IMPLEMENTATING MODELS OF CARE FOR SMALL AND/OR SICK NEWBORNS

Early Learnings from Indonesia, Mali, Nepal, and Nigeria

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ABBREVIATIONS

CSCOM	Centres de santé communautaire (Mali)
CSREF	Centres de santé de reference (Mali)
FWD	Family Welfare Division (Nepal)
HMIS	Health management information system
IDAI	Ikatan Dokter Anak Indonesia
KMC	Kangaroo mother care
MNCH	Maternal, newborn, and child health
MPDSR	Maternal and perinatal death surveillance and response
NEC	Necrotizing enterocolitis
NICU	Neonatal intensive care unit
QI	Quality improvement
RMNCAEH	Reproductive, maternal, neonatal, child, adolescent, and elderly health
RMNCH	Reproductive, maternal, newborn, and child health
SCN	Special care nursery (Indonesia)
SSNB	Small and/or sick newborn
SSNC	Small and/or sick newborn care
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

BACKGROUND

A comprehensive model for scaling up care for small and/or sick newborns (SSNC) was developed by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) in 2021. The model identified 10 core components to support country governments in their efforts to reduce neonatal mortality in alignment with global and country targets (see Box 1) by meeting the needs of vulnerable newborns requiring specialized care. The SSNC model recognizes that many countries have achieved mortality reductions over time by scaling up efforts in primary health care facilities (community-level and Level 1 facilities) in three areas: basic preventive and promotive newborn care and services; essential newborn care;[i] and high-quality intrapartum care (WHO-UNICEF Expert and Country Consultation on Small and/or Sick Newborn Care Group, 2023). However, critical gaps remain in the provision of quality inpatient SSNC beyond primary health care facilities in many countries.

Box 1. Targets and Initiatives to Reduce Newborn Mortality

Sustainable Development Goal Target 3.2: By 2030, end preventable deaths of newborns and children under age 5, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

Every Newborn: An Action Plan to End Preventable Deaths (ENAP) (Resolution WHA67.10): ENAP is a roadmap of strategic actions to end preventable neonatal mortality and stillbirths while also contributing to a reduction in maternal mortality and morbidity. ENAP targets have been established for global, national, and subnational levels for the 194 countries that have endorsed the resolution and include 1) at least four antenatal care contacts, 2) skilled health personnel attending every birth, 3) postnatal care within two days of birth, and 4) care for small and/or sick newborns. In addition, the ENAP 2020-25 sets a specific target for a functional special care unit for small and/or sick newborns in at least 80% of districts in each country.

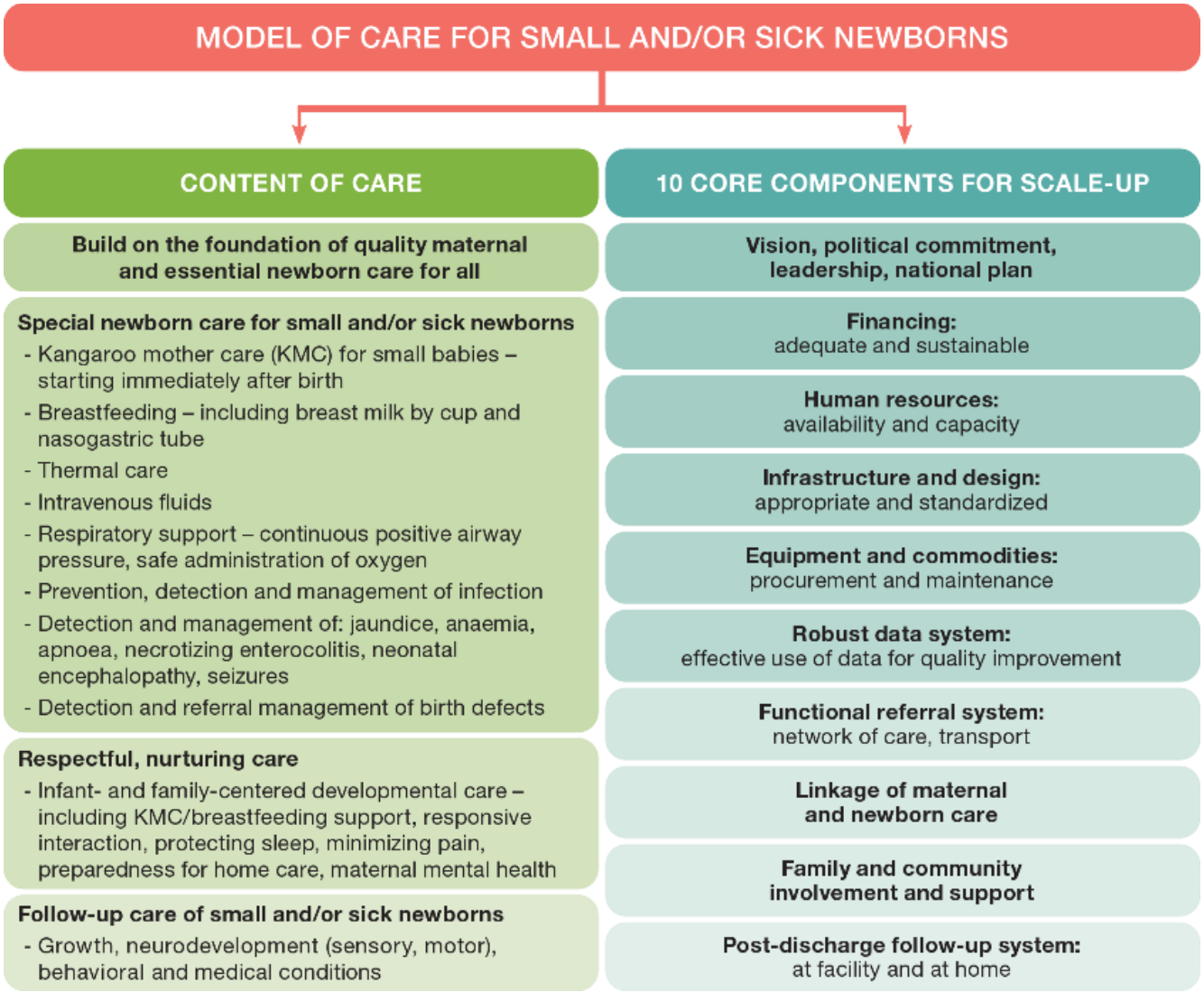
The SSNC model builds upon the SSNC standards developed by the WHO and provides guidance on the content of care that should be provided within Level 2 health facilities to all small and/or sick newborns (SSNBs). The WHO

[i] Essential care as defined by WHO includes: (a) immediate care at birth (delayed cord clamping, thorough drying, assessment of breathing, skin-to-skin contact, early initiation of breastfeeding); (b) thermal care; (c) resuscitation when needed; (d) support for breast milk feeding; (e) nurturing care; (f) infection prevention; (g) assessment of health problems; (h) recognition and response to danger signs; and (i) timely and safe referral when needed. https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/newborn-health/essential-newborn-care

defines Level 2 facilities as typically encompassing district/provincial hospitals with 100-300 beds equipped with major and minor operating rooms and with the capacity to provide short-term treatment of 95-99% of major life-threatening conditions along with cesarean delivery, laparotomy, amputation, hernia repair, tubal ligation, closed fracture treatment, eye operations, removal of foreign bodies, and emergency ventilation and airway management for referred patients such as those with chest and head injuries (Gelb et al., 2018); the facilities are also capable of providing all the procedures typically available at Level 1 hospitals/health centers.

In addition to the guidance, the SSNC model also outlines 10 core components necessary to support the scale-up of SSNC in countries (Figure 1).

Figure 1. Model of Care for Small and/or Sick Newborns with Level 2 Facilities



Source: WHO-UNICEF Expert and Country Consultation on Small and/or Sick Newborn Care Group, 2023.

In many countries, in line with WHO and UNICEF guidance, the recent focus of inpatient care for SSNBs is at Level 2 facilities. However, Level 2 care is also part of a broader continuum of SSNC that includes households and communities, primary health care facilities, and tertiary-level care (Healthy Newborn Network, n.d.; WHO, 2019). Table 1 presents a list of the interventions required at each level of care.

Table 1. Continuum of Care for Newborns Across Health System Levels

LEVEL	TYPE OF CARE PROVIDED	EVIDENCE-BASED INTERVENTIONS
Households/ community	**Preventive and basic newborn care**	Adolescent and preconception health care and nutrition; gender violence prevention; ANC counseling and services (health and nutrition) and birth preparedness; home birth with skilled care and clean practices; essential newborn care; postnatal home visits for mothers and newborns; ongoing care for child at home
Primary	**Essential newborn care**	Immediate newborn care (thorough drying, skin-to-skin contact with the mother, delayed cord clamping, hygienic cord care); neonatal resuscitation (for those who need it); early initiation and support for exclusive breastfeeding; routine care (Vitamin K, eye care and vaccinations, weighing and clinical examinations); prevention of mother-to-child transmission of HIV; assessment, management, and referral of bacterial infections, jaundice and diarrhea, feeding problems, birth defects, and other problems; pre-discharge advice on mother and baby care and follow-up
Secondary	**Special newborn care**	Thermal care; comfort and pain management; kangaroo mother care; assisted feeding for optimal nutrition (cup feeding and nasogastric feeding); safe administration of oxygen; prevention of apnoea; detection and management of neonatal infection; detection and management of hypoglycemia, jaundice, anemia, and neonatal encephalopathy; seizure management; safe administration of intravenous fluids; detection and referral management of birth defects *Transition to intensive care:* continuous positive airway pressure; exchange transfusion; detection and management of necrotizing enterocolitis (NEC); specialized follow-up of infants at high risk (including preterm)
Tertiary	**Intensive newborn care**	Breastmilk feeding through NGT and support including advanced feeding support (e.g., parenteral nutrition) as necessary; mechanical/assisted ventilation, including intubation; screening and treatment for retinopathy of prematurity; surfactant treatment; investigation and management of birth defects; pediatric surgery; genetic services

Source: Adapted from UNICEF, WHO. (2019). *Survive and thrive: transforming care for every small and sick newborn.* Geneva: World Health Organization. https://www.healthynewbornnetwork.org/resource/survive-and-thrive-transforming-care-for-every-small-and-sick-newborn/

In 2020, the U.S. Agency for International Development (USAID) launched MOMENTUM to work in partnership with governments in more than 35 countries to scale up health interventions and improve the overall health and well-being of mothers, children, families, and communities. Within the broader MOMENTUM initiative (Figure 2), several awards—including MOMENTUM Country and Global Leadership, MOMENTUM Integrated Health Resilience, and MOMENTUM Private Healthcare Delivery—have partnered with governments and stakeholders at the national and subnational levels to implement the WHO-UNICEF Comprehensive Model for Scaling up Care for SSNBs in district hospitals in both stable and fragile contexts and with the involvement of both the public and private health sectors. MOMENTUM Knowledge Accelerator leads the common learning agenda across those countries working to implement an SSNC model and supports documentation of implementation processes and experiences.

Figure 2. MOMENTUM Core Global and Mission-Issued Awards

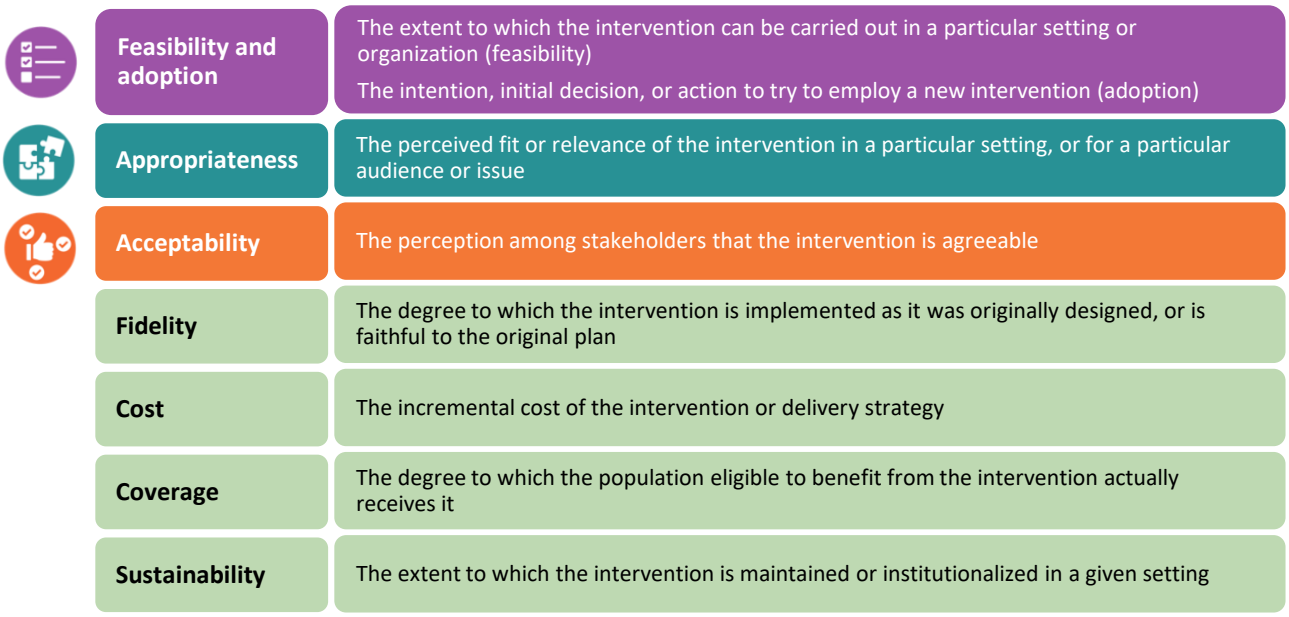
This analysis presents a compilation of early learnings from experiences with MOMENTUM support in Indonesia, Mali, Nepal, and Nigeria, each of which has engaged with national and subnational partners in planning for and/or implementing improved SSNC. In some cases, country governments and their maternal and newborn health partners have worked to adapt, test, and adjust the global WHO-UNICEF Comprehensive Model for Scaling up Care for SSNBs in district hospitals based on their local contexts; in others, the work to develop a country-specific model of care began prior to the release of the global guidance. The purpose of this report is to present common approaches used in the early stages of implementation of the 10 core components in this diverse set of MOMENTUM countries, along with emerging challenges and learnings.

Methods to Create a Common Learning Agenda

IDENTIFICATION OF AN IMPLEMENTATION OUTCOMES ANALYSIS FRAMEWORK AND COMMON LEARNING QUESTIONS

Each MOMENTUM in-country team developed a plan to carry out its own documentation and learning efforts specific to its country's priorities. In addition, MOMENTUM Knowledge Accelerator aimed to ensure that key experiences and learnings across early implementation activities were systematically captured and disseminated to inform future country and global efforts. To that end, the teams jointly developed a set of common learning questions over two virtual meetings in April 2022. Questions were organized around a framework of implementation outcome variables developed by David Peters and colleagues (2013) to support analyses of implementation efforts (Figure 3).

Figure 3. Implementation Outcome Variables



Source: Peters et al., 2013.

Although each variable in the framework represents an important aspect of implementation, individual variables may have more or less relevance based on the specific implementation experience underway. For example, the **feasibility and adoption, appropriateness, and acceptability variables** may be particularly relevant to the implementation of a new intervention or approach, while **fidelity**, **cost**, **coverage**, and **sustainability** may be more relevant to the continued implementation of an existing intervention.

Table 2 presents the agreed-upon common learning questions across the participating countries implementing an SSNC model with MOMENTUM support. As the countries were in the earlier stages of adoption and implementation at the time of this content analysis, this report presents findings from the learning questions in bolded font below.

Table 2. Common Learning Questions for MOMENTUM Awards Supporting Implementation of an SSNC Model

IMPLEMENTATION OUTCOME VARIABLES	COMMON LEARNING QUESTIONS
Feasibility (and adoption)	1. Which components of the model for SSNC have been implemented and in which specific contexts? – **Who was engaged in the process of implementation of the model? Why and how were they engaged?** – **What have been key barriers to model implementation? Why?** – **What strategies have been effective in overcoming barriers to model implementation? Why?** – What health system or process adaptations, if any, were necessary to implement the model (or specific components of the model) within different settings and why? What steps were taken to make these adaptations? 2. Which of the quality of care standards for SSNC have been prioritized for implementation and in which specific contexts? – **To what extent were existing efforts to improve quality of care leveraged to integrate (or introduce) the quality standards for SSNC? How successful were these efforts? What influenced success (or failure)?** – What have been key barriers to implementation of the quality of care standards? Why? – What strategies have been effective in overcoming barriers to implementation of the quality of care standards? Why? Are there certain components of the SSNC model that are important to strengthen in order to implement the standards?
Fidelity	3. What adaptations were required to implement the standards of care? Why were those adaptations needed? 4. What specific factors (e.g., existing human resources or budgets) have influenced fidelity to implementation of the standards for quality of SSNC?
Appropriateness	5. **To what extent are the standards for quality of SSNC appropriate…** …given the epidemiological profile in the specific context/setting? **…for various stakeholders (e.g., providers, managers, the community, nongovernmental sector, etc.)?** 6. To what extent are the family and community involvement, linkages of SSNC with quality maternal health care, and post-discharge care components of the model appropriate… …given the epidemiological profile in the specific context/setting? …for various stakeholders (e.g., providers, managers, the community, nongovernmental sector, etc.)? 7. By whom and how (i.e., using which criteria) has this appropriateness been determined?

IMPLEMENTATION OUTCOME VARIABLES	COMMON LEARNING QUESTIONS
Acceptability	8. Which of the family and community involvement, linkages of SSNC with quality maternal health care, and post-discharge care components of the model are acceptable to different stakeholder groups? Why? 9. Which of the standards for quality of care are acceptable to which stakeholders (e.g., parents and families, health care workers, policymakers, and program managers) and why? 10. To what extent was the intervention agreeable with stakeholders?*
Coverage	11. What systems are in place (e.g. HMIS, registers, etc.) to measure/monitor the coverage, unmet need, quality of provision and experience of SSNC? – What strengthening of these systems is required, if any? Why? Who needs to be engaged? For what reasons may variations exist? 12. How is the information that is being collected used for quality improvement of implementation of SSNC?
Sustainability	13. How has testing of the SSNC model influenced national and subnational implementation plans for SSNBs? What plans are in place as a result? 14. What capacity enhancement efforts were necessary to implement the SSNC model? For whom? 15. What, if anything, has influenced the availability of dedicated government and/or partner funds to move from testing the SSNB model of care to scale-up in country?

** The third question under "Acceptability" was added during the analysis as it became apparent that the country learnings were focusing on acceptability from the perspective of various stakeholders.*

CROSS-COUNTRY LEARNING OPPORTUNITIES

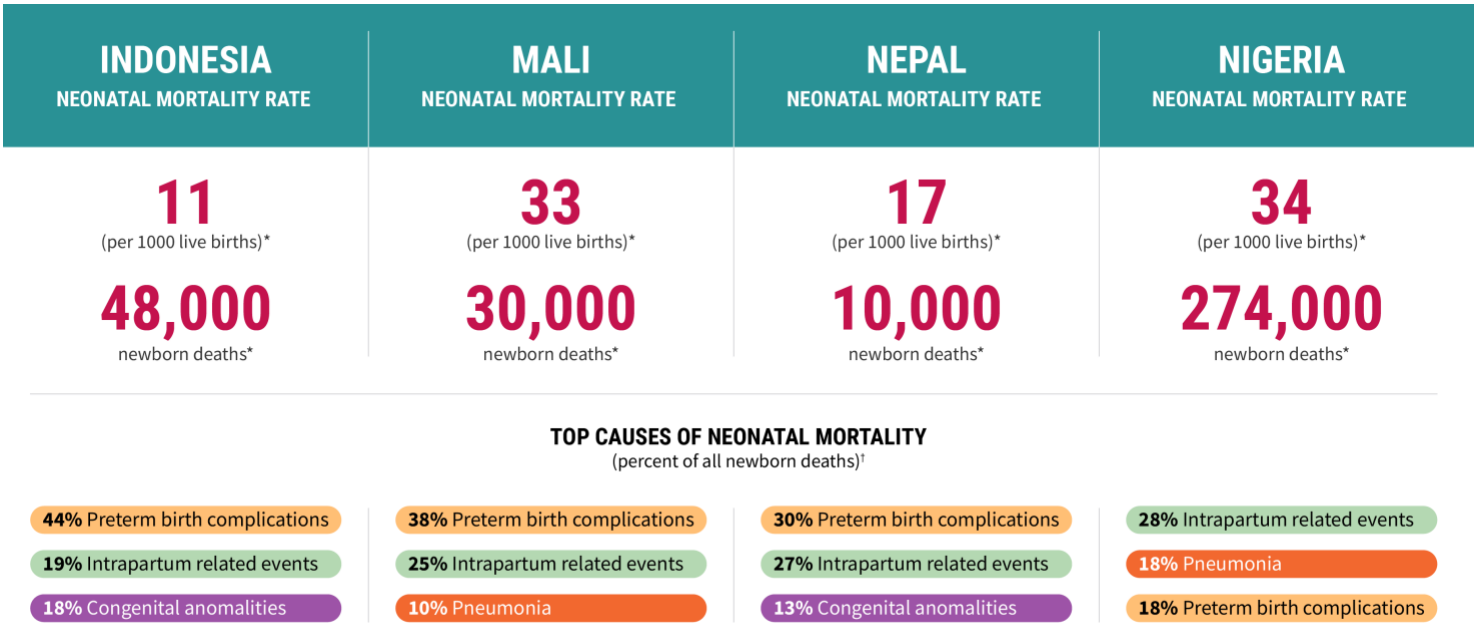
MOMENTUM Knowledge Accelerator developed various mechanisms to facilitate experience-sharing and to inform future implementation efforts across the diverse country settings. This included initiating a series of team-to-team virtual meetings as well as creating opportunities for cross-country sharing and learning during in-person meetings (e.g., a side meeting with MOMENTUM staff was held during the International Maternal Newborn Health Conference in Cape Town, South Africa, in May 2023). MOMENTUM Knowledge Accelerator also met virtually and in person with each MOMENTUM country and headquarters team throughout 2022 and 2023 for detailed discussions on the status of implementation; processes undertaken; and key challenges, opportunities, and learnings. The teams then co-created case studies documenting their experiences in Indonesia, Mali, Nepal, and Nigeria, following which MOMENTUM Knowledge Accelerator conducted a content analysis to identify cross-country themes. Detailed case studies for each country were published separately and are available here.

The results of this content analysis are presented below, following a brief background on the status of newborn health and the history of SSNC efforts in each country.

Results

Given the stage of implementation in each country, the focus of activities to date has been to determine the **acceptability**, **appropriateness,** and **feasibility** of the model of care. The four countries represent diverse settings with different newborn health challenges (Figure 4).

Figure 4. Status of Newborn Health in Indonesia, Mali, Nepal, and Nigeria



*United Nations Children's Fund (UNICEF), 2024.

**Sharrow et al., 2023.

†WHO & Maternal and Child Epidemiology Estimation Group, 2023, 2022, 2020. *Note: the individual Indonesia case study presents national data, as preferred locally.*


PHOTO: USAID

All four countries benefitted from early investments in newborn health, including with the support of the WHO, UNICEF, PATH (in Nepal), Nest 360 (in Nigeria) and the Saving Newborn Lives (Save the Children USA) project. As a result of these efforts, they were among the first countries to develop country-specific Every Newborn Action Plans and have since generated evidence on SSNC in primary care settings that has informed both global guidelines and country-level programs.

SSNC in **Indonesia** is led by the Ministry of Health's Maternal Child Health and Nutrition Directorate and Quality Health Services Directorate, and has been supported by partners including the Neonatology Task Force, the National Referral Hospital RSCM, the East Nusa Tenggara Provincial Government and Health Office, MOMENTUM Country and Global Leadership, MOMENTUM Private Healthcare Delivery, the UNICEF and WHO Jakarta offices, and professional associations including Ikatan Dokter Anak Indonesia (IDAI) - the Indonesian Pediatric Society. Because the private sector is so robust, the Indonesian Government and its partners have worked to improve SSNC in both public and private facilities, including nongovernmental service providers from faith-based, for-profit, and independent practices.

The Government of **Mali** has long focused on improving the health and well-being of newborns. In 2001, Mali conducted a newborn health situation analysis, and in 2003 an essential newborn care package was developed for both the community and facility levels (Franco et al., 2016). By 2006, the government developed a Roadmap for Accelerating Reduction of Maternal and Neonatal Mortality (Franco et al., 2016). Mali's current national strategy on newborn health outlines key interventions to reduce maternal and newborn mortality and builds on these previous policies and strategies. Improving SSNC has been identified as a critical area of concern. In northern Mali, a fragile setting with multiple concurrent health system challenges, the focus of SSNC activities to date has been on strengthening community and primary health care (Level 1) activities, particularly at community centers (centres de santé communautaire, "CSCOM") and at Level 2 referral health centers (or centres de santé de reference, "CSREF") when a community center cannot manage a case.

Nepal has been a global leader in newborn health. This focused approach has been noted as a key contributor to Nepal's success in reducing child mortality overall (Hirschhorn et al., 2020). It was the first low-income country to develop a national newborn-specific strategy in 2004 (Pradhan et al., 2012) and one of the first countries to pioneer and scale up the use of chlorhexidine to prevent neonatal deaths due to umbilical cord stump infection (Hodgins et al., 2019). By 2010, Nepal had achieved 22 of the 27 benchmarks (Moran et al., 2012) to measure readiness to integrate and scale up newborn survival interventions (Pradhan et al., 2012). These successes have been attributed to political leadership and commitment, media and public advocacy (including the strong involvement of professional organizations), better data and locally generated evidence, and an expanded community-based program focusing on newborn health (Hodgins et al., 2019; Pradhan et al., 2012). More recently, Nepal's SSNC work has focused on planning to test a proposed model of care following a comprehensive situation assessment.

In **Nigeria**, SSNC work is well established following several years of government commitment and investments to improve the quality of SSNC across the country while concurrently strengthening primary-level care. Nigeria's first Every Newborn Action Plan was established in 2016 and prioritized a four-pronged approach of (1) promoting facility-based deliveries at scale that address equity issues; (2) strengthening community-based interventions; (3) strengthening facility readiness for providing quality care for the newborn; and (4) providing quality care for the newborn, with a focus on labor, birth, and immediate care after birth during the first week of life (Federal Ministry of Health, 2016). In 2018, the Federal Ministry of Health established a national Maternal, Newborn, and Child Health (MNCH) Quality Improvement Technical Working Group that initiated the development of a first-ever national quality of care strategy for reproductive, maternal, newborn and child health (RMNCH) (Quality of Care Network, 2023).

In 2019, with the support of NEST360, an international alliance of clinical, technical, and public health experts, the government has worked to implement a package of care that includes affordable technologies, training for clinicians and biomedical technicians, and use of locally owned data to deliver quality SSNC. In 2020, Nigeria's Federal Ministry of Health began work to implement its SSNC model with national and state-level partners including MOMENTUM Country and Global Leadership; NEST360; professional associations; and other maternal and newborn health stakeholders including UNICEF, WHO, the USAID Integrated Health Program, community service organizations, and private health institutions. State-level engagement has included state Commissioners of Health, state health management information system (HMIS) officers, Executive Secretaries of the state primary health care board, and state quality improvement (QI) officers/focal points.

Table 3 summarizes the focus of SSNC activities to date in each country.

Table 3. Focus of Country SSNC Activities to Date and Prioritized Components of a Model of Care in Indonesia, Mali, Nepal, and Nigeria

COUNTRY	SSNC FOCUS TO DATE	PRIORITIZED COMPONENTS OF AN SSNC MODEL									
		Vision	Financing	Human resources	Infrastructure	Equipment	Functional network	Data systems	Linkages	Family/ community involvement	Post-discharge
Indonesia	Subnational, Level 2 and Level 3 facilities, public and private sector, guidelines for Level 1 facilities			X	X	X	X	X	X	X	
Mali	Gao and Timbuktu districts, Level 1 primary-level community centers and Level 2 referral facilities			X		X	X	X	X	X	
Nepal	Bagmati province, Level 2 facilities	X	X	X	X	X	X	X	X	X	X
Nigeria	Federal and state, Level 2 facilities	X		X	X	X	X	X	X	X	X

Prioritized Components of the Model of Care and Rationale in Countries

In each country, government and partners worked collaboratively and deliberately to determine what components of care would be most **appropriate** and **feasible** within the specific target settings and what adaptations were necessary to fit the model of care into local realities.

INDONESIA

Key areas of focus for implementation of an SSNC model in Indonesia include quality improvement in hospitals; emergency obstetric and newborn care services; referral between the private and public sectors; Maternal, Perinatal, and under-5 Death Surveillance and Response (MPDSR) reviews and scorecards; hospital mentorship programs; and infant- and family-centered developmental care (IFCDC) (Dwirani et al., 2023). Planning for the rollout of SSNC began with mentoring activities in six Level 3 hospitals[2] in East Nusa Tenggara province, including skills and institutional readiness assessments to examine aspects of **acceptability**, **appropriateness**, and **feasibility**. The institutional readiness assessments focused on evaluating the existing clinical performance of the hospitals with respect to:

- Initial response for newborn emergency
- Neonatal resuscitation
- Early initiation of breastfeeding
- Management of in-hospital breastfeeding
- Kangaroo mother care (KMC)
- Management of low birthweight babies
- Management of neonatal complications

PHOTO: ESTER L. HUTABARAT/ MOMENTUM PRIVATE HEALTHCARE DELIVERY INDONESIA

The MPDSR reviews and readiness assessments revealed several potential priority issues for capacity enhancement (including inadequacies in management, emergency response, and follow-up) which resulted in several recommendations for facilities to implement. These recommendations, which the facilities are using as an entry point to implement quality improvement approaches, include instituting technical updates to Level 2 and Level 3[3] providers on the management of infants with infections; holding in-house trainings (e.g., for management of neonatal asphyxia, infants with infections, premature infants with respiratory distress syndrome, and preterm labor); organizing internships at mentor hospitals; and implementing regular maintenance schedules for neonatal devices (Dwirani,

[2] In Indonesia, hospitals designated as Level 3 facilities correspond to Level 2 hospitals as defined by the World Health Organization.

[3] Note that these are Indonesia classifications of Levels 2 and 3 rather than WHO classifications.

2023). In addition, a MPDSR application co-developed by MOMENTUM became an important tool for immediate notification (within 24 hours) of newborn death and documentation of the suspected cause of death.

The Government of Indonesia and MOMENTUM Country and Global Leadership worked together from December 2022 to July 2023 to build the capacity of regional referral facilities, particularly those serving several remote islands in East Nusa Tenggara, to mentor staff from other hospitals, improve referral networks of care, and to care for sick newborns in their facilities. In addition, the teams contributed to the development of a national Low Birthweight Preterm Newborn Guideline for primary-level facilities.

In the private sector, MOMENTUM Private Healthcare Delivery supported an analysis of barriers and enabling factors for infant- and family-centered developmental care (IFCDC) within private facilities, contributing to understanding the **appropriateness** and **feasibility** of implementing an important component of the SSNC model. Aspects of IFCDC that were of particular interest included emotional, psychosocial, and developmental support to newborns and their families in neonatal intensive care units (NICUs) and special care nurseries (SCNs); linkages (including private sector referrals); and family and community involvement in maternal and newborn care.

MALI

In Mali, district authorities selected facilities in Gao and Timbuktu health districts, which are being supported by MOMENTUM Integrated Health Resilience, to strengthen SSNC. These districts are substantially affected by conflict; many roads are unsafe, creating significant barriers for families to travel to Level 2 facilities, or district/provincial hospitals. For this reason, Level 1 facilities were prioritized for service provision for SSNC, as the health system in these districts is not yet ready to strengthen SSNC in Level 2, as recommended by the WHO and UNICEF-endorsed model. The Ministry of Health and MOMENTUM activities are focusing on strengthening SSNC at Level 1 first, taking a phased approach to prepare for scale-up of SSNC into Level 2 care in the future. The selected facilities for attention include 38 community health centers (20 in Gao and 18 in Timbuktu), two private clinics, and two referral health centers (Sharkey et al., 2023).

Prioritized interventions to improve SSNC at Level 1 facilities include: 1) kangaroo mother care for low birthweight and premature newborns; 2) management of possible serious bacterial infection, including provision of outpatient care in cases where referral is not feasible as part of the rollout of updated IMNCI guidelines; and 3) essential newborn care, including treatment of birth asphyxia and neonatal resuscitation. Related key actions for quality of care strengthening include training of health facility staff with trainee follow-up after 4-6 weeks, coaching, mentoring, and integrated supervision. In addition, a June 2022 national workshop brought together representatives from the National Office for Reproductive Health and various technical partners including MOMENTUM Integrated Health Resilience, the Malian Association of Pediatricians, the Malian Society of Gynecologists and Obstetricians, the University of Bamako's Faculty of Medicine and Dentistry, and the National Institute of Training in Health Science. The workshop identified several key priorities for quality of care, aligned with the WHO SSNC model (Table 4).

PHOTO: LAZARE COULIBALY/MOMENTUM INTEGRATED HEALTH RESILIENCE

Table 4. Domains of Quality of Care for SSNC Prioritized for Implementation in Mali

DOMAIN	PROJECT-WIDE (BOTH REGIONS)	GAO	TIMBUKTU	NATIONAL
1. Evidence-based practices		✓		
2. Actionable information systems		✓(premature, LBW)		
3. Functioning referral systems				
4. Effective communication and meaningful participation				
5. Respect, protection, and fulfilment of newborn rights and preservation of dignity		✓ birth registration at facility		✓ training to use respectful language and minimize mother-baby separation
6. Emotional, psychosocial, and developmental support				
7. Competent, motivated, and empathetic multidisciplinary human resources	✓ kangaroo mother care	✓community center providers (midwives, general doctors, obstetric nurses)	✓ kangaroo mother care	
8. Essential physical resources for SSNBs		✓ kangaroo mother care		

Given the conflict-affected and resource-constrained context, another activity underway is the creation of community funds through local community health associations to help families access transportation to receive SSNC services. Partnerships among CSCOM, CSREF and community health associations are also being forged to help avoid stockouts of SSNC commodities and supplies and to strengthen referral networks so SSNBs receive timely care.

NEPAL

Determining the extent to which the WHO-UNICEF SSNC model is appropriate and acceptable in Nepal involved an intentional and novel process initiated by the Ministry of Health and Population and its Family Welfare Division in February 2022. Together with key partners including UNICEF and WHO (who are lead in-country partners for Nepal's Every Newborn Action Plan) and MOMENTUM Country and Global Leadership, the government formed a core team to oversee the model development process. Given that newborn interventions are provided across different levels of care, determining the **appropriateness** of the model for Level 2 facilities was an important consideration, as was determining the **feasibility** of incorporating the defined standards of care into the local context (Khadka et al., 2023).

Following consensus among key in-country stakeholders on the steps needed to develop the Nepal-specific SSNC model, the process began with a desk review of existing national guidelines as well as a partner mapping of all actors working in maternal and newborn health in Nepal, organized by thematic focus, interventions, training activities, and geographic coverage. Subsequently, the Family Welfare Division (FWD) convened a series of consultations with experts at the national and subnational levels, including lead partners such as USAID, UNICEF, WHO, and

MOMENTUM Country and Global Leadership. Next, a series of small group meetings on the 10 components of the model of care was held with subject-matter experts, including members of professional societies; neonatologists and nurses from Level 2 and Level 3 facilities; program managers; health and logistical management information systems experts; pediatricians; medical officers; facility-in-charges from Level 2 facilities; and experts in early childhood development, ophthalmology, and nutrition. In these meetings, the experts reviewed the completed analytical framework for a component of the model and drafted recommended interventions based on local knowledge and experience. This framework formed the foundation for the draft Nepal-specific SSNC model, which was shared and vetted with subnational, national, and international experts and partners at a validation workshop hosted by the MOHFW in September 2022.

Stakeholders agreed on the need to pilot Nepal's SSNC model prior to national scale-up. The FWD and MOMENTUM Country and Global Leadership have since identified implementation pilot sites, conducted site visits, and met with provincial leadership to ensure agreement on the way forward for a one-year pilot period. Based on pilot results and simultaneous learning and documentation, Nepal's SSNC model will undergo adaptation to inform further implementation and scale-up. Nepal's experiences underscore the importance of contextualizing global standards by engaging national and subnational stakeholders to co-design implementation models that are pilot tested to ensure feasibility and implementation at scale.

NIGERIA

Improving quality of care for newborns in Level 1 and Level 2 facilities is a key priority outlined in Nigeria's RMNCH strategy. In addition, the Federal Ministry of Health has released criteria for services to be provided at Level 2 facilities, which have been identified as needing additional strengthening and are the focus of Nigeria's new Every Newborn Action Plan currently under development (Adung et al., 2023).

Table 5 provides a summary of the various components of the WHO model of care, domains of care, and quality of care standards that have been prioritized by the Federal Ministry of Health for implementation in Nigeria.

Table 5. Domains of Care and Quality of Care Standards Prioritized for Implementation in Nigeria*

	DOMAIN OF CARE PRIORITIZED		QUALITY OF CARE STANDARDS PRIORITIZED
✓	1. **Quality maternal care and essential newborn care**	✓	1. **Evidence-based practices**
✓	2. **Level 2 newborn care**		2. Actionable information systems
✓	3. **Respectful, nurturing care**	✓	3. **Functioning referral systems**
✓	4. **Follow-up care of SSNBs**	✓	4. **Effective communication and meaningful participation**
		✓	5. **Respect, protection, and fulfilment of newborn rights and preservation of dignity**
			6. Emotional, psychosocial, and developmental support
		✓	7. **Competent, motivated, empathetic, and multidisciplinary human resources**
		✓	8. **Essential physical resources for SSNBs**

**Prioritized Items are shown in bold*

PHOTO: DHONY APRIANTO/MOMENTUM PRIVATE HEALTHCARE DELIVERY INDONESIA

At the national level, MOMENTUM Country and Global Leadership and its partners completed a desk review of existing policies in June 2022 (including the 2016 MNCH Quality of Care Strategy) to inform an update of Nigeria's Reproductive, Maternal, Neonatal, Child, Adolescent and Elderly Health (RMNCAEH) Strategy. The draft strategy, which highlights SSNC as critical for reducing child mortality, was shared with stakeholders across the Federal Ministry of Health for feedback and is slated for its formal launch in August 2024. The MNCH Quality Improvement Technical Working Group is developing a plan for adoption and dissemination of the strategy at both national and state levels; hosted by the Federal Ministry of Health, the working group is a major leadership forum of partners, academia, institutions, providers, and other subnational actors.

Comprehensive and basic newborn care guidelines, adapted from the WHO standards and including SSNC, have been developed and disseminated and are currently being implemented across the country, as has a facilitator training curriculum to generate a national pool of trainers for health workers. Further, a curriculum for biomedical engineers and technicians has been developed and is being disseminated to support the availability of essential SSNC equipment at Level 2 and Level 3 facilities. Finally, quarterly meetings of the Newborn Subcommittee of the Child Health Technical Working Group were held to discuss guideline development feedback from states and their supporting partners on SSNC implementation challenges.

In 2022, NEST360 and MOMENTUM Country and Global Leadership conducted health facility assessments at two pilot facilities (one urban, one suburban) to determine current gaps and needs for implementation of Nigeria's SSNC model. Major gaps were identified in human resources and infrastructure, including power supply and equipment. In addition, since 2022, the Newborn Subcommittee has led the adaptation of the WHO SSNC standards for the Nigerian context. In partnership with the CROSDAT Research Team for Newborn Research at Alex Ekwueme Federal University, Ndufu-Alike Ikwo, Ebonyi State (AE-FUNAI), MOMENTUM Country and Global Leadership and NEST360 are collaborating on pilot implementation research for SSNC at two pilot facilities. The research focuses on assessing the quality of implementation of Level 2 inpatient services for SSNC in the pilot facilities, as well as identifying facilitators and barriers to care through interactions with providers and end users. Learnings from this research will be documented and disseminated through country case studies, a peer-reviewed manuscript, and briefs.

Implementation Challenges

To date, implementation processes in each country have focused on identifying which aspects of the model of care are feasible, appropriate, and acceptable. Stakeholder discussions and consultations at various levels have unveiled challenges even at these early stages. Table 6 provides an overview of the challenges identified that are specific to the components of the SSNC model. Common challenges across the four countries include difficulties coordinating across partners (particularly in decentralized contexts), insufficient financing to support implementation and scale-up, and difficulties ensuring a sufficient cadre of health workers to provide high-quality SSNC.

Table 6. Challenges Identified in Each Country Relating to the Components of the WHO Model of Care

SCALE-UP COMPONENT	INDONESIA	MALI	NEPAL [1,2,3]	NIGERIA
Vision	Indonesia's Every Newborn Action Plan has expired. Undertaking work at the national level is challenging because different provinces and districts have many competing priorities. In addition, the national Technical Working Group for Maternal Mortality and Infant Mortality Rate Reduction has been disbanded.	Government leadership and coordination of partners (e.g., through an MNCH technical working group) is lacking at regional and district levels.	There are inadequate political commitments at the provincial level for newborn care, and lack of sufficient coordination between the three tiers of government (federal/ provincial/local).	There is a need for clear agreement among the Federal Ministry of Health and its partners to coordinate and implement guidelines for quality standards/ indicators.
Financing	Maternal and newborn health is already covered within the government's budget but, for many SSNB conditions, cost reimbursement for SSNC at hospitals is low or inadequate.	The health system is resource constrained and services are impacted by conflicts and security issues.	Free newborn care is a national policy, yet most neonatal intensive care units and special newborn care units are functioning inadequately due to inadequate financial resources.	Free health care in Nigeria is focused at Level 1 care only. Some financing (from central government) exists for SSNC at Level 3 facilities. However, there is no clear financing or resourcing for SSNC at Level 2 facilities, which are under the purview of state governments.
Human Resources	Human resources for SSNC are a substantial challenge: there is a shortage of neonatal nurses, neonatologists, and biomedical engineers and health workers at all levels require significant capacity building.	There is low health worker capacity and high staff turnover among community centers and primary-level referral centers.	Among Level 2 facilities, there is: insufficient training, mentoring, and coaching for health workers; inadequate numbers and cadres of staff available with the required skills/knowledge; persistent absence of health workers; and inaccessible facility opening hours.	There are insufficient numbers of neonatal nurses (due to attrition, poor remuneration, and even unemployment of those trained due to lack of budget allocation from state governments to health facilities). There is a lack of biomedical engineers and technicians, with no plan to replace those who leave their posts.

SCALE-UP COMPONENT	INDONESIA	MALI	NEPAL [1,2,3]	NIGERIA
Infrastructure	Facilities, including Level 3 hospitals (particularly in the private sector), need infrastructure upgrades to achieve the recommended standards. Hospital accreditation status should be reviewed to ensure that each level of hospital can provide expected services.	Lack of space even at level 1 and 2 health facilities to accommodate KMC services and families of the preterm babies.	Infrastructure in facilities is poorly maintained and most facilities lack the appropriate physical space for newborn care.	Level 2 facilities lack the physical space for dedicated SSNC.
Equipment	Inequities exist in meeting the Ministry of Health standards for SSNC equipment at primary-level facilities.	Health facility assessments revealed a lack of availability of commodities. There are widespread stockouts—particularly in Timbuktu—of iron and folic acid combination tablets, tetanus toxoid vaccine, and injectable penicillin. In addition, there is lack of furniture and equipment to support care for LBW and preterm newborns (e.g. newborn scales, warmers, clocks and clothing).	There are persistent stockouts of drugs and commodities and equipment is poorly maintained in facilities.	Data from health facility assessments revealed that even where equipment exists, there is a lack of capacity to operate and maintain essential equipment for SSNC. Particularly in areas outside the main cities, equipment is abandoned/not used, resulting in "equipment graveyards."
Functional Network (Referral)	A functional referral network with an information system to support it was not available and is now being developed.	A government-endorsed referral framework exists but the system is not functional due to security risks and lack of resources to support referrals.	There is a lack of standard referral guidelines at all levels (national, provincial, local, facility)	There is lack of clarity in roles and responsibilities related to the referral pathways across different facility levels.

SCALE-UP COMPONENT	INDONESIA	MALI	NEPAL [1,2,3]	NIGERIA
Data Systems	Multiple health information systems exist, therefore the Ministry of Health is working to consolidate data systems into one data platform (called Satusehat) with individual-level data.	DHIS2 data entry was not happening in Gao.	There is poor use of data and evidence in planning and review processes at all levels, inadequate data recording in Level 2 and Level 3 facilities, and inadequate reporting of newborn data.	The reporting is entirely paper-based and has few indicators for SSNB care which is insufficient for newborn ward quality improvement teams.
Linkages	Functional linkages across private/public facilities and across facilities at different levels are a challenge in such a complex and decentralized country. Creating centers of excellence throughout the country is one strategy underway.		There is poor availability of transport vehicles and lack of dedicated health workers for referring SSNBs.	There is a poor referral process from surrounding hubs with poor documentation and minimal feedback. There is no infrastructure to convey SSNB between all points of the system.
Family/Community Involvement	A focus of professional associations broadly; MOMENTUM Private Healthcare Delivery has been implementing patient satisfaction surveys, local accountability mechanisms, and other community involvement actions for SSNC specifically.	Due to frequent security problems, there has been massive population displacement, destruction of property, and lack of economical opportunities, making it difficult to engage and organize with local communities in support of health services.	There is poor communication by health workers in Level 2 facilities to parents about newborn's condition and required management; major gaps in knowledge among health staff on creating enabling environments within facilities for infant- and family-centered developmental care.	No defined protocol or strategy for family or community engagement. Families often receive a briefing on the SSNB's condition but management of communication is often one-sided and families have little or no inputs.

SCALE-UP COMPONENT	INDONESIA	MALI	NEPAL [1,2,3]	NIGERIA
Post-Discharge	National and subnational strategic implementation plans are needed.	A government-endorsed post-discharge follow-up and care strategy exists, but is not being operationalized due to lack of financial and human resources. The frequent security issues are a barrier for mothers and newborns to receive postnatal care.	There is poor postnatal care follow-up and knowledge about kangaroo mother care at home among community health workers and providers at primary and Level 2 facilities, which affects the identification of infants needing care.	No implemented strategy besides clinical information provided at discharge. Current tools do not support monitoring SSNB outcomes in the long-term.

Sources: [1]MOMENTUM Country and Global Leadership Nepal, n.d.; [2]Government of Nepal Ministry of Health, 2016; [3]Ministry of Health Department of Health Services, 2020.

In each of the focus countries, discussions did not end with the identification of challenges; subsequent consultations garnered recommendations for actions to reduce or resolve them. For example, Table 7 shows a summary of discussions held in July 2022 during a provincial consultation in Nepal to identify recommended actions.

Table 7. Provincial Stakeholders' Challenges and Recommendations to Improve SSNC Quality in Hospitals in Nepal (Levels 2 and 3)

CORE COMPONENTS	EXISTING ISSUES, CHALLENGES, GAPS	RECOMMENDATIONS / SOLUTIONS
Vision: political commitment, leadership, national plan	Inadequate political commitment to newborn care; weak leadership at provincial and local levels for newborn care; inadequate national policies and plans for SSNC	Advocate for increased prioritization of newborn issues in programs and budgets. Strengthen coordination, collaboration, and co-existence mechanism among federal, provincial, and local levels.
Financing: adequacy and sustainability	Budget constraints for newborn care, including inadequate financial incentives through the free newborn care policy for families to seek care	Allocate adequate funding and budget for scaling up newborn care interventions at national, provincial and local levels. Review and revise incentive schemes for newborns (free newborn care policy).
Human resources: availability and capacity	All health workers providing SSNC have not yet received comprehensive newborn care training; inadequate supply of health workers and issues of retention due to short-term contracting mechanisms	Assessment of training needs; rapid roll out of training to health providers providing SSNC with coaching and mentoring systems for retention of skills. Long-term contract, permanent position within the health system for providers (e.g., nurses, doctors) where gaps exist.
Infrastructure and design: appropriateness and standardization	Lack of clear guidance on infrastructure and design for SNCUs; facilities not ready for infant- and family-centered developmental care	National standard operating guidelines on infrastructure for SNCUs and for provision of infant- and family-centered developmental care.
Equipment and commodities: procurement and maintenance	National essential medicines list needs review and updating; maintenance of SNCU equipment not institutionalized	Review and update national essential medical list. Build capacity of biomedical technicians and engineers and establish system for regular maintenance and repair of SNCU equipment.

Robust data system: effective use of data for quality improvement	Forms and formats for SSNC inadequately completed; issues of data quality; inadequate use of data for planning newborn programs and interventions	Training on management of information system for SNCUs. Strengthen capacity to utilize existing SSNC forms and formats to ensure data quality and regular reporting. Point-of-care quality improvement training for health providers to improve use of data.
Functional referral system: network of care and transport	Multiple guidelines exist but are not properly followed; no standard referral network; unavailability of transport vehicles	Integrate the multiple guidelines into a single and comprehensive document for SSNC referrals.
Linkages of maternal and newborn care	Inadequate coverage of delivery care by skilled birth attendants (SBAs); low coverage of postnatal care visits for women whose babies are in SNCUs	Ensure coverage by skilled birth attendants through coordination with relevant focal points within the national and provincial government structures. Establish KMC in delivery sites providing essential newborn care to ensure non-separation of mother and baby dyad. Ensure mothers of babies in KMC and SNCUs do not miss out on routine PNC by coordinating with the maternity unit in the facility.
Family and community involvement and support	Inadequate communication between health providers and families on newborns' condition and treatment; lack of infant- and family-centered developmental care (IFCDC) across all inpatient SSNC	Integrate IFCDC within existing training programs for SSNC health providers. Create an enabling physical environment for health providers to provide IFCDC.
Post-discharge follow-up system: at the facility and at home	Lack of clear guidance, system for post-discharge care for SSNC	Build on existing community-based programs such as IMNCI services, postnatal care home visits, and mothers' group activities. Develop and implement checklists and job aids.

Source: MOMENTUM Country and Global Leadership. (2022). *Provincial consultation workshop event brief.*

LEARNINGS

These four diverse, early SSNC implementer countries have yielded important learnings with respect to both the overall strategic approach and specific technical actions. Some of these findings are common across multiple countries, while others are unique.

Strategic Approach/Engagement

1. Involvement of multilevel stakeholders (including professional associations and academia) from the start is critical at the national and subnational levels to develop a common vision and strategy, enable channeling and reallocation of resources, and leverage ongoing activities and coordination efforts. Coalitions of stakeholders must be country led and not externally driven. Technical working groups should function under government leadership to help sustain the SSNC model development process.
2. Local communities (including committees and local structures) should be involved in decision-making and planning from an early stage. Strengthening the capacity of community-based organizations and groups can ensure sustainability and continuation of health services in times of crisis or insecurity.
3. Programming should be adaptive in order to respond to emerging needs and changing priorities, as well as to match the time availability of technical officers.
4. Engaging in discussions and feedback from experts and implementers (especially across provinces and facilities, but even in other countries) with experience implementing SSNC is informative.
5. Planning efforts should include a focus on future implementation challenges (e.g., budgets, staff motivation, costing).
6. Information technology, e-learning techniques, and use of HMIS data/digitalization efforts for action on SSNC should be explored to support implementation of a model of care.
7. Dissemination and uptake of learnings related to SSNC and quality of care (through online platforms and repositories, conferences, technical briefs, newsletters, etc.) can strengthen advocacy and implementation at all levels.

Technical Actions

1. Entry points for SSNC may vary depending on the sector (i.e., public versus private) and local context. For example, in some settings, kangaroo mother care or infant- and family-centered developmental care might be appropriate, but other aspects of SSNC may need to be incorporated at later stages.
2. Assessment of readiness to understand the status of newborn care is critical. Targeted hospitals can then be grouped according to their readiness level rather than by whether the facility is public or private.
3. Hospital mentoring yields positive results but requires reliable and real-time data and information.

4. Point of care quality improvement is practical and sufficient to identify gaps and provide solutions to inform SSNC standards.
5. Integrate MPDSR audits and SSNC needs assessments to identify the main causes of newborn death and gaps in care.
6. Primary care and essential care should be strengthened for all newborns to be able to identify those who are most at need. In fragile settings especially, where care in secondary-level facilities are not functional or inaccessible, it is important to ensure primary-level facilities are able to identify LBW/preterm/sick newborns to initiate early KMC and facilitate referrals.
7. Community engagement efforts to create community funds can help address transportation and referral challenges to ensure mothers and their newborns access care.

PHOTO: KAREN KASMAUSKI/MCSP

CONCLUSIONS

The SSNC implementation experiences of Indonesia, Mali, Nepal, and Nigeria offer valuable insights into both challenges to and effective approaches for providing critical health care to vulnerable newborns. The four diverse countries, each with a unique health care landscape, have demonstrated remarkable commitment to addressing the needs of SSNBs. The experiences documented here largely describe early-stage processes, including stakeholder engagement, and more time is needed to gain consensus on which aspects of the model are acceptable, appropriate, and feasible in each setting. In all countries, this process has been deliberate and has sometimes involved testing and research.

However, it is important to note that there are implementation outcome measures that have not yet been captured in these early experiences. These include, for example, information on the ***fidelity*** of country models to the WHO model of care, the incremental ***costs*** associated with SSNC service delivery, the ***coverage*** achieved (i.e., the extent to which SSNC implementation has reached those eligible for the services), as well as the ***sustainability*** and extent to

which the SSNC activities are maintained over time and institutionalized within the broader health system. Further efforts to document implementation of models of care for SSNBs should aim to capture these types of learnings related to service delivery and outcomes, something that should be feasible given the strong efforts underway to learn from the initial tests and piloting work.

The main takeaways from across the countries' early experiences implementing SSNC models are described in the sections below.


PHOTO: KAREN KASMAUSKI/MCSP

PLANNING FOR IMPLEMENTATION OF SSNC REQUIRES FLEXIBILITY AND TIME, PARTICULARLY IN DECENTRALIZED AND COMPLEX CONTEXTS

In Indonesia, for example, the country enjoys fluidity in service delivery across the public and private sectors, and therefore a considerable amount of work has involved alignment of SSNC activities across those sectors as much as possible. Because the country is highly decentralized and provincial governments have their own budgets, the focus of SSNC activities to date has been less on implementation of a national model and more on improving care based on assessments that identify system weaknesses. However, the government may still consider an overarching framework that will inform the package of SSNC services that is ultimately available across the country at the primary, secondary and tertiary levels. This can be done in support of the country's recent shift toward a primary health care-, lifecycle-based approach to meeting the needs of all Indonesians, including the most vulnerable SSNBs.

In addition, Nigeria's experiences implementing SSNC over several years have yielded a host of achievements, ranging from engagement with a wide range of stakeholders to align on a vision for SSNC, human resources capacity development at the state and local levels, and development of guidance and tools to establish a functional referral network. The complexities of Nigeria's health care system underscore the need for continued investment and innovation to reach all newborns effectively.

EVEN IN FRAGILE CONTEXTS, IMPLEMENTATION OF ACTIVITIES TO SUPPORT SSNC IS POSSIBLE

Mali's SSNC efforts have demonstrated that in resource-constrained, fragile settings, there is much that can be done to address the needs of SSNBs. In addition, Mali's experience highlights the importance of community-based health care and the need for innovative solutions to overcome resource constraints. The success of engaging local communities in newborn care highlights the potential for sustainable progress, even in low-resource settings. Finally, the Mali experience shows the importance of prioritizing provision of care not just within Level 2 facilities, but more broadly.


PHOTO: KAREN KASMAUSKI/MCSP

CONSIDERATION OF THE CONTINUUM OF CARE AND ALL ASPECTS OF THE HEALTH SYSTEM SUPPORTS THE MODEL'S IMPLEMENTATION

Nepal's experiences underscore the importance of a multipronged approach to newborn care, including investments in health care facilities and training for health care providers. Their achievements in reducing neonatal mortality rates serve as a model for other countries with similar health care challenges.

Overall, these experiences demonstrate the importance of a holistic approach to newborn care that encompasses not only medical interventions but also community engagement, education, and policy support. While each country has faced unique challenges, their dedication to improving the health of SSNBs and considering the components of the WHO model and standards of care are positive steps toward ensuring that every child has the opportunity to thrive. These experiences can guide other nations in their quest to provide the best possible care for their most vulnerable citizens.

A COMMON LEARNING AGENDA CAN YIELD INFORMATION THAT IS RELEVANT TO MULTIPLE CONTEXTS

The development of country-contextualized models of SSNC offer an early opportunity for learning about this model of care in a broad range of contexts, including stable and fragile contexts involving public and private health sectors. Coordinating learning across MOMENTUM provides the awards, global stakeholders, and countries with rich, contextualized information that can help identify common opportunities and challenges to inform a more comprehensive global learning agenda on the models of care.

Applying a common implementation outcomes framework with common learning questions across the MOMENTUM suite of awards supporting governments to implement SSNC can facilitate cross-country learning and identification of key enablers of and barriers to success. Using a common learning framework supports this work in the early stages of implementation and can be used to extract additional learnings and inform adaptations and efforts across countries as rollout continues. Relatedly, however, ongoing joint learning across countries needs to be flexible and adaptive to implementation realities and different country contexts. As these experiences show, adaptation of a global model to both the strengths and constraints of countries can entail considerable and time-consuming engagement and planning efforts, and as such, both introduction and subsequent scale-up may take time.

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