3/14/2016

MOBILE TECHNOLOGY FOR ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH (ASRH)

Produced by: Chen D, Dooley E, Lam-Hine T, Long J, Veenapani A

START CENTER
STRATEGIC ANALYSIS, RESEARCH & TRAINING CENTER

FOSTER
Buerk Center for Entrepreneurship

Agenda

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Executive Summary: mHealth deemed effective, needs more research around sustainability

Situation & Objective

- The Foundation believes mobile technology is an effective way to reach youth with limited access to SRH information
- However, there is limited knowledge around the efficacy of these programs since the field is in a pilot phase
- START team engaged to conduct literature review, interview experts, and deep dive into case studies

Key Insights

- Mobile based programs are showing improved ASRH behaviors and outcomes in low resource settings
- Focus on the overall ecosystem, not just the individual program
- Feature phones, smartphones, and digital media deserve consideration in tandem with SMS programs

Gaps & Next Steps

- Gaps in evidence are primarily related to:
  - Longitudinal peer reviewed research
  - Sustainability & institutionalization (Costing, M&E)
  - Targeted customer segmentation
  - Metrics & analytics
- Potential next steps: investing in further evidence, convening stakeholders, and addressing broader systemic issues impacting ASRH

Methodology: A three-pronged approach to capture best of academic and non-academic thinking

Databases

PubMed

Business Source Complete

CINAHL Available via EBSCOhost

embase BIOMEDICAL ANSWERS

WEB OF SCIENCE™ THOMSON REUTERS

Scopus

Interviews

"Shared consumption in text messaging…"

"They (adolescents) have access to information, but do they have the capacity to act on that information?"

"There is lots of evidence around the fact that dose is one of the most important things…"

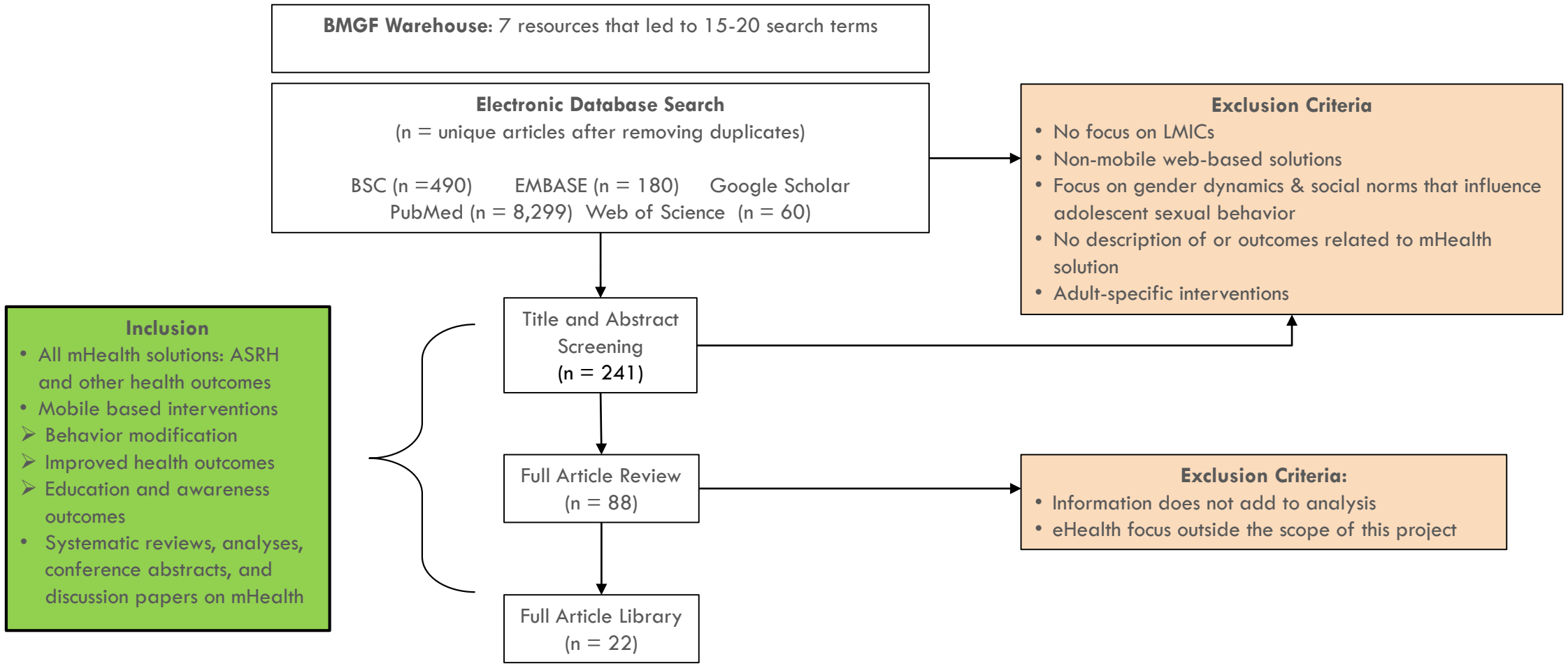
"Attack one context at a time."

"What you can definitively say is that you can't definitively say anything about the field."

"It's tough, you have to be agile."

Case studies

Literature Review Overview: Focus on mobile ASRH solutions catering to adolescents in LMICs



Interview Overview: focus on broader eHealth solution set for SRH catered to adolescents and adults in LMICs

Interview List

- Kelly L'Engle (USF), 2/11
- Gywn Hainsworth (BMGF), 2/12
- Sylvia Wong (UNFPA), 2/17
- Jonathon Jackson & Ryan Hartford (Dimagi), 2/18
- Marion McNabb (Pathfinder), 2/19
- Catherine Lane (USAID), 3/2
- Stephanie Oula (UNF), 3/1
  - Hanna Smalley
  - Daniela Ligiera

Interview Takeaways

- **Systemic issues must be considered and addressed**
  - SMS programs cannot exist in isolation
  - The ability to act on information is critical
- **Program design is a way to get around systemic issues**
  - It's not the technology, it's the message that matters
  - Content needs to fit local context
  - Content **has** to take into account availability & access
  - Program design should embed human contact
  - Device ownership is tricky; must be kept in mind while designing interventions
- **The way forward is uncharted and exciting**
  - While there is not a lot of evidence out there, the field needs to move forward with intuition and adding value from a normative perspective
  - Technology evolves very fast and costing will evolve with it
  - There is a need for advocacy: lessons learned need to be disseminated widely as field transitions out of pilot phase

Case Study Overview: focus on SRH and non-SRH eHealth solutions catered to adolescents and adults in LMICs

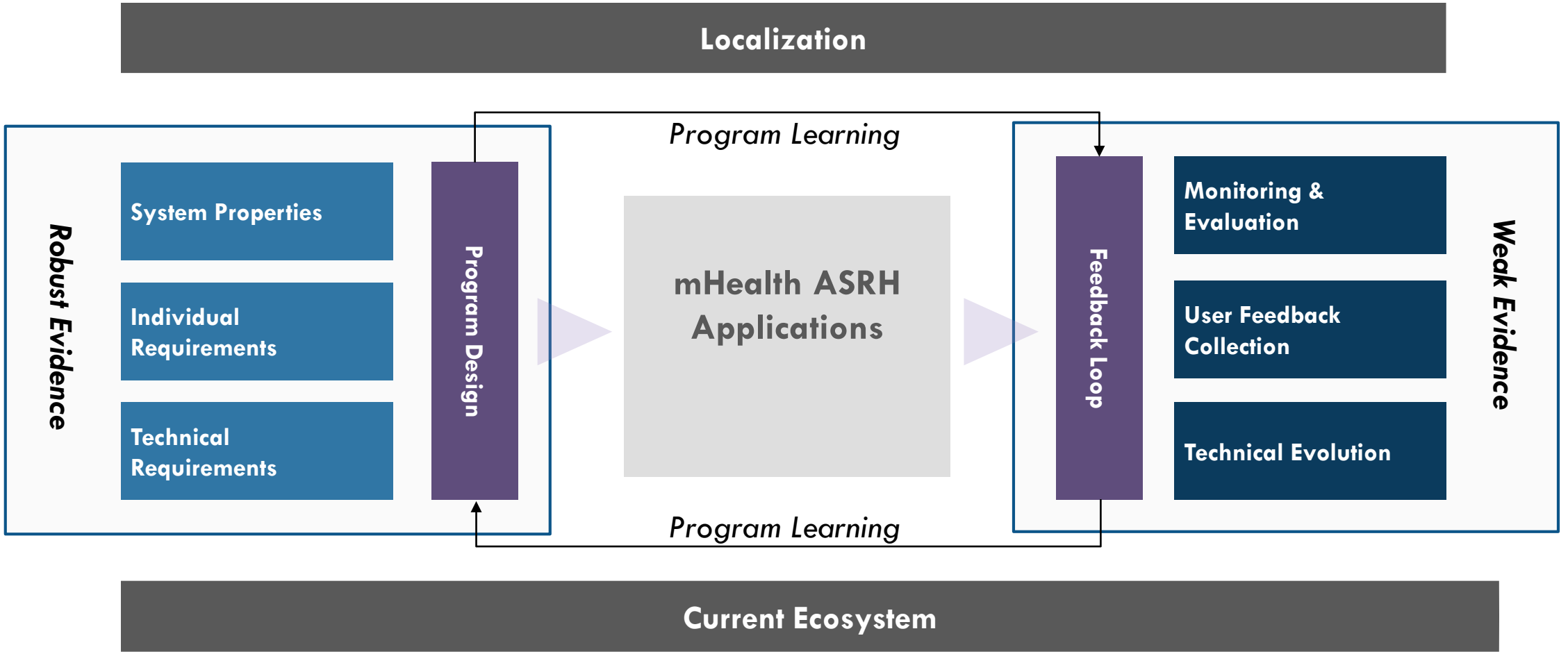
mHealth Compendiums

Case Study Analysis

Program Name	Source	Year	Demographic	Health focus tags	Geography
Chakruok Interactive Radio Program	USAID mHealth Compendium vol 1	2010- 2011	Married girls	HIV, Family planning	Kenya
Workplace-based SMS Awareness Campaign	USAID mHealth Compendium vol 1	2009- present?	Private sector empl	HIV, STIs	Uganda (4 privat
MAMA Bangladesh, South Africa, Nigeria, India	USAID mHealth Compendium vol 2	2012-present	Parents	MNCH	Bangladesh, Sou
MIRA Channel	USAID mHealth Compendium vol 3	2012-present	Low-literate women	MNCH	India
Wired Mothers	USAID mHealth Compendium vol 3	2009-2010	Women of childbear	Antenatal care	Zanzibar
EMPower II	USAID mHealth Compendium vol 4	2012-2014	Adolescent	HIV	Ghana
No-Yawa	USAID mHealth Compendium vol 4	2013-present	Adolescent	Family planning	Ghana
Alive & Thrive	USAID mHealth Compendium vol 5	2010-present	Adolescent	Newborn Health	Nigeria originally
mCenas!	USAID mHealth Compendium vol 4	2013-2014	Adolescent	Family planning	Mozambique
CycleTel™	USAID mHealth Compendium vol 1	2009-present	Women of childbear	Family planning	India
Mobile 4 Reproductive Health (m4RH)	USAID mHealth Compendium vol 1	2009 - present	Adolescents, CHWs	Family planning	Kenya, Tanzania
SMS and IVR to Improve Family Planning Services	USAID mHealth Compendium vol 1	2011 - ? (unlcear if	Women of childbear	Family planning	Kampala, Ugand
Text Me! Flash Me! Call me!	USAID mHealth Compendium vol 1	2008 - ? (unlcear if	MARPS (MSM, fem	HIV, STIs	Ghana
JustTested	USAID mHealth Compendium vol 2	2012 - present	Everyone	HIV	South Africa
Tobacco Kills: Say No & Save Lives	USAID mHealth Compendium vol 2	2013 - present	Everyone	Smoking cessation	Uganda
Project Khuluma	USAID mHealth Compendium vol 5	2013 - present	Adolescent	HIV	South Africa
MomConnect	USAID mHealth Compendium vol 5	2014 - present	Pregnant women	Maternal Health	South Africa
iCycleBeads™	USAID mHealth Compendium vol 1	2010 - present	Women of childbear	Family planning	Worldwide
Wazazi Nipendeni (Parents, Love Me)	USAID mHealth Compendium vol 2	2012 - present	Parents	MNCH, Malaria, HIV	Tanzania
NightWatch: Mobile	USAID mHealth Compendium vol 3	2012	Everyone	Malaria	Tanzania
Shujaaz.FM	https://www.usaid.gov/kenya/fact-sh	2011-2013	Adolescents	Political Engagement	Kenya

Data dimensions: program description, year, demographic, health focus, geo, scale, intended outcome, behavior change, rev/cost, dosage, intensity, implementer, donor, social media use, learnings

Analysis: Creating a framework to aggregate insights from literature review, interviews, and case studies



Illustrative Case Study: Chakruok Radio Programme - Expanding access to reproductive health and HIV information for married adolescent girls in Kenya

System Properties

- Low education levels
- Lack of trained health staff in area

Individual Requirements

- 15-19 years
- Married (mostly monogamous)
- Need interactivity
- Limited access to mobile phone (45%) vs. expanded access to radio (80%)

Technical Requirements

- Multiple platforms: radio, social media, SMS
- Online information connected to offline channel
- Compatibility to local language
- Ability to play on-demand

Program Design

- Aimed to increase FP for MAGs in Kenya since HIV risk rate higher than unmarried peers in 2010-11
- 10 month intervention
- Pre- and post-intervention design with comparison group
- 3 pronged approach: 1) Interactive media campaign 2) CHW training 3) offline materials

Program Overview

Location: Kenya, 2010-11

Implementers: Population Council through the APHIA II Operations Research Project, in partnership with Well Told Story and the Kenyan Ministry of Public Health and Sanitation

Donor: USAID

Users: 485 MAG and 202 partners

Platforms: Radio, Facebook, SMS

Outcome: Increased uptake of FP services among married girls, increased ability and willingness to negotiate with partners, increased partner support for MAGs

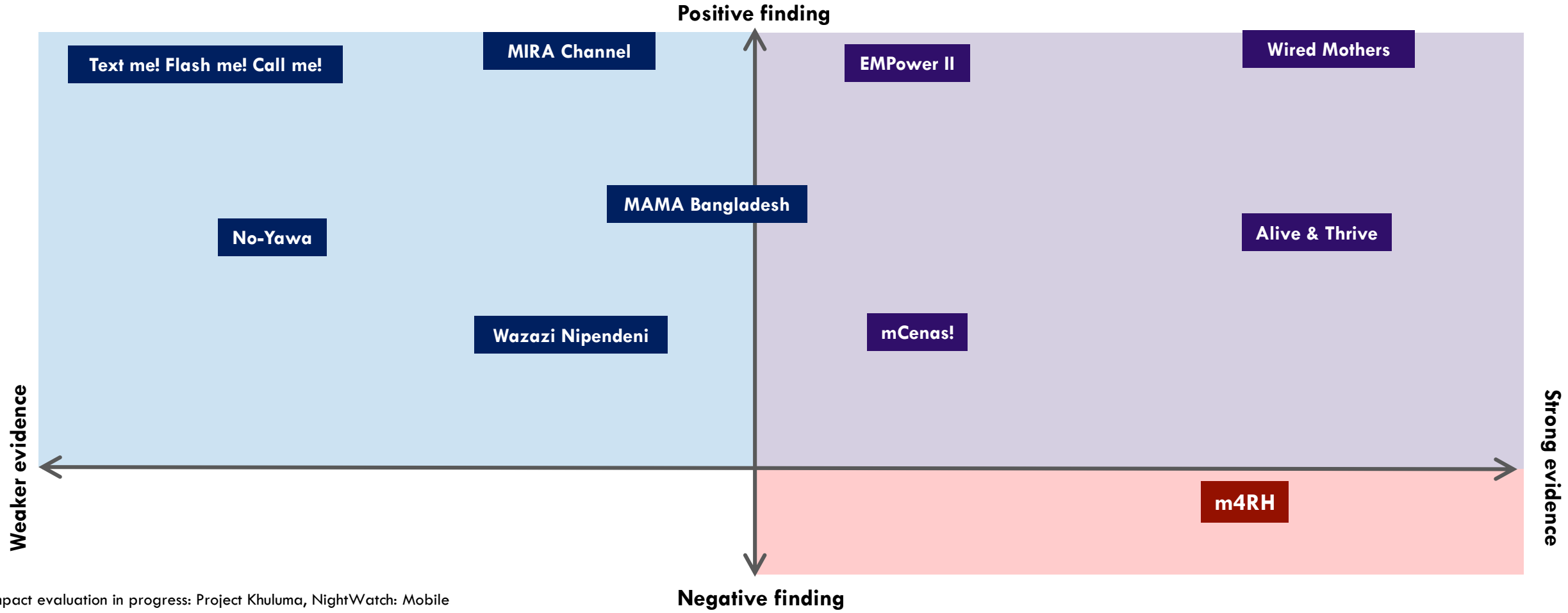
Lessons Learned:

1. Focus on adolescent couples, not just girls
2. CHW need incentives and monitoring
3. Spousal violence requires further investigation and intervention

Analysis: Success criteria and challenges to overcome

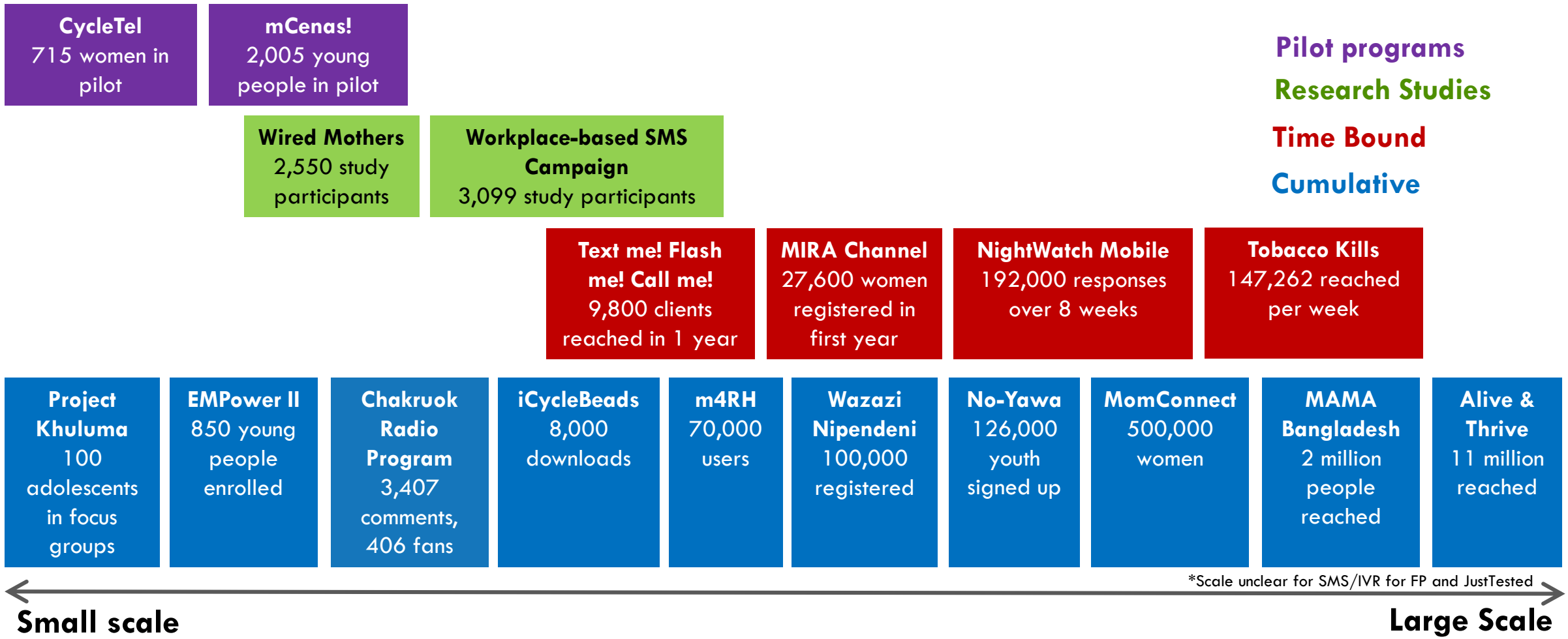
	What worked	What didn't work
System Properties	✓ Collaborating with stakeholders and leveraging partnerships ✓ Enabling legal framework ✓ Accessible mobile infrastructure	× Oppressive cultural norms × Limited access to education × Legal barriers
Individual Requirements	✓ Interactivity & storytelling ✓ Ability to move from online-to-offline channel ✓ Low cost to users ✓ Confidentiality	× Device ownership × Gender power dynamics (control, access)
Technical Requirements	✓ Integrating multiple platforms ✓ Ease of use ✓ Ability to make information available "on demand" ✓ Evolution of audience preferences (social media)	× Mobile coverage (rural; monopoly) × Variability regarding provider preference × Simplicity of use vs. complexity of content
Program Design	✓ Customized and localized content ✓ Regular dosage ✓ Publicity and Marketing ✓ Incentives	× Sustainability beyond funding × Not participatory × Data integrity during feedback collection × Dosage

Analysis: Strength and level of evidence in case studies

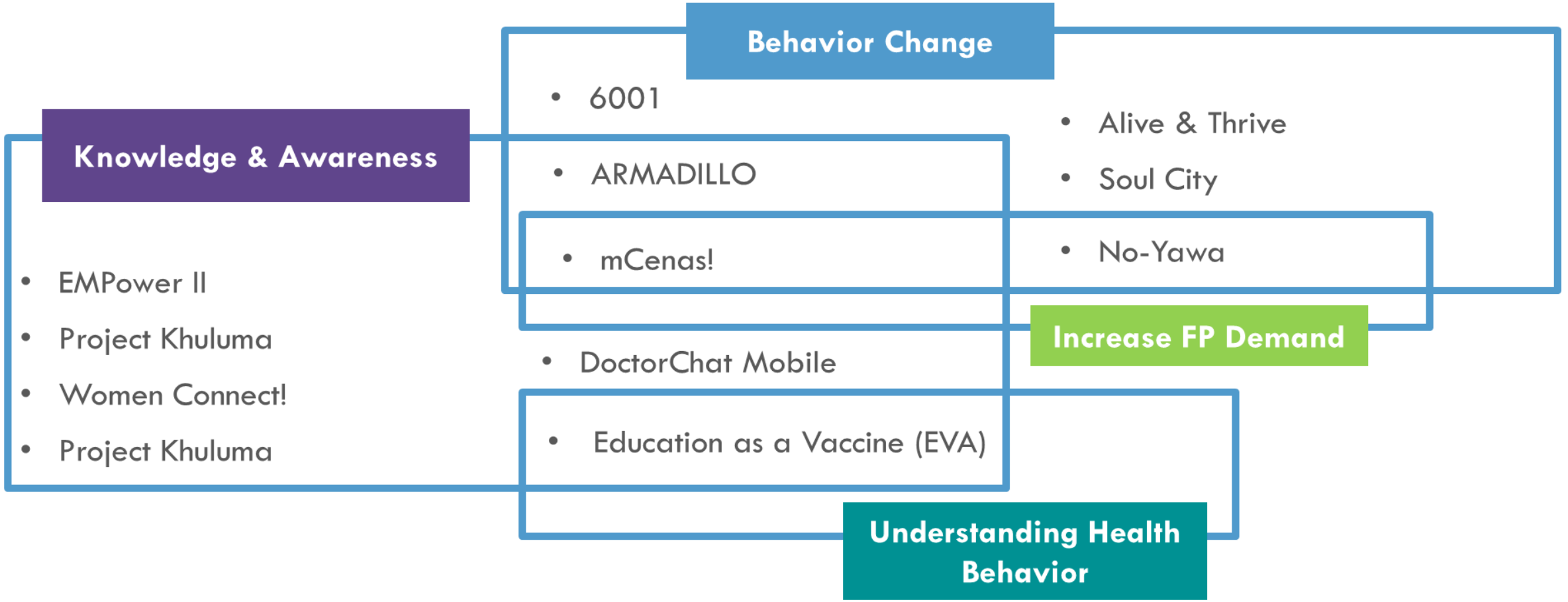


Impact evaluation in progress: Project Khuluma, NightWatch: Mobile
No evaluation: CycleTel, JustTested, SMS and IVR for FP, Tobacco Kills, MomConnect, iCycleBeads

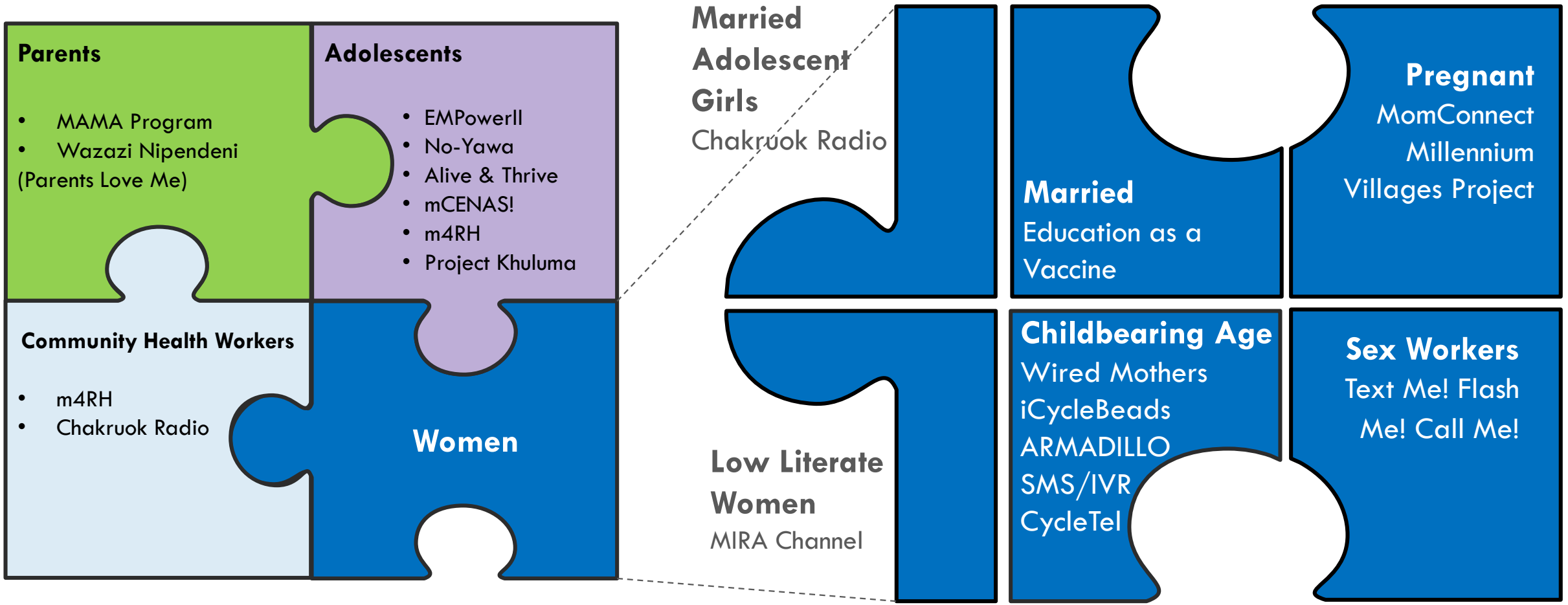
Analysis: Significant variance in program scale*



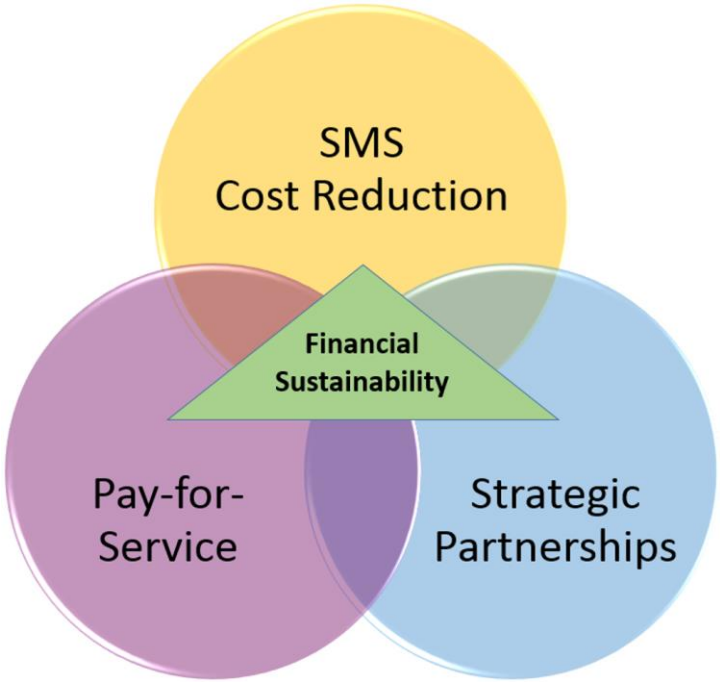
Analysis: What kind of SRH problem are the surveyed mHealth programs trying to solve?



Analysis: Who are the current programs targeting?



Analysis: What cost models are being used?



- **Strategies for cost recovery**
  - User pay-for-service
  - SMS cost reduction
  - Strategic partnerships
- **Four-scenario analysis**
  - Varying per-SMS cost reductions and per-user program revenue
  - Breakeven and uncertainty analysis
- **Findings**
  - Breakeven only possible when: (1) all SMS costs transferred to users and (2) lowest per-SMS cost negotiated with telecom partners
  - Models require more consideration to balance sustainability, scale and impact

Mangone et al. Sustainable Cost Models for mHealth at Scale: Modeling Program from M4RH Tanzania. 2016

Analysis: Revenue and cost data for specific programs

- **m4RH**
  - Cost/user/year in TZ: $1.62 ($203,475 for 125,000 users in TZ in 2014), cost info cited as a barrier to sustainability
  - Breakeven would be possible under the scenario where users/recipients paid for all text messages and lowest negotiated rates with mobile service providers ($0.96 per user per year)

- **CycleTel**
  - No data on cost of pilot
  - Suggest that if users charged 30 rupees a month and will significant investment from donors, sustainable in 5 years
  - In survey 86% in interviews said they would be willing to pay 33 Rs. per month for service (15-400 RS range)
  - Sending 1 SMS in India cost less than 1 Rs.

- **MAMA Bangladesh**
  - Relies on multiple revenue streams, including donor funding, corporate partnerships, mobile operator discounts and user fees
  - Aponjon service, which costs two taka (a few US cents) per message, aims to provide the messages free to at least 20 percent of the poorest subscribers

Analysis: Who are the active **donors** in this space?

Donor Type	Detail	# of Programs
Government Agency (Donor Country)	USAID, Embassy of the Netherlands, PEPFAR, and the CDC Foundation, Canadian International Development Agency (CIDA), Danida Health Sector Program Support, Department for International Development (UK)	14
Nonprofit/Charity	Bill and Melinda Gates Foundation, Program for Accessible Health Communication and Education (PACE), VodaCom Foundation, SHM Foundation, ELMA Philanthropies, Discovery Foundation, PMI, Campaign for Tobacco-Free Kids	6
Private Sector	Johnson & Johnson, BabyCenter, Cycle Technologies, Aga Khan Health Service	5
United Nations	The United Nations Foundation, the mHealth Alliance	2
Government Agency (Implementing Country)	South African National Department of Health	1

Analysis: Who are the active **implementers** in this space?

Implementer Type	Examples*	# of Programs
Government Agency (MOH, etc.)	Kenyan Ministry of Public Health and Sanitation, Bangladesh Ministry of Health and Family Welfare, Zanzibar Ministry of Health and Social Welfare, Ghana MOH, Eastern Cape Department of Health, Uganda Health Communication Alliance, South African National Department of Health	6
International/Western NGO or Foundation	Marie Stopes International, Population Council, USAID HIPS-Uganda, World Education Inc, Kharis Foundation, DKT International, FHI 360, Pathfinder International, Dimagi, SHM Foundation, Cycle Technologies, Malaria No More	11
Local NGO or Foundation	D.Net Bangladesh, Praekelt Foundation, Cell-Life, Mewat Mahila Vikas Society, 4-H Ghana, Partners for Development, PACE Uganda, Right to Care Overberg, Kidzpositive, Jembi Health Systems, Soul City, HealthEnabled	12
Academic/Research Institution	University of Copenhagen, UC Davis, UNC Chapel Hill, Georgetown University, University of Cape Town, Wits Reproductive Health & HIV Institute (WRHI), University of Pretoria, Johns Hopkins Center for Communication Programs	7
Private Sector	TTC Mobile, Well Told Story, ZMQ Development, Thoughtworks Inc, HCL Ltd, Boring Brands, Vodacom Tanzania	9
Health System/Providers	Kalafong Hospital, Steve Biko Academic Hospital, Groote Schur Hospital, Indian Society of Healthcare Professionals	2

*Table examples include 90%+ of implementers but is not exhaustive

Analysis: What is the role of social media in mHealth interventions?

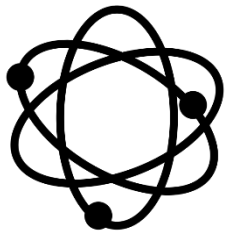
- **Social Media not well incorporated into cases currently examined**

- **Of 20 case studies**
  - Chakruok Interactive Radio Program (Kenya) actively utilized Facebook in the intervention
  - No-Yawa (Ghana) incorporates Facebook and Twitter
  - CycleTel (India) has a Facebook page but it is utilized for marketing, not for the intervention
  - Wazazi Nipendeni (Parents, Love Me) (Tanzania) utilized mass media
  - No-Yawa (Ghana) assessed the social media platforms that are used by the target audience to inform program learning (97% had internet on their phone, most used platforms were Facebook and WhatsApp)

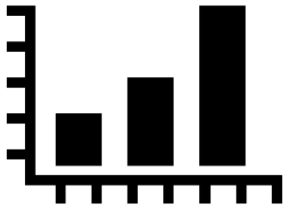
Analysis: Where are the major gaps in research and knowledge?

- **Rigorous, peer-reviewed research**
  - Partnerships between researchers and program directors
  - Advocacy for more longitudinal research
- **Models for sustainability**
  - Limited information on costing
  - Monitoring and evaluating
- **Program use of people younger than 15**
  - Programs primarily targeted at 17-25
- **Metrics and analytics**
  - Attribution to behavior change mechanisms in mHealth
  - Longitudinal studies on lasting programs
  - Data integrity

Analysis: Way forward

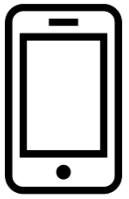


- Addressing systemic issues
  - Ecosystem of initiatives
  - Socio-cultural norms



- Proliferation of smartphones
  - Interviews illustrated an increasing focus on eHealth solutions
  - SMS as one component of an integrated program

- Program integration
  - Connecting stakeholders (CHWs, clinicians, etc.)
  - mHealth as a resource to enable knowledge and action



- Evolution of technology
  - Rapidly evolving landscape of features and applications

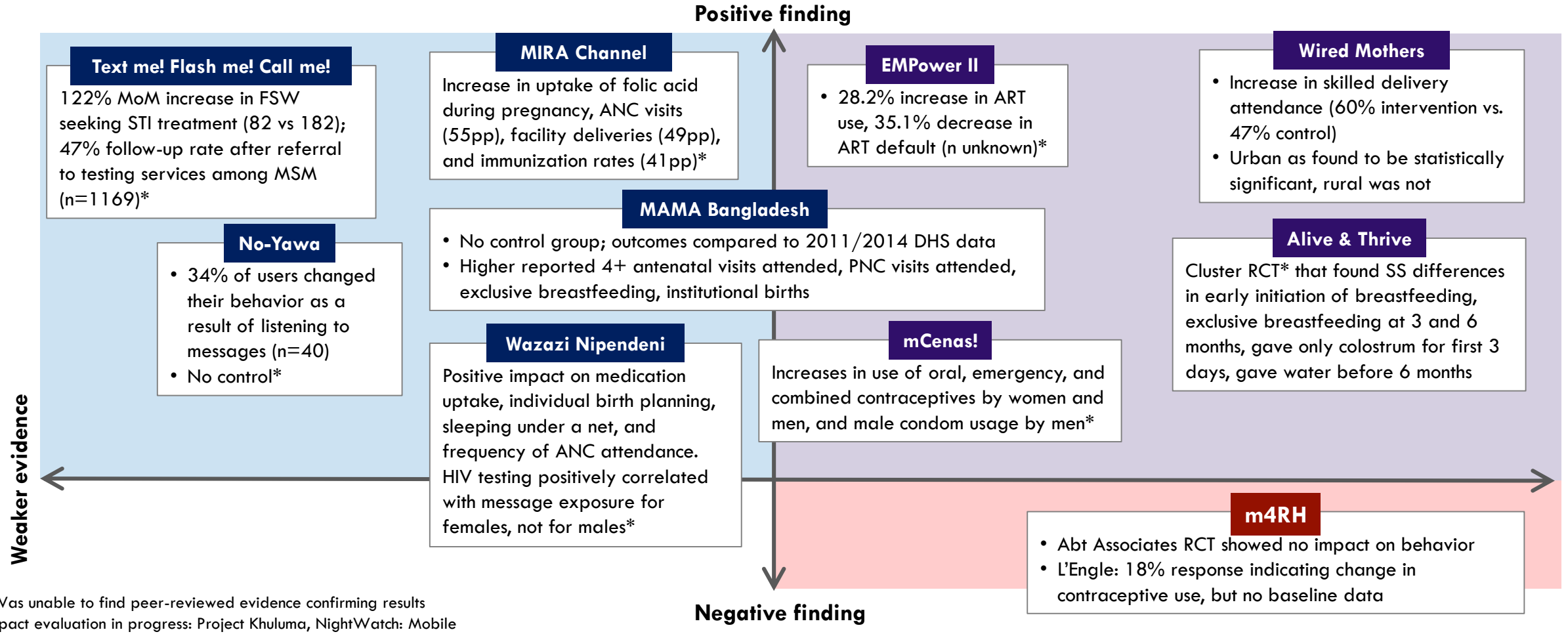
- Evolution of program costing
  - Study sustainable programs
  - Impact of social media & other free resources

Analysis: Questions for further discussion

- Should the Foundation be playing a convening role in this space?
- Can the Foundation use in-house expertise to design robust benchmarking and M&E tools?
- Should the Foundation leverage credibility as a non-partisan arbiter to create strategic partnerships?

Appendix

Analysis: Strength and level of evidence in case studies



*Was unable to find peer-reviewed evidence confirming results
Impact evaluation in progress: Project Khuluma, NightWatch: Mobile
No evaluation: CycleTel, JustTested, SMS and IVR for FP, Tobacco Kills, MomConnect, iCycleBeads

mHealth Framework: deep dive

Deep dive: System Properties

Description	• **Cultural Norms** • **Infrastructure/Teledensity** • **ICT Literacy** • Policy • Political Economy • Governance
Academic*	• Interventions must accommodate unique localities • Mobile phone penetration (teledensity) is critical and growing • Cultural and social stigma can stifle progress • ICTs present an increasingly influential opportunity for youth
Case/Interview**	• Country ownership and leadership engagement is critical to sustainability • Strong public-private partnerships are key to program success • Coordination of partner efforts can compound effectiveness

*Valenzuela et al. (2007)
Pillsbury & Mayer (2005)
Mushamirir et al. (2015)
Akinfaderin-Agarau (2012)
L'Engle (2013)
Jamison et al. (2013)
Gonsalves et al. (2015)
Sommer & Mmari (2015)
Cole-Lewis & Kershaw (2010)
Halewood et al. (2012)
Sommer & Mmari (2015)
Edouard (2012)
Al-Shorbaji & Geissbuhler (2012)

**mHealth Compendium v3, 4, 5
All interviews

Deep dive: Individual Requirements

Description	• **Gender/Age** • **Device Ownership** • **Privacy Concerns** • **Incentives and Cost Concerns** • On-Demand and Convenience of Program • Personal and Partner's Attitude to Contraception • Marital & Child-Bearing Status • ICT Literacy
Academic*	• Different user segments have drastically different ASRH needs • Use participatory design and localize information • Evidence suggests high acceptability, but minimal evidence around sustained long-term behavior change
Case/Interview**	• Privacy is a dual edged sword • Incentives encourage more individual engagement • Base messaging content on individual characteristics

*Akinfaderin-Agarau et al. (2012)
Gonsalves et al. (2015)
L'Engle (2013)
Pfeiffer et al. (2014)
Halewood et al. (2008)
Sommer et al. (2015)
Edouard (2012)
Perlman (2013)
Pillsbury (2005)

**mHealth Compendium v3, 4, 5
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CommCare
m4RH
Malaria Community Surveillance for Elimination

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Perlman (2013)
Pillsbury (2005)

**mHealth Compendium v3, 4, 5
All interviews
CommCare
m4RH
Malaria Community Surveillance for Elimination

Deep dive: Technical Requirements

Description	• **Technical Platform** • **Integration** • **Application Features** • Network/Coverage • Market Constraints • Interconnectivity
Academic*	• Network issues can impact program effectiveness • Health systems integration can enable individual requirements • Mobile phone markets can impact program effectiveness • Technical features designed to engage users are critical
Case/Interview**	• Iterative design and roll-out process must integrate design with feedback • Design for scale and build for sustainability as a part of a integrated partner ecosystem • Use open standards, open data, open source, and open innovation to minimize costs

*Mushamirir et al. (2015)
Valenzuela et al. (2007)
Edouard & Edouard (2012)
Perlman et al. (2013)
Al-Shorbaji & Geissbuhler (2012)
Cole-Lewis & Kershaw (2010)
Halewood et al. (2012)
Jamison et al. (2013)
Akinfaderin-Agarau (2012)
Gilliam et al. (2012)

**Relative Principles for Design Development
Dimagi interview

Principles for Digital Development

- **Design with the User**
  - Develop context appropriate solutions informed by user needs
  - Include all user groups in planning, development, implementation and assessment
  - Develop projects in an incremental and iterative manner
  - Design solutions that learn from and enhance existing workflows and plan for organizational adaptation
  - Ensure solutions are sensitive to, and useful for, the most marginalized populations: women, children, those with instabilities, and those affected by conflict and disaster
- **Understand the Existing Ecosystem**
  - Participate in networks and communities of like-minded practitioners
  - Align to existing technological, legal, and regulatory policies
- **Design for Scale**
  - Design for scale from the start, and assess and mitigate dependencies that might limit ability to scale
  - Employ a "systems" approach to design, considering implications of design beyond an immediate project
  - Be replicable and customizable in other countries and contexts
  - Demonstrate impact before scaling a solution
  - Analyze all technology choices through the lens of national and regional scale
  - Factor in partnerships from the beginning and start early negotiations
- **Build for Sustainability**
  - Plan for sustainability from the start, including planning for long-term financial health e.g., assessing total cost of ownership
  - Utilize and invest in local communities and developers by default and help catalyze their growth
  - Engage with local governments to ensure integration into national strategy and identify high-level government advocates
- **Be Data Driven**
  - Design projects so that impact can be measured at discrete milestones with a focus on outcomes rather than outputs
  - Evaluate innovative solutions and areas where there are gaps in data and evidence
  - Use real-time information to monitor and inform management decisions at all levels
  - When possible, leverage data as a by-product of user actions and transactions for assessments
- **Use Open Standards, Open Data, Open Source, and Open Innovation**
  - Adopt and expand existing open standards
  - Open data and functionalities and expose them in documented APIs (Application Programming Interfaces) where use by a larger community is possible
  - Invest in software as a public good
  - Develop software to be open source by default with the code made available in public repositories and supported through developer communities
- **Reuse and Improve**
  - Use, modify and extend existing tools, platforms, and frameworks when possible
  - Develop in modular ways favoring approaches that are interoperable over those that are monolithic by design
- **Address Privacy & Security**
  - Assess and mitigate risks to the security of users and their data
  - Consider the context and needs for privacy of personally identifiable information when designing solutions and mitigate accordingly
  - Ensure equity and fairness in co-creation, and protect the best interests of the end end-users
- **Be Collaborative**
  - Engage diverse expertise across disciplines and industries at all stages
  - Work across sector silos to create coordinated and more holistic approaches
  - Document work, results, processes and best practices and share them widely
  - Publish materials under a Creative Commons license by default, with strong rationale if another licensing approach is taken

Deep dive: Program Design

Description	• **Content** • **Dose** • **Language** • Stakeholders	• Costing • Marketing • Simplicity • Storytelling	• Multimedia • Monitoring & Evaluation
Academic*	• Program design can be used to tap into social constructs • Program design has to be engaging in order to sustain interest and usage • To be sustainable, program needs peer acceptance and support of other programs		
Case/Interview**	• Messaging is specific and grounded in local reality • Has to be supported by personal connection • Storytelling works for ASRH • Intervention dose is important		

*Edouard & Edouard (2012)
Sommer et al. (2015)
Halewood et al. (2012)
Pfeiffer et al. (2014)
Pearlman (2013)
Lopez (2014)

**Chakruok Radio
mCENAS
No-Yawa
JustTested
All Interviews

Illustrative list of promising SRH mHealth case studies that show behavior change

Program Name	Metrics/Outcomes
Chakruok Interactive Radio Program	Increased uptake of FP services among married girls
MAMA Bangladesh, South Africa, Nigeria, India	Messages downloaded and used by 161 organizations in 54 countries around the world
MIRA Channel	Increase in uptake of folic acid during pregnancy, the number of pregnant women visiting frontline health workers or Anganwadi Workers, and deliveries at healthcare facilities
Wired Mothers	Increase in skilled delivery attendance. 60% of the women in the intervention group, versus 47% in the control group, delivered with skilled attendants
EmPowerII	Increase in uptake/adherence to ARVs
No-Yawa	34% users changed family planning behavior (n = 40)
Alive & Thrive	Changed breastfeeding behavior in mothers
mCENAS!	Increased ever use (oral pills; emergency) and current use (condoms; oral pills)
m4RH	13% users reported increased knowledge, and "some" behavior change indicated in users

Illustrative Case Study: No-Yawa:- Mobile services to improve reproductive health among youth in Ghana

System Properties

- Low use of modern FP methods among women
- High teen pregnancy rates

Individual Requirements

- 15-24 years
- On-demand information and language compatibility
- Available options and clinical referrals
- Story messages to communicate knowledge

Technical Requirements

- Multi-platform integration to accommodate user demands: web, social media, voice, SMS, hotline and local clinics
- Compatibility in six local languages
- Voice and SMS messages, hotline, local clinics

Program Design

- Integrating youth behavior change information, youth-targeted contraceptive social marketing and youth-friendly clinic services to create a social movement for improved SRH
- Address unmet need for youth-friendly information, services and products
- Hosts "event, concerts and activities all around the country…"

Program Overview

Location: Ghana

Sponsors: Grameen Foundation, DKT International Ghana, Marie Stopes International Ghana

Users: 126,000

Platforms: Web, SMS and voice messages, hotline, social media, local clinics

Outcome: 34% of users changed their behavior, 90% found messages useful (n=40)

Lessons Learned:

1. User-centered design is critical: balance between content that pushes boundaries without alienating conservative youth
2. Engage youth through ease of access (multiple channels), interactivity and built-in rewards (peer recognition, prizes)
3. Extensive outreach is necessary to engage rural youth
4. Where possible, content for youth and guardians should be integrated simultaneously to encourage dialogue

Program Elements

Analysis: How long do these programs remain in contact with their target audience?

We saw 3 general models for program timeline and follow up:

Pilot programs

Time: 2-3 month follow up

Purpose: Monitoring and evaluation

- Workplace-based SMS Awareness Campaign
- CycleTel™
- NightWatch: Mobile
- mCenas!
- JustTested

Extended Follow Up

Time: 2-24 months

Purpose: Research study or public health campaign

- **0-12 months:**
  - Chakruok Radio (10 months)
  - Alive & Thrive (10 months)
  - MomConnect (duration of pregnancy)
  - Wazazi Nipendeni (12 months)
- **13- 24 months:**
  - Wired Mothers (23 months)
  - EMPower II (24 months)
  - m4RH (17 months)
  - Project Khuluma (24 months)
  - Shujaaz (24 months)

Ongoing Roll Out

Time: continuous (no target dosage)

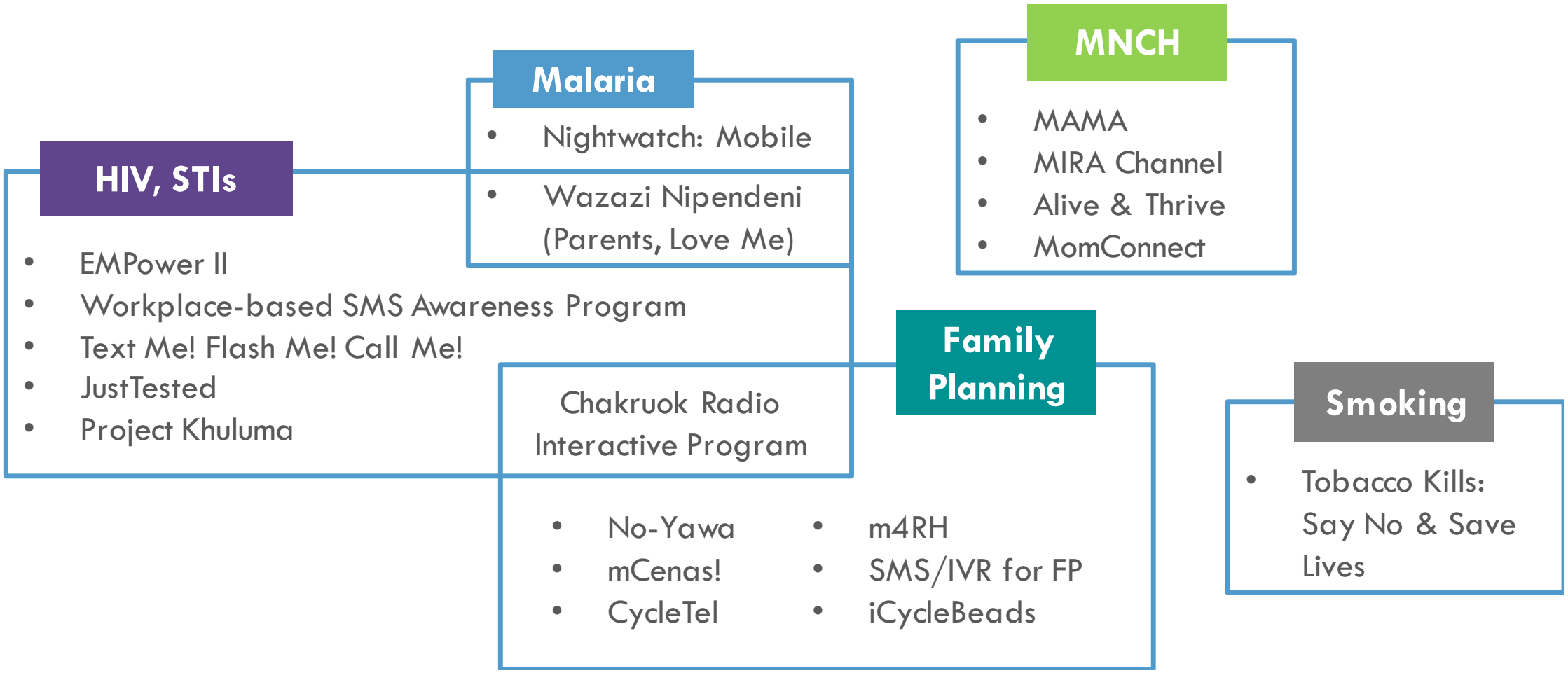
Purpose: Public health campaign, private sector app

- Workplace-based SMS Awareness Campaign
- CycleTel™
- MIRA Channel
- iCycleBeads™
- MAMA
- No-Yawa

Analysis: How often and in what ways do these programs contact their target audience?

Intensity	Cases	Examples
High	Chakruok Interactive Radio Program, Wazazi Nipendeni (Parents, Love Me), NightWatch: Mobile, Alive & Thrive	• SMS and calls incorporated into weekly radio drama linked to Facebook discussions • Monthly breastfeeding lessons during microcredit meetings, SMS and voice messaging, small group skit participation • Mass media campaigns incorporated
Moderate	Project Khuluma, No-Yawa, Wired Mothers, MIRA Channel, CycleTel™	• SMS and support groups • SMS push notification combined with other platforms (Facebook, quizzes, chatrooms) • SMS push notifications tailored to gestational week, voucher for 2-way communication • Interactive toolkit including trackers for menstrual-cycle, immunizations, pregnancy
Low	Workplace-based SMS Awareness Campaign, MAMA, EMPower II, mCenas!, Mobile 4 Reproductive Health (m4RH), SMS and IVR to Improve Family Planning Services, Text Me! Flash Me! Call me!, JustTested, MomConnect, iCycleBeads™	• SMS push notifications and radio • SMS two-way communication • SMS two-way communication and voice messages • SMS push notifications alone

Analysis: Health focus areas of select mHealth interventions



Lessons Learned

Analysis: What were the major takeaways from the case studies?

- **Synergy with multiple media channels (radio, social media) increases buy in, allows targeting subpopulations**
  - Chakruok Interactive Radio Program, Workplace-based SMS Awareness Campaign, No-Yawa, Mobile 4 Reproductive Health (m4RH), NightWatch: Mobile
- **Interaction and development between implementers, peer educations, and participants is necessary**
  - Workplace-based SMS Awareness Campaign, MAMA, iCycleBeads™, MomConnect, Wazazi Nipendeni (Parents, Love Me)
- **Strategic partnerships leveraging government, nonprofit, technology and mobile operators with local ownership are critical to success**
  - MAMA, Wired Mothers, CycleTel, Mobile 4 Reproductive Health (m4RH)
- **Ensure targeting of messages to demographics; separate targeting to both adolescents and guardians**
  - MAMA, No-Yawa, mCenas!
- **Incorporating benefactors and household decision makers in all stages to encourages empowerment, buy in, encourage spread of information to community**
  - MAMA, MIRA Channel, EMPower II, Alive & Thrive

Analysis: What are the secondary takeaways from the case studies?

- **Design for scale from beginning to encourage uptake and adoption**
  - MAMA
- **Education can be motivation enough to participate if population involved in design and understand value**
  - EMPower II
- **Locally-relevant information important**
  - No-Yawa, Project Khuluma
- **Important to consider literacy levels and incorporate other platforms if necessary (IVR)**
  - Mira Channel, SMS and IVR to Improve Family Planning Services
- **Confidentiality important**
  - Text Me! Flash Me! Call me!