



The 'Delivering More' Toolkit

Primer



MASS.

Project Lead



Project Partner



There is, perhaps, no more singularly effective way to promote a healthy life than to ensure every life starts healthy.

Spurred by the Millennium Development Goals and later Sustainable Development Goals, there has been significant emphasis in the past 25 years on improving the health of mothers and children, particularly during pregnancy, labour/delivery and in the first five years of life. Through hard work, the world has made incredible progress, and today, more mothers and children than ever before start their lives together in good health.

Much of this progress has been driven by improving access to care during pregnancy, delivery, in the postpartum period, and beyond. And while we must continue to improve access for those we have not yet reached, the next great leap in improving maternal and child health will come by improving health care quality.

For more than 30 years, the Institute for Healthcare Improvement (IHI) has worked to build the capability of health care providers to improve the way they deliver care, but there is growing recognition that providers' actions are only one element of health care quality; patients' experience of care – and even their willingness to seek it – is strongly influenced by the physical environment of the facility in which they receive it.

Beginning in 2020, IHI partnered with the Boston-based firm MASS Design Group – experts in human-centred design principles – as well as the Ministries of Health in Ethiopia and Bangladesh and local architecture partners Fasil Giorghis Consult and icddr,b to engage mothers, companions/families, providers, and communities to explore how the physical structure of health facilities impacts the delivery and experience of perinatal care. And using what we learned from these stakeholders, we developed designs for improving existing facilities to better meet patients' and providers' needs.

Drawing on all that we learned, the Delivering More Toolkit is our case for why space – that is, the physical design of a health care facility – is a crucial component of high-quality health care. It's also a guide for anyone around the world who wants to learn how to adapt their local health facility's design to meet their community's unique needs.

Thank you for exploring our Toolkit, and best wishes as you start your journey.
In good health,



Minara Chowdhury
Senior Director
Institute for Healthcare Improvement (IHI)

Raising the Bar for Birth

Childbirth is unique within the spectrum of health services.

It is a moment where patients, for the most part, are not sick and is a powerful human experience that can influence future health-seeking behaviours, including access to routine and emergency care. Childbirth care norms also reinforce attitudes and values about the role of women in society.

Despite recent progress, there is still a long way to go.

Over the last 20 years, enormous strides have been made to improve maternal and newborn health in low- and middle-income countries (LMICs). Today, more robust health systems are in place, health access has advanced through facility construction and provider capacity-building, and millions of lives have been saved.

However, in spite of these advances, globally there are still 300,000 maternal and 2.4 million newborn deaths every year – most of them preventable. Although efforts have been made to improve access to maternity services, skilled birth attendance, and early postnatal care, LMICs still have a long way to go to reach universal coverage. In Ethiopia, as of 2016, only 26% of women delivered at facilities, with a sharp urban (79%) – rural (20%) divide.

So why is space important?

The physical condition of health facilities is a significant barrier contributing to the low utilisation of childbirth care. Facilities can be overcrowded and lack essential sanitation systems like running water, as well as basic provisions for privacy. As a consequence, poorly designed environments undermine providers' efforts to provide quality care, put pressure on already-overstretched resources, and lead to worse health outcomes and patient experiences.

Design can be leveraged to do more.

Thoughtful and contextually-aligned spaces – designed to meet the needs of both clients and providers – can encourage communities to utilise health facilities for skilled care, expand capacity, and improve the quality of care that can be delivered to the mother-baby dyad. But survival and safety are just the bare minimum. The design of the built environment can play a key role in supporting respectful and dignified childbirth experiences.



Transformative change will require human-centred design. To ultimately increase utilisation of childbirth facilities and create conditions for safer and more effective maternal-newborn care, the starting point is not asking how to make birth facilities more acceptable and incrementally removing barriers to access, but creating opportunities to listen to end users about what it would mean to create maternal-newborn health spaces that honour culture, bolster community, and offer respectful care experiences.

Human-centred design is first and foremost a mindset towards design which acknowledges that the designer does not have all the answers. Instead a human-centred approach is about asking questions, listening, and honouring the perspectives of those with lived experiences. Human centred design means not just designing for, but with the people you're trying to serve. It requires slowing down and zooming in to understand individual users' needs and experiences, as well as stepping back and zooming out to understand why things are the way they are and asking why they can't be different.

▲ *Human centred design workshop with mothers in Munshiganj, Bangladesh*

Delivering More

'Delivering More' outlines a human-centred process to co-design improved health facilities that enable safe and respectful maternal-newborn care in traditionally underserved populations.

With support from the Bill & Melinda Gates Foundation and the Elsa & Peter Soderberg Charitable Foundation, the project was led by the Institute for Healthcare Improvement (IHI), a leading innovator in health and health care improvement worldwide. IHI partnered with MASS Design Group, a nonprofit design, research, and engineering firm with extensive experience designing and implementing impact-driven health care infrastructure across the globe.

Building upon IHI's existing health system improvement efforts in Ethiopia and Bangladesh, we worked together to engage stakeholders, assess existing facilities, and recommend improved designs for selected facilities in both countries. In parallel, we distilled our process and learnings into a human-centred design toolkit for improving maternal-newborn care spaces, which can be adapted and replicated anywhere in the world.

'Delivering More' demonstrates why well-designed spaces are critical to enabling high-quality care and champions a collaborative and human-centred design approach aimed at building greater ownership, trust, and engagement between community members, health care providers, and health system leaders.



PHASE 4 Design



What

In the Design phase, the team will translate the ideas that emerge from the Engagement and Analysis phases into a design for an improved space. Typically, the design process is broken down into stages: programming, concept design, schematic design, design development, and construction documents. The design process is iterative, with frequent feedback loops. It is important to recognize the design process with regular feedback from stakeholders, which may include implementing partners, Ministry of Health representatives, or facility administrators.

Who

The design professionals that are part of the core team will lead this work, but will regularly check in with the rest of the core team for progress updates and feedback. Regional stakeholders and representatives from the Ministry of Health should also be involved during the design phase to confirm that the project approach and space program is both feasible and aligned with broader goals.

Outcomes

A drawing set consisting of plans, sections, elevations, and details necessary for construction implementation.

2.1 Prepare Engage

Before visiting a facility, you aim to accomplish, why, and when. Your trip agenda on the fly, but will help to start the engagement process.

Who do you want to engage with? Plan to engage with various stakeholders with diverse perspectives, including stakeholders with different backgrounds, including stakeholders with different understanding of the history of the facility, and local staff to inform them about the project, discuss strategies and learn more about how the intervention could impact processes and activities.

How much time can you spend? This is crucial because the time the team can realistically spend on-site will determine the number of engagement activities, workshops you can facilitate, and how you can best use the time.

When is the best time to visit? It is helpful to confirm with the facility the best time to make a visit. Take note of the season of holidays and seasonal events that may affect site access and availability. Facility staff will have advice on the best time to visit, and you can adjust your schedule accordingly.

What language do stakeholders use? You may need to bring a translator if patients in the region speak a different language or dialect than the project team or providers. Translators will require extra time on the ground, as well as additional training and practice to make sure the translator is conveying information accurately, in both directions.

PLANNING & ACTIVITY Stakeholder Identification

This activity is intended to identify different stakeholders and how they may be impacted by the project.

Description Stakeholder identification is used to understand who will be affected by a project, how they can influence project outcomes, and what perspectives and interests they will bring. It will help you develop an appropriate approach to stakeholder engagement and create a strategy for reporting ongoing competing interests during the participatory process.

When to use Stakeholder identification should be done early in the design process, as that is when you can inform your understanding of the context and, as well as others, and can inform who to meet with and as what their needs are.

The Dispersing stakeholder relationships can provide an understanding of how stakeholders relate to each other and can inform who to meet with and as what their needs are. Use the template on the next page to analyze stakeholders types and roles.

PHASE 2 Engagement



What

The Engagement phase is focused on engaging end users at about learning from stakeholders, recognizing their up to opportunities. While the research conducted may be generally accurate for the given context, a design approach is iterative, adjusting, or adding to the people currently navigate and existing facility. During this phase, you will engage with various stakeholders, including facility members, and facility workers.

User's Guide

This toolkit is intended for health systems leaders, facility administrators, health care providers, implementing partners, as well as designers. The following documents complement one another and should be used in tandem to improve the design of maternal-newborn health care spaces.



Primer



The Primer is the document that you are reading now. It serves as an executive summary of the project, documents our process, and reaffirms the importance of space in improving maternal and newborn health outcomes. An accompanying film piece also captures our process and key insights.

Facility Design Guide



This guide provides an overview of the process of designing improved maternal and newborn care (MNC) spaces. It frames key stages in the design process and explains which stakeholders should be engaged, when important decisions need to be made, and how designs should be iteratively developed with feedback.

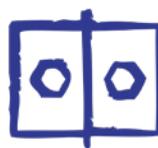


Design Principles



This document contains overarching design guidance and recommendations for MNC spaces. It seeks to empower designers, engineers, facility administrators, and implementing partners with the knowledge to champion impact-driven design.

Design Case Studies



These case studies illustrate the designs we developed for four maternal-newborn care units in Ethiopia and Bangladesh. They provide examples for how the human-centred design process and principles can be applied to specific facilities and contexts.

Key Partners

Core Project Team

The core team was responsible for planning and carrying out the user engagement and facility design initiatives, and developing the toolkit resources.

Institute for Healthcare Improvement (IHI)

Global Health Partner

The Institute for Healthcare Improvement is a global thought leader in quality improvement that has worked with partners in over 40 countries to improve health care systems. IHI brings over a decade of experience working in LMICs and expertise in service delivery strengthening. The project built upon IHI's existing relationships with the Ministries of Health in Ethiopia and Bangladesh and their deep knowledge of maternal-newborn care delivery needs in each country.

MASS Design Group

Global Technical Partner

MASS is a nonprofit design firm that has supported partners in 20 countries with the planning, design, construction, and evaluation of transformative health care environments. MASS brings expertise in human-centred design, and experience implementing projects and design standards with MOH and NGO partners across Sub-Saharan Africa. MASS led the human centred approach, training, and tool development for the Delivering More project, as well as the conceptual redesign of facilities in Ethiopia and Bangladesh.

Fasil Giorghis Consult

Ethiopia Technical Partner

Fasil Giorghis Consult is an architectural design firm based in Addis Ababa with more than twenty years of experience working on health care, civic, cultural, and residential projects in Ethiopia. Fasil Giorghis Consult contributed its understanding of Ethiopian health care delivery and building industry practices and served as the local architect of record in Ethiopia. The firm strives to create community centred buildings by combining the use of local materials, indigenous knowledge, and environmental concerns in contemporary design.

icddr,b

Bangladesh Technical Partner

International Center for Diarrhoeal Disease Research, Bangladesh (icddr,b) is a global health research institute focused on developing, testing and assessing the implementation of evidence-based interventions designed for resource-poor settings. icddr,b contributed their understanding of Bangladeshi health care delivery and building industry practices and served as the local architect of record in Bangladesh.

Implementing Partners

Government partners in Ethiopia and Bangladesh were engaged as part of the design process at the national and regional levels.

Funders

This project wouldn't have been possible without the guidance of our funders and their commitment to improving maternal and newborn care.

Advisors

Many thanks to the individuals and organizations that shared their collective expertise.

Bangladesh Ministry of Health & Family Welfare (MoHFW)

The Ministry of Health and Family Welfare (MoHFW) is a Bangladesh government ministry charged with health policy in Bangladesh. It is also responsible for all government programs relating to health, health care services, and family planning in Bangladesh. The Bangladesh MoHFW is deeply involved in the planning and implementation of health facilities at all scales and will be an instrumental stakeholder in scaling improved facility designs throughout Bangladesh in the future.

Ethiopia Ministry of Health

The Ministry of Health is a federal government ministry of Ethiopia, responsible for public health care delivery. The Ethiopian MoH is deeply involved in the planning and implementation of health facilities at all scales and will be an instrumental stakeholder in scaling improved facility designs throughout Ethiopia in the future.

Bill & Melinda Gates Foundation

Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. Based in Seattle, Washington, the foundation is led by CEO Mark Suzman, under the direction of co-chairs Bill Gates and Melinda French Gates and the board of trustees.

Elsa & Peter Soderberg Charitable Foundation

The Elsa & Peter Soderberg Charitable Foundation is guided by the conviction that it often takes a lead funder to initiate bold, differentiated, sustainable, and scalable programs. We seek to apply our financial and experiential resources in catalytic philanthropy through strategic project selection and grant structuring, establishing transparent and collaborative partnerships with our not-for-profit implementation partners, and active participation in project monitoring and in developing new donor collaborations. Our first question of highly experienced and credible potential partners often is, "What is the most impactful initiative you want to undertake but need a lead partner willing to invest in resources other foundations traditionally avoid?"

Global Goods Steering Committee - Advisory Group

We convened representatives from a range of international NGOs with deep expertise in maternal and newborn health and health care systems improvement to guide the development and dissemination of the Global Goods. These include: the World Health Organization, World Bank, PATH, UNICEF, Save the Children, WHO Quality of Care Network, and NEST 360. The steering committee met at key project milestones to review and provide feedback on the Global Goods, with the goal of expanding the reach and impact of the tools.

Methodology

Startup



Team Assembly

We began by assembling a diverse team of international and local partners. First, IHI brought MASS Design Group on as a global technical partner. MASS offered experience applying human-centred design in numerous LMICs, as well as a background designing and implementing maternal-newborn health projects. We issued Requests for Proposals (RFPs) in Ethiopia and Bangladesh to identify architectural and engineering firms that could contribute local expertise and resources to the process and – through the project – build experience in HCD that they could replicate in future projects throughout the country. After a competitive bid process, the team selected Fasil Giorgis Consult and International Center for Diarrhoeal Disease Research, Bangladesh (icddr,b) as our local technical partners in Ethiopia and Bangladesh.

In order to support global buy-in, applicability, and accessibility, IHI then convened a Global Goods Steering Committee comprising representatives from the World Health Organization, World Bank, PATH, UNICEF, Save the Children, NEST360, and the WHO Quality of Care Network. These individuals offered decades of experience and expertise to inform the direction of the project and the Global Goods we were tasked with producing. They were joined by representatives from the Ministry of Health in Ethiopia, the Ministry of Health and Family Welfare in Bangladesh, and from the project funders - all of whom brought unique perspectives to the project.

Site Selection

Participating sites were selected through engagement with the local Ministries of Health in Ethiopia and Bangladesh. Two hospitals and two health centres were selected in each country. The criteria for selection included: how closely the facility reflected existing standards and the condition at other facilities of a similar scale, the opportunity for replicability across the context, the amount of space available, and opportunities for expansion. After a consultation process, facilities in the Amhara and Afar regions were selected in Ethiopia, and facilities in the Jashore and Munshiganj districts were selected in Bangladesh.

Literature Review

We conducted a literature review in order to leverage existing evidence about the relationship between the built environment and quality of care. The literature review was aimed at expanding the team's understanding of current childbirth care practices in Ethiopia and Bangladesh. We also collected lessons learned from past initiatives to improve maternal-newborn care in other LMICs, including user experience, space, and systems redesign projects.

Tool Development

We then turned our attention to planning how we would assess existing facilities in Ethiopia and Bangladesh and engage a range of stakeholders to understand the needs and opportunities for improved maternal-newborn care. We were tasked with crafting a human centred approach to capture women's experiences and attitudes toward perinatal care and developing a process that could be replicated by others.

We drafted a set of tools that leveraged a broad range of engagement strategies, including interviews, focus groups, simulations, shadowing and observation, and co-design workshops. We realized that it would be important to engage a diverse group of stakeholders in the process, from mothers, family/companions, providers, and community members to facility administrators and MOH representatives. During this time, we also developed tools to conduct detailed engineering assessments at the health facilities we planned to visit. IHI submitted our protocol to secure Institutional Review Board (IRB) approval in both countries. The Immersion Tools were then translated into Amharic and Bengali.

MOH representatives participated in the refinement of the Immersion Tools and coordinated with the selected health facilities and communities in preparation for immersion. Additionally, the MOH helped to secure and share construction documents of the existing facilities with our team as a basis for assessment and redesign.

Engagement



User Engagement

This phase focused on the engagement of end users, including mothers, companions, health care providers, facility staff, and MOH representatives. Over several months, the project team visited health facilities and communities in Ethiopia and Bangladesh to reaffirm our pre-existing understandings of maternal health care experiences, uncover new learnings and insights, and ensure that design solutions would be aligned to local contexts and reflective of stakeholder needs.

In each facility, our team split into two groups. Using the Engagement Tool, the first group was responsible for carrying out interviews, focus groups, and workshops with mothers, companions, providers, and administrators. The engagement team took handwritten notes during all sessions to capture the feedback provided by the various stakeholders and completed reflection sheets at the end of each interaction to note their own observations and further questions. With the express permission of the stakeholder participants, the majority of interactions were also audio/video-recorded so that the team could revisit the conversation and ensure data quality during the analysis phase.

Facility Assessment

The second group – comprising engineers and architects – utilised the Assessment Tool to complete a comprehensive review of the facility's infrastructure, including walls, roofs, and foundations, as well as water, electric, and waste disposal systems, among other elements. The group proceeded to visit and observe each space, documenting their findings in line with the Assessment Tool.

Tool Refinement

Between facility visits, the team debriefed and made minor adjustments to the data gathering tools in response to those experiences and lessons learned.

Capacity Building

An essential part of this process was training local technical partners in human centred design methods. In Ethiopia, MASS led the first immersion trip to two facilities in the Afar Region alongside the Fasil Giorghis Consult and IHI teams. Due to the ongoing civil unrest, MASS was unable to attend the second immersion trip in the Amhara Region, but instead coached the Fasil Giorghis Consult team to carry out the remaining facility assessments. Due to the COVID-19 pandemic and subsequent travel restrictions in Bangladesh, MASS was unable to attend the immersions in both the Jashore and Munshiganj Districts. Instead, MASS led a series of training workshops with icddr,b to prepare them for engagement and assessment on site. A pilot immersion was also conducted ahead of the first immersion to the Munshiganj District.

Analysis

Data Synthesis

Following the conclusion of the facility visits, MASS Design Group, Fasil Giorghis Consult and icddr,b collaborated to sort and analyze the significant quantities of data collected. All written records were scanned and saved electronically for redundancy. Interviews were transcribed and linked with observation notes. Engagement data were sorted by respondent type (e.g., mother, companion, provider, etc.) and collection instrument (e.g., interview, focus group, survey, etc.) so that the data could be analyzed and then considered in relation to other respondents.

Engagement Report

In order to synthesize insights, identify priorities, and propose recommendations, MASS Design Group worked collaboratively with Fasil Giorghis Consult and icddr,b to develop one report for each country summarizing the engagement and assessment outcomes from the immersions in Ethiopia and Bangladesh. These reports included emerging thematic conclusions, assessment findings, annotated space use plans, observations and design opportunities for each care space, and care flow diagrams across different stages of the care journey.





Design

Concept & Schematic Design

MASS Design Group was responsible for developing architectural concept designs for all eight facilities assessed through the project. To translate the learnings from the engagement trips, MASS developed diagrammatic plans illustrating ideas for improved user experiences. These preliminary concepts were reviewed by IHI, Fasil Giorghis Consult and icddr,b, and their feedback was incorporated. All project partners also convened at regular bi-weekly meetings to share progress and provide comments.

For each facility, MASS produced a concept design presentation including an architectural design (basic plans, sections and elevations) and an engineering report. Due to the physical constraints of the facilities in Bangladesh, we produced short-, medium- and long-term options for renovation. The IHI, MASS Design Group and icddr,b teams presented our concept designs at a Ministry of Health and Family Welfare (MOHFW) stakeholder workshop in Dhaka to ensure buy-in from regional and national representatives of the Health Engineering Department (HED) and Public Works Department (PWD). Stakeholders expressed their interest in long-term planning, which signaled a commitment to investing resources in improving MNH outcomes.

Following the review of concept designs, we consulted with the respective Ministries of Health to select one hospital and one health centre in each country that would be advanced to more detailed plans. MASS produced a Schematic Design (SD) drawing set including architectural, structural, mechanical & plumbing, landscape design, civil, and electrical drawings. Along with this drawing set, an SD narrative document was shared to convey full project scope and intentions for further design development for maternal-newborn units in Ethiopia and Bangladesh.

Design Development & Construction Drawings

The local technical partners in each country (Fasil Georghis Consult and icddr,b,) were responsible for carrying the designs forward into the Design Development (DD) and Construction Drawings (CD) phases. MASS and IHI provided oversight and feedback throughout this process through bi-weekly meetings, as well as 50% and 100% design reviews in each stage.

Toolkit Development

Global Goods

In parallel with facility engagement and redesign efforts, we worked to package our learnings and approaches with the aim of allowing others to replicate our human-centred design process. We developed the 'Delivering More Toolkit', which includes this introductory document, as well as a 'Facility Design Guide,' 'Design Principles,' and 'Design Case Studies.'

Together, these resources form a globally applicable toolkit for improving maternal and newborn facility design. The tools highlight common design principles and approaches, as well as topics that should be contextually driven and informed by local user engagement.

The tools are available in both print and digital formats and are complemented by a film piece which documents our process and key insights, leveraging footage captured during the engagements in Ethiopia and Bangladesh and throughout the design process.

Acknowledgements

We have much gratitude to share: To the Ethiopian Ministry of Health and the Bangladeshi Ministry of Health and Family Welfare (MoHFW) for their support of our work and its efforts to select and prepare the facilities to participate in this project; to the Elsa & Peter Soderberg Charitable Foundation and Bill & Melinda Gates Foundation for providing the funds necessary to plan and implement this project; to the Fasil Giorghis Consult and icddr,b teams for their commitment and creativity throughout data collection and for ensuring we interpreted properly what our stakeholders told us; and finally to all of the mothers, families, providers, local authorities, and others in Ethiopia and Bangladesh who were gracious enough to share their time, experience, stories, and ideas with us. We believe that design can have a positive impact on the design of all health care facilities, and we look forward to seeing the impact of our collective work to design improved maternal and newborn care facilities for respectful and dignified care.

Authors

Abdullah Al-Mamum, Technical Coordinator, Bangladesh, IHI
Abera Biadgo, Improvement Advisor, Ethiopia, IHI
Abiyou Kiflie, Director, Ethiopia, IHI
Amie Shao, Principal, MASS Design Group
Andrew Brose, Design Director, MASS Design Group
Mikail Jassat, Designer, MASS Design Group
Minara Chowdhury, Senior Director, IHI
Samina Yasmin, Technical Coordinator, Gender Equity and Communications, Bangladesh, IHI
Stephen Luna-Muse, Senior Projects Manager, African Region Operations Manager, IHI

Bangladesh Technical Partner (icddr,b)

A.K.M Rahmat Ullah
Amit Roy
Md. Al Faruque
Md. Saiful Islam
Md. Sajjad Hossain Sajib
Mohammad Nazrul Islam
Patrick Gomes

Ethiopia Technical Partner (Fasil Giorghis Consult)

Abnet Gezahegn
Abreham Fisseha
Fikreselassie Kassahun
Keniko Duguma
Tadesse Girmay

Implementing Partners

Bangladesh Ministry of Health & Family Welfare
Ethiopia Ministry of Health

Global Steering Committee

NEST 360
PATH
Save the Children
UNICEF
WHO Quality of Care Network
World Bank
World Health Organization

Project Funders

Bill & Melinda Gates Foundation
Elsa & Peter Soderberg Charitable Foundation

