



There's no getting around it: mobile phones have transformed how we interact and have put resources at our fingertips in ways that only a few years ago were unimaginable. The little devices have a democratizing effect, as millions more people gain access to information, in every corner of the globe and at every economic stratum. Mobile owners, on their own, have found ways to use their phones to improve their health, such as simply calling a taxi driver for emergency transport or texting a health worker for advice.

Public health professionals have added mobile devices to their toolkits. They use them to collect data, share information, and facilitate two-way exchanges.

In 2012, Alive & Thrive (A&T) hosted an innovation workshop on mHealth for better child feeding. Now we offer practitioners, researchers, and donors who work on nutrition this innovation brief as an introduction to the ways that mHealth may improve nutrition programs.

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# Creative uses of mobile phones for better nutrition

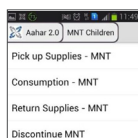
Here are ten examples of mHealth for nutrition, by the three broad functions mobiles can play: collect information, send information, and spark two-way communication.

## Collect information



### COLLECT DATA ON MOTHERS' FEEDING PRACTICES (SCOTLAND, UK)

Researchers determined that text messaging was a reliable and valid method for surveying mothers who had recently delivered about their current infant feeding method and future feeding plans. Mothers found texting convenient and acceptable. For researchers, texting was an easy method to gather a large volume of data. (<http://jamia.bmj.com/content/19/5/744>)



### MANAGE COMMODITIES AND CASES FOR TREATING ACUTE MALNUTRITION (INDIA)

With smartphones and basic training on the technology, community health workers find it easy to use a mobile app (application) to assess a child's nutritional status, automatically calculated when the staff inputs height and weight. The app tracks products for Medical Nutrition Therapy (similar to Plumpy Nut), ensuring timely restocks. ([http://www.snehamumbai.org/documents/Publications/67/Aahar%E2%80%99s\\_Provision\\_of\\_Supplements\\_October\\_2014.pdf](http://www.snehamumbai.org/documents/Publications/67/Aahar%E2%80%99s_Provision_of_Supplements_October_2014.pdf))

## Send information



### DELIVER TIMELY INFORMATION, PROVIDE DIRECT SUPPORT (BANGLADESH)

Through Aponjon, over 500,000 mothers and families have registered based on their child's delivery date. Timed and tailored health and nutrition messages—either SMS (text messages) or 60-second voice messages—go to mothers twice a week and to other family members, like grandmothers and fathers, weekly. Families pay a small amount per message. (<http://aponjon.com.bd/Content.php?MId=35&SubMId=53>)



### PUT RESOURCE MANUALS AT THE FINGERTIPS OF FRONTLINE WORKERS (GLOBAL)

"Safe Pregnancy and Birth," a free mobile app for frontline workers with lower literacy, offers information on staying healthy, including what to eat to avoid anemia during pregnancy, and how the frontline worker should respond to danger signs. Once downloaded, the app can be used offline in areas with low connectivity. (<http://hesperian.org/books-and-resources/safe-pregnancy-and-birth-mobile-app/>)



### DELIVER AUDIO AND VIDEO MATERIALS IN REMOTE AREAS (GLOBAL)

HealthPhone™ is a video library that turns a mobile phone into a portable theater, making health and nutrition messages accessible in local languages and to non-readers. Families choose from over 2,500 videos in 77 languages. Where poor connectivity does not allow downloads, health workers carry a preloaded phone or memory card. (<http://www.healthphone.org/>)



### ENHANCE COUNSELING WITH ON-THE-SPOT AUDIO MESSAGES (BANGLADESH)

Using an Interactive Voice Response (IVR)-based mobile service and a printed deck of cards, Mobile Kunji delivers multimedia content without expensive hardware. Each Kunji card has illustrations and key messages on a specific health topic. The worker calls a unique mobile shortcode on the card to play a corresponding audio message for the family, toll free. (<http://www.ananya.org.in/tools/96-mobile-kunji>)

## READY-TO-TEST MESSAGES ON CHILD FEEDING—AND MORE

If you are planning to use mobiles to reach mothers with text messages, there's no need to invent the content. MAMA—Mobile Alliance for Maternal Action—offers organizations around the world a set of mobile messages arranged by “age and stage.” One message set focuses on infant feeding.

MAMA's adaptable messages are based on World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) guidelines and have been developed in close collaboration with a group of global health experts. The messages are designed to be localized at the country level. MAMA has shared its messages with 300 organizations in 70 countries, projected to reach 1.4 million women.

*Click here to access MAMA mobile messages:*  
[http://www.mobilemamaalliance.org/  
mobile-messages](http://www.mobilemamaalliance.org/mobile-messages)

## Spark two-way communication



### FOSTER PUBLIC DIALOG ABOUT NUTRITION (NEPAL)

The Bhanchin Aama (Mother knows best) magazine-format radio show invites listeners across 20 districts to call or text with comments and questions. The show's popular host responds on the air, promoting recommended practices for nutrition, sanitation, and other topics for families in the “1,000 days” period of pregnancy through the child's second birthday. (<http://ccp.jhu.edu/projects/suaahara-nepal/>)



### IMPROVE QUALITY WITH MOBILE CASE MANAGEMENT (GHANA)

Nurses in rural health facilities use forms in a low-end mobile phone to enter patient data. Once data are uploaded, the MOTECH (Mobile Technology for Community Health) system alerts nurses to cases where care is overdue. Nurses can search the database for lists of upcoming deliveries, make prompt postnatal care visits, and support early initiation of breastfeeding. ([http://www.grameenfoundation.org/sites/  
grameenfoundation.org/files/MOTECH-Lessons-  
Learned-Sept-2012.pdf#overlay-context=what-  
we-do/health](http://www.grameenfoundation.org/sites/grameenfoundation.org/files/MOTECH-Lessons-Learned-Sept-2012.pdf#overlay-context=what-we-do/health))



### ENSURE ACCESS AND SAFETY FOR A HUMAN MILK BANK (SOUTH AFRICA)

Human milk banks offer donated breastmilk for infants who are malnourished, born to HIV-positive mothers, or orphaned. PATH's FoneAstra mobile app guides the user through a pasteurization monitoring system to ensure the donated milk is pasteurized correctly to inactivate pathogens, including HIV. Less expensive than other pasteurizing systems, a FoneAstra device connects a temperature sensor probe with a mobile phone. The phone transmits data to allow monitoring of the process and labeling to track and trace the donation. ([http://  
www.path.org/projects/milk-banks.php](http://www.path.org/projects/milk-banks.php))



### ACTIVATE PEER GROUP LEARNING BETWEEN MONTHLY MEETINGS (NIGERIA)

To extend breastfeeding support between monthly microcredit meetings, the project gave each small group of borrowers (five to six women) a single mobile phone. The project sent weekly text and voice messages. Each small group used the content to create a song or a drama to present at the next meeting. ([http://aliveandthrive.org/  
resources/integrating-microcredit-cell-phone-  
messaging-and-breastfeeding-promotion-  
increased-rates-of-early-initiation-and-exclusive-  
breastfeeding-in-nigeria/](http://aliveandthrive.org/resources/integrating-microcredit-cell-phone-messaging-and-breastfeeding-promotion-increased-rates-of-early-initiation-and-exclusive-breastfeeding-in-nigeria/))

## Communication that works

Much of mHealth involves communication that is aimed at supporting behaviors. Through decades of communication for social and behavior change, we know the value of following a systematic process to develop strategies, messages, and materials. We begin by listening to mothers to learn what they think about the recommended feeding practices we're promoting, who influences the family's feeding decisions, what mothers care most about, and what moves them. For any group we're reaching

by mobiles—mothers, fathers, grandmothers, frontline workers, health providers, community leaders, policy makers—we need to be clear about what actions they can take and what kinds of support will help them act.

Communication works best when we build trust. Alive & Thrive invited Daphne Metland of Baby Center/MAMA to describe the art of writing abbreviated messages that still manage to feel warm and personalized.

### SHORT MESSAGES, BUILDING TRUST

The challenge with SMS and audio messages is that they have to be very short. The good news is that MAMA messages are written to be sent twice a week, so we can build the emotional relationship with the woman by offering frequent, warm and supportive messages. We have time to build trust with her. The Baby Center mantra is: reach her heart first, then you can reach her head. Once she trusts your messages she is much more likely to do the practical things the messages suggest.

Since we collect the woman's due date (or the birth date of her baby), we know how far along the journey she is. This allows us to give her the information she needs at that particular stage. We set out to "walk the journey" with the mother. So our messages are in the here and now: "You may notice your breasts feel very tender now,"

or "About now your baby may be trying to feed himself." We use "you," "your baby," "your family," not "the baby" or "the mother."

Health messages are often "top down" and come in the voice of a doctor or health official. We make a point of writing "bottom up" messages, acknowledging what the mother may be feeling or worrying about and offering practical tips such as "You can tell your baby is getting plenty of breastmilk if she has six to eight wet nappies a day..." We aim to sound like a next door neighbor who just happens to be a doctor, nurse, or healthcare worker, but is also a friend.

And then we aim to surprise and delight! We talk about how big the baby inside them is: "Your baby is just about the size of a sesame seed, but its heart is already beating." And we tell them

fascinating facts such as "Your baby can suck his thumb now. This lets him practice sucking so he will be ready to breastfeed as soon as he is born." We reward and praise the mother: "Notice when you pick your baby up how much heavier she feels. That means she is growing well on your lovely breastmilk."

The combination of trust, practical information, and friendship means that mothers look forward to getting the messages. And they quickly realize that their babies are happier and healthier because of their increased knowledge.

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#### **Daphne Metland**

*Baby Center*

*Writer of MAMA messages,*

*Mobile Alliance for Maternal Action*

## What do we know about mHealth's effectiveness?

*A&T asked Dr. Kelly L'Engle, of FHI 360's Social and Behavioral Health Sciences group, for a brief update of what the global evidence is showing about the value of mHealth—and its limitations.*

Evidence from mHealth programs is becoming more robust and generating increasing knowledge about potential impact on health outcomes (Fiordelli 2013). While the evidence shows high feasibility and acceptance of mobile phone programs, impact results are less optimistic and more mixed (Aranda-Jan 2014; Gurman 2012) with some promising findings but more remaining questions than answers. Making mHealth programs work at scale, understanding cost and cost-effectiveness of mHealth interventions, and maintenance of behavioral effects after the intervention period are areas where further evidence is sorely needed (Aranda-Jan 2014; Deglise 2012; Fjeldsoe 2009; Gurman 2012). Notably, emerging evidence on costs shows that mHealth programs are typically reasonable and affordable (Rodrigues 2014; Zurovac 2012) and that text message costs may be lower than other communication modalities (Gurol-Urganci 2013). In addition, greater attention to management of mHealth programs is needed, as factors such as incentives for participation, staff training, government and community support, and planning for program costs may help to achieve project aims (Aranda-Jan 2014; Tamrat 2011).

Evaluations of mobile phone programs for behavior change show solid feasibility, acceptance by target groups, and the potential for high reach (Deglise 2012). Tailoring messages to target groups and personalizing information to individuals yields more effective interventions (Fjeldsoe 2009; Head 2013). Timing of mobile phone messages is important. Decreasing frequency of intervention messages over time and offering individually-selected message frequency may be more successful than fixed message frequency (Head 2013). Other considerations for mHealth behavior change interventions include language, mobile network fluctuations, message costs as the user base increases, data privacy and mobile phone sharing, and mobile phone turnover (Deglise 2012). Overall, mobile phone interventions for behavior change have shown positive effects across countries, health topics, and intervention strategies (Cole-Lewis 2010; Fjeldsoe 2009; Head 2013). SMS (text messages) are the most widely used in behavior change and thus form the backbone of this evidence base (Higgs 2014).

Interventions that use mobile phones to support frontline health workers have demonstrated positive effects on improving patient care and management and compliance with counseling guidelines (Aranda-Jan 2014; Higgs 2014). These mHealth programs are particularly effective for improving communication between health



*Auxiliary nurse midwife at the Lata Medical Research Foundation, India, counsels mother on breastfeeding.*

workers and their clients, and may reduce operational costs, worker time, and delays in data reporting (Aranda-Jan 2014). mHealth interventions supporting maternal and child health show promise for empowering and enabling health workers to collaborate with pregnant and parenting women to improve delivery of care and maternal and child health (Tamrat 2011) and for generating demand for maternal health services (Higgs 2014). Furthermore, sending text message reminders for health care appointments improves attendance across countries and health topic areas (Gurol-Urganci 2013; Higgs 2014).

**For the latest on mHealth evidence, visit:**  
<https://www.mhealthevidence.org/>.

## Alive & Thrive's experiences with mHealth

A&T has learned about mobiles for better child feeding from small-scale studies conducted through our small grants program and by finding practical applications in our at-scale comprehensive programs.

**A&T STUDIES SHOW THAT IN SOME—BUT NOT ALL—SETTINGS, mHEALTH CAN IMPROVE BREASTFEEDING PRACTICES.**

Here's what we learned from four small, randomized controlled trials (RCTs):

**INDIA.** The Lata Medical Research Foundation tested whether counseling via mobile phones would improve breastfeeding indicators among poor, urban women who delivered at a maternity hospital. Staff in both experimental and control hospitals, in central India, were retrained in Baby Friendly Hospital Initiative (BFHI), an approach that creates a hospital environment that fully supports breastfeeding. In the experimental group, the project extended the breastfeeding support that mothers received at hospital delivery by sending the mothers daily SMS (text messages), making weekly calls to the mothers, and offering phone counseling with an auxiliary nurse midwife whenever the mother felt the need for additional breastfeeding support. The project lent mobile phones to the mothers who did not own one. Mothers in the control group received standard BFHI care.

**FINDINGS.** Augmenting BFHI with mobile phone based support significantly increased early initiation and exclusive breastfeeding rates and decreased bottle feeding rates. (<http://aliveandthrive.org/resources/small-grant-india-mhealth-and-baby-friendly-hospital-initiative-for-breastfeeding/>)

**KENYA.** The study compared the impact on breastfeeding of three types of interventions: 1) standard advice currently given by hospital nursing staff during antenatal care (ANC) visits; 2) a peer support group with monthly meetings; or 3) individual mobile phone-based support group with a peer counselor. In the mobile phone supported group, trained peer leaders called each mother every other week from pregnancy until the baby was three months old. The mothers could text or call for breastfeeding support as needed. The project did not provide mobile phones, airtime, or mobile phone accessories.

**FINDINGS.** Adding mobile phone based counseling to the advice currently given by hospital nursing staff during ANC visits is potentially more effective than adding monthly peer support group meetings. The higher rates of exclusive breastfeeding when baby is 3 months old (the outcome) may be linked to more frequent help made possible by talking with a peer counselor by cell phone. (<http://aliveandthrive.org/resources/small-grant-kenya-breastfeeding-counseling-delivered-via-cell-phones/>)

**NIGERIA.** A microcredit program tested the effect of breastfeeding promotion and mobile phone messaging on its members' breastfeeding rates. The project trained credit officers to conduct breastfeeding learning sessions during regular monthly microcredit meetings. The women belonged to small groups who guaranteed one another's loans. Each small group of five to six women shared one mobile phone. To reinforce the communication between monthly meetings, the project sent weekly SMS (text messages) and voicemail messages on breastfeeding. Using the content of the messages, each small group created a song or drama to present at the next monthly meeting.

**FINDINGS.** Breastfeeding promotion through face-to-face plus mobile phone activities increased the likelihood that women initiated breastfeeding early and exclusively breastfed for six months. This type of intervention could be scaled up in Nigeria, where local microcredit organizations already provide services to more than 500,000 clients. (<http://aliveandthrive.org/resources/integrating-microcredit-cell-phone-messaging-and-breastfeeding-promotion-increased-rates-of-early-initiation-and-exclusive-breastfeeding-in-nigeria/>)

## ALIVE & THRIVE ADDED MOBILES TO OUR COMPREHENSIVE BEHAVIOR CHANGE PROGRAMS.

During our initial design phase, A&T did not anticipate that mHealth would play a role. But in two of the countries where we established large-scale infant and young child feeding (IYCF) programs, our evolving strategies benefitted from mobiles.

## HONDURAS.

Mobile phones seemed like an obvious way to extend the benefits of new breastfeeding clubs in a Honduran project planned for adolescent mothers in a poor, violence-plagued neighborhood of the country's second largest city. But several months into the study, almost no one was showing up for club meetings, and phones, provided by the project, went unanswered. Some teenage mothers had removed the phones' SIM cards so they could share phones with friends or family members. The project was suspended, and the study turned to exploring why young mothers were not attending the breastfeeding clubs.

**FINDINGS.** In this setting and with this audience, mobile phones were not a viable solution. (<http://aliveandthrive.org/resources/small-grant-honduras-breastfeeding-clubs-and-mhealth-for-breastfeeding-support/>)

## BANGLADESH.

BRAC, Bangladesh's largest NGO, implemented A&T's interpersonal communication component, sending staff and volunteers to conduct millions of home visits to counsel families on child feeding. During home visits, each BRAC IYCF promoter, responsible for up to 150 mothers, offered families a sticker on which she had written her mobile number. With the sticker displayed in the home, family members were reminded that when they faced problems in breastfeeding or child feeding, they could call the promoter for personal coaching, problem solving, and support. Promoters distributed almost two million stickers. In a single month in 2013, BRAC reported 25,000 phone contacts for feeding advice.



*BRAC IYCF promoter posts sticker with her phone number in family's home.*

## VIET NAM.

With a mass media campaign and face-to-face counseling through a health facility-based franchise system, A&T's Viet Nam program reached over two million mothers to encourage better child feeding practices. Recognizing mothers' burgeoning use of mobiles, especially in urban areas, A&T Viet Nam developed a free "Mother's Diary" mobile app. In addition to offering accurate guidance and tips on recommended feeding practices, this digital baby book allows a mother to note her baby's achievement of milestones and to set reminders for vaccinations. It includes a reference guide, searchable by the baby's age. Perhaps most appealing, its link to social media lets mothers share baby photos and swap experiences with other mothers.

## A tool to determine when mHealth is a good choice

After the Honduras project floundered (see page 7), A&T's small grants committee had to wonder: had they considered all the factors that play into an mHealth project's likelihood to succeed? A&T drafted a tool to assess whether an mHealth plan takes into account the context, costs, and capabilities needed for success.

A solid plan for mHealth, the tool posits, should address:

1. Appropriateness of mobile technology compared with traditional approaches
2. Audience access to mobile phones
3. Aptness of the proposed mobile "mode" (for example, text messaging, Interactive Voice Response messages, phone counseling)
4. Process to design and test strategic content
5. Coordination with other mHealth activities and nutrition programs
6. Ability to scale it up
7. Capabilities of practitioners to use the technology effectively
8. Costs, not just of the technology, but of skilled staff and the ripple effects of switching to mobiles
9. Clear plan and indicators to measure success

**See the draft tool here:**

[http://aliveandthrive.org/wp-content/uploads/2014/12/C3\\_Tool.pdf](http://aliveandthrive.org/wp-content/uploads/2014/12/C3_Tool.pdf)

## mHealth resources

With so many resources on mHealth available, it's hard to know where to start. Here are our picks to help you consider how to use mobiles for better child feeding:

- **mHealth resources to strengthen capacity of health program implementers and managers.** Click on the active links in this article to access all of these resources: an eLearning course, online guide, evidence database, and a high-impact practices brief, along with the mHealth Working Group and website. (<http://www.ghspjournal.org/content/2/1/130>)
- **Seven factors for designing successful mHealth projects.** This brief article takes a fresh look at issues that can affect the success of mHealth systems. (<http://ssrn.com/abstract=2194763>)
- **Integrating Mobiles into Development Projects.** In 2014, FHI 360 and OpenRevolution, with support from USAID's mSTAR project, launched this handbook with practical tips for integrating mobiles into a project, including a six-step approach to project design. (<http://www.ictworks.org/2014/08/18/new-usaid-handbook-how-to-integrate-mobile-solutions-into-development-projects/>)
- **Understanding the role of mHealth and other media interventions for behavior change to enhance child survival and development in low- and middle-income countries: An evidence review.** Part of a special issue journal from a 2014 meeting on population-level behavior change for child survival. (<http://www.tandfonline.com/doi/pdf/10.1080/10810730.2014.929763>)
- **Resources from Alive & Thrive's 2012 workshop "mHealth for better child feeding"** (<http://aliveandthrive.org/mhealth-innovation-workshop/>)

[www.aliveandthrive.org](http://www.aliveandthrive.org)