

Using Cell Phones to Monitor & Evaluate Behavior Change Through Community Health Clubs in South Africa

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2.4 billion users worldwide in 2006
41% living in developing countries
152 million users in Africa in 2006
alone¹¹



Hygiene Behavior Change: Data Collection Tools



- **Paper-Based Surveys**
 - Measurement error: skip patterns and sloppy entry
 - Data cleaning and entry errors
- **Personal Digital Assistants**
 - Technologically advanced
 - Expensive **Cellular Phones**
 - Simple, readily available technology
 - Use to date in research is limited

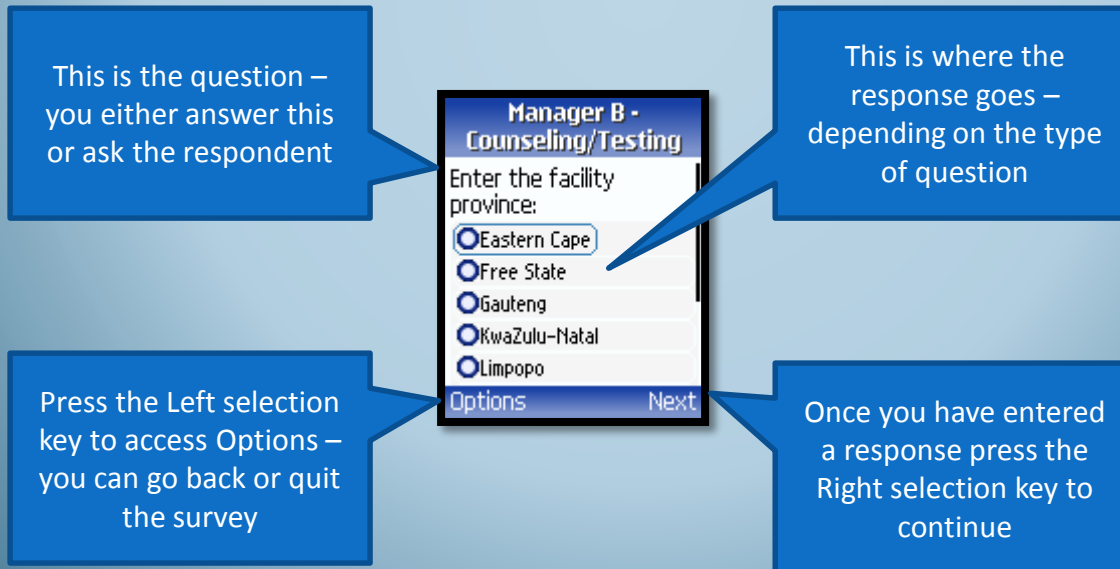


What is Mobile Researcher?

- Allows you to conduct surveys on a mobile phone.
- Surveys are assigned to your phone for you to conduct.
- Each conducted survey is stored on your phone until it can be uploaded.
- Once it has been uploaded, it is removed from your phone.

Answer each question

- Each survey consists of many questions, presented one at a time.



Mobile Research Platform

The Research Console:

web-based portal centralizing all research activities

- Custom defined surveys
- Deploy in multiple languages
- Unlimited studies & surveys
- Real-time management & analyses

The Cellular Phone:

commercially available with Java and web-browser

- Uses common cell phone applications
- Multiple surveys assigned
- Surveys follow user defined logic
- Research conducted without network coverage

The Research Consol: Screen Shots

Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.res...y_id=14&id=111

Community Health Clubs CHC HH Observations (Live) Jason Rosenfeld Logout Mobile Researcher

Dashboard People Devices Overview Design Analytics Fieldworkers My Info Account

CHC HH Observations

This survey is Live - any changes will take effect immediately.

Today

No interactions

Yesterday

No interactions

Responses in last 30 days

Date	Responses	Average Responses
Mon 23 Mar	10	10
Tue 24 Mar	20	10
Wed 25 Mar	30	10
Thu 26 Mar	70	10
Fri 27 Mar	10	10
Sat 28 Mar	10	10
Sun 29 Mar	10	10
Mon 30 Mar	10	10
Tue 01 Apr	10	10
Wed 02 Apr	10	10
Thu 03 Apr	10	10
Fri 04 Apr	10	10
Sat 05 Apr	10	10
Sun 06 Apr	10	10
Mon 07 Apr	10	10
Tue 08 Apr	10	10
Wed 09 Apr	10	10
Thu 10 Apr	10	10
Fri 11 Apr	10	10
Sat 12 Apr	10	10
Sun 13 Apr	10	10
Mon 14 Apr	10	10
Tue 15 Apr	10	10
Wed 16 Apr	10	10
Thu 17 Apr	10	10
Fri 18 Apr	10	10
Sat 19 Apr	10	10
Sun 20 Apr	10	10
Mon 21 Apr	10	10
Tue 22 Apr	10	10

Top 5 Researchers by Responses

Researcher	Responses
Buyisive M. W. 1.	70
Nomhle D. W. 5.	50
Gladys M. W. 4.	30
Nomawethu T. W. 2.	20
Nomfanelo P. W. 7.	10

Status: Live - [Change status](#)

Created: 3 months, 1 day ago by [Jason Rosenfeld](#)

Design

Modified: 13 days, 23 hrs ago by [Jason Rosenfeld](#)

Version: 52

Field Count: 22

[Design Survey](#)

[Preview the Survey](#)

[Import Translation Table](#)

[Export Translation Table](#)

Analytics

Response Count: 974

[Chart summary](#)

[Browse individual responses](#)

People

Assignment: 12 of 20 people are assigned

[Manage Assignments](#)

[Communicate](#)

start

Inbox - ...

Regardin...

Vodafon...

ESET Sm...

2008_08...

Microsoft...

Mozilla Fi...

11:48 AM

Hygiene Behavior Change

- Diarrheal incidences can be reduced dramatically when combined with hygiene behavior change monitoring

Few rigorous studies asserting the power of health promotion to achieve hygiene behavior change

- Limited time and resources to implement effective monitoring and evaluation schemes

However...

cost-effective and sustainable approach to inducing measurable hygiene behavior change

Hygiene Behavior Change: Measurement

Direct vs. Indirect Measurement of Diarrhea

- **Direct:** difficult to measure slight changes induced by an intervention⁹
 - Incidence, respondent bias and recall
- **Indirect:** diarrhea can be reduced if the 5 F's of Fecal-Oral diarrhea transmission are blocked¹⁰
 - Via observable, proxy indicators

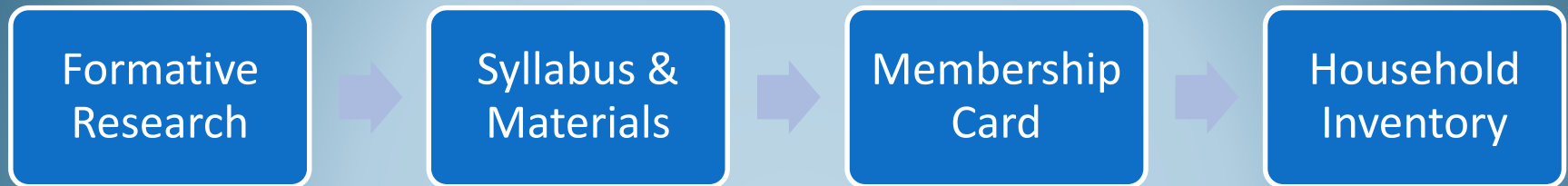
Examples of observable proxy indicators in CHCs:

- Ask to wash your own hands



Community Monitoring of Hygiene Behavior Change: The CHC Approach

- M&E is integrated from the very beginning



- **Membership Card**

- Measures attendance and completion of weekly homework
- Self-monitoring and ownership of data apart from **implementing NGO or organization**

- **Household Inventory**

- Measures proxy and priority indicators identified through formative research
- Measured by direct observation

Membership Card

NO.	TOPIC	DATE	SIGNATURE	RECOMMENDED PRACTICES	COMPLETE
1	Personal Hygiene			1. Clean clothes/bedding	
2	Skin Disease			2. No skin diseases in the home	
3	Treatment of Diarrhoea			3. Know how to make SSS	
4	Diarrhoea Transmission			4. Soap available in the home	
5	Diarrhoea through fingers			5. Wash hands with soap	
6	Handwashing with soap			6. Pouring water for handwashing	
7	When to wash hands			7. Handwashing Song	
8	Hand Washing facility			8. Handwashing Facility	
9	Water collection			9. Clean Water Source	
10	Drinking Practices			10. Jug/ladle/ 2 cup system	
11	Diarrhoea through water			11. Covered drinking water container	
12	Water Management			12. Water Management Committee	
13	Diarrhoea through flies			13. Safe Garbage Disposal	
14	Diarrhoea through food			14. Safe Food Storage	
15	Diarrhoea through fruit			15. Pot Rack / good storage	
16	The Good Food Chain			16. Good food song	
17	Roundworms			17. Clean short nails	
18	Thread worms			18. No worms in children	
19	Defecation Practices			19. Safe sanitation method (ZOD)	
20	Sanitation Options			20. Clean maintained toilet	
21	Sanitation Management			21. Effective Sanitation Management	
22	Solid Waste			22. No litter around house	
23	Rat control			23. Vector Control	
24	Solid Waste Management			24. Rubbish pit/black bags	

A Case for the Mobile Researcher: Health Clubs in Zimbabwe¹¹

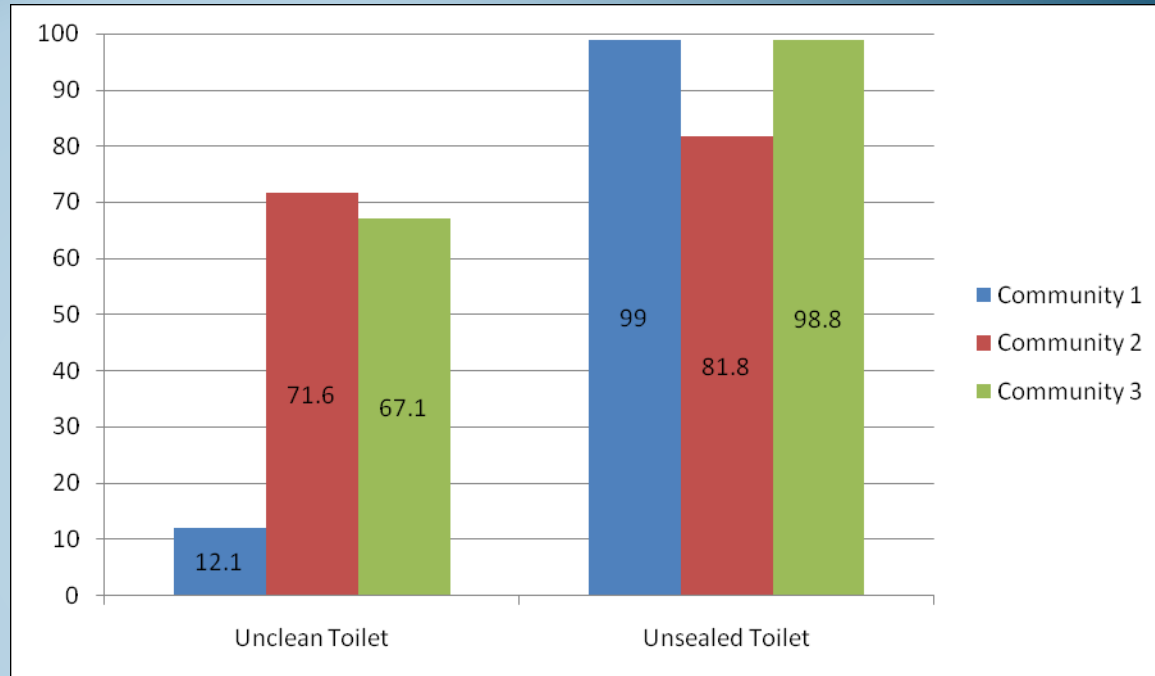
	Indicator	Before CHC (%)	After CHC (%)	Difference (%)
1	Refuse pit	24	96	72
2	Pot rack for drying dishes	68	97	29
3	Hand washing facility	10	91	81
4	Protected water source	49	87	38
5	Covered drinking water	63	97	33
6	Ladle for taking drinking water	14	86	72
7	No sharing of cups	26	94	68
8	Knowledge of SSS	65	92	27
9	Clean and used VIP latrine	37	55	17
10	Badza stand for cat sanitation	1	45	48
11	Bathroom	21	82	61
	Average	34.36	83.82	49.64

- Data collected and ready, but staff unable to collect
- Donor threatened to remove support due to late reports
- Avoidable outcome

Monitoring & Evaluation with the Mobile Researcher: A South African Experience

- Department for Water Affairs and Forestry's Integrated Water Resource Management (IWRM) Project
- In-Depth Case Studies
 - 3 purposefully selected CHC villages
 - Trained Facilitators use the Household Interview via Mobile Researcher
 - GIS Mapping
- Monthly Monitoring
 - All registered CHC Members visited on a monthly basis
 - Trained Facilitators conduct Household Inventory via Mobile Researcher
 - Cluster Leaders and Facilitators monitor Homework and Attendance

Baseline Data: Household Interview & Inventory¹²



Indicator	Yes
<i>HW Facility</i>	28%
<i>HW Soap</i>	31%
<i>Zero Open Defecation</i>	69%
<i>Safe Water Source</i>	16%
<i>Safe Water Storage</i>	69%
<i>Ladle to Fetch Water</i>	73%
<i>Pot Rack</i>	62%
<i>Safe Food Storage</i>	70%

Household Interview: Case Studies



Household Inventory: Monthly Monitoring

Comparison of M&E Plans

- Original Zimbabwe CHC project (2001)¹³ vs. current South Africa CHC project (2008/2009)
 - 1,125 surveys across 3 sites vs. 650 surveys across 4 sites
 - Paper surveys vs. Mobile Researcher
- Operational Challenges
 - Time
 - Data Integrity
 - Enumerator Safety
- Comparative Inputs
 - Zimbabwe: total cost of £26,600; per survey cost of £23.6
 - If Mobile Researcher had been used in Zimbabwe:
 - Total cost = R50,000 (£3,333), with 36% taken up in the cost of the technology



Conclusions

- Mobile Researcher: ideal tool for project M&E
 - Successfully tested in Kenya, Zambia and Nigeria
- Combine with tool like Household Inventory that allows communities to 'own' their own data
 - Empowering and assures more sustainable behavior change
- New abilities to conduct effective M&E should enable more rigorous research into health outcomes
 - Assist in increasing the overall assistance to countries aiming to achieve MDGs

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