Learning Brief

FORMATIVE ASSESSMENT ON SMALL AND SICK NEWBORN FEEDING IN GHANA AND NEPAL

Practices, barriers, and opportunities to strengthen breastmilk feeding for small and sick newborns during inpatient stays and post-discharge

BACKGROUND

Study Question

What are the barriers, enablers, and actions during both inpatient and post-discharge periods to strengthen breastmilk feeding for small and sick newborns?

The World Health Organization (WHO) recommends that small (with a birth weight of less than 2,500 grams), preterm and/or sick newborns (SSNBs) should be exclusively fed breastmilk for optimal nutrition, both during facility stays and post-discharge (WHO, 2022). Mothers and caregivers should be engaged as partners through family-centered care and supported to initiate and maintain breastfeeding or express and feed breastmilk. Donor human milk may be considered if feeding the mother's milk is not possible. Alternative feeding methods (tube or cup feeding) are used to feed expressed breastmilk [EBM] or donor breastmilk. Mothers should also be appropriately supported to feed using alternative feeding. When the mother's own milk and donor human milk are not available, nutrient-enriched preterm formula may be considered for very preterm (< 32 weeks' gestation) or very low-birthweight (< 1.5 kg) infants. Multiple global guidelines underscore these recommendations, including the 2022 *WHO recommendations for care of the preterm or low-birth-weight infant* (WHO, 2022), WHO's *Standards for improving the quality of care for small and sick newborns in health facilities* (WHO, 2020), and WHO's Baby Friendly Hospital Initiatives guidance for SSNBs to improve breastfeeding rates. All of the guides recommend feeding with the mother's breastmilk and donor human milk before considering feeding with preterm formula.

According to UNICEF-WHO, the prevalence of low-birthweight babies in Ghana is 14% and it is 20% in Nepal (UNICEF-WHO Low-Birthweight Estimate, 2023). In Ghana, over half (58%) of children are breastfed within one hour and 53% of children under six months are exclusively breastfed (Ghana, Demographic and Health Survey, 2022). In Nepal, only 56% of children under six months are exclusively breastfed, and 55% are put to the breast within one hour of birth (Nepal, Demographic and Health Survey, 2022). In both Ghana and Nepal, infant mortality has declined significantly, but the reduction in neonatal mortality has been slower.

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The Government of Ghana has put in place strategies, such as the National Newborn Care Strategy and Action Plan (NNCSAP) 2019–2023, and adopted the WHO standards of care for SSNBs to reduce neonatal mortality and improve coverage and quality of neonatal care and services, including for small, premature, and sick newborns. The newborn strategy identified kangaroo mother care and supporting breastfeeding as proven interventions to improve newborn outcomes.

The Government of Nepal has made significant commitments and progress to scale up evidence-based newborn interventions, including kangaroo mother care and breastfeeding, to improve newborn survival. The government has put in place key strategies like the Every Newborn Action Plan and financed establishment of new newborn intensive care units (NICU) and special newborn care units (SNCU) to accelerate the reduction of neonatal mortality and ensure healthy growth and development of all newborns through scaling up quality and equitable neonatal care and services, including inpatient small and sick newborn care.

Despite the clear global guidance available as described above, few assessments have documented current practices, barriers, facilitators, and programmatic approaches affecting the provision of specialized, high-quality nutritional care for SSNBs in health facilities and post-discharge in low- and middle-income countries. MOMENTUM Country and Global Leadership aimed to address this gap in the evidence through two formative assessments in public health facilities providing care for SSNBs in Greater Accra, Ghana, and across all seven provinces and Kathmandu in Nepal.

METHODS

MOMENTUM sought to understand the current practices, gaps, and opportunities of quality, family-centered nutritional care for SSNBs, including post-discharge follow-up care, through two mixed-method, formative assessments in Greater Accra, Ghana, and Nepal. In both settings, the study design included key informant interviews (KII) with health care providers and caregivers (both inpatient and post-discharge) and focus group discussions (FGDs) with community members, family members of discharged SSNBs, and other stakeholders. Both settings used the same inclusion criteria for parents or caregivers of SSNBs, which defined "current inpatient" as an inpatient for more than three days and defined both "inpatient parent" and "post-discharge parent" as caregivers who had newborns who received care at included facilities and that care did not last more than 60 days. MOMENTUM hired third-party consultants in each country to collect data and analyze findings in collaboration with the study team.

In Greater Accra, Ghana, health care providers and caregivers in six public hospitals, comprised of one tertiary and five secondary hospitals, were purposively selected. A total of 56 KIIs were conducted. Participants included health care providers who care for SSNBs in the selected hospitals (n=20), parents or caregivers of current inpatient SSNBs (n=18), and mothers of SSNBs who had been discharged within the past two months (n=18). The KIIs contained qualitative and quantitative elements and were conducted in English, Twi, or Ga. Audio recordings and interviewer notes were translated into English as relevant. Four FGDs were conducted with family members of discharged SSNBs, as well as key stakeholders, such as community health workers and community members.

In Nepal, health care providers and caregivers from eight Level II public hospitals, one from each of the seven provinces and one tertiary hospital in Kathmandu, were randomly selected from all potential participants who fulfilled inclusion criteria for participation in KIIs. A total of 104 KIIs were conducted. Participants included health care providers who care for SSNBs at the study sites (n=32), parents or caregivers of current inpatient SSNBs (n=36), and mothers or caregivers of SSNBs who were within two months post-discharge (n=36). Purposeful sampling was used to select community member participants in the FGDs. A total of six FGDs were conducted with community members, community stakeholders (such as female community

health volunteers), family members, and mothers with previous experience feeding SSNBs. The KIIs and FGDs used quantitative and qualitative tools that were developed in English and later translated to Nepali. All data collection was conducted in Nepali with audio transcriptions translated to English.

TABLE 1. STUDY SITES AND NUMBER OF SAMPLES TAKEN

Study site	KIIs			FGD
	Service providers	Inpatient parents/caregivers	Post-discharge parents/caregivers	
Nepal	32	36	36	6
Ghana	20	18	18	4

MOMENTUM obtained ethical approval from the Johns Hopkins University Institutional Review Board in the United States and in each country through the Ghana Health Services Ethics Review Committee and the Nepal Health Research Council. All study participants provided written, informed consent in English, Twi, or Nepali prior to the start of data collection. All personal identifiers were replaced with codes during the analysis process to maintain privacy and confidentiality.

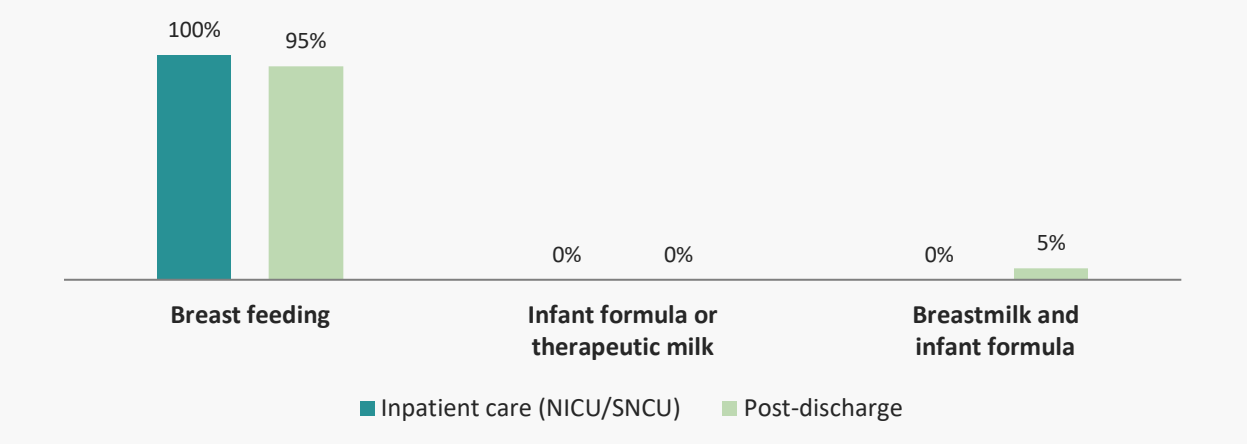
FINDINGS

GHANA

CURRENT PRACTICES

In Greater Accra, Ghana, infrastructure and NICU procedures in the hospitals were found to be generally supportive of breastmilk feeding (BMF) of SSNBs. Most health care providers interviewed reported no breastfeeding limitations in the NICU (14 of 20) and a designated space in the NICU for mothers to breastfeed or express breastmilk (17 of 20). All mothers interviewed supported this, reporting they had sufficient privacy in the NICU to breastfeed or express breastmilk. Equipment for alternative feeding was almost always available, with recent shortages (in the past one to three months) only reported for nasogastric tubes (2 of 20) and breast pumps (1 of 20). Most NICUs (16 of 20) had a functional refrigerator, with 14 being used to store breastmilk.

FIGURE 1. BREASTFEEDING PRACTICES DURING INPATIENT AND POST-DISCHARGE IN GHANA (N=18)



Reports indicated that caregivers of inpatient SSNBs were all feeding their newborns breastmilk (Figure 1). Half of inpatient SSNBs were fed directly and half were fed by expressing breastmilk and using an alternative feeding mechanism (9 and 9 of 18, respectively). This continued into the post-discharge period with the majority of newborns fed using breastmilk, either expressed or direct (17 of 18). Cup feeding was the most commonly used alternative feeding strategy used by caregivers (10 of 18) with spoon feeding and nasogastric tube feeding also reported (4 of 18).

ENABLERS AND BARRIERS

ORGANIZATIONAL LEVEL

Over half of providers (13 of 20) reported participating in training on feeding care for SSNBs in the past two years. This training included alternative feeding methods, such as cup or spoon feeding, nasogastric tube feeding, and breastfeeding support; only two providers reported receiving training on expressing breastmilk and storage for infants who cannot breastfeed. Additionally, 11 providers reported participating in training on communication and counseling on general SSNB care.

Workload and health worker shortages were mentioned by the majority of providers interviewed as a barrier to the quality of feeding care they were able to provide to clients. Half of Ghanaian providers interviewed (10 of 20) cited recent health worker shortages (within the last three months) as a challenge. More than half (12/20) of providers reported feeling that their workload affected the quality of feeding support they were able to provide to caregivers of SSNBs, and almost all providers (17/20) stated that workload restricted them from effectively supporting caretakers of SSNBs in practicing BMF during inpatient care.

> *"If more trained nurses are brought in, I think we will get more time to talk with the mothers while others are taking care of the SSNBs. So, we need more trained nurses and a big space."*
> ***—General nurse, NICU, Ga West Hospital***

COMMUNITY AND FAMILY LEVEL

Caregivers received quality feeding support and services from health care providers and social support from family and community members. Feeding counseling was universal (19 of 20 providers reported counseling in the last month) and included discussion and checking a number of key topics during pre-discharge assessments. As a result, inpatient caregivers reported feeling supported by health care providers to practice alternative feeding methods, with necessary products at health facilities available.

Family and community members also served as key social supports for caregivers of SSNBs, both while inpatient and post-discharge. Inpatient caregivers cited husbands as the main source of support (11 of 18), with mothers-in-law and aunts or sisters also mentioned (1 and 4 of 18, respectively), with multiple forms of support being provided (i.e., emotional support, meal preparation, and help caring for the newborn). When asked directly, family members generally agreed with caregivers, citing food preparation, running errands, and general support as their main contributions. Overall, support for BMF in the home and community was high, with caregivers, family, and community members reporting little to no pressure or barriers to the practice.

"I helped the mother to express breastmilk into a feeding bottle and also fed the baby through the feeding bottle… and helped to prepare meals for the mother."
—Female family member, Ga West Hospital

INDIVIDUAL LEVEL

The quality of feeding support from health care providers and community health workers (CHWs) for mothers during inpatient, postnatal care (PNC), and home visits varied. While Ghanaian caregivers expressed feeling supported by health care providers to practice BMF during their inpatient stay, almost half of caregivers reported receiving pre-discharge support and counseling on feeding. Post-discharge follow-up was low. Slightly over half (10/18) of caregivers were given follow-up appointments, and of those 10, only three went to the appointments. None of the caregivers reported receiving post-discharge support or a visit from a CHW.

Caregivers expressed a need for more education and demonstration of alternative feeding strategies and their use so they are able to provide them confidently. Cup feeding was the most widely used alternative feeding method; 11 of 18 inpatient caregivers reported support and demonstration of alternative feeding methods from health care providers. Yet, challenges existed— caregivers expressed a need for more education.

"There have to be more education about the cup feeding so that all mothers will know that it's not just something the doctors or health care providers make up, but it's something that really help the SSNBs." ***—Mother of baby in kangaroo mother care unit, Tema General Hospital***

NEPAL

CURRENT PRACTICES

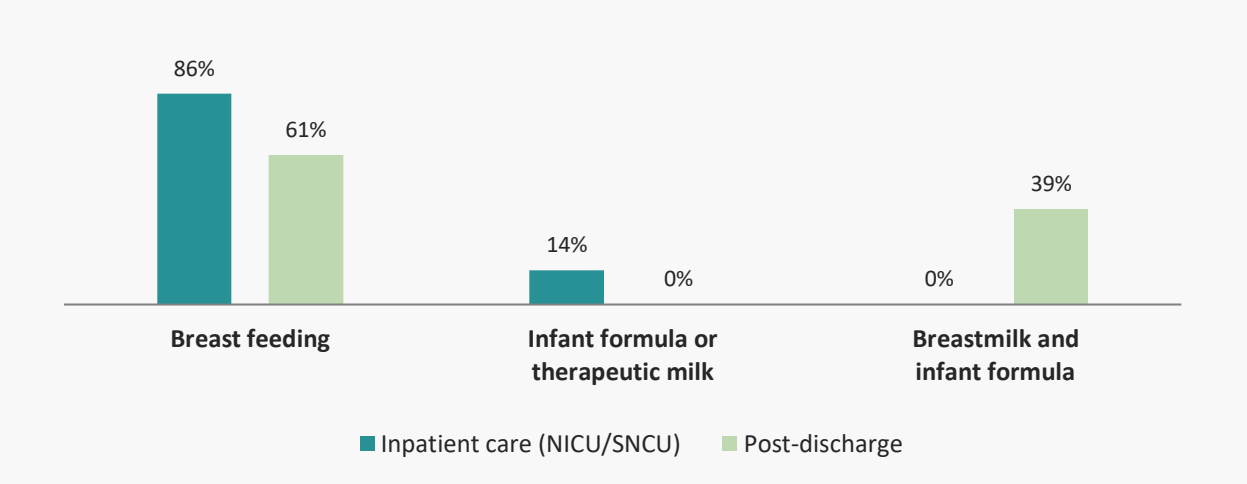
In Nepal, infrastructure and NICU protocols were generally supportive of BMF for SSNBs, but there were some exceptions. Of the 32 health care providers interviewed, 24 were aware of guidelines, protocols, job aids, or other reference materials to support SSNB feeding, and 20 reported ever using them. Providers reported it was common practice to restrict access for mothers to feed in SNCUs and NICUs until the babies were found to be clinically stable. The majority (24 of 32) of health care providers reported a lack of dedicated space for mothers to breastfeed; most mothers breastfed or expressed milk at their newborn's bedside. All providers reported that some level of shortages in supplies and equipment for BMF occurred during the previous three months, yet they reported that supplies and equipment were generally available. At the time of the survey, all 32 providers interviewed reported that nasogastric tubes were available, feeding cups were the next most available (25 of 32 providers), and breast pumps least available (12 of 32). The majority of health workers (24 of 32) reported a functional, available refrigerator in the NICU and that it was used for storing expressed breastmilk.

The majority of inpatient caregivers were feeding their SSNBs breastmilk (31 of 36) either directly (13), through expressed breastmilk (13), or other mechanisms, such as a wet nurse, milk bank, or relative-provided breastmilk (5). Mothers/caregivers breastfed or expressed breastmilk at the bedside (16 of 26, 61.5%), on bed or a comfortable chair (6 of 26, 23.1%), and only three (11.5%) used a separate and allocated place. Most felt that they had sufficient privacy (24 of 26).

Post-discharge feeding practices showed that the majority were feeding only breastmilk (22 of 36), with increases in the numbers of SSNBs receiving formula along with breastmilk (14 of 36). Challenges in BMF at home included trouble exclusively breastfeeding (reported by 16 of 36) and challenges with spoon feeding (reported by 4 of 36).

> *"It is difficult. The baby denies feeding with the cup. Although my baby takes milk, he refuses to swallow it and vomits it outside. It is difficult to feed with the help of a spoon too because he vomits all the milk outside."* ***—Post-discharge KII from Mahakali***

FIGURE 2. BREASTFEEDING PRACTICES DURING INPATIENT AND POST-DISCHARGE IN NEPAL (N=36)



ENABLERS AND BARRIERS

ORGANIZATIONAL LEVEL

Training on newborn or SSNB care in the last two years was reported by the majority of health workers interviewed (26 of 32), with over two-thirds (18 of 26) of those trained having received training on feeding care for SSNBs or separate training on breastfeeding or SSNB care. Barriers reported among health workers that affected their ability to provide quality care for SSNBs included workload, availability of health workers, and infrastructure and training challenges. Most health workers cited shortages of trained health care providers as an issue (28 of 32), with the majority experiencing these shortages within the past month. The quality of counseling services related to feeding SSNBs was impacted by the lack of space for counseling, inadequate human resources to carry out counseling, a need for increased training and limited availability of quality information, education, and communication materials. All health care providers reported providing feeding-related counseling and pre-discharge checkups; 10 of 32 providers reported their use of pre-discharge checklists. Of these 10, only five mentioned providing feeding guidance for SSNBs as part of the checklist.

COMMUNITY AND FAMILY LEVEL

Family and community members were mentioned as key social supports for mothers and caregivers of SSNBs during inpatient care; husbands (22 of 36) and mothers-in-law (15 of 36) were mentioned most often. They provided multiple forms of support, including emotional support, meal preparation, and help caring for the

newborn. Half of caregivers stated that their family supported BMF during inpatient care (20 of 36). Overall, family members were supportive of BMF, with only five reporting pressure to give pre-lacteal feed, cow milk, honey, or formula.

Post-discharge, a little over one-third of mothers and caregivers (14 of 36) were providing a mix of breastmilk and formula to their SSNBs. While reasons for providing formula varied, the majority (12 of 14) of caregivers reported that their husband supported or influenced their decision to practice the feeding behaviors. The majority (12 of 14) of the caregivers reported being self-empowered to decide feeding behaviors. Among all mothers and caregivers interviewed, family, including husbands and fathers, were reported as providing a supportive role in helping with household chores, cooking food, preparing meals, and providing emotional support. However, support from other community mechanisms was reported as low, with visits from CHWs after being discharged not occurring.

INDIVIDUAL LEVEL

Enablers and barriers during inpatient and post-discharge varied. Among those caregivers interviewed during inpatient stay, 29 of 36 reported receiving no pre-discharge counseling on feeding after discharge, and only six caregivers had received an appointment for follow-up care. Despite this, 33 of the 36 inpatient caregivers reported confidence in continuing to feed their SSNBs breastmilk following discharge.

The majority of post-discharge caregivers (32 of 36) were given an appointment for PNC or SSNB care during discharge, and only 50% (16) visited health facilities for appointments, with only six of those (37.5%) reported receiving information on problems with milk supply and newborn weight monitoring. Most were not visited by CHWs/female community health volunteers post-discharge, which is an important barrier to continue exclusive BMF. More than half of the mothers and caregivers who had visited the health facility for follow-up reported that health care providers took time to talk and counsel on feeding the baby and discussed and showed ways to manage feeding difficulties.

Challenges in practicing exclusive breastfeeding at home, post-discharge, were reported by 16 of 36 caregivers. Cup and spoon feeding was cited as the most acceptable alternative to breastfeeding (24 of 36), with nasogastric tubes next acceptable (4 of 36). Nasogastric tubes were less acceptable to caregivers given the increased financial burden and lack of personal engagement during feedings.

> *"They don't provide sufficient time to instruct mothers, for instance, they generally suggest mothers and caregivers not to do spoon feeding as there is risk to spoil the milk from spoon. They don't assist or give enough time to demonstrate the feeding way. We have to feed our child by ourselves on our own way."* ***—FGD participant***

CROSS-CUTTING RECOMMENDATIONS

Based on the findings from these two studies, MOMENTUM makes the following cross-cutting recommendations to the Ghana Health Service and Nepal Family Welfare Division:

ORGANIZATIONAL LEVEL

Findings from both study settings show that BMF is almost universal during inpatient stay. The findings from both countries suggest that **counseling of mothers and caregivers by trained health care providers on feeding of SSNBs and respectful support is an important enabler of BMF**. Inpatient caregivers in both locations felt supported by health care providers to feed their babies breastmilk. In Ghana, two-thirds of the caregivers expressed support from health care providers on alternative feeding mechanisms and mentioned demonstration and education as facilitators of BMF. In Nepal, health care providers were overall supportive of BMF and alternative feeding mechanisms. Therefore, it is crucial for ministries of health and health care facilities to ensure that **health care providers receive adequate training in feeding care and counseling for SSNBs**. Additionally, **mentorship support should be provided to address skill gaps and effectively manage feeding difficulties. Furthermore, quality of care improvements should be made in both locations to support respectful and quality feeding care for inpatient caregivers and SSNBs.**

Both the Ghana Health Service and Nepal's Family Welfare Division and their facilities are advised to address the workload and/or time constraints of health care providers affecting the quality of feeding counseling and support by **ensuring adequate staffing or assigning lactation experts to support mothers of SSNBs who need special support on BMF or alternative feeding methods**. Breastfeeding peer support is another strategy to support mothers of SSNBs and share the workload of busy health workers (Chepkirui, et al., 2020) (Shakya, et al., 2017). However, the ministries would need to assess the feasibility of this approach, including training and supervision of peers and an incentive mechanism.

A designated or private space in the NICU, which is accessible to mothers and caregivers to breastfeed or express breastmilk, and **availability of basic materials/equipment to support alternative feeding methods enables mothers to feed breastmilk** to SSNBs during their inpatient stay. The Ghana Health Service should continue this practice in all facilities caring for SSNBs. In Nepal, there is lack of dedicated space for breastfeeding and health care providers limit mothers' and caregivers' access to NICUs/SNCUs. MOMENTUM recommends that Nepal's Family Welfare Division seek to ensure availability of a dedicated space and unrestricted access to NICUs and SNCUs and incorporate this practice in the Nepal SSNB care model or quality statements or measures.

COMMUNITY AND INDIVIDUAL LEVELS

Family member involvement and emotional and social support are significant enablers for mothers to feed breastmilk in both Ghana and Nepal. In Ghana, husbands and female relatives (sisters or aunts) served as the primary support to caregivers during inpatient stays, while in Nepal, husbands and mothers-in-law were the primary sources of support. In both study settings, mothers and caregivers felt empowered to decide on feeding options and family members respected mothers' decisions regarding SSNB feeding. Thus, **facilities and providers should encourage this positive practice as part of the family engagement package of NICUs**, including using simple and pictorial counseling tools and job aids that emphasize involvement of family members and engaging family members during demonstrations of alternative feeding methods, such as cup feeding or storage of expressed breastmilk. In Nepal, feeding and family support should be incorporated into the infant- and family-centered development care training curriculum.

It is encouraging that almost all caregivers continued BMF after discharge in both settings. However, the inclusion of infant formula and mixed feeding is problematic in Nepal where one-third of caregivers were feeding with breastmilk and infant formula. Given the limited socio-cultural barriers to BMF in Nepal, **this could be mitigated with specialized or quality lactation support and quality feeding support during PNC visits.**

Continuous lactation support during PNC and SSNB care follow-up is crucial to sustain exclusive BMF because it helps to address misconceptions, such as insufficient breastmilk, feeding challenges around expressed BMF, and alternative feeding at home. However, very few caregivers in both study settings attended PNC or post-discharge appointments, even when they were provided, and very few received home visits from CHWs. **MOMENTUM sees this lack of follow-up as a much-needed area of improvement for both study settings, given the importance of PNC to the SSNB care model.**

STUDY LIMITATIONS

There were several limitations to both studies. In both settings, purposive sampling of facilities and health workers, along with their relatively small sample sizes, prevents representation of findings within a larger population. As MOMENTUM cannot know if the surveyed women received care from the surveyed providers, it is impossible to directly compare provider-reported and women-reported results. Additionally, the local ministries of health in the two settings engaged differently with researchers, making ownership, design specifics, and interpretations of findings different in each setting, which affected how and when results are integrated and recommendations are identified within each country setting.

CONCLUSION

Despite clear global guidance, there are few studies that have documented current practices, barriers, facilitators, and programmatic approaches affecting the provision of specialized, high-quality nutritional care for SSNBs in health facilities and post-discharge in low- and middle-income countries. The formative assessments in Greater Accra, Ghana, and Nepal demonstrate that NICUs and neonatal wards with trained health workers who provide respectful, quality counseling; accessible and designated places to breastfeed or express breastmilk; and a supportive environment that is conducive to emotional and social support from family members are key enablers for BMF of SSNBs. The barriers that exist in both settings can be mitigated by providing training, additional human resources, improved counseling and behavior change tools for family support, and improved infrastructure. Additionally, MOMENTUM recommends that governments and policy makers emphasize feeding of SSNBs as an integral component of country specific SSNB models of care and ensure that post-discharge care is encouraged and prioritized by health care providers in the facility and in the community.

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