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# Community Engagement, Routine Immunization, and the Polio Legacy in Northern Nigeria

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Northern Nigeria has a history of low use of health services, resistance to immunization programs, and high maternal and child mortality rates. Cultural, physical, and financial barriers prevent many families from accessing health care. The Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn, and Child Health Initiative (PRRINN-MNCH) was a project funded by the UK Department of International Development and the Norwegian government that used an integrated approach to strengthen health services and increase community demand for and access to quality health care. The project's community engagement approach aimed to empower communities, work with volunteers, and develop solutions to overcome barriers to health. Simultaneously, PRRINN-MNCH was building primary health care systems, including immunization, and strengthening governance to increase the availability and quality of services. Baseline and endline population-based random household surveys conducted in 2009 and 2013 showed improved community knowledge, increased use of antenatal care and immunization services, and a decrease in maternal, infant, and under-5 mortality. In the project areas, the maternal mortality ratio fell from 1,270 to 1,057; under-5 mortality decreased from 160 to 90.1 per 1,000 live births, and infant mortality decreased from 90 to 46.9 per 1,000 live births. The overall coverage of fully immunized children rose from 2.2% to 19.3%. Many of the PRRINN-MNCH lessons learned about community engagement are relevant to the Polio Eradication Initiative when Nigeria reaches polio-free status and community mobilizers are mainstreamed into routine health services.

Northern Nigeria has a complex health situation. According to the Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH, 2013b), communities are underserved by health services and have low immunization coverage, high maternal mortality, and high infant and under-5 mortality rates. Northern Nigeria's environment consists of extreme poverty, low literacy, few skilled health workers, and community resistance to immunization and government services. The ongoing and intensive effort toward polio eradication and frequent supplemental immunization activities often divert focus away from routine immunization and other primary health care services (McArthur, 2014). A polio vaccine boycott in 2003–2004 in Northern Nigeria highlighted the importance of community support and understanding of health programs. In response to the boycott, the Polio Eradication Initiative established a network of thousands of community mobilizers who were engaged to increase awareness, understanding, and acceptance of the polio vaccine.

PRRINN-MNCH ran from 2006 to 2014, with funding from the U.K. Department for International Development and the government of Norway. The project was established to strengthen routine immunization and maternal, newborn, and child health (MNCH) services while building a supportive primary health care system and working with communities in the states of Jigawa, Katsina, Yobe, and Zamfara. Funding for in-depth MNCH activities and operations research began in 2008 to address the critical issues of maternal, infant, and child mortality.

PRRINN-MNCH used an integrated approach to improve services, governance, and supply chains, while at the same time using community engagement (CE) strategies to increase demand for quality health care. The project worked closely with national, state, and local government area levels to build capacity and sustainability of activities.

Immunization strengthening was conducted statewide. The government and PRRINN-MNCH developed plans and budgets to support immunization and strengthen primary health care governance through integrated supportive supervision, improving vaccine management, and ensuring regular immunization outreach services. When the MNCH component was added, the project adapted the World Health Organization cluster approach to establish emergency obstetric care and basic obstetric care facilities in the government's primary health care program in three states (Katsina, Yobe, and Zamfara) and included different levels of CE in each of the clusters. Outcomes of CE activities were measured using baseline and endline household surveys.

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## Method

For this article, in addition to a literature review of project documents, peer-reviewed articles, and gray literature on CE, polio, and routine immunization, the authors have described the PRRINN-MNCH strategic approach to CE and documented its implementation and impact on routine immunization, primary health care, and MNCH in the project sites. The article provides lessons learned and recommendations, on the basis of the PRRINN-MNCH experience, for expanding the Polio Eradication Initiative network of community mobilizers to promote and increase the use of routine immunization and other health services in Northern Nigeria.

PRRINN-MNCH activities were closely monitored using population-based random household surveys conducted in 2009, 2011, and 2013. Results measured the progress of maternal, infant, and under-5 mortality within project emergency obstetric care clusters and the effect of CE activities. Because the data collection method was specific to the project, it is not possible to compare PRRINN-MNCH data with states outside the project intervention or other health surveys.

## Results

### *PRRINN-MNCH CE Approach*

Communities in Northern Nigeria have long experienced inadequate health services, resulting in low trust and low use of existing services. Much of the polio vaccine boycott in 2003–2004 was linked to rumors about adverse effects from the vaccine, but it also had roots in this lack of services and community distrust of government health systems (Renne, 2010; Yahya, 2006)

A baseline study in 2009 (PRRINN-MNCH, 2009, 2013b) found that support for routine immunization was weak and health facilities reported frequent vaccine stockouts and poor vaccine uptake. Most women gave birth at home, either alone or with traditional birth attendants. Home births were more culturally supported, and women were reluctant to use male health workers, a common occurrence in Northern Nigeria where there are few female health workers. The main barriers to improved health-seeking behavior were lack of awareness and knowledge, gender inequality, poverty, and poor access to facilities. Women were also required to seek permission (from husbands and families) to access services, which often dangerously delayed care.

A qualitative study conducted in 2009–2010 showed that in poor, rural communities in Jigawa, Yobe, and Zamfara, 80% of child deaths occurred in 20% of the women (PRRINN-MNCH, 2013d). Women with multiple child deaths reported that they had no help with their children, no social support, and little respect or support from their husbands, in-laws, or own relatives. The CE strategy had to be inclusive these women who were at risk of being excluded from health interventions.

PRRINN-MNCH was committed to building community participation in health care and increasing demand for primary health care, routine immunization, and MNCH services. CE was done in coordination with overall health system

strengthening in the states so quality health services were available to meet increased community demand and expectations. The PRRINN-MNCH approach balanced addressing social factors and other demand-side constraints behind the low use of health services.

### *Strategy*

PRRINN-MNCH mapped a theory of change to identify barriers and activities to achieve short-, medium- and long-term behavior change. Implementation advanced to immediately address urgent concerns and more complex issues requiring long-term social change were introduced over time (see Figure 1). The theory of change was based on three principles:

1. *Generate communitywide social approval for behavior change in Northern Nigeria.* Traditional social structures and institutions exert considerable influence over individuals; therefore, community members needed the support and approval of community leaders, family members, and peers to adopt new behaviors. Social approval also involved reaching out to key decision makers and opinion leaders, including husbands, mothers-in-law, sisters-in-law, traditional community leaders, and religious leaders.
2. *Adopt a whole-community approach.* In the project states, child deaths were found to be concentrated among a relatively small proportion of households where women perceive that they lack social support and who have no access to information and services (PRRINN-MNCH, 2013d). CE activities addressed the importance of social inclusion and activities were tailored to specifically reach undersupported women as part of the whole-community approach.
3. *Build community capacity and cohesion for long-term ownership and sustainability.* The community leads and eventually sustains the behavior change process, ensuring that appropriate MNCH health-seeking behavior become the norm.

Application of these principles led to the following CE program components:

1. Recruiting and training community volunteers to facilitate a process of change at community level. The program aimed for up to 30 community volunteers per community.
2. Holding community discussion groups that give community members an opportunity to reflect on the local MNCH situation and to plan how they should respond.
3. Engaging traditional, religious, and community leaders to participate in and support the change process.
4. Building community-based service delivery, led by trained community health workers who go door-to-door to provide health information and basic MNCH services.
5. Strengthening community oversight of their primary health care center and establishing facility health committees.
6. Using targeted activities to engage and support the most vulnerable (e.g., through young women's support groups).
7. Establishing community emergency response systems, including free emergency transport services for women

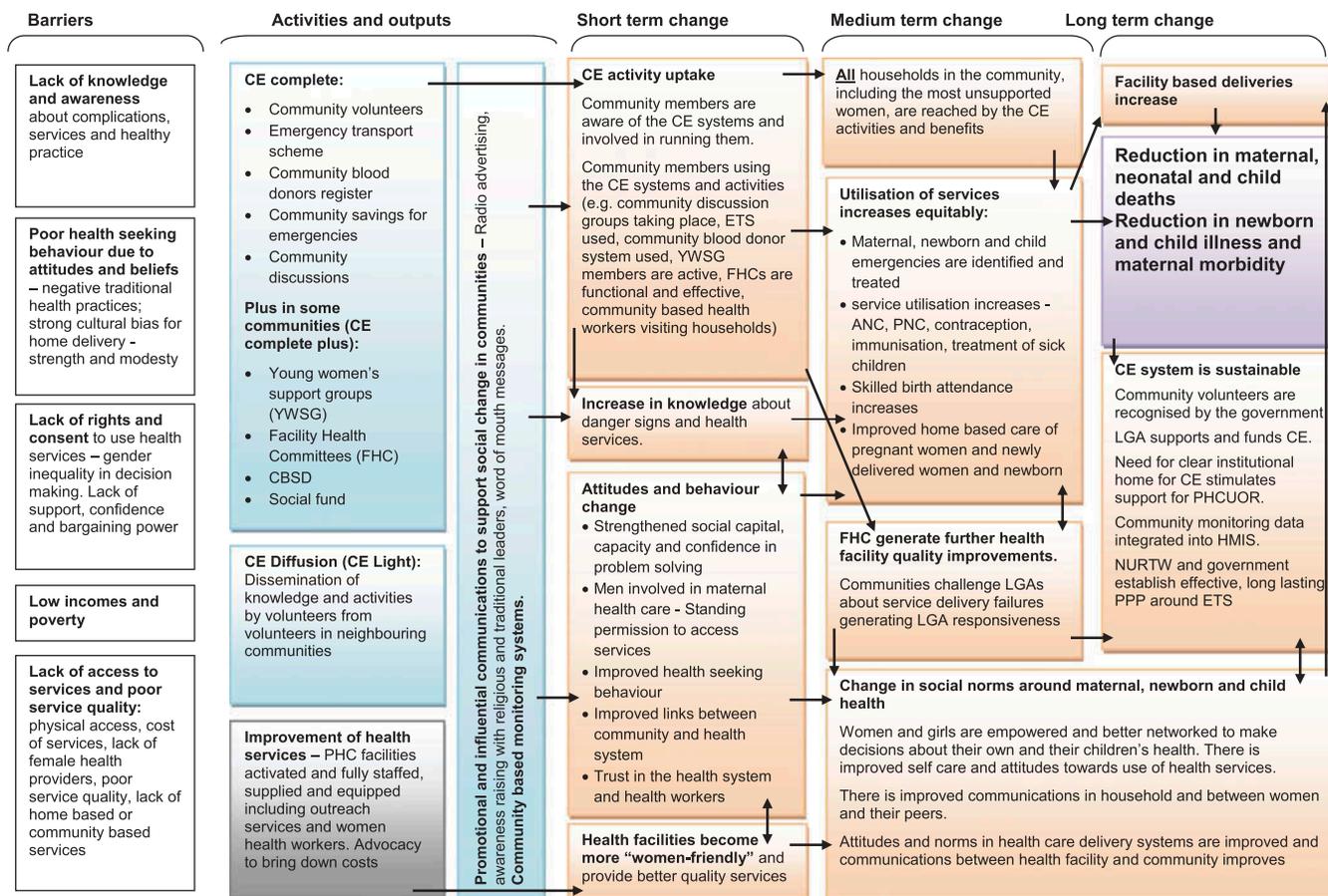


Figure 1. PRRINN-MNCH community engagement theory of change. From Taylor and Findley (2014).

in labor, blood donor groups, and savings to support emergency health costs.

- Supporting mentoring and coaching to help communities translate their new knowledge into action.
- Using community-led monitoring to show the results of CE activities.

Community ownership was essential. Before any activity was conducted, traditional, religious, and community leaders had to be engaged and supportive. An initial community forum was held to encourage people to reflect on their health situation and commit to improvements and practical solutions. Thirty community volunteers were identified at this forum and were trained on 12 MNCH and routine immunization modules and interpersonal communication. All community volunteers recorded their activities, which were shared with local government area officials to monitor, review progress, and understand community concerns and needs. Officials from the state and local government area monitored activities and provided supervision, coaching, and mentoring.

Community discussion groups, facilitated by community volunteers, were the building blocks to ownership of the CE process. Everyone in the community was encouraged to participate. Many communities held separate groups for men and

women, but there were also joint discussions. The discussions began by focusing on maternal emergencies, which are frequent and an urgent concern in most Northern Nigerian communities. Proactive steps were taken to include the youngest and/or poorest women and those who may be socially excluded. Discussions allowed the community to debate, contextualize new health information, and decide on and participate in solutions. By including the whole community, all key members were able to learn and share new knowledge with their spouses, family, and friends, facilitating adoption of healthier behaviors or actions.

Community volunteers used Say and Do interactive communications and narrative mimes to help participants remember key health messages. With Say and Do, community volunteers and participants said the information to be learnt and then did an action using their body to help remember the information. An example was the *immunization hand*, where the immunization schedule was said and also demonstrated using fingers to represent the timing of each dose. Narrative mimes were short dramas where the community volunteer read a short story, which was then acted out by the participants. The drama was followed by a community volunteer-led discussion to encourage learning and sharing of messages. Community volunteers also led discussions following the "Majigi" (a mobile cinema) on the importance of preventing polio.

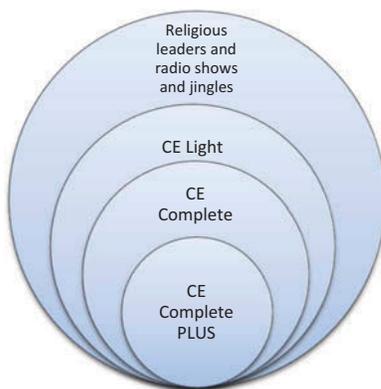
The community volunteer work was coordinated with the development and dissemination of radio jingles conveying immunization and MNCH promotion messages throughout the states. Radio is frequently used in Northern Nigeria as a communication tool and the project found that jingles were more effective when combined with community discussions. Religious leaders are also important sources of information in Northern Nigeria and were trained by the project to deliver key MNCH messages.

### Implementation

The PRRINN-MNCH strategy was rolled out in phases to ensure that health services were available to meet community needs. Each phase corresponded to a group of local government area clusters where the primary health care and emergency obstetric care facilities were improved alongside CE activities. The integrated package was spread progressively from 2009 to 2014 until it covered clusters in 72 local government areas in four states with a combined population of 14.7 million people. Community volunteers trained by the program reached a population of three million by working in their own communities. A much larger population was reached (7.64 million) when the community volunteers rolled out their support to neighboring communities (PRRINN-MNCH, 2013e).

The CE package was implemented in steps, starting with the recruitment and training of community volunteers, facilitation of the community discussion groups, and then progressively adding each of the components that were developed in conjunction with the community. The intensity levels of CE are shown in Figure 2. The CE program was distributed as follows:

- *CE Complete* ( $n = 1,028$  communities) used community volunteers; community strategies to overcome barriers to safe delivery (e.g., emergency transport services, community blood donor groups, emergency maternal care savings schemes), and community monitoring to inform the program and collect data.



**Figure 2.** Intensity and reach of the different levels of the community engagement program. CE = community engagement. From Taylor and Findley (2014).

- *CE Complete Plus* ( $n = 424$  communities) added other activities, including young women's support groups, facility health committees, and community-based service delivery. A social fund was piloted in 11 of these communities.
- *CE Light* ( $n = 2,332$  communities) benefitted from community volunteer support from neighboring communities, including discussions and home visits to increase awareness on MNCH, and some shared community response systems.
- *Communication Campaign* (all 72 local government areas) included statewide awareness-raising work with religious leaders to provide information on immunization and MNCH, coordinated with radio jingles.

A community monitoring system collected information on the use of response systems and community volunteer activities. Ongoing data analysis allowed the program to adjust interventions accordingly.

PRRINN-MNCH CE activities were closely monitored with population-based random household surveys conducted in 2009 (baseline), 2011, and 2013 (endline) to assess the effect of the integrated PRRINN-MNCH package. The sample was stratified to ensure inclusion of the different types of CE communities and the overall progression of program implementation in the state.

### Results of Community Volunteer Activities

By the end of the program, the CE component had recruited and trained 30,840 community volunteers, averaging around 30 per community. They spent 2–3 hours per week on CE activities and because the work was flexible, they were able to fit volunteer work around their regular household and farm responsibilities. At the end of the program, almost all community volunteers continued to work, averaging 2–2.5 years of service. There were negligible attrition rates in Katsina and Zamfara (0.3% and 1.5%); with higher attrition in Yobe (14%) resulting from conflict.

Focus groups discussions with community volunteers showed a strong sense of community and religious obligation among volunteers. The community volunteers knew that they would receive no financial incentives, but they were motivated by seeing health changes and knowing that they were making a difference in their community. The volunteers felt rewarded by helping save lives. Coaching and mentoring from supervisors and the support network among volunteers was also encouraging. The main motivation cited by emergency transport service drivers and community volunteers were as follows (PRRINN-MNCH, 2013f):

- Help others/save lives (56%);
- Training received (21%);
- Religious obligation (11%);
- Financial reward (5%); and
- Other reason (7%).

The expanded availability of the emergency support services introduced by the CE program reflects the success of the community volunteers in reaching and mobilizing their

community. As part of a savings program, communities in Katsina, Yobe, and Zamfara saved almost US\$200,000 between 2009 and 2013, and 8,970 women were given loans or grants to help with the costs of a maternal complication (52% of reported maternal complications). In the same timeframe, 4,337 women received support from blood donor groups (25% of reported maternal complications). The emergency transport service took 19,811 women to health facilities (equivalent to 115% of reported maternal complications, indicating that this system was also supporting some normal deliveries) (PRRINN-MNCH, 2013b).

The 2013 survey documented the rapid expansion of awareness of and interactions with the community volunteers and other community health activities. By 2013, 79% of women interviewed knew about the community volunteers, 74% were aware of blood donor groups, and 69.3% knew someone helped by emergency transport services (Figure 3).

### Effect of CE Intensity Levels

In 2014, Taylor and Findley (2014) analyzed the 2013 end-line data and conducted focus group discussions and interviews in Katsina and Zamfara to further assess and compare the effect of the different levels of exposure to the CE approach against the theory of change.

PRRINN-MNCH documented an informal spread of the project, with information from CE activities spreading to non-CE communities. For the 2014 evaluation, to clarify the actual intensity of the CE program in communities, Taylor and Findley (2014) reclassified communities from the endline survey. Communities were reclassified to *No CE* (received information from statewide communication interventions); *Some CE* (includes *CE Light* and those that had not fully implemented *CE Complete*), and *Full CE* (CE complete communities and those with varying levels of CE Plus activities) to help with the stratification of communities.

This clarification of actual program intensity enabled a clean contrast of outcomes in the communities with no CE versus those with the full package of CE activities. This showed the following:

- Survey participants from Some CE and Full CE communities had a high level of participation and knowledge of MNCH activities.
- Full CE communities had higher awareness of maternal emergencies and were better prepared for maternal emergencies than were No CE communities, specifically in saving money, knowing danger signs, and obtaining standing permission from husbands.
- 53% of Full CE participants listed the health facility as their source of information, in comparison with 34% of No CE participants, showing an increased trust in the health system and seeking out health services.
- 47% of women in Full CE communities were most likely to learn about vaccination in health facility discussions in comparison with 32% in No CE communities.

Overall, the results of the 2014 evaluation showed that when CE activities are more intense and coordinated, there is greater likelihood of longer term change in health behaviors.

The following were the key findings:

- Providing quality services and improving the relation between the community and health workers improved use of services. Facility health committees improved linkages between the health system and communities, resulting in more responsive services.
- Community health workers and female skilled birth attendants were influential and increased retention of information and health-seeking behavior through home visits, health facility talks, consultations including antenatal care, and provision of respectful maternity care services.
- Involving men, community elders, and religious and traditional leaders in the CE activities was important. When

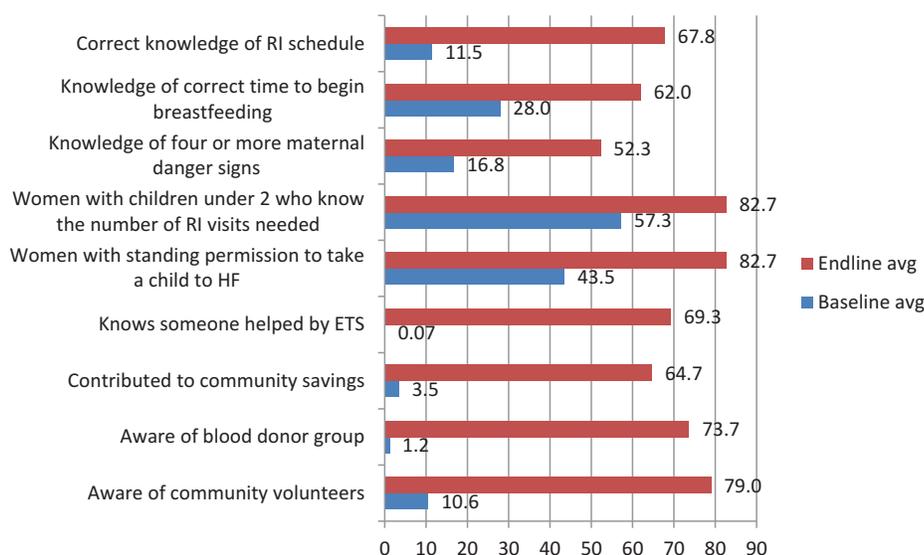


Figure 3. PRRINN-MNCH baseline and endline data: Averages for Katsina, Yobe, and Zamfara. From PRRINN-MNCH (2013b).

respected or influential men spread health messages, it enabled social approval and encouraged use of services.

- Several sources of information (media, religious leaders, informal networks) helped communities retain messages and change their behavior. Information alone did not have a strong impact on behavior change, but integration with CE activities helped to spread and reinforce information.
- Complete CE communities and those with the longest exposure to CE had increased ownership and support for emergency transport services, community volunteers, and community members, showing the long-term possibilities for sustainability.
- Young women's support groups and home visits by community volunteers or community health workers helped to reach socially excluded and undersupported young women. The young women in these groups knew more and were more likely to use key services than those outside the groups.

### *Effect of the Program on Primary Health Care Services*

By September 2013, all the 72 intervention local government areas had functioning and staffed emergency and basic obstetric care facilities and community volunteers were working in 3,360 communities.

The 2009–2013 surveys documented a significant reduction in maternal, infant, and child mortality. Between the baseline and endline surveys, the maternal mortality ratio fell from 1,270 to 1,057; under-5 mortality decreased from 160 to 90.1 per 1,000 live births in CE communities; and infant mortality declined from 90 to 46.9 per 1,000 live births in CE communities (PRRINN-MNCH, 2013a; Taylor & Findley, 2014).

The surveys showed significant improvements in behavior and knowledge. From 2009 to 2013, women receiving antenatal care increased from 25% to 51%, and the use of skilled birth attendants increased from 11% to 27%. Women who participated in community dialogue or group discussions were more likely to use antenatal care services. Data show that women were using facilities, and CE activities were helping to overcome barriers. The proportion of women with standing permission to take a child to a health facility increased from 42.7% to 86.3%, showing that husbands and other family decision makers shifted their behavior to give higher priority to support women's and children's health (PRRINN-MNCH, 2013b, 2013c).

The effect of the discussion groups led by community volunteers can be seen in the large increase in the proportion of women's knowing of maternal danger signs, from 16.8% to 52.3%, and in the proportion of women with children under 2 years of age who knew the number of routine immunization visits, which increased from 57.3% to 82.7% (PRRINN-MNCH, 2013b).

Multivariate regression identified the following predictors of women attending antenatal care: (a) knew at least one benefit of antenatal care, (b) had participated in a community discussion, (c) had standing permission from their husband to

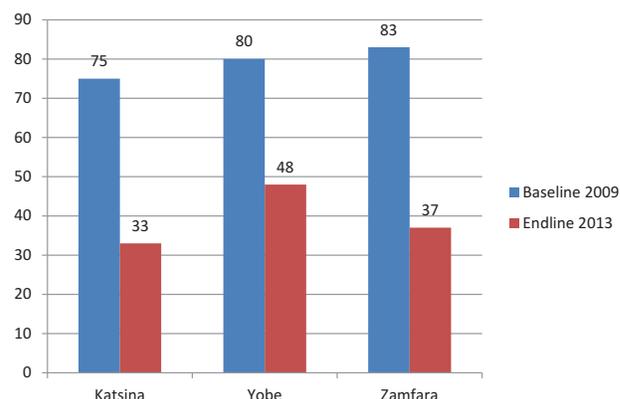
take a child to the health facility, and (d) were literate and/or had a mobile phone (Taylor & Findley, 2014).

There were very few MNCH interventions in the PRRINN-MNCH states at the start of the project. In 2009, the Nigerian Midwife Service Scheme was developed to increase the number of midwives in underserved areas, including the PRRINN-MNCH states. The Midwife Service Scheme midwives were included in PRRINN-MNCH training, and some were placed in project emergency obstetric cares. Although there was significant publicity around the program, it is not likely to have had an effect on the PRRINN-MNCH CE results given that the PRRINN-MNCH results were widespread and occurred in local government areas with and without Midwife Service Scheme participants.

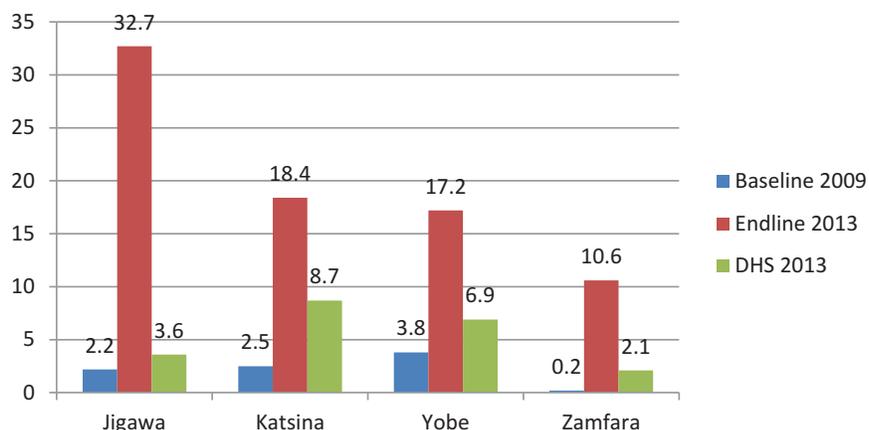
### *Effect on Routine Immunization*

Between 2009 and 2013, the percentage of children who had never been immunized declined significantly in the three states (see Figure 4). At the same time, diphtheria, pertussis, and tetanus (DPT3) coverage increased from 5.1% to 83.3% and oral polio vaccine (OPV3) coverage increased from 25.7% to 68% (PRRINN-MNCH, 2013b). Fully immunized child coverage also rose in every CE state. Between 2009 and 2013, fully immunized child coverage increased from 2.2% to 32.7% in Jigawa, from 2.5% to 18.4% in Katsina, from 3.8% to 17.2% in Yobe, and from 0.2% to 10.6% in Zamfara; all were confirmed with vaccination cards. For the overall project, fully immunized child coverage increased from 2.2 to 19.3% (PRRINN-MNCH, 2013b). Figure 5 shows this comparison with overall state fully immunized child coverage from the 2013 Demographic Health Survey.

Increased coverage rates for OPV3 and DPT3 could be confounded by Polio Eradication Initiative intensification as OPV and DPT doses are given during supplementary immunization activities (McArthur, 2014); therefore, it is important to look at fully immunized child coverage. The rise in the fully immunized child coverage rate is unlikely to be the result of Polio Eradication Initiative campaign activities. To be fully



**Figure 4.** Percentage of children in Katsina, Yobe and Zamfara who were never immunized. From PRRINN-MNCH, 2013b.



**Figure 5.** Fully immunized child coverage in Jigawa, Katsina, Yobe, and Zamfara. From PRRINN-MNCH, 2013b; and National Population Commission & ICF Macro, 2014.

immunized, a child must receive the Baccille Calmette Guérin (BCG) vaccine—which is not given during supplementary immunization activities, unlike OPV, DPT, and measles. BCG coverage shows use of routine immunization and primary health care services, because children receive the BCG vaccine only at birth or when the mothers bring their newborns to health facilities or outreach. Increases in fully immunized child could also reflect the increased knowledge of the immunization schedule, again related to CE activities.

### Challenges and Constraints

State and local government area governments, community leaders, and members were involved in PRRINN-MNCH activities, helping to ensure collaboration, funding, and sustainability of activities. The establishment of these relations was essential to reaching government and project objectives. However, the project faced certain constraints and challenges.

#### Ensuring Long-Term Government and Community Commitment

State and local government area governments typically have staff dedicated to CE activities, and it is important to work closely with them and involve them in all levels of activity. Participation in the program and supervision visits from government representatives showed commitment and helped communities to trust the services and encouraged them to be involved in volunteer activities. This relation between government and community must be maintained, and state and local government area governments must commit budget and human resources to demand-side activities; otherwise, they risk being unsustainable.

#### Competing Polio Activities

Over the course of PRRINN-MNCH, Polio Eradication Initiative activities were a competing priority for staff and often took the focus off of routine immunization and primary health care. PRRINN-MNCH conducted a study in January 2014 to assess the effect of Polio Eradication Initiative activities

on routine immunization and primary health care in 15 local government areas in Jigawa, Katsina, and Yobe states (Adegoke, McArthur, Onipe, & Umar, 2014). The study found that Polio Eradication Initiative increased community awareness and engagement on polio, routine immunization, and other health issues and had improved disease surveillance, provided training, and increased supervision. However, the supplementary immunization activities disrupted services and distracted the health work force and communities. Health workers spent between 6–12 days per supplementary immunization activity cycle, and there were 11 such cycles in 2013. Respondents reported that supplementary immunization activities took them away from their posts that were already insufficiently staffed (Adegoke et al., 2014).

#### Incentives

During PRRINN-MNCH, other programs offered incentives to volunteers. In several cases, these programs diverted volunteers to those programs or angered current volunteers committed to working on a voluntary basis. This is understandable in an area of the country where there is little employment and high poverty but demonstrates the need for consistency on incentives.

The PRRINN-MNCH study on the Polio Eradication Initiative's impact found a high dependence on incentives, with 68% of state respondents, 89% of local government area respondents, 76% of facility-level respondents, and 62% of ward respondents receiving incentives for their involvement in supplementary immunization activities (Adegoke et al., 2014). Respondents warned that incentives could be unsustainable, but removing them could be demotivating and decrease participation in polio and other health activities. When comparing salaries and incentives received, it was estimated that community health workers could earn up to 79% of their salaries on incentives for Polio Eradication Initiative; nurses up to 113%; and doctors up to 58% of their salaries in Polio Eradication Initiative incentives (McArthur, 2014).

## Discussion

Nigeria has had no cases of polio since July 2014—a major milestone towards eradication. If this trend continues, Nigeria will be certified polio-free in July 2017. Supplementary immunization activities will continue to maintain high coverage against polio, but these should not detract from the need to ensure that Nigeria's routine immunization system is strong enough to reach more than 80% polio coverage to reach eradication.

The Polio Eradication Initiative has built significant infrastructure in Nigeria, including an expansive surveillance network; use of microplans and global positioning system technologies to identify communities in hard-to-reach areas; and enhanced routine immunization management capacity at state, local, government area, and ward levels. The Polio Eradication Initiative has also engaged community mobilizers working to promote polio eradication across Northern Nigeria. This is all part of the polio legacy.

Eventually, as polio is eradicated, Polio Eradication Initiative community mobilizers could be available to work on routine immunization and other health services to provide health education, data collection, active surveillance, and home visits to socially excluded populations. They could provide a similar service as the community volunteers in the PRRINN-MNCH program.

The following recommendations are based on lessons learned from PRRINN-MNCH and an extensive review of Polio Eradication Initiative and routine immunization in Northern Nigeria (McArthur, 2014) and can provide guidance on how to transition polio community mobilizers to further improve routine immunization and health outcomes in the Northern states:

1. *Ensure strong supply side interventions.* When services and supplies were available, and if the community was effectively engaged and mobilized, people regained their trust and became health system users. Vaccines, essential drugs, staff, and transportation must be available at facilities; outreach services must be regularly conducted; and health workers need training on quality care to complement CE activities. The introduction of inactivated polio vaccine into routine services is an opportunity to refocus on routine immunization and make improvements in vaccine distribution, cold chain strengthening, and health worker training.
2. *Work with state and local government area governments to identify, plan, and budget activities, including CE interventions.* State and local government areas need to integrate comprehensive demand-side health interventions into their programming. This must incorporate activities that address all demand-side barriers simultaneously, including receiving feedback and recommendations from communities. These activities need to be integrated into state and local government area multiyear plans, including budget allocations for supervision and small incidental costs. Working with the government at all levels was

important for PRRINN-MNCH to ensure continuity in the CE program.

3. *Develop a whole community approach with intensified activities.* PRRINN-MNCH evaluation showed that when CE activities were well coordinated and intense, the program was more effective. The PRRINN-MNCH approach was to engage the whole community, including men, religious and traditional leaders, young women, and socially isolated women by using community volunteers and group discussions to identify and solve barriers to health. Local solutions were used to increase community use of health services, increase immunization knowledge, and to prevent maternal mortality. PRRINN-MNCH used several different information sources including radio, religious and traditional leaders, and health workers to provide information. Information dissemination was more effective when it was integrated with CE activities.
4. *Expand scope of Polio Eradication Initiative community mobilizers.* Polio Eradication Initiative community mobilizers are already promoting routine immunization and other health services. They have invested significant time to understand their communities and gain their trust and are respected and recognized for having helped to eliminate polio. With additional training on the PRRINN-MNCH CE techniques and content, they can facilitate community discussions and work with their communities to identify and address barriers to routine immunization and MNCH. They could also be trained on the social factors affecting health and service access. PRRINN-MNCH demonstrated that this training resulted in a higher rate of inclusion of the socially excluded or otherwise vulnerable individuals, such as women with unimmunized children.
 

PRRINN-MNCH found that community volunteer schemes work better if they are well-designed and supported by both the community and the government. In the case of the Polio Eradication Initiative, using established local Polio Eradication Initiative management and supervision structures could help plan and support the transition of Polio Eradication Initiative community workers from polio to other programs. For example, Polio Eradication Initiative mobilizers are already involved in monitoring and collecting data. Engaging them in a community monitoring system would help to strengthen data collection and management. They can also actively support routine immunization activities by helping to register children, finding missed children, and doing active disease surveillance. Such activities could help to alleviate some of the burden of the few health workers in Northern Nigeria.
5. *Reduce time commitment/increase flexibility.* Polio mobilizers spend significant time on supplementary immunization activities. The PRRINN-MNCH volunteer program was flexible and had a small time commitment (2–3 hours per

week), allowing volunteers to work on their regular jobs or responsibilities. This approach could be adopted for converting the polio mobilizers to community volunteers.

6. *Revisit incentives.* To be sustainable, the use of incentives may need revisiting. The Polio Eradication Initiative community mobilizers have received financial incentives for their participation in the initiative's activities. Given the number of supplementary immunization activities and the length of the program, their earnings have been significant. PRRINN-MNCH volunteers received no stipend for their work but were motivated by training, the ability to help others, and the fulfillment of religious obligations. Those accustomed to receiving incentives might not immediately find this motivating and it may be necessary to gradually reduce the incentives received for community work, while at the same time promoting the nonmonetary rewards and emphasizing the important role that mobilizers played in eliminating polio.

## Conclusion

Community mobilizers are instrumental to the Polio Eradication Initiative's success, just as community volunteers were to PRRINN-MNCH success reducing maternal, infant, and child mortality, increasing use of health facilities, and increasing routine immunization knowledge, coverage, and uptake. The transition plan for the Polio Eradication Initiative in Nigeria must give a prominent role to community volunteers. They have and will continue to have a major influence on supporting routine immunization and maintaining trust of the primary health care system at community level.

CE involves more than the community volunteers going door-to-door or meeting with groups in the community. It includes a broader range of community support activities so that communities can translate their new knowledge into action. To be successful, CE requires State and local government area backing and commitment to improving services and supplies. It must also include incorporating funding for training, mentoring, supervision, and travel costs into State and local government area budgets.

Timing is crucial and a transition strategy for CE must be developed soon to allow for necessary government buy-in and process and to ensure that the Polio Eradication Initiative community experience can be expanded to address short-term health needs and long-term behavior change in Northern Nigeria.

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## References

- Adegoke, O., McArthur, A., Onipe, Y., & Umar, C. (2014). *Survey on the impact of the polio Eradication initiative on routine immunization and primary health care services*. Kano, Nigeria: PRRINN-MNCH.
- McArthur, A. (2014). *Assessing the impact of Polio Eradication Initiative activities on routine immunization in Jigawa, Katsina and Zamfara states*. (Master's Project). London School of Hygiene and Tropical Medicine Distance Learning, London, UK. Retrieved from <http://www.comminit.com/polio/content/impact-polio-eradication-activities-routine-immunization-three-northern-nigerian-states>
- National Population Commission & ICF Macro. (2014). *Nigeria demographic and health survey 2013*. Abuja, Nigeria, and Rockville, MD: Authors. Retrieved from <http://www.dhsprogram.com/pubs/pdf/FR293/FR293.pdf>
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2009). *PRRINN-MNCH baseline studies 2009, summary report*. Retrieved from <http://www.prrinn-mnch.org/documents/PRRINN-MNCHBaselineStudiesSummaryReport2009.pdf>
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2012). *Community engagement strategy for increasing access to maternal, newborn, and child health services in Northern Nigeria*. East Sussex, UK: Author.
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2013a). *Baseline to endline changes in maternal health outcomes*. Retrieved from [http://resources.healthpartners-int.co.uk/wp-content/uploads/2015/05/Baseline-to-endline-changes-in-MH-outcomes\\_PRRINN-MNCH\\_2013.pdf](http://resources.healthpartners-int.co.uk/wp-content/uploads/2015/05/Baseline-to-endline-changes-in-MH-outcomes_PRRINN-MNCH_2013.pdf)
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2013b). *Better maternal, newborn and child health in Northern Nigeria, Final Report 2013*. Retrieved from <http://www.prrinn-mnch.org/documents/PRRINN-MNCHFinalReport2013.pdf>
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2013c). *Changes in key maternal, newborn and child health outcomes*. Retrieved from <http://www.prrinn-mnch.org/documents/PRRINN-MNCH4KeyMNCHOutcomesBrief.pdf>
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2013d). *Clustering of child mortality in Northern Nigeria, implications for policy and practice*. Retrieved from <http://resources.healthpartners-int.co.uk/resource/clustering-of-child-mortality-in-northern-nigeria-implications-for-policy-and-practice-prrinn-mnch/>
- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2013e). *Community interventions to improve access to maternal, newborn and child health services*. Retrieved from [http://resources.healthpartners-int.co.uk/wp-content/uploads/2015/05/Community-Interventions-to-improve-access\\_PRRINN-MNCH\\_2013.pdf](http://resources.healthpartners-int.co.uk/wp-content/uploads/2015/05/Community-Interventions-to-improve-access_PRRINN-MNCH_2013.pdf)

- Partnership for Reviving Routine Immunization in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). (2013f). *Working with volunteers to improve maternal, newborn and child health*. Retrieved from [http://resources.healthpartners-int.co.uk/wp-content/uploads/2015/05/Working-with-volunteers\\_PRRINN-MNCH\\_2013.pdf](http://resources.healthpartners-int.co.uk/wp-content/uploads/2015/05/Working-with-volunteers_PRRINN-MNCH_2013.pdf)
- Renne, E. P. (2010). *The politics of polio in Northern Nigeria*. Bloomington, IN, and Indianapolis, IN: Indiana University Press.
- Taylor, G., & Findley, S. (2014). Partnership for Reviving Routine Immunisation in Northern Nigeria; Maternal, Newborn and Child Health Initiative (PRRINN-MNCH). Community Engagement Study. East Sussex, UK: PRRINN-MNCH.
- Yahya, M. (2006). *Polio vaccines—Difficult to swallow. The story of a controversy in Northern Nigeria*. Institute of Development Studies working paper 261. Brighton, UK: Institute of Development Studies.