



■ Case Study

## IMPLEMENTING A SMALL AND/OR SICK NEWBORN MODEL OF CARE

Early Experiences in Nigeria

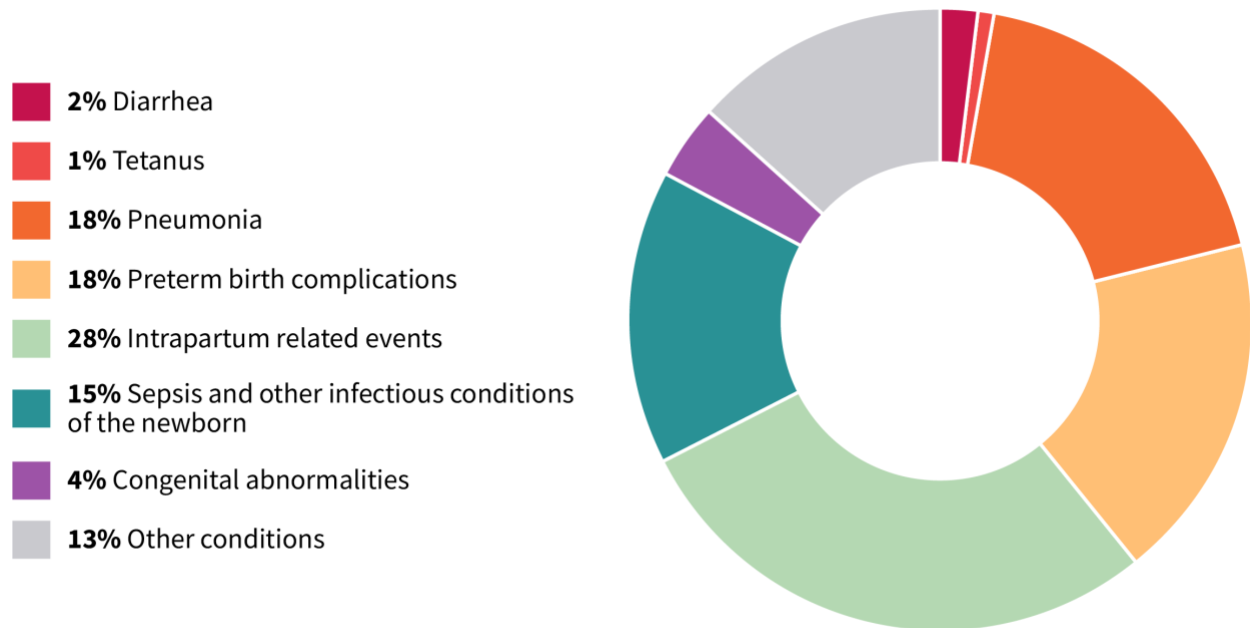
## BACKGROUND

Nigeria’s neonatal mortality rate was 35 deaths per 1,000 live births in 2021, representing an estimated 276,000 deaths (Sharrow et al., 2023) and one of the world’s highest burdens of newborn mortality, second only to India (World Health Organization et al., 2023). According to the World Health Organization (WHO) and the Maternal and Child Epidemiology Estimation Group, the top causes of newborn deaths in Nigeria are intrapartum-related events, pneumonia, preterm birth complications, and sepsis and other infectious conditions of the newborn (Figure 1) (Healthy Newborn Network, 2020).

### ACRONYMS

<b>CPAP</b>	Continuous positive airway pressure
<b>FMoH</b>	Federal Ministry of Health
<b>HMIS</b>	Health management information system
<b>KMC</b>	Kangaroo mother care
<b>MNCH TWG</b>	Maternal, Newborn and Child Health Quality Improvement Technical Working Group
<b>MPCDSR</b>	Maternal, perinatal, and child death surveillance and response
<b>NiENAP</b>	Nigeria’s Every Newborn Action Plan
<b>PHC</b>	Primary health care
<b>QI</b>	Quality improvement
<b>QoC</b>	Quality of care
<b>RMNCAEH</b>	Reproductive, maternal, neonatal, child, adolescent, and elderly health
<b>RMNCAEH+N</b>	Reproductive, maternal, neonatal, child, adolescent, and elderly health and nutrition
<b>RMNCH</b>	Reproductive, maternal, newborn, and child health
<b>SSNB</b>	Small and/or sick newborn
<b>SSNC</b>	Small and/or sick newborn care

Figure 1. Leading Causes of Neonatal Death in Nigeria, 2020



Source: Healthy Newborn Network. (2020)

Nigeria’s first Every Newborn Action Plan (NiENAP) was established in 2016 and prioritizes 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 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 (FMoH) established a national Maternal, Newborn and Child Health Quality Improvement Technical Working Group (MNCH TWG) 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 addition, the NiENAP II describes the levels at which various newborn interventions should be provided, as described in Table 1 (Federal Ministry of Health, 2023).



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**Table 1. Newborn Interventions Provided at Different Levels of Care in Nigeria**

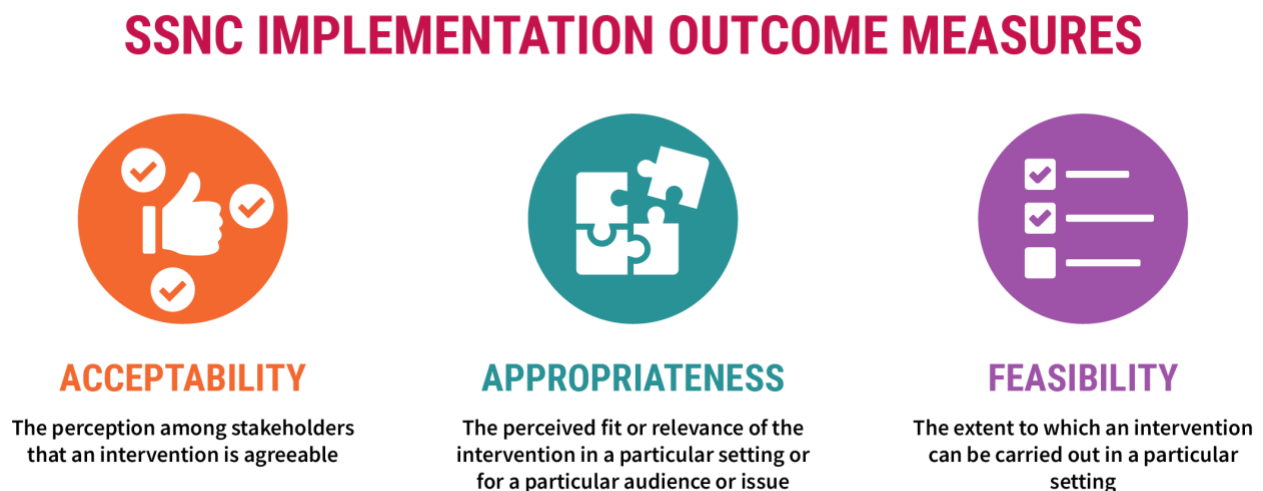
<b>NEWBORN INTERVENTION</b>	<b>LEVEL 1</b> Primary health centers	<b>LEVEL 2</b> Secondary hospitals	<b>LEVEL 3</b> Tertiary hospitals (includes IIIA and IIIB [regional intensive care] facilities)
<b>Basic essential newborn care</b>	✓	✓	✓
<b>Basic neonatal resuscitation</b>	✓	✓ With advanced neonatal resuscitation	✓ With advanced neonatal resuscitation
<b>Routine postnatal care</b>	✓	✓	✓
<b>Care for preterm and LBW infants</b>	Support KMC for preterms >1800g; Initiate skin-to-skin contact & refer newborns <1800g	✓ For all neonates (including KMC)	✓ For all neonates (including KMC)
<b>Antenatal corticosteroids</b>	N/A	✓	✓
<b>Phototherapy for jaundiced newborns</b>	N/A	✓	✓ With exchange transfusion
<b>Management of sick newborns, priority, neonatal infections</b>	✓ Refer as needed	✓ Including noninvasive respiratory support with CPAP	✓ Including advanced respiratory support with CPAP

Improving quality of care (QoC) for newborns within Level 1 and Level 2 facilities is a key priority of the country, outlined in the RMNCH strategy. In addition, the FMoH has released criteria for services to be provided at Level 2 facilities. (Level 2 is also the focus of the NiENAP currently under development, as that level of care has been identified as needing continued strengthening).

NEST360, an international alliance of clinical, technical, and public health experts, has been working in Nigeria since 2019 to support the government in implementing a package of care that includes affordable technologies, training for clinicians and biomedical technicians, and locally owned data to deliver quality small and sick newborn care (SSNC) at Level 2 facilities. In 2020, MOMENTUM Country and Global Leadership began working at national and state levels to implement the WHO SSNC model in partnership with the FMoH (including the Family Health Department and the child health and newborn teams); NEST360; professional associations; and other stakeholders in maternal and newborn health, including UNICEF, WHO, the USAID Integrated Health Program (IHP), 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 (PHC) board, and state quality improvement (QI) officers/focal points.

This case study describes SSNC implementation in Nigeria, supported by MOMENTUM, with a focus on three implementation outcome measures defined by Peters et al. in their framework (Peters et al., 2013): acceptability, appropriateness, and feasibility. Figure 2 defines these measures.

**Figure 2. SSNC Implementation Outcome Measures**



## PROGRESS TO DATE

Table 2 provides a summary of the various components of the WHO SSNC model, domains of care, and QoC standards that have been prioritized by the FMoH for implementation within the Nigeria context.

**Table 2. Components of the WHO SSNC Model, Domains of Care, and QoC Standards Prioritized by FMoH for Implementation in Nigeria\***

PRIORITIZED COMPONENTS OF THE SSNC MODEL		PRIORITIZED DOMAINS OF CARE		PRIORITIZED QOC STANDARDS	
✓	1. Vision	✓	1. <b>Quality maternal care and essential newborn care</b>	✓	1. <b>Evidence-based practices</b>
✓	2. <b>Financing</b>	✓	2. <b>Level 2 newborn care</b>		2. Actionable information systems
✓	3. <b>Human resources (recruitment, training, retention)</b>	✓	3. <b>Respectful, nurturing care</b>	✓	3. <b>Functioning referral systems</b>
✓	4. <b>Infrastructure</b>	✓	4. <b>Follow up care of small or sick newborns</b>	✓	4. <b>Effective communication and meaningful participation</b>
✓	5. <b>Equipment</b>			✓	5. <b>Respect, protection, and fulfilment of newborn rights and preservation of dignity</b>
✓	6. <b>Functional network</b>				6. Emotional, psychosocial, and developmental support
✓	7. <b>Data systems</b>			✓	7. <b>Competent, motivated, empathetic multidisciplinary human resources</b>
✓	8. <b>Linkages</b>			✓	8. <b>Essential physical resources for small and sick newborns</b>
✓	9. <b>Family/community involvement</b>				
✓	10. <b>Post-discharge</b>				

\*Prioritized items are shown in purple

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 QoC strategy) to inform an update of Nigeria’s reproductive, maternal, neonatal, child, adolescent, and elderly health (RMNCAEH) strategy. The draft strategy highlights SSNC as a critical focal area for reducing child mortality in the country. To determine the **acceptability** and **appropriateness** of the draft strategy, it was shared with stakeholders across the FMoH for feedback, including the Family Health Department and the Director of Family Health; the QoC focal point; the Maternal, Perinatal, and Child Death Surveillance and Response (MPCDSR) Desk Officer; the Newborn Desk Officer; the Safe Motherhood Division; the Department of Policy Research and Statistics (DPRS); the Child Survival Division; and the Gender, Adolescent, School Health, Elderly Division. The MNCH TWG is now developing a plan for adoption and dissemination of the strategy at the national and state levels. Hosted by the FMoH, the MNCH TWG 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) have been developed, disseminated, and are currently being implemented, as has a facilitator training curriculum that will be used to generate a national pool of trainers. Further, to support the **feasibility** of implementing SSNC and the availability of essential SSNC equipment for Level 2 and Level 3 care, a curriculum for biomedical engineers and technicians has been developed and is being disseminated. Quarterly MNCH TWG meetings are being convened to strengthen the RMNCAEH platform; concurrently, quarterly meetings of the Newborn Subcommittee of the National Child Health Technical Working Group (CH TWG) have taken place to discuss guideline development and feedback from states and their supporting partners on SSNC implementation issues, particularly with respect to the target implementation outcome variables (i.e., acceptability, appropriateness, and feasibility) and with respect to existing human resource gaps and training needs.

In 2022, NEST360 and MOMENTUM Country and Global Leadership also assessed feasibility through health facility assessments (HFAs) at two pilot facilities (one urban, one suburban in FCT Abuja) to determine current gaps and needs for implementation of the SSNC model of care. Major gaps identified were in human resources for delivering SSNC (inadequate number of skilled health workers) and infrastructure (including power supply and equipment). In addition, since 2022, the Newborn Subcommittee, consisting of professional bodies and academic institutions, has led the adaptation of the WHO SSNC standards for the Nigerian context. In partnership with a local academic institution, MOMENTUM Country and Global Leadership and NEST360 have collaborated on pilot implementation research for SSNC at the two pilot facilities. The research will focus on assessing the quality of implementation of Level 2 inpatient services for small and sick newborns (SSNBs) and identifying facilitators and barriers through interactions with providers and clients.

## CHALLENGES

To date, most specialized SSNC in Nigeria has been provided at Level 3 facilities (regional or teaching hospitals), which are managed at the federal level rather than the state level. Bypassing Level 2 facilities (district or local government area-level hospitals) and referring SSNBs from Level 1 (community-level primary health care centers) directly to Level 3 facilities has led to losses in opportunities to care for SSNBs, as there are fewer Level 3 facilities and their care is more expensive. Level 2 sites are often located near Level 1 sites and can support low-cost, lifesaving SSNB interventions. However, Level 2 facilities face many challenges in providing quality SSNC. Table 3 outlines the existing challenges and related activities and opportunities identified by MOMENTUM partners.



**Table 3. Challenges for SSNC in Nigeria and Activities/Opportunities to Support the WHO SSNC Model**

WHO SSNC MODEL COMPONENT	CHALLENGES	RELATED ACTIVITIES UNDERWAY AND OPPORTUNITIES
<b>Vision</b>	Need for clear agreement (among the FMoH and its partners) and guidelines for quality standards/indicators.	Support to the FMoH to strengthen QoC/MPCDSR policies and the MNCH TWG with national and subnational steering elements. Many partners are engaged in the RMNCAEH and nutrition (RMNCAEH+N) space and through the TWG. However, it has been difficult to convene all stakeholders at the same time. Policymakers understand and are aligned with the goals of this work.
<b>Financing</b>	Free health care in Nigeria is focused on Level 1 care only. Some financing (from the federal 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.	Support to the FMoH to develop an annual operational plan, including activities and budgets. The Commissioner of Health is chairing the state steering committees where rational funding allocation is discussed and action plans (with budget lines) are developed.
<b>Human resources</b>	Insufficient supply of neonatal nurses (due to attrition, poor remuneration, and even unemployment of those trained due to lack of allocation from state government to health care) and biomedical engineers/ technicians (no plan to replace those who leave posts).	<p>Since 2022, MOMENTUM Country and Global Leadership’s Knowledge Management team has hosted meetings and webinars for national and subnational audiences to share technical information and learning on different topics (e.g., water, sanitation, and hygiene and infection prevention and control [WASH/IPC] and SSNC).</p> <p>The FMoH is working with MOMENTUM Country and Global Leadership, NEST360, and other partners to build human resource capacity at the subnational level through convening state-level quality improvement teams.</p> <p>The Council of International Neonatal Nurses (COINN) developed an in-service neonatal nursing program curriculum (which includes an essential newborn care course and a comprehensive newborn care course). The curriculum is being piloted by NEST360, the FMoH, and partners. In addition, MOMENTUM Country and Global Leadership is supporting FMoH to work with subnational governments and the National PHC Board to develop a biomedical engineering and technology (BMETS) training course.</p>
<b>Infrastructure</b>	Lack of adequate space in Level 2 facilities for dedicated SSNC.	NEST360 conducted HFAs to identify infrastructure gaps at the pilot sites, mainly inadequate space and lack of electricity; MOMENTUM Country and Global Leadership has used the results to successfully advocate with the FMoH and hospital management boards to fill those gaps.

<b>Equipment</b>	Data from HFAs revealed that even where equipment exists, there is insufficient capacity to operate and maintain essential SSNC equipment. Particularly in areas outside major cities, nonfunctioning equipment is abandoned or not used, resulting in “equipment graveyards.”	Equipment maintenance was missing from the essential newborn care course (ENCC) but has been incorporated into the government’s comprehensive newborn care course (CNCC). As a result, more providers now understand their role in equipment maintenance. In addition, the HFAs identified equipment availability gaps that MOMENTUM Country and Global Leadership then worked with the FMoH and hospital management boards to prioritize for procurement.
<b>Functional network</b>	Lack of clarity in referral protocols for newborns and the roles and responsibilities across different facility levels to provide care during referrals.	Guidelines and tools are being developed to establish roles and responsibilities across levels, particularly for PHCs to support referrals from the community through leveraging the role of community health promotion agents. In addition, the FMoH has mapped the referral network to improve the ease of referral between network facilities.
<b>Data systems</b>	N/A	Monthly engagements with state HMIS officers and reviews of MNCH data from QoC learning sites. MPCDSR platforms are being supported with trainings.
<b>Linkages</b>	N/A	MPCDSR and QI are being integrated at the state level. Residents at Level 3 facilities are assigned to backstop Level 2 facilities and advise on referral and care.
<b>Family/ community involvement</b>	N/A	Focus to date has been on policies, although the SSNC research will include some focus on families’ experience of care through exit interviews with parents/caregivers of SSNBs.
<b>Post-discharge</b>	N/A	The implementation research study includes a post-discharge interview that is more extensive than what is included in existing HMIS tools.

Several activities are in place specifically to improve the **acceptability** and QoC for SSNBs at Level 2 facilities. For example, with the support of MOMENTUM Country and Global Leadership, the FMoH is collaborating with private health institutions/associations (e.g., the Association of General Private Practitioners of Nigeria) to advance QoC goals for RMNCAEH+N. Key activities include the development of guidelines and discussions on management of SSNB referral and reporting in various platforms related to MNCH in Nigeria, such as Nigeria Obstetric Quality Assurance (NOQA), the MPD-4-QED program, and the WHO Quality, Equity, and Dignity (QED) network database to improve maternal and perinatal deaths. In addition, in the first half of 2024, the project is planning a pause-and-reflect session on QoC of RMNCAEH+N activities with state-level stakeholders and all project partners (UNICEF, USAID, NEST360, USAID IHP level). The Comprehensive Newborn Care Course (CNCC) curriculum (particularly the quality improvement and supportive supervision elements) addresses the importance of families’ experience of care so health workers are aware of its importance and have the skills to improve it; the training also covers the basic use and maintenance of essential SSNB equipment, as outlined in the [National Guidelines for Comprehensive Newborn Care](#). A training of trainers was carried out in June 2023, targeting neonatologists; the training will now be carried out for other clinicians and biomedical engineers and technicians working at secondary and tertiary facilities.



## LEARNING

As a result of these activities and participation in the QED network, the FMoH has adopted the WHO standards within mechanisms such as the Newborn Subcommittee of the CH TWG and the broader RMNCAEH+N QoC Technical Working Group. In addition, the development and dissemination of Nigeria Comprehensive and Basic Newborn Care Guidelines (2021) have generated important learnings for SSNC during implementation.

First, with respect to **acceptability**, when introducing an SSNC initiative, it is critical to ensure all relevant partners are identified and engaged early in the process, including those connected with national/state/local governments (depending on the level of decentralization), and identify other partners who can share their experiences and collaborate to define the strategy. Mapping stakeholders early helped the initiative leverage ongoing activities and coordination efforts outside of newborn health to support efforts to strengthen SSNC specifically. Relatedly, various representatives can help ensure a comprehensive understanding of the existing challenges, gaps, and potential strategies to address them; the government can drive the process, with partner support, to achieve the stated goals.

Second, knowledge sharing and knowledge management are both critical to engage and mobilize stakeholders. A web-based RMNCAEH+N QoC learning platform was created with resources coming from both national and state levels. This platform covers all thematic areas, including newborn care and SSNC. In addition, resources have been displayed in different formats (e.g., at conferences and as technical briefs and fact sheets) aiming, in part, to address the urgent need to provide better understanding of key QoC and technical areas for provision of high-quality MNCH care.

An additional learning is that, because government technical officers' availability may be limited, it is necessary to ensure some flexibility in project activities and timelines. This action supports the **feasibility** of the effort. With the government in the lead, technical officers can ensure the appropriate timing of activities so as not to coincide with other competing activities (e.g., elections). In Nigeria, all activities have been at the invitation of the FMoH and are based on the government's priorities for activities and plans, which has allowed timelines to be better synchronized.

## CONCLUSION

Nigeria's work to improve SSNC has benefitted from the longstanding engagement and commitment of multiple partners supporting the government at national, state, and local levels to improve RMNCAEH broadly. Taking advantage of these existing relationships created opportunities to include SSNC in ongoing workstreams led by the government and its partners. This infrastructure also facilitated comprehensive assessments of existing gaps in the system of care, as well as evidence-based assessments of the acceptability, adoption, appropriateness, and feasibility of SSNC interventions. Key learnings include the need to engage relevant partners early in the process, emphasize knowledge sharing and knowledge management to mobilize stakeholders, and ensure flexibility in project activities and timelines to suit government needs and priorities. It remains to be seen how these approaches to integrate SSNC into existing RMNCAEH work will be sustained for systems-level change in the long term. Moving forward, Nigeria will continue to learn as it expands and improves SSNC, including, as noted above, through related implementation research in two Level 2 hospitals in and near Abuja.



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