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Generation, Quality, and Use of Routine Immunization Process Indicators in Strengthening Immunization Systems:

LEARNING FROM 11 MATERNAL AND CHILD SURVIVAL PROGRAM (MCSP)-SUPPORTED COUNTRIES

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The Maternal and Child Survival Program (MCSP) is a global, $560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support | scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries,* as well as other countries. MCSP is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment.

* USAID's 25 high-priority countries are Afghanistan, Bangladesh, Burma, Democratic Republic of Congo, Ethiopia, Ghana, Haiti, India, Indonesia, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Nigeria, Pakistan, Rwanda, Senegal, South Sudan, Tanzania, Uganda, Yemen and Zambia.

Cover photo: Allan Gichigi/MCSP

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Abbreviations

AA	Associate Award
AFRO	Regional Office for Africa
CCT	cold chain technicians
DHIS2	District Health Information System 2
DQA	data quality assessment
DQS	data quality self-assessment
DTP1	Diphtheria-Tetanus-Pertussis vaccine, first dose
DTP3	Diphtheria-Tetanus-Pertussis vaccine, third dose
DVDMT	District Vaccine Data Management Tool
EPI	Expanded Program on Immunization
GIS	Geographical information system
GVAP	Global Vaccine Action Plan
HF	Health facility
HMIS	Health management information system
HSA	Health surveillance assistants
HQ	Headquarters
HW	Health worker
KII	Key informant interview
LGA	Local government area
LMIS	Logistics management and information system
MCHIP	Maternal and Child Health Integrated Program
MCSP	Maternal and Child Survival Program
MIS	Management Information System
MOH	Ministry of Health
MVMH	My Village My Home
REC	Reaching every community/Reaching every child
RED	Reaching every district
RI	Routine immunization
USAID	United States Agency for International Development
VIMS	Vaccine Information Management System
WHO	World Health Organization

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Executive Summary


Allan Gichigi/MCSP

BACKGROUND

The Maternal and Child Survival Program (MCSP) is a global, $560 million, 5-year cooperative agreement funded by USAID to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries, as well as other countries. MCSP is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, HSS, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment. In immunization, MCSP works to build institutional and human capacity to:

- Manage high-quality routine immunization (RI) programs
- Strengthen routine immunization systems
- Implement innovative and tailored approaches in countries for sustainable and equitable access to immunization

Vaccination coverage and dropout rates are monitored widely at all levels and provide critical information on immunization performance. As outcome indicators, they give retrospective information that describes what has already happened. However, managers need additional, real-time data to explain reasons for low coverage and to improve services.

The Regional Office for Africa/World Health Organization (AFRO) Reaching Every District (RED) Guide[1,2] proposes several input, process, and output indicators for immunization. Process indicators complement and help rebalance the heavy reliance on coverage, provide prospective data, and describe the country immunization program to inform decisions that improve RI management. Despite the availability of the data, countries do not prioritize them and there is insufficient attention to their use.

With this in mind, in countries where MCSP supported immunization programming, MCSP worked with Ministries of Health (MOHs) and other partners to improve the generation, quality, and use of RI data at the point of service delivery, i.e., at the health facility (HF) and community levels. In addition, MCSP carried out focused learning to test a set of process indicators (see Box ES1) and their use at subnational level (district and health facility) in the following selected countries: Malawi, Nigeria, and Uganda. MCSP examined a

1 World Health Organization Regional Office for Africa (AFRO). 2017. Reaching Every District (RED) - A guide to increasing coverage and equity in all communities in the African Region. Brazzaville, Republic of the Congo. https://www.afro.who.int/sites/default/files/2018-02/Feb%202018_Reaching%20Every%20District%20%28RED%29%20English%20F%20web%20v3.pdf. Accessed July 17, 2019.

2 MCSP contributed practical inputs tools, job aids, and training materials to the updated WHO AFRO RED guide in close collaboration with AFRO, Ministries of Health, and global partners. MCSP also supported pre-testing of the guide in Malawi and Kenya and rollout of the finalized guide in Tanzania, Mozambique, and Zambia.

BOX ES1. LIST OF PROCESS INDICATORS

1. Percent of health facilities (HFs) with an up-to-date microplan for immunization in the last quarter.
2. Percent of planned routine immunization (RI) outreach sessions actually conducted.
3. Percent of planned RI fixed sessions actually conducted.
4. Percent of HFs with no stock-out of any vaccine and syringes in the last month.
5. Percent of HFs that received supportive supervision visits during the last quarter.
6. Percent of HFs with up-to-date immunization monitoring charts.
7. Percent of scheduled immunization coordination meetings involving HFs actually held by the district health team.
8. Percent of HFs that meet with community members and discuss performance of immunization activities (either by themselves or through participation in broader RI meetings).
9. Percent of HFs with at least one qualified and trained (in the last year) vaccine provider.

number of process indictors already being monitored in the three countries as part of the MCSP's routine monitoring system. The focused learning explored the relevance/usefulness, acceptability, feasibility, and accuracy/reliability of the process indicators from the perspectives of the health workers (HWs) and their managers (see Domain Definitions).

To enhance and share MCSP-supported country learning around improving the generation, quality, and use of routine immunization process indicators, MCSP systematically gathered information on country program support in these technical areas. Information was then shared across MCSP countries to enable learning and possible uptake of effective approaches.

OBJECTIVES

MCSP and partners conducted two assessments to document lessons learned about approaches to improve the generation, quality, and use of routine immunization data and the role of readily available process indicators. The goal was to help subnational level managers better understand whether the RI system is reaching all children with high-quality immunization services. The learnings were diagnostic/formative research. More details on the assessments can be found below.

Generation, quality and use of RI data

Carried out in 11 countries (Haiti, Kenya, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Pakistan, Tanzania, Uganda, and Zimbabwe), this learning focused on systematically documenting gaps and challenges identified by MCSP and government counterparts in the generation, quality, and use of RI data and the steps taken to address these issues at the national level as well as at subnational levels where MCSP worked.[3] Specifically, the learning addressed the following objectives:

- Identify interventions that improve the quality and use of data by those who generate and are closest to the data.
- Document the rationale and evidence for these interventions' positive effect on quality of data and active use of data.

DOMAIN DEFINITIONS

Relevance/usefulness

This domain explains how useful or relevant stakeholders who may use the indicator view it in assessing the strength of the immunization system.

Feasibility

This domain speaks to whether or not the indicator is easy or difficult to collect and report by health workers. This domain also reflects if the health workers identify challenges in capturing and calculating the indicators and if the collection of the indicators can be realistically integrated into existing data collection systems.

Acceptability

This domain reflects how acceptable collection and reporting of the indicator is to those collecting the data at the health centers. This domain also speaks to if the health workers perceive clear benefits to collecting data for these indicators and if they perceive any negative consequences from collecting and using the data on these indicators.

Accuracy/reliability

This domain shows if the indicator is generally collected and reported correctly and reflects how much variation in knowledge and interpretation of the indicators exists between health workers.

3 In addition to MCSP, other partners—such as WHO, UNICEF, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This report highlights the work MCSP supported at the national level and in assigned districts.

- Identify factors favoring the replicability of identified approaches.
- Enhance sharing and learning across program countries.

Process indicators

This learning focused on understanding the perception of HWs and their managers on the use of nine process indicators—already being used to monitor the immunization program in the countries—to improve the program. Specifically, the learning addressed the following objectives:

- Identify a set of process indicators that provide real-time data to describe the strength of the RI system.
- Identify mechanisms that promote the use of process indicators for key decision-making by district and HF staff.

METHODS

MCSP applied a mixed methods approach to collect data from each country for both learning activities. The methods included key informant interviews (KIIs), a desk review of quarterly and annual program reports, and secondary analyses of data extracted from the routine monitoring systems, where appropriate. MCSP collected two rounds of data, and the findings combine information from both rounds (see Figure ES1 for details on the timeline for data collection).

Generation, quality and use of RI data

MCSP conducted two rounds of KIIs using standardized guides. In the first round, MCSP conducted KIIs with field-based immunization technical personnel working on the MCSP or Maternal and Child Health Integrated Program (MCHIP) Associate Award (AA) programs in all 11 countries. In the second round, MCSP conducted KIIs using a standardized guide with district level officials who are familiar with MCSP's RI program in five countries: Madagascar, Mozambique, Nigeria, Tanzania, and Uganda.

Process indicators

As noted above, MCSP examined nine process indicators in Malawi, Nigeria, and Uganda (see Box ES1). MCSP examined these indicators because they were already included in MCSP's regular monitoring system. In some instances, the countries were already monitoring some of these indicators through their health management information system (HMIS) or support supervision prior to MCSP, but monitoring did not take place regularly.

MCSP examined this set of process indicators across four domains (relevance/usefulness, acceptability, feasibility, and accuracy/reliability). To do this, MCSP conducted two rounds of KIIs with the district managers and health facility (HF) level staff (HF in-charges and HWs) using standardized tools. After the first round of the data collection, MCSP modified and streamlined the data collection tools. In particular, while MCSP gathered the information on indicator testing through qualitative interviews in the first round (quality tool), MCSP modified the tool for the second round to include a scale to capture the perception of the respondents on different domains of indicator testing (indicator testing tool). This iterative approach and taking time between the two rounds to review and analyze the findings not only provided an opportunity to revise the data collection approach, but also allowed MCSP to highlight and share key findings around data quality and use across countries throughout the life of MCSP. See Table ES1 for additional details on the quality and indicator testing tools.

TABLE ES1. STANDARDIZED TOOLS FOR PROCESS INDICATOR DATA COLLECTION

QUALITY TOOL

- This tool consists of two components: qualitative assessment and indicator verification.
- Qualitatively, the tool explores different domains of the indicators: how the data are collected, frequency of updates, who participates, reasons for irregular data collection, challenges in collecting the data, etc.).
- In addition, the data collectors verified the values of the indicators for the most recent quarter or month.

INDICATOR TESTING TOOL

- This qualitative tool included a list of guiding interview questions to assess the:
  - Relevance (pertinence)/usefulness;
  - Feasibility;
  - Acceptability; and,
  - Accuracy/reliability of these sets of indicators.
- Respondents were asked to reflect on the above domains on a scale of 1–3 (1= low/worst; 3 = best).

MCSP also conducted trend analyses using MCSP monitoring data from Malawi, Nigeria, and Uganda to examine performance of the RI programs since MCSP began implementation. The trend analyses provided opportunities to assess the use of the process indicators—both individually and holistically—by district and HF managers. MCSP assembled the data on the process indicators from the country routine monitoring systems and/or the government's HMIS.

Timeline for data collection

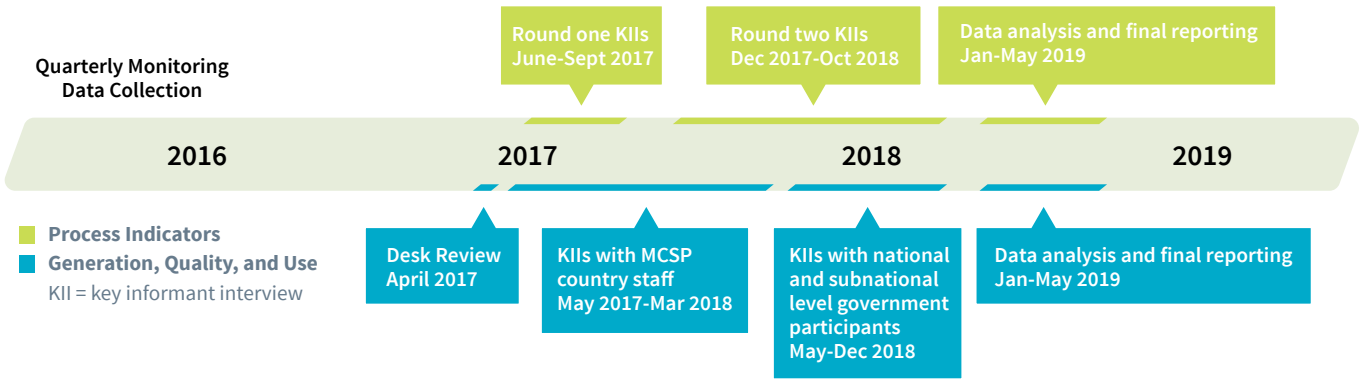
MCSP collected data for both learning activities from 2016 to 2018. Figure ES1 provides details on the timeline for each stage of the data collection for both learning activities.

FINDINGS

Generation, quality, and use of RI data

In the first round of KIIs, MCSP conducted 18 total KIIs with MCSP and MCHIP-AA staff across the 11 countries. In the

FIGURE ES1. TIMELINE FOR DATA COLLECTION



second round, MCSP conducted 17 KIIs with district level officials in five countries: Madagascar, Mozambique, Nigeria, Tanzania, and Uganda. MCSP, MCHIP-AA, and government key informants identified the following as challenges for the generation, quality, and use of RI data:

1. All 11 countries mentioned having a reliable denominator (target population) as a major challenge for measuring immunization coverage
2. Health workers understanding of data, indicators and reporting needs (7 countries)
3. Stock-out of essential reporting tools (6 countries)
4. Lack of motivation, training, and HWs' behavior regarding reporting practices, which is hard to change (6 countries)
5. Multiple reporting mechanisms and lack of harmonized tools (3 countries)
6. Human resource constraints and overburdened staff (3 countries)
7. Lack of feedback mechanism to engage with the data (3 countries)

To address the challenges, MCSP provided technical support to the country immunization programs to:

- Develop and regularly update microplans[4] at the district and HF levels (11 countries)
- Support the districts to conduct regular data quality assessments (DQAs) and data validations at the district and HF levels (10 countries)
- Support streamlining and revising reporting tools at the district, HF, and community level (10 countries)
- Develop job aids (4 countries)
- Appraise good practices and performance for HFs' data reporting system (4 countries)
- Implement innovative approaches to data visualization to improve the accuracy/reliability of target population estimation (4 countries)
- Contribute toward improving denominators (2 countries)

Several countries (Nigeria, Tanzania, and Uganda) conducted regular data quality assessments and have reported an improvement in data quality as evidenced by the reduction in data discrepancies between reporting forms in some MCSP-supported areas. For example, in Uganda, discrepancies of reported diphtheria-tetanus-pertussis (DTP3) doses between the tally sheets and child registers decreased from 38% to 8% in four MCSP districts. Government counterparts, especially subnational level KII respondents, acknowledged that MCSP's contribution helped improve data quality and use of data for decision-making through its hands-on involvement and mentoring/training.

Process indicators for the RI system

MCSP examined a set of nine process indicators (see Box ES1) in Malawi, Nigeria, and Uganda across four domains: relevance/usefulness, acceptability, feasibility, and accuracy/reliability. Overarching findings across these four domains included:

- **Relevance/usefulness:** Key informants described the nine indicators as useful tools for midlevel and HF level managers for decision-making, facility level performance monitoring, and ensuring accountability.
- **Acceptability:** The acceptability of the indicators can be undermined if the HWs view the collection and reporting needs as an extra burden to their already demanding work schedule.
- **Feasibility:** Though deemed useful and acceptable, the feasibility of HWs using the indicators was limited by the following factors: HW understanding of the reporting tools, their commitment to properly use the tools for documentation, heavy workloads, and lack of funding for conducting immunization sessions, especially outreach sessions.
- **Accuracy/reliability:** The accuracy/reliability of the nine indicators scored lower compared with relevance/usefulness

4 According to the 2017 edition of AFRO's RED Guide, "a micro-plan defines how to reach clients, how many people should be targeted for services in the area, and how frequently quality services are provided, and is developed by all stakeholders at each level. An effective micro-plan will support health facilities and district teams to i) identify target population ii) design data and graphic mapping iii) prioritize plans to reach target population iv) define realistic actions v) reduce inequity and improve quality of immunization services."

and acceptability. At the core of this lower score is a lack of understanding around the need for reporting quality data and a poor understanding of the process indicators and their importance.

Trends in the use of process indicators in MCSP-supported districts demonstrated that governments increasingly encouraged and established a culture of tracking these indicators at the HF and district level. In all three countries, most of the process indicators show improvement since the start of MCSP's technical support.

Throughout the duration of data collection and analysis, MCSP facilitated iterative learning and supported cross-country exchange of the findings. For example, MCSP facilitated exchange of lessons learned during an internal webinar with immunization staff in 10 countries—including Madagascar, Mozambique, Nigeria, Uganda, and Tanzania—after the first round of data collection. Colleagues exchanged experiences and learned more about how process indicators can support decision-making by district and HF staff, and about different approaches implemented to improve the generation, quality, and use of RI data. MCSP also developed two technical briefs on the learning questions—Improving the Generation, Quality and Use of Routine Immunization Data: Preliminary Learning and Indicators That Describe the Strength of the Routine Immunization System: Preliminary Learning—to promote sharing of lessons learned more broadly. MCSP shared these briefs and findings with partners at the regional and global levels, including the MOHs and partners from 17 countries in the World Health Organization's (WHO's) Eastern and Southern Africa region, the Data Quality Sub-working Group of the WHO Strategic Advisory Group of Experts Data Quality Sub-working Group, and at the WHO/UNICEF convened Partners' Meeting on Improving the Availability of, Quality, and Use of Data in Budapest, Hungary. MCSP also shared findings at USAID's Global Health Mini-University in Washington, DC, the Fifth Global Symposium on Health Systems Research in Liverpool, England; and the 2019 Global Health & Innovation Conference at Yale University.

RECOMMENDATIONS

Countries

- Emphasizing the generation and use of both coverage and process indicator data should be a priority at all levels. Because the process indicators describe the strength of the immunization system and equip managers for real-time evidence-based decision-making, countries should be encouraged to use process indicators to complement coverage indicators to give a holistic perspective on the RI system.
- Key programmatic aspects to ensure generation and use of data—such as data review meetings, DQA, supervision, training, and mentoring—should continue. MCSP supported implementation of these interventions and observed improvement in data quality. Commitment from the national level and districts to secure funding and allocate resources for these activities will be critical. Some countries—such as Tanzania and Uganda—have included these activities in their country regional annual work plans and review meetings, but the extent of funding for these activities may vary. Our findings show that these interventions merit prioritization by governments and development partners.
- Strengthening the capacity of those responsible for recording and reporting data at all levels of the health system should be a continuous practice. Trainings on the RED approach at the country level should incorporate sessions on process indicators in order to build the capacity of managers and supervisors at all levels to collect, analyze, and use them. Furthermore, at the lowest level of the health system, where the HWs are often overwhelmed with multiple tasks, capacity-building through mentoring and providing feedback from regional and district levels should continue. The use of mock exercises (or case studies) while in the classroom and hands-on experience in the field can reinforce these skills.
- Promoting a culture of information use by improving the utility of the data to those who are responsible for generating it. Data dashboard use at the HF level (through the availability of immunization monitoring charts) as well as at the community level (such as the My Village My Home [MVMH] poster in Malawi) can enhance understanding and use of data for decision-making with easily understandable visualizations.
- The set of process indicators describing the strength of the immunization system should be country- and context-specific (this recommendation is not limited to the process indicators in this report). Countries should carry out their own exercise to identify the indicators that best capture the input, output, and outcomes of their interventions while taking into account the feasibility of collecting and reporting the data. Data sources can include existing supportive supervision reports, supply chain logistics management and information systems (i.e., logistics management and information system [LMIS]), and district health information system 2 (DHIS2).

Development partners

- Encourage countries to generate, in a systematic manner, additional evidence showing that improving the quality and use of RI data improves the immunization system.
- Support countries with funding and/or the institutionalization of efficient data collection and use to contribute to sustainability and scalability when promoting a culture of data use for decision-making at the subnational level.
- Discuss issues with data quality and the benefits of using process indicators at regional fora, such as regional Expanded Program on Immunization (EPI) managers' meetings, to explore whether they resonate beyond the countries where the learning was documented.

2 Introduction


Karen Kasmauski/MCSP

The Global Vaccine Action Plan (GVAP) is a framework endorsed by 194 member states of the World Health Assembly and aims to prevent millions of deaths through more equitable access to vaccines. It is estimated that immunization currently prevents 2–3 million deaths every year.[1] By 2020, the GVAP calls for achieving coverage levels of 90% for all vaccines in the country schedule at national level and at least 80% in every district.[2] High-quality routine immunization (RI) data are critical to national programs, the United States Agency for International Development (USAID), and other partners in aiming to achieve these GVAP goals. To reach the GVAP goals at the country level, immunization managers must have quality, real-time information to analyze performance and improve services and the RI system.

In the 11 countries where MCSP supported immunization programming, MCSP used the administrative DTP3 coverage indicator as the key immunization indicator to assess the national Expanded Program on Immunization (EPI) performance, as per global guidance. The administrative data are extracted from the countries' immunization information system, where the doses administered at the health facility (HF) level are reported.[3] Vaccination coverage and dropout rates (i.e., DTP1 to DTP3) provide critical information on immunization performance. Household surveys conducted in the sampled population also provide data on immunization coverage indicators. Periodic household surveys, such as Demographic and Health Surveys and Multiple Indicators Cluster Surveys, may have some variances in coverage data when compared with data estimated from administrative data. The global immunization community recognizes that these coverage estimates using the administrative method can be biased due to inaccurate numerators and/or denominators.[4] In addition, managers need additional, real-time data on the functioning of the immunization system to explain reasons for low coverage and guide actions to improve and ensure quality services.

1 World Health Organization (WHO). 2019. Immunization coverage. https://www.who.int/news-room/fact-sheets/detail/immunization-coverage. Accessed July 18, 2019.
2 WHO. 2013. Global Vaccine Action Plan 2011–2020. Geneva, Switzerland: WHO. https://www.who.int/iris/bitstream/10665/78141/1/9789241504980_eng.pdf?ua=1. Accessed July 18, 2019.
3 WHO. Immunization, Vaccines and Biologicals. https://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/. Accessed July 19, 2019.
4 Dolan SB, MacNeil A. 2017. Comparison of inflation of third dose diphtheria tetanus pertussis (DTP3) administrative coverage to other vaccine antigen. Vaccine. Jun;35(27):3441-3445. doi: 10.1016/j.vaccine.2017.05.026

The Regional Office for Africa/World Health Organization (AFRO) Reaching Every District (RED) Guide[5,6] proposes several input, process, and output indicators for immunization. Process indicators complement and help rebalance the heavy reliance on coverage, provide prospective data, and describe the country immunization program to inform decisions that improve RI management. Despite the availability of the data, countries often do not prioritize them, and there is insufficient attention to their use.

With this in mind, in countries where MCSP supported immunization programming, MCSP worked with Ministries of Health (MOHs) and other partners to improve the generation, quality, and use of RI data at the point of service delivery, i.e., at the HF and community levels. MCSP worked with local partners to develop a variety of strategies, methods, and tools to improve the quality and encourage the use of RI information while taking into account country priorities, needs, and the concurrent related activities of other partners. In addition, MCSP also carried out iterative learning to test a set of process indicators and their use at subnational (district and HF) level in selected countries (Malawi, Nigeria and Uganda). MCSP examined a number of process indictors already being monitored in the three countries as part of the MCSP's routine monitoring system (see Box 2 on p. 14).

The focused learning on process indicators explored the relevance/usefulness, acceptability, feasibility, and accuracy/reliability of the process indicators from the perspectives of the health workers (HWs) and their managers (see Domain Definitions). See Box 1 for the specific RI data learning questions that MCSP examined.

BOX 1. MCSP LEARNING QUESTIONS ON ROUTINE IMMUNIZATION DATA

- What are the lessons learned across MCSP countries regarding approaches to improve the generation and active use of RI data?
- Which process indicators are appropriate for providing real-time system data to demonstrate strengthening of routine immunization (RI) that is sustainable over time?

This report summarizes the findings of two interrelated learning activities (see Box 1) conducted in multiple countries where MCSP provided technical assistance to strengthen the routine immunization system. Combining the findings from the two learning activities into one report provides an in-depth, more holistic consideration of the use of RI data and indicators deemed pertinent for action-oriented decisions. MCSP is sharing this learning with a view toward supporting countries to address gaps in the generation, quality, and use of RI data, and to consider active use of process indicators to improve RI system performance. MCSP believes sharing this learning will benefit countries' national EPI.

DOMAIN DEFINITIONS

Relevance/usefulness

This domain explains how useful or relevant stakeholders who may use the indicator view it in assessing the strength of the immunization system.

Feasibility

This domain speaks to whether or not the indicator is easy or difficult to collect and report by health workers. This domain also reflects if the health workers identify challenges in capturing and calculating the indicators and if the collection of the indicators can be realistically integrated into existing data collection systems.

Acceptability

This domain reflects how acceptable collection and reporting of the indicator is to those collecting the data at the health centers. This domain also speaks to if the health workers perceive clear benefits to collecting data for these indicators and if they perceive any negative consequences from collecting and using the data on these indicators.

Accuracy/reliability

This domain shows if the indicator is generally collected and reported correctly and reflects how much variation in knowledge and interpretation of the indicators exists between health workers.

5 World Health Organization Regional Office for Africa (AFRO). 2017. Reaching Every District (RED) - A guide to increasing coverage and equity in all communities in the African Region. Brazzaville, Republic of the Congo. https://www.afro.who.int/sites/default/files/2018-02/Feb%202018_Reaching%20Every%20District%20%28RED%29%20English%20F%20web%20v3.pdf. Accessed July 17, 2019.

6 MCSP contributed practical inputs, tools, job aids, and training materials to the updated WHO AFRO RED guide in close collaboration with AFRO, Ministries of Health, and global partners. MCSP also supported pre-testing of the guide in Malawi and Kenya and rollout of the finalized guide in Tanzania, Mozambique, and Zambia.

Karen Kasmauski/MCSP and Jhpiego

3
Methods


Kate Holt/MCSP

MCSP conducted these learning activities in MCSP countries where immunization programming occurred. The learning activity on the generation, quality, and use of RI data was implemented in 11 countries, and the learning activity on process indicators was implemented in three countries (see Table 1). MCSP selected these three countries because they routinely collected most of the proposed indicators through their MCSP country program performance monitoring plans. MCSP applied a mixed methods approach to collect data from each country for both learning activities. The methods included qualitative approaches—such as key informant interviews (KIIs)—review of existing reports (quarterly and annual program reports), and analyses of quantitative data extracted from the routine monitoring systems, where appropriate (see Table 2 for additional details). MCSP compiled findings from the mixed method approach into country-specific matrices.

As part of the learning process, MCSP emphasized using iterative methods in both data collection and dissemination of findings. The approach provided an opportunity for the MCSP team implementing the learning activity to critically review the findings from the initial round of data, analyze and identify the gaps, and revise and modify the data collection approaches for the learning activities. In addition, this approach allowed MCSP to highlight and share key findings around data quality and use across MCSP countries to enable learning and possible uptake of effective approaches in different countries.

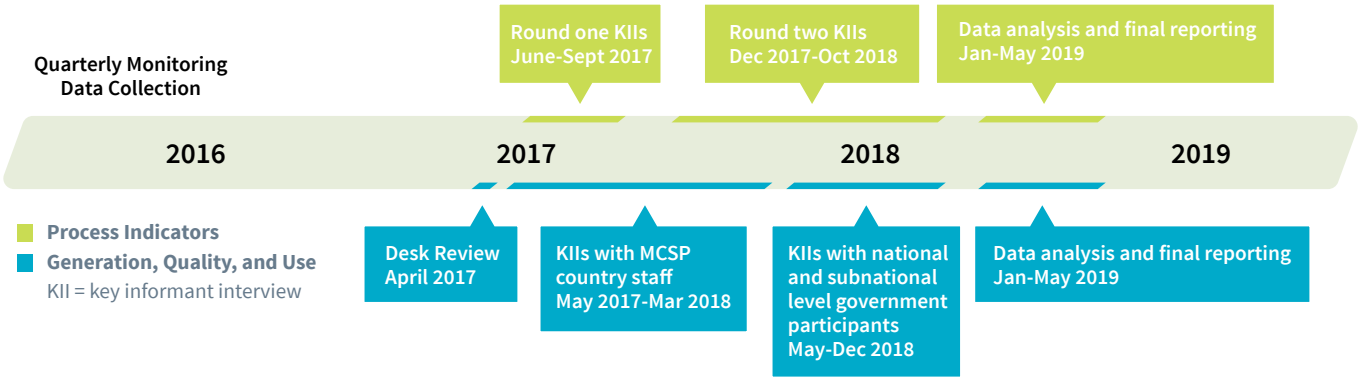
TABLE 1. IMPLEMENTATION OF MCSP LEARNING QUESTIONS, BY COUNTRY

	GENERATION, QUALITY, AND USE OF RI DATA	PROCESS INDICATORS
Haiti	✔	
Kenya	✔	
Liberia	✔	
Madagascar	✔	
Malawi	✔	✔
Mozambique	✔	
Nigeria	✔	✔
Pakistan	✔	
Tanzania	✔	
Uganda	✔	✔
Zimbabwe	✔	

BOX 2. LIST OF PROCESS INDICATORS

1. Percent of health facilities (HFs) with an up-to-date microplan for immunization in the last quarter.
2. Percent of planned routine immunization (RI) outreach sessions actually conducted.
3. Percent of planned RI fixed sessions actually conducted.
4. Percent of HFs with no stock-out of any vaccine and syringes in the last month.
5. Percent of HFs that received supportive supervision visits during the last quarter.
6. Percent of HFs with up-to-date immunization monitoring charts.
7. Percent of scheduled immunization coordination meetings with HFs actually held by the district health team.
8. Percent of HFs that meet with community members and discuss performance of immunization activities (either by themselves or through participation in broader RI meetings).
9. Percent of HFs with at least one qualified and trained (in the last year) vaccine provider.

FIGURE 1. TIMELINE FOR DATA COLLECTION



DATA COLLECTION

MCSP did not design these learning activities as rigorous research studies. Rather, MCSP aimed to gather useful information from country stakeholders using available human resources and without disrupting regular work. MCSP conducted KIIs with multiple respondents. For the generation, quality, and use of RI data learning activity, MCSP staff at headquarters (HQ) first conducted KIIs with MCSP country level staff (i.e., immunization technical personnel). Later, MCSP HQ and country staff conducted KIIs with government stakeholders. For the process indicators learning activity, prior to conducting KIIs with stakeholders, MCSP oriented country staff on the tools and KII questionnaires either remotely via Skype or in person during country visits. The MCSP HQ team reviewed the contents of the KIIs and followed up with country teams about any responses that needed clarification for both learning activities.

Process indicators

The MCSP/HQ office—in consultation with its country programs in Malawi, Nigeria, and Uganda, and personnel in the implementing districts/regions—selected a set of nine process indicators to test. MCSP selected these indicators because the project collected them as part of its program monitoring system to assess the performance in MCSP-supported areas, though the countries used some of these indicators as part of their routine monitoring information system as well. For example, in Nigeria, state managers monitored these indicators through administrative government information systems, though they were not regularly collected, analyzed, or used. Box 2 includes the final list of process indicators.

Timeline for data collection

MCSP collected data for both learning activities from 2016 to 2018. Figure 1 provides details on the timeline for each stage of the data collection for both learning activities

TABLE 2. OVERVIEW OF METHODOLOGIES USED FOR THE TWO LEARNING ACTIVITIES

	GENERATION, QUALITY, AND USE OF RI DATA	PROCESS INDICATORS
SPECIFIC LEARNING OBJECTIVES	• Identify interventions that improve the quality and active use of data by those who generate and are closest to the data. • Document the rationale and evidence for these interventions' positive effect on quality of data and active use of data. • Identify factors favoring the replicability of identified approaches. • Enhance sharing and learning across program countries.	• Identify a set of process indicators that provide real-time system data to describe the strength of the RI system (see Box 2). • Identify mechanisms that promote the use of process indicators for key decision-making by district and HF staff.
METHODS AND TOOLS	• Desk review: MCSP conducted an initial desk review of documents (reports, tools, job aids, presentations, etc.) provided by MCSP country staff. • Qualitative methods: Key informant interviews (KIIs) with a semistructured interview guide.	MCSP conducted two rounds of KIIs with the district managers, HF level staff (HF in-charges and health workers [HWs]) using standardized tools. After the first round of the data collection, MCSP modified and streamlined the data collection tools. In the first round, the information on indicator testing was mainly gathered through qualitative interviews. In the second round, this tool was modified to include a scale to capture the perception of the respondents on different domains of indicator testing (see below). • KIIs: MCSP conducted KIIs with HWs, facility managers, and district health personnel using two tools: • Quality tool: This tool included two components: qualitative assessment and indicator verification. Qualitatively, the tool explores different domains of the indicators (i.e., how the data are collected, frequency of updates, who participates, reasons for irregular data collection, challenges in collecting the data, etc.). In addition, the data collectors verified the values of the indicators for the most recent quarter or month. • Indicator testing tool: This qualitative tool included a list of guiding interview questions to assess: - Relevance (pertinence)/usefulness; - Feasibility; - Acceptability; - Accuracy/reliability of these sets of indicators. • The respondents were asked to reflect on these domains on a scale of 1 to 3 (1= low/worst; 3 = best). • Trend analysis using MCSP monitoring data: Districts regularly collected data on these process indicators through their routine monitoring system and/or the government's health management information system (HMIS). MCSP's learning team then assembled these data from the country monitoring systems to conduct a trend analysis.

	GENERATION, QUALITY, AND USE OF RI DATA	PROCESS INDICATORS
COUNTRIES AND RESPONDENTS	**First phase:** • Desk review: Desk review of 11 MCSP or Maternal and Child Integrated Health Program (MCHIP) Associate Award (AA) focal countries: Haiti, Kenya, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Tanzania, and Uganda (MCSP); and Pakistan and Zimbabwe (MCHIP-AA) • KIIs: MCSP HQ staff used a standardized guide to conduct KIIs with 18 MCSP or MCHIP AA field-based immunization technical personnel in those 11 countries. **Second phase:** • KIIs: MCSP conducted KIIs in five countries with 17 district health officials and 4 national level health officials to gain their perspectives on MCSP technical support to the generation, quality, and use of RI data. The countries include: Madagascar, Mozambique, Nigeria, Tanzania, and Uganda.	MCSP conducted two rounds of KIIs at the district and HF levels using the tools mentioned above, as shown below:
ANALYSES	MCSP analyzed the KII data by challenges related to the generation, quality, and use of RI data and actions implemented with MCSP support to address the challenges as well as the outcomes of those actions.	MCSP analyzed the KIIs data by indicator and by country. For each domain of the same indicator, qualitative responses were systematically reviewed for commonality, differences by country and across the countries, and summarized. Microsoft Excel was the main tool used to conduct the analysis. MCSP applied a simple scoring to assess the relevance/ usefulness, feasibility, acceptability, and accuracy/reliability of the indicators from the respondents' perspectives. MCSP asked respondents to score—from 1 as the lowest to 3 as the highest—each of the domains for each indicator. MCSP then averaged the score for each domain by country and across the countries.

4

Generation, Quality, and Use of RI Data


Karen Kasmauski/MCSP

KEY CHALLENGES

During the KIIs, MCSP staff in 11 countries highlighted key challenges for RI data generation, quality, and use for decision-making. Respondents provided unprompted responses, revealing similar challenges across countries (Figure 2).

Lack of reliable denominator

All 11 countries expressed the concern that "lack of a reliable denominator" is a major factor for inaccurate immunization coverage data. The countries generally project old census data adjusted to estimate the target population (i.e., the denominator). For example, Madagascar relies on a census conducted in 1990 and Nigeria uses the census from 2006. Respondents in all countries said that the lack of a dependable denominator or target estimation have resulted in unreliable coverage at the subnational level. For example, Mozambique, Tanzania, and Uganda documented coverage rates of over 100%. This issue was viewed by respondents of as more of a "structural problem," meaning that national immunization authorities estimate the target population based on the census and traditional methods used to project population growth. In the absence of a better option,[1] this calculation is the accepted method for determining target populations.

Lack of appreciation by health workers of the value of proper data recording and reporting

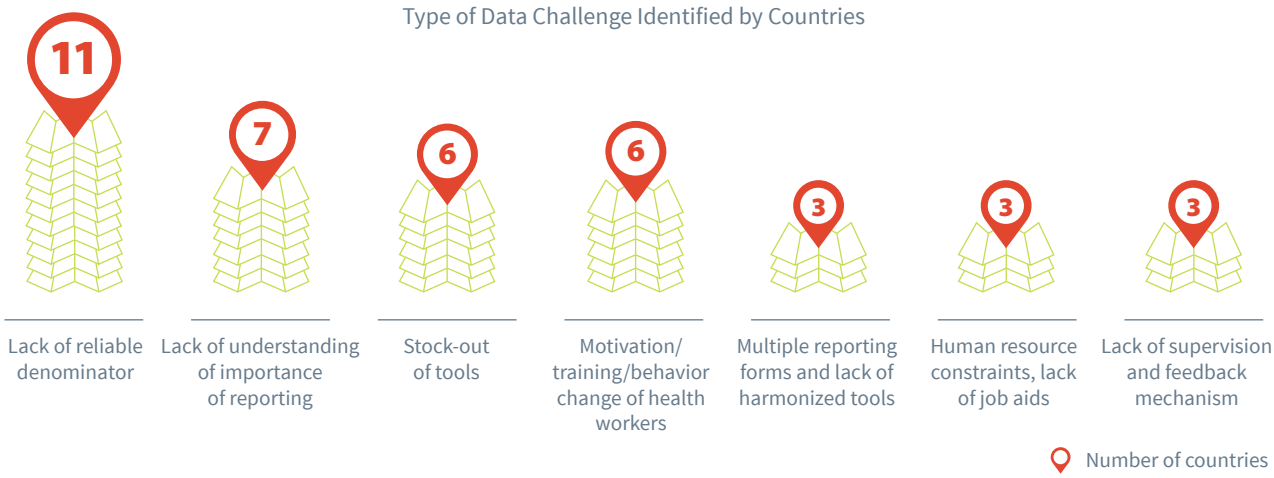
Health workers' lack of appreciation of the value of good quality data and their use are also inhibiting factors. The absence of full appreciation is a result of being unaware of how the data help to improve the quality of services and immunize more children—as well as the lack of a formal mechanism for receiving feedback on data quality from higher levels of the health system. In fact, respondents noted that HWs often do not take the recording and reporting of data seriously.

Stock-out of tools

Health workers access to the appropriate reporting tools (i.e., child/immunization registers, HMIS summary tools, stock registers, etc.) at the HFs is critical for ensuring that reporting is accurate and complete. Stock-outs of these tools at the HF contribute to data quality issues like underreporting, and indicate a problem with the availability of tools and/or the distribution system at the district level or higher. In cases where the tools have been revised, HWs often do not have access to the most recent version of the tool, meaning data collected is incompatible with the revised system. Lack of funding to print tools and inadequate distribution of the tools have been cited as the root causes of this challenge.

1 Other recommended methods for target population estimation, such as conducting a micro-census and applying the geographic information system, are available in guidance documents from WHO and UNICEF. However, these require additional resources and expertise, which are often unavailable.

FIGURE 2. CHALLENGES ON GENERATION, QUALITY, AND USE OF RI DATA IDENTIFIED BY THE COUNTRY STAFF AND SUBNATIONAL GOVERNMENT PARTNERS IN 11 MCSP-SUPPORTED COUNTRIES



Lack of motivation/in-service training of health workers

Health workers not only lack the skill but also the motivation to fill out the data reporting registers/forms properly. Lack of training, or suboptimal training, on data recording and reporting was identified as a key contributor to substandard practices and overall behavior around data recording and reporting. For example, HWs in Uganda typically filled in vaccination tally sheets,[2] but did not update child registers. Because child registers that record children by name and village of residence are needed to identify those due for further vaccinations, it was difficult for HWs or village health teams to follow up with the families of those children. Respondents also mentioned that the HWs were used to certain ways of reporting—such as only using tally sheets during outreach sessions—and were not motivated to change. For example, in Madagascar, respondents noted a lack of diligence by HWs in filling out tally sheets during outreach sessions. HWs are often overworked during these outreach sessions and do not fill out tally sheets, resulting in underreporting of doses given during the sessions.

Multiple reporting forms and lack of harmonized tools

Madagascar, Nigeria, and Tanzania noted that different data collection tools at district and HF levels create confusion and incomplete and delayed reporting. Included in this feedback was the need for harmonization of information systems for reporting immunization data. For example, these same three countries are in the process of transitioning from the District Vaccine Data Management Tool (DVDMT) to the District Health Information System (DHIS2), resulting in duplicative reporting efforts.

Human resource constraints/lack of job aids

Participants said that insufficient staffing and consistent heavy workloads made it difficult for HWs to spend time properly recording or reporting data. Respondents in, Madagascar, Nigeria, and Uganda emphasized that a majority of HFs were often working with a limited number of staff not capable of covering the full workload, and that HWs conducting immunization sessions, especially the outreach sessions, often are overwhelmed with providing services. The lack of jobs aids, limited availability of existing job aids, and training on how to use them were also mentioned as constraints.

Lack of supervision and feedback mechanisms

Lack of supportive supervision that focuses on discussion around data quality issues has also been mentioned as a reason behind poor data quality. Health facilities that are remote with no formal mechanism of receiving feedback are vulnerable to under- and overreporting. In Madagascar, for example, remote facilities do not receive regular supervision visits, which can sometimes result in inflating the number of children vaccinated (doses administered).

MCSP'S TECHNICAL ASSISTANCE TO STRENGTHEN RI DATA

MCSP provided technical assistance at all levels of the health system to address some of the challenges in order to strengthen and improve the RI system. In most countries, the respondents focused their input on MCSP technical assistance provided at the district and HF level (Figure 3).

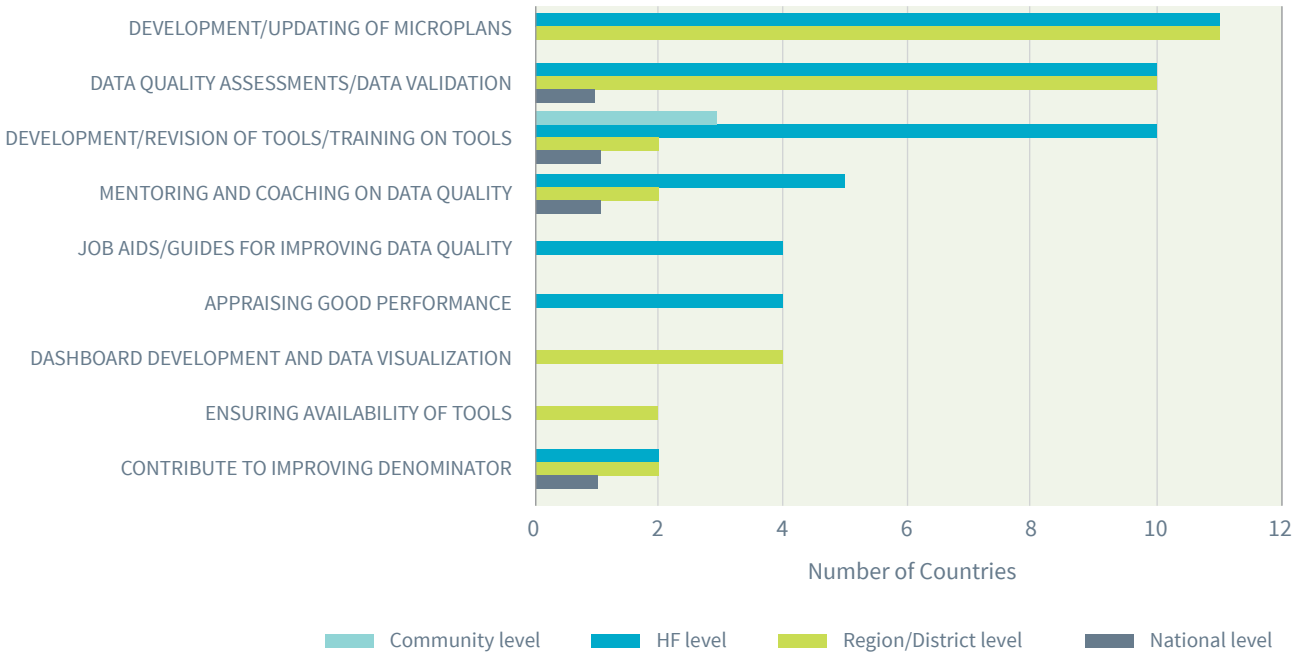
2 The tally sheet is a summary sheet used to record/count doses of vaccine administered to children as recorded in the child register. HFs are encouraged to fill in the tally sheet at the end of each RI session so that it is easier to collate totals at the end of the month. The summary on the tally sheet is then recorded in the monthly HMIS report that is submitted to the MOH DHIS2 system.

Interventions aimed at improving data quality and data validation

MCSP substantially supported activities that directly contributed to the improvement of data generation, quality, and use. Many of these interventions focused on data quality improvement and validation.

- The development and updating of microplans[3] at the district and HF level is a key step of the Reaching Every District/Reaching Every Community (RED/REC)[4] approach and constitutes a major means for routinely collected data for decision-making. Throughout the project implementation, MCSP provided technical support and monitored the development and regular updating of microplans in all 11 countries.
- In most countries, MCSP provided technical support by developing tools to conduct systematic and periodic data quality reviews at all levels, especially at the district and HF levels. These activities allowed districts to identify the HFs with data inconsistencies and offer support to improve quality. Health facilities, through conducting regular data quality self-assessments, also identified challenges and implemented corrective actions.
- In most countries, MCSP supported data review meetings at district and subnational levels. These meetings involved district management teams and HFs and looked at trends in coverage and reporting gaps. In Nigeria, for example, MCSP supported local government area (LGA) Data Sub-Working Groups to check the consistency and accuracy/reliability of RI data submitted by HFs prior to sending the data to the state level. If the Data Sub-Working Groups noted any discrepancies, they first went back to the HFs for clarification. This helped the HFs and HWs better understand data recording and subsequently improve the data quality (Figures 4 and 5).
- In all 10 countries, MCSP supported data validation exercises at HFs during supportive supervision or monitoring visits. This required comparison of data (doses administered of a particular antigen) entered in the different data collection forms (i.e., tally sheets, child health registers, and summary sheets). For example, in Uganda, MCSP introduced the practice of having HWs regularly compare numbers of doses administered on their tally sheets and child registers before transferring that data onto the monthly tally sheet that was then fed into the HMIS.

FIGURE 3. ACTIONS AIMED AT IMPROVING RI DATA GENERATION, QUALITY, AND USE AT DIFFERENT LEVELS OF THE HEALTH SYSTEM IN 11 MCSP-SUPPORTED COUNTRIES



3 A microplan defines how to reach clients, how many people should be targeted for services in the area, and how frequently quality services are provided, and is developed by all stakeholders at each level. An effective microplan will support HFs and district teams to i) identify target population ii) design data and graphic mapping iii) prioritize plans to reach target population iv) define realistic actions v) reduce inequity and improve the quality of immunization services. Source: https://www.afro.who.int/publications/reaching-every-district-red-guide-increasing-coverage-and-equity-all-communities.

4 WHO's Regional Office for Africa (AFRO) defines this approach as Reaching Every District. However, as countries have adapted the approach to their contexts, some have renamed the approach Reaching Every Community, Reaching Every Child, or Reaching Every Ward.

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- In Nigeria, MCSP incorporated regular data quality spot checks at the LGA and HF level as part of their routine function. MCSP consultants regularly visited HFs to check important indicators and data consistency across different registers. The consultants worked with the HFs on gaps by mentoring and training them on the job to improve data quality based on their assessments.

Examples of data quality improvement in MCSP-supported countries

Tanzania

At the start of MCSP's support in 2015, it was evident that HFs were not recording and reporting data properly because a high proportion of HFs experienced data inconsistencies between tally sheets and summary forms. Tanzania implemented multipronged strategies to address data quality challenges, including data review meetings, supportive supervision, and data quality self-assessments (see Figure 4).

This multipronged approach contributed to improved data consistencies between tally sheets and monthly data summary reports in six district councils (Figure 5).

Nigeria

In Nigeria, MCSP supported data quality assessments along with other partners in both Bauchi and Sokoto states to address data quality issues. HWs in Nigeria have often resorted to inflating the number of children immunized to meet the high state targets, which are often based on inaccurate estimates of target populations. Such expectations to meet the target often encouraged false reporting of high numbers of children vaccinated. As a way to disincentivize overinflated reporting, the states EPI office removed the target and encouraged the HFs to report correct data. MCSP supported the states to carry out data review meetings with HFs and conduct supervision and mentoring of the HWs, a key focus of which was improving their practice of data recording and reporting. As a result, the discrepancy in recorded data between the tally sheets and monthly summary reports has improved (see Figure 6). As indicated by an accuracy/reliability ratio much lower than 1 (October 2017 – March 2018),[5] HFs in Bauchi State had been overreporting to DHIS2. However, since April 2018, the accuracy/reliability ratio has improved, indicating that the discrepancies between the numbers of doses administered documented in the child health registers and reported in DHIS2 decreased significantly.

5 The accuracy ratio is the number of recounted vaccination figures from child immunization registers divided by the number of reported figures in the DHIS 2. When evaluated to be higher than 100% (>1), it is considered underreported. When it is less than 100% (<1), it is considered overreported. The closer that ratio is to 1, the better. MCSP defined a benchmark of +/- 15% to accommodate human errors.

FIGURE 4. STRATEGIES SUPPORTED BY MCSP TO IMPROVE DATA QUALITY IN TANZANIA

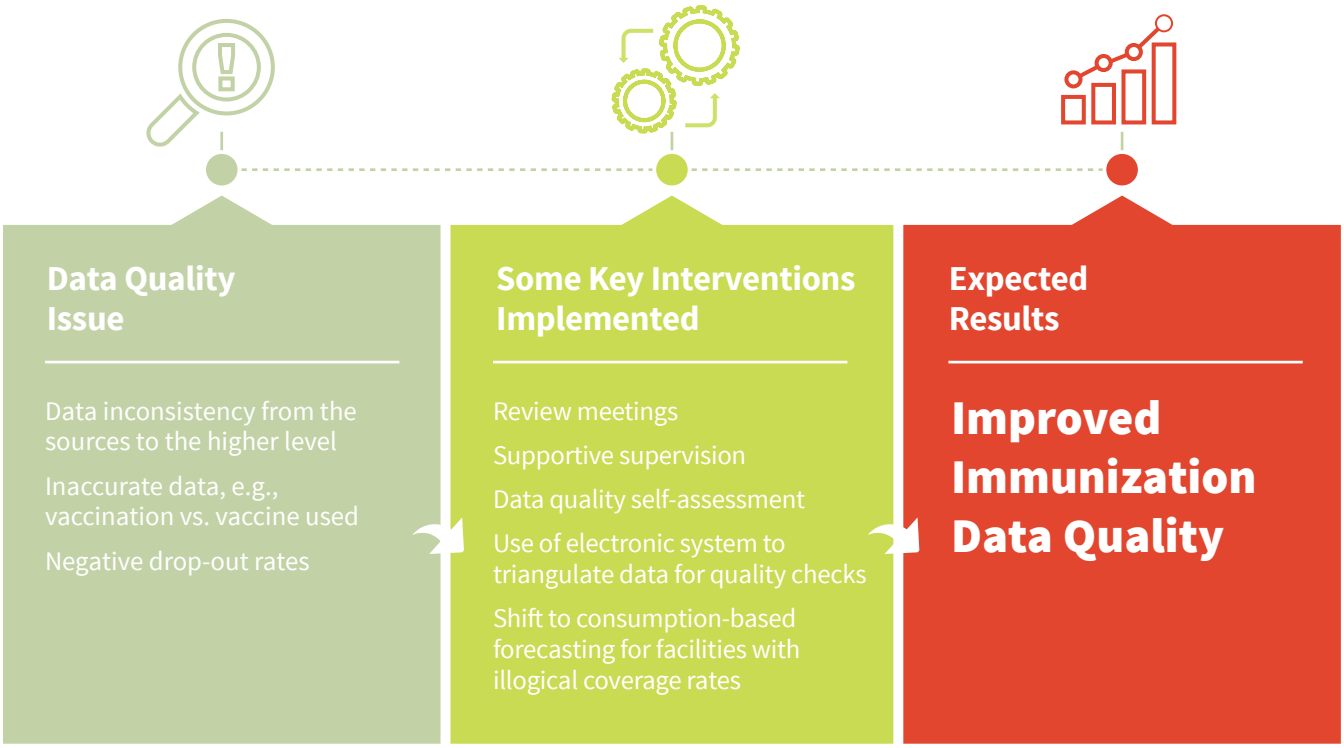


FIGURE 5. INCREASE IN THE PERCENTAGE OF HEALTH FACILITIES WITH LESS THAN 10% DATA DISCREPANCY BETWEEN TALLY SHEETS AND MONTHLY SUMMARY FORMS IN SIX DISTRICTS COUNCILS, KAGERA REGION, TANZANIA

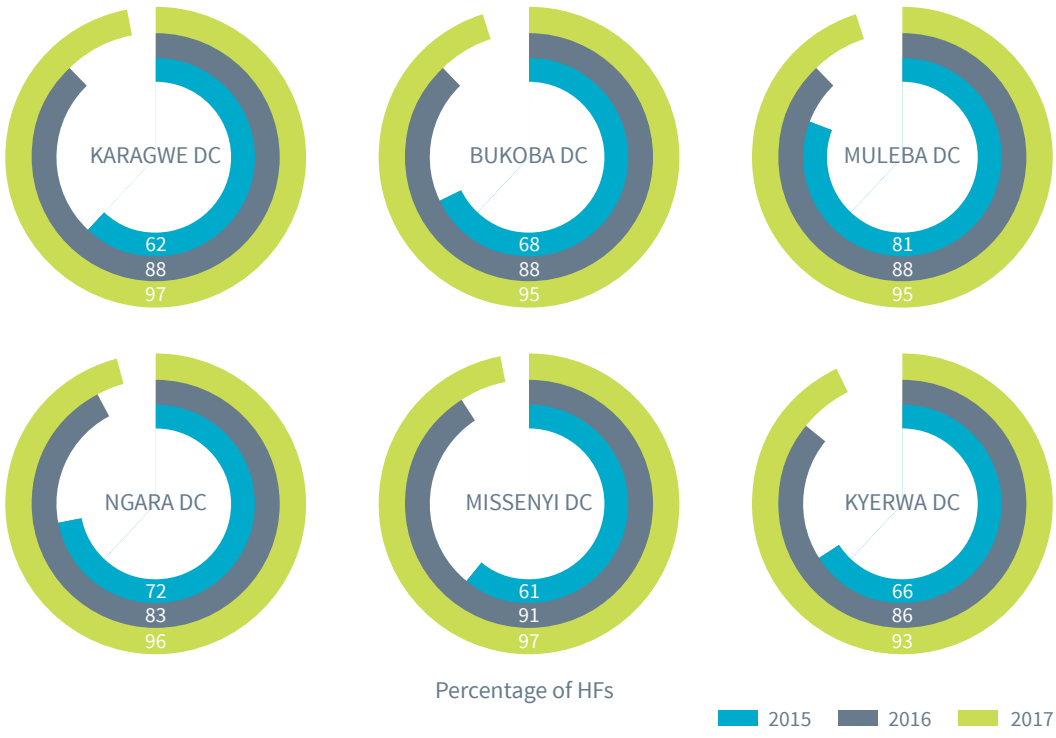
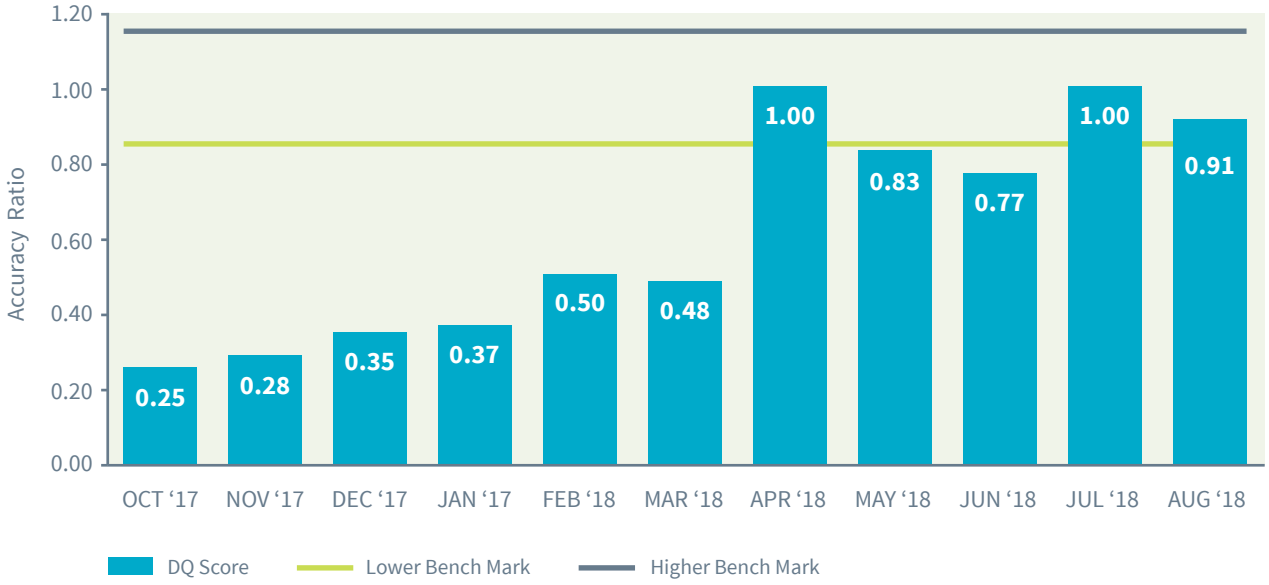


FIGURE 6. IMPROVED DATA QUALITY ACCURACY RATIO (REDUCED DISCREPANCIES BETWEEN TALLY SHEETS AND MONTHLY SUMMARY FORMS) IN BAUCHI STATE, NIGERIA (N=120 HFS)



Uganda

The number of DTP3 doses administered should be consistent across tally sheets and child registers. In Uganda at baseline (April 2016) in four districts (representing 104 HFs) where MCSP monitored this situation, the discrepancies in data between these two forms was 38%. With technical support from MCSP (i.e., training on reporting, regular data review meeting, data quality self-assessments), the discrepancies between the two forms decreased steadily and substantially to 8% by April 2018 (Figure 7).

Development/revisions/training on tools

Almost all MCSP countries implemented activities to develop, streamline, and/or revise various data recording and reporting tools. MCSP supported training of HF staff to use data collection tools (new or usual tools) as well as on data quality and reliability.

Mentoring and coaching on data quality

In some countries, including Nigeria and Madagascar, MCSP also supported country efforts on mentoring and coaching HWs in addition to regular supportive supervision and trainings on how to use tools. Mentoring focused on targeted issues, especially on recording of data, filling out forms, proper reporting; and helping with the interpretation of data to strengthen HW capacity on data reporting and use. MCSP also supported development of specific guides for the mentors on conducting mentorship and coaching in these two countries.

DATA DASHBOARD DEVELOPMENT AND DATA VISUALIZATION

Depending on the country, data visualization ranged from a simple paper chart at the community and HF level to electronic data visualization at various levels. As part of the WHO RED/REC approach, it is recommended practice for HFs to post wall charts showing children vaccinated against the monthly targets as a trend line. MCSP supported more sophisticated dashboards and triangulation of data in four countries: Malawi, Nigeria, Tanzania, and Uganda.

Malawi (My Village is My Home)

To address immunization coverage decline in Dowa and Ntchisi districts in Malawi, MCSP provided technical support to the districts and engaged 1,800 village heads to register all infants in their communities using the My Village is My Home (MVMH) tool, a chart used to list infants in a village and monitor their individual vaccination status. By the end of this intervention, 90% of the village heads tracked the immunization status of the infants in their communities with the MVMH tool. According to information in the MVMH dashboard, 77% of infants received immunization on time, 21% received immunization but after the recommended period, and only 2% did not commence vaccination at project end. This approach has been applied in five other countries; more details can be found in the technical brief, Community Monitoring of Individual Children's Vaccinations [https://www.mcsprogram.org/resource/community-monitoring-of-individual-childrens-vaccinations].

Nigeria

In Nigeria, MCSP provided technical support (e.g., review and provision of feedback) for the development and execution of three dashboards: DHIS2, supportive supervision dashboard, and vaccine dashboards. MCSP supported the LGA teams to use the dashboards to compare indicators, identify trends and challenges, and take actions based on the dashboard review.

Tanzania

In Tanzania, MCSP supported the development of the electronic Vaccine Information Management System (VIMS), which incorporated three formerly separate paper-based tracking systems (i.e., a DVDMT, a stock management tool, and a cold chain equipment inventory management tool) into a single interoperable electronic system providing real-time data to the facility level. Initially tested in seven regions, the MOH has approved the expansion of VIMS to all other regions. More information on MCSP's support to the use of VIMS in Tanzania can be found in the report, Assessing the Effectiveness of a Web-Based Vaccine Information Management System on Immunization-Related Data Functions. [https://www.mcsprogram.org/resource/assessing-the-effectiveness-of-a-web-based-vaccine-information-management-system-on-immunization-related-data-functions/].

Uganda

In Uganda, the MOH incorporated the RED categorization tool initially promoted by MCSP into the MOH electronic database (DHIS2). The RED categorization tool compares doses administered of DTP1 and DTP3 at all levels of the health system to identify whether a facility (or district or region) faces challenges with access to RI services or continued use of RI services, or a combination of the two.

BETTER ESTIMATION OF TARGET POPULATION

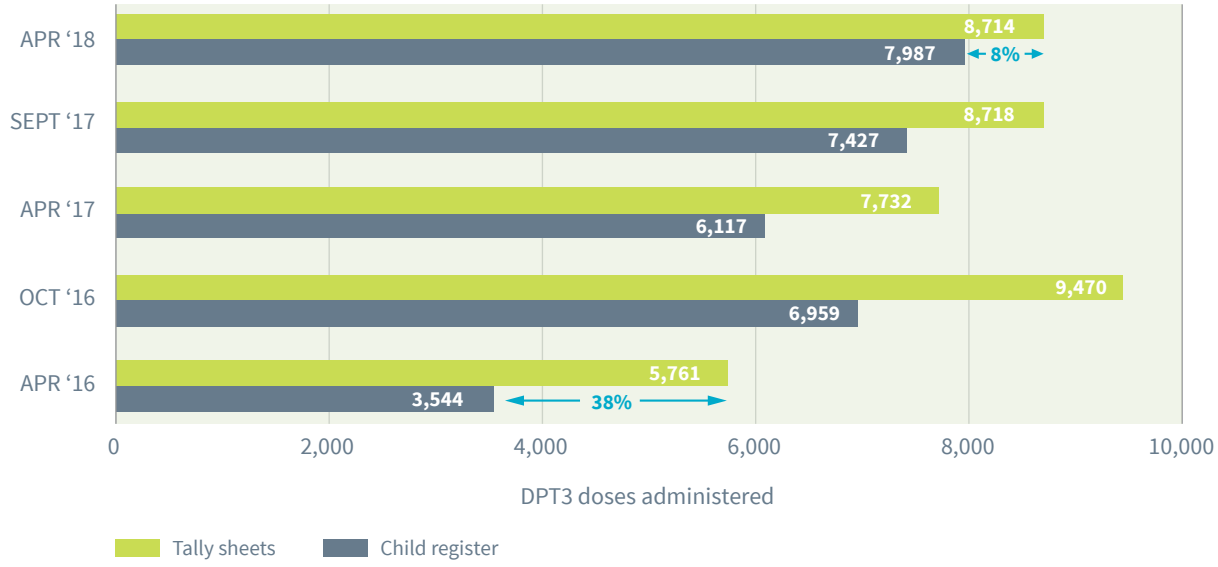
MCSP addressed the challenge of inaccurate target populations in a variety of ways in MCSP-supported areas. Please see below for examples from Mozambique, Nigeria, and Pakistan.

Mozambique (conversion factor for accurately estimating target population)

In Mozambique, MCSP led the process of estimating new conversion factors by district and province to estimate target populations more accurately. The MOH traditionally applied one conversion factor to project national and subnational (uniform for all districts and provinces) target populations every year. Guided by the National Immunization Technical Working Group, MCSP led the process of modifying the method for population estimation by calculating more accurate province- and district-specific conversion factors. In 2018, after the MOH endorsed the new methodology, the target population sizes estimated with these new conversion factors were used in program planning, including in costing for new vaccines being introduced in each province.

Based on the success in Mozambique, in 2018 MCSP shared the new methodology with colleagues from Ethiopia, Kenya, Madagascar, Tanzania, Uganda, Zambia, and Zimbabwe. These teams shared information about the new methodology with

FIGURE 7. REDUCTION IN REPORTED DATA INCONSISTENCIES BETWEEN DTP3 DOSES GIVEN AS RECORDED ON TALLY SHEETS AND CHILD REGISTERS IN FOUR MCSP-SUPPORTED DISTRICTS IN UGANDA (N=104 HFS)



their government counterparts and began discussions about applying it to set immunization program targets in their own countries, where the current methods may be inaccurate. For additional details, see the program brief, Addressing the Denominator Conundrum for Maternal and Child Health Programs: A New Methodology [https://www.mcsprogram.org/wp-content/uploads/dlm_uploads/2019/01/MCSP-MZ-Brief-TargetPopulationMethodology.pdf].

Nigeria (Geographic Information System)

MCSP worked with the State Primary Health Care Development Agencies in Bauchi and Sokoto states to use geographical information system (GIS) tools to more efficiently and accurately capture population numbers, establish processes and tools for using GIS to improve microplanning, and produce maps for 272 HFs. The experience from these two states is contributing to new ways of accurately defining health catchment areas for better planning of immunization programs. The two states have now scaled up the use of GIS to all the 43 local government areas. Read more about enhancing RI microplanning in Northern Nigeria through the use of GIS in From Paper Maps to Digital Maps: Enhancing Routine Immunisation Microplanning in Northern Nigeria [https://www.mcsprogram.org/resource/from-paper-maps-to-digital-maps-enhancing-routine-immunisation-microplanning-in-northern-nigeria/].

Pakistan (house-to-house registration/ microcensus)

To better understand the target population (newborns, children under 2 years, pregnant women) to receive vaccination services in Sindh Province (Pakistan), MCHIP first worked with civil society organizations to conduct a house-to-house registration (microcensus). Registration data were then input into an adapted management information system (MIS) and used to identify children and pregnant women due for vaccinations and those who have not returned for subsequent doses. SMS messaging was built into the MIS platform to encourage caregivers to keep their children's vaccinations up-to-date. By project end, MCHIP supported the registration of 28,566 villages, 830,610 children, and 348,315 pregnant women. MCHIP has successfully transitioned the MIS/SMS to the Government of Sindh. Read more about MCHIP's vaccination efforts in rural Pakistan at the following blog, The Upshot of MCHIP's Vaccination Efforts in Rural Pakistan: Boosting Kids' Health [https://thepump.jsi.com/the-upshot-of-mchips-vaccination-efforts-in-rural-pakistan-boosting-kids-health/].

FEEDBACK FROM NATIONAL AND SUBNATIONAL GOVERNMENT COUNTERPARTS

In addition to implementation of these MCSP-supported interventions, MCSP obtained national and subnational government feedback on these contributions in five countries: Madagascar, Mozambique, Nigeria, Tanzania and Uganda.[6] The report annex includes country profiles for these countries, which provide additional detail on the impact of MCSP's technical support in the areas of generation, quality, and use of RI data.[7] Table 3 provides a summary of MOH perception of contributions, outcomes, and challenges regarding MCSP support in these countries.

TABLE 3. PERCEPTIONS OF NATIONAL AND SUBNATIONAL GOVERNMENT COUNTERPARTS OF MCSP CONTRIBUTIONS TO IMPROVING THE GENERATION, QUALITY, AND USE OF RI DATA

COUNTRIES	PERCEIVED KEY CONTRIBUTIONS OF MCSP	PERCEIVED OBSERVED OUTCOMES	CHALLENGES
MADAGASCAR	• Development of job aids for HF managers and community agents (CAs) to implement the RED/REC approach. • Training on RED/REC and DQS at the district and HF level, followed by on-site follow-up and supportive supervision. • Community engagement using RED/REC. • EPI data review meetings.	• DQS improved the quality and use of data and reduced discrepancies. • On-time and complete reporting increased. • REC implementation led to more accurate coverage monitoring charts at the HF. • REC helped HFs to identify problems in their catchment areas and revise plans.	• The job aid for CAs needs to be simplified and trainings on the tool must take place. • Insufficient finances, fuel, and human resources to conduct trainings on RED/REC, DQS, and supportive supervision. • DQS needs to occur at all HFs jointly with technical partners. • Stock-out of data management tools, such as coverage monitoring charts, limit data recording and reporting.

6 Due to MCSP country program closeouts, interviews with national and subnational counterparts did not take place in Haiti, Kenya, Liberia, Malawi, Pakistan, and Zimbabwe.

7 While the MCSP country program in Malawi closed prior to interviewing national and subnational counterparts, the annex also includes a profile for Malawi, one of the focus countries for the process indicators work, along with Nigeria and Uganda.

TABLE 3 CONTINUED

	GENERATION, QUALITY, AND USE OF RI DATA	PROCESS INDICATORS	CHALLENGES
MOZAMBIQUE	• Tool for calculating district-specific conversion factors to calculate target populations. • Development and adaptation of RED/REC guidance and tools. • Revision of service integration package; support to mobile brigades. • Supportive supervision to HFs to interpret data. • Data analysis meetings at provincial, district, and HF levels. • Support of DQS implementation.	• Increase in coverage for fully immunized children. • The quality of data has improved greatly because DQS has helped reduce discrepancies in data between different recording and data collection instruments. • Outreach and follow-up continue where community HWs learned to follow-up with missing children.	• MCSP provided technical support to two provinces but did not cover 100% of the health centers. • Limited timeframe for technical support.
NIGERIA	• Training the LGAs to conduct DQA and participation in annual DQA with the state. • Supportive supervision and mentoring during HF visits, including to address data gaps. • Development of community engagement strategy. • Data reporting and recording tool development, reproduction, and distribution.	• Reduced data discrepancies between reporting forms. • Improved data quality. • Increased analysis and use of the data at state, LGA, and HF level for decision-making.	• Lack of continuous training on data issues for RI providers. • The trainings on data quality are not in-depth and detailed enough (number of days is too short). • Inaccurate targets lead to inflation of coverage data. • Lack of accountability at all levels.
TANZANIA	• MCSP supported development and use of REC microplanning tools, a community child register and defaulter tracing tool, and a vaccine forecasting tool. • Capacity-building of HWs on data recording, reporting, triangulation, and use through mentoring and supportive supervision. • Training of HWs and their governing bodies on REC microplanning and using data for microplanning.	• Data quality improved. • Decline in the number of districts reporting DTP3 coverage over100% in 2018. • Reduced DTP1-to-DTP3 negative dropout rates. • Visualization of VIMS data helped identify HFs with data discrepancies and address challenges accordingly.	• Funding for regional and council work and transportation issues can stall the work. • Lack of reliable target estimation and high targets affect data quality. • Activities focusing on improving data quality, such as review meetings, are not in-depth enough and require more time. • Limited scale-up of MCSP's data quality efforts across all district HFs created inconsistencies in capacity-building.
UGANDA	• Hands-on involvement at HF level to improve the recording, reporting, and use of data. • Microplanning and micromapping: more villages identified and sessions conducted. • Child registers: better documentation of vaccinated children with information for follow-up sessions. • Regular data quality assessments and mentoring of HWs on the RED categorization of HFs.	• No measles outbreaks in the MCSP districts. • Improvement in data quality, and timely and complete reporting as observed at the district level. • MOH team incorporated the RED categorizationa tool into the MOH electronic database (DHIS2) as the dashboard on RI performance. • None of the MCSP districts reported DTP3 coverage >100% in 2018 (which still occurs in other districts).	• Funding for the continuation of activities—such as data quality assessments (DQAs), regular outreach sessions and documentation—is an ongoing issue. • Turnover of HWs and shortage of staff affect program quality.

*The RED categorization tool measures RI performance based on doses of vaccines administered to children at all levels of the administrative structure, national level to HF level.

Abbreviations: CA = community agent; DHIS2 = District Health Information System; DTP = diphtheria-tetanus-pertussis; DQA = data quality assessment; DQS = data quality self-assessment; EPI = Expanded Program on Immunization; HF = health facility; HW = health worker; LGA = local government area; MCSP = Maternal and Child Survival Program; MOH = Ministry of Health; RI = routine immunization; RED/REC = Reaching Every District/Reaching Every Community/Reaching Every Child;VIMS = Vaccine Information Management System.

5

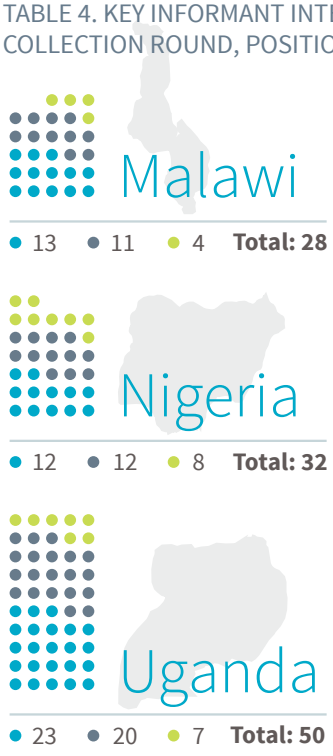
Relevance, Feasibility, Acceptability, and Accuracy of Process Indicators


Kate Holt/MCSP

INDICATOR TESTING

The AFRO RED guide[1] proposes several input, process, and output indicators for immunization. With this in mind, MCSP selected and tested nine process indicators—already being monitored—to determine which are appropriate for providing real-time system data to demonstrate strengthening of RI on a pathway to uniformly high and sustainable immunization coverage. MCSP conducted two rounds of data collection to examine the perspectives of HF workers and their managers on the domains of relevance/usefulness, feasibility, acceptability, and accuracy/reliability[2] of the process indicators. Table 4 provides details on the number of district managers and HWs/facility in-charges who participated in the key informant interviews for each round of data collection.

TABLE 4. KEY INFORMANT INTERVIEWS BY DATA COLLECTION ROUND, POSITION, AND COUNTRY



LEGEND:
- Health workers/facility in-charges (First round)
- Health workers/facility in-charges *(Second round)*
- District managers *(Second round)*

Total key informant interviews

1 MCSP contributed practical inputs tools, job aids, and training materials to the updated WHO AFRO RED guide in close collaboration with AFRO, Ministries of Health, and global partners. MCSP also supported pre-testing of the guide in Malawi and Kenya (see An Approach to Increase Coverage and Equity by Adapting and Using Revised Reaching Every District: MCSP Experiences Adapting the RED Guide in Malawi and Kenya for more details) and rollout of the finalized guide in Tanzania, Mozambique. and Zambia.

2 Please note that for accuracy/reliability, we were examining the accuracy of the values (data) reported for those indicators rather than the accuracy of the indicators themselves.

FIGURE 8A. INDICATOR TESTING BY RELEVANCE/USEFULNESS, FEASIBILITY, ACCEPTABILITY, AND ACCURACY/RELIABILITY AGGREGATED AND AVERAGED ACROSS MALAWI, NIGERIA, AND UGANDA (N=43; 1 IS LOW, 3 IS BEST)

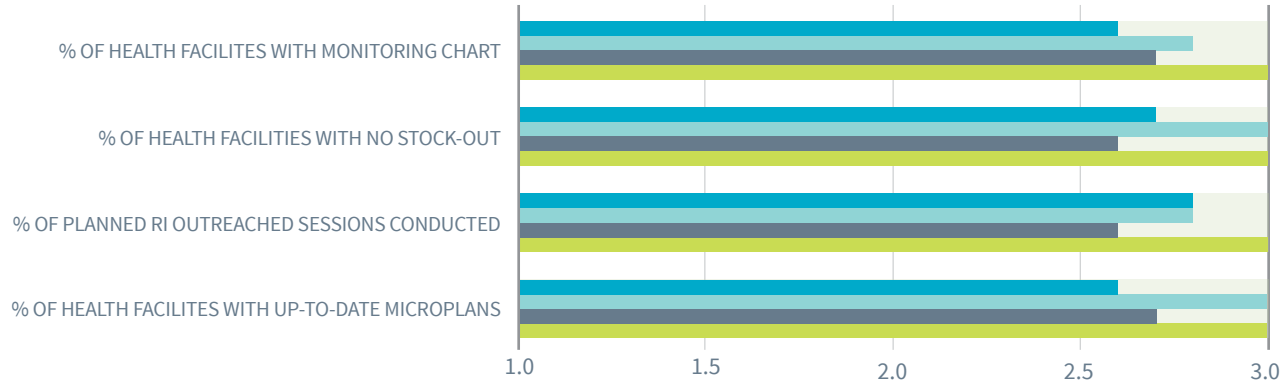
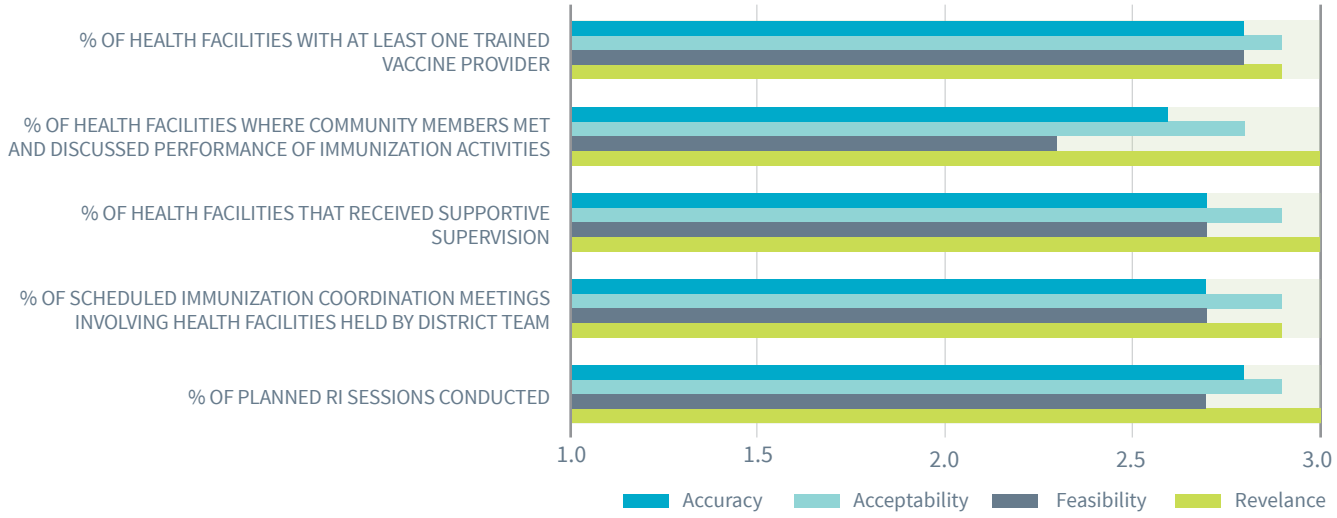


FIGURE 8B. INDICATOR TESTING BY RELEVANCE/USEFULNESS, FEASIBILITY, ACCEPTABILITY, AND ACCURACY/RELIABILITY ACROSS MALAWI, NIGERIA, AND UGANDA (N=43; 1 IS LOW, 3 IS BEST)



Findings show that, in general, respondents found the indicators to be relevant/useful, feasible, acceptable, and accurate across countries both on the qualitative and quantitative scales (1–3: 1 is low; 3 is best). Figures 8a and 8b show the average score across all three countries, and indicate that higher scores were given to relevance/usefulness and acceptability compared with feasibility and accuracy/reliability.

STRENGTHS AND CHALLENGES OF THE PROCESS INDICATORS

In addition to scoring the indicators by domain, the KIIs explored the respondents' views regarding the strengths and challenges related to the set of process indicators by domain (see detailed findings in Table 5).

Relevance/usefulness

Health workers and their managers perceived the process indicators (individually or as a set) to be useful and relevant for the RI program, as demonstrated by the high score across the indicators in all three countries (Figures 8a and 8b).

> "Based on these indicators, we can plan to reallocate resources, including human resources, so that health workers are deployed in strategic facilities to serve the communities easily."
>
> — Health facility in-charge, Malawi

"District and facility managers take these indicators as learning opportunities and morale boosters, especially when used with support supervision. It also encourages work as a team so as to achieve better results."

— Health facility in-charge, Uganda

Feasibility

The feasibility score of the indicators was lower compared with relevance/usefulness. Uganda and Nigeria consistently rated feasibility lower on almost all indicators as compared to Malawi. The percentage of HFs who met with communities was rated as the least feasible indicator, mainly due to either the lack of documentation of such meetings and/or that they were not conducted in an organized manner.

"There are only 9 indicators and they show the facility's immunization performance quickly at a glance. We are already collecting them and easy to collect."

— Health facility in-charge, Nigeria

Acceptability

In general, the acceptability of the indicators was high across all three countries. However, there were concerns about implementation of the indicators, in general. The concerns expressed centered on not fully understanding the data, lack of training on capturing the indicators correctly, and the additional burden that monitoring and reporting on the indicators could put on the health system. None of the respondents expressed any sensitivity about any of the process indicators.

"The district told us that the only way to determine whether they are progressing in immunization or not is through these indicators, therefore they are very acceptable to the HWs who collect the data. But, there are so many, yet the district does not give us any money to do all that work."

— Health facility in-charge, Uganda

Accuracy/reliability

The accuracy/reliability of the indicators was lower compared with the other domains. Respondents reported the following as issues likely to affect the accuracy of the data collected through these indicators: 1) inaccurately captured or missing data; 2) incomplete filling of tools or reports; 3) lack of understanding of the importance of the individual indicators and why they are critical to report; and 4) additional burden of filling out reports and registers.

"Obviously, if such indicators were not in place then we would be lagging behind in terms of RI service provision. Remember these indicators put together ensure positive progress in RI service provision and they check all activities right from the national, district, health facility levels to the child that is receiving the service. So the slightest change put up by each indicator when combined reflect great changes in the RI system in ensuring that all children are reached."

—District Manager, Uganda

"There is variation in the knowledge of the health workers. While some are trained formally in immunization, others find it difficult to fill out the forms. So, data can be wrong."

—LGA immunization officer, Nigeria

Ali Khurshid

TABLE 5. STRENGTHS AND CHALLENGES RELATED TO THE SET OF PROCESS INDICATORS, AS PERCEIVED BY RESPONDENTS FROM MALAWI, NIGERIA, AND UGANDA, BY DOMAIN

	STRENGTHS	CHALLENGES
RELEVANCE/ USEFULNESS	• Help HWs and HF managers understand system performance holistically; the indicators are, therefore, key to measuring the strength of the immunization system. • Easy to track because managers were not overburdened by the number of indicators, yet the set contained enough diversity to describe several dimensions of the RI system. • Provide opportunities for accountability to the community and funders. • Help districts identify the root causes of poor performance.	• Participants felt many HWs still do not analyze the data regularly until they need to report it, and some supervisors are not providing guidance.
FEASIBILITY	• Most of the indicators were feasible and straightforward, and minimal changes would be needed to existing tools to scale up and make the data collection more regular. • New technologies may make the data collection process more feasible. • General agreement that the indicators were sensitive to identifying changes in the RI system and could be applied to improve the system.	• While the indicators were already in use, different reporting tools and schedules made reporting on them complex. • When HWs were not properly trained or qualified, quality and feasibility of the data were lower. • Concerns were expressed about availability of funding for RI in general and the cost of collecting monitoring data. • Problems with feasibility were noted for some indicators, especially coordination meetings with the districts and the community. Arranging such meetings was often not regular, and detailed information on the meetings was not always easy to record at the HF level.
ACCEPTABILITY	• Respondents indicated that the indicators are acceptable and they did not contain any sensitive information that may negatively affect the indicators. The indicators are important to support monitoring of all the activities that contribute to the improvement of the RI system at the national, district, HF, and client levels.	• Respondents expressed concern that HWs did not fully understand the data and lacked training on capturing the indicators correctly. Incomplete values of indicators are likely to affect the acceptability. • While the indicators were accepted by the HWs, they sometimes reported that monitoring and reporting of the indicators was an additional burden, which negatively affected the acceptability of additional indicators in general (not specific to the process indicators being examined by MCSP).
ACCURACY/ RELIABILITY	• If the HWs are trained properly, understand the process indicators, and are committed to recording and reporting the data properly, then the indicators would be accurate.	• Some HFs could not show the interviewer an updated microplan. In some cases, the microplans had been updated but were stored at the district level, so they were not available at the health facility. In other cases, not all parts of the microplan tool were completed or updated. As such, the indicator itself is not necessarily inaccurate or unreliable. Rather, the measurement of the indicator is inaccurate. • Annual targets provided by the districts were unreliable and inaccurate, which affected proper estimation of the catchment area target population. This has implications for the accuracy/reliability of several indicators, such as fixed (at the health facility) and outreach sessions planned. • Accuracy/reliability of reported data could be compromised if all recording forms (child registers, tally sheets, and HMIS summary forms) were not filled and reconciled properly. • In many HFs, all supportive supervision steps were not complete and the supportive supervision logbooks were not updated. • Lack of HW training on reporting and recording resulted in faulty plotting of monitoring charts as well as incomplete recording of data and information on stock-outs. • Logistical issues—such as stock-outs of tools, including monitoring charts—were identified as factors affecting the accuracy/reliability and timeliness of data recording and reporting. • HW interpretations of the indicators varied widely, which affected the accuracy/reliability of the indicators.

Abbreviations: HF = health facility; HW = health worker; RI = routine immunization.

6

Trend Analysis of Process Indicators and Data Triangulation

The nine process indicators examined by MCSP were already incorporated into MCSP's performance monitoring plan and monitored to assess the progress of program implementation. In Nigeria they were included in the government monitoring and supervision system. The previous section explored the HF and district level respondents' perception and reactions to these indicators. The regular monitoring of these indicators provided an opportunity to examine any changes that occurred since MCSP began providing technical assistance to the countries (baseline). As such, in this section of the report, we explore trends in the process indicators collected through the routine monitoring system in all three countries.

MALAWI

As part of MCSP's programmatic work in Malawi, MCSP collected baseline information on the key process indicators from October to December 2015. The country program then started providing support to RI programming and collecting regular monitoring data on selected indicators in January/February 2016.[1] Since the baseline, all process indicators but one (immunization coordination meetings) substantially improved and were maintained in two MCSP-supported districts. A summary of changes in the process indicators from baseline to endline in December 2017 is included below and in Figures 9a and 9b. The increase in most of these indicators demonstrates that they were not only accepted as useful tools by HWs but also closely monitored and reported. At baseline, none of the HFs reported having a microplan. Within one quarter, all HFs had developed microplans,[2] and once implemented, the presence of up-to-date microplans was consistently high throughout the life of the program.

- Malawi showed improvement in the occurrence of stock-outs from 30% of HFs reporting no stock-outs at baseline to 100% of HFs reporting no stock-outs at endline. In December 2016, MCSP supported trainings on cStock[3] in Ntchisi and Dowa for HF in-charges, health surveillance assistants (HSAs) supervisors, and HSAs from HFs to improve stock management.
- The availability of monthly updated immunization coverage monitoring charts for DTP3 and drop-out rates at the HFs increased significantly from baseline.

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1 Several of the indicators were added to the monitoring system later in Malawi, so the data were not available at baseline. In addition, data were not consistently collected on the proportion of HFs who meet with community members to discuss performance of immunization activities, so this indicator was excluded from the analysis.

2 Maternal and Child Survival Program (MCSP). 2016. Country Program Quarterly Report FY2016 Q2 (January – March 2016). Lilongwe, Malawi: MCSP. https://pdf.usaid.gov/pdf_docs/PA00SXNZ.pdf. Accessed July 25, 2019.

3 cStock is a RapidSMS, open-source, web-accessible LMIS for community-level health products in Malawi.

FIGURE 9A. TRENDS IN SELECTED PROCESS INDICATORS FROM TWO MCSP-SUPPORTED DISTRICTS IN MALAWI FROM BASELINE (2015) TO ENDLINE (DECEMBER 2017)

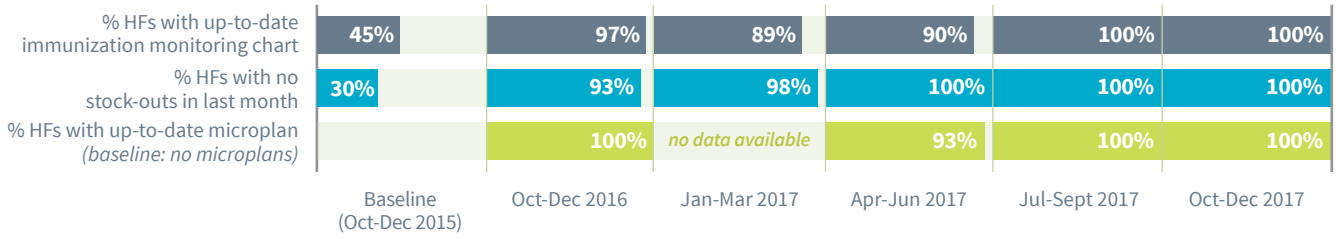


FIGURE 9B. TRENDS IN SELECTED PROCESS INDICATORS FROM TWO MCSP-SUPPORTED DISTRICTS IN MALAWI FROM BASELINE (2015) TO ENDLINE (DECEMBER 2017)

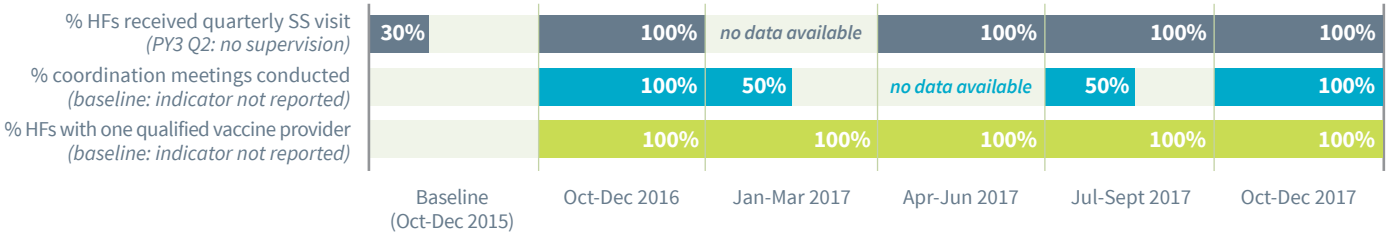


FIGURE 10. TRENDS IN PLANNED AND CONDUCTED RI OUTREACH SESSIONS IN TWO MCSP-SUPPORTED DISTRICTS IN MALAWI, 2015-DECEMBER 2017

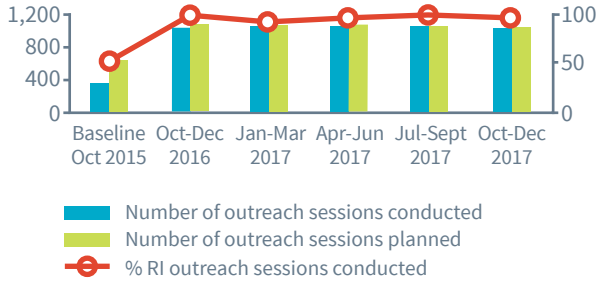
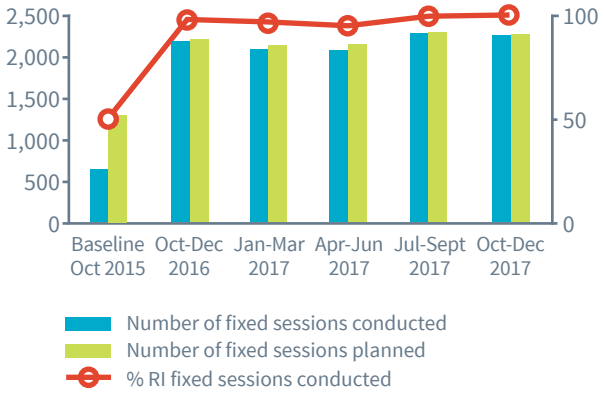


FIGURE 11. TRENDS IN PLANNED AND CONDUCTED RI FIXED SESSIONS IN TWO MCSP-SUPPORTED DISTRICTS IN MALAWI, 2015-DECEMBER 2017



- Scheduled immunization coordination meetings between HFs and districts were irregular. Further exploration of data indicated that in Dowa district, there was no documentation or report if such coordination meetings were conducted.

At baseline for both outreach and fixed RI sessions, the two districts conducted only about 50% of the planned sessions. However, by the final two quarters of the program, these districts increased the proportion of planned and conducted RI outreach and fixed sessions to almost 100% (see Figures 10 and 11). At baseline, the actual number of sessions planned and conducted was also much lower than after MCSP began providing support to strengthen the immunization program. This was most likely influenced by efficient and strong microplanning.

NIGERIA

In Nigeria, MCSP reviewed seven rounds of quarterly monitoring data, starting in October–December 2016. The baseline data (where available) were collected in September 2014.[4] MCSP fully started supporting RI implementation and collecting data on all indicators in two MCSP-supported states in October 2016. Overall, Nigeria has improved and maintained its process indicators since 2014 in the two MCSP-supported states (i.e., Bauchi and Sokoto), although baseline values for some indicators were not available. The increase in all these indicators demonstrates that the indicators were not only accepted as useful tools by HWs, but also closely monitored and reported.

- When MCSP began providing technical assistance for development of RI microplans in Bauchi and Sokoto states, very few HFs were developing microplans.[5] However, by the time the iterative learning commenced, most HFs had an up-to-date microplan available, which continued for the life of the program (Figure 12a).
- All indicators in Nigeria improved significantly and maintained their improvements from baseline (or the first data point), and remained high through the program life with supportive supervision. The proportion of HFs that met with the community to discuss immunization hovered between 80% and 100%, until the final quarter (Figure 12b).

The total number of fixed and outreach sessions have increased since the baseline (July-September 2014) and by October-December 2016, the numbers of planned and conducted sessions nearly doubled (fixed sessions: 8,305 to 17,339 and outreach sessions: 7,707 to 13,189) (Figures 13 and 14). The proportion of planned sessions conducted was around 84% at baseline and reached over 90% in subsequent quarters.

FIGURE 12A. TRENDS IN SELECTED PROCESS INDICATORS FROM TWO MCSP-SUPPORTED STATES IN NIGERIA FROM BASELINE (JULY 2014) TO ENDLINE (MARCH 2018)

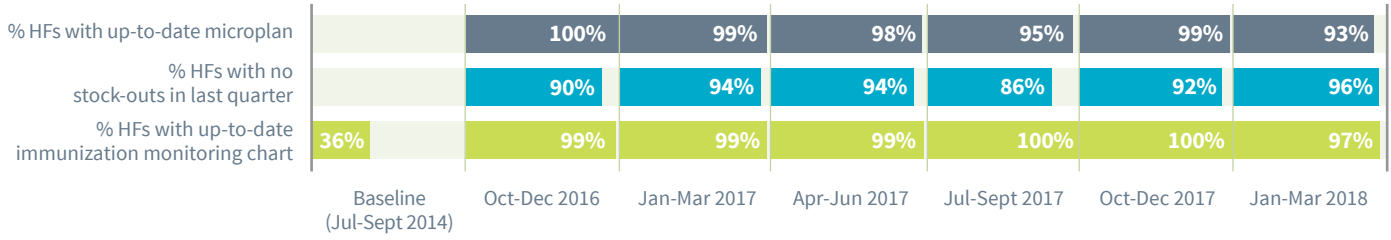
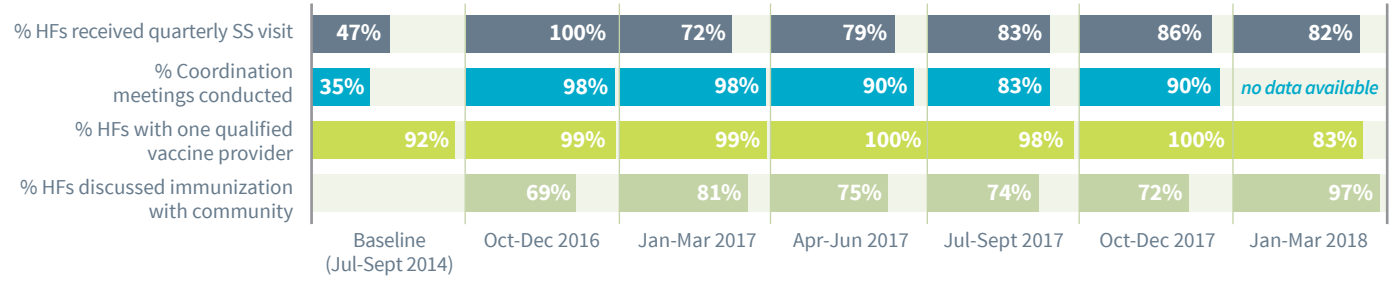


FIGURE 12B. TRENDS IN SELECTED PROCESS INDICATORS FROM TWO MCSP-SUPPORTED STATES IN NIGERIA FROM BASELINE (JULY 2014) TO ENDLINE (MARCH 2018)



4 Baseline data were not available for selected indicators including % of HFs with up-to-date microplans, % of facilities with no stock-outs in the last quarter, % of facilities with an up-to-date immunization monitoring chart, and proportion of HFs that met with the community to discuss immunization.

5 MCSP. 2015. Maternal and Child Survival Program (MCSP) Nigeria – Routine Immunization Annual Report (October 1, 2014 to September 30, 2015). Washington, DC: MCSP.

FIGURE 13. TRENDS IN SELECTED PROCESS INDICATORS FROM TWO MCSP-SUPPORTED STATES IN NIGERIA FROM BASELINE (JULY 2014) TO ENDLINE (MARCH 2018)

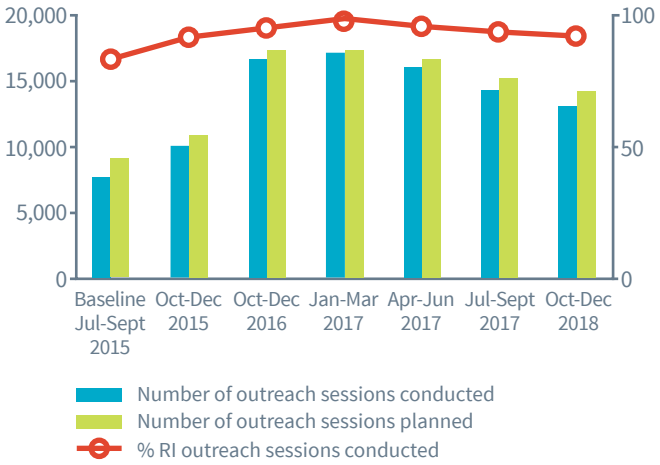
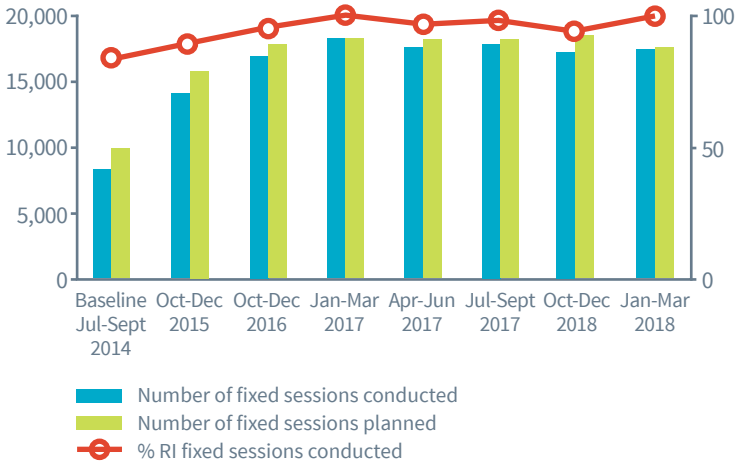


FIGURE 14. TRENDS IN PLANNED AND CONDUCTED RI FIXED SESSIONS IN MCSP-SUPPORTED STATES IN NIGERIA, JULY 2014-MARCH 2018



UGANDA

In Uganda, MCSP supported immunization programming in 11 districts in four phases, providing support for each district for approximately 20–24 months. For this report, we analyzed data from four districts that started receiving MCSP technical support in April–June 2016. MCSP analyzed data from all HFs (n=104), and data collection included retrospective data review and aggregation for either the previous three or six months, depending on the indicator. MCSP collected seven rounds of routine monitoring data between April 2016 and March 2018, when the program ended. The increase in most of these indicators since baseline demonstrates that the indicators were not only accepted as useful tools by HWs, but also closely monitored and reported. A summary of changes in the process indicators during this time are presented below and in Figures 15a and 15b.

- The availability of up-to-date microplans increased steadily from approximately 20% (baseline) to about 80% in January–March 2018; the availability of up-to-date immunization monitoring charts also increased. This indicates that planning for immunization services and monitoring of the number of target children reached improved since MCSP started.
- HFs with no stock-out of any antigens decreased from the baseline (67%) to January–March 2018 (49%). MCSP discovered that despite having funds allocated to support the district cold chain technicians (CCTs) to conduct monthly deliveries to HFs, in Mitooma and Bulambuli districts, the CCT did not deliver vaccines from the district vaccine store to the lower-level HFs. This triggered the follow-up by nonhealth stakeholders (i.e., chief administrative officers and subcounty chiefs) to ensure district health officers and HF in-charges are more responsive and address the gaps identified.
- In Uganda, the indicator measuring coordination meetings was defined as "% of quarterly review meetings held where RI was discussed." A review of MCSP quarterly reports showed that HFs only aimed to conduct at least one meeting with the district health management team each quarter. However, the occurrence of the meetings often depended upon availability and flexibility of the district team.
- The indicator "% of HF meetings with the community" increased from baseline; however, the number of meetings with the community remained very low throughout MCSP support as funding for logistics was not always available. HFs provide refreshments and sometimes transport refunds if the community representatives live 5 km or more away from the HF. For them to call a meeting, they need to have funds to facilitate the meeting. This indicates that while the coordination meetings were planned, funding was required in order for the meetings to take place.
- MCSP was only able to fund two rounds of supportive supervision in a program year; districts needed to fund the remaining rounds. Districts often indicated that the primary health care funds received were not sufficient to cover all planned activities, which led to prioritizing other activities over supportive supervision.

In addition, the total number of fixed and outreach sessions increased from baseline, although not substantially. The introduction of the microplanning process led to a substantial increase in the number of sessions planned, both outreach and fixed sessions. At baseline, over 75% of planned sessions (fixed and outreach) were conducted, and during subsequent

FIGURE 15A. TRENDS IN SELECTED PROCESS INDICATORS IN MCSP-SUPPORTED DISTRICTS IN UGANDA, APRIL 2016-JUNE 2017 (N=104)

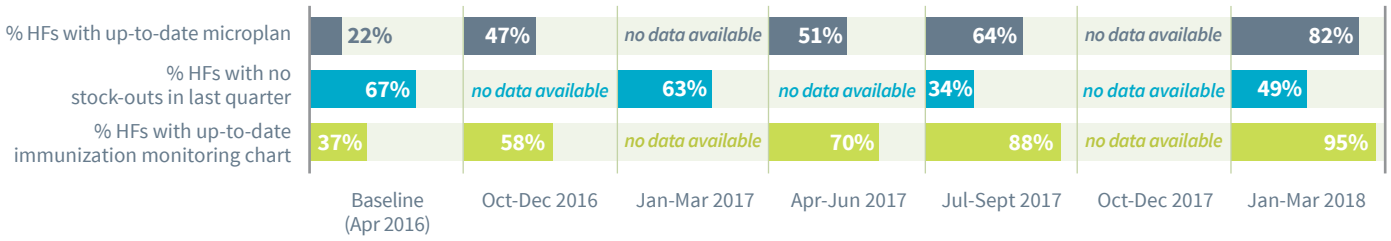


FIGURE 15B. TRENDS IN SELECTED PROCESS INDICATORS IN MCSP-SUPPORTED DISTRICTS IN UGANDA, APRIL 2016-JUNE 2017 (N=104)

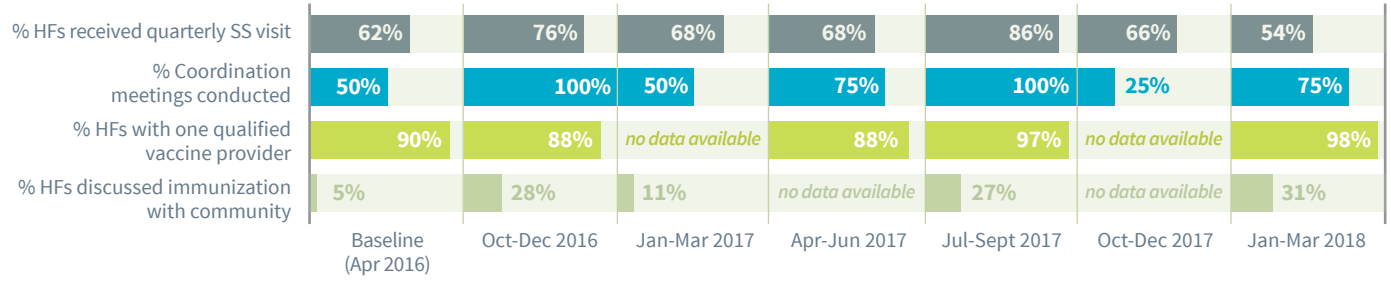


FIGURE 16. TRENDS IN PLANNED AND CONDUCTED RI OUTREACH SESSIONS IN MCSP-SUPPORTED DISTRICTS IN UGANDA, APRIL 2016-MARCH 2018

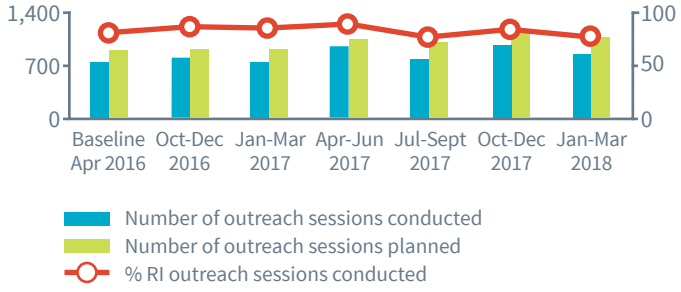
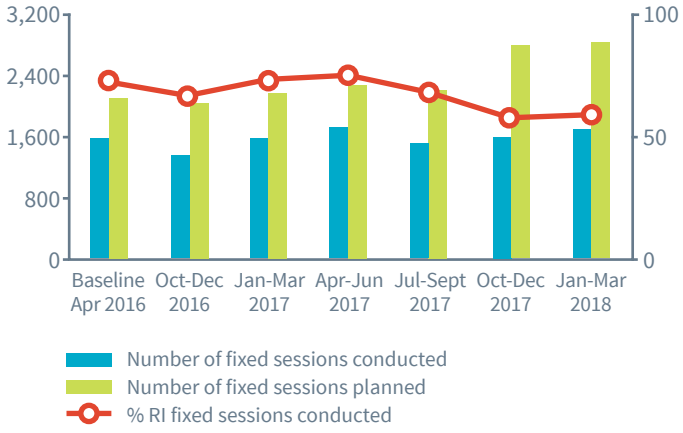


FIGURE 17. TRENDS IN PLANNED AND CONDUCTED RI FIXED SESSIONS IN MCSP-SUPPORTED DISTRICTS IN UGANDA, APRIL 2016-MARCH 2018



quarters, the percentage of planned versus conducted sessions remained around 80% for outreach and 60% for fixed (Figures 16 and 17). When the data were disaggregated by district for January–March 2018, results show that over 90% of fixed and outreach sessions were conducted in Ntungamo and Mitooma, while only 40%–60% of sessions were conducted in Kibuku and Bulambuli. In these two districts, cold chain breakdown, vaccine stock-outs, and the rainy season impacted implementation of planned RI sessions, resulting in a lower proportion of planned versus conducted sessions.

7
Discussion


Kelsey Freeman/MCSP

GENERATION, QUALITY, AND USE OF RI DATA

National immunization programs value vaccine coverage indicators as tools to monitor progress overtime toward achieving immunity against vaccine-preventable diseases at national and subnational levels and across countries.[1,2] Administrative coverage data are generated at the HF level and reported all the way to the national level through the country monitoring system; however, administrative data in many countries is of poor quality due to a multitude of reasons and is often viewed as unreliable. Key strategies of MCSP's technical support toward strengthening country RI systems focused on problem-solving actions, including improving data quality practices and data use. MCSP's findings on the challenges to generating meaningful data for decision-making are common across most of the countries, especially those challenges linked to generating and reporting accurate numbers of children receiving immunizations ("numerator" of a coverage indicator) at the subnational and HF level, and the difficulty of obtaining accurate and reliable figures for target populations ("denominator" of a coverage indicator). In all 11 countries, MCSP's support was targeted toward strengthening the system closest to the point of data generation (HFs and districts) through capacity-building, microplanning, regular DQAs, and data review meetings involving HFs. In Malawi, Mozambique, Nigeria, and Uganda, MCSP also supported efforts to improve the target population estimation.

Improved data quality and overall RI system strengthening is demonstrated through documented reduction in data discrepancies and more plausible coverage rates in countries that were frequently reporting coverage over 100% prior to MCSP's support, as described in the previous section. Government counterparts in MCSP-support countries appreciated MCSP's contributions, especially for the hands-on support provided at the subnational level to improve data quality and take action by reviewing the data. However, the journey toward quality data, interpretation, and use is a continuous process that will require work beyond MCSP's engagement in each country.

1 Feldstein LR, Mariat S, Gacic-Dobo M, Diallo MS, Conklin LM, Wallace AS. 2016. Global Routine Vaccination Coverage. MMWR Morbidity Mortality Weekly Report. 66:1252–1255. doi: http://dx.doi.org/10.15585/mmwr.mm6645a3

2 Mihigo R, Okeibunor J, Anya B, Mkanda P, Zawaira F. 2017. Challenges of immunization in the African Region. Pan Afr Med J. Jun;27(3):12. doi:10.11604/pamj.supp.2017.27.3.12127.

PROCESS INDICATORS FOR RI SYSTEM

While immunization coverage is the key indicator used to understand immunization program performance, managers need additional real-time information on how the core components of the immunization program are functioning to inform decisions on how to improve processes to positively impact vaccination coverage and equity. Such information is particularly necessary at subnational levels where tailored strategies must address the needs of specific populations. Gavi, the Vaccine Alliance, has prioritized the need for flexible approaches that target support to reach the last pockets of under-immunized children, and will include this in its strategic approach for 2021–2025.[3] Thus, indicators that describe the functioning of the RI system and support decision-making by district managers are particularly relevant at this time.

Indicator testing

MCSP utilized its field presence in Malawi, Nigeria, and Uganda to assess the overall utility of a set of immunization system process indicators to local health managers. The nine indicators focused on vital domains of program planning and coordination, vaccine availability, health worker capability, service delivery, community engagement, and program monitoring and review. In these three countries, we explored the overall relevance/usefulness, acceptability, feasibility, and accuracy/reliability of these nine process indicators.

- Relevance/usefulness: The set of process indicators generated mainly at the HF level was viewed unequivocally across the countries as a useful tool for midlevel and HF level managers for decision-making and facility level performance monitoring, as well as for ensuring accountability. The diversity of the indicators was acknowledged as a strength because it can capture information from multiple angles to show system performance. District level managers in these three countries reported that they have used the process indicators to make decisions and changes in their course of action.
- Acceptability: Similar to relevance/usefulness, the acceptability of process indicators as tools for decision-making was generally high, and HWs, their supervisors, and mid-level managers appreciated that the indicators could be used to help improve the RI system. However, acceptability of the indicators can be undermined if the HWs view the collection and reporting need as an extra burden to their already demanding work schedule.
- Feasibility: The feasibility of collecting and reporting some indicators and presenting quality information necessary for decision-making scored lower than the other domains. Feasibility of using the indicators was limited by factors including HW understanding of the reporting tools, their commitment to properly using the tools for documentation, their workloads, and lack of funding for conducting immunization sessions, especially outreach sessions.
- Accuracy/Reliability: Like feasibility, accuracy/reliability of the indicators scored lower compared with relevance/usefulness and acceptability, often because HWs did not understand the importance of reporting quality data or of the indicators themselves. The accuracy/reliability and quality of indicators were affected by incomplete data collection and reporting and inconsistencies between different reporting formats (such as tally sheet and registers), and influenced by lack of guidance from supervisors and managers on completing the registers. The complexity of the indicators, especially when the measurement depends on multiple tools, and reliance on an inaccurate target population estimate can yield inaccurate measurements.

Trends in process indicators

In all three countries, most of the process indicators improved since MCSP's technical support began, providing a holistic perspective on improvements in the health of the immunization system in MCSP-supported districts. Where the process indicators did not improve, the monitoring them allowed managers to further investigate the challenges and explore possible solutions.

- The availability of completed microplans at HF level, the cornerstone of immunization planning and efficient service delivery, increased substantially from baseline and remained high in all three countries. This indicator influences other indicators as the plan is the basis for implementation.
- The number of fixed and outreached sessions planned and conducted also increased in all three countries from baseline, indicating that microplans were being used to plan the sessions. However, executing the sessions as planned depended on multiple factors, including vaccine availability, functioning cold storage, access to transportation, and availability of resources to conduct the sessions.
- All three countries monitored stock-outs of vaccines and other supplies at the district and HF levels. This indicator helped identify whether a stock-out resulted from an issue at the district or HF level and can motivate corrective action, including the reallocation of vaccines from one HF to another that is facing stock-outs.
- Communication and interactions between the HFs and the districts and communities contributed to a stronger immunization system. While the interactions with the districts were formalized and well reported, documentation on communication with communities needs more emphasis. MC-

3 Berkley, Seth. Gavi 5.0 – The Alliance's 2021-2025 Strategy Board Meeting. Presented at: Gavi Board Meeting, November 28-29, 2019; Geneva, Switzerland. https://www.gavi.org/about/governance/gavi-board/minutes/2018/28-nov/presentations/11---gavi-5-0-the-alliance-2021-2025-strategy/. Accessed July 19, 2019.

SP-supported districts began to recognize the importance of interacting with the community. For example, in Nigeria, HFs provided feedback to the communities after each outreach session. However, community engagement—a key component of the RED/REC approach—requires additional reinforcement. It is difficult to capture the true extent of communication between communities and health systems in a single indicator; however, the very presence of such an indicator draws attention to the importance of such interaction and may help stimulate more work in this area.

- Findings from the indicator testing and the trend observed underscore that the set of process indicators were well received by the HWs and that they adhered to reporting them regularly. With MCSP's support on different activities and emphasis on reporting, the programs in these three countries have seen improvement and increased efficiency in service delivery as documented in the indicator trends.

This set of process indicators provides useful information for decision-makers and managers at district and facility levels with the long-term goal of achieving and sustaining high immunization coverage. They flag strengths and gaps in the immunization system and can inform decision-making to address deficiencies, suggest additional investigations on factors affecting coverage and quality, sustain achievements, and help build resilience. High performance across these indicators does not necessarily predict high levels of immunization coverage. It does, however, show that a system is improving. On the other hand, low performance on the indicators together with high coverage levels would raise questions about the plausibility of the reported coverage and whether a low-performing system could indeed produce high coverage rates or if other short-term factors were responsible for the high coverage within a weak system. MCSP aimed to holistically strengthen the immunization system and encourage monitoring the strength of the immunization system and service delivery not only through coverage indicators, but also through input, process, and outcome indicators at all levels. This learning activity demonstrated that a culture of tracking these indicators had been successfully established, an important step toward using them to take immediate actions and corrective courses on the path toward better coverage.

8

Key Messages and Recommendations

Kate Holt/MCSP

KEY TAKEAWAY MESSAGES FROM THE TWO LEARNING ACTIVITIES

- Countries experience similar challenges and solutions when it comes to the generation, quality, and use of RI data but the response should be tailored to the country context to make the biggest impact.
- Generating and utilizing meaningful data for decision-making to strengthen the RI system, especially at the subnational level, has gained major focus among EPI managers with impetus from MCSP.
- Technical support from MCSP has encouraged government partners to focus more deeply on improving data quality.
- For improving and assessing the health of the immunization system, managers and HWs, in general, find the process indicators acceptable and useful for decision-making.
- For programs to take advantage of data already being collected through different reporting mechanisms, managers need training and orientation on the indicators and how to analyze them, as well as the provision and allocation of resources to then make decisions based on their analysis.
- Capacity-building of HWs at the HFs and district level health staff on the indicators, data quality, reporting, and interpretation should be prioritized by the MOH and immunization partners.

RECOMMENDATIONS

Countries

- Emphasizing the generation and use of both coverage and process indicator data should be a priority at all levels. Because the process indicators describe the strength of the system, countries should be encouraged to complement coverage indicators with process indicators to give a holistic perspective on the RI system.
- Key programmatic aspects to ensure generation and use of data—such as data review meetings, DQA, supervision, training, and mentoring—should continue. MCSP supported implementation of these aspects and observed improvement in data quality. Commitment from the national level to secure funding and allocate resources for these activities will be useful. Some countries—such as Uganda and Tanzania—have included these activities in their country annual work plans and review meetings, but the extent of funding for these activities may vary. Our findings show that these aspects merit prioritization by governments and development partners.
- Strengthening the capacity of those responsible for recording and reporting data at all levels of the health system should be a continuous practice. Trainings on the RED approach at the country level should incorporate sessions on process indicators in

Allan Gichigi/MCSP

order to build the capacity of managers and supervisors at all levels to collect, analyze, and use them. Furthermore, at the lowest level of the health system, where the HWs are often overwhelmed with multiple tasks, capacity-building through mentoring and providing feedback from regional and district levels should continue. The use of mock exercises (or case studies) while in the classroom and hands-on experience in the field can reinforce these skills.

- Promoting a culture of information use by improving the utility of the data to those who are responsible for generating it. Data dashboard use at the HF level—through the availability of immunization monitoring charts—as well as at the community level—as with the MVMH poster from Malawi—can enhance understanding and use of data for decision-making using easily understandable visualizations.
- The set of process indicators describing the strength of the immunization system should be country- and context-specific (this recommendation is not limited to these process indicators). Countries should carry out their own exercise to identify the indicators that best capture the input, output, and outcomes of their own interventions while taking into account the feasibility of collecting and reporting the data. Data sources can include existing supportive supervision reports, supply chain logistics management, and information systems (i.e., LMIS and DHIS2).

Development partners

- Encourage countries to coordinate and generate, in a systematic manner, additional evidence showing that improving the quality and use of RI data improves the immunization system.
- Support countries with funding and/or the institutionalization of efficient data collection and use to contribute to sustainability and scalability when promoting a culture of data use for decision-making at the subnational level.
- Discuss data quality issues and the benefits of using process indicators at regional fora, such as regional EPI managers' meetings, to explore whether these issues resonate beyond the countries where the learning was documented.

9

Limitations of the Learning Activities

Kate Holt/MCHIP and Jhpiego

DESIGN

The intent of these two learning activities was not to conduct a research study; as such, they lack the rigor of traditional research. Rather, MCSP aimed to explore issues related to the generation, quality, and use of RI data across countries; understand how a set of process indicators are perceived as tools for RI system strengthening and the extent of their use at the sub-national level; and to document and share lessons learned on this work.

DATA COLLECTION APPROACH

The information gathered from both learning activities primarily came from KIIs. Though the KIIs were conducted using standardized guides, responses were subject to personal opinion.

For the generation, quality, and use of RI data learning activity, KII respondents were those who were most familiar with MCSP (MCSP staff and district level government counterparts). This inherently introduced some biases, especially around MCSP's contributions to addressing the identified challenges, from the government's perspectives. On the other hand, since this learning explored the challenges in RI data generation, quality, and use for decision-making, and the technical support MCSP provided to address these issues, it was important to interview people knowledgeable about the program. In addition, because MCSP provided technical support in a variety of ways, the documented MCSP-supported activities spoke mainly to the breadth of the support rather than a deep dive into each individual activity.

For the process indicator learning activity, KIIs provided the main source of information. Respondents expressed their perspectives based on their understanding of the questions. Although efforts were made to simplify the tools, some questions seemed difficult for the respondents to comprehend, especially those around indicator testing. While MCSP personnel with technical expertise in immunization collected the data, they were not trained as qualitative researchers and the resulting KIIs sometimes lacked in-depth and clarifying information.

The quantitative data used to examine the process indicator trends were extracted from the routine monitoring data collected in each country. During the early stages of MCSP support, implementation strategies and activities were still being defined, and indicators were not finalized, so some of the indicators lacked baseline values.

It should also be noted that the quantitative process indicators extracted from the monitoring system only covered the period of MCSP's implementation phase. It is beyond the scope of this work to assess whether the indicators would continue to be high in the absence of MCSP's active presence and its monitoring system.

Annex

MADAGASCAR

COUNTRY PROFILE

Improving Generation, Quality, and Use of Routine Immunization Data

MCSP provided support in **10 DISTRICTS** in Madagascar from October 2016 to January 2019

In Madagascar, the Maternal and Child Survival Program (MCSP) undertook a learning activity to identify interventions that improve the active use of quality data by those who generate and are closest to the data. To do this, MCSP conducted a desk review of reports, tools, job aids, and presentations and conducted key informant interviews with technical advisors, and district and national-level health officials focusing on challenges related to data and its use, and actions implemented to address those challenges.

CHALLENGES WITH DATA GENERATION, QUALITY, AND USE

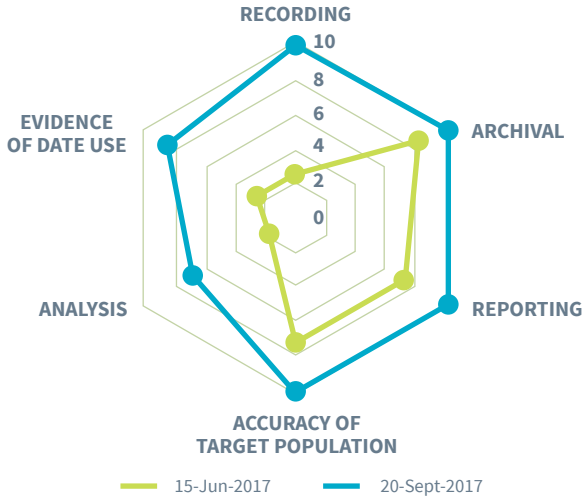
- **Lack of motivation & training of health workers**
- **Human resource constraints/ lack of job aids**
- **Stock-outs of tools at health facilities**
- **Lack of reliable target population**

MCSP-SUPPORTED ACTIVITIES TO ADDRESS CHALLENGES

- **Data quality self-assessments**
- **Microplanning & micromapping**
- **Training & supportive supervision on tools & data use**
- **Development of job aids/tools**

DATA QUALITY IMPROVEMENT

Implementation of DQS recommendations resulted in the improvement of six data quality indicators in Andranovorivato health facility, Vohibato district, June - September 2017



DATA USE FOR DECISION-MAKING

MCSP's approach to building the capacity of district health managers to conduct data quality self-assessments (DQS) has been transformational. It helps them to improve data quality, analyze data, and quickly understand any problems. Managers became more confident and motivated to use the data for decision-making.

The Reaching Every Child (REC) job aids for health workers and community agents—and the subsequent training on them—supported health facilities to identify problems in their catchment area and make plans with the community to reach kids.

LESSONS LEARNED

- Training on job aids and data collection tools needs to take place prior to their distribution.
- Level of dedication to capturing and using routine immunization data is an important factor.
- Supportive supervision following REC and DQS trainings reinforces skills learned.

Other partners addressing data challenges:
USAID bilateral projects (Mahefa Miariaka and Mikolo), World Health Organization, and UNICEF.

PERSPECTIVES

// The implementation of the REC approach should be a priority in all districts as it improves the immunization coverage rate by matching the strategy [fixed or outreach] to the target population.

– EPI District Focal Point, Mampikony

In addition to MCSP, other partners—such as WHO, Unicef, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This country profile highlights the work MCSP supported at the national level and in assigned districts.

MALAWI

COUNTRY PROFILE

Generation, Quality, and Use of Routine Immunization Process Indicators in Strengthening Immunization Systems

MCSP provided support at the national level and in **TWO PRIORITY DISTRICTS (DOWA** and **NTCHISI)** in Malawi from June 2014 to March 2018.

In Malawi, MCSP undertook two learning activities around improving the generation, quality, and use of routine immunization process indicators in strengthening immunization systems. MCSP conducted a desk review of reports, tools, job aids, and presentations and conducted key informant interviews with technical advisors on challenges related to data generation and use, and actions implemented to address those challenges. MCSP also examined a set of process indicators and their use at subnational level, exploring the relevance/usefulness, acceptability, feasibility, and accuracy/reliability of the indicators from the perspectives of the health workers (HWs) and their managers.

CHALLENGES WITH DATA GENERATION, QUALITY, AND USE

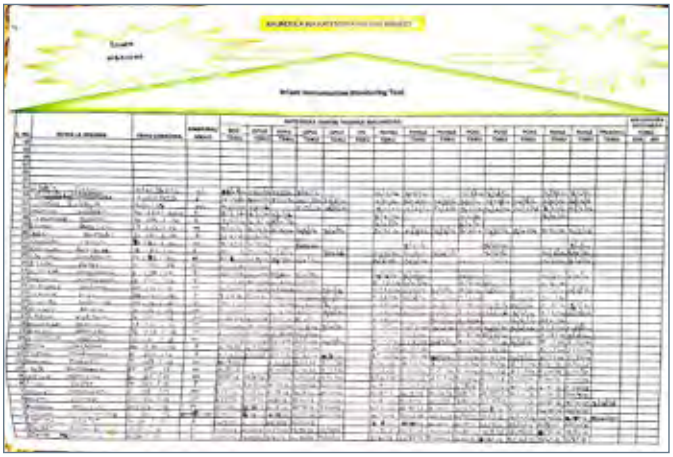
- **Lack of motivation & training of health workers**
- **Stock-outs of tools at health facilities**
- **Lack of reliable target population**

MCSP-SUPPORTED ACTIVITIES TO ADDRESS CHALLENGES

- **Data quality self-assessments**
- **Data visualization**
- **Training & mentoring on tools & data use**
- **Microplanning & micro-mapping**
- **Data review meetings**

DATA VISUALIZATION

My Village My Home (MVMH)



RESULTS

- At the end of the program, more than 75% of the communities still had their MVMH poster, and over 80% of those were continuing to use their poster to track immunization coverage.
- Informants say that village heads have become more vocal in reporting problems with health services.

DATA USE FOR DECISION-MAKING

- MCSP used the MVMH tool in two low-coverage districts — Dowa and Ntchisi.
- The poster, in the shape of a house, contains the name of every child in the community. When a child is immunized, a square (or "brick") is filled in — illustrating that a strong community, like a strong house, is built one healthy member at a time.
- MCSP trained village heads (VHs) on how to complete and analyze the posters, which were then used for discussion during community meetings.
- By allowing everyone to interpret the data at these meetings, the entire community was motivated to reach universal coverage.

LESSONS LEARNED

- Visualization of data in a simple format can encourage community engagement and data-driven decision-making to improve immunization services at the local level.
- Communities have a role to play in improving services and using them as intended to prevent vaccine-preventable diseases.

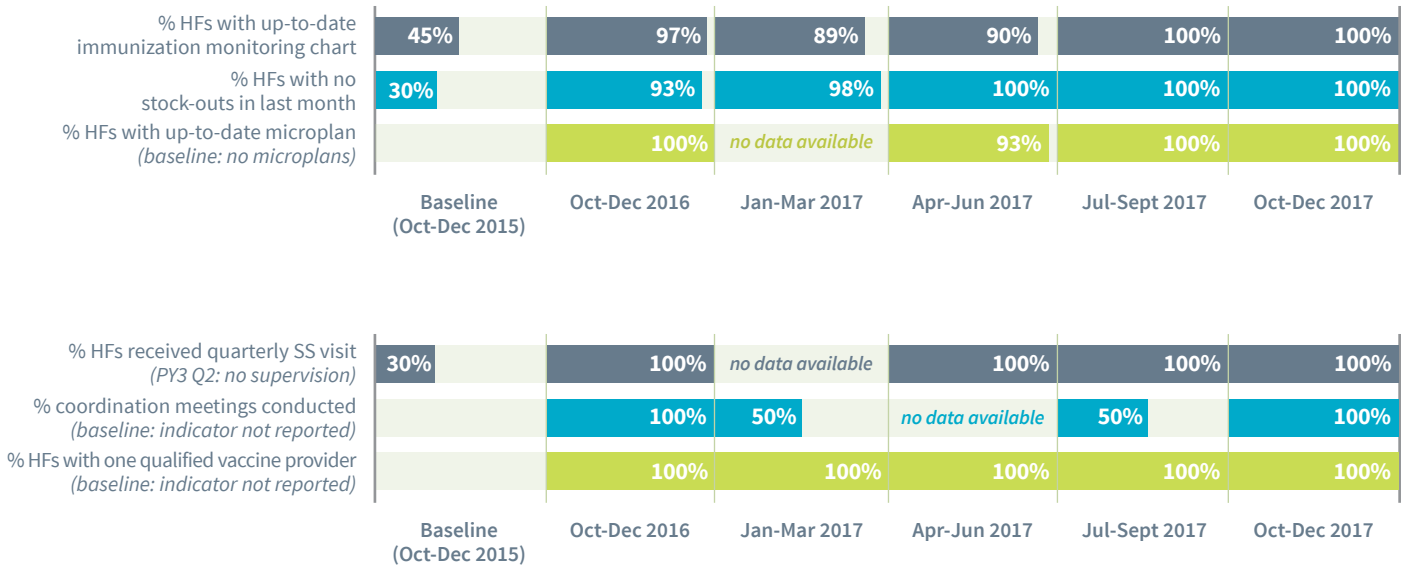
Other partners addressing data challenges:
World Health Organization, UNICEF, and PATH.

In addition to MCSP, other partners—such as WHO, Unicef, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This country profile highlights the work MCSP supported at the national level and in assigned districts.

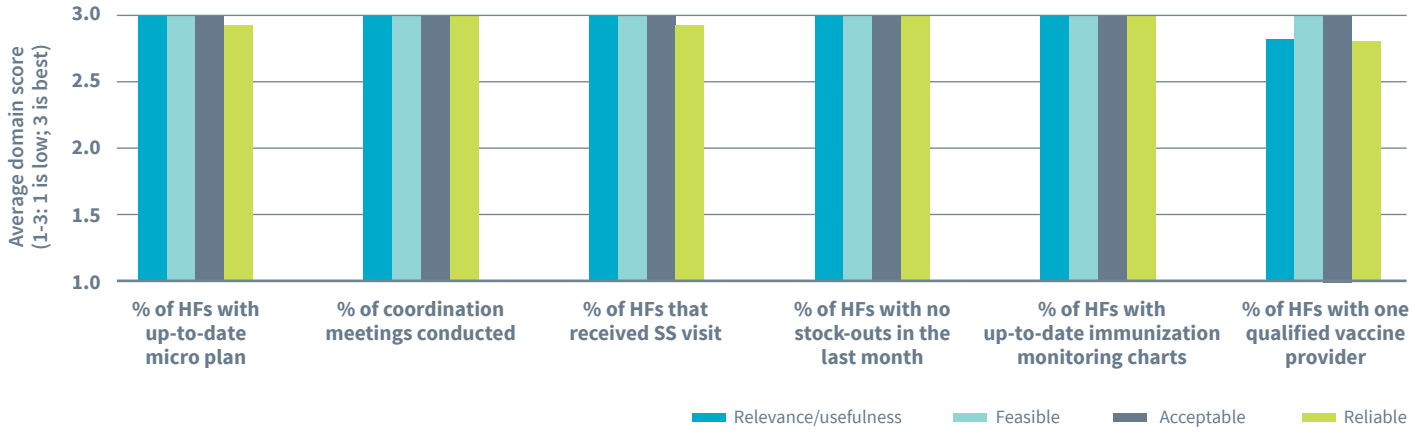
INDICATORS THAT DESCRIBE THE STRENGTH OF THE ROUTINE IMMUNIZATION SYSTEM

MCSP carried out focused learning to test a set of process indicators and their use at subnational (district and health facility) level in the Malawi. In addition to exploring the relevance/usefulness, acceptability, feasibility, and accuracy/reliability of the indicators in strengthening immunization systems, MCSP also monitored the selected indicators over the life of the program. Since the baseline, all process indicators but one (immunization coordination meetings) substantially improved within a short period and were maintained.

Trends in selected process indicators from two MCSP-supported districts in Malawi from baseline (2015) to endline (Dec 2017)



Relevance/Usefulness, Feasibility, Accessibility, and Accuracy/Reliability of Select Process Indicators in MCSP-supported districts in Malawi



PERSPECTIVES

// Based on these indicators, we can plan to re-allocate resources, including human resources, so that health workers are deployed in strategic facilities to serve the communities easily.

– HF in-charge

// We have been using and reporting on most of these indicators, but we did not know that they were considered useful to monitor the RI system. Now we will be reviewing them every month to see which of the indicators have not been reported adequately.

– Health worker

Key Results

- At baseline, none of the HFs reported having a microplan. Within one quarter, all HFs developed microplans, and once implemented, the presence of up-to-date microplans was consistently high throughout the life of the program.
- The proportion of HFs reporting no stock-outs improved from 30% at baseline to 100% at endline.
- The availability of monthly updated immunization coverage monitoring charts for DTP3 in HFs increased significantly from baseline.
- The increase in most of these indicators demonstrates that they were not only accepted as useful tools by HWs but also closely monitored and reported.

MOZAMBIQUE

COUNTRY PROFILE

Improving Generation, Quality, and Use of Routine Immunization Data

MCSP provided immunization support at the national level and in Nampula and Sofala provinces **(34 DISTRICTS, 86 FACILITIES,** and **758 COMMUNITIES)** from May 2016 to December 2018.

In Mozambique, the Maternal and Child Survival Program (MCSP) undertook a learning activity to identify interventions that improve the active use of quality data by those who generate and are closest to the data. To do this, MCSP conducted a desk review of reports, tools, job aids, and presentations and conducted key informant interviews with technical advisors and district and national level health officials focusing on challenges related to data collection and use, and actions implemented to address those challenges.

CHALLENGES WITH DATA GENERATION, QUALITY, AND USE

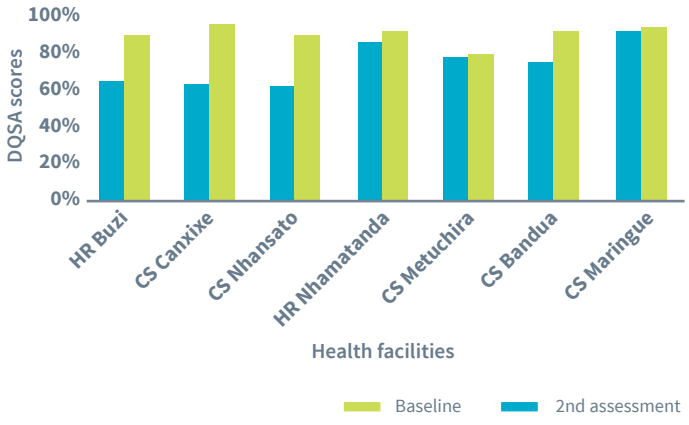
- **Lack of motivation & training of health workers**
- **Lack of job aids**
- **Stock-outs of tools at health facilities**
- **Lack of reliable target population**

MCSP-SUPPORTED ACTIVITIES TO ADDRESS CHALLENGES

- **Data quality self-assessments**
- **Microplanning & micromapping**
- **Training & mentoring on tools & data use**
- **Development & reproduction of job aids/tools**

DATA QUALITY IMPROVEMENT

DQSA scores in 7 health facilities in Sofala, baseline and 2nd assessment (after 3 months)



DATA USE FOR DECISION-MAKING

The revision of conversion factors was a realistic option to better calculate target groups and reach the unimmunized: health providers started to request the new district conversion factors to link planning and targets with program performance.

The Reaching Every Child approach helped health facilities (HFs) identify missing children and work with the community to reach them. Outreach and follow-up occur where community health workers received training on the approach.

LESSONS LEARNED

- Exchanging lessons learned between districts on data quality and use can reinforce skills.
- Quarterly immunization data review meetings strengthen data quality/use for program planning.
- Direct support to HFs helps reduce data inconsistencies across recording instruments.

Other partners addressing data challenges:
Gavi, the Vaccine Alliance, Village Reach, World Health Organization, and UNICEF.

PERSPECTIVES

// The MCSP's work was excellent in improving data quality and use not only because they built capacity to conduct data quality self assessments but also because they facilitated sharing of experiences between districts.

– EPI Provincial Head

In addition to MCSP, other partners—such as WHO, Unicef, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This country profile highlights the work MCSP supported at the national level and in assigned districts.

NIGERIA
COUNTRY PROFILE

MCSP provided support in **43 LGAS** (in Bauchi and Sokoto states) in Nigeria from October 2014 to December 2018

Generation, Quality, and Use of Routine Immunization Process Indicators in Strengthening Immunization Systems

In Nigeria, MCSP undertook two learning activities around improving the generation, quality, and use of routine immunization process indicators in strengthening immunization systems. MCSP conducted a desk review of reports, tools, job aids, and presentations and conducted key informant interviews with technical advisors on challenges related to data generation and use, and actions implemented to address those challenges. MCSP also examined a set of process indicators and their use at subnational level, exploring the usefulness, acceptability, feasibility, and accuracy/reliability of the indicators from the perspectives of the health workers (HWs) and their managers.

CHALLENGES WITH DATA GENERATION, QUALITY, AND USE

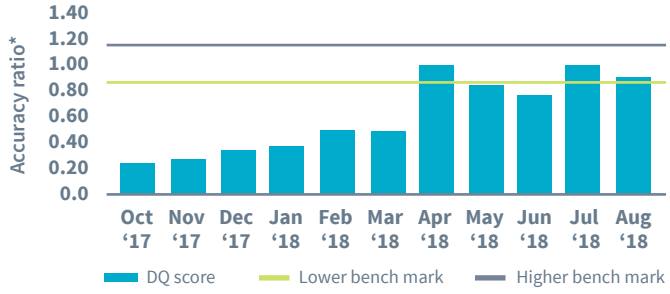
- **Lack of motivation & training of health workers**
- **Human resource constraints/ lack of job aids**
- **Guidelines not followed**
- **Lack of reliable target population**

MCSP-SUPPORTED ACTIVITIES TO ADDRESS CHALLENGES

- **Data quality self-assessments**
- **GIS tools and community engagement for microplanning**
- **Data review meetings**
- **Training & mentoring on tools & data use**
- **Job aids & harmonization of tools**
- **Establish data working groups**

DATA QUALITY IMPROVEMENT

Reduced discrepancies between HMIS forms and immunization registers reporting number of children immunized in Bauchi State



**The accuracy ratio is the number of recounted vaccination figures from child immunization registers divided by the number of reported figures in the DHIS2. When evaluated to be higher than 100% (>1), it is considered underreported. When it is less than 100% (<1), it is considered overreported. The closer that ratio is to 1, the better. MCSP defined a benchmark of +/- 15% to accommodate human errors.*

PERSPECTIVES

// It is important to recognize the fact that data use requires behavioral change. At the policy level, there is a need to shift focus to 'real data' to improve RI data quality and use.

–MCSP

// Technical assistance given by MCSP improved data quality, reduced falsification and strengthened defaulter tracing.

– State immunization officer

DATA USE FOR DECISION-MAKING

MCSP-supported microplanning is instrumental for budget and vaccine allocation, efficient planning of immunization sessions, and identification of new villages needing routine immunization services.

Data validation processes increased confidence in data: local government areas use the data from dashboards to identify health facilities needing further mentoring and support.

LESSONS LEARNED

- Institutionalize mentoring as part of the supportive supervision standard operating procedures.
- Creation of data working groups can be beneficial.
- GIS can support better target population estimates.
- Changing health worker behavior, especially with over-reporting of data, can be a significant challenge.

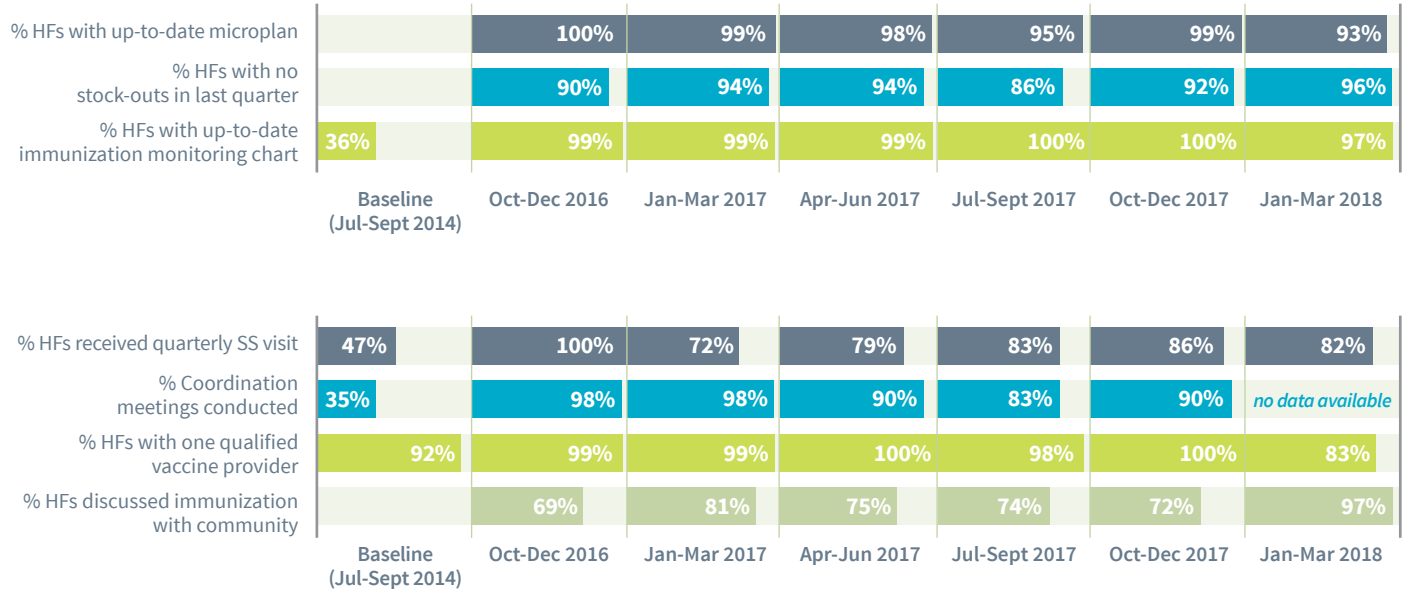
Other partners addressing data challenges:
Centers for Disease Control & Prevention, Solina Health, World Health Organization, Bill & Melinda Gates Foundation, CHAI, and UNICEF.

In addition to MCSP, other partners—such as WHO, Unicef, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This country profile highlights the work MCSP supported at the national level and in assigned districts.

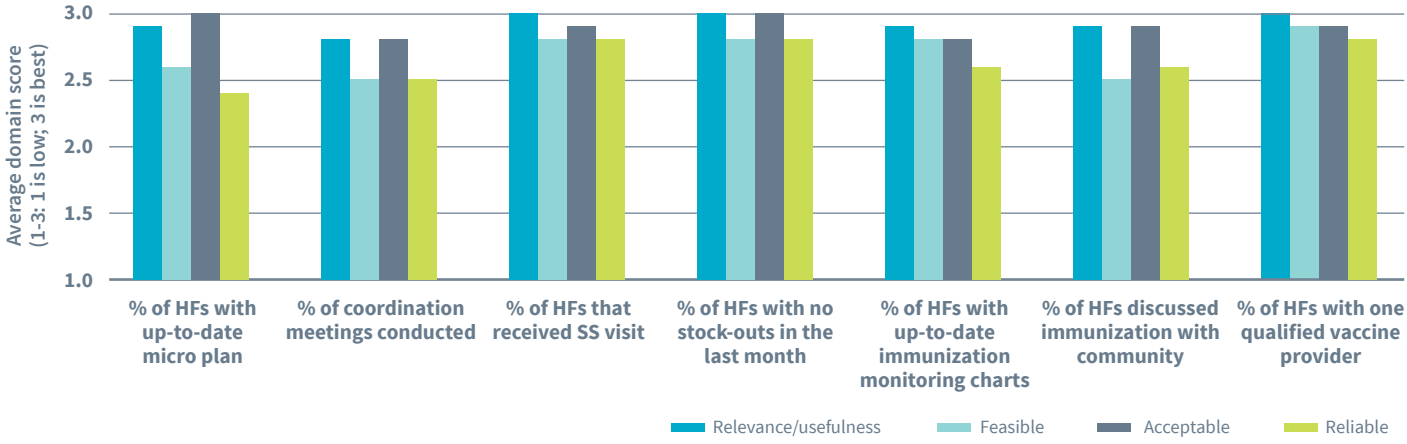
INDICATORS THAT DESCRIBE THE STRENGTH OF THE ROUTINE IMMUNIZATION SYSTEM

MCSP carried out focused learning to test a set of process indicators and their use at subnational (district and health facility) level in Nigeria. In addition to exploring the usefulness, acceptability, feasibility, and accuracy/reliability of the indicators strengthening immunization systems, MCSP also monitored the selected indicators over the life of the program. Overall, all indicators in Nigeria improved and maintained their improvements from baseline (or the first data point) through the program life with supportive supervision.

Trends in selected process indicators from two MCSP-supported states in Nigeria from baseline (July 2014) to endline (March 2018)



Relevance/Usefulness, Feasibility, Accessibility, and Accuracy/Reliability of Select Process Indicators in MCSP-supported districts in Nigeria



PERSPECTIVES

// There are only 9 indicators and they show the facility's immunization performance quickly at a glance. We are already collecting them and they are easy to collect.

– Health facility in-charge

"There is variation in the knowledge of the health workers. While some are trained formally in immunization, others find it difficult to fill out the forms. So, data can be wrong.

– LGA immunization officer

Key Results

- At baseline, there was indication that very few HFs were developing microplans. However, by the time data collection for the learning activity commenced, most HFs had an up-to-date microplan, which continued for the life of the program.
- The proportion of HFs that met with the community to discuss immunization hovered between 80% and 100%, until the final quarter.
- The increase in all these indicators demonstrates that the indicators were not only accepted as useful tools by HWs but also closely monitored and reported.

TANZANIA

COUNTRY PROFILE

Improving Generation, Quality, and Use of Routine Immunization Data

MCSP provided support in **19 DISTRICTS** in Tanzania from June 2014 to June 2019

In Tanzania, the Maternal and Child Survival Program (MCSP) undertook a learning activity to identify interventions that improve the active use of quality data by those who generate and are closest to the data. To do this, MCSP conducted a desk review of reports, tools, job aids, and presentations and conducted key informant interviews with technical advisors, and district and national-level health officials focusing on challenges related to data collection and use, and actions implemented to address those challenges.

CHALLENGES WITH DATA GENERATION, QUALITY, AND USE

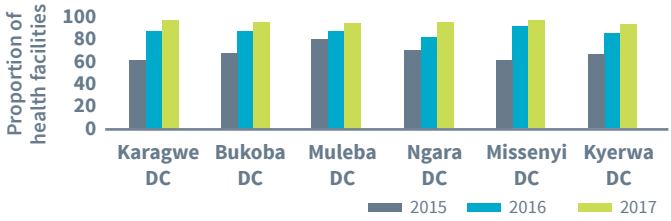
- **Lack of culture around reviewing data**
- **No formal mechanism for receiving feedback on data quality**
- **Lack of harmonized data collection tools**
- **Lack of reliable target population**

MCSP-SUPPORTED ACTIVITIES TO ADDRESS CHALLENGES

- **Data quality self-assessments**
- **Microplanning & micromapping**
- **Data review meetings**
- **Training & mentoring on tools & data use**
- **Harmonization & development of tools**
- **Vaccine Information Management System**

DATA QUALITY IMPROVEMENT

Increase in the proportion of health facilities with less than 10% data discrepancies between tally sheets and monthly summary sheets in six district councils (DCs) in Kagera region



DATA USE FOR DECISION-MAKING

MCSP introduced a defaulter-tracing tool that helped community members to reach children who missed vaccinations, increasing coverage and reducing dropout rates.

The tools and electronic data system improved access to quality data in real time at district, regional, and national levels and addressed stock situations at the HF and district levels.

LESSONS LEARNED

- Electronic data systems, though they have challenges, are critical for immediate acc ess to data for decision-making.
- Challenges included VIMS compatibility with DVDMT, internet connectivity, and budget constraints.

PERSPECTIVES

// Mentorship and coaching through supportive supervision at facility levels creates a common understanding of data issues—the activity should be scaled to other districts and regions to improve data and immunization services

–District Immunization and Vaccine Officer

// MCSP's support is different from other partners because MCSP dealt with the challenges at the source—improving the quality of data and services at the service delivery point. MCSP also supported the regions and councils from the planning phase to implementation; it was not like other partners who come with prescribed interventions to be implemented.

–Regional Immunization and Vaccine Officer

Other partners addressing data challenges:
World Health Organization, UNICEF, Clinton Health Access Initiative, and PATH.

In addition to MCSP, other partners—such as WHO, Unicef, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This country profile highlights the work MCSP supported at the national level and in assigned districts.

UGANDA

COUNTRY PROFILE

Generation, Quality, and Use of Routine Immunization Process Indicators in Strengthening Immunization Systems

MCPS provided support in **11 DISTRICTS** in Uganda from April 2015 to December 2018.

In Uganda, MCSP undertook two learning activities around improving the generation, quality, and use of routine immunization process indicators in strengthening immunization systems. MCSP conducted a desk review of reports, tools, job aids, and presentations and conducted key informant interviews with technical advisors, district health officials, and Uganda National Expanded Program on Immunization officials on challenges related to data generation and use, and actions implemented to address those challenges. MCSP also examined a set of process indicators and their use at subnational level, exploring the relevance/usefulness, acceptability, feasibility, and accuracy/reliability of the indicators from the perspectives of the health workers (HWs) and their managers.

CHALLENGES WITH DATA GENERATION, QUALITY, AND USE

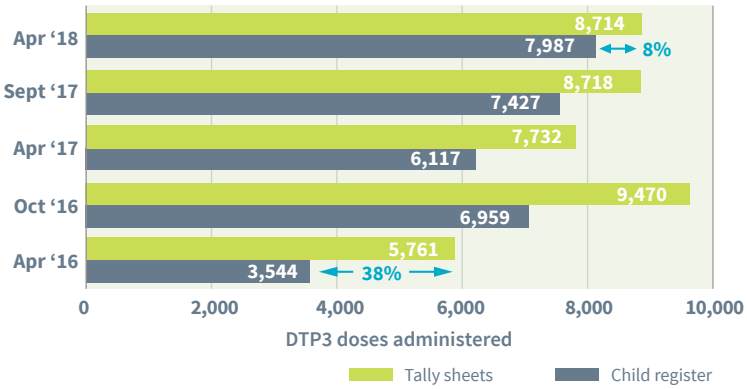
- **Lack of motivation & training of health workers**
- **Human resource constraints/ lack of job aids**
- **Stock-outs of tools at health facilities**
- **Lack of reliable target population**

MCSP-SUPPORTED ACTIVITIES TO ADDRESS CHALLENGES

- **Data quality self-assessments**
- **Microplanning & micro-mapping**
- **Data review meetings**
- **Training & mentoring on tools & data use**
- **Appraising good performance & sharing learning**
- **Revisions & development of tools**

DATA QUALITY IMPROVEMENT

Reduction in reported data inconsistencies between DTP3 doses given as recorded on tally sheets and child registers in four MCSP-supported districts in Uganda (n=104 HFs)



DATA USE FOR DECISION-MAKING

MCSP-supported reorganization of child registers by village improved identification, tracking, and follow-up of children in the catchment area.

The MCSP-supported "Reaching Every District data categorization tool" is now available electronically through the Ministry of Health District Health Information System database: health facilities take action based on its status.

LESSONS LEARNED

- Strengthen capacity through continuous training and mentoring at the subnational level.
- Invest in human resources to ensure adequate staffing.
- Emphasize regular data quality self-assessments with feedback.

PERSPECTIVES

// Data improvement has come a long way, but data use for decision-making is still low and needs institutionalizing, but requires funding.

– Uganda National Expanded Programme on Immunization

// Other non-MCSP districts will benefit from scaling up MCSP's strategies.

– District Health Officer

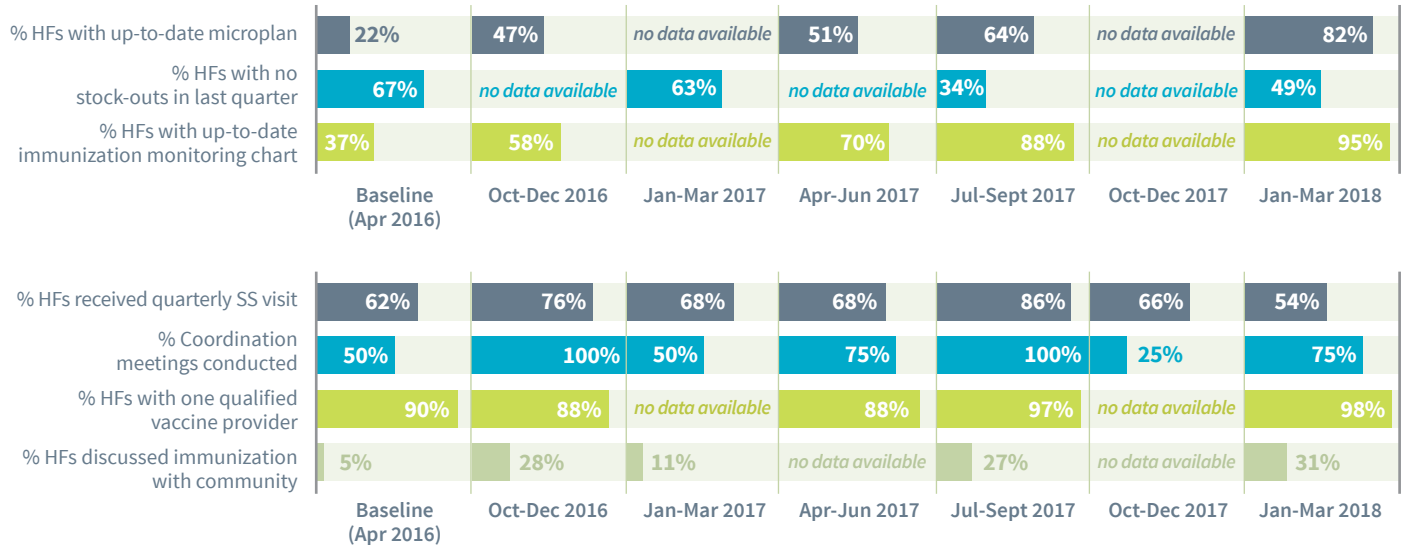
Other partners addressing data challenges:
World Health Organization, UNICEF, and Regional Health Integration to Enhance Services.

In addition to MCSP, other partners—such as WHO, Unicef, and Gavi, for example—also provide technical support to challenges related to data in country. Partners addressing data challenges work at the national level and in assigned districts. This country profile highlights the work MCSP supported at the national level and in assigned districts.

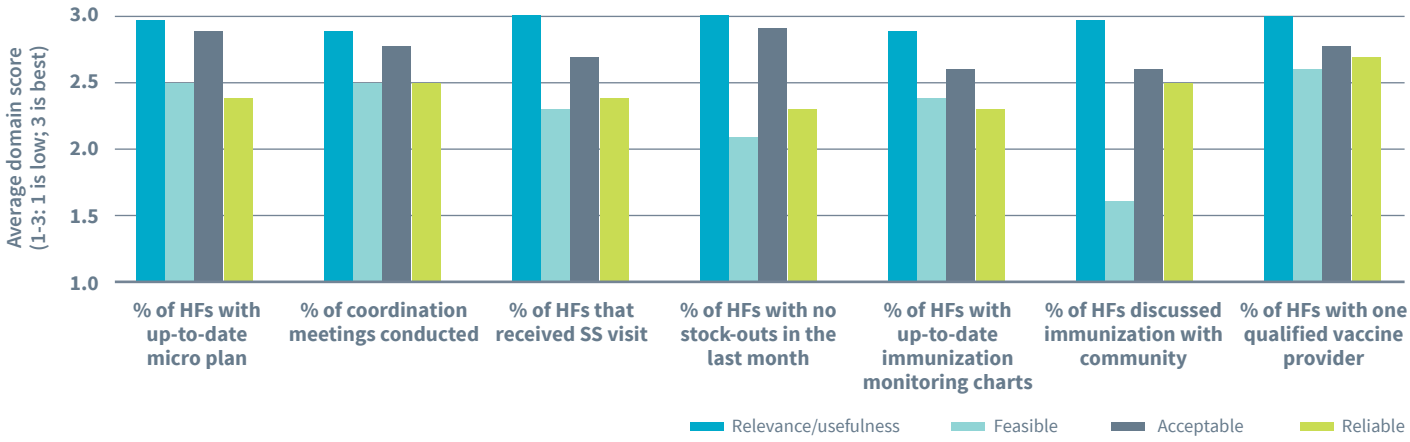
INDICATORS THAT DESCRIBE THE STRENGTH OF THE ROUTINE IMMUNIZATION SYSTEM

MCSP carried out focused learning to test a set of process indicators and their use at subnational (district and health facility) level in Uganda. In addition to exploring the relevance/usefulness, acceptability, feasibility, and accuracy/reliability of the indicators in strengthening immunization systems, MCSP also monitored the selected indicators over the life of the program. The increase in most of these indicators since baseline demonstrates that the indicators were not only accepted as useful tools by HWs, but also closely monitored and reported.

Trends in selected process indicators in MCSP-supported districts in Uganda, April 2016-June 2017 (n=104)



Relevance/Usefulness, Feasibility, Accessibility, and Accuracy/Reliability of Select Process Indicators in MCSP-supported districts in Uganda



PERSPECTIVES

// District and facility managers take these indicators as learning opportunities and morale boosters, especially when used with support supervision. It also encourages work as a team so as to achieve better results.

– HF in-charge

// The district told us that the only way to determine whether they are progressing in immunization or not is through these indicators, therefore they are very acceptable to the HWs who collect the data. But, there are so many, yet the district does not give us any money to do all that work.

– HF in-charge

Key Results

- The availability of up-to-date microplans increased steadily from approximately 20% (baseline) to about 80% in January–March 2018.
- The availability of up-to-date immunization monitoring charts increased, indicating that planning for immunization services and monitoring the number of target children reached improved since MCSP started.
- HFs with no stock-out of any antigens decreased from the baseline (67%) to January–March 2018 (49%). MCSP discovered that despite having funds allocated to support the district cold chain technicians (CCTs) to conduct monthly deliveries to HFs, in Mitooma and Bulambuli districts, the CCT did not deliver vaccines from the district vaccine store to the lower-level HFs. This triggered the follow-up by chief administrative officers and subcounty chiefs to ensure district health officers and HF in-charges are more responsive and address the gaps identified.
- The % of HFs that met with the community to discuss immunization increased from baseline but remained low as funding for logistics was not always available.
- While HFs aimed to conduct at least one coordination meeting with the district health management team each quarter, meetings often depended upon availability and flexibility of the district team.