



Research Article

Involving Traditional Birth Attendants and Community Health Workers to Promote Routine Immunization in a Hard-To-Reach Health District in Cameroon: Description of a Community-Based Implementation Approach

Implication des Accoucheuses Traditionnelles et des Agents de Santé Communautaires pour Promouvoir la Vaccination Systématique dans un District Sanitaire Difficile d'Accès Au Cameroun : Description d'une Approche de Mise en Œuvre Communautaire

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ABSTRACT

Introduction. Despite global progress, routine immunization coverage remains suboptimal in hard-to-reach and vulnerable settings. Community-based strategies involving trusted local actors such as traditional birth attendants (TBAs) and community health workers (CHWs) are increasingly recognized as critical to improving access and demand for vaccination. However, detailed documentation of how such interventions are designed and implemented remains limited. This article describes an example of such interventions in the Kousseri health district in the Far North region of Cameroon.

Methods. A community-based implementation study was conducted between July and September 2025. The intervention included training TBAs and CHWs, community sensitization sessions, group discussions targeting women and men, referral of unvaccinated or under-vaccinated children, and field supervision. Data sources included routine health information system data (DHIS2), post-intervention questionnaires, and focus group discussions. **Results.** The intervention demonstrated the feasibility of engaging TBAs and CHWs in routine immunization promotion. Key implementation components included tailored training, structured supervision, and referral mechanisms.

Conclusion. The experience from Kousseri highlights the feasibility and relevance of engaging TBAs and CHWs as key actors in routine immunization promotion in fragile settings.

RÉSUMÉ

Introduction. Malgré les progrès réalisés à l'échelle mondiale, la couverture vaccinale systématique reste insuffisante dans les zones difficiles d'accès et les populations vulnérables. Les stratégies communautaires faisant appel à des acteurs locaux de confiance, tels que les accoucheuses traditionnelles (AT) et les agents de santé communautaires (ASC), sont de plus en plus reconnues comme essentielles pour améliorer l'accès à la vaccination et stimuler la demande. Cependant, les données détaillées sur la manière dont ces interventions sont conçues et mises en œuvre restent limitées. Cet article décrit la conception, le processus de mise en œuvre et les enseignements tirés d'une intervention semblable dans le district sanitaire de Kousseri, dans la région de l'Extrême-Nord du Cameroun. **Méthodes.** Une étude de mise en œuvre à l'échelle communautaire a été menée entre juillet et septembre 2025. L'intervention comprenait la formation des accoucheuses traditionnelles et des agents de santé communautaires, des séances de sensibilisation communautaire, des discussions de groupe destinées aux femmes et aux hommes, l'orientation des enfants non vaccinés ou sous-vaccinés, ainsi qu'un accompagnement sur le terrain. Les sources de données comprenaient les données du système d'information sanitaire de routine (DHIS2), des questionnaires post-intervention et des discussions de groupes de réflexion. **Résultats.** L'intervention a démontré la faisabilité d'impliquer les accoucheuses traditionnelles et les agents de santé communautaires dans la promotion de la vaccination systématique. Les principaux éléments de mise en œuvre comprenaient une formation sur mesure, une supervision structurée et des mécanismes d'orientation. **Conclusion.** L'expérience menée à Kousseri met en évidence la faisabilité et la pertinence d'impliquer les accoucheuses traditionnelles et les agents de santé communautaires en tant qu'acteurs clés de la promotion de la vaccination systématique dans des contextes fragiles.

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KEY RESULTS

Aim of the study

Design, implementation process, and lessons learned from a community-based intervention involving traditional birth attendants (TBAs) and community health workers (CHWs) to promote routine immunization in the Kousseri health district, Far North region of Cameroon

Principal results

This community-based implementation study (July–September 2025) demonstrates the feasibility and relevance of engaging TBAs and CHWs in routine immunization promotion in fragile and mobile settings. Key implementation components included: (i) tailored training of TBAs and CHWs on vaccination, communication, and referral; (ii) community sensitization sessions; (iii) group discussions targeting women and men separately to address gender-specific barriers; (iv) systematic referral of unvaccinated or under-vaccinated children to health facilities; and (v) structured field supervision. The intervention was informed by a baseline assessment of knowledge and training needs of TBAs and CHWs regarding vaccination. Data from DHIS2, post-intervention questionnaires, and focus group discussions documented the implementation process, including facilitators and barriers.

Implications for future practices and policies

The Kousseri experience highlights the feasibility and relevance of engaging TBAs and CHWs as key actors in routine immunization promotion in fragile and mobile settings. Priority actions for scaling up include: (1) integrating TBAs and CHWs into formal immunization programs through clear roles and incentives, (2) providing tailored training that addresses local knowledge gaps and cultural contexts, (3) establishing structured supervision and referral mechanisms.

INTRODUCTION

Routine immunization is one of the most cost-effective public health interventions for reducing childhood morbidity and mortality [1]. However, in many low- and middle-income countries, vaccination coverage remains uneven, particularly in hard-to-reach, insecure, or highly mobile populations [2–4]. These challenges are often compounded by limited health workforce capacity, logistical constraints, misinformation, and low community trust in health services [4,5].

In Cameroon, despite improvements in national immunization indicators, disparities persist across regions and districts [6]. Border districts such as Kousseri face additional challenges, including population mobility, security concerns, and difficulties in maintaining regular contact between health services and communities. In such contexts, community-based actors play a critical role in bridging the gap between households and health facilities [7].

Traditional birth attendants (TBAs) and community health workers (CHWs) are often trusted figures within communities and maintain close contact with women, families, and caregivers [8,9]. While their potential contribution to immunization promotion is widely acknowledged, there is limited published evidence detailing how structured interventions involving these

actors are operationalized in routine immunization programs.

This paper aims to describe the design and implementation of a community-based intervention that actively engaged TBAs and CHWs to promote routine immunization in the Kousseri health district. This study contributes to the field of implementation science and provides practical lessons for similar settings.

METHODS

- Study design

This study employed a community-based implementation design that included quantitative and qualitative approaches. The intervention phase was conducted between late July and September 2025 and followed a baseline assessment carried out in July 2025. The post-intervention evaluation took place in October 2025.

- Study setting and period

The present study was conducted in the Kousseri health district, located in the Far North Region of Cameroon. The district is characterized by a predominantly rural population, cross-border mobility, and periodic security challenges. Health services are delivered through a network of health facilities and immunization is supported by the Expanded Programme on Immunization (EPI). The intervention targeted eight health areas of the Kousseri health district that are: Amchidire, Hilehaoussa, Kalakafra, Madana, Pagui, ParPar, Houlouf, and Kodogo. The health areas located in an extremely insecure zone were not included in the intervention. Locally, CHWs and TBAs operate within defined health areas.

- Study population

The intervention targeted the general population and two categories of community actors. The study population include community health workers (CHWs), traditional birth attendants (TBAs) and the local communities (households, women of reproductive age and fathers).

- Development of the intervention

The intervention was developed based on findings from a baseline assessment that examined vaccination coverage, the number of zero-dose children, and the knowledge and practices of TBAs and CHWs regarding immunization. Consultations were held with district health authorities, EPI focal persons, and community representatives to ensure alignment with national immunization strategies and local priorities.

- Description of the intervention

The intervention consisted of five main components that include: training of TBAs and CHWs, community sensitization sessions, group discussions, referral of children for vaccination and field supervision.

- Training of TBAs and CHWs

Based on the training needs identified during the baseline assessment, structured training sessions were conducted to strengthen knowledge on routine immunization. The main areas targeted during the training include: the national vaccination schedule, vaccine-preventable diseases, antigens offered via the EPI in health facilities, communication skills, rumor management and referral

procedures. The training was conducted through PowerPoint presentations, discussions with participants, and the sharing of experiences. Each training session was done in a day. At the end of the training sessions, participants received simplified learning materials (posters and progress logs).

- Community sensitization sessions

The trained TBA and community health workers conducted community awareness sessions to promote routine immunization and encourage mothers to visit health facilities for their children's vaccinations. These activities took place in households and community gathering places. Key messages transmitted during these community sensitization sessions included the importance of complete and timely immunization, children's immunization schedule, safety and effectiveness of vaccines, and combating rumors and misinformation.

- Group discussions

In addition to household visits and community sensitization sessions, group discussions were organized to promote exchange of information. TBAs facilitated discussion groups with women, while CHWs led groups targeting men (husbands), recognizing their influence on health decision-making with respect to cultural realities.

- Referral of children for vaccination

During community sensitization, TBAs and CHWs identified unvaccinated or incompletely vaccinated children during community visits and referred them to the nearest health facilities for vaccination. These were followed up through future visits in the identified households and verification in the health facility of the corresponding health area.

- Field supervision

Supportive supervision visits were conducted by a trained supervision team to monitor implementation fidelity, provide on-the-job coaching, and address challenges encountered by community actors. Supervision visits were planned bi-weekly with unplanned visits organized when necessary.

- Roles and responsibilities

TBAs were primarily responsible for engaging pregnant women and mothers, organizing women's discussion groups, and identifying children with missed vaccinations. CHWs focused on broader community mobilization, male engagement, referrals, and coordination with health facilities. The project team ensured training delivery, supervision, data collection and coordination with district health authorities.

- Implementation process

Implementation followed a phased approach, beginning with training, followed by community activities and supervision. The list of traditional birth attendants and CHW was obtained from the health district. Representatives of the TBA and CHW in each community were contacted for a presentation of the project and served as points of contact for the communities. Regular feedback from TBAs, CHWs, and health facility staff informed minor adaptations. Multiple data sources informed the implementation analysis of the project. The sources are routine vaccination data from DHIS2, pre- and post-intervention questionnaires administered to TBAs and CHWs, focus group discussions exploring perceptions, acceptability, and perceived effects of the intervention by TBAs and CHWs.

- Ethical considerations

The project received authorization from district health authorities. Participation of TBAs and CHWs was voluntary, and informed consent was obtained prior to data collection. Confidentiality of participants was ensured throughout the study. The protocol was approved by the regional ethics committee for human health research of the Far North region of Cameroon (Ref. 028/CE/25/CRERSH-EN/SG).

RESULTS

- The Training of TBAs and CHWs

The training targeted 08 health areas of the Kousseri health district as planned.

Table 1. Indicators for monitoring the implementation of community sensitization

Health area	Number of households reached	Number of women sensitized	Number of men sensitized	Number of zero-doses identified	Number of zero doses referred for vaccination
Pagui	584	857	349	08	08
Par Par	361	503	198	15	15
Madana	545	740	333	19	19
Hile Haoussa	393	574	197	13	13
Amchidire	302	267	166	06	06
Kodogo	238	259	100	73	73
Houlouf	305	282	232	21	19
Kala Kafra	308	297	129	25	23
Total	3036	3779	1704	180	176

However, not all training sessions were conducted on the same day, primarily due to the distance between the different health areas and the mobility difficulties faced by some elderly people involved. A total of 65 CHW and 15 TBA were trained, 36 CHW and 04 TBA in the first group training session (Par par, Pagui, Madana and Hile

Haoussa) and 29 CHW and 11 TBA in the second group (KalaKafra, Kodogo, Houlouf and Amchidire). The deliverable used to follow the implementation was the attendance list.

- Community awareness-raising and referral to health facilities

Several community awareness sessions were organized across the eight health areas, directly reaching approximately 5480 people, including 3779 women and 1704 men. Nearly 180 children who were under-vaccinated were identified, and 176 (97.78%) were actually vaccinated.

Group discussion fostered open dialogue about vaccination and helped to address some concerns, particularly regarding perceived side effects of vaccines. The number of missed doses is particularly striking in the Kodogo health area. This is explained by the fact that these are villages populated by immigrants from Nigeria, a cosmopolitan population constantly on the move. Table 1 presents the results of the indicators used to monitor the implementation of community awareness activities per health area.

DISCUSSION

This paper describes the design and implementation of a community-based intervention involving traditional birth attendants (TBAs) and community health workers (CHWs) to promote routine immunization in the Kousseri health district.

The intervention demonstrated that TBAs and CHWs can be effectively mobilized as frontline actors to support routine immunization through community sensitization, referral of under-vaccinated children, and engagement with caregivers and decision-makers. Their involvement was feasible within the existing district health system that integrates their involvement in transversal health program activities and was well accepted by communities, as evidenced by qualitative findings from focus group discussions. These findings align with existing evidence showing that community-based actors, when adequately trained and supervised, play a critical role in improving demand for vaccination, particularly in settings where access to health facilities is limited and trust in formal services may be fragile [5,10–13]. These are based on the social proximity and credibility of TBAs and CHWs hence addressing barriers related to misinformation, cultural norms, and decision-making dynamics within households.

Previous studies in sub-Saharan Africa have highlighted the importance of CHWs in increasing immunization uptake through household visits, tracing, and health education [5,14]. Similarly, TBAs, despite surrounding debates about their informal role in health care delivery, remain influential figures in maternal and child health in many rural and peri-urban settings [15]. Their continued interaction with pregnant women and mothers positions them as strategic entry points for health care promotion, particularly during the perinatal and early postnatal periods.

What distinguishes the present intervention is the structured integration of TBAs and CHWs into routine immunization promotion, rather than the independent and separate involvement of each of the groups. The clear delineation of roles to cover the maximum of actors involved in the immunization of children in communities, standardized training content, and supportive supervision mechanisms contributed to

consistent implementation across health areas. This structured approach responds to calls in the literature for better documentation of how community engagement strategies are operationalized in real-world health systems.

An important feature of the intervention was the deliberate organization of separate group discussions for women and men, facilitated respectively by TBAs and CHWs. Evidence from multiple contexts suggests that male involvement significantly influences health-seeking behaviors, including childhood vaccination, particularly in settings where men play a central role in household decision-making [16,17]. By engaging men directly through CHW-led discussions, the intervention addressed a commonly overlooked determinant of immunization uptake. At the same time, women-focused discussions facilitated by TBAs provided safe spaces for dialogue, questions, and clarification of rumors.

Baseline reliance on routine facility-based data often underestimates the true number of unvaccinated children, particularly in mobile or underserved populations. The intensified community engagement conducted by TBAs and CHWs likely improved household-level identification of previously unregistered children. Similar patterns have been documented in settings where enhanced community surveillance leads to short-term increases in zero-dose reporting before subsequent declines once targeted interventions are implemented [18].

Several challenges emerged during implementation, including population mobility, security constraints, competing priorities for community actors, excess flooding due to the season and logistical limitations. These challenges are well documented in similar fragile contexts and highlight the need for flexible implementation strategies. Adaptive measures such as adjusting schedules, reinforcing supervision and addressing emerging rumors were essential to maintaining implementation continuity. The ability to adapt without compromising core intervention components was a key strength of the project. The intervention was implemented in a district where other immunization-related initiatives were also ongoing. The coexistence of these programs reflects the complex and multi-layered reality of immunization systems strengthening. The presence of multiple interventions also limits the ability to attribute observed changes exclusively to a single project. This underscores the importance of framing results in terms of contribution rather than attribution, a principle increasingly emphasized in implementation research and complex health system evaluations. The key lessons that are noted at the end of the project implementation include the importance of early stakeholder engagement, continuous supervision, gender-sensitive communication strategies, and flexibility to adapt activities to local realities. These findings have implications for scaling up similar interventions in comparable settings.

This study has several limitations. First, the relatively short duration of the intervention limits the ability to observe sustained changes in vaccination coverage. Also,

reliance on routine DHIS2 data may introduce data quality constraints, although this reflects real-world monitoring conditions. The study did not include control health areas to assess and compare the effect of the intervention, this restricts causal inference regarding effectiveness. Nevertheless, these limitations do not detract from the primary contribution of this article, which is to document the implementation approach.

CONCLUSION

The community-based implementation approach described in this study demonstrates the feasibility and relevance of involving TBAs and CHWs in promoting routine immunization in hard-to-reach districts. Detailed documentation of implementation processes is essential to inform replication, scale-up, and integration into national immunization programs. The findings support the integration of TBAs and CHWs into routine immunization promotion strategies, particularly in districts facing access and trust barriers. Policymakers and program implementers should consider formalizing the role of community actors through standardized training, supervision, and alignment with national immunization programs.

Study Limit

This study has several methodological limitations. First, the absence of a control group does not allow causal attribution of observed changes in vaccination coverage to the intervention itself, as other contextual factors (national campaigns, seasonal variations, other partners' activities) may have contributed. Second, the short implementation period (July–September 2025) limits assessment of the long-term sustainability of the intervention's effects.

DECLARATIONS

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Conflicts of interest

The authors declare no conflict of interest.

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The work was carried out with own funds.

Ethical considerations

All stages of the work were carried out in compliance with the Declaration of Helsinki. The approval of the institutional ethics committee was obtained prior to the start of the study. This work did not involve any experimentation on humans or animals and it does not contain any personal information that could identify the patients

Data availability

Data is available on reasonable request from the principal author.

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