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Strengthening Routine Immunization through Subnational Partnerships The Experience in Sokoto State, Nigeria

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Background

Immunization coverage rates in Nigeria are among the lowest and most inequitable in the world. The 2017 Multiple Indicator Cluster Survey (MICS¹) estimated pentavalent vaccine coverage to be 33%, while administrative and World Health Organization (WHO)-United Nations Children’s Fund (UNICEF) estimates of the third dose of diphtheria, pertussis, and tetanus vaccine (DPT3) range from 48 to 56% for 2011 and 2015. In northern states such as Sokoto, vaccination rates are among the lowest in Nigeria, with only 3% of children receiving pentavalent vaccine by their first birthday (National Bureau of Statistics and UNICEF, 2017).

The routine immunization (RI) program in Nigeria has faced a number of challenges, including a shortage of vaccines and supplies, poor quality health information system data that has made it difficult to plan and deliver adequate services, and the lack of trained health workers in rural areas (Adeloye et al., 2017; Babalola, 2009; Babalola and Lawan, 2009; Dunkle et al., 2014; Fatiregun and Etukiren, 2014; Ophori et al., 2014). A key determinant of the poor performance and underlying constraints is a need for of political commitment and accountability that results in weak financial support (Stokes-Prindle et al., 2012). While a number of development partners have provided financial and technical support to the state, activities have not been well coordinated, leading to inefficient deployment of resources.

Recognizing that reforms were needed to mobilize and coordinate resources to address low immunization coverage rates, the Sokoto State government entered into a partnership with the Bill and Melinda Gates Foundation (BMGF), the Aliko Dangote Foundation (ADF) and the United States Agency for International Development (USAID) in 2016. A three-year quadripartite memorandum of understanding (MOU) for RI systems strengthening summarized the terms of the partnership. The purpose of the MOU was to establish sustainable financing for the Sokoto immunization program and ultimately improve vaccination coverage rates through improved coordination and accountability mechanisms. The MOU aimed to achieve this goal by first assessing the costs of making the program fully functional at the state, local government area (LGA), and health facility (HF) levels and then establishing a separate “basket fund” account enabling the government and the foundations to contribute to the full operational costs of the program. To foster sustainability, MOU stakeholders agreed to a plan whereby the foundations provided the majority of the funding in the first year of implementation and decreased their funding over time while the state increased its contribution. USAID contributed to the agreement through its Maternal and Child Survival Program (MCSP), which provided

¹ An acronyms list and references for this case study are included at the end of this brief.

technical assistance and knowledge transfer support at the state, LGA, and HF levels to improve program performance.

The formation of health partnerships has become a dominant organizational model for addressing complex health issues internationally (Brugha, 2008; Cohen, 2006). While these partnerships typically operate at a global rather than individual country or state level, they have demonstrated a number of benefits when compared with organizations or countries operating independently. These benefits include avoiding duplication of investments and activities, sharing knowledge and resources to improve effectiveness, and creating momentum and attracting funding by building a common platform that gains legitimacy and support (Cahill et al., 2003; Caines et al., n.d.). Despite these benefits, a number of criticisms have also been made about global health partnerships, including that they impose external priorities through the introduction of vertical disease programs that distract countries from focusing on health system strengthening, limit stakeholders' voices in decision making, provide insufficient resources, and promote poor governance practices (Biesma et al., 2009; Buse and Harmer, 2007; Mwisongo and Nabyonga-Orem, 2016).

There is limited evidence on how partnerships can be used to improve health system performance at the subnational level. Therefore, the MOU in Sokoto provides an opportunity to document a subnational partnership aimed at addressing systemic challenges facing the RI program. The purpose of this case study is to describe the processes used to develop and implement a state-level partnership in Sokoto and to assess how well the partnership succeeded in achieving its desired outcomes.

Methods

To develop an in-depth understanding of the processes, achievements, challenges, and opportunities associated with the implementation of the MOU, the MCSP study team adopted a case study methodology. The team reviewed key documents: diagnostic assessments, the MOU legal document, relevant national and state policies and guidelines, annual harmonized and costed workplans, PowerPoint presentations from biannual MOU review meetings, and working group (WG) meeting reports. The team also conducted key informant interviews with government officials and collaborating partners (N=32) in June 2018. Interviews followed a semi-structured guide that covered the design, start-up, implementation, monitoring and evaluation (M&E), and transition stages of the MOU.

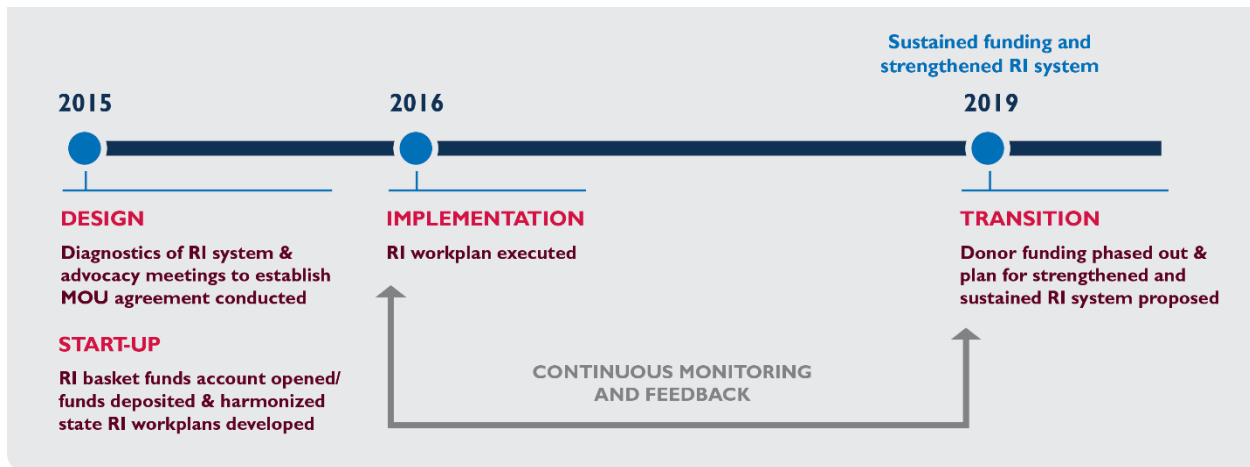
The team reviewed and compiled documents and interview notes into a foundational document within which the data were further organized, aggregated, and summarized. Data were then coded in accordance with a summary matrix that linked the determinants of effective partnerships with results at different stages (Druce and Harmer, n.d.). See Appendix 1 for a summary matrix. The team adapted a series of questions that the World Bank considers appropriate when examining a partnership in its early stage of development to provide the basis for reporting the findings (Independent Evaluation Group, 2012):

- **Design:** Was the design of the MOU appropriate?
- **Start-up:** Were governance and management arrangements in place and functioning as planned?
- **Implementation:** Were resources mobilized? Were activities implemented as planned?
- **M&E:** Were effective M&E systems put in place?
- **Transition:** What efforts were made for transition at the conclusion of the partnership?

Findings

The section below describes the processes undertaken in each stage of the MOU to address the determinants of effective partnerships outlined in the summary matrix in Appendix 1. Figure 1 shows a timeline of when each of these stages occurred in Sokoto.

Figure 1: Timeline of MOU development and implementation in Sokoto State, Nigeria



Design Appropriateness

This case study examines three determinants that support appropriate design of an effective partnership: advocacy to ensure strong stakeholder engagement, an assessment that clearly defines the challenges and needs, and a clear rationale and goal for the partnership. The following section describes the extent to which the MOU addressed these design determinants.

Advocacy and conceptualization

The original concept for the MOU in Sokoto emerged from the experience in Kano State, where BMGF and ADF had initiated a similar approach to positive results. BMGF and ADF approached the Sokoto governor, and discussions took place over a year to gain his buy-in and confidence to implement an MOU. With backing from the governor, BMGF and ADF organized a series of advocacy visits and meetings with the governor, the executive secretary (ES) of the State Primary Health Care Development Agency (SPHCDA), the Sultanate Council, all the local government chairmen, other members of traditional institutions, district heads, and the representatives of the principal partners. USAID joined discussions later in the process and planned to provide RI program technical assistance rather than contribute as a financing partner. After development of the MOU, non-MOU signatory partners² were involved through WGs.

Diagnostic assessment

The Solina Group and MCSP conducted diagnostic assessments using document reviews, interviews, and MICS findings to inform the MOU. Interviews guided by a questionnaire were conducted with community leaders, health education officers, state and LGA cold chain officers (CCOs), LGA immunization officers (LIOs), RI in-charges, RI service providers, HF in-charges, and others. The assessments provided an overview of the RI system by detailing challenges with cold chain equipment (CCE), logistics, community engagement, health worker capacity, and available funds to support RI. Findings from these analyses were used to determine priorities to be addressed during MOU implementation.

² Non-signatory partners included the Centers for Disease Control Nigeria Stop Transmission of Polio Program (CDC-NSTOP), the Chigari Foundation, European Union-Support for Immunisation Governance in Nigeria (EU-SIGN), the Solina Group (operating under funding from BMGF), UNICEF, and the WHO.

Rationale and goal

The overall goal of the MOU was to generate sustainable financing for RI with the aim to increase RI coverage to 80% by the end of the MOU period.³ In addition to improving coverage, the MOU was meant to address the poor state of RI facilities and logistics management and weak capacity of health personnel to deliver RI services. The MOU also aimed to achieve sustained state leadership, technical capacity, accountability, and coordination for RI programming.

Start-Up

This section describes the extent to which the MOU addressed three start-up determinants to support an effective partnership: suitable and effective incentive and institutional arrangements and legal structures, a harmonized workplan, and strong financing.

Suitable and effective incentive and institutional arrangements and legal structures

Partners agreed on several preconditions to be addressed before the MOU was signed. Most importantly, the government needed to sign the amended national Primary Health Care Under One Roof (PHCUOR) Policy into state law, which brought management of all primary care staff within the health care system under the control of the SPHCDA. The move was important because these management structures enabled the state to enforce accountability measures throughout the system as part of MOU implementation. Partners and the state worked together to draft the MOU. Other government stakeholders did not immediately support the MOU; for example, the Ministry of Finance, which was required to commit the funds, and the Ministry of Justice, which was required to review and approve the MOU document, were slower to engage. To obtain the necessary approvals, partners on the ground ensured the support of the governor and continuously advocated with key stakeholders.

MOU organizational structure

Prior to the introduction of the MOU and the amended PHCUOR bill, management of immunization practices was fragmented across state government departments and agencies,⁴ making implementation of a comprehensive and strategic approach to improved RI programming challenging. The MOU integrated RI into the Task Force for Immunization (TFI), which was previously focused only on polio.⁵ The TFI provided overall strategic guidance, overseeing implementation of the polio and RI program. The TFI met every month to discuss and develop plans to address emerging challenges. A separate MOU Principal Partners Committee composed of MOU signatories (including the governor, Aliko Dangote, Bill Gates, and the USAID mission director) also met biannually to discuss emerging issues that affected the operations or guiding principles of the MOU and advised the SPHCDA accordingly. The high-level partner engagement served as an essential element in achieving sustained government commitment. In addition, a quarterly Partners' Forum meeting included signatory and non-signatory partners to share updates, evaluate implementation, and determine RI program priorities. The MOU funding partners approved significant costs,⁶ reviewed and approved changes for activities, and approved milestone completions.

To oversee MOU implementation at the state level, in 2015 MOU stakeholders created an RI WG. The RI WG provided updates on activities and elevated unresolved issues to the TFI. All partners working on RI

³ Given the low values of immunization coverage at baseline, stakeholders perceived these targets as aspirational.

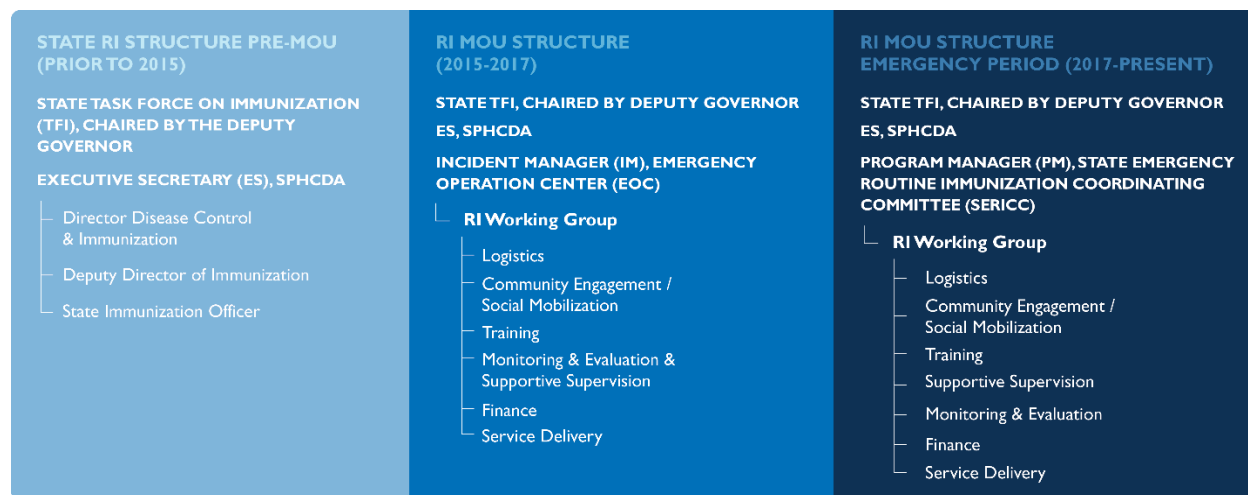
⁴ The RI program was managed by the director of disease control and immunization who reported to the SPHCDA executive secretary (ES). The state immunization officer and deputy director of immunization reported to the director of disease control and immunization. Polio was considered an emergency and was managed separately under the leadership of the incident manager who reported directly to the SPHCDA ES. Human resources from the immunization unit supported polio activities. The SPHCDA ES reported to the deputy governor who chaired separate task forces for RI and polio.

⁵ The combined TFI is chaired by the deputy governor and includes 23 LGA chairmen; the Sultanate; the commissioners for health, LGA affairs, and finance; the SPHCDA ES; SPHCDA directors; the IM; the SIO; and each partner.

⁶ Any expenditure above 250,000 naira required partner approval.

participated in RI WG meetings regardless of whether they were MOU funding partners. The State Incident Manager (IM) of the Emergency Operation Center (EOC) chaired the RI WG, and the state immunization officer and deputy director of immunization provided support. The RI WG reported directly the SPHCDA ES, who was responsible for overall management and leadership of primary health care (PHC) activities, including assigning staff to WGs. LGAs implemented a similar governance structure.

Figure 2: Changes in the RI program organizational structure (pre-2015 to present)



The MOU established a number of sub-WGs to address specific areas of need, including finance, community engagement/social mobilization, supportive supervision (SS), M&E, logistics, service delivery, and training. A state government employee led each sub-WG, and all partners contributed. The sub-WG structure enabled team members to resolve specific technical issues at a lower level during monthly reviews and elevate issues to the RI WG when more advice was required, as the heads of the sub-WGs participated in RI WG meetings.

In late 2017, because of the country’s continuing poor immunization performance, the National Primary Health Care Development Agency set up the National, State, and LGA Emergency RI Coordinating Committees (NERICC/SERICC/LERICC) to improve RI performance and efficiency. The Sokoto SERICC did not significantly alter the management structure of the MOU, but the SERICC Program Manager (PM) now chairs the RI WG and manages the MOU workplan. The change caused a temporary slow-down in operations while the state ensured coordination between the EOC IM and the SERICC PM. The structure of the sub-WGs also slightly changed, as shown in Figure 2.

Accountability framework

The state RI WG reinforced accountability through a system of recognition and sanction. Expectations, roles, and responsibilities for staff at all levels, along with explicit guidelines for reward and sanction, were documented in the Accountability Framework document, which addressed guiding principles; a code of conduct for WG members; and implementation guidelines for planning and coordination, data review and reporting, lot quality assurance, supportive supervision, vaccine delivery, community engagement, stock management, and financial management. Sanction measures included meetings to explain low performance, verbal cautions, warning letters, and referral to disciplinary bodies, while rewards included verbal commendations, national recognition, and certificates of recognition.

Harmonized workplan

During the MOU start-up period, in response to the diagnostic assessment, the state and partners developed a harmonized and fully costed workplan to align government and partner RI programming. All partners (including non-MOU signatory partners) provided their workplans to the sub-WGs, which then independently

developed their own yearly workplans and budgets and submitted them to the Finance Sub-WG and RI WG for consolidation. Finally, the IM submitted the harmonized workplan and budget to the SPHCDA ES, who introduced the workplan for approval from the TFI and MOU signatories. Stakeholders reviewed the workplan each quarter, and all MOU partners were required to agree on any workplan changes.

Financing

The signed MOU covered a three-year period and required the state to establish a separate budgetary line item for RI. The agreement committed ADF and BMGF to provide 70% of funds for RI programming in the first year, while the state provided 30%. In the second year, both the foundations and the state government provided 50% of the funding. In the third year, the foundations provided 30% of the necessary funds, and the state provided 70%. Originally, the state planned to take over funding of RI programming after completion of the MOU, but the MOU has now been extended for an additional five years with the foundations providing 30% of the funding. The Implementation section below describes financial management procedures.

Implementation

The structure of the RI WG and its sub-WGs drove analysis of MOU implementation. This section describes their work, addressing determinants of effective implementation, including financial accountability; strengthened capacity of human resources; enhanced communication between the health system, traditional institutions, and the community; improved resource management (i.e., vaccine procurement and delivery); and improved performance measurement.

Financial management

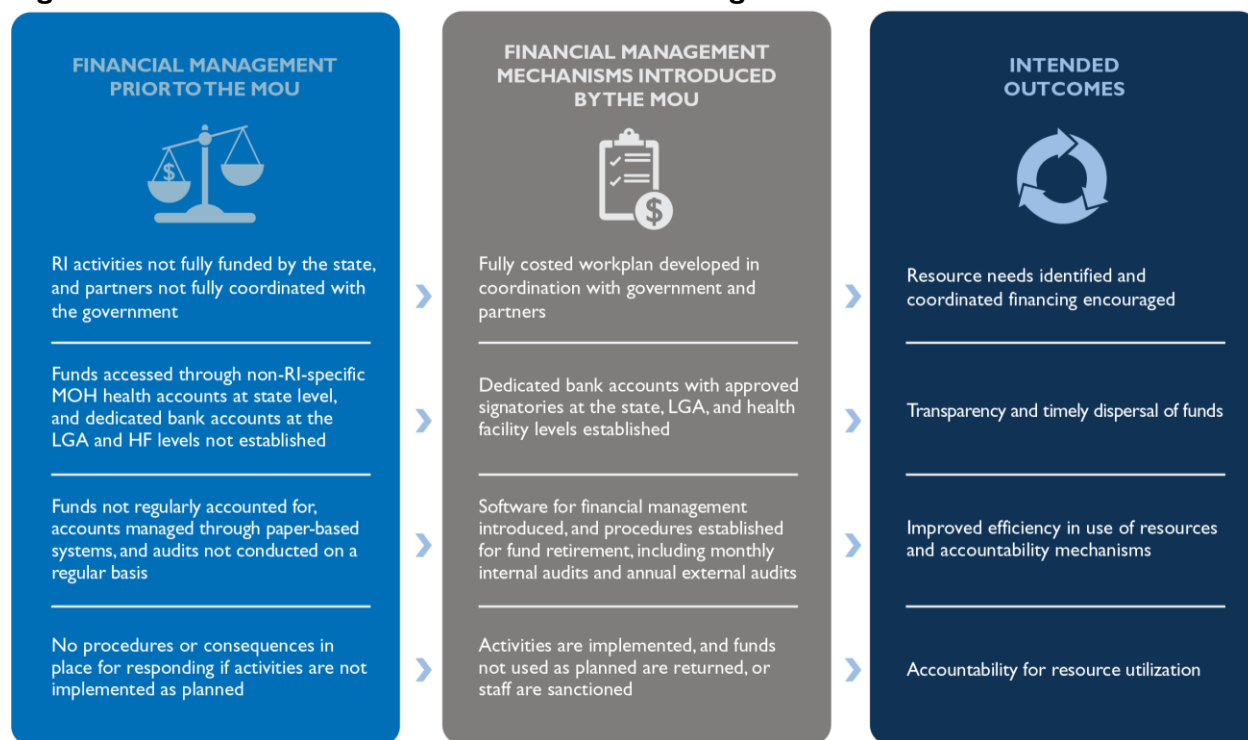
The MOU mandated that the state have a dedicated RI account (sometimes called the state basket account) to hold all funds. The single account made access to funds more efficient because it reduced the number of protocols that officials were required to complete to access funds. The separate account also signaled government commitment to the RI program, prevented resources from being diverted from RI programmatic needs, and promoted transparency, as all partners were able to see how funds were being used and dispersed. All LGAs and HFs were also required to open dedicated RI accounts at the same bank to manage dispersed funds. Partners sent money to the state account, and the state sent money to all the other accounts. The Finance Sub-WG managed the state RI account, and two signatories⁷ were required to access funds. For HF accounts, the director of health was always required to sign with one other signatory.⁸

To ensure financial accountability, the MOU put in place a number of key measures summarized in Figure 3. Funds were disbursed through bank transfers rather than in cash, which avoided delays and ensured traceability. The direct disbursement and consistent availability of funds at operational levels helped ensure that staff at all levels conducted routine activities like monthly review meetings, supportive supervision, and RI outreach sessions as planned. Activities were only approved for funding if they were in the harmonized workplan or if they had special approval from the RI WG and partners. Those spending the money were required to fill out forms and document spending through receipts or meeting notes; funds spent without proper documentation had to be returned to the state. Trainings were conducted for RI providers, state and LGA RI supervisors, and financial managers to ensure their understanding of financial tools, processes, and requirements and to build capacity for future financial and records management and accountability. To support effective financial monitoring, state financial officers began using accounting software rather than a paper-based accounting system. In addition, the SPHCDA Finance Department conducted monthly and quarterly internal audits to ensure that money was being spent appropriately and that funded activities were carried out. An external consultant conducted annual external audits, which identified and presented recommendations for continued improvement.

⁷ The ES, the director of disease control, the finance officer, and the director admin were signatories on the state account.

⁸ Other signatories on the facility accounts were the financial clerk and the ward development committee chairman.

Figure 3. Intended outcomes of MOU financial management mechanisms



Training

The Training Sub-WG focused on building capacity at the state, LGA, and HF levels to provide RI services and monitor, evaluate, and manage the RI system. Appropriate and timely training of staff was not only a mandate of the MOU but also a requirement in the amended PHCUOR bill. At the MOU's start, government staff struggled to understand the MOU, its mandate, and their responsibilities. The state organized a number of trainings for state personnel, including through a learning visit to Kaduna State, where a similar MOU was underway, so that staff could understand operational procedures. Once capacity for MOU management had been built, the sub-WG conducted a needs assessment to determine training gaps among staff and conducted trainings at the state, LGA, and HF levels to fill capacity gaps in delivering RI services, cold chain management, monitoring, evaluation, and other related topics. Members of the group also participated in the nationwide revision of the *Basic Guide Training Manual* to guide delivery of comprehensive RI training, conducted a training of trainers, and ensured the cascaded training of more than 1,500 health workers using the *Basic Guide*. In addition, the sub-WG evaluated trainings to determine whether they had appropriate participation and whether those attending had gained the required skills. The group developed a database to track health workers and managers who had been trained, identify gaps in training, and prioritize future training activities. To oversee future training implementation, the group recommended the creation of a training unit within the SPHCDA. Finally, the group identified causes of low staff motivation unrelated to capacity, such as staff not receiving salaries, and advocated that they be addressed.

Supportive supervision

The SS Sub-WG worked to establish SS and mentorship processes for RI implementation. The group was originally part of the M&E Sub-WG because data collected from SS informed MOU M&E efforts. However, MOU organizers recognized the importance of implementing SS and mentorship to build capacity in staff rather than exclusively collect data; thus, the SS Sub-WG was established separately. The SS Sub-WG developed an SS and mentorship plan for the state that outlined the roles and responsibilities for supervisors and mandated the use of standard supervision tools. State supervisors were to conduct quarterly SS visits to the LGAs, and

LGA supervisors were to conduct monthly SS visits to HFs. SS visits used a checklist and included feedback sessions to discuss progress, challenges, and potential solutions. Administrative data⁹ showed that the percentage of HFs receiving at least one SS visit for RI within a quarter increased from 56% at the start of the MOU to 99% in 2018.

Community engagement and social mobilization

The Community Engagement and Social Mobilization Sub-WG focused on increasing demand for RI and improving and strengthening facility-to-community linkages by coordinating community mobilization and engagement activities. This sub-WG included representatives from the Sultanate Council Committee on Health (SCCOH), which represents the Sultan of Sokoto, who is the spiritual leader of Nigerian Muslims and the chairman of the traditional leader council. The SCCOH serves an important role in community engagement in Sokoto: the group works with traditional institutions to coordinate health activities, facilitate dialogue, disseminate key information, and provide feedback to the Sultan of Sokoto on progress. The sub-WG and the SCCOH coordinated in close partnership to carry out social mobilization activities. They also established a department for advocacy, communication, and community mobilization within the SPHCDA to guide future community engagement.

The sub-WG and the SCCOH worked together to develop a community engagement strategy with simple guidelines for implementation by the state and partners. They oriented the full SCCOH on the importance of RI, and they identified government focal persons at the state, LGA, and ward levels to liaise between government and traditional institutions. The sub-WG and the SCCOH identified specific RI-support roles for community resource groups (CRGs) that included traditional birth attendants, traditional barbers, imams, and other community leaders and coordinated with ward development committees (where they existed and were functional) led by traditional rulers. The sub-WG and the SCCOH trained the CRGs, ward development committees, and local leaders through cascaded trainings on key RI information. Traditional leaders then supported planning for and promotion of RI facility-based and outreach sessions and contributed to monitoring and SS processes. These traditional leaders registered children in their communities, linked them to facilities for RI, and tracked their immunization progress. In addition to engaging with traditional leaders, the sub-WG and the SCCOH trained service providers to use simplified registers and tools that enabled volunteers to follow up with children in the community. The sub-WG and the SCCOH also engaged traditional barbers and community health workers to register children for RI and refer them to facilities.¹⁰ The sub-WG and the SCCOH supported community mobilization activities in local dialects by working with traditional institutions and civil society organizations to conduct sessions to educate the public on RI, and they trained town announcers in RI messaging.

Logistics

The Logistics Sub-WG ensured potency of vaccines and their safe arrival at HFs at the right time and in the right quantities. To achieve these objectives, the group introduced a number of activities under the MOU. First, the sub-WG procured CCE in the first year of the MOU (when partner funding was at its highest), ensuring a more consistent supply of appropriately-stored vaccines and leading to fewer stock-outs. The group also initiated renovations of cold storage rooms and planned preventive maintenance on equipment. Second, the group introduced a push system for direct delivery of vaccines to HFs through a private distributor and explored options to train government staff on vaccine delivery. Third, to build capacity for cold chain management, the sub-WG developed a guide to show the maintenance protocol and trained ward technical officers in its use. Finally, to improve analysis and reporting on vaccine utilization to support decision-making, the group worked to move to an electronic records storage system and supported the development of new reporting forms to

⁹ The government and other organizations collect this type of data for registration, transactions, and record keeping, usually during the delivery of a service.

¹⁰ Abdulkarim, Masduq, et al. 2018. "Engaging Community Resource Persons to Identify, Refer and Track Newborns for Routine Immunization (RI) Services in Sokoto States, Nigeria: Findings from a mixed methods evaluation." Manuscript in preparation.

capture vaccine utilization data. The sub-WG also ensured that regular SS visits were used to train LGA CCOs in filling out forms and reporting on vaccine stocks and engaged directly with the CCOs to inform them on cold chain management updates.

Service delivery

The Service Delivery Sub-WG supported the planning, implementation, and monitoring of service delivery across the LGAs and HFs providing RI in several ways. The group conducted state-level orientations of LGAs in microplan development to manage service delivery and supported LGAs and HFs to create microplans.¹¹ The group worked with other sub-WGs to monitor implementation and identify and address gaps hindering effective service delivery, including issues with health worker capacity; vaccine supply, delivery, and storage; staff motivation and attitude; funding; and data management. The group also ensured that SS, M&E, and implementation activities were aligned and coordinated across the sub-WGs. The sub-WG conducted monthly microplan reviews at the LGA level to discuss progress, provide feedback to LGA and HF staff, and define action plans to address key issues. Finally, the group worked to expand immunization services by using projections to assess population needs and allocate resources to HFs and outreach sessions accordingly.

Monitoring and evaluation

The M&E Sub-WG developed an M&E framework to guide the implementation of the harmonized workplan, ensure transparency, and provide the data necessary to monitor progress and improvements. The group implemented a number of activities to accomplish these objectives. First, the group established an M&E plan with indicators tied to activities in the harmonized workplan. Second, the group supported performance reviews through the RI WG meetings, TFI meetings, and biannual partner meetings to review MOU indicator data and discuss progress. Third, through the MOU the group procured computers and internet access, which helped to alleviate issues with paper-based forms. The sub-WG also conducted a number of activities to build M&E capacity in staff at the state, LGA, and HF levels, especially in using the newly introduced District Health Information System (DHIS2). Following initial group training efforts, the group focused on one-on-one trainings. Staff at the state level conducted individual sessions as needed with LGA staff, who conducted similar sessions with HF staff and reported on progress to the sub-WG. The group also conducted trainings to show how to report on DHIS2 data and analysis and continually build M&E capacity during data review meetings and SS visits. Finally, the group regularly brought M&E officers and LIOs to the state level for directly observed data entry sessions, where they entered hard copy data under the observation and mentorship of M&E staff.

Transition

The Sokoto RI MOU has been extended for five years, during which the foundations will provide 30% of RI program funds while the state provides 70%. Although the focus remains on improving RI systems, the Sokoto State government and partners have begun very preliminary discussions about moving toward a more comprehensive PHC MOU. Government and partner stakeholders believe that such an MOU would improve efficiency of human resources and help to resolve competing priorities across PHC programs. A scaled-up MOU would likely have a similar structure to the current MOU, with WGs and a harmonized workplan.

¹¹ Microplanning is a process used at the health facility level to determine resource needs such as quantities of vaccines; numbers of health workers; types and numbers of fixed, outreach, and mobile vaccination activities; and transportation requirements.

Discussion and Recommendations

The section below draws from key informant interviews to assess the MOU's effectiveness using the framework outlined in Appendix 1 and provide recommendations for potential improvements in Sokoto's RI programming and future MOUs.

Design: Was the design of the MOU appropriate?

Advocacy and conceptualization: Respondents indicated that the initial concept of the MOU was strong and that it provided an innovative pathway to sustainable financing for RI in Sokoto. However, they indicated that significant advocacy over time was needed to ensure the government's interest in and commitment to the scheme. For future MOUs, advocacy should begin with the governor and at the highest levels of government, and advocacy should be continuous, as it was in Sokoto, to ensure state government buy-in.

Diagnostic assessment: Although respondents indicated that the diagnostic assessment informed MOU priorities and workplan development, they noted challenges in obtaining current high-quality data as well as gaps in financial information. They noted a need for a fiscal space analysis (to understand the potential availability of funds) and stated the need for a diagnostic analysis that included more budget and financial information than was possible at the start of the current MOU.

Rationale and goal: Respondents indicated that while government focused on the goal of reaching 80% coverage, partners focused on the need to generate sustainable financing for RI. Partners indicated a concern that the state never truly focused on the need for sustainable financing. Focus on financial sustainability was important because funding needed to continue even after coverage rates increased to sustain progress and continue making improvements. Future MOUs should ensure that the goal of financial sustainability is uniformly understood between the government and partners and continuously discussed even at the lower levels of implementation.

Start-up: Were governance and management arrangements in place and functioning as planned?

Suitable and effective incentive and institutional arrangements and legal structures: Respondents indicated that these structures were effective and that they significantly increased coordination and accountability. Advocacy to pass the amended PHCUOR bill was effective; the integration of RI into the TFI brought unified management of immunization programming; and the RI WG and sub-WGs enabled effective management, implementation, monitoring, evaluation, and amendment of the MOU. High-level engagement from the MOU signatories encouraged ownership; however, it is important to note that achieving this high-level stakeholder engagement may be difficult to replicate outside of this specific context. In addition, the emphasis on financial and professional accountability increased effective implementation at all levels. Respondents noted, however, that the SPHCDA needed more time after the passing of the amended PHCUOR bill to adjust operations before MOU implementation. They noted that periodic reorientation of stakeholders on the terms of reference for the WG and sub-WGs would have been useful, that Partners' Forum meetings should be held more regularly and from the beginning of implementation to ensure effective coordination, and that partners should commit to more active participation in MOU management at the LGA level. In addition, respondents indicated that while there was significant focus on financial accountability, there was insufficient attention to the other components of performance outlined in the Accountability Framework. Finally, respondents indicated that more effective communication mechanisms were needed for sharing innovations with the NERICC, as the current reporting template does not allow for communication of learning that could be used to improve immunization results in other states.

Harmonized workplan: Respondents indicated that the RI workplan was very effective in coordinating RI stakeholders and ensuring their ownership of planned activities. The workplanning process established a new management norm: prior to the MOU, activities could be given priority if someone advocated for them even if they were not in the budget, but with the MOU, the state had to include an activity in the workplan and

budget to ensure its implementation. There were challenges, however, in developing a shared understanding of workplan activities. Some partners who were not MOU signatories did not align their own workplans with the harmonized workplan, resulting in lack of coordination and inefficiencies; future MOUs, under the leadership of SPHCDA, should strongly encourage alignment of all development partners with the harmonized workplan, even if they are not official MOU signatories. When developing future harmonized workplans, organizers should better orient stakeholders in planning, implementation, and evaluation processes. Finally, future harmonized workplans should include descriptions of activities rather than simple activity lists and budgets to promote better understanding among all partners.

Financing: Respondents noted that MOU financing was appropriate for its implementation but that there were challenges at times in ensuring timely release of funds, managing for fluctuations in exchange rates, and resolving disparities in the fiscal calendars of the government and partners. Respondents recommended that more accurate financial forecasts be prepared in the future and that capacity be built among government staff in financial forecasting to aid in planning for funds disbursement. Respondents also indicated that additional capacity is needed within the all levels of the government to hold individuals accountable for financial management.

Implementation: *Were resources mobilized? Were activities implemented as planned?*

Financial management: Respondents indicated that the measures defined by the MOU were effective in ensuring sound financial management and accountability. The creation of the state, LGA, and HF accounts; financial reporting requirements; migration to electronic records management at the state level; and implementation of audit systems improved fiscal transparency, accountability, and efficiency at all levels. Respondents also indicated several areas for improvement in future MOU scenarios. First, government respondents indicated that sanction measures be carried out more frequently and effectively to show real consequences for non-compliance with rules. Second, they suggested that internal auditing procedures needed improvement. For example, state auditors and other personnel were not consistently available to conduct required audits, and they lacked the technological capacity to conduct computer-based analyses of budget performance and funds utilization. Verification of activities like outreach was also difficult, as community members often were non-responsive to follow-up calls. Third, respondents felt that more capacity building was needed for finance and accounting staff, especially at the LGA and facility levels.

Training and SS: Respondents indicated that capacity among staff at all levels increased and that measures to assess and monitor trainings were particularly effective in determining future training needs. They also noted some areas for potential improvement. Respondents indicated that partner support was essential in building capacity, but for future MOUs, partners should focus more fully on collaborating with, mentoring, and building capacity in government staff at all levels to promote sustainability rather than working in parallel to government operations. Respondents also indicated that more efforts were needed to ensure that trainees applied their learning appropriately on the job. Government and partners should improve the quality of SS and mentoring efforts to ensure that they occur regularly and reinforce trainings in work settings, and spot checks should be conducted to determine whether staff skills improve after training. Simpler, less time-consuming SS tools may be more effective and motivating for supervisors. To address issues with LGAs not appropriately preparing for trainings, respondents suggested establishing local training WGs to manage session organization, and they suggested that cascaded trainings happen no more than two days after initial trainings to ensure that trainers recall content. Respondents suggested the need for training rooms for facilities and that trainings should occur outside the location where trainees work when possible to ensure they stay for full sessions. Sub-WG respondents suggested that a cloud-based record system could improve management of training data. Finally, respondents reiterated that staff motivation is a major issue in Sokoto and that lack of motivation stems from insufficient salaries and incentives, insufficient numbers and frequent turnover of health workers, insufficient consideration for the needs of health workers in remote areas, and confusion about roles and responsibilities. These issues are not unique to RI, and if addressed by the state, could improve not only RI but also PHC more broadly.

Community engagement and social mobilization: Respondents indicated that social mobilization efforts were effective: partners followed the strategy for community mobilization, communities and facilities coordinated more effectively, outreach sessions occurred in communities, and traditional leaders were involved in registering newborns and delivering messages. Following the introduction of community-based activities, administrative data showed that the number of children referred for immunization reached 5,135 in 2017 and increased to 15,151 in 2018.¹² However, respondents noted several potential areas for improvement in future MOUs. To improve facility-to-community linkages, respondents suggested that facility staff and community leaders be trained together to foster coordination, settlement leaders receive additional support especially in cases of illiteracy, and facility health committees be created as a platform for coordination. Government support for social mobilization efforts could be improved with additional support and supervision of settlement heads in implementing community engagement activities and more commitment from government to conduct trainings and mentorship.

Respondents noted that challenges in getting traditional leadership involvement and ownership could be addressed by bringing different communities together to learn about what has worked in different contexts and by involving traditional leaders in microplanning processes to determine local priorities. Government respondents suggested that partners should also consider providing incentives for health workers to foster participation (as was done in recent polio initiatives in the region). To address literacy challenges in training, respondents noted that training manuals should be available in local dialects, and support should be available for those with limited reading capacity. Additional structures should be created to engage male advocates for immunization rather than focusing exclusively on women. Finally, respondents indicated that CRGs and others working on community-level interventions must more effectively triangulate community data to determine gaps in coverage and areas of need for increased community engagement.

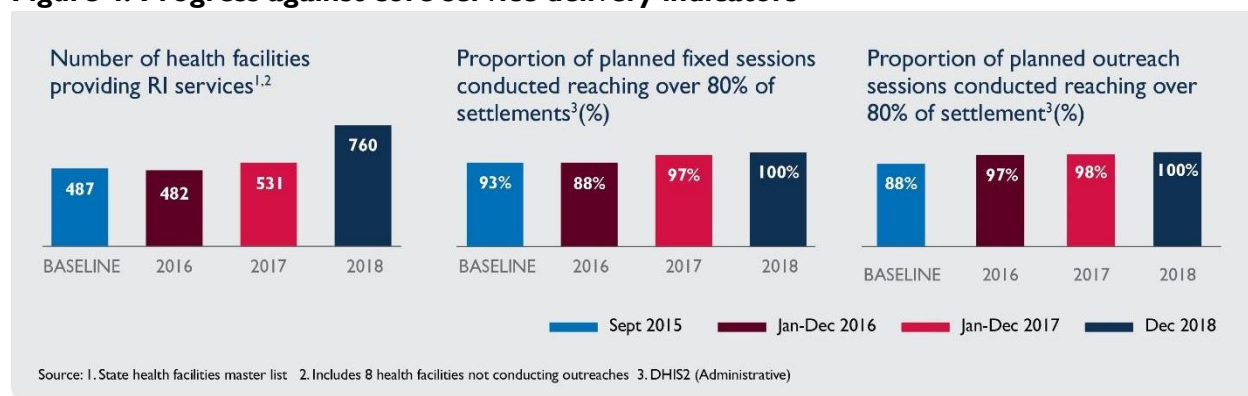
Logistics: Respondents indicated that logistics management activities have resulted in significant improvements in cold chain management and vaccine delivery. The number of HFs with functioning CCE has increased, vaccines are more available in HFs, stock-outs have decreased, and staff have a stronger understanding of cold chain maintenance requirements. According to state administrative data, the percentage of health facilities with no stock-outs in the previous 30 days improved from 75% in 2016 to 91% in 2018. However, respondents noted a number of continuing challenges and suggested potential solutions for future MOU implementation. First, maintenance and management of CCE was an ongoing problem. Respondents suggested that a specialized biomedical unit responsible for maintenance could help resolve these issues. Alternatively, respondents suggested that the government could make additional funds available for maintenance through a flexible mechanism enabling immediate deployment of resources, allowing the system to respond more quickly to equipment repair needs and avoiding expired vaccines. Second, maintaining power supply was challenging, and power outages could last for extended periods of time and seriously damage vaccines. As the cold rooms were diesel powered, respondents suggested that a direct contract with a diesel fuel supplier would help avoid bureaucratic delays in fuel delivery. Third, respondents noted that personnel capacity was weak and that the cold chain management system required staff trained in basic pharmacological concepts. Respondents indicated that additional regular trainings for CCOs as well as other state, LGA, and HF staff could help build that capacity.

Service delivery: Respondents indicated that service delivery efforts were effective in many ways. Most importantly, access to immunization services increased in the state, with training for HF staff in RI service delivery, improvements in logistics, improved access to and use of data for decision-making, and a dedicated RI budget. At the beginning of the MOU, there were only 487 HFs providing RI services, but the number increased to 760 HFs providing RI services in 2018. The state also documented increases in fixed and outreach services delivered over the course of the MOU (as shown in Figure 4). Microplans were consistently developed at all levels and aligned with the state's harmonized workplan, increasing efficiency in partner initiatives, and

¹² Administrative data were not available at the beginning of the MOU due to poor reporting practices, and there continue to be limitations in the quality of the data due to reporting errors.

monthly reviews allowed for regular discussion and action planning around challenges and gaps. Respondents also indicated a number of continuing challenges, including systematic weaknesses in commitment and accountability at all levels. These issues improved with the introduction of SERICC, which addressed RI governance issues, and respondents recommended that governance issues should continue to be monitored and improved. Local government staff and service providers continue to demonstrate limited commitment to carrying out RI activities, and the state needs to reinforce accountability measures at those levels. In addition, the community needs to be continuously engaged in planning, implementing, and monitoring RI activities. Respondents also noted continuing challenges with human resources (numbers and capacity), vaccine availability and storage, funding, and data management, already discussed in other sections of this case study as key limitations to quality service delivery.

Figure 4: Progress against core service delivery indicators



M&E: Were effective M&E systems put in place?

Respondents indicated that M&E capacity and use of data improved significantly during the initial MOU period. The M&E plan allowed tracking of progress, and staff at the state and LGA levels showed increased capacity to develop action plans based on data. Hands-on capacity building ensured that over 95% of M&E officers and LIOs were able to enter data correctly based on an observation checklist, and many were able to analyze and report on it. Respondents also noted challenges in effectively measuring outcomes and impact. The MOU set an aspirational target of 80% of children fully immunized by the end of the MOU, even though there was not consensus on the data source that would be used to measure progress toward this target. According to the National Nutrition and Health Surveys, DPT3 coverage increased from 4% in 2015 to 22% in 2018, while administrative data showed rates were significantly higher. During the MOU period, the M&E Sub-WG monitored coverage rates from household surveys and administrative data, as well as dropout rates, vaccine stock-outs, and immunization sessions conducted. They also attempted to measure engagement and capacity development with indicators such as the number of newborns referred to HFs for immunization and the number of people trained. To more accurately measure outcomes, the government began conducting household surveys using lot quality assurance sampling to identify communities with low numbers/proportions of infants vaccinated.

Respondents also noted other M&E challenges to address in the future. For example, they recommended limiting and focusing M&E indicators; the Sokoto M&E plan included more than 150 indicators, some that were complicated to measure and others that were not useful in developing action plans. Respondents indicated that a more effective M&E plan would focus on outputs instead of individual activities or on whether desired results were achieved rather than just monitoring trends. They said that government workers at all levels continue to need additional capacity building to interpret and use data and recommended that more efforts be made to train all staff on how to describe, observe, and reflect on trends. They also suggested that further capacity building efforts, including on use of technology, would improve staff motivation and ensure more effective electronic data management. Finally, although the MOU had agreed-upon indicators, some

development partners had additional indicators that did not align with the MOU indicators. Respondents felt that a single partner-endorsed M&E plan would be more useful for effective and systematic M&E.

Transition: *What efforts were made for transition at the conclusion of the partnership?*

Respondents felt that structures established by the MOU (e.g., the WGs) are likely to continue because stakeholders are accustomed to them and see their usefulness in streamlining processes and increasing efficiencies. Government respondents also felt that the state is likely to continue RI funding at the same level but indicated that advocacy for the funding will continue to be essential. Other issues will need attention as RI fully transitions to government management and financing. First, respondents noted the need for increased attention to human resources, including building the workforce and providing increased capacity building opportunities. Continuous capacity building is essential in all areas but is especially important in data management and analysis, a historically neglected area. Second, respondents indicated the importance of regular HF assessments to determine their capacity and needs in continued implementation of immunization program activities. These assessments should be accompanied by periodic performance assessments and the development and implementation of quality improvement plans. Third, respondents emphasized that systematic community engagement is an essential part of any sustainability plan. Community engagement should include interventions to educate community members on services available at facilities and to increase demand for those services. Finally, the state should have a learning agenda to determine what elements of its work it plans to share with the national government and other states to inform their processes and development.

Conclusion

The Sokoto RI MOU developed a coordinated approach that mobilized resources, provided clear governance structures, and leveraged the competitive strengths of key stakeholders to improve program performance. As such, the MOU provided a useful framework for tailored partnerships at the subnational level to increase coordination, improve financing and accountability, and strengthen public health programs in the future. Learning and recommendations from this case study and similar documentation compiled for other states implementing similar MOUs (Bauchi, Kano, Kaduna, Yobe, and Borno) have been compiled into a Start-Up Guide, created to enable other states to implement similar interventions for RI or other PHC programming.

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Appendix I: MOU Conceptual Themes for Analysis¹³

No.	Theme	Key Questions
1 Design	Rationale/evidence-based partnership	Was there a rationale or evidence base for the partnership with a clear goal and definition of success?
2	Consultative process with appropriate partners /stakeholders	Were appropriate stakeholders engaged? Are senior partners actively engaged?
3	Realistic assessment of tools & strategies available & resource gaps	Was a feasibility or diagnostic assessment conducted?
4 Start-up	Suitable and effective incentive and institutional arrangements and legal structures/agreement on shared government structures	Was there a strategic plan/workplan? Were there clear roles and responsibilities?
5	Committed and strong senior management team	Are senior partners actively engaged?
6	Clear decision making/coordination	Are there mechanisms in place for decision making and coordination?
7	Sufficient resources , funds, staff, materials, and time	Are sufficient resources allocated to activities?
8 Implementation	The 7Cs – Clarity of leadership, understanding, purpose, role, commitment, management, measurement	Did implementation follow management best practices (i.e. 7Cs)?
9	“Trust, but verify ”	Were there systems in place to verify disbursement and utilization of funds?
10	Communication within partnership AND all stakeholders	Were communication mechanisms in place for all stakeholders?
11	Invest in training of staff	Were there investments to build capacity?
12 Transition	Plan for evolution of partnership	Were considerations made for the future of the partnership?
13 M&E	Establish clear metrics to track and measure success	Were there indicators to track and measure success?
14	Performance feedback	Were there regular opportunities to provide performance feedback?
15 Context	Flexible approach to problem solving	Were stakeholders flexible in responding to problems?
16	A political and social climate conducive to partnership	Was the political, economic and social climate supportive of the partnership?

¹³ Adapted from Druce and Harmer, n.d.

Acronyms List

ADF	Aliko Dangote Foundation
BMGF	Bill and Melinda Gates Foundation
CCE	cold chain equipment
CCO	cold chain officer
CRG	community resource group
DHIS2	District Health Information System 2
DPT3	diphtheria, pertussis, and tetanus vaccine
EOC	Emergency Operation Center
ES	executive secretary
HF	health facility
IM	incident manager
LERICC	LGA Emergency Routine Immunization Coordinating Committee
LGA	local government area
LIO	LGA immunization officer
M&E	monitoring and evaluation
MCSP	Maternal and Child Survival Program
MICS	Multiple Indicator Cluster Survey
MOU	memorandum of understanding
NERICC	National Emergency Routine Immunization Coordinating Committee
PHC	primary health care
PHCUOR	Primary Health Care Under One Roof
PM	program manager
RI	routine immunization
SCCOH	Sultanate Council Committee on Health
SERICC	State Emergency Routine Immunization Coordinating Committee
SPHCDA	State Primary Health Care Development Agency
SS	supportive supervision
TFI	Task Force for Immunization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WG	working group
WHO	World Health Organization

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