



Cameroon increases reach to zero-dose children through microplanning and communication

LESSONS IN WORKING
AMID INSECURITY



KEY LESSON LEARNED

Periodic intensification of routine immunization activities have helped Cameroon to reach a large population of zero-dose children living in politically unstable areas.

1. RATIONALE, CONTEXT, AND METHODS

CAMEROON NEEDED TO REACH ZERO-DOSE CHILDREN IN REMOTE AND POLITICALLY UNSTABLE AREAS



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Due to insecurity along some of its borders and internal socio-political upheaval in the Northwest and Southwest regions, Cameroon has experienced disruptions in health services since 2016 (Gavi, Joint appraisal report 2019, 2020). Despite a decrease in vaccination rates in urban areas because of the COVID-19 pandemic, the country's overall immunization rate for the first dose of diphtheria, tetanus toxoids, and pertussis, (DTP) remained steady at 75% between 2019 and 2022, as did its rate for DTP3 (third dose) coverage, which stood at 67% in 2019 and 68% in 2022, according to World Health Organization and United Nations Children's Fund estimates of national immunization coverage (WUENIC) (WHO/UNICEF, n.d.). This case study will explain how Cameroon's immunization activities were able to maintain vaccination rates despite the pandemic by using microplanning and increased communication within missed communities.

METHODS

To learn which activities contributed to the maintenance of the Expanded Program on Immunization (EPI) efforts, qualitative interviews were conducted with key informants who work for the EPI and its international partners in Cameroon. Informants worked in the capital, Yaoundé, and the Northwest Region and had knowledge of regional and national activities.

These key informants discussed their experiences with vaccination efforts during the COVID-19 pandemic and the activities that had allowed Cameroon to maintain, and in some cases, increase, routine vaccination rates and reduce the number of zero-dose children. This case study uses qualitative key-informant perspectives, along with published reports, to identify key interventions for reaching zero-dose children in Cameroon. The strategies increased the identification of zero-dose children, the reach to missed children and communities, and monitoring of immunization efforts, aligning with Gavi's [IRMMA Framework](#) to increase equity in routine immunization programs (Gavi, n.d.).

CONTEXT

Challenges facing the Cameroon EPI program include conflicts in the Northwest and Southwest that have led to the internal displacement of about 1 million people, the looting of health facilities, the targeting of violence at health workers, and subsequent disruptions in health services, as well as lack of cold chain equipment (CCE) in many remote areas (UNHCR, 2023). About 477,000 refugees and asylum seekers were living in Cameroon as of June 2023 (UNHCR, 2023). Cameroon has 10 regions, with approximately 16% of the total population living in the Northwest and 7% in the Southwest, which are the regions experiencing the greatest instability.

The country reported 149,133 zero-dose children in 2021, with zero-dose defined as children who had not received any doses of Penta vaccine. The highest rates of zero-dose children were in the Southwest (31% of children) and Northwest (24%).

The country has three primary methods of routine immunization: routine service delivery at fixed health sites for those who live within 5 kilometers of a facility; and same-day outreach activities and multiday mobile activities for those who live more than 5 kilometers away. In addition, periodic intensification of routine immunization (PIRI), which includes Child Health Days, Child Health Weeks, and National Vaccination Weeks, is a short but intense effort used to deliver routine immunizations in Cameroon, particularly catch-up doses. This case study will focus on PIRI, as this method has been identified as most relevant to maintaining immunization coverage among those living in areas of instability.

CHALLENGES ADDRESSED

Experts working on immunization efforts in Cameroon identified three primary causes of zero-dose children: (1) instability that causes families to uproot and makes it difficult for them to access health services; (2) inadequate geographical coverage of health services for the population; and (3) a lack of CCE and electricity, which makes it difficult or impossible for health facilities to properly store immunizations.

When families are uprooted because of violence, children may not be registered at another health site after moving. Health posts have closed because of violence toward health workers, and security forces often leave the roads later in the day, making travel less safe, yet this may be the only time parents are able to bring their children to a health site, informants said.

Certain areas of Cameroon lack access to health sites; thus, reaching zero-dose children in these areas requires additional planning and funding.

Some health facilities have lacked CCE and electricity for years. In some cases, facilities have generators, while in others, workers from a health facility without CCE plan outreach campaigns, travel to neighboring facilities to gather supplies, and use ice packs for the few days of the outreach activities. These facilities are unlikely to provide immunizations on a regular basis, and families who arrive seeking immunizations may be turned away if supplies are not available the day they arrive.

The COVID-19 pandemic added an additional challenge to immunization efforts. Cameroon recorded its first COVID-19 case in March 2020 in the capital city of Yaoundé. The government instituted travel and gathering restrictions to prevent the spread of the disease, and this included prohibition of mass vaccination activities. The Centre region had one of the highest numbers of COVID-19 cases, and an analysis indicated this region recorded a decrease in vaccination access and utilization (Saidu, et al., 2023).

KEY LESSON LEARNED

Microplanning at the district level helped to address all three of the main challenges to routine immunization in Cameroon: socio-political instability that reduced health care access; inadequate geographical coverage by health services; and lack of cold chain infrastructure.

2. INTERVENTION

ZERO-DOSE CHILDREN WERE REACHED THROUGH PIRI WITH ENHANCED MICROPLANNING AND COMMUNICATION

The EPI's primary means of reaching zero-dose children in unstable settings has been PIRI (Njoh, et al., 2022). This intermittent intervention involves each health district team — typically a regional EPI program manager and district medical officers — developing a microplan, recruiting community health workers and health facility staff to go into communities to deliver catch-up doses for both children and adults, and liaising with community leaders who can advocate with families to participate in the services. Community health workers and vaccinators who are residents of the community where the strategy is implemented provide doses door-to-door, typically over three days. They record data on doses administered and activities conducted, and these data are submitted to the district health service at the end of each day. Occasionally, the PIRI activities are extended to a fourth or fifth day if large numbers of residents still need services. At the end of each PIRI session, health districts hold an evaluation meeting with the chief of the health areas and the principal communications person. When this evaluation is completed, results for each health area are shared with the regional EPI team.

The role of COVID-19 preparations in facilitating immunizations should also be recognized, as funding for those activities benefitted routine immunization efforts by increasing the availability of CCE and transportation for health workers.

KEY LESSONS LEARNED

- Microplanning helped the EPI to allocate funding according to the needs of each locality.
- Vaccine communication by community health workers has helped vaccinators overcome distrust within insecure communities.

3. IMPLEMENTATION

PIRI MICROPLANNING USED STRONG COMMUNICATION AT NATIONAL AND LOCAL LEVELS

Microplanning to ensure adequate funding and supplies and to maximize reach to zero-dose children, and strong communication from the national level down to local leaders to ensure families knew the benefits of immunization were essential components of the PIRI activities. Gavi's IRMMA Framework, which outlines steps to increase equity in immunization efforts, includes identifying zero-dose children and addressing supply- and demand-side barriers to increase reach to the identified children, all of which were made possible through the microplanning and intensive communication of Cameroon's PIRI intervention.

MICROPLANNING

Informants identified microplanning as the most critical component of PIRI, helping to address all three of the main challenges to routine immunization: socio-political instability that reduced health care access, inadequate geographical coverage by health services, and lack of cold chain infrastructure.

UNICEF defines microplanning as a multifaceted process used to make or update facility and/or district-level maps, identify priority communities, pinpoint barriers to service utilization, and develop workplans with solutions focused on addressing these barriers (UNICEF, n.d.). Microplanning combines the use of coverage and other operational data with population distribution and geography, often using mapping techniques and community input to guide action (WHO, 2009). A recent Gavi evidence brief identified microplanning as a promising intervention to improve identification of and reach to zero-dose children (FHI 360, 2023).

As part of microplanning efforts in Cameroon, the Clinton Health Access Initiative (CHAI) supported triangulation of demographic, geographic, and immunization data to identify areas with a high likelihood of having many zero-dose children (Athiyaman, et al., 2023). The project used an Excel/Power BI-based dashboard that combined data to identify the districts most in need of catch-up immunizations. This included areas with socio-political instability and limited access to health services.

Key informants described how microplanning was implemented at the district level with each identified health district developing a microplan that estimated the vaccines and consumables required, mapped locations of internally displaced people, and estimated human resource and financial needs for the effort. Funding was allocated in proportion to need, with more money sent to remote and politically insecure regions. Although informants did not discuss whether addressing cold chain challenges was part of the microplanning process, the management of logistical issues can be included in microplanning. Local health workers were also involved in selecting the best days to implement PIRI, avoiding holidays, state events such as elections, and any days when violence was thought more likely to occur. Informants did not provide information on why microplanning occurred at the district level as opposed to the facility level, but given the focus on understanding local conditions, microplanning efforts should strive for engagement with facility staff.

“You can't decide on something centrally and think it will work if the field actors themselves are not involved.”

—Key informant

A key informant explained the importance of microplanning by local teams, “*You can't decide on something centrally and think it will work if the field actors themselves are not involved. So more and more, for this to work, we understand that it is necessary to involve local people and local NGOs who are there, who work in the implementation of activities in areas of insecurity.*”

COMMUNICATION

PIRI relies on families being available to vaccination teams and willing to have their children immunized, and so with each PIRI session, sensitization and communication were carried out before the three-day vaccination effort (Njoh, et al., 2022). Community health workers and health facility staff traveled to communities prior to the vaccination intervention to build buy-in with local leaders, providing the dates of the planned PIRI and the immunizations that would be administered. Other communication efforts included announcements at religious services and markets and radio messages providing information about the type and location of upcoming vaccination activities. These messages were intensified three days prior to the start of the PIRI session. One informant noted that the EPI has increased its reliance on community health workers to build relationships with community leaders as a way to overcome distrust in insecure communities.

In addition, COVID-19 caused the EPI to increase its use of mass communication methods including WhatsApp, Facebook, and other social networks because disinformation about the COVID-19 vaccinations quickly began to affect views on routine immunizations. One informant explained: “*People started to distrust everything. All the vaccines, they started to be suspicious, they didn't even want to hear about it.*” As a result, health communicators reoriented their communication

materials to differentiate routine immunization from COVID-19 immunization. A key informant described his framing of the importance of routine immunizations: *“There are other diseases that were there before Covid and that you know and that are there in our communities. And if you don't vaccinate your children, they will get those diseases like measles that kill children. It is not something to be ignored.”*

ENABLERS AND BARRIERS TO SUCCESS

One enabler of success of routine immunizations in Cameroon has been quality leadership. More effort should be put into this area. An informant explained, *“The problem is not a refusal of vaccination, it is not a reluctance, but it is the approach that was perhaps not the right one (for the context). We have seen in several districts that, by changing the person in charge, we also see that the performance changes.”*

Changing leaders is not always possible given a lack of health workers in some contexts. And challenges that leaders face, such as lack of structural resources, may be beyond their control. Aside from changing leaders, horizontal capacity strengthening, in which health workers in successful districts share knowledge with those in similar roles in low-performing districts, was identified as a way to improve the performance of leaders and staff. Local health districts may be reluctant to accept advice from national leadership and to admit mistakes. Yet, as one informant said, when struggling districts are paired with similar, higher performing districts, the results for those struggling districts improve.

Funding for COVID-19 vaccination efforts also proved to be an enabler of routine immunizations. Some COVID funding was used to purchase CCE, and this same equipment can now be used to store routine immunizations, allowing doses to be kept across a broader geographical area.

COVID-19 funding helped address an additional barrier to zero-dose communities: lack of transportation for health workers. Though immunizations are provided for free, the cost of transportation to reach health facilities is a barrier for families. Outreach to families that are not able to visit facilities is essential but requires financial support for health care workers to travel. Some COVID-19 money went toward the purchase of motorcycles, which has allowed health workers to more easily travel between communities in rural and insecure areas. However, informants noted that more transit is needed, and that the transportation provided needs to fit the context. In some areas, motorcycles draw unwanted attention to health workers, and so health workers have stated that bicycles are preferable. Informants did not discuss how COVID-19 and child vaccination efforts may have coordinated in other ways to prevent competition for resources.

When struggling districts are paired with similar, higher performing districts for capacity strengthening, the results for those struggling districts improve.

Multiple informants noted that the country’s development of a national policy for catch-up vaccination of both children and adolescents, which was released in 2021, was essential to addressing the reduction in routine immunizations that occurred during the pandemic. The document provides information on the steps involved to identify areas where catch-up vaccinations are most needed and to implement campaigns to reach zero-dose children and those with missed doses.

CHAI’s involvement in identifying missed communities improved the effectiveness of the PIRI campaigns by making health data more accessible at the district level, where it could be used for microplanning. CHAI also supported mentoring activities to help the EPI improve data completeness, timeliness, and quality. Informants emphasized that efforts must continue to ensure all vaccines administered are recorded into routine health management information systems, such as DHIS2, and that these data are available across all levels of the health system.

**KEY LESSON
LEARNED**

Overall, DTP1 coverage increased from 51% to 66% in the regions receiving PIRI — the Northwest and Southwest — from 2019 to 2020.

4. RESULTS

CAMEROON HAD IMPROVED DTP3 COVERAGE IN DISTRICTS WHERE PIRI OCCURRED

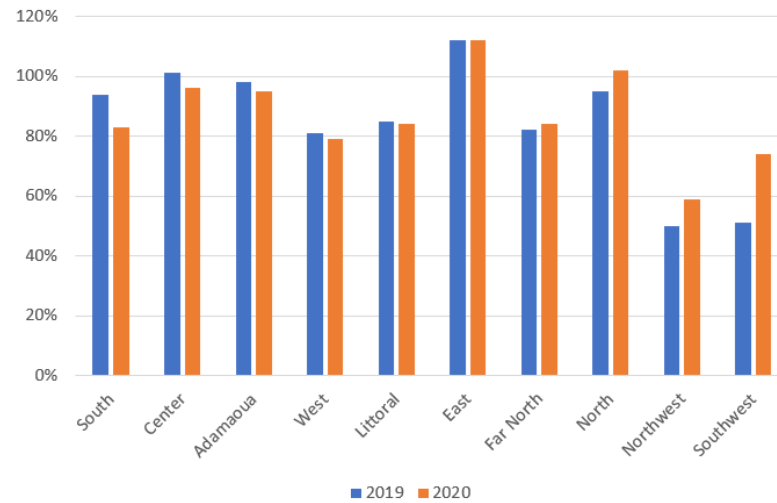
While PIRI was implemented in both the Northwest and Southwest, data were only available for the Southwest. There, a total of 54,242 people received at least one catch-up immunization dose during the PIRI activities, and 37,407 children in the region were vaccinated with DTP3 in 2020, compared to 24,751 in 2019 (Njoh, et al., 2022). Performance improved across all 18 covered health districts in 2020 compared to 2019 (Table 1).

Table 1. DTP3 coverage by district in the Southwest region of Cameroon, 2019-2020

Percentage coverage	<20%	20-40%	40-60%	60-80%	>80%
2019	3 (16%)	9 (47%)	3 (16%)	4 (21%)	0 (0%)
2020	2 (11%)	2 (11%)	4 (21%)	2 (11%)	6 (33%)

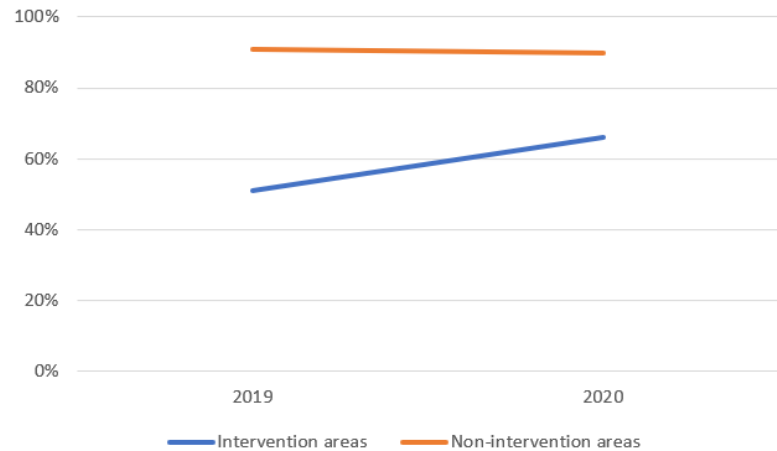
Subnational administrative data from the Joint Reporting Form (JRF) showed slight decreases or stable rates of DTP1 immunization in regions of Cameroon that were unaffected by conflict but increases in coverage in conflict-affected areas that received PIRI (Figure 1). These data showed that DTP1 coverage increased by 9% in the Northwest and by 24% in the Southwest. Overall, DTP1 coverage increased from 51% to 66% in the regions receiving PIRI — the Northwest and Southwest (Figure 2).

Figure 1. DTP1 coverage in Cameroon by region, 2019-2020



* Source: Subnational administrative data (JRF)

Figure 2. DTP1 change in coverage based on PIRI intervention, 2019-2020



* Source: Subnational administrative data (JRF)

Limitations of the subnational data include possible numerator errors introduced when health facility and district data were summarized and reported; the potential for inaccurate denominators because population estimates may not keep up with changes over time; and mismatches between numerators and denominators caused by population mobility.

KEY LESSONS LEARNED

- Most of the studies that have been done on microplanning effectiveness took place in rural areas of Nigeria, limiting generalizability.
- Investigation is needed into the sustainability of microplanning as an intervention and its value in conflict settings.

5. LESSONS LEARNED AND NEXT STEPS

MORE EVIDENCE IS NEEDED ON EFFECTIVENESS AND SUSTAINABILITY OF MICROPLANNING



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Microplanning and increased communication helped to address two of the largest challenges to reaching zero-dose children: political instability that causes families to uproot and may make health services inaccessible, and a lack of geographical coverage by fixed health sites in remote areas. Microplanning has been a recommended part of routine immunization in Cameroon for several years and the EPI enhanced use of microplanning as part of routine immunization after the onset of COVID-19. Key informants provided limited details on how microplanning was implemented during routine immunization efforts, and data related to microplanning with routine immunization were not available. Additionally, informants did not indicate when the EPI began using microplanning with PIRI, but recent data had been gathered on this combination of interventions. Thus, one limitation of this case study is the inability to show the amount of value added by microplanning to PIRI and routine immunization in reaching zero-dose children in Cameroon.

It is worth noting that PIRI is intended as a stop-gap measure and should not supersede efforts to strengthen routine immunization services through fixed and mobile sites. Evaluation of PIRI and other methods of immunization delivery is needed in conflict settings to determine which is most effective and sustainable. Future research should consider whether PIRI may be one of the best methods of delivering immunizations in locations where instability prevents routine health system strengthening.

Long-term facilitators of routine immunization that merit greater investigation include scaling of microplanning, capacity strengthening for health workers, and fostering high quality leadership. Our qualitative evidence and the microplanning evidence brief indicate that microplanning has been effective because it gathers information at the local level and considers local context, can be carried out quickly, and includes generally high participation among key community stakeholders (FHI 360, 2023). Yet, further research is needed on its cost-effectiveness, adaptability, and sustainability. Most of the studies that have been conducted on the effectiveness of microplanning occurred in Nigeria in remote rural settings, so further investigation is needed to determine the generalizability of this approach and its value in conflict settings (FHI 360, 2023). Major barriers to microplanning that have been identified by previous studies include lack of accurate baseline population estimates and logistical challenges in areas with difficult terrain or complex security situations (FHI 360, 2023). CHAI support with data triangulation helped Cameroon gather accurate estimates of the locations of zero-dose children, but this support would need to be taken into account in future microplanning that might not have the same resources. More evidence is needed on how microplanning activities should protect the safety of health workers and community members in insecure areas.

While microplanning was linked to increased communication within communities, further study is needed on the best way to conduct this communication in light of the COVID-19 pandemic and any future outbreaks. One informant noted how vaccinators delivering routine injections had emphasized their separation from COVID-19 vaccination because of the vaccine hesitancy around COVID-19. Yet, this emphasis of separation may have suggested to communities that COVID-19 is something to be feared and may have harmed important efforts to vaccinate people against that virus. There is some evidence that including the voices of local traditional leaders, chiefs, religious leaders, and other community members can help discredit false information and increase uptake by promoting a sense of community ownership (Afolabi & Ilesanmi, 2021). Additionally, celebrating the accomplishments of community leaders who contribute to the success of vaccination activities may strengthen future collaboration (Afolabi & Ilesanmi,

2021). More exploration is needed into the types of messages that should be delivered to encourage immunization and the training needed for health workers and community members delivering these messages.

In that same vein, investigation is needed into the sustainability of microplanning and how sustainability can be facilitated. During microplanning processes, Cameroon has identified community leaders who are willing to volunteer their time and voices for demand creation ahead of immunization service delivery, and the involvement of these stakeholders has been critical to success. Inquiry is needed to determine how these volunteers were engaged, whether they are willing to provide long-term support, and whether they should be compensated for their valuable work. The one [study](#) that has been conducted on sustainability showed that microplanning can be sustained when conducted regularly but also noted that staff turnover and the need for training is a challenge (Bhatewara, Sangtam, & Khan).

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