

Protecting hard-won gains for mothers and newborns in low-income and middle-income countries in the face of COVID-19: call for a service safety net

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There are an estimated 5.4 million largely preventable maternal and perinatal deaths each year.^{1–3} Improving the survival and well-being of mothers and newborns is indisputably a global priority. This is as true today as ever and as the world grapples with the COVID-19 pandemic. For maternal and newborn health (MNH), a critical question today is not only the extent to which pregnant or postpartum women and newborns are vulnerable to COVID-19-infection⁴ but also the degree to which the safety of giving birth and accessing treatment for complications in health facilities is being compromised by the direct and indirect effects of the virus, thereby reversing hard progress in MNH over the last 30 years. We know that infectious disease outbreaks can devastate provision of such care, for example, during the Ebola outbreak in West Africa.⁵ In this commentary, we use insights from those on the ground in low-income and middle-income countries (LMICs) to highlight both the impact of COVID-19 on facility births and the innovative local solutions being adopted to mitigate these effects. We consider how in-country responses to the pandemic might also provide an opportunity to finally tackle key weaknesses in facilities, including low staffing, overcrowding, poor infection prevention and control (IPC), and disrespectful care.

In 2006, the *Lancet Maternal Survival Series* presented convincing evidence for what is now accepted global strategy: that women should be encouraged and enabled to give birth where labour and childbirth can be managed by a skilled attendant in a safe environment, primarily in health facilities.⁶ The series offered various options for

Summary box

- ▶ The adverse impact of COVID-19 on maternal and newborn services in low-income and middle-income countries risks undermining improvements in health outcomes and care achieved over the last three decades.
- ▶ Alarming declines in the use of services and in the quality of care in health facilities are being reported from sources on the ground, captured rapidly and in real time using e-communication tools.
- ▶ Local solutions to the direct and indirect challenges brought to maternal and newborn health services by COVID-19 must be captured effectively and shared efficiently to support health workers and managers.
- ▶ Providing adequate funding to maintain essential services alongside urgent action plans for COVID-19 is essential to enable rapid adaptation and modifications to service delivery in response to different transmission scenarios and stages of the pandemic.

scaling up and mobilising financial resources. The proportion of births in health facilities increased dramatically over the next decade.⁷ In 2016, the second *Maternal Health Series* celebrated this success but also drew attention to the poor quality of maternity services, from inadequacies in water and sanitation infrastructure to shortages of trained staff, poor IPC, limited access to surgical interventions and essential drugs, and disrespectful and abusive care to women in labour.⁸ What was clear long before COVID-19 is that some facilities are unsafe for the physical and mental well-being of women and newborns and that the most marginalised women often receive the poorest quality of care.⁹

How the pandemic will affect women and newborns is uncertain, as there are many



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Table 1 Reports on maternity and newborn services in the face of COVID-19: use, quality and solutions

Trends and potential determinants		Examples of supporting observations	Examples of local solutions
1. Service use is falling, owing to			1. Options for maintaining use
Fear of using services	▲	Fear of women/babies becoming infected, and bringing illness back to homes, being treated badly, or costs if unable to work and pay for care.	▲ Radio campaigns and messaging urging women to continue attending maternity care services.
	▲	Fear of being quarantined away from family and support networks in case women test positive.	▲ Use of visual aids and pictographs in public places and health facilities to ensure women with low literacy have access to correct information.
	▲	Fear of aggravating domestic violence if use of services defies partner.	▲ Increased use of WhatsApp and other social media, with appropriate safeguards for reliability of information, to communicate with women and share information about health workers.
	▲	Ambulances feared as sources of COVID-19 infection.	
Women cannot get to services or delay in accessing		▲ Huge demands on few hospital transport/ambulances that exist, with ambulances used for COVID-19. ▲ Confusion over public health messaging about staying at home means women delay to seek care, and some facilities are seeing a marked increase in complicated cases on admission. ▲ Curfews, permit requirements from a local authority, bans on private vehicles, shutdowns of public transport. ▲ Childcare responsibilities (school closure) and care for elderly prevent women from seeking care for themselves or their newborns. ▲ Inability to afford transport/care due to loss of income in lockdown, inability to find someone to accompany them. ▲ Routine newborn screening/vaccination skipped or postponed ▲ Poor routine postnatal monitoring: shorter postnatal lengths of stay in facilities, fewer postnatal home visits, lack of postpartum family planning. ▲ Private sector is no longer taking patients. Women who prepaid for private sector childbirth have now lost all their money. These closures further increase overcrowded public-sector facilities. ▲ Fewer outpatient appointments given to reduce crowding in waiting rooms, fewer inpatient beds available to introduce physical distancing. ▲ Some services are intentionally shut as part of a strategy to encourage women to go elsewhere, but women may not be informed of reasons and do not know where to go. ▲ Community health awareness/outreach services are cancelled. ▲ Lack of access to safe abortion care for unintended pregnancies. ▲ Elective procedures, such as caesarean sections and IVF, are being cancelled or postponed.	▲ Information campaigns as above mentioned previously. ▲ Negotiating with local police to allow pregnant women to travel to services. ▲ Travel badges or car stickers for pregnant women. ▲ Prescribing oral contraceptives to all postpartum women and other women with unmet needs for family planning. ▲ Increasing time between ANC visits and reducing the number of visits. ▲ Arranging ANC services so women do not come at busy times, stopping any group care. ▲ Telemedicine where available, including ANC and virtual Doula services. ▲ Woman guided to administer their own medication (eg, medical abortion).
2. Overall quality of care is deteriorating, owing to			2. Options for safeguarding quality
Under-staffing of existing services	▲	High levels of staff absenteeism and resignation.	▲ Badges/permits to allow health workers to travel during lockdown/curfew.
	▲	Health workers redeployed elsewhere.	▲ Telementoring to support (one) healthcare workers.
	▲	Less skilled/unqualified health workers assigned to maternity care (locum staff, students and interns).	▲ Change in rosters of nurses and doctors to reduce numbers of people per shift and lengthen shifts, with the intention of limiting exposure of all personnel at the same time.
Rapidly changing guidelines with unclear or inconsistent communication	▲	Stressed, demotivated and tired health workers, with fear of unsafe working environment, including key support workers such as cleaners.	▲ Active involvement of facility staff in forums to share ideas for adapting services/care and for problem-solving.
	▲	Some advice may become outdated or may be proven dangerous; mechanisms to share updates are not clear and dissemination slow and limited.	▲ Peer support systems for health workers' mental health and psychosocial well-being.
	▲	New information coming in rapidly, no systems to digest/disseminate this to health workers. Minute-by-minute barrage of fake and real news, causing anxiety and fear. Confusion over PPE for different contexts and workers.	▲ Hospital-produced protocols in every department on managing suspected and confirmed COVID-19 cases.
			▲ Virtual training to strengthen IPC knowledge and practice, for COVID-19 cases, and dissemination of new guidelines.

Continued

Table 1 Continued

Trends and potential determinants	Examples of supporting observations	Examples of local solutions
COVID-19 aggravates existing challenges and weaknesses in provision of maternity and newborn care and brings new ones.	▲ Limited availability of COVID-19 test kits; results take 1–2 days. ▲ Disruption of imports of medicines/commodities, increased costs. ▲ Lack of PPE is problematic for many health workers in facilities and in communities, and for hospital transport/ambulance drivers. ▲ Laundry facilities not functional, so how/where to dispose used PPEs without incinerators. ▲ It takes time to don/doff PPE, delaying urgent care. ▲ In crowded facilities, shared beds or floor patients, and newborns sharing cots are particularly risky practices in the face of COVID-19. ▲ Space limitations present challenges for creating separate isolation areas before transfer of suspected case. ▲ Dedicated referral facilities set up for COVID-19 cases may not have health workers specialised in managing pregnant or postpartum women/newborns; maternity workers will have less specialised expertise for managing COVID-19. ▲ Lack of dedicated ventilators, dedicated neonatal resuscitaires and clinical space to manage suspected/confirmed COVID-19 cases. ▲ Poor water supply is even more problematic where hand hygiene and cleaning are key interventions for COVID-19. ▲ Lack of supplies for hand hygiene and surface cleaning. ▲ Waste management is a challenge, as are sanitation facilities; separate toilets for COVID-19 cases may not be possible. ▲ Pain relief options reduced, particularly nitrous oxide. ▲ Birth companions and visitors not allowed. ▲ Stillbirth counselling not provided. ▲ Forced separation of mothers with suspected/confirmed COVID-19 (and those in isolation while waiting for test results) from their newborns, breastfeeding prohibitions, barring parental visits to newborns in neonatal units. ▲ Women abandoned during the process of labour because staff with PPE can only attend to patients for 2 hours maximum, more difficult communication between women/providers when PPE is worn. ▲ More labour inductions and elective caesarean sections overall and for suspected/confirmed COVID-19 cases, in part to help manage patient flow with respect to staff availability, and as scheduled delivery in theatre avoids problem of monitoring women in labour with full PPE. ▲ Some women do not get adequate food while in the hospital as family who normally brings this is prohibited and hospitals are unable to incur the full additional costs of feeding.	▲ Local fundraising to purchase PPE for maternity ward staff. ▲ Guidelines for wearing and laundering facility health worker uniforms. ▲ Improving maternity ward layout consistent with outbreak management, emergency hotlines for PPE shortages. ▲ Decreasing length of stay and maintaining contact with discharged women by phone. ▲ Relocating births from hospitals to other adapted locations (eg, hotels). ▲ Implementing triage systems that provide appropriate detection and isolation of women with COVID-19 symptoms. ▲ Local women's group campaigns to ensure women may still have at least one birth companion where appropriate.

ANC, antenatal care; IVF, in vitro fertilization; PPE, personal protective equipment.

information gaps. For MNH, these fall into three main areas: (1) the epidemiology of COVID-19 infection during and after pregnancy and for the newborn; (2) the clinical management of suspected cases in pregnant or postpartum women and newborns, given the uncertainties in diagnosis and management of COVID-19 in the absence of widespread testing; and (3) the upheaval that the pandemic may be causing in the demand and supply for already-fragile MNH services in LMICs. Here we focus on the third area—the disruption in services—which may well pose the greatest challenge to protecting women and newborns, especially in LMICs.^{10 11}

How do we know whether services are disrupted? The COVID-19 pandemic has halted many routine and periodic data capture systems. Population-based surveys, such as the demographic and health surveys, have been delayed or deferred indefinitely, and routine information sources are not being maintained because of overload on reporting owing to COVID-19 cases, the need to divert resources to infection surveillance, and safety fears for data collectors and interviewees. Where does this leave us? Social media, rapid online surveys and communities of practice are providing a channel for hearing voices on the ground. Some would reject the use of these ‘anecdotes’, but we argue instead for the capture, synthesis and sharing of this experiential knowledge, with appropriate safeguards for validation and confidentiality.

What do these voices say? Table 1 gives examples of reports received during a recent online survey and webinar organised by the authors.^{12 13} Collectively, these voices, hailing from over 60 LMICs, suggest two main trends: declining use of services and deteriorating quality, in some cases dramatically so. The fall in use is being seen across a range of MNH services, including facility delivery, antenatal care (ANC) attendance, and use of newborn preventive and curative care, and echoes concerns in other areas such as child immunisation (figure 1). These patterns are emerging at early stages of the pandemic, and they may become more marked as transmission accelerates. A recent modelling of the consequences of declining use, of varying degrees and duration, of maternity services estimated an 8.3%–38.6% increase in maternal deaths per month across 118 LMICs.¹⁴

The catalogue of problems highlighted in table 1 poses a huge dilemma for MNH care. Will deterioration of facility-based care shift the balance of risk to women and newborns from benefit to harm, so challenging the strategic recommendation for facility deliveries? If so, what choices are there for pregnant women and service providers? Should we revisit risk screening approaches and strengthen ANC so that women at lower risk can be advised to give birth in primary care facilities or in separate midwifery units? How can quality be maintained or improved? Once again, responses are emerging from reports on the ground; the final column in table 1 summarises some local solutions to context-specific problems from our online survey and webinar. Collectively, these local adaptations and responses may protect



Figure 1 Many women face obstacles to seeking care in health facilities for themselves or their newborn baby (photo credit: Pieter ten Hoopen 2016; license for unrestricted use held by London School of Hygiene & Tropical Medicine (OMR Campbell and WJ Graham)).

delivery services from further deterioration and so shield women and newborns. Moreover, beyond this immediate protective strategy, it is crucial to optimise on any wider health systems strengthening which may emerge out of the COVID-19 responses in LMICs,¹⁵ including addressing chronic constraints, such as the shortages and poor working environments of health workers.

The authors call on national governments in LMICs and the international community of agencies and donors grappling with the COVID-19 pandemic to preserve hard-won but fragile gains in MNH and in services and to protect frontline workers in health facilities who are key drivers of this progress and whose voices we have tried to capture.

We have three main asks of these stakeholders:

1. *Maintain* routine and essential services for MNH, alongside developing urgent action plans for COVID-19, to prevent further spread of the virus and to care for those infected, and to track policy shifts and innovation and key coverage indicators prospectively.
2. Rapidly establish better ways of both identifying and sharing experiential local knowledge from the front-line on *solutions* to emerging challenges in MNH service provision and ways of realistically evaluating these adaptations.
3. Provide adequate *funding* for facilities both to enable rapid adaptations and modifications to service delivery in response to different COVID-19 transmission

scenarios and stages of the pandemic, and to support sustainable improvements.

These actions are geared towards effectively putting a safety net around MNH services in the face of adversity, so increasing the likelihood of emerging from the COVID-19 pandemic with less adverse impact and more lasting benefits for women and newborns.

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REFERENCES

- 1 World Health Organization, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. *Maternal mortality: levels and trends 2000 to 2017*. Geneva, Switzerland, 2019.
- 2 United Nations Inter-Agency Group for Child Mortality Estimation (UN IGME). *Levels & Trends in Child Mortality Estimates developed by the UN Inter-agency Group for Child Mortality Estimation*. New York: United Nations Children's Fund, 2018.
- 3 Blencowe H, Cousens S, Jassir FB, *et al*. National, regional, and worldwide estimates of stillbirth rates in 2015, with trends from 2000: a systematic analysis. *Lancet Glob Health* 2016;4:e98–108.
- 4 Buekens P, Alger J, Bréart G, *et al*. A call for action for COVID-19 surveillance and research during pregnancy. *Lancet Glob Health* 2020. doi:10.1016/S2214-109X(20)30206-0
- 5 Sochas L, Channon AA, Nam S. Counting indirect crisis-related deaths in the context of a low-resilience health system: the case of maternal and neonatal health during the Ebola epidemic in Sierra Leone. *Health Policy Plan* 2017;32:iii32–9.
- 7 Campbell OMR, Graham WJ, Lancet Maternal Survival Series steering group. Strategies for reducing maternal mortality: getting on with what works. *Lancet* 2006;368:1284–99.
- 8 Campbell OMR, Calvert C, Testa A, *et al*. The scale, scope, coverage, and capability of childbirth care. *Lancet* 2016;388:2193–208.
- 9 Miller S, Abalos E, Chamillard M, *et al*. Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide. *Lancet* 2016;388:2176–92.
- 10 Gabrysch S, Nesbitt RC, Schoeps A, *et al*. Does facility birth reduce maternal and perinatal mortality in Brong Ahafo, Ghana? A secondary analysis using data on 119 244 pregnancies from two cluster-randomised controlled trials. *Lancet Glob Health* 2019;7:e1074–87.
- 11 Riley T, Sully E, Ahmed Z, *et al*. Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive health in low- and middle-income countries. *Int Perspect Sex Reprod Health* 2020;46:46.
- 12 UNFPA. COVID-19 technical brief for maternity services, 2020. Available: https://www.unfpa.org/sites/default/files/resource-pdf/COVID-19_MNH_guidance_04.pdf [Accessed 24 Apr 2020].
- 13 Semaan A, Audet C, Huysmans E, *et al*. Voices from the frontline: findings from a thematic analysis of a rapid online global survey of maternal and newborn health professionals facing the COVID-19 pandemic and newborn health, 2020. Available: <https://www.medrxiv.org/content/10.1101/2020.05.08.20093393v1.full.pdf> [Accessed 12 May 2020].
- 14 Care-Seeking & Referral Community of Practice. Recorded webinar on April 21, 2020 "COVID-19 & MNCH: what's happening on the ground in countries?". Available: <https://communities.harponet.org/care-seeking-and-referral> [Accessed 20 Apr 2020].
- 15 Robertson T, Carter ED, Chou VB, *et al*. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. *Lancet Glob Health* 2020. doi:10.1016/S2214-109X(20)30229-1
- 16 Kickbusch I, Leung GM, Bhutta ZA, *et al*. Covid-19: how a virus is turning the world upside down. *BMJ* 2020;369:m1336.