Mobile Alliance for Maternal Action

Evidence Hierarchy of Mobile Messaging for Improved MNCH

Table 1: Most Scientifically Robust Evidence

Strength of Evidence ↑

Type of Evidence	Strengths and Weaknesses	Intervention/Research	Results/Findings
Systematic or Meta-Reviews of Controlled Studies (Most robust)	Many studies are combined and analyzed using systematic methods	Review of behavior change interventions delivered through SMS	Of 9 randomized and quasi-controlled studies, **8 found evidence to support text messaging as a tool for behavior change**. Effects exist across age, minority status, and nationality. Nine countries are represented, only one is a developing country, which is unfortunate given potential benefits of such a widely accessible, relatively inexpensive tool for health behavior change.[1]
		Cochrane Database System Review, RCTs of SMS for ART in Kenya	Two RCTs reviewed found high-quality evidence that **mobile phone text-messaging at weekly intervals is efficacious in enhancing adherence to ART**, compared to standard care, and there is high quality evidence from one trial that weekly mobile phone text-messaging is efficacious in improving HIV viral load suppression as well.[2]
		Healthcare via Cell Phones: A Systematic Review	Review of 25 controlled studies in 13 countries evaluating mobile interventions, **8 out of 10 of the behavior change studies reported change in behavior after receiving informational intervention through mobile voice or text messaging**. Common qualities among these are: personalized messaging and support, goal specific prompts, and reminders for appointments.[3]
Randomized Controlled Studies	Effects gathered in method includes random allocation of subjects to groups	Chipatala Cha Pa Foni, Malawi (N = 6,479)	Evaluation study demonstrates **increased uptake of home-based and facility-based practices** among the CCPF intervention group, including: increase in use of a bed-net during pregnancy and for children (25 percentage points higher than control group); attending four antenatal care (ANC) visits, starting ANC during the first trimester; giving birth in a facility; receiving a postnatal check-up within two days of birth; breastfeeding within one hour of birth (15 percentage points higher than control group), and exclusive breast-feeding through six months of age; and use of oral rehydration salts (ORS) to treat diarrhea.[4]
		Cell Life, South Africa (N =2,533)	Research illustrates that **SMS service influenced increased uptake of HIV testing**: the study found that participants who received 10 motivational-style SMS were more likely to go get an HIV test than: those who received 10 information only style SMS, those who received 3 motivational-style SMS and those in the control group.[5]
		Wired Mothers, Zanzibar, Tanzania (N =2,550)	RCT demonstrates **mobile service significantly increased proportion of women receiving recommended antenatal care** with more women receiving preventive health services, and more women with antepartum complications identified and referred[6] in the intervention group (44% versus 31% in the control group). In addition**, the intervention significantly increased the proportion of women delivering with a skilled birth attendant** (60% vs. 47% in the controlled group).
		SMS and Telephone Reminders vs. Standard of Care, China (N=1,859)	RCT shows that **clinic attendance rates were significantly higher in SMS and telephone groups** than in the control group. The advantages of SMS are: more private than voice calling and SMS does not require mobile phones to be active or within range and the messages can be held for a number of days.[7]
Non-Randomized Controlled Studies (Includes Pre and Post-intervention Studies)	Effects gathered in scientific comparison method but not randomized	Text4Baby, USA (N = 939 and N=23,005)	**Increasing Health Knowledge and Preparedness:** 82% of total respondents reported Text4baby messages informed them of medical warning signs they did not know.[8] (N=939) **Improving Access and Facilitating Interaction with Health Providers:** 64% of respondents reported they talked to their doctor or midwife about information they read on a Text4Baby message. (N=23,005)

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[2] Horvath T, Azman H, Kennedy GE, Rutherford GW: Mobile phone text messaging for promoting adherence to antiretroviral therapy in patients with HIV infection. Cochrane Database Syst Rev 2012, 3:CD009756.
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[8] Martinez, K. and Uekusa, S. 2013 National Survey of Text4baby Participants. California State University San Marcos (CSUSM). Available from: http://www.csusm.edu/anthropology/docsandfiles/Text4baby.pdf.

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Table 2: Least Scientifically Robust Evidence – Data from MAMA Country Programs

Strength of Evidence ↑

Type of Evidence	Strengths and Weaknesses	Intervention/Research	Results
Focus Group Discussions, Phone and User Surveys	Effects gathered in a structured and systematic method but no scientific comparisons	MAMA Bangladesh, Phone Surveys (N = 300)	**66% of subscribers attended 4+ ANC visits**. 64% of subscribers who knew 4+ ANC visits required reported learning it from the service. **88% of subscriber had safer deliveries**: with 57% facility births and 31% gave birth at home with skilled birth attendant. 92% fed colostrum and 82% exclusively breastfed up to 6 months. 99% babies immunized with Pentavalent by 1 year. 97% of subscribers have recommended the service to others and 94% gave the service a 4 or 5 out of 5 for satisfaction and usability.
		MAMA South Africa, Mobi Polls (N ranges 341 – 2,530)	**Vulnerable mothers using the mobisite:** 77% are unemployed (N=1,701), 52% receive a social grant (N=341), 47% live in a household with a combined monthly income of $180 USD or less (N=2,530), 44% live in a village or rural area (N=374).
		MAMA South Africa, SMS User Survey (N = 22)	**Most women** said that they had received new **information that made them change their behaviour.** The MAMA SMS service **calmed and prepared mothers** for their baby's arrival; **highlighted causes of concern** that they would otherwise have ignored as petty and normal; and increased their appreciation for why they should **continue taking HIV treatments** when pregnant. The service exceeded that of other sources like pregnancy magazines and clinic consultations – "it was so simple and direct". The service **empowered subscribers to oppose unhealthy cultural practices** that their parents/grandparents advise – "I feel that I am a lot wiser because of them (the SMSs)." Subscribers liked the privacy of the platform – especially that it wasn't face-to-face, awkward and uncomfortable. Almost all women passed on sign-up details to others they felt could benefit from the service.
Enrollment Data	Number and type of people reached, no data on effects of the intervention	MAMA Bangladesh, IVR and SMS Service (N=1,403)	**Vulnerable mothers subscribing during pilot:** 45% of subscribers have a primary school education or less, 63% of subscribers have a combined household income of $130 USD or less per month
		MAMA South Africa, SMS Service (N=10,163)	**Vulnerable mothers subscribing to SMS service:** 44% live in a household with a combined income of $125 USD or less per month **Interesting details about SMS subscribers:** 58% request the HIV+ specific content, 99% have their own phone and 34% can access the internet on their phones
Anecdotal User Stories (Lowest level of evidence)	Effects discussed informally - using unstructured and unsystematic method, no comparisons	Stories from MAMA subscribers that span the spectrum of results – change in knowledge, confidence, assertiveness, behaviors, practices, health status, and phone ownership: • Mothers comparing the difference between infant care practices and health of a previous baby (without the service) to the much healthier practices and health status of baby with the MAMA service • Being able to distinguish between when she should go to a clinic and when she need not go (thus saving valuable time and money that would have been spent on an unnecessary trip to the clinic) • Mothers are more confident of what they need to do during pregnancy, for baby and for themselves after giving birth; and are more comfortable asking others for help • Mothers challenging healthcare providers when they did not receive a service or commodity that they learned they are entitled to • Mothers saying the service makes them feel like someone cares about them • Women purchasing cell phones to receive their MNCH text messages	

For more information, please contact:

Josie Mangxaba
Research Manager, MAMA
jmangxaba@mobilemamaalliance.org
http://www.mobilemamaalliance.org