

Strengthening Community-Based Nutrition Programs with Mobile Technology

Sanchay Gupta

Senior Project Manager, Medic Mobile,
San Francisco, USA

Key messages

- > Malnutrition is responsible for at least three million deaths every year.
- > Access to health and nutrition services remains a huge challenge globally, particularly in rural settings and for people living in poverty.
- > Community Health Workers (CHWs) can help alleviate overstretched health systems, yet they face many significant challenges in coordinating care.
- > Medic Mobile was created for people delivering care in hard-to-reach areas, with a mission to use mobile technology to create connected health systems that save lives.
- > Through continued and deliberate cross-sector collaboration, the successes we are seeing can be replicated and can ultimately transform the lives of millions.

A glimpse from the field

Ng'ang'a clocks in to his shift on a busy morning at Angata Clinic. His first patient is a two-year-old girl from a village in Western Kenya. Hannah had been suffering from repeated bouts of diarrhea, and after weeks of contemplating the social and financial risks, her mother has decided to make the arduous four-hour journey to the clinic. Hannah's feet look swollen and her movements are weak and listless. To determine her nutritional status, the staff measures the circumference of her upper arm: 100 mm.

Hannah has severe acute malnutrition, a condition that if left untreated can be fatal.

Malnutrition is responsible for at least three million deaths every year, and carries a very poor prognosis in places like the one where Hannah comes from.¹ But Hannah's case is an exception. After visiting the nutritionist, she is sent home with oral rehydration salts and twenty packets of Ready-to-Use Therapeutic Foods (RUTF). With regular consumption of Plumpy'Nut® and weekly follow-up visits by a Community Health Worker (CHW), she eventually makes a complete recovery.

CHWs deliver hope and health

Access to health and nutrition services remains a huge challenge globally, particularly in rural settings and for people living in poverty. Last year, 50 million children had acute malnutrition, according to UNICEF estimates, and 23.2% of children under five had stunted growth.² In many places, CHWs form the backbone of the way care is delivered, from coordinating antenatal care for pregnant mothers to organizing immunization campaigns targeting children. The popularity of CHW-centric nutrition programs like Community-based Management of Acute Malnutrition (CMAM) reflects an understanding that a shift towards community-based care is necessary to widen coverage, save time and resources for families, and improve outcomes.³

CHWs with basic training can help alleviate overstretched health systems by going door-to-door to engage in health promotion and check in with patients. And yet, they face many significant challenges in coordinating care: They may not know who needs emergency care in their community or remember which kids are due for clinic follow-ups.

“In many places, Community Health Workers form the backbone of the way care is delivered”



Mothers gather with their infants at a CHW-led community growth-monitoring outreach event in rural Malawi

We are Medic Mobile

Medic Mobile was created for people delivering care in hard-to-reach areas, supporting over 14,000 CHWs and 8 million people in 23 countries. Our mission is to use mobile technology to create connected health systems that save lives. Our tools work with or without internet connectivity, on devices ranging from basic US\$10 phones to smartphones and computers. Health workers can use Medic Mobile to register every pregnancy in their communities, track disease outbreaks faster, and keep stock of essential medicines. We are now extending this toolkit to support the provision of community-based nutrition services. Below, we discuss some of the things we have learned during this process.

Learning with Children in Crisis

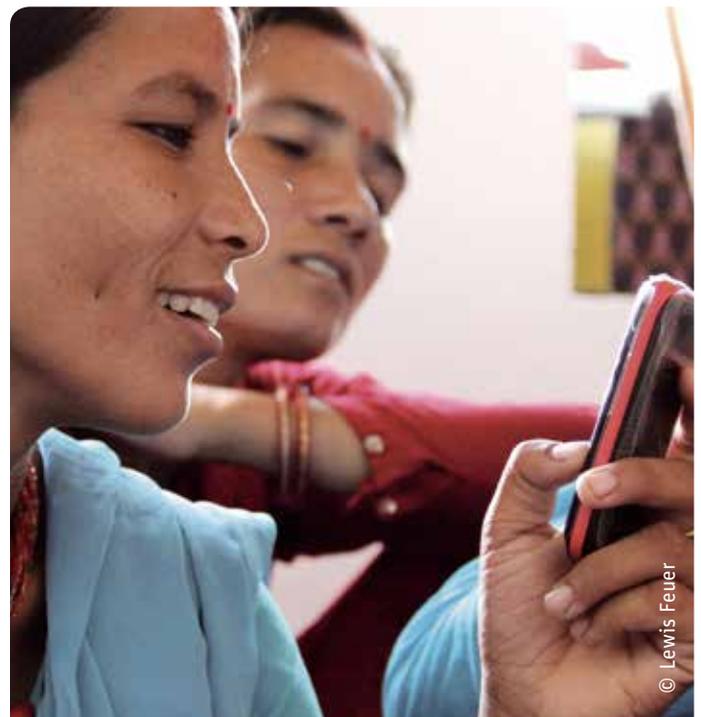
Our nutrition efforts began through a partnership with Children in Crisis, an initiative at Stanford University aiming to improve the identification and treatment of malnutrition in rural Guatemala. Each month, the health promoters of Children in Crisis conduct growth-monitoring outreaches in the 19 indigenous communities surrounding San Lucas Tolimán. Originally, these *Promotoras* would measure the height and weight of children, plot the measurements on paper graphs, and then extrapolate z-scores for WAZ, HAZ and WHZ. Children who developed worrying patterns or trends were enrolled in a supplementation program, and those who did not attend the outreach were visited at home.

It was clear that these frontline health workers were effective change agents in managing malnutrition. However, delivering this care accurately and consistently were identified as pain points: Plotting growth charts by hand introduced errors that were resulting in misclassifications, and interviews with *Promotoras* revealed that synthesizing visit data into actionable recommendations was challenging.

Medic Mobile was interested in providing mobile decision support tools to these CHWs. Together, we designed and deployed a SIM application that allows CHWs to perform nutrition assessments in resource-poor and low-infrastructure areas. We achieved this by pioneering the use of a parallel SIM card that sits underneath an ordinary SIM and can load custom forms onto basic phones. The *Promotoras* simply enter each child's height, weight, gender, and date of birth and are presented with z-scores for WAZ, HAZ and WHZ as per the World Health Organization (WHO) z-score reference tables.⁴ The calculations occur offline, and present results immediately while the child and caregiver are still present, encouraging appropriate counseling with the child's family.

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“We have been working tirelessly to support equity-enhancing nutrition interventions across our entire toolkit”



A female Community Health Volunteer in Nepal uses Medic Mobile to coordinate care for pregnant women and children



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A health promoter from Children in Crisis describes some of the challenges she faces in delivering nutrition services to families

Key opportunities

Since then, we have been working tirelessly to support equity-enhancing nutrition interventions across our entire toolkit. With strategic partnerships in Africa, Asia, and Latin America, we are designing for a variety of programmatic approaches, ranging from CMAM to Integrated Community Case Management. Below are some of the unique and exciting opportunities we have pursued.

Behavior change communication

Promotion is an important step towards empowering families to take control of their health. Our tools prompt CHWs to reinforce key nutrition messages starting from pregnancy and throughout the child's first 1,000 days. We accomplish this by integrating nutrition messages across health services, such as antenatal care and immunizations. For example, when Living Goods CHWs use our mobile App to treat children for diarrhea, malaria and pneumonia, they are also presented with feeding recommendations for sick children to help educate families about optimal feeding during and after illness. Our platform's ability to flexibly accommodate mobile SMS and voice content means that partners can tailor this messaging to local needs.

Screening and case-finding

Medic Mobile helps CHWs proactively identify at-risk and malnourished kids by reminding them to regularly visit households for growth and health monitoring checkups: Muso's CHWs in Mali

are meeting with families as often as twice a month to search for patients and connect them with care early. If a child is identified with moderate acute malnutrition (MAM), he or she can be treated immediately at the doorstep with supplementary foods. Our tools support assessments of children's WAZ, HAZ, WHZ and mid-upper arm circumference (MUAC), and provide decision-making support in terms of counseling, referral, and treatment.

Patient tracing

After pregnant mothers and children are registered in our system, Medic Mobile notifies health workers of upcoming clinic appointments as well as important micronutrient and medicine distribution dates, reducing defaulter rates and ensuring that families have everything they need to stay healthy.

Service and stock monitoring

Collecting real-time data on service statistics and supply of food supplements and micronutrients can strengthen service delivery. Nutritionists at International Medical Corps in Kenya, for instance, are using Medic Mobile for routine stock reporting of food commodities. This data can be aggregated and displayed on easy-to-read dashboards, providing information to managers that can be used to restock supplies more quickly (often from nearby clinics) and improve forecasting so as to meet future demands.

Looking ahead

We see a clear path forward for donors, policy-makers, and im-



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Promotoras in Guatemala learn how to record anthropometric data and perform z-score calculations using their personal phones



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A CHW visits families from his village in Uganda to provide health education and search for new patients

plementers to make tangible progress in the fight against malnutrition. First, more investments in the scale-up and management of CHW programs are needed, which we know can affordably expand access to health and nutrition services.⁵ CHW programs can further sharpen their impact by adopting smart technologies that are designed for health workers who are providing care in last-mile settings. Finally, there is a significant opportunity in the integration of nutrition with other community-based health services. Through continued and deliberate cross-sector collaboration, we believe that the successes we are seeing can be replicated and can ultimately transform the lives of millions.

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Correspondence: Sanchay Gupta,

Medic Mobile, 3254 19th Street, Floor Two, San Francisco, CA 94110, USA **Email:** sanchay@medicmobile.org

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