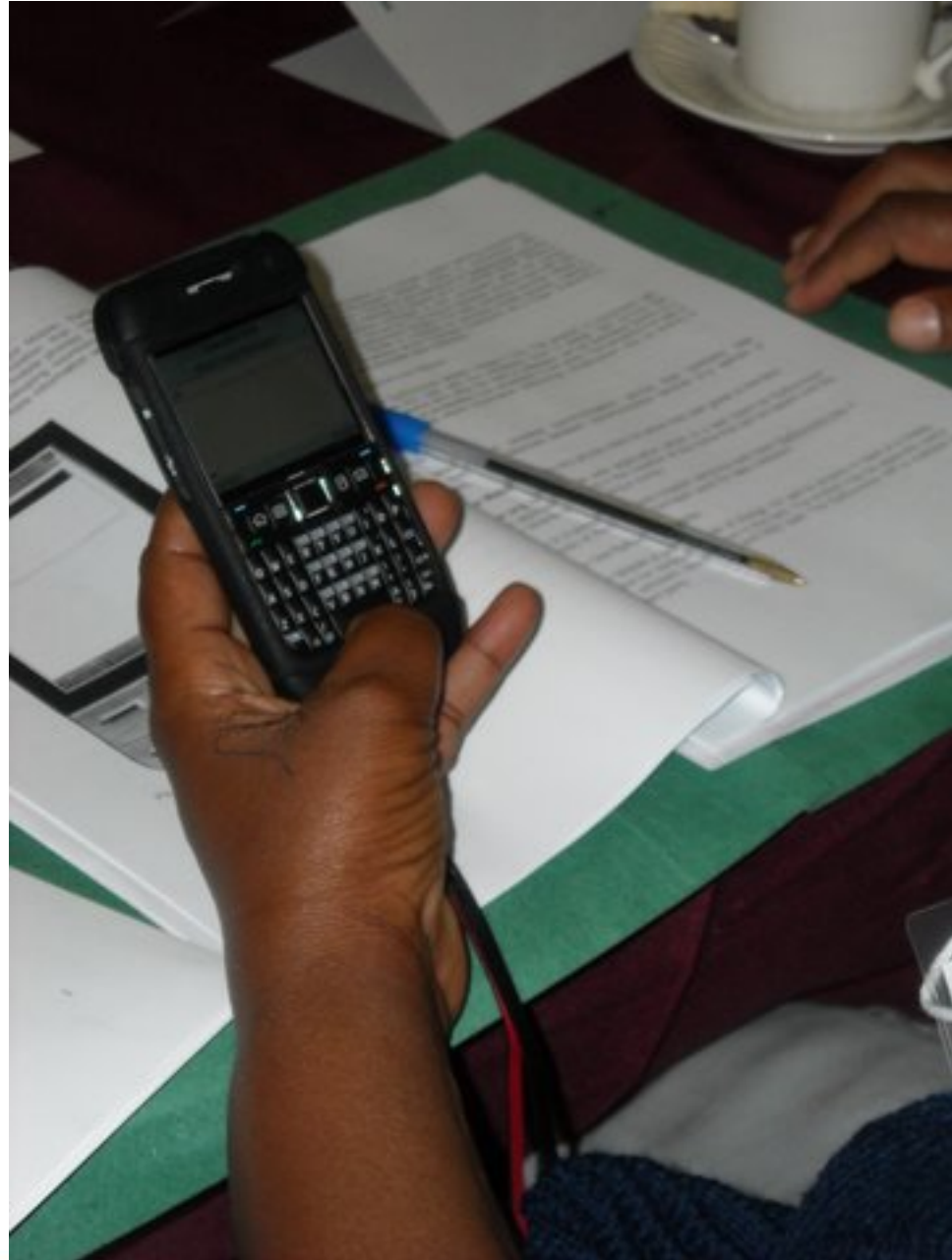
Site visits to district
health centers &
health workers

Using LIAT

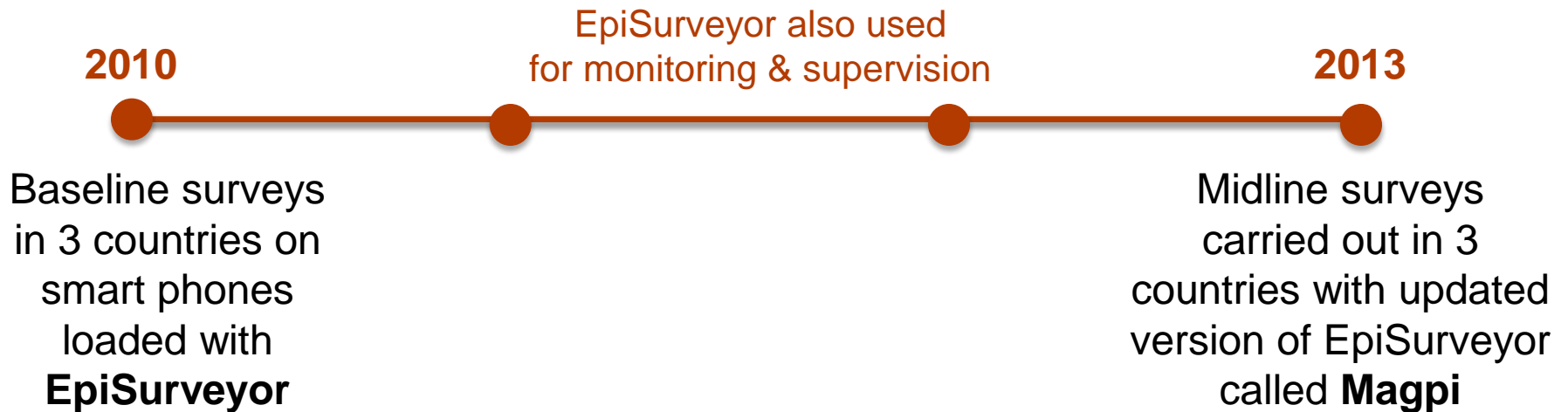


WHY MOBILE?

- Save **time**
- Save **paper**
- **Cost effective**
- **No programming skills required**
- Donor encouragement to be **innovative**
- Burgeoning evidence that **it works**



Experience with Mobile



HARDWARE: Used Nokia e71 and Nokia e63



Quantitative Data Collection

PRE-SURVEY

7 day data collector training on EpiSurveyor/Magpi & supply chain
1.5 day field test at district, HC and CHW sites

SURVEY

Questionnaires included interviews, observations, records review and stock counting

SURVEY & POST

Data Manager manages incoming forms, coordinated with survey teams and HQ



Magpi Form Design



Design Data Map Analysis Share Properties

MwMLAII_Storagefinal

Created 2013-01-27 | 0 Copies

Save As | Export xform | Import xform | Export word | Export plain text

Form Questions

- 1) Use this form to assess storage conditions at Health Centre and HSA levels and record your observations. To qualify as "yes" ALL products must meet the criteria. ✕
- 2) DCName - Data collector name: (text) ✕
- 3) FacilityHSACode - Health Centre/HSA Code ✕
- 4) District - Enter the name of the district ✕
- 5) DrugBox - Does the HSA have a drug box? ✕

General

Prompt: Does the HSA have a drug box?

Radio Button

Logic

Data field name (must be unique): DrugBox

Required

Autofill

Response Options

Label	Code	
Yes	1	X
No	0	X
NA visiting Health Center	999999	X

Add Option Delete Selected Mark All Unmark All

Data will be displayed and exported using option codes

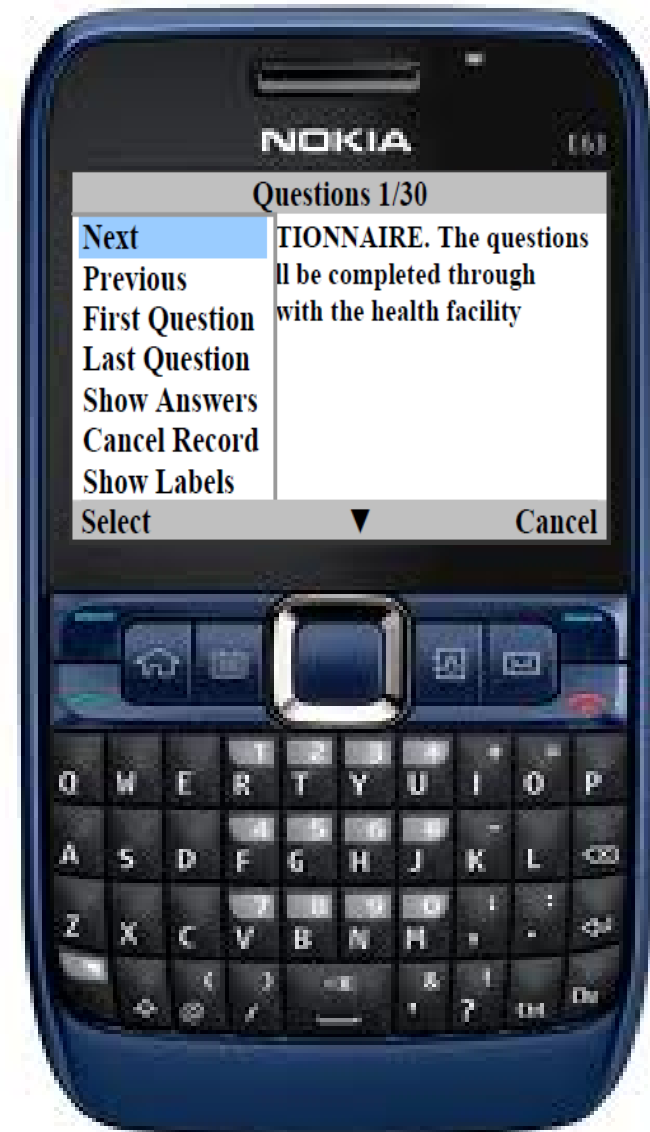
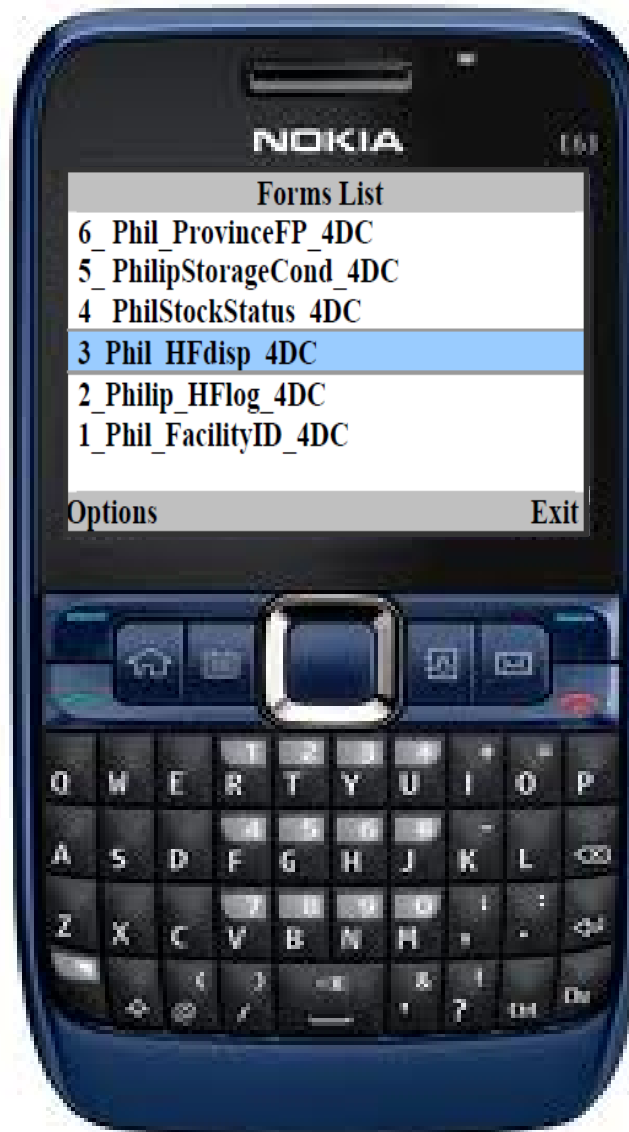
- 6) HSAnobox - If no, where does the HSA store their health products and medicines? ✕
- 7) OrganizedFEFO - Health products and medicines are stored and organized according to first-to-expire, first-out (FEFO). ✕
- 8) Expired - Are there any expired products on the day of visit? ✕
- 9) SeparateDamaged - Damaged and/or expired medicines and supplies are stored separately from usable medicines. ✕
- 10) At HC ask to see the stock card, at HSA ask to see LMS form for any medicine or supply for which of expired or damaged product on the day of the visit, then of that form. ✕

Support



Screenshots

Android phones~
the way of the
future!



Malawi Midline

System Level Visited in 10 Districts	Sites	Forms per Level	Forms Total
District health office & pharmacy	10	1	10
Health Centers	76	7*	532
HSAs (Community health workers)	249	3	747



**One form repeats at each HC*

Field work: January 30 - February 24, 2013

Total forms collected (30-100 Qs each): 1,289

Data collectors : 12 + 6 Supervisors

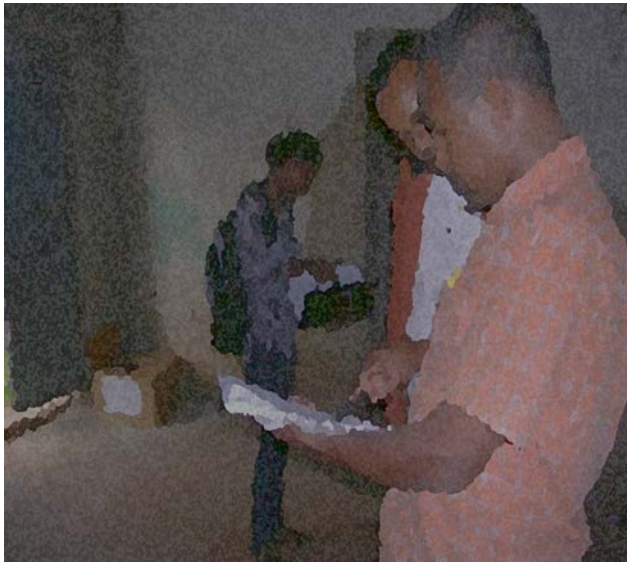
Smart phones: 18

Days in the field: ~25



Ethiopia Midline

System Level Visited in 4 Regions	Sites	Forms per Level	Forms Total
Regional Health Bureaus (RHB)	4	1	4
Zonal Health Office (ZHO)	12	2	24
Woreda Health Office (WHO)	28	2	56
Health Centers	82	4	328
HEWs (Community health workers)	263	3	789



Field work: November 28 -December 15, 2012

Total forms collected (30-100 Qs each): 1,201

Data collectors: 18

Smart Phones: 18

Days in the field: ~ 15

Rwanda Midline

System Level Visited in 10 Districts	Sites	Forms per Level	Forms Total
District stores	10	1	10
Health Centers	108	4	432
Cell Coordinators	148	4	592
ASCBs (Community health workers)	354	4	1,416



Field work: April 26 –May 26, 2013

Total forms (30-100 Qs each): 2,450

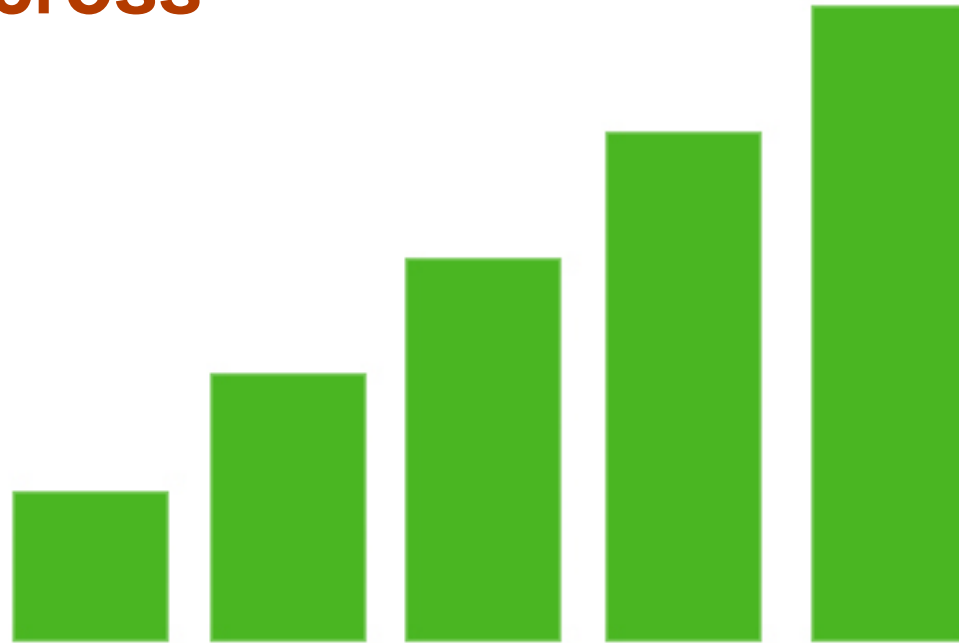
Data collectors: 16 + 8 supervisors

Smart Phones: 24

Days in the field: ~30



Connectivity across Countries



Malawi: Variable

Ethiopia: Poor

Rwanda: Good

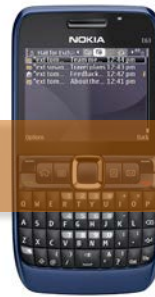


Data Flow

FIELD DATA

Malawi & Rwanda

Ethiopia



Text Message



DATABASE

magpi

MwML_HFSupervisor_final

HCCode	Date	TimeRespond	HSAccSupply	ResponseTime	LMSReview	LMSStatus	FE an
10105	2013-02-22	2	1	My role is to support	1	Yes	
20903	2013-02-23	2	0			No	
20869	2013-02-23	2				No	
30348	2013-02-22	2	1	Avoid the drug store	2	No	
10101	2013-02-21	2	1	checking	1	No	
10102	2013-02-20	2	1	Assess the drug store exchange to pack orders for HSA	1	No	
20861	2013-02-23	2	1	Ensuring that entry	1	No	
20862	2013-02-23	2	0	preparing orders	1	No	
20899	2013-02-22	2	1	coordinating with dr	1	No	
10109	2013-02-20	2	1	to review the catch	1	Yes	
10103	2013-02-20	2	1	To review the smc	1	Yes	
20864	2013-02-22	2	0			No	
20051	2013-02-21	2	1	prepare and pack a	1	No	
20899	2013-02-21	2	1	To make sure that	1	Yes	
10428	2013-02-19	2	1	advising my fellow	1	Yes	
10104	2013-02-21	2	1	after getting check	1	No	
20053	2013-02-20	2	1	To make sure they	1	Yes	
20619	2013-02-20	2	1	Receive HSAJ ord	1	No	
20050	2013-02-20	2	1	prepare order and	1	No	
10435	2013-02-19	2	1	making sure HSAJ	1	No	
10434	2013-02-20	2	1	make sure that all o	1	No	



From the field to action

SC4CCM & Data Use

Inventory &
Preparation

Analysis

Validation workshops
in-country

Consensus from
stakeholders on results-
based intervention
scale-up package



Paper

- Data entry is a separate step, can take months to complete
- Quality or consistency issues in the field may go unnoticed
- Difficult to manage papers at the interview/observation site
- Risk of losing data from damaged papers
- Need storage space for forms

Mobile

- Data are entered and available **immediately**, practically real time
- Data visibility during field work leads to improved management and quality
- Phones are compact and most forms organized in one place
- Electronic forms are safer; not as easy to lose or damage (if backed up)
- No physical space needed to store



Key Lessons

Mobile technology is a viable means of data collection for large service delivery point assessments.



Key Lessons

Consistent mobile phone network capability is important to ensure:

- Consistent and timely data transmission
- Timely feedback to data collectors

Capacity of mobile technology for large surveys still improving

- Skips do not perfectly mimic paper



Key Lessons

- **Estimated time savings in data entry partially offset by time spent on:**
 - Preparations
 - Additional training
 - Inventorying electronic records/records management
- **High time investment up front pays off if the survey and mobile technology are used in multiple countries**



Key Lessons

- Not possible (yet) to build graphs or tables, so **each data element must be captured with one question** and can result in cumbersome, long questionnaires
- For large assessments, **additional payment** may be required for access to adequate data storage space



Recommendations

- Assess network capability for functionality in the field
- Start building forms early, allow time to adapt paper surveys and test on devices
- Keep forms as short as possible
- Consider purchasing a Pro User account (w/Data Dyne) for extra capacity and prioritized technical support



Recommendations

- Seek data collectors with previous experience using similar devices
- Define clear protocols for supervision and ongoing data review to ensure data quality
- Prioritize hiring a strong Data Manager; limit editing rights to 1-2 designated individuals throughout the survey
- Pilot test questionnaires; allow time to make and test form updates on devices before launching field work



Advances

Episurveyor (used in 2010) evolved into Magpi (2013) ...

- Improved form-builder, much more efficient with slow internet connections - edit forms “on the go”!
- Device functionality, still simple for users!
- Ability to assign codes to response options simplifies transfer to analysis software, saves time!
- Skip logic improving, but challenges persist - keep logic **simple** and tap into technical support early & often to fix problems ahead of field work.



Advances

Further exploration ...

- Simpler and shorter forms:
 - Tablet applications (Magpi 2014?) promise parent and child forms, unique ID connects sub forms
- Mapping data in real time
- More options becoming available (none seem as user-friendly yet):
 - SurveyCTO <http://www.surveyccto.com/index.html>
 - formhub <http://formhub.org/>





Thank you!
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