Measurement and Data Use for Action and Accountability

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Legacy

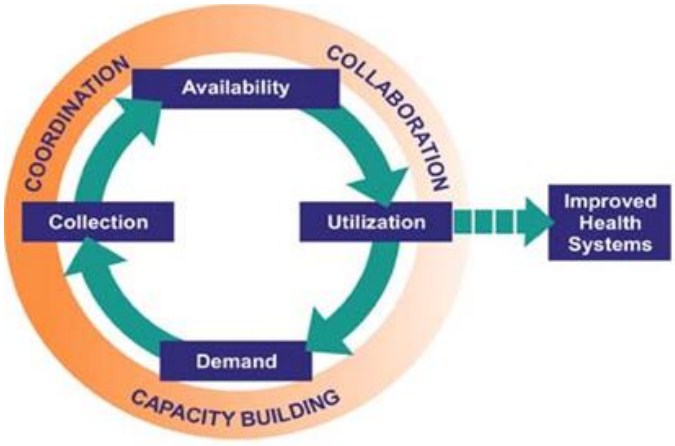
The Maternal and Child Survival Program (MCSP) has contributed to better reproductive, maternal, newborn, and child health (RMNCH) health care practices and outcomes at all levels in part by improving the capacities of frontline health workers and managers in data visualization and the timely use of information. This includes information on RMNCH service coverage, quality, and equity.
Over the course of the program, MCSP aimed to better ensure that:

- Health care workers, managers, and policymakers have and use the right information, at the right time, to make evidence-based decisions on the delivery of RMNCH health services within their country.
- RMNCH stakeholders at the global level are better able to track progress across countries toward the goals, objectives, and targets of global initiatives.

Program Approach

Creating a culture of data use and continuous learning and improvement is at the heart of our approach. Operationalizing data use for action and accountability is a cyclical process, as depicted in the United States Agency for International Development-funded MEASURE Evaluation project's Evidence-Based Decision-Making Process (Figure 1). MCSP moved beyond measurement of health processes, including quality of care, to document improved accountability, equity, and health outcomes. Each component in the decision-making process was considered in the development of all MCSP data use activities and short-cycle learning questions to generate actionable information that MCSP and partners used to improve program implementation. MCSP supported capacity-building, coordination, and collaboration to strengthen demand for and the collection, availability, and use of data for action, primarily targeting the district, health facility, and community levels.

Figure 1. Evidence-based decision-making process



Source: Nutley T, Snyder E, Judice N. 2012. *Data Demand and Use: Introduction to Concepts and Tools.* Washington, DC: MEASURE Evaluation.

Why Are Measurement and Data Use Important?

Measurement and data use are important to assessing whether countries and global stakeholders are progressing toward our goals, including the Sustainable Development Goals for 2030, and to helping us identify which strategies are working to help us advance those goals. Managers can then use this information to respond and adapt accordingly.

High-impact RMNCH interventions needed to avert most preventable child and maternal deaths are already known. The questions confronting the global health community now center on how to deliver these interventions sustainably and at scale with quality and equity. Measuring progress toward global and country goals, including intervention coverage, quality, and equity, is critical for informing implementation and advocacy efforts.

Not only is it important to measure the right things, but also data must be of high quality and be available at the appropriate levels (global, national, and local) to inform decision-making about policy, resource allocation, and service delivery. Routine monitoring and targeted implementation research can shed light on the best delivery strategies for high-impact RMNCH interventions in specific country contexts, delivering practical lessons in relatively short time frames. But once generated, information needs to be acted upon to strengthen health systems elements and modify health service delivery practices and facility readiness to improve health outcomes. Too often, useful evidence is not translated into changes in practice. This evidence also needs to be used to hold key stakeholders accountable for their expected contributions to achieving global and country targets.

What Did We Plan to Do?

We planned to help advance the seven strategic actions outlined in *The Roadmap for Health Measurement and Accountability*,[1] which marked the beginning of the Sustainable Development Goal era, and that renewed commitments from countries, partners, and donors to improving metrics, strengthened routine health information systems, and fostered data-driven decision-making. Key planned activities included:

- Produce evidence on the extent to which the introduction and use of new country-level RMNCH indicators can help address gaps in the availability of data that can be used to improve coverage and quality of RMNCH.
- Determine the extent to which new country-level RMNCH indicators are feasible to collect and can improve decision-making at different levels of the health system.
- Conduct a comprehensive assessment of key maternal, newborn, and child health (MNCH) data elements available in national health management information systems (HMISs) in 24 of 25 United States Agency for International Development (USAID) priority countries to help prevent child and maternal deaths, and of family planning data elements in a subset of these countries.
- Improve country program understanding of and reporting on RMNCH indicators recommended by the World Health Organization (WHO), UNICEF, United Nations Population Fund (UNFPA) and other global bodies.
- Improve national health information systems in at least seven countries by integrating new indicators into national HMIS via District Health Information System (DHIS2), another database platform, or community or facility-based recordkeeping systems.
- Increase the capacity of ministry of health (MOH) counterparts in at least six MCSP countries, in data synthesis, visualization (graphs, maps, dashboards, score cards, etc.), and use at the district, facility, and community levels, including through improved use of DHIS2 or other database platforms.
- Improve RMNCH metrics identified and promoted by global bodies such as WHO.

[1] World Bank, USAID, WHO. 2015. *Roadmap for Health Measurement and Accountability.* Available at: http://www.searo.who.int/entity/health_situation_trends/the-roadmap-for-health-measurement-and-accountability.pdf?ua=1.

- Improve routine and periodic data collection tools available for collecting RMNCH indicators at the country level. This includes updating the knowledge, practices and coverage (KPC) household survey and RMNCH Quality of Care health facility assessments modules, as well as digital health applications.

- Share learning about effective approaches to enhance measurement and use of routine data for decision-making across MCSP-supported countries.

What Have We Achieved?

In collaboration with partners, MCSP contributed to improved RMNCH measurement, monitoring, evaluation, and learning from the local to the global level. At the country level, MCSP supported governments in their use of improved metrics and methodologies to collect data on coverage, quality, and equity of high-impact RMNCH interventions. Countries in turn were able to use information generated at local levels to solve system bottlenecks to help reach high coverage, quality, and equity for high-impact RMNCH interventions supported by MCSP and the global community.

MCSP also worked with global groups to develop improved RMNCH indicators, better data collection tools, and practical monitoring and evaluation (M&E) guidelines that contributed to improved measurement of intervention quality and health outcomes both globally and nationally. These global groups included, among others: Every Newborn Action Plan, Ending Preventable Maternal Mortality, Health Data Collaborative facility and community routine data, interoperability and digital subgroups, Roll Back Malaria Monitoring and Evaluation Reference group, Child Health Task Force M&E subgroup, WHO/UNICEF working group on immunization data quality and use and a postpartum family planning (PPFP) M&E working group.

Overall, MCSP has advanced implementation and learning for measurement and data use for RMNCH in key ways. Specific examples are provided below for each of the seven strategic actions from *The Roadmap for Health Measurement and Accountability*.

1: Invest in strengthening data sources and capacities

Strengthened MOH capacities for visualization and use of routine RMNCH data in supported countries. Based on its experience with multiple country programs, MCSP developed the *Visualizing and Using Routine Reproductive, Maternal, Neonatal, and Child Health Data at Health Facilities: A Resource Package for Health Providers and District Managers*, which includes routine RMNCH data visualization and use materials, including a laminated wall chart template and a supportive supervision module. WHO included a link to this MCSP resource package in its new toolkit for analysis and use of health facility data. Components of this resource package were adapted and used in **Rwanda**, **Nigeria**, **Liberia**, **India**, **Ethiopia**, **Guatemala**, and the English-speaking Caribbean countries of **Barbados**, **Guyana,** and **St. Lucia** where MCSP supported Zika-related work, including health worker training on improving the quality of postnatal care and family planning (FP) services. In the Mara and Kagera regions of **Tanzania**, training improved the data management and use skills of 90% of health care providers—734 total—working in MCSP-supported facilities. In **Guatemala**, local health authorities have been trained in data visualization and use for local planning; web-based indicator dashboards are being finalized for local planning as well as continuous quality improvement. In **Liberia**, 92% of 77 MCSP-supported facilities assessed at endline reported using HMIS data to review performance with a district or county supervisor during recent supervision visits, compared to 61% at baseline, and 78% of facilities reported making a decision along with the supervisor based on the RMNCH data at endline, compared to only 53% at baseline.

Assessed use of process indicators for routine immunization system strengthening. MCSP advanced global learning on the effective use of process indicators for strengthening routine immunization. Drawing from its country-level technical assistance in **Malawi**, **Nigeria**, and **Uganda**, MCSP explored health facility and district staff's understanding and use of a selected set of process indicators and helped district and health facility staff identify mechanisms that promote the use of process indicators for decision-making. Quantitative data extracted from the monitoring system demonstrated major improvement. For example, 100% of health facilities (43) in two districts in Malawi, over 90% (1499) in two states in Nigeria, and 82% of

health facilities (84) in Uganda had complete microplans for routine immunization in Jan–Mar 2018 quarter compared to less than 20% at the baseline (Malawi: Oct–Dec 2015, Nigeria: Jul–Sep 2014, Uganda: Apr–Jun 2016), resulting in better planning of sessions. In **Nigeria**, the number of conducted fixed sessions increased from 8,305 at baseline (Jul–Sep 2014) to 17,339 in Jan–Mar 2018. In **Malawi**, the proportion of planned outreach sessions conducted increased from 55% at baseline in Oct–Dec 2015 to 98% in Jan–Mar 2018. Health workers reported that the indicators are useful for gaining a holistic snapshot of the status of the routine immunization system, though some expressed a lack of understanding of the indicators and their use. In addition, results from this learning activity informed 2018 revisions to the *Reaching Every District* guide, a key guidance document that is used by 17 countries in the Eastern and Southern Africa region. MCSP shared results with the WHO Strategic Advisory Group of Experts that will use this program learning to inform their global guidance.

Validated routine intrapartum care indicator. MCSP conducted a study in **Tanzania**, which tested the validity of a new facility-based indicator on perinatal mortality. The study yielded compelling results, documenting a high level of sensitivity and specificity between information on newborn outcomes recorded in the health facility maternity register and the gold-standard perinatal death audit for the outcomes of fresh stillbirth, macerated stillbirth, and newborn deaths. These results are notable as this indicator allows for measurement of potentially preventable perinatal mortality using HMIS data and could serve as a sentinel measure of the quality of intrapartum care at health facilities. A manuscript summarizing the indicator validation findings was published in *PLOS ONE,* and an implementation research brief is available online.

- **Assessed the feasibility, acceptability, and usefulness of routine RMNCH-related indicators**. Having meaningful measurements of RMNCH services can play a critical role in improving the quality of care. MCSP tested the feasibility, acceptability, and usefulness of new RMNCH indicators on the content of care in **Madagascar** and **Nigeria**. Using these results, MCSP successfully advocated for the MOHs in Madagascar and Nigeria to accept new MNCH and FP indicators that were found to be useful, acceptable, and feasible into ongoing revisions of their national HMISs. Madagascar added many new indicators across reproductive, maternal, newborn, child, and adolescent health (RMNCAH) delivery areas, including all three indicators that were tested and other indicators that were updated to reflect new WHO guidance (for example, eight antenatal care [ANC] contacts).

- **Supported strengthening of community health information systems and documented lessons learned.** Despite the vital role that community health information systems' (CHIS) play in provision of high-quality care at the community level, little was known about how countries design, implement, and use their CHIS. The results of a 2016 literature review[2] on the topic, conducted by MEASURE Evaluation, revealed that countries' use of CHIS varies by health area, technology use, level of integration with national HMIS, and overarching system goals. However, limited documentation of countries' experiences in planning, implementing, strengthening, and institutionalizing CHIS into the broader health system existed. To this end, MCSP documented lessons learned supporting the **Democratic Republic of the Congo (DRC)**, **Egypt**, **Namibia,** and **Uganda** to strengthen their CHIS and improve data reporting completeness, quality, and use at the country level. The comprehensive report describes the structure and functioning of national CHIS across the four countries, documents MCSP's contributions to strengthening national CHIS, shares lessons learned, and serves as a resource for stakeholders working to strengthen national CHIS. In addition, MCSP tested a modified version of the existing Integrated Maternal and Child Care Card used by health extension workers in Ethiopia to track care given to a mother and her child from pregnancy through 5 years after birth. The modified card included prompts to counsel women on PPFP, document her method choice, and assess her risk of pregnancy at various contacts. The MOH adopted most of the modifications to strengthen service integration at the community level and improve PPFP uptake.

[2] MEASURE Evaluation. 2016. Community-based Health Information Systems in the Global Context: A Review of the Literature. Chapel Hill, NC.

2: Align stakeholders in support of country health information systems

Contributed to improved globally recommended RMNCH metrics, tools, and measurement guidelines and processes. MCSP contributed to the development of improved RMNCH metrics and guidance through its engagement with global M&E working groups. For example, MCSP collaborated with the Every Newborn Action Plan/Ending Preventable Maternal Mortality core metrics group to help design a multi-country study of new maternal and newborn health (MNH) indicators for a national HMIS and develop a core set of maternal health indicators for global tracking. MCSP is a member of the in-country Every Newborn Action Plan indicator validation study steering committee in **Tanzania**. In addition, the MCSP's participation in the Global Immunization Data Quality and Use Working Group with WHO and UNICEF resulted in identification of tools and processes adopted by the countries that improve immunization data quality. MCSP supported the Africa Regional Workshop on Improving Routine Data for Child Health in National Health Information Systems, where over 90 participants from MOHs, nongovernmental organizations, WHO, and UNICEF discussed emerging best practices, gaps, and challenges, and developed country action plans to address them. MCSP also contributed to activities of four Health Data Collaborative working groups (routine community and facility data, interoperability, and digital). The Health Data Collaborative strives to increase countries' capacities to measure progress toward national targets for the Sustainable Development Goals. MCSP convened a measurement committee of 16 organizations/programs under the PPFP Community of Practice to reach consensus on routine PPFP indicators. MCSP is collaborating with FP2020 and Advance Family Planning to advocate for recommended indicators at the country level, and WHO will include recommendations in its new HMIS guidance materials. MCSP also worked with MoNITOR and CHAT to organize a series of three technical consultations to formulate recommendations for revising the MNCH content of the DHS-8.

Led the launch and establishment of the new Child Health Task Force. MCSP serves as the secretariat of the Child Health Task Force, a network of over 460 individuals representing donors, multilateral organizations, governments, and implementing partners working to improve child health programming. Formed as an expansion of the Integrated Community Case Management Task Force, the Child Health Task Force aims to generate and share evidence on the design and implementation of equitable, comprehensive, and integrated programs that translate into better health outcomes for children. MCSP co-chairs the M&E subgroup with UNICEF, which has worked to improve metrics and tools and foster collaboration among those working in M&E in child health.

3: Use the digital revolution to scale up health interventions and engage civil society

- **Built a digital application to track HIV patients in Haiti to reduce loss to follow-up**. In Haiti, MCSP developed a mobile tool to follow up with active patients to ensure medication access and adherence and to locate patients lost to follow-up and encourage them to return to care. MCSP reached 1,294 active patients with this tool. Disease reporting officers, social workers, site managers, community health workers, and peer educators use the application with the aim of streamlining efforts across the various users. Over 260 peer educators were trained on the use of a mobile application to trace individual clients and bring them back to care and treatment.

Sterilization clients using IVRS platform in India reported:

- Satisfaction with providers' response to their questions/concerns: 89%
- Adequate privacy during counseling and examination: 82%
- Misbehavior, abuse or denial of services: 26%
- Discrimination from service providers or facility staff: 14%
- Out-of-pocket expenditure incurred for availing services at facility: 20%

- **Used Interactive Voice Response System in India to gather client feedback.** Parivar Swasthya Vaani is a mobile technology-based Interactive Voice Response System (IVRS) developed by MCSP and rolled out in July 2018 in two India states—Chhattisgarh and Odisha. The platform empowers women and communities by providing access through a toll-free phone number to critical FP information. IVRS allows clients seeking sterilization services at project facilities to pre-register. Accredited social health activists and auxiliary nurse-midwives at the community level initially screen interested clients to ascertain their eligibility for surgery in case of

tubal ligation and then jointly pre-register them. Pre-registration allows the clients to schedule services at their convenience and reduces the uncertainty regarding receiving the desired service at the facility. Parivar Swasthya Vaani also provides clients of tubal ligation the opportunity to provide feedback on the quality of FP services received. The FP client feedback generated via IVRS is available at the facility level and is presented through quality assurance structures at the facility, district, and state levels. The feedback not only empowers communities to hold health systems accountable, but also strengthens the FP program's responsiveness to clients' feedback. As of February 2019, the platform had received 10,094 calls of which, 2,590 accessed information on FP, 6,093 appointments were made to pre-register clients to receive FP services at project facilities, and 1,411 calls were made to provide feedback on the quality of FP service delivery.

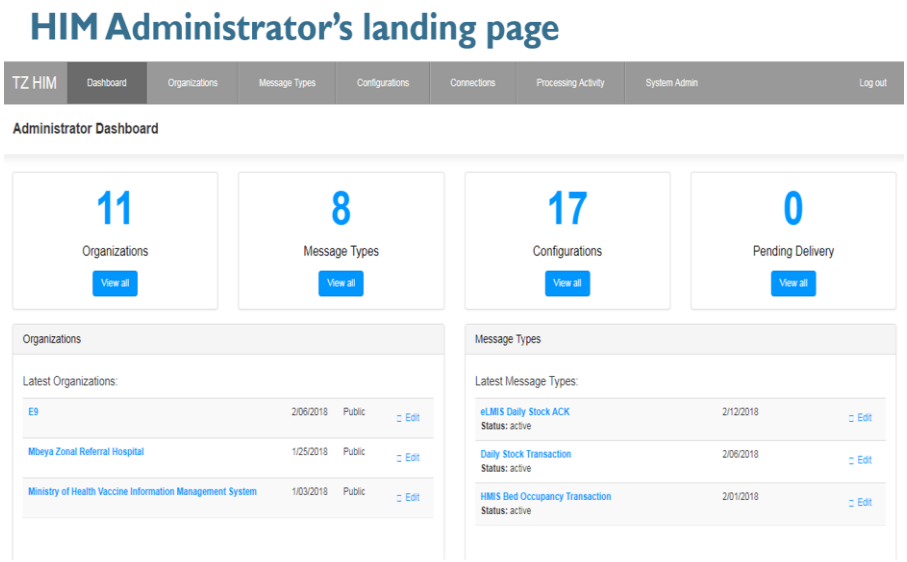
- **Developed a digital social accountability application to support the work of local community activists in Guatemala**. This is an example of MCSP's broader efforts to contribute to holding governments accountable for implementing cost-effective, lifesaving maternal and child health and nutrition interventions and to engage civil society organizations in social audit activities. In Guatemala, MCSP developed and is using an application to assess service delivery quality and interview clients (pregnant and postpartum women and mothers of small children). The solution includes mobile applications, improved data quality through centralization of data storage and automating of data analysis, data visualization through dashboards, and accessibility of the audit results on the web. Use of other apps, such as WhatsApp, allowed for real-time technical support for data collection teams and for ongoing mentoring and coaching. The experience showcases how digital technology can address the needs of both civil society and health authorities to address service delivery and health outcomes. When data systems are trusted, data are more reliably used for planning and decision-making.

Compiled evidence on and applied geographic information system analyses to RMNCH in low-resource settings. MCSP supported USAID to hold a high-level meeting presenting evidence on maternal mortality mapping in 2014 and produced a peer-reviewed manuscript on the meeting recommendations. MCSP further led the preparation of a special edition journal supplement on RMNCH geographic information systems (GISs) that will be published in *BMC Global Health* in 2019. In **Rwanda**, MCSP used innovative geospatial techniques to assess the relationship between the use of ANC services, client's sociodemographic background, and the closest health facility's readiness to provide ANC, with findings presented at the 11th Geospatial Health Symposium and at the MEASURE Evaluation Annual Geographic Information System Working Group meeting. In addition, MCSP supported capacity-building for GIS use in Rwanda, training MOH staff in QGIS (an open-source application) and supporting them to produce maps. In **Nigeria**, MCSP used geospatial techniques to assess the relationship between various health facilities' emergency obstetric and newborn care readiness scores (using data from a comprehensive health facility readiness assessments conducted by MCSP in Cross River, Kogi, and Ebonyi states) and sociodemographic characteristics of the catchment population, such as literacy and access to improved water sources. Also in Nigeria, MCSP applied GIS technology to create digital primary health center catchment area maps and generate more accurate population estimates for routine immunization microplanning in Sokoto and Bauchi states. The activity demonstrated the potential for GIS to be used in creating more accurate catchment area listings and also identified challenges with the GIS-generated population estimates. The study did not demonstrate significant differences in the sociodemographic distribution. MCSP's exploratory work was presented at the Global Digital Health Forum and has continued to inform discussions on how to better address underlying health inequities and continue to target underserved populations. The innovative geospatial techniques of linking population surveys with health facility data is of interest for use by future programs.

4: Strengthen public goods for health information and accountability

- **Collaborated with Tanzania's MOH to design and deploy an interoperability layer (health information mediator) to improve data exchange**. To improve data quality and availability on continuity of care and referral systems for RMNCH services, MCSP collaborated with the Tanzania MOH to connect data from 11 different systems including hospitals, health facility registry, logistics management, financial transactions, vaccine information, and DHIS2 (Figure 2). This system replaces the traditional method of directly connecting data between systems with a translation layer between systems using various technologies, terminologies, and transmission methods. In addition to the modifications and installation of the system, MCSP worked closely with the MOH to host the system in-country and to build the capacity of the MOH information, communication, and technology personnel to maintain, modify, and support the system. The interoperability layer is envisioned to improve the ability to triangulate and compare data across domains and functions, increase citizen access to health information (resources, providers, data from a shared health records), improve continuity of care across programs and facilities, and improve data quality by reducing manual data entry because data can be collected once and used multiple times.

Figure 2. Tanzania interoperability work allows for integrated dashboard



- **Improved the child health content of national health information system in Mozambique and DRC**. MOH staff in Mozambique and DRC suffered from a lack of routine data for planning, monitoring, and reporting on child health services.

    - At the national level in **Mozambique**, MCSP helped the MOH address this problem by defining and testing the child health indicators that are now part of the national HMIS (SIS-MA/DHIS2) and by providing technical assistance to design and test a new suite of child health registers and facility-to-district reporting formats. This new set of tools makes it possible to aggregate, enter, and analyze meaningful child health data from the electronic SIS-MA/DHIS2 platform for the first time. Furthermore, the new child health registers were designed not only to generate data, but also to serve as job aids that will prompt health providers to follow and record the steps of the Integrated Management of Childhood Illness protocol. MCSP is currently working with the MOH and UNICEF to prepare for national introduction in December 2018. Simultaneously, MCSP worked with the MOH to develop a pediatric inpatient register and kangaroo mother care book that will be introduced in 2019. The development and nationwide rollout of the new child health registers and reports is an important MCSP Mozambique legacy. Not only will they guide providers in their work, they will also make routine child health data available to managers for program planning, monitoring, and evaluation of their efforts. For example, before the introduction of the child health registers and reports, basic information on the number of pneumonia cases seen and their management was not available in any form at the health facility level in Mozambique. After MCSP introduced and tested the new child health registers and reports with the Nampula and Sofala Provincial Public Health Directorates, pneumonia case management with recommended antibiotics (essential for reducing child mortality) was tracked for the first time, and findings were used to guide supportive supervision

and reinforce the skills and practices of health providers. The average percentage of children with pneumonia treated with amoxicillin at MCSP-supported health facilities in Nampula and Sofala between October 2017, when the registers were introduced, and August 2018, exceeded 96%. The Nampula and Sofala Provincial Public Health Directorates and the District Services for Health, Women, and Social Action are committed to sustaining this high level of child health provider performance, and they now have important new tools that will help them do that.

- In the DRC, key information on Integrated Community Case Management has been integrated into the national DHIS2 since its implementation in 2014. In September 2017, members of the child health national technical working group attended a regional workshop, Improving Routine Data for Child Health in National Health Information Systems, in South Africa and developed a country action plan to address challenges linked to DRC's health information system. The action plan focuses on improving the use of data at the source, improving data quality, strengthening health information system governance via decentralization of certain functions, reviewing existing data platforms, and improving accountability and ownership for data collection and use at the community level. As a follow-up, the child health national technical working group developed a database and a web portal that includes a set of priority child health indicators at the facility and community levels (Integrated Management of Newborn and Childhood Illness and Integrated Community Case Management) and population levels (surveys) to consolidate existing sources of child health data in one place. Over half the indicators included in the dashboard are based on data directly extracted from DRC's routine data on the DHIS2 platform. This dashboard is exciting because it is the first to be implemented in the DRC and it will allow publicly available, real-time visibility of child health data at all levels.

- **Supported an enhanced system for integrated disease surveillance and response in Tanzania**. The Government of the United Republic of Tanzania has adopted the Integrated Disease Surveillance and Response (IDSR) funded by Global Health Security Agenda as a strategy for improving and streamlining national disease surveillance. MCSP, in collaboration with WHO, supported the MOH managing surveillance systems to improve coordination and strengthen the overall surveillance system. Key approaches and interventions focused on four efforts: 1) coordinating surveillance structures, 2) supporting electronic IDSR rollout in remaining regions, 3) participating in supportive supervision and mentoring on IDSR and vaccine preventable disease surveillance, and 4) initiating community-based surveillance. As a result, MCSP, the MOH, and partners strengthened coordination of surveillance implementation by establishing an IDSR expert working group with terms of reference outlining key intervention areas (Figure 3) that monitored and standardized implementation of IDSR interventions across the country; improved data collection and use by rolling out electronic IDSR in five regions bringing the total number of regions in the country trained on electronic IDSR to 25 (of 26), or 96%; strengthened community-based surveillance to better equip community leaders and health workers to report rumors and events of suspected cases in two priority districts; and strengthened vaccine preventable disease surveillance detection and reporting in a low performing council.

Figure 3. Key intervention areas in Tanzania

Improved household survey tools for measurement of RMNCH service utilization, intervention coverage, and gender considerations and norms: MCSP updated the KPC household survey tool and made it available online as a global resource.

- MSCP revised the following survey modules: sick child; malaria in pregnancy; pregnancy spacing; nutrition; water, sanitation, and hygiene; MNCH; and immunization. In addition, **MCSP created a new gender module with questions that can be integrated into other KPC survey modules**, including information about women's and men's roles in household activities, household decision-making, women's and children's health care decision-making, and attitudes around gender norms. Questions aim to provide program implementers with a better understanding of how gender-based attitudes, norms, roles, and behaviors may affect health-seeking behaviors and health outcomes, including RMNCH. Understanding this context is crucial for integrating gender into program design and better enabling families and communities to practice healthy behaviors and to seek and access health services. This module differs from other KPC modules in that it includes a questionnaire for both women and men. MCSP also developed mobile versions of the KPC household survey modules using an open-source mobile software application, CommCare, building on work conducted by MCSP in Tanzania. These mobile applications, which enable built-in data quality control checks and real-time tracking of data collection, allow for streamlined data collection and cleaning, paving the way for improved data quality and faster data analysis. Several MCSP-supported countries have applied the revised KPC survey package, including incorporation of wealth indexes to be able to measure equity in coverage (Nigeria child health KPC and Mozambique KPC).

    - In **Tanzania**, data from the new gender module of the KPC was used to facilitate dialogues between women and men on how to improve gender equity in the household and community. Additionally, MCSP explored associations between male engagement during ANC and delivery at a health facility in an article published in *PLoS One*.[3] The USAID-funded MNH bilateral program in Tanzania is using the findings to inform program activities and M&E plans.

    - In **Mozambique,** MCSP used results of the KPC survey with the gender module to conduct a more rigorous evaluation of the effectiveness of male engagement interventions that encourage couple's communication to increase ANC attendance, joint birth preparedness and complication readiness plans, institutional birth, and use of modern FP; determine the feasibility and acceptability of male engagement interventions on RMNCH services for clients and providers; and explore how decisions between couples are made and what may influence their decisions about seeking RMNCH services.

5: Use data throughout all levels to improve policy systems and delivery

In its country programs, MCSP supports improvement of RMNCH elements in facility- and community-based health information systems and use of data for decision-making and learning. MCSP's approach in countries varies based on contextual factors in the targeted districts and is designed to fit within a larger programmatic strategy to strengthen health service delivery.

- **Used costing data to inform scale-up of high-impact RMNCH interventions**. In Ghana, Rwanda, Nigeria, and Uganda, MCSP helped generate and support MOHs to use costing data in high-impact RMNCH interventions to inform resource allocation and scale-up efforts. In **Ghana,** MCSP conducted formative qualitative research to better understand how a community-based primary health care approach called Community Health Planning and Services (CHPS), originally designed for rural areas, could be modified for urban areas. The study findings highlighted a need for CHPS implementation in urban settings, where more than 50% of the country's population now lives in urban settings due to rapid urbanization. Expanding CHPS to urban areas could help address gaps in access to health care and reduce the burden on the districts and regional hospitals. This study prompted a discussion among the Ghana Health Service's Policy Planning Monitoring and Evaluation Directorate to critically review the CHPS implementation guidelines. MCSP disseminated the study recommendations to the Directorate to help inform efficient and effective scale-up of CHPS implementation in urban areas. MCSP also

[3] Bishanga DR, Drake M, Kim Y-M, et al. 2018. Factors associated with institutional delivery: Findings from a cross-sectional study in Mara and Kagera regions in Tanzania. *PLoS ONE*. 13(12): e0209672.

developed a CHPS Costing tool for mobilizing resources for scaling up Ghana's community-focused primary health care strategy. In **Rwanda,** MCSP conducted a financial analysis for the scale-up of immediate PPFP services through an integrated training and mentorship intervention. In 2016, Rwanda's MOH introduced integrated PPFP using a training and mentorship intervention in four districts, later scaling up to an additional six districts. The three main interventions were: 1) offer FP counseling during ANC visits, 2) improve provider skills to counsel and deliver PPFP methods to suit women's preferences (including training providers on postpartum long-acting and reversible contraceptives), and 3) use quality improvement approaches through onsite mentorship to continually improve FP services. The outputs of the model provide information on the range of financial resources needed to bring the PPFP intervention to national scale as Rwanda committed to scaling up PPFP services to all districts by 2020.

Service delivery data used by scale-up management teams: MCSP advocated for and helped MOHs to use outcome-oriented data dashboards to manage the process of scaling up their prioritized high-impact interventions. Widespread use of DHIS2 has made using dashboards more feasible, which, in turn, facilitated adaptive management at local, district, and national levels.

Adaptations: Health leaders, managers, and providers developed innovative solutions as part of their quality improvement action plans, which spread to other facilities through experience sharing platforms. Many adaptations were promoted under a culture of adaptive management, including the following from Rwanda:

- ***Farde Rouge*** or **Red Folders** are critical patient files for mothers and newborns who might require close monitoring. The doctor reviews red folders every 30 minutes, whereas a nurse or a midwife reviews the folder every 15 minutes. This minimizes the risk of birth asphyxia or any other maternal- and newborn-related complications.
- **ISIBO** are sub-teams from maternity and neonatology that meet every Thursday to discuss day-to-day progress of implementation of assigned tasks and on how to ensure continuous improvement of maternal and newborn services. The meetings allow the team to solve issues on their own. Any issues, especially administrative ones, that can't be solved during the meetings are discussed in the larger quality assurance meeting.
- **Helper Program** provides a "helper" (a colleague) in the delivery room because some deliveries can be stressful. With support from the facility managers, mentors came up with this strategy and the facility ensures that the roster lists a person allocated to be in the delivery room.

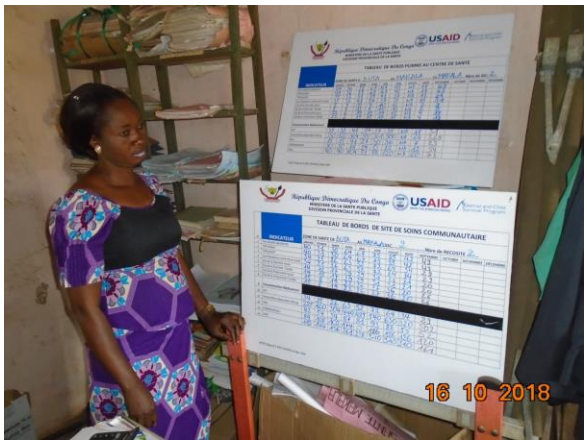
- **Rwanda**'s MOH used data dashboards for scaling up pre-discharge PPFP and essential newborn care/newborn resuscitation. Facilities used quality dashboards that had updated monthly data to track acceptors of FP. To improve and maintain quality while expanding PPFP services, health care providers at the facility and district levels in Rwanda have used dashboards to visualize and track data on key indicators, including the number of providers trained on PPFP, stock-outs of FP commodities, counseling outcomes (client accepts a method, plans to initiate a method later, or refuses FP), and progress on the facility PPFP action plan. In such publicly displayed dashboards, data are presented in a graphical format to show progress and highlight gaps that require corrective actions, which are then regularly reviewed and analyzed by staff. Small adjustments to existing registers can enable better documentation of PPFP services. MCSP built the capacity of providers to be able to properly document and report newborn indicators in 172 health facilities across 10 districts. Additionally, the team advocated for revision of birth asphyxia related indicators by sharing field experience from MCSP supported districts. The indicators were reviewed by the scale-up management team/newborn technical working group and other partners at the national stakeholders' workshop at the start of Phase II scale-up. Subsequently, the MOH approved the HMIS modifications and, in January 2018, MCSP held a workshop with key maternal and child health implementing partners to customize the national HMIS platform (DHIS-2) with all the revisions. An indicator on "percentage of newborns resuscitated with bag and mask" was added in the national HMIS among other maternal and child health indicators. During implementation in the 10 initial districts for scale-up of essential newborn care/Helping Babies Breathe practice improvement in Rwanda, MCSP collected additional non-routine data to supplement available data from the HMIS. MCSP visualized these data: average mentee score (target > 80); facility readiness

(presence of clean bag and mask in the resuscitation area); resuscitation outcomes; and a data-driven action plan (i.e., a plan developed specifically to address problem areas identified in the dashboard) on dashboards. After reviewing all available data in December 2018, the MOH, the Newborn Sub-Committee of the Maternal and Child Health Technical Work Group, and MCSP enacted strategies to improve data quality as the practice improvement package is scaled up to additional districts. Such strategies will not only improve the accuracy of key indicators and track progress during scale-up but will also contribute to improved diagnosis and care of asphyxiated newborns.

Figure 4. Rwanda hospital data dashboard with postpartum family planning

- In **DRC,** MCSP worked with the Provincial and zonal health authorities in Tshopo and Bas-Uélé to develop and deploy laminated poster boards to facilities and community sites to track child health and family planning data (Figure 5).

Figure 5. Child health data dashboard in use in the DRC



- **Nigeria** included tracking of chlorhexidine immediately after birth as part of data dashboards applied at facilities by health workers as part of quality improvement interventions supported by MCSP in Kogi and Ebonyi states. These dashboards have allowed providers to analyze trends and measure progress to quality improvement goals, and then use that data to make decisions to improve outcomes. For example, MCSP-supported private clinic operators now use data on the laminated poster dashboards to decide when to procure chlorhexidine. The Federal MOH decided to include data related to chlorhexidine in the ongoing revisions to the Nigeria HMIS.

- Each country also tracked 2-3 other key outputs. The information was aggregated at the district (Rwanda) or state (Nigeria) level, where focal persons reviewed it and the national (Rwanda and Nigeria) or state (Nigeria) multi-partner scale management team reviewed and discussed it. In Rwanda, health leaders and managers triangulated quantitative data trends with qualitative

information from mentorship visits to identify and direct capacity-building resources to facilities and individual providers needing additional support.

- **Tracked and supported action on RMNCH quality improvement using facility and district dashboards.** To quickly improve and then maintain levels of quality while expanding services, it is vital for health care providers at the facility and district levels to collect data during implementation. Data should be presented in a graphical format on a publicly displayed data "dashboard" and reviewed by staff on a regular basis to make sure that the progress is on track and, if not, to help plan key corrective actions in a timely manner.

  - In **India**, in collaboration with the governments of Odisha and Chhattisgarh, MCSP is in the process of conducting a study in two districts of each state to describe and assess various data visualization and sharing approaches. MCSP aims to improve use of data for action at its project focus facilities, districts, and states through the development and use of dashboards displaying key FP quality indicators. The study will assess two different kinds of approaches for data visualization: 1) an electronic dashboard with paper printouts posted on the wall, and 2) poster-based wall chart dashboard, through a combination of qualitative and quantitative methods. Evidence generated will inform advocacy for the wider use of the field-tested dashboards. The information will be helpful in informing the design of future data visualization and sharing approaches effectively for timely decisions to improve program outcomes, complementing MCSP's routine quality improvement work that is being jointly conducted with the government of India.

  - In **Madagascar**, at the district and facility level, data dashboards were used to track important MNH quality of care and outcome measures. The dashboards were created using facility level data elements sent by SMS to a web-based platform, after which an indicator value was sent back to providers. The indicator value was charted on a wall poster for use by all district and facility level staff. A more comprehensive quality improvement approach at the hospital level used the wall charts during supportive supervision visits and during quality committee meetings. Data were reviewed and discussed, and decisions were included in facility and provider-level action plans. Providers in more than 800 basic health centers received training on the process of data collection, data analysis, and data use of the pre-established high-impact intervention indicators. Results of data reviews at facility level meetings and supervisions were documented in action plans for follow-up during future reviews.

  - In **Nigeria**, laminated poster dashboards were rolled out to all 321 MCSP-supported facilities in Kogi and Ebony states to track priority MNH indicators (Figure 6). Trends are examined by health facility staff and actions taken when issues, such as stock-outs, affect service delivery.

  - In **Ethiopia**, MCSP introduced wall-mounted dashboards to track the numbers of women counseled

Figure 6. Laminated poster dashboard at Nigeria health facility

on PPFP during ANC, labor and delivery, and postnatal care visits, as well as the number initiating a contraceptive method immediately after giving birth. Although the dashboards were tested at just six health centers, qualitative interviews reveal compelling examples of how the dashboards prompted facilities to action. For example, one facility organized pregnant woman conferences to encourage facility delivery and pass PPFP information as a reaction to poor performance on their dashboards.

- **Strengthening the monitoring of maternal and newborn deaths to inform action: Maternal and Perinatal Death Surveillance and Response (MPDSR):** MPDSR systems are one important source of information about causes of maternal and perinatal death and key contributors to preventable deaths in a specific context. MCSP made significant contributions to global, regional, and country level efforts to strengthen implementation of MPDSR systems, including the generation of actionable information on causes of and modifiable contributors to maternal and perinatal mortality. Although many countries have developed national maternal death surveillance and response (MDSR) or MPDSR policy and guidelines, many barriers to effective implementation at scale remain, including with respect to the quality of information generated as part of death audits. At the country level, MCSP worked with MOHs and other stakeholders to strengthen MPDSR implementation in nine countries over the life of the program. At the regional level, MCSP conducted an assessment of subnational MPDSR implementation in four sub-Saharan African countries (Nigeria, Rwanda, Tanzania, and Zimbabwe). The assessment identified multiple barriers to effective MPDSR implementation, including incorrect assignment of the causes of death and incomplete or inadequate formulation and monitoring of action plans to address identified contributing factors (i.e., the "response" function.) To address these gaps and others, MCSP collaborated with WHO and the global MPDSR Technical Working Group to develop MDSR capacity-building materials (which align with and complement a broader suite of global, integrated MPDSR capacity-building materials developed by the WHO, UNICEF, and others). The materials build the skills of health care providers and district managers to strengthen MPDSR implementation, including correct assignment of death and the formulation and monitoring of appropriate responses alongside complementary monitoring and analysis of trends in maternal deaths using routine health information systems (e.g., facility registers, DHIS.) The MDSR capacity-building materials will be published in mid-2019.

6: Ensuring country health information systems measure what matters

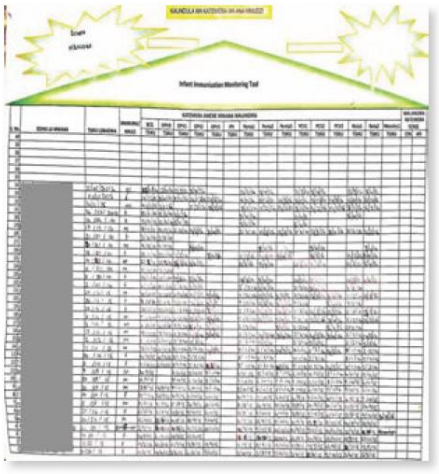
- **Reviewed the RMNCH content of national HMIS in 24 countries**: MCSP completed a review of the MNH and child and nutrition content of national HMIS across 24 USAID priority countries. This review provided country and global stakeholders with a better understanding of the data elements available for calculating current global standard and other indicators on content of care and health outcomes. MCSP has disseminated the results to key stakeholders at international meetings and a webinar series that also included results of a FP HMIS review conducted by MCSP. The HMIS review findings have already informed discussions on and plans to address gaps in the content of the national HMIS in Rwanda and Nigeria during country-led revisions to these systems. WHO has further used the findings to inform the development of recommendations to countries regarding which indicators should be captured in national HMIS.

- **Reviewed the FP content of national HMIS in 18 countries**: MCSP conducted a review of the FP content of national HMIS across 18 USAID priority countries. Key findings were shared as part of a webinar series along with the RMNCH HMIS review. Results were also disseminated at International Conference on Family Planning 2018 in Kigali, Rwanda, and shared with the PPFP steering committee and postabortion care connection group. The PPFP Community of Practice's measurement committee used the findings to inform its recommendations for priority PPFP indicators, which have been shared with partners in countries revising their HMIS including Nigeria, Zambia, Kenya, and Mali. A report on the findings will be available soon on the MCSP website.

7: Strengthen accountability and reporting of results

- **Supported community-led monitoring of child immunization coverage in Malawi**. Village heads and volunteers in Malawi are tracking infants and mobilizing for immunization services and monitoring using the My Village My Home tool (Figure 7) to improve immunization coverage and reduce dropout rates. A review conducted in August 2017 found that increased availability and use of the data, through the tool, helped identify defaulters and helped increase the number of children that were immunized.

Figure 7. My Village My Home Dashboard in Use in Malawi



- **Used Community Score Card approach to promote accountability and action in Tanzania and Mozambique**. The Community Score Card is a participatory approach for planning, monitoring, and evaluating services. It facilitates dialogue between the demand and supply sides (i.e., service user and provider) of a particular service, program, or health facility, to jointly analyze issues related to the provision of services and find a common path to address them. It increases participation, accountability, and transparency among service users, providers, and decision-makers. The main objective of the Community Score Card approach is to positively influence the quality, efficiency, and responsibility with which services are offered at different levels through the use of a participatory forum involving both users of services and service providers and when appropriate, elevate issues that cannot be resolved locally for decision-makers and institutions. In Tanzania and Mozambique, MCSP supported implementation of the Community Score Card approach (originally developed by CARE) for improving community engagement and accountability.

  - In **Tanzania**, MCSP implemented facility- and community-level activities. Community-level activities included recruiting, training, and supporting community health workers, engaging civil society organizations to facilitate the Community Score Card process and conduct the social and behavior change communication strategy and campaign activities and advocacy at both district ward and village levels. MCSP and civil society organizations partners employed the Community Score Card as a social accountability-based quality improvement process in which the facility, community members, and leaders worked together to identify priorities for health care improvement.

  - In **Mozambique**, using the Community Score Card approach, 49 (of 82) co-management and humanization committees developed action plans to address gaps in care including poor patient-client dialogue, long wait times, lack of privacy,

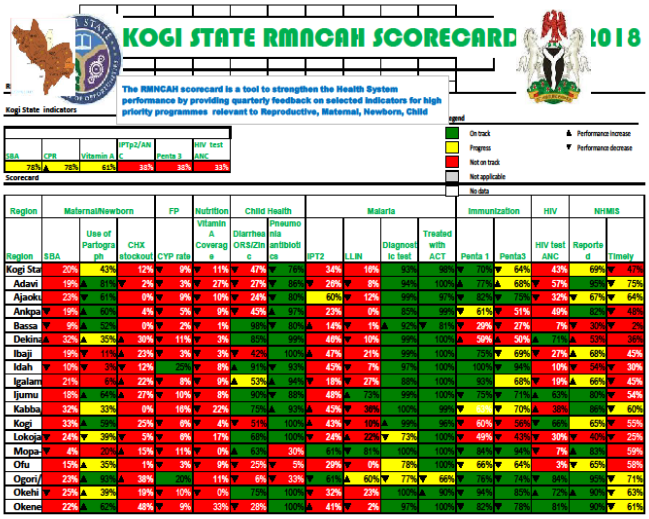
Figure 8. Community dashboard in a training on how to use this approach to discuss data from community health committees, Sofala province.

Photo credit: Ilidio Aizeque

non-family-friendly maternities, poor sanitation at health facilities, and drug shortages. Local authorities and community members said improvements gained through this process included tighter controls on the delivery and receipt of medications to reduce the quantity of medications sold outside of the health system; greater acceptance of male attendance at ANC consultations to participate in birth planning; improved acceptance of community health worker referrals to health facilities; and greater acceptance of community health worker services by community members (Figure 8).

- **Developed and applied subnational and national RMNCH score cards in Tanzania, Nigeria, and Ghana to benchmark progress**. In **Tanzania**, MCSP supported the adaptation of the African Leaders Malaria Alliance malaria elimination score card into a national RMNCH score card and successfully moved it from a parallel platform into DHIS2, making it available on a monthly and quarterly basis compared to only annually as it was before. MCSP provided technical assistance as part of the Safe Mother Technical Working Group to select and define RMNCH indicators for the dashboard. MCSP Tanzania helped include an indicator on uterotonic use in the third stage of labor and helped integrate indicators from the sector-wide approach into a single score card with harmonized indicator definitions. The RMNCH score card was used during regional and district data summits by regional and district health management teams. In **Nigeria**, MCSP supported the development of subnational score cards in Kogi and Ebonyi states (Figure 9). The HMIS units of the program states have started updating the score cards and sharing them with the states' commissioners of health, who launched their use at the council of state meetings. At these quarterly meetings, local government authority chairmen identify and discuss issues relating to health and other developmental concerns. The sharing of score cards during this meeting has led the chairmen whose local government authorities are not performing well to ask questions and make relevant decisions to improve quality and uptake of services. Thus, the score cards are now being used as advocacy and healthy competition among local government areas in the two states. In Ghana, MSCP supported the national CHPS technical working group performance monitoring sub-committee to develop a CHPS national tracking and performance monitoring tool and quarterly score card based on DHIS2. The score card is housed on the CHPS webpage to provide a high-level overview of CHPS performance and service delivery. The MCSP team, in partnership with the Ghana Health Service Family Health Unit, conducted monitoring of the RMNCAH score card in Ashanti and Brong Ahafo regions and afforded the team the opportunity to interact with the regional health directorate. At the district level, MCSP introduced the district health management teams to the new RMNCAH score card updates. User accounts were created for team members who did not have them, and after discussions, the monitoring team supported the health management team to create action items based on low performing indicators to address challenges within the system.

Figure 9. Kogi State, Nigeria subnational score card



What are the Lessons Learned and Implications for Institutionalization and Self-Reliance?

Lessons learned about improving routine RMNCH metrics at global and national levels

Greater global level on the priority routine RMNCH metrics that should be included in national HMISs (which MCSP has contributed to achieving) can influence countries to align their systems accordingly and

prioritize better, more actionable data elements for monitoring quality of care and health outcomes that can help move countries along the pathway to impact and self-reliance.

To improve the content of national HMISs, it is helpful to pilot test new indicators on a smaller scale, gather data users' feedback through structured or informal mechanisms, and then advocate for changes to the national HMIS based on that experience. This was MCSP's experience in several countries including Nigeria, Madagascar, Rwanda, and Mozambique.

Lessons learned about strengthening health information system functioning

Using the existing national or subnational information systems to collect monitoring data (for MCSP and USAID) can help strengthen those systems, but presents challenges because of the data elements collected (not all desired/useful RMNCH elements are there) and the completeness and quality of the data. Some of these issues were found in Mozambique and DRC as MCSP sought to improve the child health content of the national HMIS in both of those countries.

Well-functioning data systems enable health systems to detect and respond more quickly to emerging threats, such as disease outbreaks during the Ebola and Zika crises in West Africa and Latin America and the Caribbean, respectively, and therefore, enable countries to be more resilient.

Lessons learned about fostering greater use of routine RMNCH data at multiple levels of the health system

Improving data use for decision-making requires a change in norms and behavior in addition to improving data competencies. Skills need to be strengthened among facility and community health workers and supervisors in data aggregation, visualization, gap analysis, and data use for decision-making on a more routine basis. These competencies form the backbone of all work relating to scale, quality improvement, and good program implementation and need to be addressed along with clinical and technical area skills development for countries to achieve self-reliance.

In general, data use activities at the point of care (facility and community) appear to have better results when embedded in ongoing institutionalized processes, such as quality improvement or supportive supervision, that can help realize change over the long term. Data sharing and use through mechanisms such as regional and community score cards and facility and community dashboards can contribute to a sense of transparency and shared accountability for achieving results. Engaging communities in monitoring of care-seeking and intervention coverage among their population (as with the My Village My Home initiative in Malawi), can be a key driver toward improving service delivery and health system resilience.

At the district/regional and national levels of the health system, regular use of data to plan, finance, and implement solutions to development challenges helps accelerate progress along the pathway to self-reliance.

What Do We Recommend for the Future?

Continue to improve development and adoption of routine RMNCH metrics

- **Promote greater collaboration among global actors around RMNCH metrics development.** Multiple WHO working groups are working on RMNCH metrics and data collection tools but do not always communicate adequately with each other and sometimes do not fully understand implementation challenges at the country level. MoNITOR, CHAT, and the Health Development Collaborative working groups have helped to promote cross working group communication and harmonization of efforts but their mandates are short-term. It remains critical for partners, such as MCSP, to collaborate with these working groups to support improved communication among the different members, advocate for country perspectives, share data from experience implementing on the ground in multiple countries, and ensure recommended metrics are shared with country stakeholders at all levels.

- **Facilitate country adoption of globally recommended RMNCH measures.** There is a need to bring together many projects or partners that support improvements in routine health information systems with respect to RMNCH. Currently, mandates for USAID-funded programs to help lead revisions to the content of national HMIS are mostly funded through the President's Emergency Plan for AIDS Relief and the President's Malaria Initiative, which focus on HIV and malaria measures, respectively.

- **Strengthen measurement and metrics for quality of care**. Continuous measurement of quality indicators (input, processes, and outputs/outcome measures) is a core principle of all improvement work. However, there is much work to be done to strengthen metrics for improving quality of care in low-resource settings, especially: prioritize quality of care measures needed by specific actors in-country health systems (e.g., national MOH, district managers, and facility teams); strengthen health information systems to be able to capture essential quality data elements for clinical case management and quality improvement; and build capabilities of key actors in documentation, data extraction, calculation, visualization, interpretation, and action based on prioritized quality of care indicators. Measures of possible system barriers to scale-up of equitable and high-quality interventions would also provide useful complementary information.

- **Increase linkages between national HMIS offices and RMNCH divisions**. There remains limited communication and coordination between national HMIS offices and RMNCH divisions at MOH in most countries, so HMIS is either not responsive to program needs or HMIS is overloaded with too many indicators. RMNCH projects need to make long-term investments in establishing relationships with HMIS division/HMIS strengthening projects to understand data needs and HMIS capacity and work on strengthening these linkages.

Continue to improve timeliness and availability of national HMIS data

- **Ensure the right data are available at the right level of the health system.** It is important to identify and understand which routine service data are needed by which stakeholders at which level of the health system from the community level to the national level. Not all data need to be reported to the district level and entered into DHIS2. Data need to be actionable at the different levels, and this is linked to the need for more competency and skills development around data visualization and use.

- **Maximize the use of digital solutions.** There is a need to better harness the data revolution as health information systems can continue to benefit from integration of new and better use of existing, digital tools. This can help health workers in improved analysis, feedback, and visualizations, as well as help MOHs and partners design more interoperable health systems.

- **Integrate private sector health service delivery data into HMIS**. Given that the private sector is an important source of care in many countries, this should be pursued as appropriate and feasible.

Continue to improve use of RMNCH data at multiple levels of the health system

- **Build capacity at different levels in data visualization and use**. Donors invest in building data use skills across all levels of the system. Skills need to be strengthened among facility and community health workers and supervisors in data aggregation, visualization, gap analysis, and data use for decision-making on a more routine basis.

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