

MOMENTUM

Safe Surgery in Family Planning and Obstetrics



Key Messages

- MOMENTUM Safe Surgery in Family Planning and Obstetrics implemented surgical obstetrics quality improvement approaches at project-supported facilities in Nigeria. These included (1) Maternal, Perinatal, and Child Death Surveillance and Response (MPCDSR), (2) Robson classification, and the WHO Surgical Safety Checklist.
- Following implementation of these approaches, improved clinical outcomes were observed at supported facilities.
- Coaching and supportive supervision were critical for building buy-in, improving clinical skills, and sustaining the use of these approaches.

■ Programming Brief

QUALITY IMPROVEMENT APPROACHES FOR SAFE SURGERY IN NIGERIA

MPCDSR, Robson Classification and the WHO Surgical Safety Checklist

MOMENTUM SAFE SURGERY IN FAMILY PLANNING AND OBSTETRICS IN NIGERIA seeks to accelerate reductions in maternal and newborn mortality and morbidity by increasing the capacity of Nigerian institutions and local organizations to introduce, deliver, scale-up, and sustain the use of safe and appropriate surgical obstetric care; prevention and management of obstetric and iatrogenic fistula; and prevention and mitigation of female genital mutilation/cutting in the maternal health context. As part of the efforts to scale-up safe and appropriate surgical obstetric care, the project has worked with partners to strengthen and institutionalize the use of three key quality improvement (QI) approaches: MPCDSR; Robson classification, and the WHO surgical safety checklist.

BACKGROUND

The maternal mortality ratio in Nigeria remains high at 1,047 per 100,000 live births.* Reducing maternal deaths requires strengthening a variety of services at all levels of the health system. Safe and appropriate cesarean delivery plays a major role in addressing maternal mortality, and QI approaches for this procedure can be done before, during, and after surgeries, including the three QI tools noted above (see Table 1). The World Health Organization (WHO) released the Maternal and Perinatal Death Surveillance and Response guidelines in 2013 to strengthen death reporting and review; many countries have since adopted the guidelines.† In response to rising cesarean section rates, WHO proposed the Robson classification as the global standard for monitoring cesarean section rates within and between health facilities in 2014.‡ Lastly, WHO introduced the Surgical Safety Checklist as a means of increasing patient safety and reducing postoperative complications and deaths.§

Table 1. Overview of MPCDSR, Robson Classification, and the Surgical Safety Checklist

APPROACH	WHAT IS IT?	WHY IS IT BEING DONE?
MPCDSR [†]	A continuous cycle of identification, notification, and review of maternal, perinatal, and child deaths followed by actions to improve quality of care and prevent future deaths.	By reviewing the circumstances around maternal, perinatal, and child deaths, providers can identify the actions needed to prevent deaths in the future. Follow-up of actions from prior MPCDSR meetings can contribute to prioritizing actions needed to prevent deaths in the future.
Robson Classification of Cesarean Deliveries [‡]	A system that classifies all births into ten groups (Robson groups) based on six variables: parity, previous cesarean section, onset of labor, number of fetuses, gestational age, and fetal lie and presentation. The proportion of cesarean deliveries by Robson group may be reviewed in the context of a cesarean delivery audit (which can be integrated into MPCDSR audit processes). It can be used to identify factors associated with variations of the cesarean rate.	Given the risks involved, any cesarean delivery performed needs to be indicated. Facilities where cesarean overuse is happening can review the proportion of births in each Robson group to identify which groups contribute to overuse. For example, cesarean section rates for Robson group 1 (nulliparous, single cephalic pregnancy, ≥ 37 weeks' gestation, spontaneous labor) and Robson group 3 (multiparous without scar, single cephalic pregnancy, ≥ 37 weeks' gestation, spontaneous labor) are often high and vaginal deliveries for these groups may be safer.
WHO Surgical Safety Checklist [§]	A surgical safety checklist is a simple tool that the surgical team follows to ensure that the requisite steps involved in a procedure are performed (accountability) and that all members of a surgical team are communicating clearly with each other (communication).	Using the tool can prevent communication errors among the surgeon, anesthetist, nurse, and other members of the surgical team. Effective communication can, in turn, prevent near misses and intraoperative complications leading to morbidity and mortality.

* World Health Organization, UNICEF, UNFPA, World Bank Group, UNDESA. (2023). *Trends in maternal mortality 2000 to 2020: Estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division*. <https://www.who.int/publications/i/item/9789240068759>

† World Health Organization. Maternal and Perinatal Death Surveillance and Response <https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/maternal-health/maternal-and-perinatal-death-surveillance-and-response>

‡ World Health Organization. Robson Classification: Implementation Manual. <https://www.who.int/publications/i/item/9789241513197>

§ World Health Organization. WHO Surgical Safety Checklist. <https://www.who.int/teams/integrated-health-services/patient-safety/research/safe-surgery/tool-and-resources>

QI IMPLEMENTATION

MPCDSR

Prior to the rollout of MPCDSR at the facility level, MOMENTUM Safe Surgery in Family Planning and Obstetrics (along with multiple partners) also supported the Federal Ministry of Health (FMOH) in developing and finalizing the “National Guidelines and Tools on MPCDSR in Nigeria.” The project participated in the review and finalization of the guidelines through a series of meetings, led by the FMOH that included technical teams with members of national steering committee, donor agencies including USAID, UNFPA, UNICEF, and academic/research institutions across the country. Thereafter, FMOH organized a validation of the new MPCDSR national guidelines and dissemination meeting including reconstitution of the national steering committee at the national level. The two major changes to the guidelines constituted of the addition of ‘child’ and ‘community’ resulting in the acronym ‘MPCDSR’. Another important output of this activity was the reconstitution of the national and state steering committee membership.

The project works with secondary health facilities in the Federal Capital Territory, Sokoto, Kebbi, Bauchi, and Ebonyi states. To support the roll-out of MPCDSR, the project first conducted a training of trainers (ToT) for the state MPCDSR steering committee members. Each of the secondary health facilities supported by the project convenes its own MPCDSR committee. The state MPCDSR steering committee member trainers cascaded MPCDSR training to these members, with project support that included printing and distribution of national guidelines, and trainer and participant manuals. The facility committees hold regular MPCDSR meetings every two to four weeks, discuss cases, and come to consensus on a set of recommended actions. These proceedings are documented through a standardized MPCDSR e-platform called the national obstetric quality assurance (NOQA) form and submitted to the state and national steering committees.

Robson Classification

The project took several steps to introduce Robson classification at project-supported facilities. At the start of the project, health facility assessments captured provider knowledge of Robson classification. The project held engagement meetings with the Hospital Services Management Board (HSMB), State Ministries of Health, and senior management of project-supported hospitals. The project first strengthened health care workers’ capacity to perform Robson classification through training-of-trainers and stepdown training to introduce the practice of classifying births by Robson group. Health workers are trained on how to identify and analyze which groups of women contribute most and least to the overall cesarean delivery rate. In addition, the project posted a big board with definitions for each group in each facility, to be used as a guide in conjunction with the implementation manual. The project then supported providers in routinizing the practice through supportive supervision, coaching, and mentoring. During these visits, project staff debriefed the head of the facility on gaps and action points and cross-checked the Robson record books. Facilities analyze the data in a participatory manner during facility clinical meetings, whereby each monthly analysis is led by the trained matron in-charge together with the labor and delivery unit. This participatory process ensures that the staff are fully invested, and can easily calculate the cesarean section rate and the relative contributions of each Robson group to the cesarean section rate, and use this data to guide clinical QI. The summary data from secondary facilities is then reviewed by the HMB to support their decision-making (examples shown in the next section ‘QI Outcomes and Implementation Challenges’).

WHO Surgical Safety Checklist

Before rolling out the WHO Surgical Safety Checklist, MOMENTUM Safe Surgery secured buy-in for implementation by advocating to the relevant Ministry of Health stakeholders. The advocacy visits involved introducing the importance of the tool in strengthening service delivery by improving surgical quality and the checklist’s potential for eradicating preventable complications. The checklist was rolled out collaboratively through a ToT, for which the MOH advised and

approved the training content and agenda, the cadre of trainees to be invited, and length of stay trainees were away from facilities. MOH approval for the ToT was obtained from the Commissioner for Health or the Permanent Secretary. Training was cascaded through step-down training and fortified through mentoring and coaching during supportive supervision visits. During the training, trainees were introduced to the WHO Surgical Safety Checklist and encouraged to identify gaps and propose modifications to make it appropriate for the local context. One facility modified the checklist by adding a ‘before receiving patient’ section and by color coding each of the sections. The ‘before receiving patient’ section now includes capture of informed consent, patient bath, removal of dentures/capped teeth/prostheses/jewelry, fasting guideline adherence, and patient vitals.

Supportive supervision visits involve mentoring and coaching health workers and gauging their perceptions and understanding of the checklist. Anecdotally, most health workers have indicated that the checklist eases their work and reminds them of the actions needed before, during, and after a surgery. To monitor checklist use, project staff do go to the operating theater, ask how many surgeries were done in a given period, whether the checklist was used for any or all of them, and what challenges were associated with its use (see next section for examples of challenges). The case notes for patients undergoing surgeries are typically reviewed to monitor documentation completeness. When appropriate, the project directly observes the use of the checklist in the operating theater.

QI OUTCOMES AND IMPLEMENTATION CHALLENGES

The project’s implementation of MPCDSR, Robson classification, and the WHO Surgical Safety Checklist are integrated into an overall QI package. As such, changes in health outcomes cannot necessarily be attributed to one approach or the entire package itself. However, some improvements in maternal deaths (overall), maternal deaths following cesarean deliveries, and reductions in unindicated cesarean deliveries are being observed following the implementation of these QI interventions.

The number of facilities conducting MPCDSR has increased over the life of the project (Figure 1). As such, corrective actions are identified during these meetings. For example, at one hospital in FCT, MPCDSR recommendations informed installation of inverter for the refrigerator in the blood bank. In another facility, a MPCDSR meeting revealed soliciting a chemist as an advocate for appropriate maternal health care after having experienced the death of his wife from pre-eclampsia. In one episode of recurring late referrals from a primary health care (PHC) center, the MPCDSR committee, hospital services management board, and PHC center in-charges held meeting, leading to training on the identification of danger signs in pregnancy and prompt referral. This increase may be attributable to the completion of step-down training and the re-activation of facility MPCDSR committees. During supportive supervision visits, the project has observed that death reviews are increasing.

Following increases in MPCDSR implementation at project-supported facilities in Sokoto, Kebbi, Bauchi, Ebonyi, and FCT (Figure 1), the project observed a decline in maternal deaths (Figure 2). This decline varies by state; the largest decline has been observed in Sokoto, where the number of maternal deaths fell from 19 to 5 between April and September 2023. In Ebonyi and FCT, a near-zero trend continued over time.

Figure 1: Number of Project-Supported Facilities Conducting Death Audits

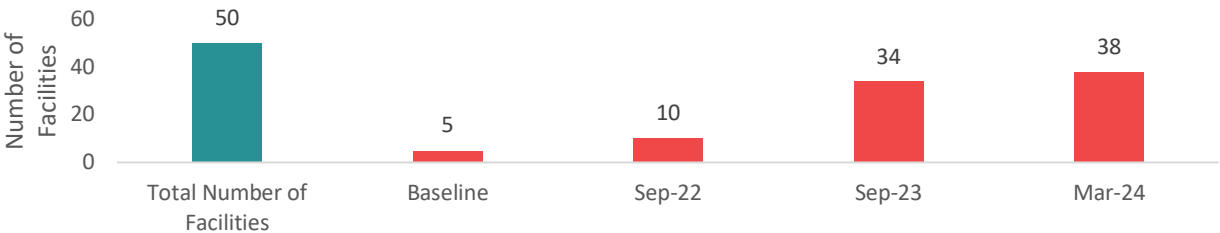
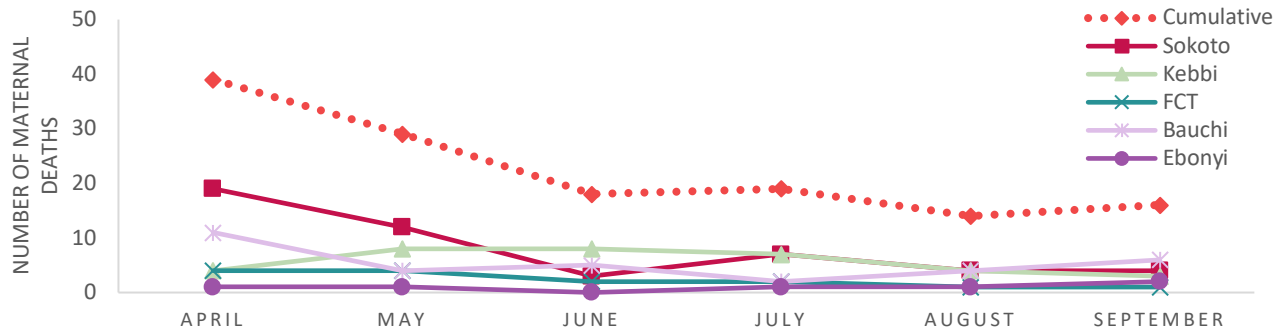


Figure 2: Number of Maternal Deaths for all Health Facilities Supported by MOMENTUM Safe Surgery in Family Planning and Obstetrics between April and September 2023



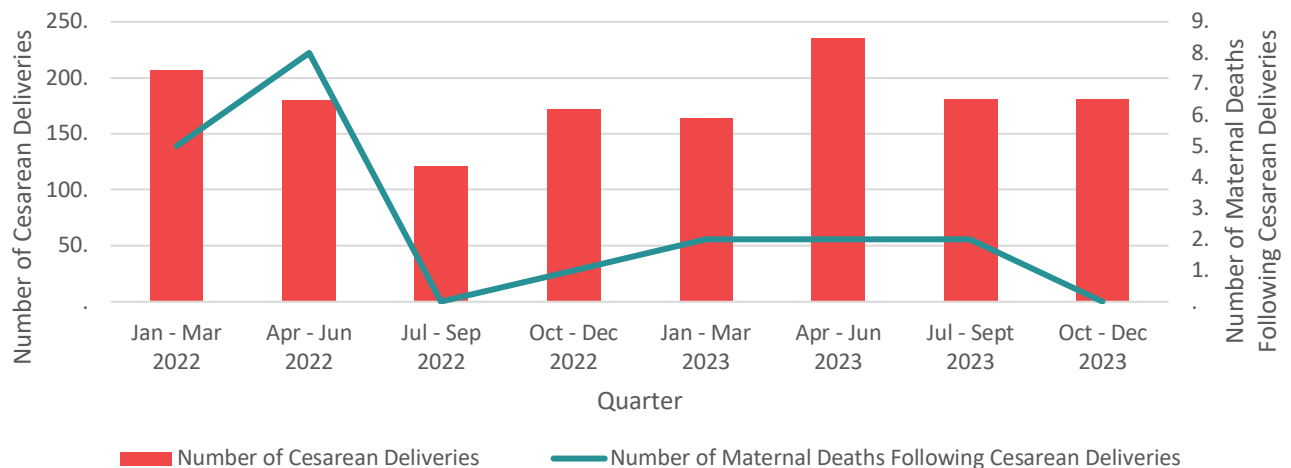
Data source: MPCDSR reports reviewed during supportive supervision visits

Despite these changes, a few implementation challenges remain. Reporting on the NOQA platform is not occurring on a timely basis. Where NOQA reporting is happening, key pieces of information are missing (e.g., the mode of delivery, the outcome of the delivery, the date and cause of death, present factors, and MPCDSR action plans). Health management information system (HMIS) data over a longer time horizon (April 2023 – June 2024) also show persisting maternal and perinatal mortality – which could signal discordance with these data due to both NOQA and HMIS reporting challenges but likely reflect that deaths still persist because patients in need of emergency obstetric care are delayed in presenting to facilities.

Where action plans may be established, follow-up is an issue – especially when the bottlenecks are structural in nature. For example, a review was conducted at one project-supported facility, and action plans were developed to address factors such as the 'lack of transport system from home to health facility and from the health facility to the general hospital upon referral.' Although this issue and the corrective action (to engage community and state actors to strengthen referrals through the provision of ambulance) have been identified, follow-up on the action plan by those who were responsible for doing so was limited.

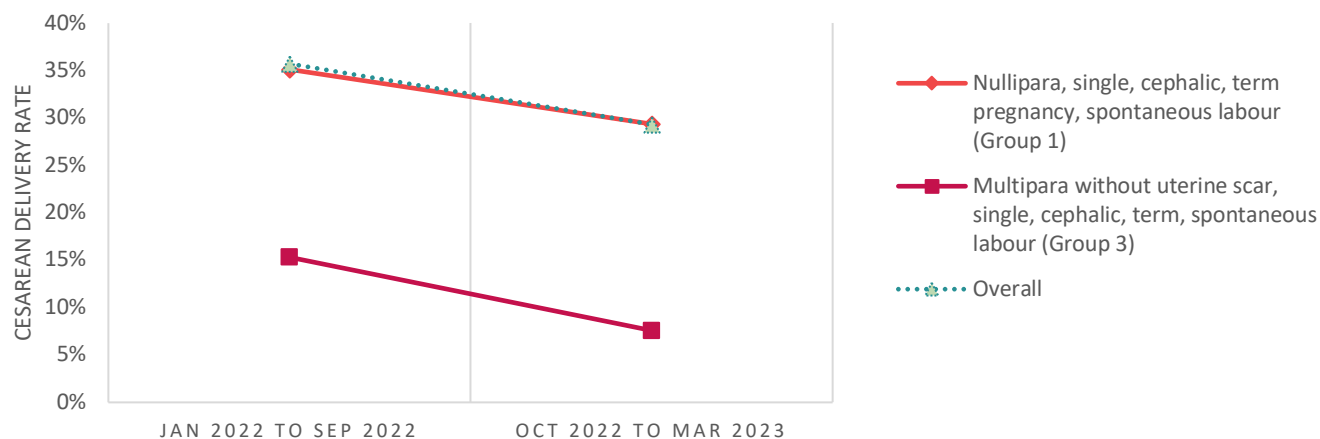
The trends in maternal deaths following cesarean deliveries follows the overall trend of maternal death reduction. Figure 3, for example, shows that for a relatively stable cesarean delivery volume over time in Kebbi state, the number of maternal deaths is dropping from a high of 8 in April to June 2022.

Figure 3: Number of Maternal Deaths Following Cesarean Deliveries 2022-2023, Kebbi State



The project is also observing changes in clinical practice following the implementation of these approaches. Between October 2021 and September 2022, the project supported 22 facilities in conducting Robson classification on their own. With the project’s expansion of support to private facilities, this number rose to 32 by September 2023. During supportive supervision visits, project staff are seeing that healthcare workers are now using Robson information to identify patients with high/low obstetric risk and prioritize them for close monitoring during labor, especially women categorized in group 5, 6 and 7 based on their previous history. Analyzing and acting on deliveries by Robson group can lower the cesarean delivery rate at facilities where unindicated overuse may be an issue. For example, in one facility in Ebonyi state, following the implementation of Robson classification, the cesarean delivery rate fell among two key groups: (1) nullipara, single cephalic term pregnancy with spontaneous labor, and (2) multipara without uterine scar, single cephalic, term, with spontaneous labor (Figure 4).

Figure 4: Cesarean Delivery Rate by Robson Group at One Project-Supported Facility in Ebonyi State



The process of using Robson’s classification has, in some instances, informed programmatic decision-making on human resources for health. For example, implementation of Robson’s classification in one secondary health facility in Bauchi revealed that the facility (and surrounding secondary facilities) were not performing cesarean deliveries and referring patients to the area’s tertiary center. This led the HMB to develop a program that allowed doctors from the tertiary facility to temporarily post at secondary health facilities and secure funding from the Governor. In Ebonyi State, reviewing Robson data revealed a disparity in the cesarean delivery rate between private or Mission hospitals and general hospitals. This catalyzed the HMB to assess general hospitals’ readiness to perform cesarean deliveries and led the state government to plan investments in the recruitment of personnel, equipment, and infrastructure for these facilities.

In terms of the WHO Surgical Safety Checklist, common challenges in sustaining its use fall into two categories. First, technical challenges include misplaced booklets, inconsistency in filling the checklist out, and documentation errors. Second, structural challenges pertain to the lack of human resources. For example, once the focal person is not on duty, then documentation tends to stop unless an alternative individual is assigned this duty. At times, facilities do not have adequate funds to reproduce the checklists, resulting in the checklist not being used when supplies are depleted.

Mentoring and coaching through supportive supervision helped address some of these implementation challenges, however. For example, when healthcare workers expressed concerns about their workload and limited human resources for health, the project highlighted that the data collected from the use of the tool could be used to advocate for additional human resources (as described in Bauchi and Ebonyi, above). Where we observed that commitment to using the checklist was weaker, mentorship was useful in identifying ways to strengthen

commitment. We also observed that refreshing learners on pre-, intra- and post-operative standard operating procedures helped with training on the checklist.

PROGRAM IMPLICATIONS

Following the implementation of the QI approaches described above, project-supported facilities are observing improvements in quality of maternal health care processes and outcomes. Although these data should be interpreted with caution and cannot be used to draw causal, attributory conclusions, they signal some promise in implementing quality improvement approaches for safe surgery in Nigeria. More rigorous evaluations are needed to both assess effect and attribution, as well as to identify the mechanisms affecting changes in outcomes (or lack thereof).

However, a key lesson is that the difference between a successful surgery and surgery resulting in complications can be just a minor detail. These QI approaches offer healthcare workers an opportunity to improve on the finer details involved in surgical service provision and ensure that all the necessary procedures are in place to reduce preventable morbidities and mortality. Supportive supervision represents the first step in institutionalizing these approaches as healthcare workers are receiving mentoring and coaching, identifying gaps, and proposing corrective actions as well as timelines for implementation. Coaching and mentoring represent powerful tools to secure commitment to adopt these approaches. Project staff observed instances in which a doctor's reluctance to adopt Robson classification, for example, was eased by demonstrating how each group contributes to the overall cesarean section rate.


A key lesson learned in the implementation of these approaches is that limited demand for data, accountability, and use of evidence for planning at state and facility levels discourages health workers at the point of service from having an interest in data generation, management, and use. The data generated by these QI approaches, however, can build the needed ownership to sustain data use especially if it is evident that the data is indeed being used to improve outcomes. If these practices are to be scaled and sustained, larger cultural shifts around data use for planning and decision-making are needed at all levels. As such, state governments need to institutionalize accountability frameworks for health facilities receiving support based on the services provided at the facility level. Accountability frameworks can promote data quality and use by defining who owns and is accountable for key reporting responsibilities. Limited staffing at many state facilities poses another key challenge in scaling and sustaining these QI approaches. Many facilities often have only one medical doctor consulting, conducting surgery, supporting clinical reviews, and leading QI initiatives such as MPCDSR. In the short term, all implementing partners will need to advocate for the recruitment and redistribution of healthcare workers across health facilities while continuing to coach and mentor the staff currently available.

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