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Knowledge Accelerator

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Case Study

IMPLEMENTING A SMALL AND/OR SICK NEWBORN MODEL OF CARE

Early Experiences in Nepal

BACKGROUND

Nepal has been a global leader in newborn health, having been the first low-income country to develop a national newborn-specific strategy in 2004 (Pradhan et al., 2012), as well as one of the first countries to pioneer and then scale up the use of chlorhexidine to prevent neonatal deaths due to umbilical cord stump infection (Hodgins et al., 2019). In 2006, the Ministry of Health and Population (MoHP) released the Nepal Safe Motherhood and Neonatal Long Term Plan 2006-2017 (Pradhan et al., 2012) and, beginning in 2007, the MoHP and its partners began implementing a community-based newborn care package (CB-NCP), which includes seven components: (1) behavior change communication to increase home health behaviors; (2) promotion of institutional delivery and clean delivery practices for home deliveries; (3) early postnatal care home visits; (4) identification and management of newborn infection; (5) extra home visits for care of low birthweight newborns; (6) prevention and management of hypothermia; and (7) recognition of the non-breathing baby, initial stimulation, and resuscitation (Pradhan et al., 2012). Following the pilot test of the CB-NCP by MoHP and partners, the package was integrated into the existing National Integrated Management of Childhood Illnesses program and has since been implemented across the nation as the Integrated Management of Neonatal and Childhood Illness (IMNCI) programs.

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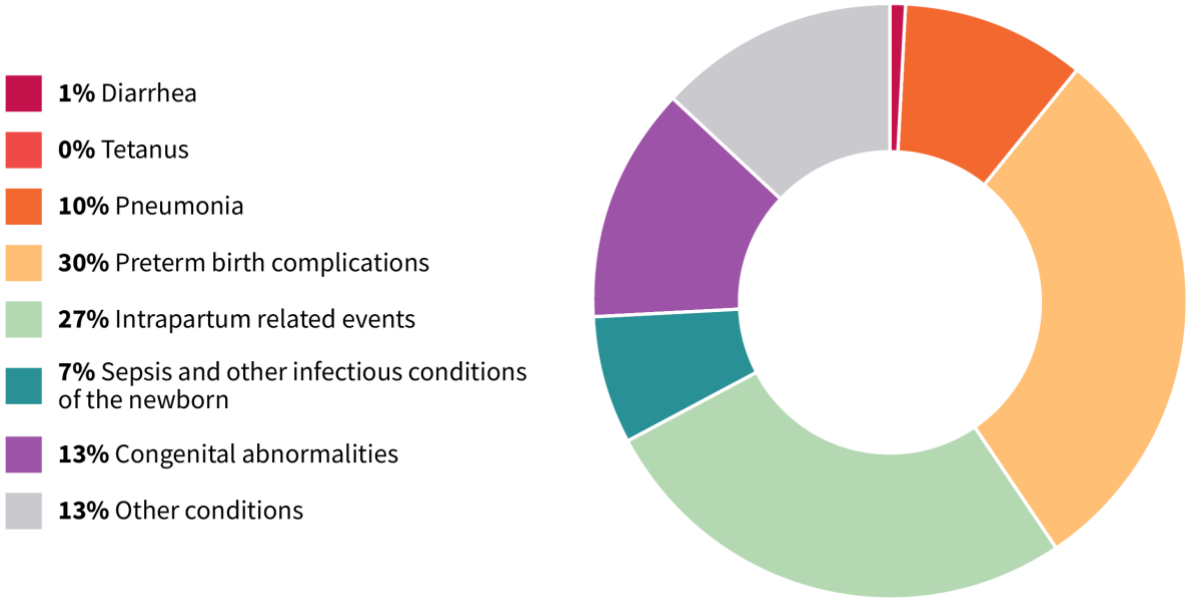
By 2010, Nepal had achieved 22 of 27 benchmarks (Moran et al., 2012) to measure readiness to integrate and scale up newborn survival interventions (Pradhan et al., 2012). These successes have been attributed to political leadership and commitment, media and public advocacy (including with the strong involvement of professional organizations in Nepal) (Pradhan et al., 2012), better data and locally generated evidence, as well as an expanded community-based program that focused on newborn health (Hodgins et al., 2019).

However, progress has stagnated, and challenges still exist, as Nepal's neonatal mortality rate showed no improvement between 2016 and 2022, stalling at 21 per 1,000 live births (Ministry of Health and Population [Nepal] & ICF, 2023). According to the World Health Organization (WHO) and the Maternal and Child Epidemiology Estimation Group, as cited by the Healthy Newborn Network (2020), the top causes of newborn deaths in Nepal are preterm birth complications, intrapartum related events, and congenital anomalies (Figure 1).

ACRONYMS

ANM	Auxiliary Nurse Midwife
CB-NCP	Community-based newborn care package
ENAP	Every Newborn Action Plan
FCHV	Female community health volunteer
FWD	Family Welfare Division
HMIS	Health management information system
IMNCI	Integrated management of neonatal and childhood illness
KMC	Kangaroo mother care
MoHP	Ministry of Health and Population
SNCU	Special newborn care unit
SSNC	Small and/or sick newborn care

Figure 1: Leading Causes of Neonatal Death in Nepal, 2020



Source: Healthy Newborn Network. (2020)

Nepal's health system defines three levels of facility-based care for newborns (Sunny et al., 2020). Level 1 basic neonatal care is provided in health posts and primary health centers; it includes newborn resuscitation, kangaroo

mother care (KMC), and antibiotics as per the IMNCI treatment protocol. Level 2 care is offered in special newborn care units in district hospitals and includes services for management of neonatal sepsis, hyperbilirubinemia, preterm birth complications, and hypoxic-ischemic encephalopathy. Level 3 care refers to neonatal intensive care units in zonal and other tertiary hospitals (Table 1). In addition, facility and outreach services are provided by community health units, health posts, and primary health care centers. Female community health volunteers (FCHVs) and auxiliary nurse midwives (ANMs) provide maternal and child health services (including postnatal checks and referrals) at the community level (Pradhan et al., 2012).

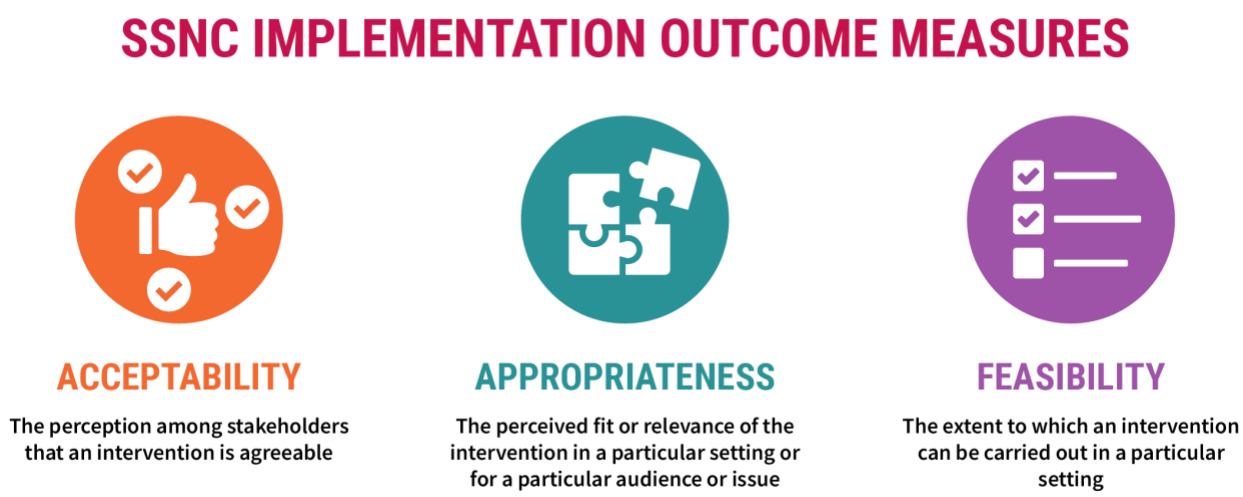
Table 1: Newborn Interventions Provided at Different Levels of Care in Nepal

LEVEL OF CARE	CARE FOR NEWBORNS
Community level Community health units, FCHVs, and ANMs	• Maternal and child health services (including postnatal checks and referrals)
Level 1 (Primary care) Health posts and primary health centers	• Immediate newborn care (delayed cord clamping, drying, skin-to-skin contact) • Neonatal resuscitation • Essential newborn care (cord care, thermal care, exclusive breastfeeding, eye care, birth vaccination) • KMC • Provision of antibiotics (per IMNCI treatment protocol)
Level 2 (Secondary care) District hospitals	• Detection and management of neonatal sepsis • Detection and management of neonatal jaundice with phototherapy • Detection and management of neonatal encephalopathy • Management of preterm birth complications
Level 3 (Tertiary care) Zonal and tertiary hospitals	• Neonatal intensive care

The government's target for Sustainable Development Goal 3.2.2 is to reduce the neonatal mortality rate to 12 deaths per 1,000 live births by 2030. To achieve this goal, since early 2022, the Family Welfare Division (FWD) of the MoHP has led the process of adapting the WHO Standards for Improving the Quality of Care for Small and/or Sick Newborns in Health Facilities and the WHO and UNICEF-endorsed model of care for small and/or sick newborns to the Nepal context, with support from the USAID MOMENTUM Country and Global Leadership project and other partners. The partners worked together to ensure that activities built on and aligned with existing efforts, as Nepal had various related efforts underway prior to the release of the model of care endorsed by WHO and UNICEF.

This case study presents key lessons learned from Nepal's process of adapting the WHO standards of care and developing a country-specific SSNC model. Based on the implementation outcome variables defined by Peters et al. in their framework (Peters et al., 2013), this case study highlights the Nepal experience to date with respect to acceptability, appropriateness, adoption, and feasibility of the SSNC model (see Figure 2 for definitions of the variables).

Figure 2: SSNC Implementation Outcome Measures



PROGRESS TO DATE

To determine the acceptability of the SSNC model (Table 2), MOMENTUM Country and Global Leadership and USAID Nepal initiated a consultation with the FWD's leadership in February 2022. MOMENTUM Country and Global Leadership proposed an approach and process that emphasized the need to appropriately consider in-country context, experts' opinions, and the health system's complexity; the FWD accepted the proposal. Simultaneously, the team consulted with UNICEF and WHO, the lead partners in country for Nepal's Every Newborn Action Plan (ENAP). With the FWD's and ENAP's in-country partners' agreement that the proposed actions would contribute to effectiveness, efficiency, and improved quality of services provided by Level 2 special newborn care units (SNCUs) and Level 3 neonatal intensive care units (NICUs), an informal SSNC core team was formed to adapt and adopt the global standards and model of care. This core team oversaw the rollout of the steps taken to develop the Nepal-specific SSNC model.

Table 2: Ten Components of the WHO SSNC Model

1. **VISION**: political commitment, leadership, national plans	6. **FUNCTIONAL REFERRAL SYSTEM:** functioning network of care and transportation to and from the referral facility
2. **FINANCING**: adequacy, sustainability	7. **DATA SYSTEMS**: robust and effective use of data for quality improvement
3. **HUMAN RESOURCES**: availability, capacity	8. **LINKAGES:** of newborn care with quality maternal care (antenatal, intrapartum, postnatal) at all levels
4. **INFRASTRUCTURE**: availability, design	9. **FAMILY AND COMMUNITY INVOLVEMENT:** engagement and support
5. **EQUIPMENT**: procurement, maintenance	10. **POST-DISCHARGE CARE**: follow-up care at facility and home

Determining the SSNC model's appropriateness and the feasibility of incorporating the defined SSNC standards for Nepal's Level 2 facilities was an important consideration, given the local context. Following consensus among key in-country stakeholders, a thoughtful and novel process was initiated under the leadership of the FWD in 2022. Each step outlined below contributed to subsequent steps (Table 3).

Table 3: Summary of Process to Adopt Nepal's SSNC Model

TIMEFRAME & ACTIVITY	SSNC IMPLEMENTATION OUTCOME ADDRESSED
March–June 2022 Partner mapping and desk review	
July–August 2022 Provincial consultations	
August–September 2022 Small group consultations with subject experts	
September 2022 National consultative workshop	

Step One: Partner Mapping and Desk Review

The process began with a desk review of existing national guidelines, as well as a partner mapping of all actors engaged in maternal and neonatal health within the country by thematic focus, interventions, training activities, and geographic coverage by province, district, and *palika* (local government area). In addition, the FWD and partners worked to ensure that existing efforts to improve quality of care were identified and compared to the WHO standards of care to identify current gaps, opportunities, and challenges (MOMENTUM Country and Global Leadership Nepal, n.d.).

MOMENTUM Country and Global Leadership developed an analytical framework that categorized WHO's 8 quality of care standards' domains and 78 quality statements to review Nepal's existing policies, strategies, and guidelines. The findings from the desk review were presented in a June 2022 national newborn technical working group meeting convened by the FWD; these findings served as the basis to conceptualize what was **appropriate** and **feasible** to adapt from the SSNC model to Nepal's context.

Step Two: Provincial Consultations

The FWD led two provincial stakeholder consultations (in Bagmati Province in July 2022 and in Sudurpaschim Province in August 2022) to review the findings of the desk review and the SSNC's implementation status in Level 2 and Level 3 hospitals. These consultations focused on the **acceptability**, **appropriateness**, and **feasibility** of the SSNC model's 10 components, with participants working in groups to identify existing issues, challenges, gaps, and recommendations or potential solutions (Table 4). The consultations also generated feedback on quality of care in Level 2 and Level 3 facilities based on existing practices and implementation opportunities and challenges. These findings were used in subsequent steps to create specific and pragmatic interventions for each of the 10 components of Nepal's SSNC model.

Table 4: Provincial Stakeholders' Challenges and Recommendations to Improve SSNC Quality in Hospitals (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; ensure mothers of babies in KMC and SNCUs do not miss routine PNC by coordinating with the facility's maternity unit
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 Provincial Consultation Workshop. (2022.) Event Brief.

Step Three: Small Group Consultations With Subject Experts

Based on findings from the previous two steps, a series of workshops was held on each of the 10 components of the SSNC model. Experts included members of national professional societies, neonatologists and nurses from Level 2 and Level 3 facilities, national and subnational program managers, health management information system (HMIS) and logistical management information system (LMIS) experts at federal and provincial levels, pediatricians, medical officers, facility-in-charges from Level 2 facilities, and other specialized experts (in early childhood development, ophthalmology, nutrition, etc.) (Box 1). Experts worked in small subgroups created for each component of the SSNC model. Each subgroup reviewed the completed analytical frame for their component and drafted recommended interventions, incorporating local knowledge and experience. The workshop outputs formed the foundation for the conceptualization of an **appropriate** and potentially **feasible** Nepal-specific SSNC model.

Box 1: Partners Engaged and Role in Adaptation of the SSNC Model in Nepal

Lead partners: FWD of the Department of Health Services, MoHP, and the national newborn technical working group

Core SSNC partners: USAID, UNICEF, WHO, and MOMENTUM Country and Global Leadership

Additional stakeholders: Nepal Pediatric Society, Pediatric Nursing Association of Nepal, frontline health workers, and partners from other sectors

Lead for pilot testing: Bagmati Provincial Health Directorate

Step Four: National Consultative Workshop

In September 2022, the draft Nepal SSNC model was shared and vetted with subnational, national, and international experts and partners during a national-level consultation workshop (Table 5). Accepted by all stakeholders, the Nepal SSNC model is now being pilot tested in select facilities to finalize and prepare the model for implementation at scale.

Table 5: Nepal SSNC Model, Draft (2022)

Nepal Specific Model of Small and / or Sick Newborn Care		
Component 1 Vision	**Component 2 Financing**	**Component 3 Human Resources**
FWD led testing of Nepal's Model of SSNB care in sub-set of level II facilities to inform scale	Sensitize and support federal and provincial level ministry leaderships to incorporate budget for SSNB programs	Orientation, coaching and mentoring approach tested for SNCUs IFCDC and post-discharge care modules developed for national training
Component 4 Infrastructure design	**Component 5 Equipment**	**Component 6 Functional Network of Care**
Existing infrastructure reviewed and updated as in Minimum Service Standards	FWD SNCU equipment list reviewed and included in Minimum Service Standards	Strengthen existing functional referral hubs and between NICUs and SNCUs
Component 7 Data Systems	**Component 8 Linkages with quality maternal care**	**Component 9 Family and Community**
SNCU patient charts, registers reviewed and updated for additional SSNB QoC indicators; Support FWD to digitalize SNCU registers; use of data for Point of Care Quality Improvement	Mothers of newborns admitted in SNCU receive routine PNC as per national guidelines, including emotional / mental health assessment & support and physical amenities (bed, food, bath areas etc.)	IFCDC conducive environment included in capacity building materials and facility leaderships; health care workers trained
Component 10 Post-discharge Care		
Post-discharge care check-lists included in capacity building; Linkages with FCHVs for follow-up care at home and with level III specialized care		

Source: MOMENTUM Country and Global Leadership, 2023

ADAPTATIONS AND LEARNING

Multiple touchpoints during the creation process provided opportunities for reflections that informed decisions, optimizing efficiency in the creation of Nepal's SSNC model. Rapid feedback allowed direct changes to be made to the model and fed into programming moving forward. Stakeholders identified gaps in the model development process, with much focus on national-level vision and associated documents and support. The feasibility of the model's implementation was raised, with a focus on evaluating the implementation status of national documents to assess gaps between policy and practice. Some SSNC standards and quality aims, such as management of bronchopulmonary dysplasia, were found to have limited feasibility in Nepal's current context and, as such, a need to unbundle the WHO standards at different levels of care was discussed; in particular, some of the standards were described as appropriate in Nepal only for Level 3 care. Thus, participants shared consensus that the model in Nepal would focus on addressing only the WHO standards appropriate for Level 2 care rather than those addressed at Level 3 care.

The experience and process in Nepal to develop a SSNC model that aligns with WHO's endorsed model of care proved to be very collaborative and effective in building consensus across key actors. The core group of SSNC partners met in December 2022 to reflect on the efforts to date, revealing insights on the strengths and weaknesses of the key activities undertaken. Reflecting on what worked well with these initial activities, respondents mentioned the following:

- Having multiple levels of consensus building and discussion was very useful; participation across the board was high and discussions were interactive. For example, the small expert group discussions provided room for individual views and opinions to be shared about specific topic areas.
- The realities and challenges of implementation were acknowledged and included in discussions.
- Overall, there was positive coordination, collaboration, and cooperation from the government counterpart (FWD) and support from partner and stakeholder organizations.

Participants also reflected on areas of the process that could be improved or other considerations that should be included in the future. Recommendations for policymakers and program implementers seeking to adopt the SSNC model in Nepal or similar country contexts include the following:

- Include a focus on future implementation challenges, including budgeting, staff motivation, and costing.
- Incorporate additional discussions and feedback from experts in other countries, such as India, to facilitate cross-country learning, and promote subnational learning across provinces and facilities. Include a variety of experiences and locales before finalizing the draft SSNC model.
- Explore information technology and e-learning approaches to promote the model of care and the digitization and use of HMIS data for decision-making.
- Ensure ownership by government and partners and reinvigorate or ensure the functionality of a formal technical working group (under government leadership) to help sustain the process.

CONCLUSION AND NEXT STEPS

The work conducted to date has revealed several challenges resulting from persistent gaps in quality service provision for SSNC in Nepal (Government of Nepal Ministry of Health, 2016). The practice of life-saving, evidence-based interventions is not well institutionalized in Nepal; key challenges in primary health care facilities throughout the country include a persistent absence of health workers, stock-outs of drugs and commodities, poorly maintained infrastructure and equipment, and insufficient operating hours (MOMENTUM Country and Global Leadership Nepal, n.d.). As a result, most NICUs and SNCUs are functioning inadequately due to insufficient inputs in financing, infrastructure, essential medical products and equipment, technologies, human resources, and governance

(Government of Nepal Ministry of Health, 2016; Ministry of Health Department of Health Services, 2020; MOMENTUM Country and Global Leadership Nepal, n.d.)

The FWD and MOMENTUM Country and Global Leadership have identified implementation pilot sites, conducted site visits, and met with provincial leadership to ensure agreement on the way forward. Based on the results, ongoing learning, and documentation about implementation of the model from the pilot sites in 2024, Nepal's SSNC model will continue to be refined prior to further implementation and nationwide scale-up. Nepal's experiences underscore the importance of contextualizing global standards through engagement of national and subnational stakeholders to co-design implementation models that are pilot tested to strengthen feasibility and implementation at scale.

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