Evidence Hierarchy of Mobile Messaging for Improved MNCH

Table 1: Most Scientifically Robust Evidence

<table>
<thead>
<tr>
<th>Strength of Evidence</th>
<th>Type of Evidence</th>
<th>Strengths and Weaknesses</th>
<th>Intervention/Research</th>
<th>Results/Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic or Meta-</td>
<td>Randomized Controlled Studies</td>
<td>Many studies are combined and analyzed using systematic methods</td>
<td>Review of behavior change interventions delivered through SMS</td>
<td>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</td>
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<td>Meta-Reviews of</td>
<td></td>
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<td>Cochrane Database System Review, RCTs of SMS for ART in Kenya</td>
<td>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</td>
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<tr>
<td>Controlled Studies</td>
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<td>Healthcare via Cell Phones: A Systematic Review</td>
<td>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</td>
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<tr>
<td>(Most robust)</td>
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<tr>
<td>Randomized Controlled Studies</td>
<td>Effects gathered in method includes random allocation of subjects to groups</td>
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<td>CHIPATALA CHA PA FONI, MALAWI (N = 6,479)</td>
<td>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 diarrhoea.⁴</td>
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<tr>
<td>Non-Randomized</td>
<td></td>
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<td>CELL LIFE, SOUTH AFRICA (N = 2,533)</td>
<td>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</td>
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<tr>
<td>Controlled Studies</td>
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<td>WIRED MOTHERS, ZANZIBAR, TANZANIA (N = 2,550)</td>
<td>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 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).⁶</td>
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<tr>
<td>(Includes Pre and</td>
<td>SMS and Telephone Reminders vs.</td>
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<td>Post-intervention</td>
<td>Standard of Care, China</td>
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<tr>
<td>Studies)</td>
<td>(N = 1,859)</td>
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<td>TEXT4BABY, USA (N = 939 and N=23,005)</td>
<td>Increasing Health Knowledge and Preparedness: 82% of total respondents reported Text4Baby messages informed them of medical warning signs they did not know.⁷ (N=939)</td>
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<td>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)</td>
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</tbody>
</table>

## Evidence Hierarchy of Mobile Messaging for Improved MNCH

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

<table>
<thead>
<tr>
<th>Type of Evidence</th>
<th>Strengths and Weaknesses</th>
<th>Intervention/Research</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group Discussions, Phone and User Surveys</td>
<td>Effects gathered in a structured and systematic method but no scientific comparisons</td>
<td>MAMA Bangladesh, Phone Surveys (N = 300)</td>
<td>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.</td>
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<td>MAMA South Africa, Mobi Polls (N ranges 341 – 2,530)</td>
<td>Vulnerable mothers using the mobisite: 77% are unemployed (N=1,701), 52% receive a social grant (N=341), 47% live in a village or rural area (N=374).</td>
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<td>MAMA South Africa, SMS User Survey (N = 22)</td>
<td>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.</td>
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<tr>
<td>Enrollment Data</td>
<td>Number and type of people reached, no data on effects of the intervention</td>
<td>MAMA Bangladesh, IVR and SMS Service (N=1,403)</td>
<td>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</td>
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<td>MAMA South Africa, SMS Service (N=10,163)</td>
<td>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</td>
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<tr>
<td>Anecdotal User Stories (Lowest level of evidence)</td>
<td>Effects discussed informally - using unstructured and unsystematic method, no comparisons</td>
<td>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</td>
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