



Business Case

One Size Does Not Fit All

Global Digital Health Forum 2018

mPOWERING
FRONTLINE HEALTH WORKERS

mPoweringHealth.org



mPowering Frontline Health Workers with Tools at Their Fingertips to Save Lives

Our Audacious Goal

*Fundamentally change the way
frontline health workers get + share information*

Radically improve their effectiveness and efficiency,
to reach more people, with better care, around the world



mPowering Partners

- [mPowering Frontline Health Workers](#) a partnership of private sector, government, donors, and program implementers
- 16 partner organizations
- Geographic coverage includes Uganda, Zambia, Nigeria, Pakistan



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Maternal and Child
Survival Program

jhpiego



IntraHealth
INTERNATIONAL
Because Health Workers Save Lives.



frontline
HEALTH
WORKERS
COALITION

accenture
High performance. Delivered.



Palladium
MAKE IT POSSIBLE



PRAEKELT
FOUNDATION

mPowering Solutions

ORB

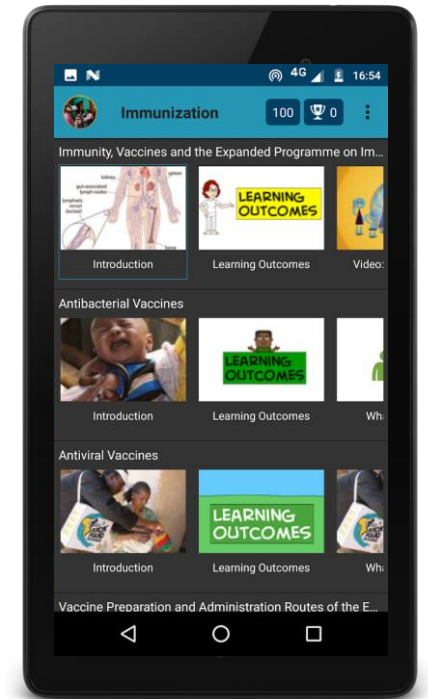
Open source library of vetted, free, digital training resources for health workers



<http://health-orb.org/>

Open Deliver

Flexible, open source digital training system that helps countries build + deliver national level health worker training and enhances supervision and mentorship



Current and Future Activities

Country Implementations

- Uganda Ownership and Scale-up
- University of Zambia's National Scale-up of Nurse Leadership Certificate Program
- World Vision Uganda
- Pathfinder Nigeria

Technology Enhancements

- Expand ORB Content
- Launch Course Creation Tool
- Integrate with WhatsApp chatbot
- Integrate with Open Health Information Exchange (OpenHIE)

Business Case Questions Everyone Asks

- What problem does it solve?
- What's the value proposition?
- How is this different or better than existing solutions?
- What does it cost?

Different Priorities Drive Different Questions

Donors ask:

- What's the evidence?

Implementers ask:

- What's the evidence?
- Does it give me competitive advantage?

Investors ask:

- How many users?
- Is this globally scalable?
- What is the demand?
- What's the potential return on investment?
- Who owns the intellectual property?

Pitching – Tune for the Audience/Purpose

At ICT4D Conference:

- Goal was a “call to action” to be a partner
- Created a 7-slide deck with the vision, next 18 months and ways to partner
- Shared with decision makers
- Connected with next level staff

At SOCAP (Social Capital Markets) Conference:

- Goal was to interest impact investors and new partners in funding/working with mPowering
- Created a 4-slide deck as a brochure – focus on partners and solution
- Rarely used the deck – many conversations instead

Why Did We Need a Cost Model?

- To justify funding requests
- To demonstrate financial savings in addition to efficiency, quality, etc.
- Because many people still think digital is expensive
- Because cost savings are persuasive

[Browse Resources](#) [Add Resource](#) [Analytics](#)

Connecting Frontline Health Workers to resources and each other to expand their knowledge, organize content into courses, and share their learning with the community.



Family Planning
96 resources



Antenatal Care
53 resources



Labor & Delivery
48 resources



Newborn Care
92 resources



Child Health
115 resources



Nutrition
48 resources



Zika
69 resources



WASH
14 resources



Leadership and Management in Communities
2 resources

<http://health-orb.org>



mPOWERING
FRONTLINE HEALTH WORKERS

<http://mpoweringhealth.org/>

Alice T. Liu, Director
alice.liu@mpoweringhealth.org

Andrew Mack, Partnerships Advisor
amack@amglobal.com



Leveraging digital technologies to transform training of frontline health workers

A costing model for the Open Deliver Demo project in Uganda

Allen Nsangi

Innovations and Knowledge Translation Office

Makerere University College of Health Sciences

allennsangi@gmail.com

twitter.com/allennsangi



UGANDA

Objective: Utilizing digital technologies to transform training of frontline Community Health Extension Workers (CHEWs).

Current situation

- **Insufficient Training:** 66% of CHEWs have basic training (trained for a total between 1-7days). Remaining **34% do not have any basic training at all** (but are still working as CHEWs).
- **Literacy:** About 50% of all **CHEWS completed Junior High School**. In remote areas only about 20%.
- **Lack of coordination, constant duplication, inequitable access and no ownership.**

Health system “frustration”:

“VHTs were not being given time to work. Many partners were crisscrossing the districts all the time doing trainings.

According to an analysis done by MoH, in a month, VHTs spent close to 2 to 3 weeks training so, the question was ... **when do the they get time to work?”** *(Senior MoH Official on Community Health Training):*



Strategy: Standardize training for 15,000 CHEWS over 5 years

- Current model of training community health workers is face-to face classroom learning - often privately organised by implementing partners.
- 6-month training program + 20 hour annual refresher course every 2 years



How? Blended Approach (classroom+mobile) using Open Deliver Technology

Guiding Principles:

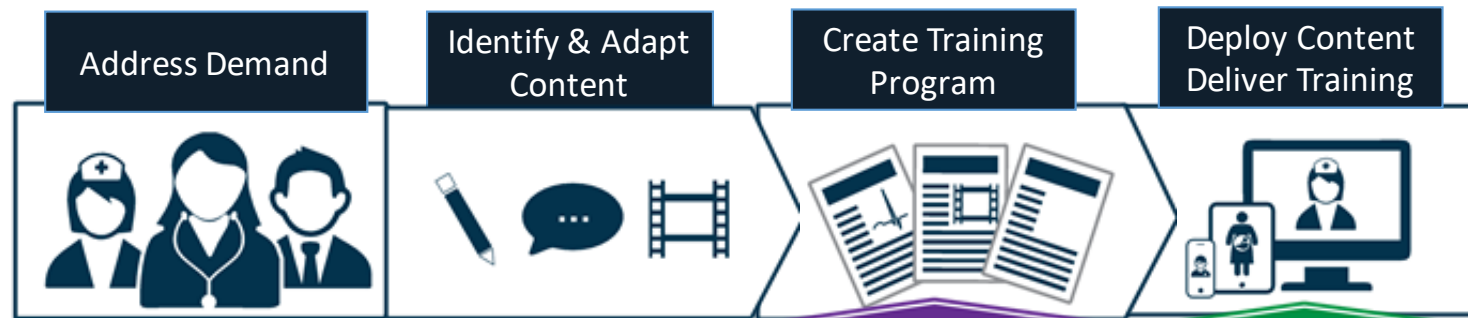
- Government Owned
- Contextualized content
- Multi-Stakeholder Approach



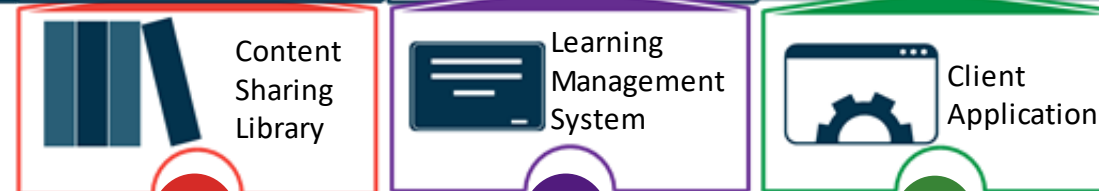
Open Deliver Approach

- A process-based solution designed for
- government institutionalization
 - changing technology
 - shareable content

Process



Technology



Products



ORB



Moodle



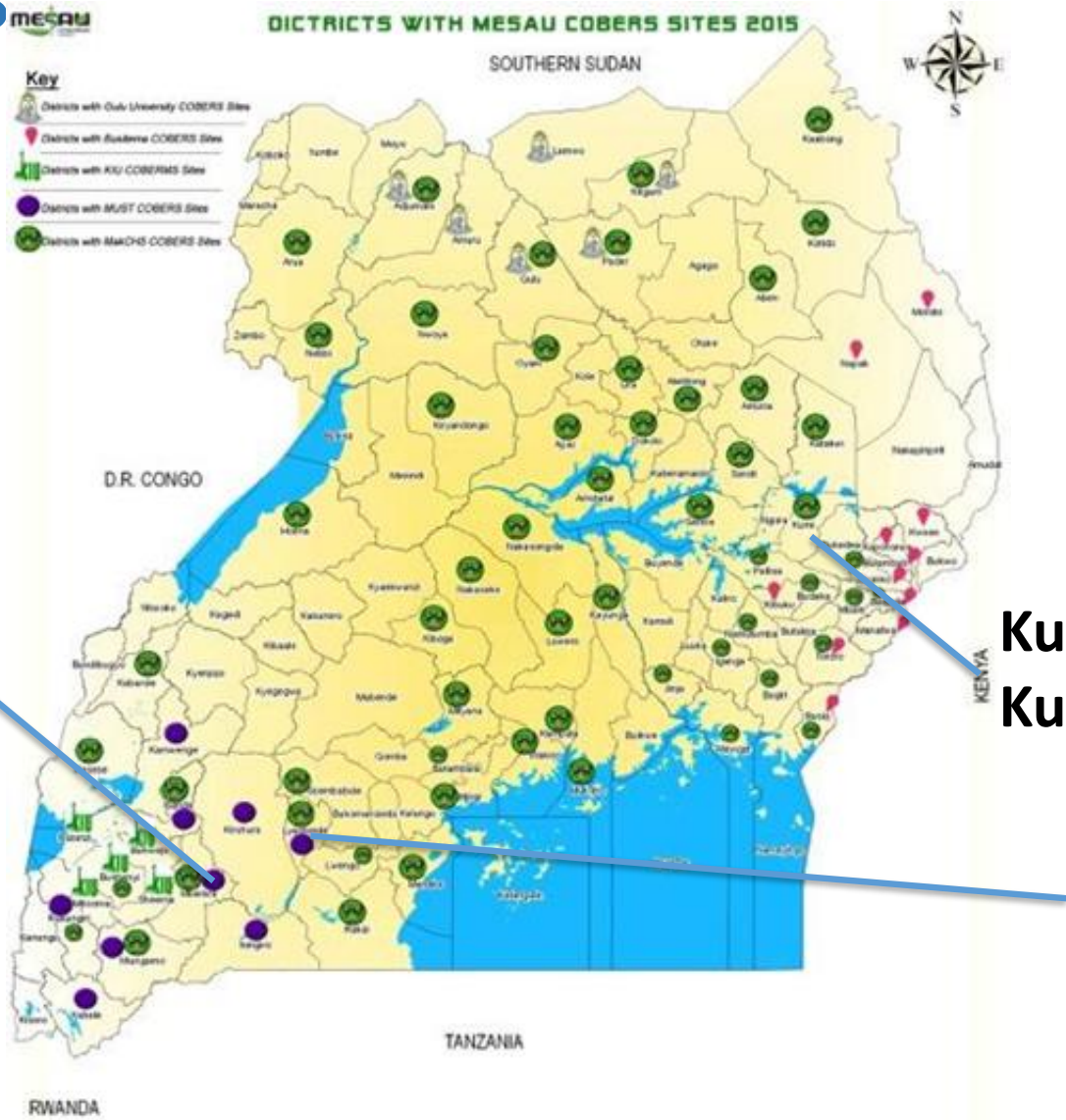
OppiaMobile

Monitor, Evaluate

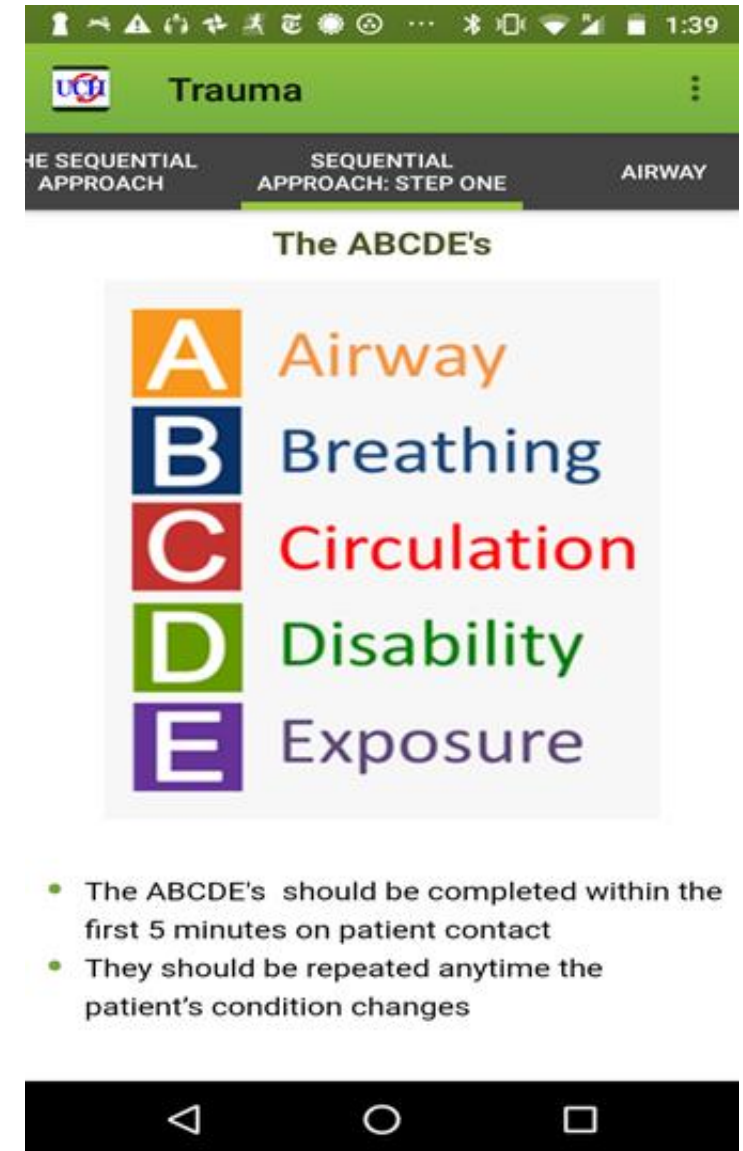
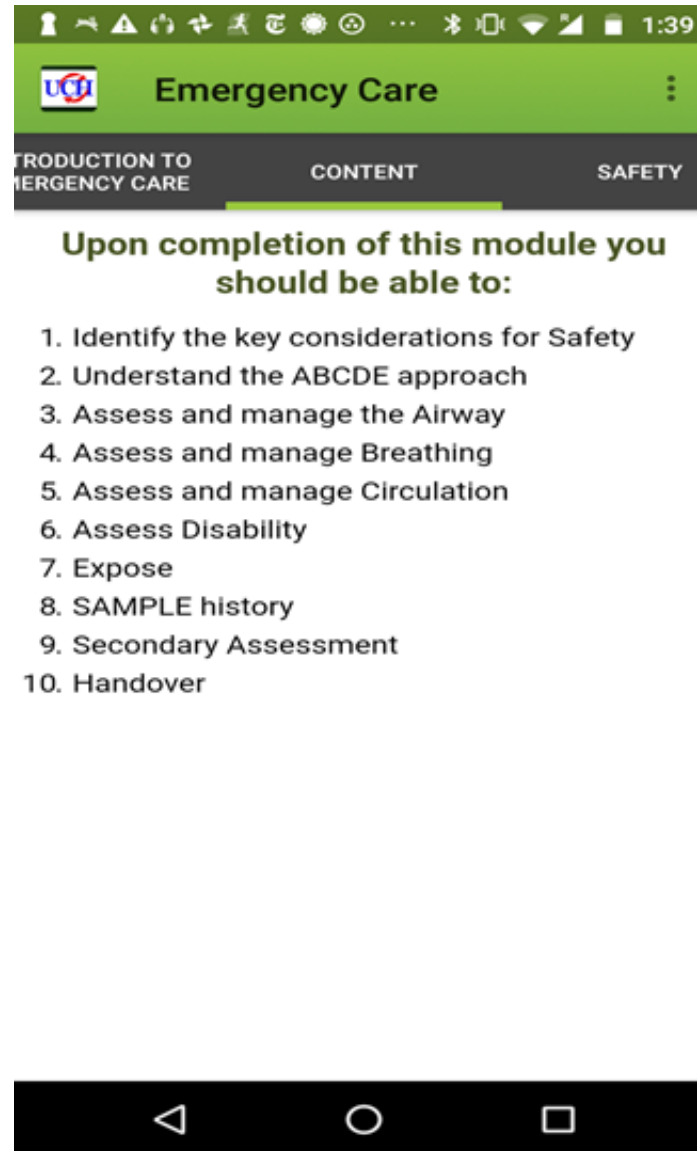


Google Charts

Project Pilot Sites



Sample Module Emergency Medicine Care Course

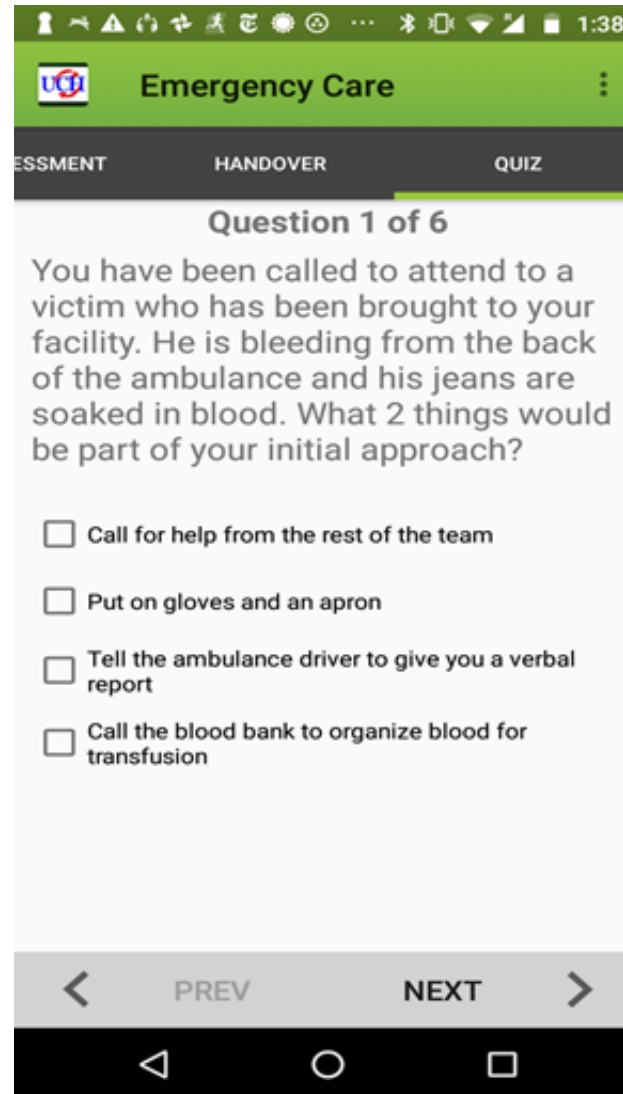


Animated Trauma Series Videos

- Apply a bandage on top of the materials used and wrap around the wound with some pressure



Emergency Medicine Care Course - Quiz



The screenshot shows a mobile application interface for an "Emergency Care" course. At the top, there is a green header with the "UCI" logo and the title "Emergency Care". Below this is a dark grey navigation bar with three tabs: "ASSESSMENT", "HANDOVER", and "QUIZ", with "QUIZ" being the active tab. The main content area displays "Question 1 of 6" and a text-based question about a bleeding victim. Below the question are four multiple-choice options, each with an unchecked checkbox. At the bottom, there is a grey navigation bar with left and right arrow icons and the labels "PREV" and "NEXT". The very bottom of the screen shows the standard Android navigation bar with back, home, and recent apps icons.

Emergency Care

ASSESSMENT HANDOVER QUIZ

Question 1 of 6

You have been called to attend to a victim who has been brought to your facility. He is bleeding from the back of the ambulance and his jeans are soaked in blood. What 2 things would be part of your initial approach?

- ☐ Call for help from the rest of the team
- ☐ Put on gloves and an apron
- ☐ Tell the ambulance driver to give you a verbal report
- ☐ Call the blood bank to organize blood for transfusion

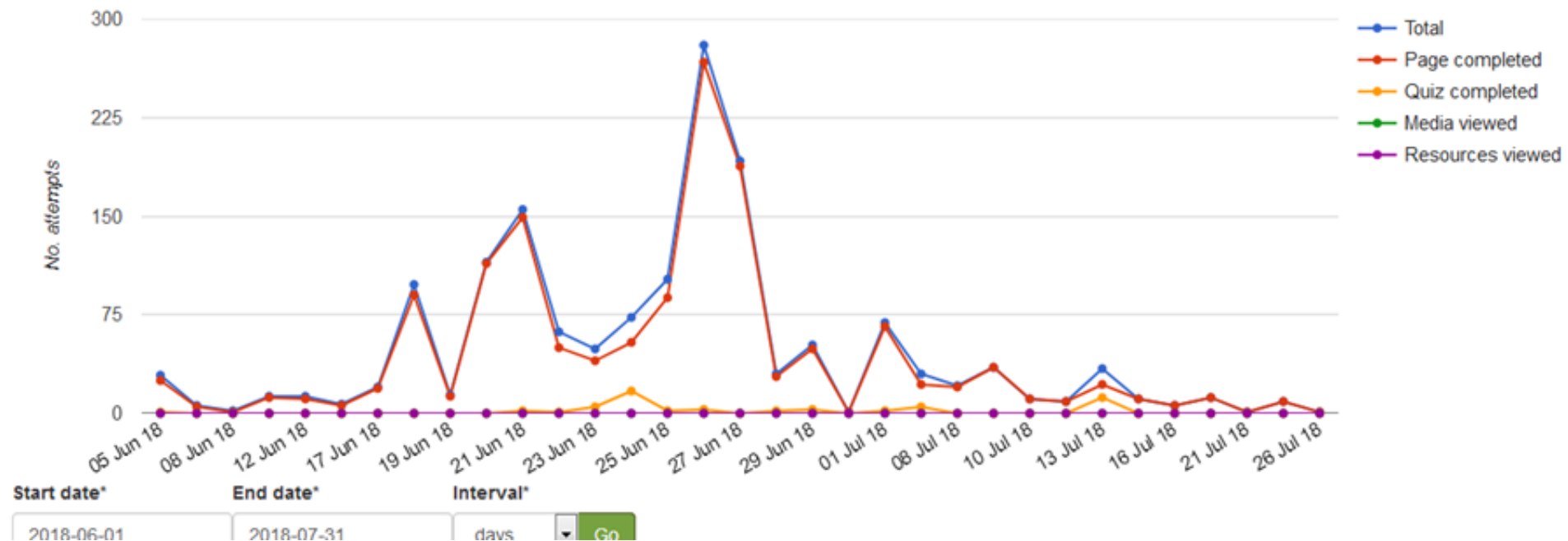
< PREV NEXT >

Analytics from Dashboard

Emergency Care

Tags: Emergency-Care

Recent Activity



Analytics from Dashboard

Completion Rates > Emergency Care

Tags: Emergency-Care

Course completion rates

Users enrolled: 51

User	Activities completed
Users completed: 1	
 KETTY AMODING	36 (100.00%)
Users in progress: 50	
 uch user1	6 (16.00%)
 mike bailey	6 (16.00%)
 turinawe jussy	0 (0.00%)
 meddy rutayisire	27 (75.00%)
 peter Kavuma	14 (38.00%)
 muhenda john	28 (77.00%)
 ...	1 (44.00%)

Costs considered under face to face training

15,000 CHEWs over 5 years



Costs considered under face-to-face classroom training (baseline)

- Trainers' expenses – lodging, transport (1 trainer per 50 CHEWs)
- Trainees' expenses – lodging, per diem incentive, transport
- Classroom facility expenses - training venues, manuals, supplies

Considerations for Blended Learning

Considerations for blended learning (classroom + Mobile)

Main assumption: classroom training is reduced by 1/2

Additional costs for consideration under blended learning (offset by some of the savings from reducing classroom time)

- Tech support - staff
- Content gathering - collaboration
- Content review and adaptation
- Internet costs
- Server management / content hosting costs
- Mobile phones / devices?



Cost Reduction Benefits of Open Deliver Approach

Training Savings:

- Reduction on face to face post-service training costs.
- Reduction on training (students and in-service) and supervision costs

Content Savings:

- Reduction/elimination of costs for printing and distributing manuals.
- Reduction resulting from minimizing creation of duplicate content.
- Efficiency gains from National Library which centralizes content management and facilitates content review and validation.

Additional Benefits of a Blended Learning Approach using Open Deliver Technology

- Knowledge gained
- Time saved
- **Monetary savings**
- Additional work done as a result of time saved
- Value attached to training at own convenience
- Others - identified during the on-going evaluation process

Model Estimates Uganda

- **15.57% projected savings on Overall Training Program**
- **40% projected savings on Training and Supply Costs**
- Cost assumptions for both classroom and blended training are starting points for the use of the model.
- Baseline costs based on estimates from CHEW MoH training program
- Estimates will be modified with *real* costing data as the program wraps up.
- Long term goal – a dynamic cost model incorporating actual costs + benefits -> CBA, CEA, CUA

Thank you all, Mwebale nnyo





Making The Business Case for Digital Health



Global Digital Health Forum 2018



**SPECIAL
THANKS**

Steve & Trinity
Moderator Pamela Riley

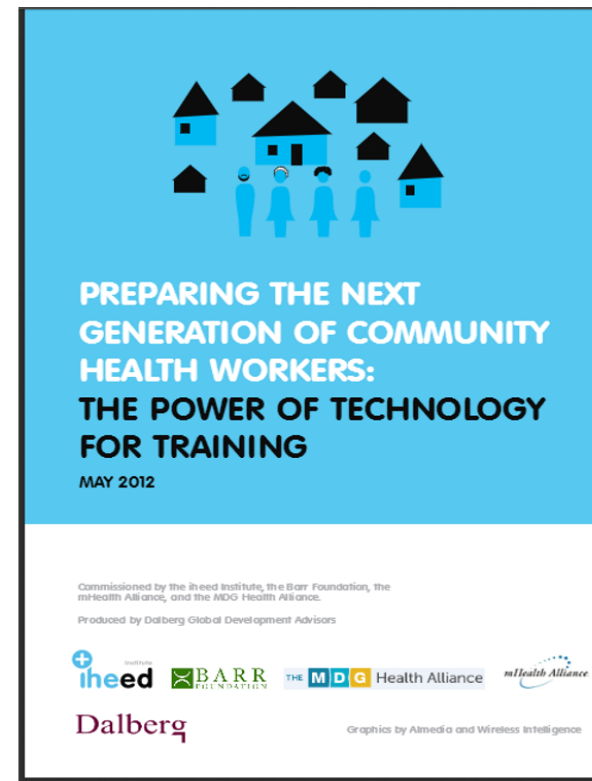
Acknowledgements Mysha Sissine, Robert Segan, Mathew Taylor, Bobby Jefferson, Alice Borrelli, Mohandas Koehler, Meena Chelvayohan

Futures Group International, Washington DC

Intel Corporation, Washington DC

*QED, *McKinsey&Company *DAI

- Comparison of in-classroom vs Blended eLearning
- ICT Comparison smart phone with data plan versus feature phone and Wi-Fi-only tablet
 - Costs / Functionality
- Solution sustainability at scale



- Multimedia apps/content could enable the training of one million new CHWs at less than a quarter of the cost of disseminating conventional training
 - More effective training
 - Up to 80 percent of training content could be standardized and shared with “blended” approaches
 - Could dramatically alter formal CHW training and fuel entrepreneurial innovation and models that support continuous learning



A forward looking model of two types of training of CHWs



Baseline



☐ in-Classroom training

☐ No eLearning

Blended



☐ Half in-Classroom training

☐ eLearning outside of the classroom



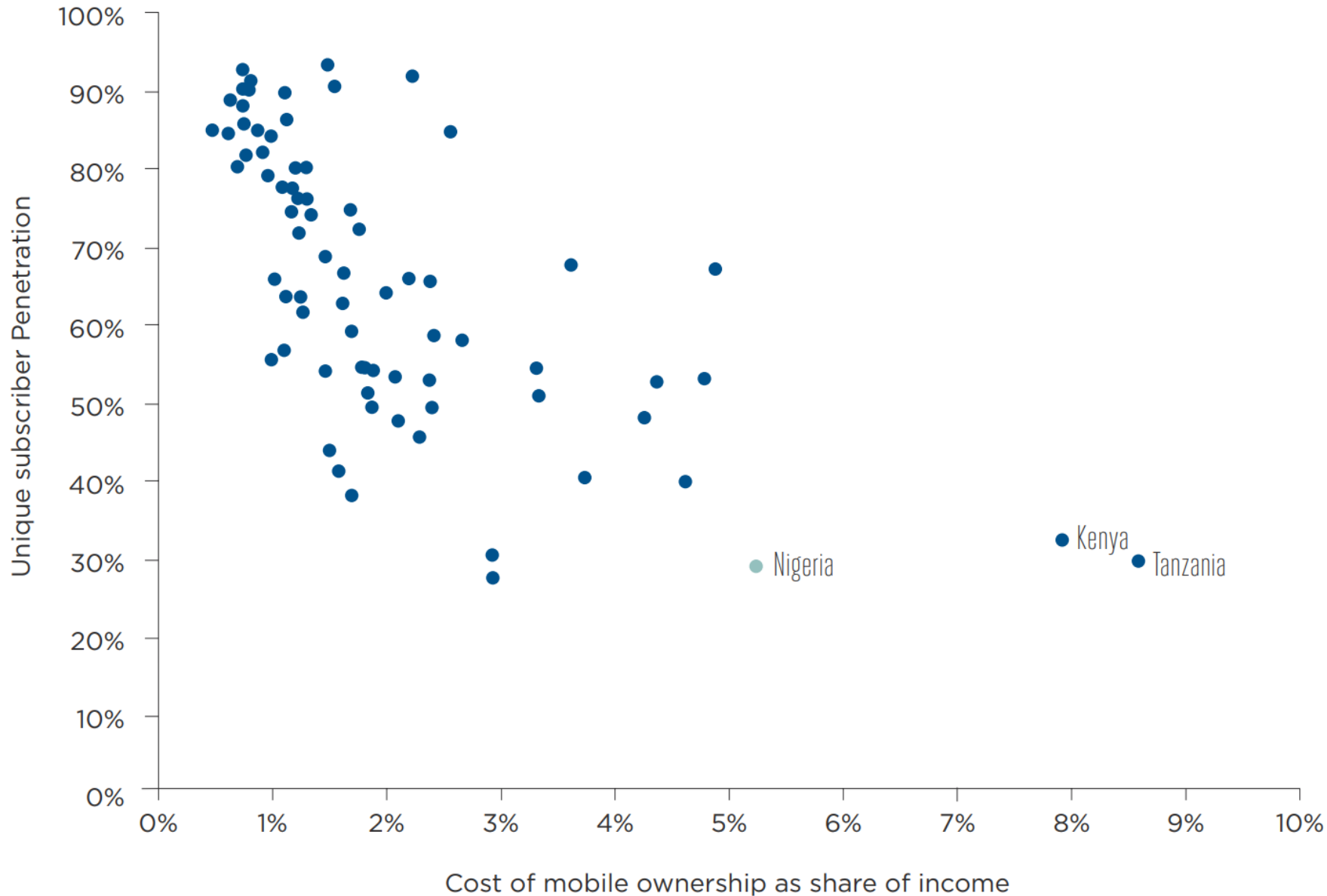
Cost data sources

- Local costs in Nigeria for phones and connectivity (and data) are based on information collected by Nigeria based staff
- Training costs in Nigeria are based on experience conducting local in-country trainings
- Tablet costs are based on Intel's price quotes
- Inflation costs are based on average escalation in Nigeria over the last 5 years
- Attrition rates and training time are based on CHW training literature specifically "Deployment of community health workers across rural sub-Saharan Africa" (McCord, Liu, Singh, 2013)



<https://www.pulse.ng/news/tech/infographic-85-of-nigerians-access-the-internet-through-their-mobile-phones-id4160660.html>

Cost of mobile ownership compared to penetration in selected countries



The cost of using a mobile phone represents on average around 5% of personal income in Nigeria but can be higher for poorer consumers, making basic mobile services unaffordable for many. This ratio significantly exceeds the cost for many LMIC countries



Comparison of Training Component for 100,000 CHWs in Nigeria

3 Month Baseline Classroom Training Breakdown				
Item	Units	Units	Unit Cost	Total Cost
Classroom Supplies	/CHW	120,000	\$ 36	\$ 4,320,000
Classroom Facility Costs	/classroom	2,400	\$ 900	\$ 2,160,000
CHW Per Diem Incentive	/CHW	120,000	\$ 309	\$ 37,080,000
Lodging for Trainers	/trainer	2,400	\$ 950	\$ 2,280,000
Travel/Transportation for Trainers	/trainer	2,400	\$ 285	\$ 684,000
Annual Refresher Course (Y2-Y5)	/training	380,000	\$ 1.50	\$ 570,000
Total Baseline Training Costs				\$47,094,000

- 100,000 CHW trained
- 5% Attrition Rate
- 1 trainer per 50 CHWs = 20,000 Trainers
- 1 classroom per 50 CHWs

1.5 Month Blended Classroom Training Breakdown				
Item	Units	Units	Unit Cost	Total Cost
Classroom Supplies	/CHW	120,000	\$ 18	\$ 2,160,000
Classroom Facility Costs	/classroom	2,400	\$ 450	\$ 1,080,000
CHW Per Diem Incentive	/CHW	120,000	\$ 185	\$ 22,248,000
Lodging for Trainers	/trainer	2,400	\$ 475	\$ 1,140,000
Travel/Transportation for Trainers	/trainer	2,400	\$ 143	\$ 342,000
Annual Refresher Course (Y2-Y5)	/training	380,000	\$ 1.50	\$ 570,000
Total Blended Training Costs				\$ 27,540,000

**\$19.5M (42%)
Savings
using the Blended
Model**



Nigeria Smartphone Device Costs and Data Charges

Service Provider	Smartphone Model	Device Cost
Airtel	Nokia Asha 303	\$ 127
	Nokia Lumia 510	\$ 174
	Samsung Galaxy Young	\$ 125
MTN	Infinix Race	\$ 126
Glo	Nokia Lumia 520	\$ 174
	Blackberry 9320	\$ 177

Smartphone Model	Data Allowance	Cost
Airtel	4GB	\$ 25
Etisalat	4GB	\$ 49
MTN	4GB	\$ 49
Gio	4GB	\$ 37

An average smartphone cost is \$150

Average data cost is \$40

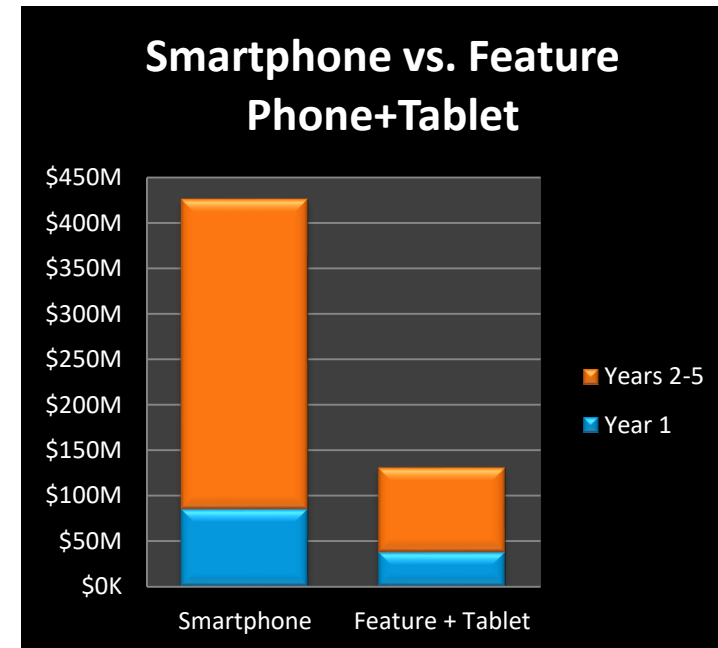


Baseline vs. Blended Learning 5-Year Device Cost - Nigeria Example

	Smartphone	Feature + Tablet	Feature Phone	Tablet
Device Cost	\$150	\$160	\$0	\$160
Connectivity	\$660	\$180	\$180	\$0
Data Monthly	\$40	\$0	\$0	\$0
Voice Monthly	\$15	\$15	\$15	\$0
Solar Charger	\$40	\$40	\$40	\$0

Smartphone vs. Feature + Tablet			
	Smartphone	Feature + Tablet	Net Savings
Year 1	\$85M	\$38M	\$47M
Years 2-5	\$341M	\$93M	\$248M
Total	\$426M	\$131M	\$295M

- Connectivity costs include voice plus data.
- Total costs are based on 100k CHWs trained

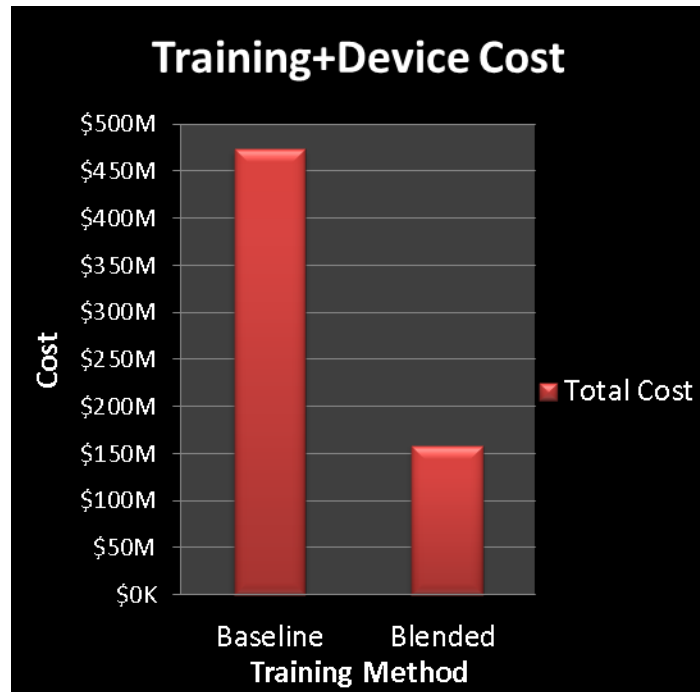


\$295M (69%) in savings are achieved with a feature phone + tablet as Wi-Fi is used for data



Training and Device Comparison - Nigeria Example

Training+Supplies Cost Comparison Overview			
	Baseline	Blended	Net Savings
Classroom Training	\$47.1M	\$27.5M	\$19.6M
Smartphone	\$426.0M	\$0.0K	\$295.0M
Feature Phone/Tablet	\$0.0K	\$131.0M	
Total Cost	\$473M	\$159M	\$315M



**(67%) savings in
training and device
costs**

Blended Learning Advantages

- **Greater impact:** recurring CHW knowledge impression assessments and electronic health records
- **Cost savings:** reduced travel, per diem, accommodation, and facility costs
- **Flexibility:** scheduling and coordination



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Adapting a Cost Model for mPowering Frontline Healthworkers

Steve Ollis,

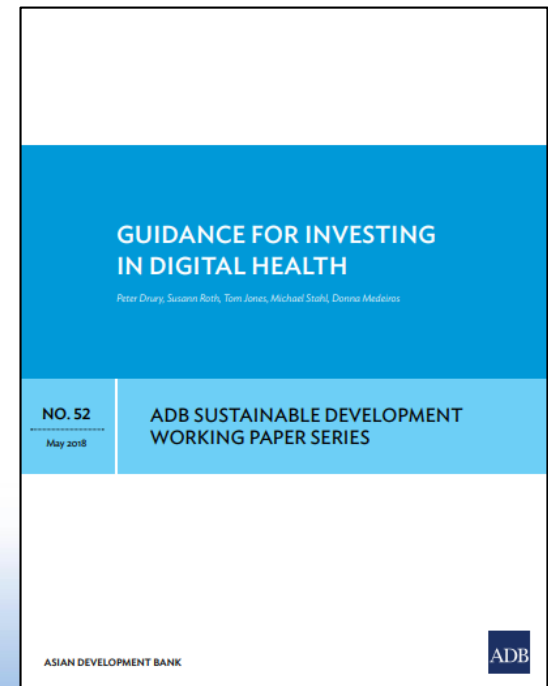
Senior Digital Health Advisor

Maternal and Child Survival Program / John Snow Inc

Steve.ollis@mcsprogram.org

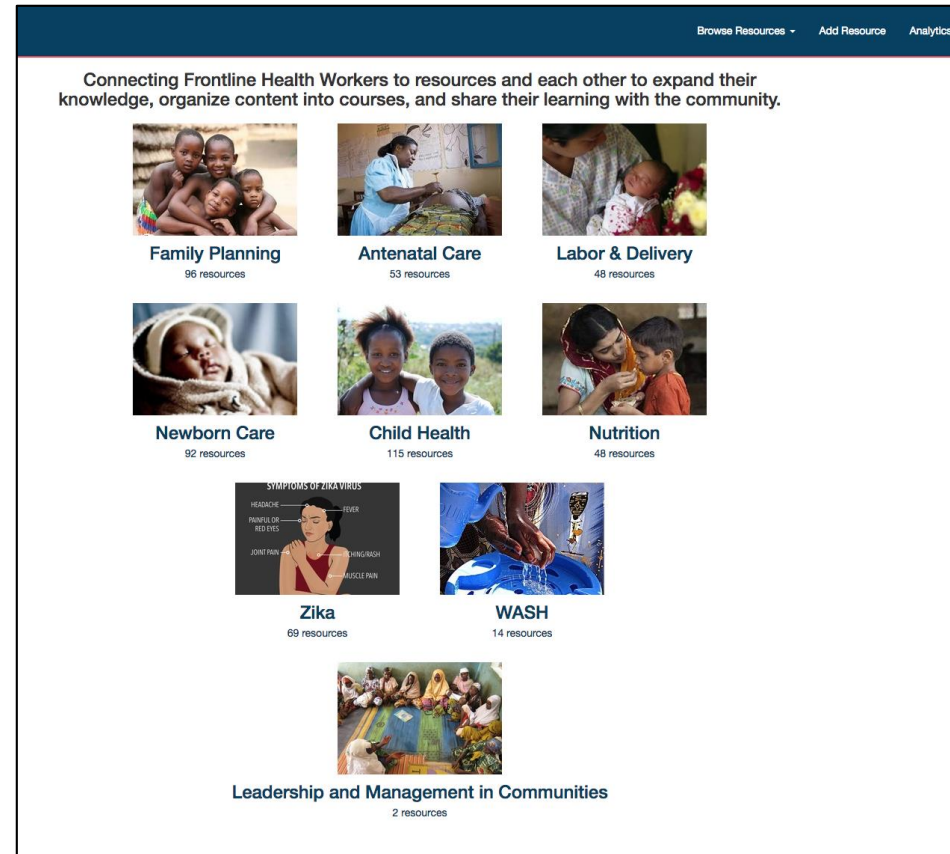
@ollisste

Digital Health Focusing on \$\$



Why did we need a cost model?

- To justify funding requests
- To demonstrate financial savings in addition to efficiency, quality, etc.
- Because many people still think digital is expensive
- Cost savings are persuasive



<http://health-orb.org>

Our starting point

The screenshot shows the NCBI PMC website interface. At the top, there's a navigation bar with 'NCBI', 'Resources', and 'How To'. Below this is the PMC logo and a search bar containing 'PMC'. The main content area displays the article title 'Cost Comparison Model: Blended eLearning versus traditional training of community health workers' by Mysha Sissine et al. The article is from the 'Online J Public Health Inform' journal, volume 6(3), 2014. The abstract is visible, stating that another one million community healthcare workers are needed to address the growing global population and increasing demand of health care services. The article has a PMID of 25598868 and a PMCID of PMC4292533.

NCBI Resources How To

PMC

Advanced Journal list

Journal List > Online J Public Health Inform > v.6(3); 2014 > PMC4292533

OJPHI ONLINE JOURNAL OF PUBLIC HEALTH INFORMATICS

Online J Public Health Inform. 2014; 6(3): e196.
Published online 2014 Dec 15. doi: [10.5210/ojphi.v6i3.5533](https://doi.org/10.5210/ojphi.v6i3.5533)

PMCID: PMC4292533
PMID: [25598868](https://pubmed.ncbi.nlm.nih.gov/25598868/)

Cost Comparison Model: Blended eLearning versus traditional training of community health workers

[Mysha Sissine](#), ^{1,*} [Robert Segan](#), ¹ [Mathew Taylor](#), ² [Bobby Jefferson](#), ¹ [Alice Borrelli](#), ² [Mohandas Koehler](#), ² and [Meena Chelvayohan](#) ¹

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This article has been [cited by](#) other articles in PMC.

Abstract [Go to: ✓](#)

Objectives: Another one million community healthcare workers are needed to address the growing global population and increasing demand of health care services. This paper describes a cost comparison between two training approaches to better understand costs implications of training community health workers (CHWs) in Sub-Saharan Africa.

Showed
potential **cost
savings of 42%**
of training
costs for
100,000 CHWs

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4292533/>

Cost Model

- Nigeria model included:
 - Costs of training (trainers, lodging, per diems, classrooms)
 - HW salaries
 - Management salaries
 - Devices, solar and airtime
 - Inflation and HW attrition
- Updated the model to include:
 - costs of content adaptation
 - costs of technical support to platform
 - costs for full device replacement every 3 years
 - allow for cost sharing with other projects
- **Summary: Using blended learning approach was cost neutral or less expensive under a variety of scenarios**

Scenarios & Results

# of HWs	Length of training	Device cost	Cost share	Savings on training and supplies
14,000	3 months	\$200	0	3%
14,000	6 months	\$200	0	22%
14,000	6 months	\$150	0	25%
100,000	6 months	\$200	0	22%
100,000	6 months	\$150	0	26%
100,000	6 months	\$150	50%	33%
100,000	6 months	Airtime only	50%	38%

Additional considerations

- With a fully electronic enabled workforce:
 - Improved HW performance as access to information anytime, anywhere
 - Improved communication/coordination
 - Reduced costs of data collection
 - Improved metrics on learning material usage
 - Reduced costs of adding new projects, programs and platforms (captured in Scenarios 6 & 7)
 - Emergency Response - being able to quickly push out new content

Additional Considerations

- Model does not quantify benefits of:
 - Improved retention of training materials
 - Better availability of information on usage
 - Reduced time out of station for providers to attend training
- NB: Cost savings may be lower where per diems are not being paid

For more information, please visit
www.mcspprogram.org

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