



BANGLADESH: MCH Handbook enhanced by mobile platform to improve continuum of maternal and neonatal care



Maternal and Child Health Handbook (research version), Bangladesh, 2017

Background

Bangladesh has achieved a significant progress on reduction of maternal, neonatal and child mortality during the past decades. In the era of the Sustainable Development Goals (SDGs), a universal utilization of continuum of care underpinned by a robust local health system, including antenatal care, birth with a skilled attendant or a standard facilities, emergency care in case of complications or illness for women and newborn, essential neonatal care, and postnatal visits for women and babies in resource constrained settings, is crucial for the accomplishment of the maternal and neonatal health outcomes, which trajectory did not reach the targets of Millennium Development Goals (MDGs).

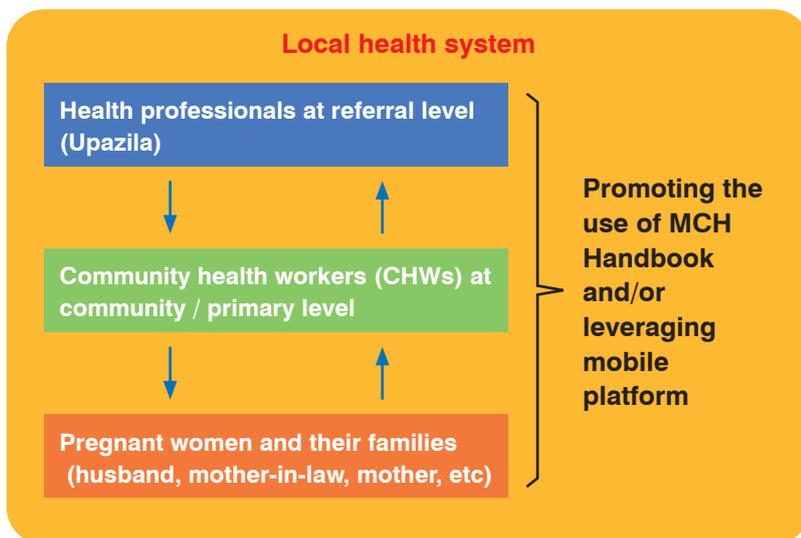
Maternal and child health (MCH) Handbooks have been proven to be useful tools to promote client-provider communication and information-sharing, to record health status, to raise health awareness, to identify maternal and neonatal complications, and to encourage health-seeking behaviors in several countries in the world. For the effective implementation of a research version of MCH Handbook in Bangladesh, community

health workers (CHWs), the gatekeeper at the primary level, is expected to play an essential role in connecting pregnant women and their families and in boosting a universal utilization of continuum of care for them. To this end, wide-spreading mobile platforms, which have been increasingly applied by community health programs in diverse settings, are expected to optimize the use of the MCH Handbook and improve primary health care (PHC) delivery, by reinforcing the bond between participants and CHWs and facilitating empowering activities for maternal and neonatal health in the community.

Examining the interventions for the implementation of MCH Handbook

This program was implemented by a local NGO (Bridge of Community Development Foundation) and granted by Japan Society of the Promotion of Sciences. A cluster randomized controlled trial was carried out in two upazilas (administrative regions in Bangladesh), Dhamrai in Dhaka District, Dhaka Division and Lohagora in Narail District, Khulna Division, to test the designed interventions by using either a combination of the MCH Handbook and a mobile platform or the MCH Handbook alone. A total of 3,002 pregnant women were recruited and allocated to three interventional groups: I. MCH Handbook enhanced by mobile platform, II. MCH Handbook alone and III. no intervention (control).

The interventions were designed to promote two-way communications between pregnant women/their families and CHWs by a participating and empowering approach (Figure 1). A MCH Handbook was distributed to each participant at the point of recruitment. Every two months the enrolled pregnant women and their families and CHWs were organized for community meetings, where health education, consulting/advice and anthropometric measurements were provided to accompany the discussions on seeking health services for mothers and babies. In the combined intervention, besides the MCH Handbook and



▲ Figure 1. Strengthened network to maximize the effects of MCH Handbook



Community meeting by CHWs and families with MCH Handbook

community meetings, user-friendly mobile messages were developed and sent according to the gestational age (GA), including reminders of antenatal and postnatal care visits and facility-based delivery, list of locations of skilled birth attendants and hospitals, GA-specific health issues, daily care and nutrition during pregnancy, intake of iron and folic acid tablets, support from husband and families during pregnancy and lactating period, danger signs, signs of labor, and postnatal/neonatal care. Audio messages and phone calls were also used for follow-up, consulting/advice and referral, as necessary. A mobile network was created by grouping healthcare providers at different levels, including CHWs, skilled birth attendants and health professionals working at upazila hospitals. For those participants not possessing mobile phone, trained staffs visited them regularly based on their GA to provide equivalent information.

As the results, the two interventions, especially the integrated one, substantially improved the uptake of multiple healthcare services, including antenatal care, facility delivery, referral when necessary, and postnatal/neonatal care (Table 1). Neonatal mortality rate was estimated to be 27.8 per 1,000 (95% CI: 19.7–36.0 per 1,000), 28.2 per 1,000 (95% CI: 10.5–45.8 per 1,000), and 34.8 per 1,000 (95% CI: 17.6–52.1 per 1,000) in Group I, Group II and Group III, respectively. Although a significant difference was not detected due to limited statistical power, the trial confirmed the

effects of continuum of maternal and neonatal care on reducing neonatal mortality. There were 99.9% and 81.2% of participants showing a welcome to the MCH Handbook in the intervention and the control groups, respectively, recognizing its benefits in informing daily care and healthcare seeking and boosting positive involvement of their husband and other family members.

Suggestions to adoption of MCH Handbook in the field

The study indicates that the MCH Handbook, in particular that enhanced by mobile platform, has potential to serve as an essential part of PHC and thus is expected to scale up in rural Bangladesh for universal utilization of maternal and neonatal care. Underlying the successful program implementation is the role of CHWs in PHC, who were mobilized to engage pregnant women and their families, deliver health education and primary care, organize activities and bridge pregnant women and healthcare facilities giving full-play to the effective tools. Despite of challenges in shortage of human resource and sustainability at the primary level in the country, the adoption of the MCH Handbook will eventually initiate long-lasting benefits to mothers and their offspring.

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▼ Table 1. Major findings of the community-based trial

	Adjusted %	95% CI	P
Antenatal care >=4	11.06	9.90–12.22	
MCH+mobile	13.36	11.24–15.49	***
MCH only	12.86	10.77–14.96	***
Control	5.96	4.32– 7.61	ref.
Postnatal care >=1	42.36	40.73–43.99	
MCH+mobile	45.66	42.86–48.46	***
MCH only	43.82	41.07–46.57	***
Control	36.37	33.38–39.36	ref.
Facility-based delivery	61.23	59.99–62.47	
MCH+mobile	64.5	62.34–66.65	**
MCH only	59.89	57.76–62.02	(-)
Control	58.9	56.75–61.05	ref.
Referral for complications	98.24	97.49–98.99	
MCH+mobile	99.01	98.13–99.90	*
MCH only	98.44	97.31–99.57	(-)
Control	96.26	93.80–98.73	ref.

*** <0.001, ** <0.01, * <0.05
(-) no significant difference

Further readings:

1. General Economics Division, Planning Commission of Government of the People's Republic of Bangladesh. *Millennium Development Goals Bangladesh Country Report 2013*. Dhaka: GED & UNDP Bangladesh; 2014.
2. Tobe RG, et al. Mobile-health tool to improve maternal and neonatal healthcare in Bangladesh: A cluster randomized controlled trial. *BMC Pregnancy Childbirth*. 2018; **18**(1): 102.
3. Tobe RG, et al. Maternal and child health handbook to improve continuum of maternal and child care in rural Bangladesh: Findings of a cluster randomized controlled trials. *Authorea*. October 22, 2020. (under peer review)