Improving Health Outcomes by Enhancing the Content and Use of Reproductive, Maternal, Newborn and Child Health Data in Nigeria's National Health Management Information System

MCSP/Nigeria Monitoring & Evaluation Technical Brief

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Introduction

Data-driven decision-making is paramount to improving the health status of target populations. While a wide variety of data are often collected about population health needs, services provided, and the resources required to provide quality health services in low resource settings, for a variety of reasons these data are often not adequately translated into information that is actionable and is used to make necessary decisions that will positively impact on the wellbeing of the populace.

The Maternal and Child Survival Program (MCSP) is a global U.S. Agency for International Development (USAID) cooperative agreement to introduce and support high-impact health interventions in 27 priority countries, including Nigeria. MCSP was implemented in Ebonyi and Kogi states of Nigeria to improve the delivery of quality reproductive, maternal, newborn and child health (RMNCH) services. One of the core objectives of the Program was to strengthen health information systems to monitor and evaluate health outcomes and improve the use of reproductive, maternal, newborn and child health (RMNCH) routine service data to inform decisions at facility, district and state levels. This objective recognized that individuals, organizations and governments rely on data to make informed decisions that influence the health and well-being of people, and they must have the right data at the right time at the right level of the health system.

In Nigeria, not only was there a need to improve visualization and use of existing routine RMNCH service data for decision making, there was also a need to strengthen the RMNCH content of the national health management information system (HMIS) by adding new indicators. The 2013 version of the national HMIS lacked many key maternal and newborn health indicators that are useful for measuring RMNCH quality of care and health outcomes. MCSP therefore implemented a range of strategies to address these challenges.

Program Approaches and Strategies

The strategies adopted by MCSP included working with the national Department of Planning, Research and Statistics (DPRS) and the State Ministry of Health (SMOH) HMIS units in Ebonyi and Kogi states to improve quality of routine RMNCH data from health facilities and communities. Capacities of frontline health workers, local government area (LGA) officers and state HIS officers on data visualization and use of data for decision-making was built through training and mentorship. MCSP further supported the SMOH in the program states to set up an operational integrated supportive supervision (ISS) system with a record keeping component as a means of improving the quality of routine service data and use of data for decision-making.

Improving the Content of the National HMIS

Support to Nigeria DPRS in strengthening RMNCH Content of the HMIS

A review of the existing national record keeping and reporting system forms and processes by MCSP revealed a need to strengthen the system to enable it track essential recommended global RMNCH indicators which were missing. This in-depth review was informed and complemented by a global MNH HMIS review conducted by MCSP across 27 USAID-supported countries, including Nigeria. See https://www.mcsprogram.org/resource/hmis-review/.

Specific gaps were identified in the content of the health facility labor and delivery register, such as the inability to track use of oxytocin immediately after birth to prevent postpartum hemorrhage as part of active management of the third stage of labor, and application of chlorhexidine gel to the umbilical cord immediately after birth as part of essential newborn care. Other gaps included the inability to track pre-discharge postpartum family planning uptake among women who delivered at a health facility and pregnant women with severe pre-eclampsia/eclampsia treated with magnesium sulphate. It was also observed that it is not possible to track and report maternal complications by type in the monthly health facility reporting form.

Findings from this review by MCSP, as well as the global MCSP MNH HMIS review, helped inform the stakeholders meeting on the revision of the 2013 version of the national HMIS tools. MCSP and the FMOH subsequently decided to test possible new RMNCH indicators for inclusion in the national HMIS.

Pilot

Testing of New Routine RMNCH Indicators:

MCSP collaborated with the DPRS and HMIS units of the SMOHs to assess the feasibility, acceptability, usefulness and ease of collecting a small set of RMNCH indicators identified for pilot testing (see Box 1). With the support of the FMOH, MCSP worked with the M&E units of the SMOHs in Kogi and Ebonyi states to add additional columns in selected RMNCH registers and the corresponding facility monthly summary form to capture the indicators being pilot tested. A sample of providers and LGA officials in 24 health facilities across Kogi and Ebonyi states were interviewed on their experiences with collecting and using data on the new indicators.

Box 1: List of Routine RMNCH Indicators Pilot Tested in Kogi and Ebonyi states

- Percent of women receiving uterotonic immediately after birth of the baby
- Percent women that received a FP method pre-discharged after delivery
- Percent of antenatal care visits at which blood pressure was measured
- Percent of women with severe preeclampsia or eclampsia treated with magnesium sulfate injection
- Institutional maternal mortality ratio
- Percent of newborns not breathing/crying at birth resuscitated by stimulation or with bag & mask ventilation
- Number of newborns receiving essential newborn care
- Number of babies for whom Chlorhexidine was applied to the umbilical cord at birth
- Number of cases of diarrhea treated
- Number of cases of pneumonia treated with antibiotics
- Proportion of uder-5 children with confirmed uncomplicated malaria treated with ACT

The majority of the service providers were found to be documenting and reporting on the newly introduced indicators while a few indicated that they use data generated on these indicators to inform decisions at their facility.

Feedback on the indicator for provision of an uterotonic immediately after birth to prevent postpartum hemorrhage is presented in Figure 1. From the analysis on the relevance of collecting and reporting data on use of uterotonic by health facilities, all services providers interviewed (n=24) agreed that collecting data on uterotonic helps health facilities and service providers to improve quality of labor, and delivery care, with 42% strongly agreeing. Also, 11 (46%) of the service providers indicated that collecting data on uterotonic coverage will help health facilities know the extent to which they are providing quality services to women during delivery and take necessary actions.

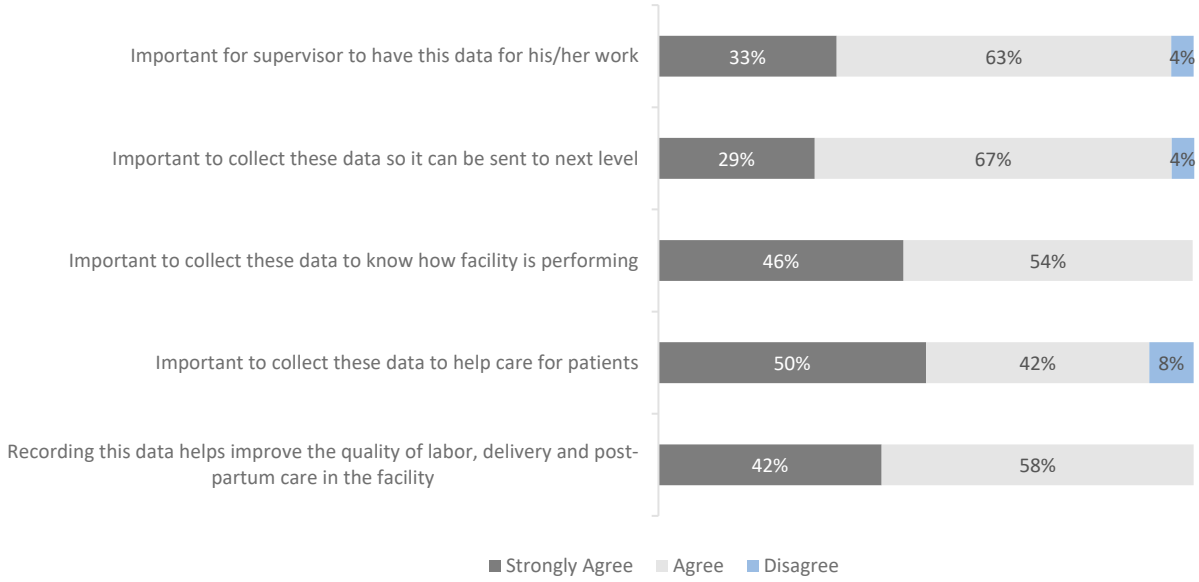

Fig 1: Relevance and usefulness of indicator on provision of uterotonic immediately after birth among service providers (n=24)

At the community level, MCSP engaged with patent proprietary medicine vendors (PPMVs) to provide integrated community case management (iCCM) services through the "Enhancing Quality iCCM through PPMVs and Partnerships" (EQuiPP) approach. Through this approach, MCSP piloted various community HMIS tools (including community Logistics Management Information System (LMIS) in four LGAs. MCSP supported the FMOH to further develop and institutionalize the national community HMIS data collection module as part of the DHIS2 software platform. Program partners trained and supported PPMVs to use these new tools, tracked their service data (which ultimately fed into the DHIS2), and used these data with stakeholders to solve problems, improve services and increase access to medicines from reliable sources. Finally, during monthly PPMV meetings, the EQuiPP partners developed PPMV capacity to use service and logistics data to manage their own shops. By developing and integrating the CHMIS and LMIS addendums into the iCCM curriculum, MCSP made it possible for the first time to capture private sector data from PPMVs in the public sector DHIS2 database.

Capacity building of healthcare providers and LGA officials on record keeping, data visualization, data use and reporting

Figure 1: Health workers discuss data presented on a dashboard in MCSP support facility

After the insertion of the new RMNCH indicators in the health facility registers, MCSP developed a recordkeeping and reporting training manual and conducted training of trainers (ToT) for States, LGA and MCSP M&E/HMIS Officers on the use of the manual as well as other topics on record keeping, reporting and data use. The trained trainers then trained service providers, record officers and other LGA M&E officers in their respective states. Participants were introduced to different topics including data quality, indicator definitions, data visualization and use of data to drive decision making. Practical sessions were held on how to complete the 2013 registers and facility monthly summary form.

MCSP worked with HMIS officers in the two program states to build skills of service providers and record officers working the program supported facilities on data visualization and use of data for decision-making. Participants were introduced to the concept of data visualization, including different types of charts and graphs and when to use them, features of graphs, and interpretation of data trends in graphs.

Following the training, MCSP developed and distributed laminated reusable poster data dashboards, markers and erasers to construct graphs on monthly basis to supported health facilities in Kogi and Ebonyi states. The laminated dashboards were intended to enable service providers to identify performance trends, any necessary actions to resolve issues, and those responsible for taking such actions. Health facilities could also use the laminated dashboard to monitor the status of commodities to prevent stock-out.

In addition to developing facility-level poster dashboards, MCSP supported the SMOHs in Ebonyi and Kogi states to develop the first working state-level electronic RMNCAH scorecards, aligned with the ALMA national RMNCH scorecards. These scorecards are a flexible management tool for MOH to strengthen accountability and drive action for improving service provision. MCSP organized state-specific stakeholders' meetings to discuss the importance of using scorecards and to identify indicators to be tracked and agree on scores to gauge performances. MCSP also provided technical and mentoring support to the staff of HMIS units in the two states to update the RMNCH scorecards on a quarterly basis.

Key Results

Increased graphing and use of MNH data for decision-making at health facilities

Prior to the development of laminated poster dashboards for data visualization and training of service providers in antenatal care and labor and delivery service areas, only a few health facilities were using tables and graphs to depict the numbers of women or newborns receiving specific services in the health facilities. After the training and the distribution of the laminated dashboards and other materials needed to construct graphs, more than 80% of MCSP-supported health facilities across the two states (N=321) started visualizing data for the selected indicators and many reported using this data to inform decisions to improve the quality of health care delivery services. For example, data on the laminated poster dashboards are now used by MCSP-supported private clinic operators to decide when to procure chlorhexidine and re-order for oxytocin.

In another faith-based health facility in Ebonyi State, MCSP and facility staff noticed an increase in stillbirth rates. Further investigation showed that most of the stillbirths were traceable to an untrained service provider who was incorrectly filling out the recordkeeping forms. The quality improvement committee discussed this revelation with the facility management staff and identified needed actions. There is now an observable reduction in stillbirth rate after the training of the service providers. Use of data for decision making has improved in the 91 MCSP supported quality improvement sites compared with other supported health facilities. In one of the quality improvement primary health centers (PHCs), the quality improvement committee decided to install a water tank to improve infection prevention and control practices. The committee members in the same facility also requested for re-training of service providers on the use of partograph to monitor labor and delivery. The assumption of the committee is that use of partograph will reduce stillbirth rate, which was on the increase in the facility.

Use of state RMNCH scorecards for decision making and advocacy

The HMIS units of the program states have started generating scorecards and sharing same with the states' commissioners of health, who launched their use at the council of state meetings. The council of state meetings bring LGA chairmen together on a quarterly basis where issues relating to health and other developmental concerns are identified and discussed. The sharing of scorecards during this meeting has led LGA chairmen whose LGAs are not performing well to ask questions and make relevant decisions to improve quality and uptake of services. Thus, the scorecards are now being used as advocacy and healthy competition tool among local government areas in the two states.

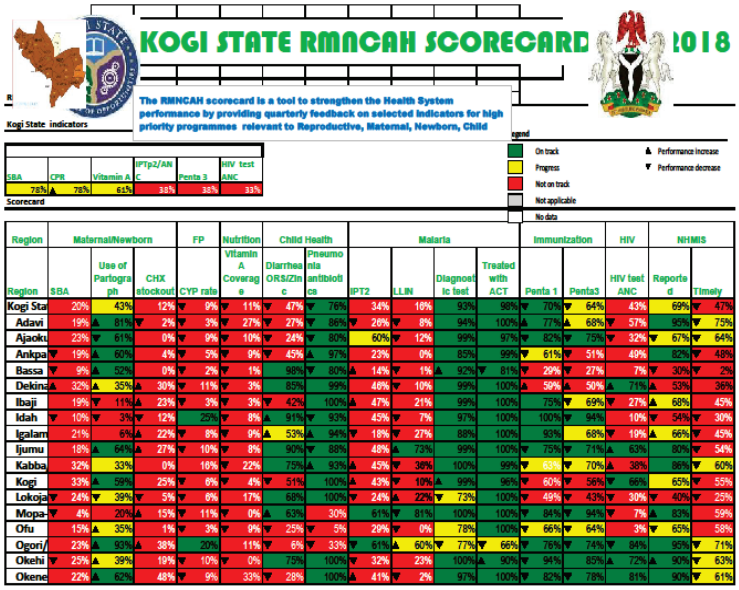

Figure 2: A sample score card from Kogi

Changes to the National HMIS following MCSP Advocacy

- *Acceptance and insertion of indicators into the registers and monthly summary form:* All the routine RMNCH indicators suggested by MCSP were approved for insertion into the appropriate national HMIS registers. The corresponding NHMIS monthly summary form was updated accordingly.

- *Pretesting of the revised national HMIS registers and summary forms:* The DPRS has now selected MCSP to field-test all the revised national HMIS registers and forms in Ebonyi state. MCSP will document lessons learned with the aim of providing feedback to the DPRS before the final printing of the harmonized registers and forms.

- *Development of indicator dictionary:* MCSP supported the development of indicator dictionary for the indicators. The dictionary is a guide to provide service providers knowledge of the indicator definitions, sources of the indicators and formulae for calculating the indicators.

Increased reporting rates in DHIS2

There has been increased percent of health facilities reporting/submitting routine data in monthly facility summary forms in the two states. Reporting rates were 53% and 65% for Ebonyi and Kogi states respectively in July-September 2015 when MCSP started providing M&E technical support; this increased to 86% and 70% for Ebony and Kogi states respectively in April-June 2018 with minimal errors.

Lessons Learned

- Strategic to improvement of routine health data and data-driven decision-making is a comprehensive understanding of the existing health information system structure, including manpower, roles and responsibilities, and formats for data capturing and reporting. MCSP learned that the national HMIS needed to be strengthened to track and report globally recommended RMNCH indicators, which are essential, to inform quality improvement decisions. Advocacy to the Ministry of Health is an important first step for implementing partners to support the efforts of the national government in strengthening an HMIS and improving the culture of using data to inform health service management decisions.
- MCSP has demonstrated strategies for working with government agencies responsible for HMIS to improve the quality and use of routine data through participatory training and supervision/mentoring activities. Knowledge of definitions of RMNCH indicators amongst service providers and record officers has also improved, therefore making the data more valid to inform decisions. We also learned that making routine data "walk" out of the registers and 'talk" through graphs in wall posters helps promote use of routine data to inform quality improvement decisions. These simple reusable data visualization posters are moreover affordable and practical in resource-limited environments where computers are not available at primary health centers.
- For these efforts to be sustained, other programs must support the national government in the finalization of the revised HMIS forms and participate in developing training manuals to be used for training service providers, record officers as well as LGA M&E officers across the country. The rejuvenated ISS can be supportive by incorporating a data component section into the checklists. This will further continue to ensure that good quality data are being reported by health facilities. Introducing a topic on record keeping and reporting into the curriculum of the school of health technologies can further promote the culture of use of data for decision-making amongst health care providers, especially those from the lower cadre including the community health extension workers (CHEWs).
- Stakeholders' participation in the NHMIS review processes facilitated acceptance of the recommended indicators and provided insight to providing operational definitions to all the indicators. With the consensus reached on the definitions of the various indicators, the stage is set for more valid and accurate routine data to inform planning and decisions at different levels in the country.
- Pilot testing of proposed new indicators before advocating for their inclusion in the national HMIS helped provide evidence that informed acceptance for their inclusion.

Recommendations

- There is need for the HMIS departments in the SMOH to continue providing supportive supervisions and mentoring visits on data visualization and use to service providers and record officers in the health facilities.
- The scorecard is not a one-time advocacy tool. It needs to be updated on quarterly basis by the HMIS departments while the commissioners of health have the overall responsibility of sharing with stakeholders during the quarterly review meetings.

Conclusion

- MCSP has made important contributions to the process of strengthening the national HMIS and the Kogi and Ebonyi state HMIS, helping these systems to better monitor service quality and health outcomes. The program further contributed to improving the use of routine RMNCH service delivery data to inform decisions at PPMV, health facility, LGA and state levels through capacity building of MOH staff and introduction of tools to visualize data trends. Once the process of NHMIS review, in which MCSP is a key stakeholder, is completed, the revised registers and other recordkeeping forms are expected to provide data on essential RMNCH services not only in Ebonyi and Koki states, but also nationwide when they are disseminated to all states.

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