

Care of newborns with possible severe bacterial infection (PSBI) at the primary health care level where referral is not possible

Kogi and Ebonyi States, Nigeria

November 2018

www.mcsprogram.org

Background

Approximately seven million babies are born annually in Nigeria, of which 250,000 do not live beyond their first month of life.¹ The three leading causes of newborn deaths in Nigeria are complications of prematurity (31%); intrapartum-related complications (31%), including birth asphyxia; and infections (26%).² In November 2016, Nigeria launched the Nigeria Every Newborn Action Plan (NiENAP) and Essential Newborn Care Course (ENCC) to accelerate the scale-up and uptake of high impact interventions targeting the three major causes of newborn deaths.

The initial guidance for management of newborns with infections allowed and advised Health Care Workers (HCWs) at the Primary Healthcare Centers (PHC) to initiate treatment by administering the first dose of intramuscular (IM) antibiotics and referring the infant to a secondary or tertiary level hospital for “advanced care”. However, for various reasons, caregivers of young infants were not able or willing to comply with the guidance on referral of sick infants. For the infants that do not get referred, the health provider had no protocol to provide treatment until 2017, thus putting them at a higher risk of death. Using evidence from the Africa multi-country study, African Neonatal Sepsis Trial (AFRINEST)³ that was conducted in Nigeria, Democratic Republic of Congo



Figure 1 – PSBI treatment when referral is not possible action plan from the ENCC training module

¹ UNICEF (2018) *UNICEF Nigeria - Media center - World is failing newborn babies, says UNICEF*. Available at: https://www.unicef.org/nigeria/media_11974.html (Accessed: 19 August 2018).

² Healthy Newborn Network. *Newborn Numbers Database*. Washington, DC: Save the Children; 2018 [Available from: <https://www.healthynetwork.org/hnn-content/uploads/Newborn-Numbers-excel-30-Jan-2018-FINAL.xlsx> accessed August 8, 2018 2018.

³ Tshetu A., Lokangaka A. et al. African Neonatal Sepsis Trial (AFRINEST) group. Simplified antibiotic regimens compared with injectable procaine benzyl penicillin plus gentamicin for treatment of neonates and young infants with clinical signs of possible

and Kenya, and the Asian Simplified Antibiotic Therapy Trial (SATT) studies in Bangladesh and Pakistan, the World Health Organization (WHO) released a new set of guidelines for “managing Possible Serious Bacterial Infection (PSBI) where referral is not feasible”.⁴ The guidance states that hospital referral is still the preferred option for sick young infants with clinical severe infection or critical illness. However, for those for who do not accept or cannot access referral, an alternate treatment regimen could be provided on an outpatient basis by peripheral health facilities. The Nigeria Federal Ministry of Health (FMOH) adopted these new guidelines as a national policy in May 2017.

This technical brief describes the USAID funded Maternal and Child Survival Program’s (MCSP) support to FMOH and the State Ministry of Health of Kogi and Ebonyi States to operationalize this new policy for treatment of PSBI at PHCs through training of service providers and various stakeholders.

MCSP’s Support to Operationalize PSBI Treatment at the PHC

MCSP first initiated its engagement with FMOH on PSBI in the program’s first year, 2014, and offered to support translation of the PSBI evidence generated by the AFRINEST study into practice in Kogi and Ebonyi States. These States were not part of the AFRINEST study. MCSP was asked to pause implementation until the University of Ibadan (UI) completed a WHO-sponsored PSBI implementation research in the same sites where the original trial was conducted. After the implementation research was completed and results presented in 2017, MCSP was able to resume support for translating the PSBI research into practice in project-supported States. This in turn delayed initiation of the MCSP PSBI activities and shortened the implementation period of the intervention.

MCSP’s two main objectives for the PSBI intervention were to support FMOH in creating the necessary enabling environment for uptake of the newly endorsed simplified antibiotic regimen for treating PSBI, and to assist its two impact States, Kogi and Ebonyi, operationalize this new treatment guideline. MCSP’s support was provided in coordination with FMOH, the Nigeria AFRINEST study investigators, and State Ministry of Health (SMOH)/ State Primary Health Care Development Agency (SPHCA) in Ebonyi and Kogi States. MCSP aimed to facilitate the integration of the new regimen protocol into ongoing ENCC and Integrated Management of Childhood Illness (IMCI) training for PHC staff. In its two program States, MCSP supported building the capacity of PHC staff on the new regimen using the central materials. The program also supported the States to use a mixture of SBCC strategies including home visits by Community Oriented Resource Persons (CORPs) and other community workers, such as the patent and proprietary medicine vendors (PPMVs) trained in integrated community case management of childhood illness (iCCM), to improve recognition of danger signs and early care-seeking by caregivers of young infants.

National Training Materials Adaptation

At the national level, MCSP updated the “Young Infant” module and chart booklet in the (IMCI) guidelines and ENCC training materials to include the adopted PSBI protocol at PHC level in 2017/18. Amoxicillin Dispersible Tablet (Amoxicillin DT) is one of the two recommended medications for treating PSBI, with injection gentamicin being the second drug. Through MCSP and other partners’ advocacy, the use of Amoxicillin DT in place of Benzyl Penicillin at PHC level was approved in November 2017. The updated materials were field tested in Kogi and Ebonyi States. Figure 1 on the previous page shows the PSBI action plan included in the ENCC training material.

State-level Planning and Coordination

In Kogi and Ebonyi States, MCSP held a meeting with the key stakeholders from the respective SMOH and the SPHCDA to discuss the implementation of PSBI in both of the program States. The primary purpose of the meeting was to inform, accelerate the introduction, and scale-up the use of the simplified treatment regimen

serious bacterial infection when referral is not possible: a randomized, open-label, equivalence trial. *Lancet*. 2015; 385: 1767-1776.

⁴ World Health Organization. Managing possible serious bacterial infection in young infants when referral is not feasible. Guidelines and WHO/UNICEF recommendations for implementation. Geneva, Switzerland: WHO, 2015.

for sick young infants, ages 0-59 days, with PSBI. Both States agreed on a common vision for PSBI scale-up, which included strengthening leadership to support PSBI scale-up; capacity building of service providers; procurement; establishing a well-functioning supply chain; service provision; referral; triage; and collection of real time data for tracking and program adjustment. Key partners were identified to support the process, including Ananda Marga Universal Relief Team (AMURT) in Ebonyi State and the Saving One Million Lives Program for Result (SOML PforR) in both States. MCSP supported the inauguration of State-level structures for coordination of newborn and child health interventions, including PSBI. These structures were the Young Infants Sub-Committee of the State Child Health Technical Working group in Ebonyi State and the Scale-Up Management Team (which is a sub-committee of the State Core Technical Committee in Kogi State). The States pledged to strengthen the availability of the PSBI medications at the PHC level using their Sustainable Drug Supply System - a Drug Revolving Fund mechanism present in both States.

PSBI Data Collection, Management and Use

For PSBI implementation, MCSP supported States to develop specific PSBI implementation plans; identified and agreed on PSBI indicators to track. Furthermore, MCSP, in collaboration with the FMoH, developed recordkeeping forms (e.g., newborn PSBI tracking register, referral sheets, etc.) to support CORPs and PHCs with data collection and management. The registers were kept at the Community Health Extension Workers (CHEWs) station in the PHCs. The tools were designed to help CORPs track patients at the community level, provide counseling and conduct limited physical examination to identify and refer sick newborns to the health facility, and submit referral data to supervisors at the end of the month. A separate register, “PSBI tracking register in the PHC,” completed by PHC health workers is used to track sick newborns seen at the PHC including those referred to the facility by the CORPs. At the end of the month, the PSBI focal person at the PHC summarizes the cases from the register in the monthly summary form. Review and discussion of PSBI related data were incorporated into the existing monthly PHC data review meetings.

Capacity Building and Facility Readiness

Using existing IMCI and ENCC platforms and technical resources, ENCC and IMCI trainers, nurses, and CHEWs were updated on the new PSBI protocol in both States. A two day supplementary training was conducted for service providers who had previously completed their ENCC or IMCI training prior to the completion of the integration of full treatment for PSBI into the existing ENCC and IMCI training materials. In June 2018, MCSP, in collaboration with the SMoH and SPHCDA, selected nine LGAs in Kogi State and seven LGAs in Ebonyi State to roll out the implementation of the intervention. A total of 74 PHCs in Kogi and 63 PHCs in Ebonyi were supported to rollout the management of PSBI where referral is not possible. Criteria for facility selection included proximity of facilities to the capital city to allow for easy accessibility and commodity supply to facilities SOML PforR program. MCSP identified focal persons in these facilities to drive the implementation of the intervention and capture PSBI data using the registers and monthly summary forms developed by the project. Job aides, such as antibiotic charts for Amoxicillin DT and Gentamicin, with inclusion of dosage calculation, and temperature charts were supplied to the health facilities. MCSP also went a step further to advocate to the SOML PforR program managers in both States to ensure that facilities have adequate supply of PSBI commodities.

PSBI Indicator list

- Percent of PHCs with health worker trained in managing PSBI in young infants
- Percent of PHCs that received a supervision visit on managing infection in young infants in the last quarter
- Percent of PHCs with no gentamicin or Amoxicillin DT/Amoxicillin syrup stock out in the past quarter
- Number of PSBI cases identified at PHCs
- Percent of PSBI cases identified at PHCs who received at least one dose of injection gentamicin
- Percent of PSBI cases treated at PHCs who received 2 doses of injection gentamicin
- Percent of PSBI cases treated at PHCs who receive follow-up assessment on day 4
- Percent of identified PSBI cases who accepted referral at PHC to hospital

Demand Creation

MCSP supported the selected LGAs to strengthen demand creation for PSBI. MCSP enrolled community actors, including men/women of childbearing age and much older adults from four LGAs (two per State), to engage in participatory Action Media Workshops. The action media workshops entailed a sequence of interactive sessions involving representatives (15-20 people) from the same community that face a certain health challenge, in this case newborn health issues/ PSBI. Involving community representatives in the development process is important for ensuring that materials content and media are understandable, relevant, and accessible.

During the workshops, participants from Kogi and Ebonyi States reflected on their experiences as parents and community members in terms of their social, cultural, and economic environments related to newborn health and care-seeking. Based on insights from the participants two key demand creation documents were developed: a poster with illustrations of the key danger signs and the message to seek immediate care from the PHC (see Figure 2), and a community dialogue booklet.

The community dialogue booklet was used by existing Ward Development Committees (WDC) to sensitize their communities on essential care for all babies, identification and care-seeking for sick young infants and small newborns. WDC is a government-supported community structure whose membership comprises prominent community members and the Officers in Charge (OIC) of the PHC.

Demand creation was also strengthened through improved pre-discharge counseling on newborn danger signs of mothers who delivered at MCSP supported health facilities. The pre-discharge counseling was facilitated using illustrations in the mother-baby booklet provided to all women who deliver in MCSP supported facilities. In addition, as described below, CORPs were trained to detect and refer newborns with danger signs to the nearest health facility for further assessment and management. The CORPs also educate the mothers and other caretakers on maternal and newborn danger signs during their home visits.

Community Action

The FMoH adopted PSBI protocol included guidance on home visits by community health workers. Given the limited time available to MCSP for implementation of the PSBI intervention, MCSP and the SMoH/SPHCDA of the two States decided to incorporate this component only in limited catchment areas of the selected PHCs. Community volunteers from four LGAs (two per State) who were willing to commit to reducing neonatal mortality from sepsis in their various communities, were identified. In Kogi State, volunteers were selected from two out of the three targeted LGAs for the implementation of the newborn health platform, while in Ebonyi State, volunteers were selected from the two LGAs for PSBI implementation. The selected volunteers were trained as CORPs and taught to conduct home visits, identify danger signs in newborns, and refer sick newborns to MCSP program-linked health facilities. A total of 98 CORPs were trained in Kogi and Ebonyi States. The trained CORPs conducted home visits equipped with weighing scales, thermometers, respiratory timers, WHO's CORP training modules and Balances counselling cards, and sheer determination. The purpose of the home visits was to sensitize pregnant women on danger signs during pregnancy and help them identify danger signs in the newborns after delivery that might indicate PSBI and seek care. If the CORPs recognized a danger sign in the newborn (such as fast breathing, high/low temperature, jaundice, poor feeding, pus/bleeding from the cord, low birth weight, etc.) they would refer them to designated PHCs.



Figure 1 - PSBI IEC Material developed and pre-tested by MCSP in Kogi and Ebonyi States



A CORP weighing a newborn baby in Kogi State. Photo Credit: Vivian Obioma, MCSP Nigeria

The CORPs are assigned to PHCs with PSBI management-trained CHEWs. They conduct two home visits during the antenatal period when they have identified a pregnant woman in their community. All the CORPs have mobile phones by which they are notified when the woman has delivered and subsequently conduct two to four home visits, post-delivery, to assess the mother and the newborn for danger signs. They record their activities in the PSBI CORPs registers and refer identified sick young infants using the PSBI referral forms. In other LGAs, MCSP trained Patent and Proprietary Medicine Vendors (PPMVs) on Integrated Community Case Management (iCCM) to refer all newborns, by setting up a system in which identified cases are immediately referred to the health facility. In both of these approaches, MCSP did not procure any commodities to support the work of the CORPs instead, they were provided by the States or by drug revolving funds arrangements by the health facilities.

Supervision and Data for decision-making

In both States, MCSP supported the SMoH and SPHCDA to conduct regular supportive supervision visits to the PSBI supported health facilities, thereby providing onsite mentoring for the CHEWs and nurses that are implementing PSBI. This ensured the delivery of quality services at the respective facilities. The supportive supervision visits were carried out monthly on the Integrated Supportive Supervision (ISS) platform by the LGA Directors of the Public Health Department, who serve as supervisors for the CHEWS and nurses in the respective LGAs. They visited the facilities with the ISS checklist and assessed the facilities on newborn interventions, including availability of commodities and data management. In Kogi, the LGA Health Education Officers, who served as supervisors for the CORPs, led bi-weekly meetings with the CORPs where they reviewed the home visits conducted and newborns referred to ensure the CORPs were following up with referred cases on treatment. In Ebonyi, the OICs of the health facilities served as supervisors for the CORPs. MCSP provided technical oversight on all these activities, and set up a WhatsApp group for the CHEWs and CORPS through which they could give real time updates on home visits and challenges with treatment. This provided a platform for seamless referrals since it provided an opportunity for CORPs and CHEWs to communicate in real time.

MCSP also supported monthly data reviews and validation meetings for these facilities in both States. The PSBI focal persons from the respective facilities (i.e. the CHEWS), their supervisors, CORPs, and their supervisors (the LGA Health Educators) attended these meetings with the data collected on PSBI for that reporting period. The program used this opportunity to build their capacity on the use of the data tools and conducted refresher sessions on identifying danger signs and management of PSBI according to FMoH PSBI guidelines.

Key Achievements

MCSP effectively supported the FMoH in their readiness preparation to scale-up the PSBI intervention, resulting in the adaptation and adoption of key policies guiding PSBI, and integration of PSBI into Kogi and Ebonyi State strategic and operational plans and budgets. At the facility level, a key accomplishment of the program was to build the capacity of health workers previously trained on ENCC and IMCI who can now confidently manage sick young infants with PSBI, while emphasizing referral to the caregivers for optimum care. At community level, CORPs across the four LGAs that were trained with MCSP support on PSBI management have referred more than half of the sick young infants treated at the PHCs.

Following the capacity building of providers, MCSP initiated provision of PSBI services in the final months of the program with the expectation that the SMoH will carry forward these activities. As referenced earlier in the brief, since the actual implementation period for PSBI services in Kogi and Ebonyi States was very short—just a few months—data provided in the table and figure below indicates the initiation of PSBI services but does not yet demonstrate improvement in service uptake.

Table 1: Number of sick young infants with identified PSBI in Kogi and Ebonyi States, July - August 2018

Month/ Year	Number of identified sick young infants with PSBI							
	Ebonyi				Kogi			
	Male		Female		Male		Female	
	0-28 days	29-59 days	0-28 days	29-59 days	0-28 days	29-59 days	0-28 days	29-59 days
July 2018	38	18	33	16	31	6	20	21
August 2018	31	21	24	13	39	8	8	4
Total	69	39	57	29	70	14	28	25

So far, 331 PSBI cases have been identified in both States between July and August 2018 (See Table 1 above). Only a small proportion of these cases accepted referral to a hospital for further treatment after receiving counselling from the trained health workers (See Figures 3.1 and 3.2). Figure 3.1 shows a higher referral acceptance by caretakers of sick young infants in Kogi compared to caretakers in Ebonyi. The percent remained almost the same for July and August for Kogi but doubled for Ebonyi. This means 80% or more of the identified PSBI cases refused referral and had to be treated at the PHC. Figure 3.2 shows that of only about half of the PSBI cases managed at PHC level received the required two (2) injections of gentamicin. Patients in Kogi were slightly more likely to receive the two doses of gentamicin compared to patients in Ebonyi. The remaining cases were treated at MCSP-supported PHCs in both States.

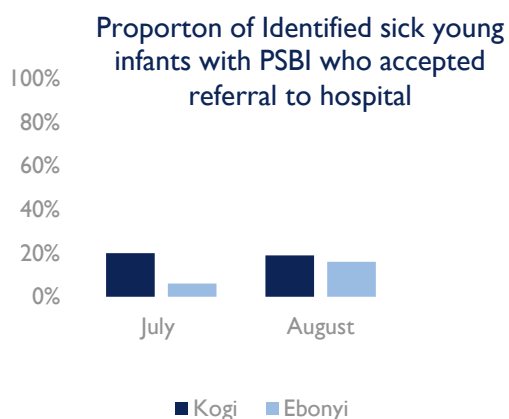


Figure 3.1: Proportion of sick young infants with PSBI who accepted referral to a hospital for further treatment

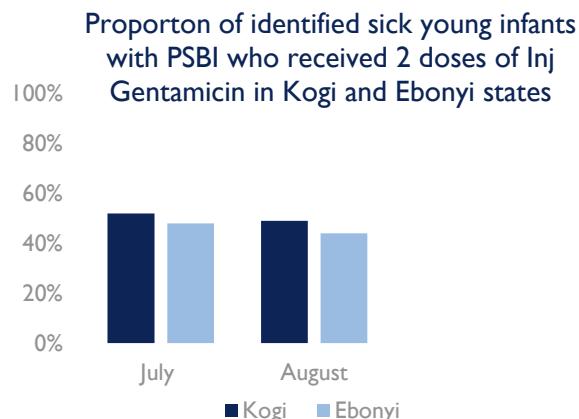


Figure 3.2: Proportion of sick young infants with PSBI who received 2 doses of Inj. Gentamicin at the PHC

Recommendations and Conclusion

- Early engagement of national health leaders in the adoption and development of capacity building materials, implementation approaches, and monitoring of relevant data is a critical step for sustainability of a new intervention. Implementing partners and stakeholders who are interested in replicating this intervention in other LGAs (in Kogi and Ebonyi States) and other States should plan to engage State level leaders earlier in the implementation phase.
- MCSP played a key role supporting Kogi and Ebonyi States accelerate the operationalization of the new FMoH PSBI policy within their health systems thus laying a strong foundation for the uptake of this intervention. State Child Health Technical Working Committees will need to invest significant amounts of

coordination and mobilization resources in order to continue and expand implementation of this intervention in other LGAs (within Kogi & Ebonyi States) and/or States.

- Community engagement is an essential component in the identification and referral of sick young infants. The CORPs referred more than half of the sick young infants treated at the PHCs. Ongoing support by the LGAs and the States is crucial for the sustainability of this component of the intervention. The level of engagement of community health workers and/or volunteers in home visits should be clearly identified during discussions and development of new terms of reference at both the national and State level. The States should continue to provide the needed supportive supervision and supplies.
- States are currently using the Save One Million Live Initiative (SOML) funds to provide medication to PHCs. This addresses the immediate drug needs. However, given that the SOML is a grant with an end date, the reliance on this source of funding is not sustainable in the long term. States should work to incorporate PSBI medication into their regular budgets and continue to work on strengthening their drug revolving fund mechanisms to ensure that injection gentamicin and Amoxicillin DT are always available at the PHCs at an affordable cost to the caretakers of sick young infants and work on setting up a long-term plan for sustaining drug availability.
- MCSP assisted the States to put in place a system for monitoring the progress of PSBI implementation and assessing the quality of care. Given that these are project initiated systems, States will need to devise ways on how to continue the work. For instance, the indicators selected are not part of the national health information system (NHIS) and will require extra effort from the two States to maintain sustainability of this project initiated parallel system. It is recommended that States advocate for inclusion of the indicators selected to be a part of the NHIS. Additionally there is lack of a streamlined process for data collection in these two States. In order to remedy this, States should collectively agree on how the data will be collected—will it be through a separate register or integration into an existing register. The registers and monthly summary forms developed by MCSP could serve as template for the discussion.
- Two months of service provision did not provide adequate time for MCSP to observe the trend in uptake or conduct a formal review of the PSBI implementation activities. Kogi and Ebonyi States and/or FMoH should mobilize funds to undertake a review of the PSBI introduction after a period of 6-8 months implementation when more data would be available to see the trend of uptake of the intervention by PHCs and assess other systems including availability of medication, data collection and use, related to this intervention.

In conclusion, despite the long process of translating the PSBI research into practice in MCSP supported States, the project effectively supported the FMoH in their readiness preparation to scale-up the PSBI intervention. MCSP supported FMoH to adopt the WHO recommended protocol for providing outpatient treatment for sick young infants with PSBI where referral is not possible; change policy to permit the use of Amoxicillin DT in place of benzyl penicillin at PHC level; and integrate PSBI protocol into existing newborn and child health training materials. Making these important changes will facilitate uptake and scale-up of this intervention by the States and other implementing partners. Assisted by MCSP, Kogi and Ebonyi States have operational plans for the implementation, coordination, and monitoring the rollout of this new intervention. They have incorporated PSBI related capacity building and supplies into their State strategic plans.

This brief is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of the Maternal and Child Survival Program and do not necessarily reflect the views of USAID or the United States Government.