

THE IMPACT OF VIOLENCE AGAINST HEALTH CARE ON THE HEALTH OF CHILDREN AND MOTHERS

A CASE STUDY IN THREE HEALTH ZONES IN EASTERN DRC



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I. SUMMARY

Context

In 2022, nearly 2,000 attacks on healthcare facilities were recorded in over 30 countries, including 159 in the DRC, resulting in the death of at least 11 healthcare workers. Such violence seriously impacts access to essential care. Although there is a growing body of literature on the overall impact of this type of violence, there remain gaps in knowledge, particularly for population groups often in need of specialized health services: women of reproductive age and children under 5. The provinces of North and South Kivu, in the east of the country, are among those most severely affected by attacks against health care. As such, this study aims to measure the impact on services provided to pregnant women and children under 5 in these geographic areas. In addition, the study will develop and test a rapid operational approach to assess the impact of attacks on the health on service delivery, staff and affected communities.

Methodology

The study adopted a mixed quantitative and qualitative approach through a case study design covering the health areas Kyondo (North Kivu), Fizi (South Kivu) and Walungu (South Kivu). It focused on three cases, represented by three attacks on health centres in the different health areas in 2023: Kirindera in Kyondo, Kafulo in Fizi and Ibinza in Walungu. The attacks were selected on the basis of their severity, using information from the database consolidated by Insecurity Insight and validated by the Provincial Health Divisions. Data were collected in January and February 2023 via semi-structured individual interviews, focus groups, and analysis of quantitative data from the national health information system.

Results

Impact on the use of and access to services: Following the armed attack, health centers either reduced service provision, or ceased operating altogether for a period of one to four weeks. This was mainly driven by the difficulty of resourcing on-call and night services, the lack of resources to replace looted or destroyed infrastructure and equipment, and overall fear on the part of both health workers and the community, reducing attendance at health facilities. After the attack, services only slowly resumed, at the start mostly during the day, for fear of further attacks.

Impact on women's health services: The attacks have sharply reduced women's attendance at the maternal health services. Childbirth was the maternal health service most affected, given the probability of night-time occurrence. As a result, the number of deliveries fell sharply at all health centres studied, even after their reopening. Instead of visiting the facilities recently attacked, women preferred to travel long distances to give birth in other health facilities, or to deliver at home, which increases the risk of complications.

Preventive services were mostly provided at the same levels, as this is a daytime service. However, respondents indicated that the quality of these services had reduced, due to the lack of inputs normally provided to pregnant women (micronutrient supplementation, family planning and preventive treatment of malaria).

"I was pregnant and nearly died while giving birth ... from high blood pressure. There was nowhere for women to receive care,; many gave birth at home, The children were no longer weighed because the other structures were far away, some fled, we are too traumatized.... " **(Community Focus Group Discussion Kirindera)**

Impact on health services for children: The rate of post-natal consultations, pre-school consultations and vaccinations fell sharply following the attacks. Often, vitamin supplements (e.g. Vitamin A) were no longer provided to children under 5. The theft of medicines intended for malnourished children, such as Plumpy'Nut, hampered their medical care, leading to an increase in cases of malnutrition. Overall, the fear of visiting facilities at night particularly affected urgent care for children, including for life-threatening illnesses such as severe diarrhea, and respiratory illnesses.

Severity factors: The main differences in the severity and duration of the impact of the attacks were determined by the ability of the health authorities and the community to respond to the attack, whether the facility was able to remain open or had to close temporarily, and the availability of alternative health services. The attack on Kafulo was part of a wider attack that resulted in the displacement of a large part of the community and the loss of livelihoods, which further increased the demand for health services.

Coping mechanisms: The community coped with the lack of access to healthcare by visiting alternative health centers. In Kafulo, community members were forced to visit health staff where they had taken refuge in the bush. The use of traditional medicine and self-medication was also frequently reported.

Priorities for response: In the aftermath of the attacks, health teams, health authorities and communities provided resources to support the reopening of health facilities and increase access to services. When asked about actions required to reduce the impact of such violence, community members, affected health personnel and health authorities prioritized the following interventions:

- Rehabilitate destroyed health structures.
- Replace looted or damaged medical equipment and ensure a minimum package of services to the population.
- Provide psychological support for healthcare personnel and the community.
- Improve healthcare staff remuneration, to increase their motivation to return to work under difficult conditions.
- Provide staff security training
- Secure the health center by local police in collaboration with the local community, and construction of a fence for the health center.
- Set up a community alert system, in collaboration with law enforcement agencies.

- Raise awareness among authorities and armed groups of the importance of protecting health centers and guaranteeing access to healthcare for the local population.
- Promote community access to health services by providing the affected population with a means of transport to facilitate their movement towards safety and services.

Conclusion

Violence against the healthcare system in the context of armed conflict in eastern DRC has a profound and devastating impact on the health of children and mothers, exposing them to increased risks of mortality and morbidity. Attacks on health not only hamper access to essential care, but also exacerbate the challenges posed by an already fragile context. A multi-faceted approach is required to support the population, combining capacity-building measures for health centers, improving access to care for affected populations, and implementing prevention and protection strategies. Collaboration between local, national and international players is crucial to developing sustainable solutions that ensure the safety of healthcare personnel, the protection of infrastructures, and the continuity of essential healthcare services, with the ultimate aim of safeguarding the lives and well-being of communities affected by conflict.

The approach used within this study proved to be an appropriate methodology to understand the impact of attacks on the health of the population dependent on the structures. The use of mixed methods (qualitative and quantitative) enabled triangulation of the information, which was by joint analysis of the findings by stakeholders. Limitations to this approach include the reliance on sometimes incomplete quantitative data, the need for access to a population in often fragile settings and the possible re-traumatization of respondents.

II. RECOMMENDATIONS

Health authorities, health response actors and donors are recommended to undertake the following actions, to reduce the violence and its impact on mothers and children:

1. STRENGTHEN HEALTH CENTRE CAPACITY

a) Infrastructure and Safety:

- **Reconstruction and security:** In the immediate aftermath of the attack, accelerate the reconstruction of damaged or destroyed health infrastructures and secure the perimeters of health centers with fencing and surveillance systems.
- **Build resilience:** Implement measures to ensure the continuity of care in the event of an attack, including contingency and risk management plans.

- **Resources:** Donors should prioritize programs that ensure health services can be delivered and accessed safely. This includes allocating sufficient resources to safety management, risk analysis and protective measures, as well as support for health personnel, both for international and local teams.
- **Evidence:** The Ministry of Health, in collaboration with the Health Cluster, should expand their surveillance and data collection activities to facilitate the collection of data on attacks and the impact of violence on healthcare workers and communities, in order to inform evidence-based policy, safety and intervention measures.

b) Human resources

- **Training and psychosocial support:** Provide regular training for healthcare staff on emergency management and trauma, and provide ongoing psychological support to mitigate the impact of violence.
- **Motivation and retention:** Improve working conditions and financial incentives for healthcare staff, particularly in high-risk areas, to ensure their retention and attract new talent.

2. MEDICINES AND EQUIPMENT

- **Emergency stocks:** Establish emergency stocks and inventory management procedures to ensure continuous availability of essential medicines and medical equipment.
- **Resilient supply chains:** Strengthen local and regional supply chains to reduce stock-outs due to disruptions caused by conflict.

3. IMPROVEMENT ACCESS TO CARE

→ ***Maternal and child health services:***

- **Mobile health services:** Deploy mobile health units to reach remote or displaced populations, with a particular focus on prenatal and postnatal care as well as immunization. These units should be designed to deal with any nighttime emergencies, a major gap in the aftermath of an attack.
- **Community awareness programs:** Strengthen awareness campaigns on the importance of maternal and child healthcare and the services available, using trained community focal points.

→ ***Access to emergency care:***

- **Advanced triage points:** Set up advanced triage points close to high-risk areas for rapid treatment of medical emergencies, especially for women in labor and children.
- **First aid training:** Train the civilian population on first aid and the management of minor injuries to reduce mortality and morbidity in the event of an attack, before professional help arrives.

4. VIOLENCE PREVENTION AND CROSS-SECTOR COLLABORATION

→ *Community involvement and dialogue:*

- **Mediation and dialogue mechanisms:** Establish forums for dialogue between communities, local authorities and armed groups to negotiate non-aggression agreements around health infrastructures. Agreement on the establishment of safe corridors to ensure safe and efficient transport of women (pregnant or not) and children in the event of illness should be a priority.
- **Peace education:** Integrate peace education programs into schools and communities to promote non-violence and respect for human rights, including the right to health.
- **Early warning:** In collaboration with communities and local leaders, set up early warning systems at the community level that immediately alert health actors to possible attacks.

→ *Collaboration with security forces :*

- **Partnerships for healthcare protection:** Collaborate with local and international security forces to strengthen the protection of healthcare centers and staff, while respecting the principles of neutrality and impartiality. Provide escort/convoy services for health personnel and medical inputs/materials by security forces when necessary.
- **Training security forces:** Organize training sessions for security forces on international humanitarian law, in particular on the protection of health infrastructures in times of conflict.

→ *Advocacy and resource mobilization:*

- **Advocacy with international players:** Strengthen advocacy with international organizations and donors to increase financial and technical support for health programs in conflict-affected areas. financial and technical support for healthcare programs in conflict-affected areas. Donors should be more flexible in their funding, especially in conflict zones, to enable actors to adapt their actions to changing circumstances.
- **Local resource mobilization:** Encourage local resource mobilization initiatives, including with support from local businesses and philanthropists, to support health services in conflict zones.
- **Coordination:** The health, nutrition and protection working group should jointly coordinate the activities of its members at national level to prevent and mitigate violence against health care as part of response planning and funding requests for health and socio-economic protection.

→ **Ending impunity**

- **Investigation and prosecution:** The Government must conduct credible, independent, and thorough investigations into these violations of the law. If investigations reveal credible allegations of violations, the Government must promptly initiate the necessary legal proceedings. Reference texts such as international humanitarian law should serve as a basis for developing appropriate policies in this regard.
- Joint verification mechanisms at the national level should explicitly include attacks on healthcare as part of their monitoring activities.

I. INTRODUCTION

I.1. BACKGROUND

In 2022, nearly 2,000 attacks against healthcare facilities and providers in conflict-affected areas were recorded in more than 30 countries. 159 such attacks were recorded in the DRC, killing at least 11 health workers^{1,2}. This type of violence has profound short- and long-term negative consequences on the ability of health systems and healthcare facilities to deliver services. Closures of hospitals and clinics following attacks, looting and threats have often forced patients to travel great distances to access care, at costs unaffordable to many people. In many countries, violence has reduced the availability of services, including care for chronic illnesses and essential medicines. Less visible acts, such as the looting of supplies and medicines, hijacking of vehicles, blockades at checkpoints, threats, and arrests of health workers, have deprived clinics and hospitals of the human resources and materials essential for proper care. Health workers who have suffered violence often suffer serious psychological consequences^{3,4,5}.

¹ Insecurity Insight, Health Care At Risk, <https://mapaction-maps.herokuapp.com/health>

² <https://shcc.pub/DRC2022>; <https://shcc.pub/DRC2022FR>

³ Haar, R.J., Read, R., Fast, L. et al. Violence against healthcare in conflict: a systematic review of the literature and agenda for future research. *Confl Health* 15, 37 (2021). <https://doi.org/10.1186/s13031-021-00372-7>

⁴ Altare, C., Malembaka, E.B., Tosha, M. et al. Health services for women, children and adolescents in conflict-affected settings: experience from North and South Kivu, Democratic Republic of Congo. *Confl Health* 14, 31 (2020). <https://doi.org/10.1186/s13031-020-00265-1>

⁵ Makali SL, Lembebu JC, Boroto R, Zalinga CC, Bugugu D, Lurhangire E, Rosine B, Chimanuka C, Mwene-Batu P, Molima C, Mendoza JR, Ferrari G, Merten S, Bisimwa G. Violence against health care workers in a crisis context: a mixed cross-sectional study in Eastern Democratic Republic of Congo. *Conflict and health*. 2023 Oct 3;17(1):44. doi: 10.1186/s13031-023-00541-w. PMID: 37789323; PMCID: PMC10546691.

Although there is a growing body of literature on the overall impact of this type of violence, there remain gaps in knowledge, particularly for population groups often in need of specialized health services: women of reproductive age and children under 5.

In view of the above, our study had two objectives: (1) to develop and test an operational approach to assess the impact of attacks on the healthcare system on service delivery, staff and affected communities in the eastern DRC region; and (2) to understand the specific impact of these attacks on the health of children under 5 and women of reproductive age.

I.2. OVERVIEW ATTACKS ON HEALTHCARE

This report presents the results of a study carried out in three Health Zones (HZ) in the provinces of North and South Kivu, in the east of the Democratic Republic of Congo (DRC). These two provinces are among the regions hardest hit by the security crisis that has been raging in the DRC for over 30 years. The health system in these regions is feeling the consequences of this crisis, as can be seen from the health statistics. These are worrying, even alarming, particularly for the most vulnerable populations: pregnant women and children under 5. The country recorded 547 maternal deaths per 100,000 live births (2020)⁶ , and 79 deaths of children under 5 per 1,000 live births (2021)⁷ . In addition to the indirect dysfunctioning of the healthcare system due to the country's economic, political, social, and infrastructural fragility, this crisis is also affecting the functioning of the healthcare system through direct and targeted attacks on health facilities, healthcare personnel and patients in health facilities at the time of the attacks. All of this runs counter to international conventions requiring respect for health structures, healthcare providers and patients in times of conflict. Medical units such as health establishments enjoy specific and reinforced protection under international humanitarian law because of their paramount importance during armed conflict, both in maintaining public health and in caring for the wounded caused by the conflict. They must be respected and protected at all times by all parties involved in an armed conflict, whatever the characteristics of the conflict⁸ .

⁶ Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. Geneva: World Health Organization; 2023. License: CC BY-NC-SA 3.0 IGO.

⁷ United Nations Inter-agency Group for Child Mortality Estimation (2023).

⁸ ICRC International Humanitarian Law DataBase <https://ihl-databases.icrc.org/en/customary-ihl/v1>

II. METHODOLOGY

II.1. STUDY DESIGN

This is a multiple case study covering three Health Zones in the provinces of North (Kyondo) and South Kivu (Walungu and Fizi), using a mixed quantitative and qualitative approach. We considered a "case" to be an attack on a primary care facility. In the DRC, primary health care is provided in a health center, where a team of nurses offer a minimum package of activities (including preventive, curative and promotional services for women and children under 5). To improve access to basic primary health care, in addition to the health center, the health area may contain other optional structures such as health posts (offering an emergency care package, more limited than the services provided in a health center) and the referral health center (which serves as a bridge between the health center and the general hospital). All the health areas together form a Health Zone, which hosts a general referral hospital. The latter represents the second line of care and essentially provides specialized curative care to the population.

The study was carried out in January and February 2024, and focused on health facilities that had recently faced an armed attack, in the two provinces during 2023. Data were collected in two phases, with a preliminary analysis of the initial data from the first phase to help guide the second phase of data collection.

II.2. CASE SELECTION AND DATA COLLECTION TECHNIQUES

The initial step was to identify and select the cases. According to the WHO, an attack on healthcare is "any act of verbal or physical violence, obstruction or threat of violence that impedes the availability, access and delivery of curative and/or preventive health services in emergency situations"⁹.

The case study sites were selected was made based on the following criteria:

- The attack took place in the year 2023.

⁹ <https://www.who.int/news-room/questions-and-answers/item/attacks-on-healthcare-initiative-documenting-the-problem>

- The attack was large enough to make a lasting impression on the local community.
- The health area in which the attack took place was geographically and safely accessible at the time of the survey.
- The health center was routinely providing services to mothers and children at the time of the attack.

Thus, the following health centers were selected as the sites of attacks meeting these criteria (Figure 1).

These health centers, along with the entire population of the health area, were visited in two phases:

◇ **Phase 1 :**

- Province of North Kivu, Kyondo Health Zone: Kirindera Health Center
- Province of South Kivu, Walungu Health Zone: Ibinza Health Center

◇ **Phase 2 :**

- South Kivu Province, Fizi Health Zone: Kafulo Health Center.

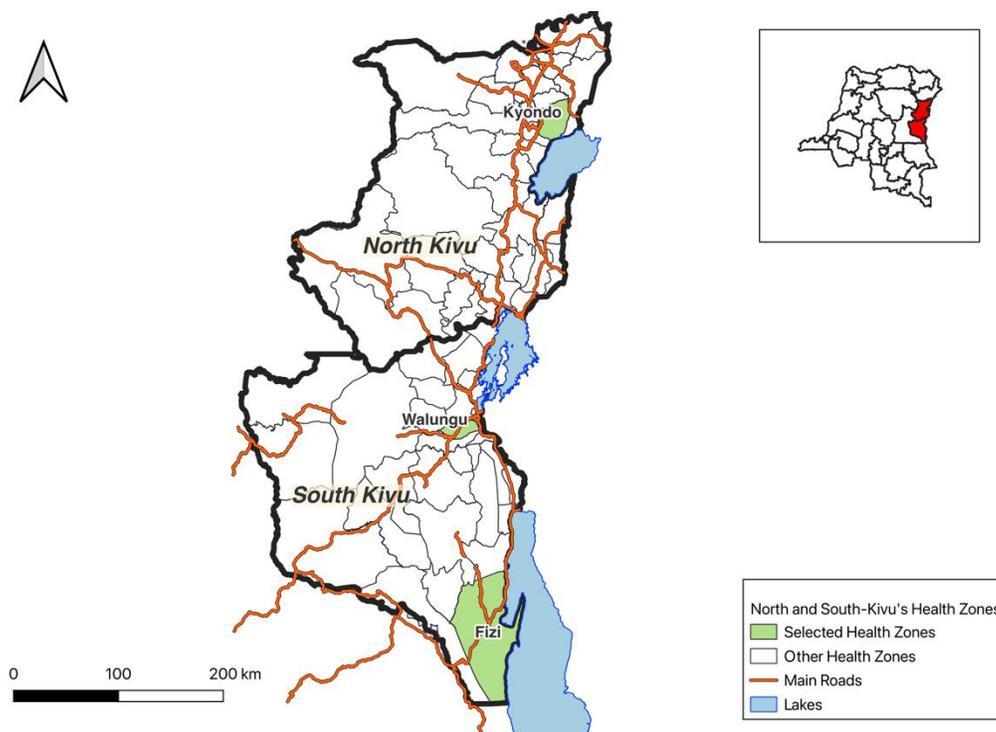


Figure 1: Health zones covered by the two phases of the survey

The Insecurity Insight¹⁰ database was used as the main source of information on attacks against health. Secondly, the Provincial Health Divisions (DPS) of North and South Kivu were contacted directly by telephone to collect additional information on the health centers attacked.

Once the Health Zones were selected, their managers were contacted by telephone to confirm that the identified attack met the inclusion criteria.

At the three sites, qualitative data were collected through individual interviews and focus groups, using interview guides developed in line with the study objectives and the literature review. For the second phase, the interview guides were readjusted to fill the information gaps observed during the analysis of phase 1 data.

Quantitative data covered maternal and child health indicators collected monthly in the chosen Health Zone and/or at the health center, throughout the year 2023 and extending at least 3 months before or after the incident if the incident took place at the beginning or end of the year 2023.

The DHIS2 directory was initially used as a source for collecting this data. However, initial analyses showed that the DHIS2 data reported at the Health Zone level, potentially masked variations in indicators observable in isolation in the health facility under attack. As such, in later phases, the analysis was based on indicators collected directly from the health facility concerned, in addition to the analysis of indicators from the DHIS2. The table below summarizes the indicators collected (Table 1):

Table 1: Indicators of interest collected in case study health zones and health facilities:

Indicator category	Details
Preventive maternal health activities	Prenatal consultations, Family Planning Acceptance, malaria prophylaxis, micronutrient supplementation
Maternal health and childbirth and neonatal health	Assisted deliveries, live births
Preventive maternal and maternal and child health	Postnatal consultations, preschool consultations, vaccinations and micronutrient supplements for children under 5,
General curative activities	Number of cases in the health facility

¹⁰ Insecurity Insight, <https://mapaction-maps.herokuapp.com/health>

II.3. PROFILE OF RESPONDENTS

The profile of respondents and the number of data collected are summarized in the table below (Table 2):

Table 2: Profile of respondents and focus group participants :

Type of collection	Health Area	Community focal points active in the Health Area at the time of the attack	Members of the “Cellule d'Animation Communautaire” active at the time of the attack	Women of reproductive age in the Health Area at time of attack	Health managers in the target health zone	Service providers in health facilities attacked	Government officials
Individual interviews	Kirindera	0	0	0	3	4	0
	Ibinza	0	0	0	2	4	0
	Kafulo	0	0	0	3	3	2
Focus Group Discussion	Kirindera	1 (7 participants)	1 (7 participants)	1 (7 participants)	0	0	0
	Ibinza	1 (7 participants)	1 (7 participants)	1 (7 participants)	0	0	0
	Kafulo	1 (7 participants)	1 (7 participants)	1 (7 participants)	0	0	0

The interviews and focus groups were each conducted by a team of two collectors from the Ecole Régionale de Santé Publique of the Catholic University of Bukavu (DRC), all experienced in qualitative data collection methods. One of the collectors guided the conversation while the other took notes. Interviews were conducted in French or Swahili, according to respondents' preference, and recorded on a voice recorder.

II.4. DATA ANALYSIS

The data from the first phase was analysed to identify the key information gaps leading to readjustment to the data collection tools for the second phase. These included gaps related to community coping mechanisms and recommendations made by government key informants. Finally, a joint analysis of these two phases was carried out to draw the final conclusions.

For the quantitative data analysis, evolutionary curves for the indicators of interest were constructed using MS Excel software.

Qualitative data (interviews and focus groups discussions) were transcribed verbatim in the original language onto an MS Word file, then translated into French by the ERSP research team, who are fully bilingual. The transcripts were then coded manually using an initial MS Excel grid built from the structural

codes taken from the interview guides, and enriched with additional codes after reviewing the transcripts. A deductive thematic analysis was then carried out on the basis of this initial coding.

II.5. ETHICAL CONSIDERATIONS

This research was approved by the International Rescue Committee Institutional Review Board (**IRB #: 00009752 FWA #: 00022773**) and the institutional ethics committee of the Catholic University of Bukavu (**UCB/CIES/NC/002/2024**). Data collection in the Health Zones was also approved by the divisions of the North and South Kivu provincial health departments. Verbal consent was obtained from each interviewee for the audio recording.

III. RESULTS

III.1. CASE 1: KIRINDERA (KYONDO HEALTH ZONE, NORTH KIVU)

a) Event description

The Kirindera Health Center is the only integrated health facility in the Kirindera health area. It includes two health posts offering emergency care to the population. It delivers the Minimum Package of Activities (MPA) of Primary Health Care (PHC), including all maternal and child health care provided for the first line of care. The population served by this health center was estimated to be close to 14,000 by 2023¹¹. In addition to this health center, the Kirindera health area has two small sentinel health posts (Kitovo and Vikanzu), which do not play a major role in the provision of PHC to mothers and children under 5.

The attack on the Kirindera health center took place on March 12, 2023, in the second half of the night. It was carried out by more than 5 men in military uniform, armed with firearms and machetes. They first stormed the health center, destroying its infrastructure (doors and windows), looting and destroying medical equipment and medicines. They stole the money intended for the health staff's pay and finally set fire to part of the health center. In addition, the assailants wounded the guard and killed two people

¹¹ Pyramide sanitaire des zones de santé du Nord-Kivu, édition 2023, Division Provinciale de la Santé du Nord-Kivu
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in the health center (a young girl who was looking after a woman who had given birth, and a hospitalized woman). A newborn baby was abandoned by its mother, who fled the hospital to escape the attackers, as did most of the health center's patients. The total death toll from this attack is estimated at 16 dead (two at the health center and 14 in the community) and several wounded. Several private homes were burnt down, as well as the Kirindera health center.

"The massacre took place on March 12, 2023. As we were at home, we got a message at 3 a.m. saying that the health center had been burned down and many people had died, about 15. During the day, the total had risen to 19, and in the vicinity of the hospital we found another traumatized person, making a total of 16 dead.

"...in the maternity ward there was a woman in labour and her nurse. The guard, trying to escape, fell into the hands of the attackers. She was attacked (with a machete) and died on the spot. The midwife was also stabbed, but fled. In the morning, when people woke up, they found the newborn alive, while the mother had fled" (Health personnel).

The assailants then moved into the town and stormed a hotel where traders were staying, as well as destroying several houses. Some of the traders staying at the hotel and two members of the local community were killed, including the chairman of the health committee and his wife.

"...And in the community there was also other damage because just next to the health center we had found the body of the president of the health committee, because his house had also been set on fire.." (Health Worker)

b) Impact of the attack on the healthcare system

→ Impact on use of and access to services at the health center level

After the attack, the health center stopped functioning for more than a month. During this period, the population sought treatment at nearby health facilities, such as the Vikanzu health post in the same health area. This health post provides a limited number of services, as it is normally intended to play only a sentinel role in identifying and referring patients to the Kirindera health center. The population also traveled to more distant sites, such as to the Kyondo health centre over 10 km away.

This closure of the health structure was linked to several factors: (1) the infrastructure, which was destroyed and set on fire, (2) the lack of equipment and medicines, (3) the fear of health care providers to return to the health center, believing that the aggressors might return (post-traumatic stress). This is reflected in a sharp drop in the number of new cases at the health center from March (245 cases versus

385 in February) to July (Figure 1). Internal coordination meetings of the health center staff were no longer held. As these meetings coordinate the planning and monitoring of service provision, this confirms the cessation of the health center's functionality.

"... there were a lot of deaths during those three months [from March to May 2023] due to a lack of medicine. To find the medicines you had to travel a long distance to come to Kyondo or Chalumba, 10 kilometers away..." (Community focus group discussion participant).

"There were two neighboring health posts that were not affected in our health area. Those who needed care received it if they were close to these health posts, and those who were far away received it in the surrounding health areas" (Health Worker).

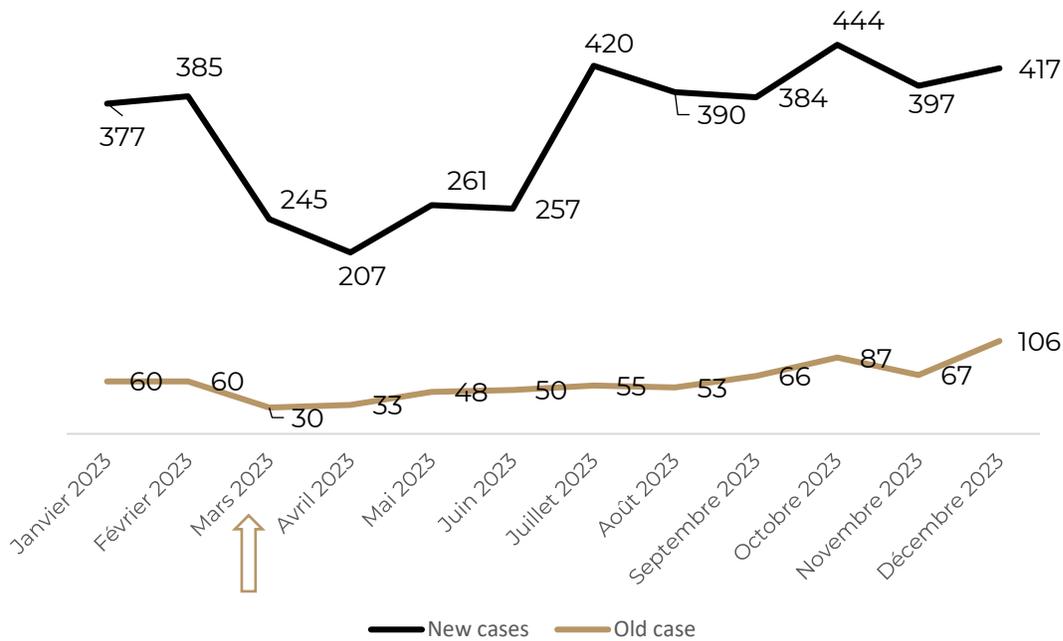


Figure 1: Trend in the number of new and old outpatients in the Kirindera Health Center from January to December 2023 (The arrow indicates the month of the incident).

At the end of April, activities began to resume slowly, with a reorganization of working hours. The health center operated only during the day, and no longer attended patients at night. Health staff now worked from 8 a.m. to 3 p.m., after which the health center was completely closed until the following day.

"The attack took place on March 12, 2020, we reopened with preventive activities around April 29. The (mothers) were complaining about the poor quality of the vaccination, so we said to ourselves that we would

do the vaccination as we were just working during the day. Around May, we resumed with all our activities, but there were fewer children because many had fled" (Health worker 7).

Even after the resumption of night-time activities at the health center, some patients refused to spend the night at the health center, even if their state of health required them to be kept under observation, or if their delivery was expected to take place during the night. For a long time, the health staff remained hesitant: the nurses on duty would lock themselves in the health center, and would first have to be sure of the patient's identity before opening the door. Sometimes, the health staff would hide in a room while waiting for confirmation of the identity of the person who entered the health center at night.

→ **Impact on women's health services**

Immediately after the incident, pregnant women and women of reproductive age were among the most vulnerable, as the health center was no longer functioning. Firstly, antenatal clinic attendance had fallen sharply in the month of the incident (March 2023) (Figure 2). Pregnant women had to travel more than 10km to receive proper care during childbirth. According to some of those interviewed, some patients decided to give birth at home, with the risk of major complications. Some pregnant women in the community, although not direct witnesses to the incident, reported having developed post-traumatic stress disorder based on accounts of the incident alone. Some presented hypertensive disorders and others with threats of abortion or premature delivery.

Prenatal consultations were quickly resumed with the support of the health zone central office, and were carried out in a health center hangar which had not been destroyed in the fire. This clarifies the increase in these consultations in the months following the incident.

"... no, there were no more activities, the nursing staff had advised the women who were in the waiting maternity ward to go to Kyondo because they could no longer take care of them. So they all left... the others fell ill where they had gone. Those who had contractions were carried to the hospital in Kyondo on a tree branch. " (Community Focus Group Discussion)

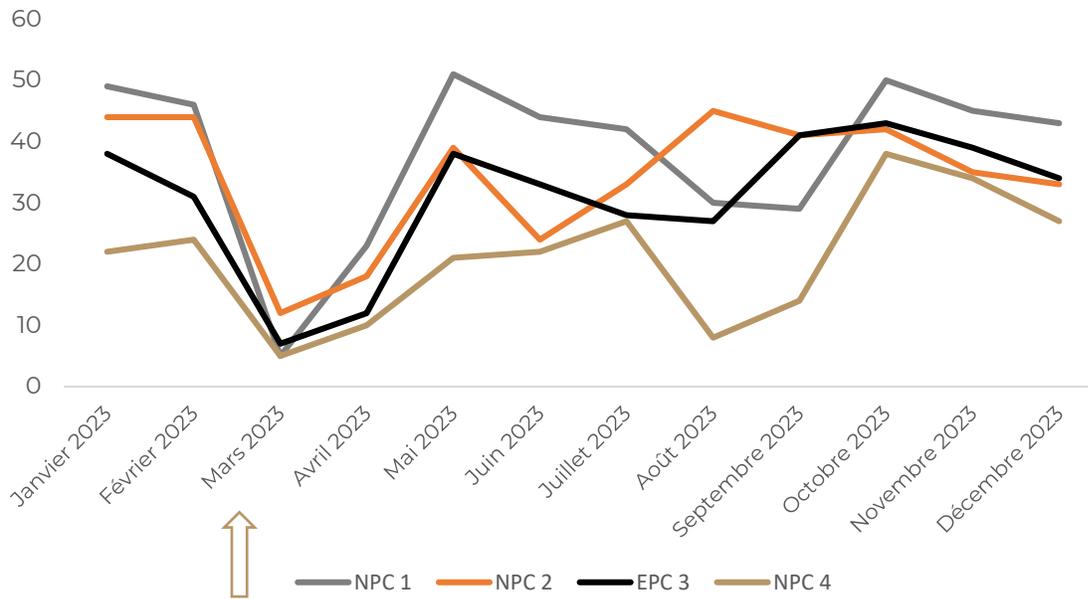


Figure 2: Trends in attendance at the four antenatal clinics required in Kirindera from January to December 2023

The number of pregnant women receiving iron and folic acid supplementation (Figure 3), as well as intermittent prophylactic treatment (IPT) against malaria with Fansidar (Sulfadoxine+ Pyrimethamine) (figure 4), also fell sharply in the month of the incident, before rising rapidly again in the following months. Standards for monitoring pregnant women in the DRC recommend iron and folic acid supplementation to prevent fetal malformations, maternal anemia, and premature or full-term low-birth-weight births. Similarly, malaria prevention helps to avoid malaria in pregnant women, one of the most serious forms of the disease, which can result in maternal anaemia, abortion or premature or full-term low-birth-weight births.

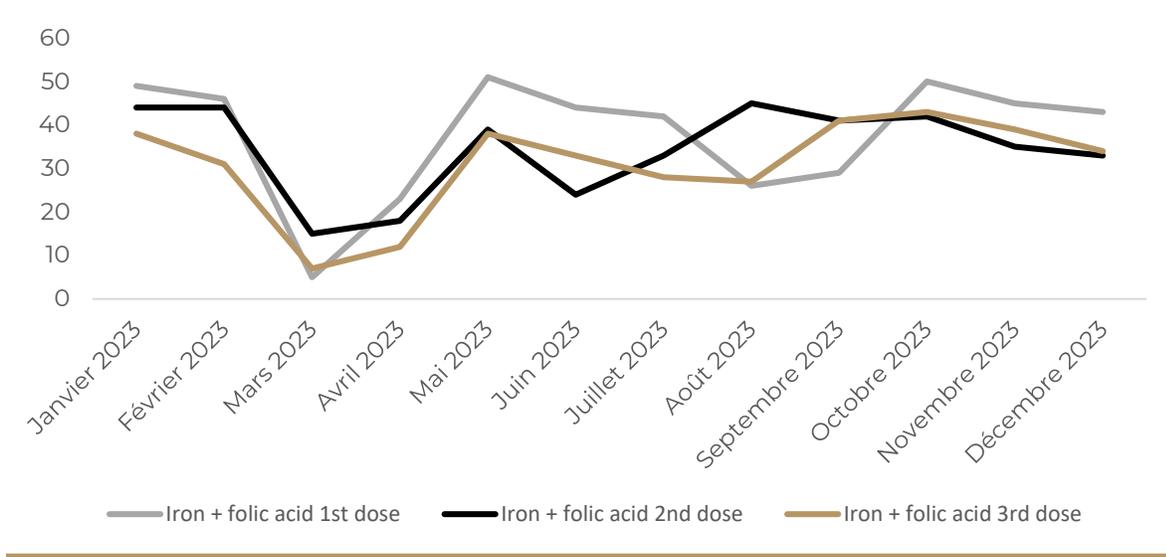


Figure 3: Number of pregnant women receiving iron and folic acid supplementation in Kirindera from January to December 2023

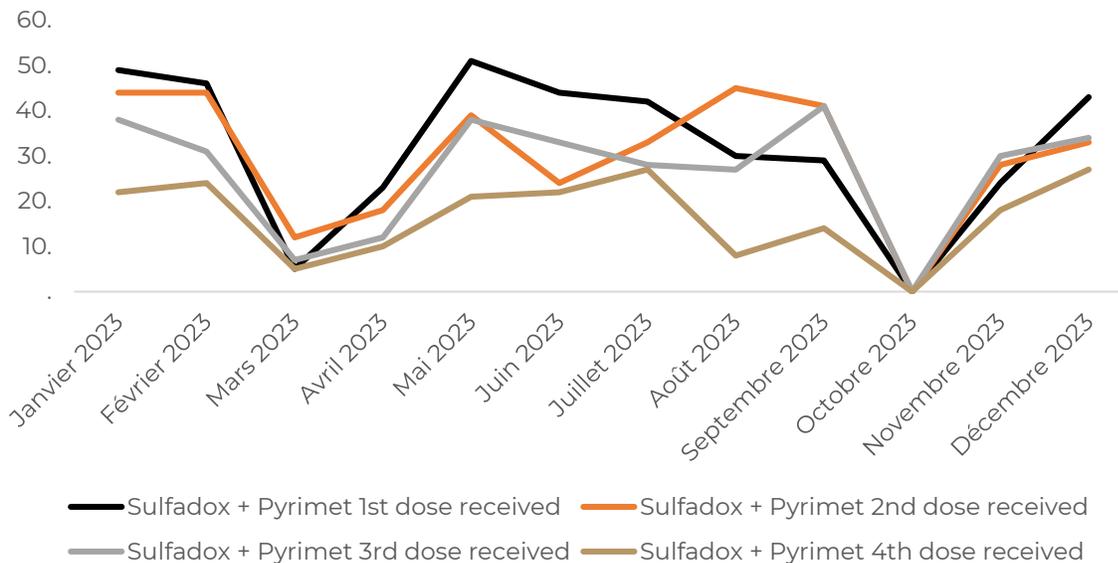


Figure 4: Number of pregnant women receiving malaria prevention in Kirindera from January to December 2023¹²

Secondly, the proportion of women who had been delivered by qualified health personnel and the proportion of live births had fallen sharply in the month of the incident (Figure 5)¹³. This indicator

¹² October 2023 data not found in system

¹³ Studies on attacks on healthcare in other countries have further quantified this decline: A forthcoming study by Burbach, Haar et al, based on a quantitative analysis of the impact of attacks on 18 healthcare facilities in northwest Syria, found that, on average, hospital deliveries fell by 20

remained very low for the three months following the incident, as the health center's maternity ward had been completely destroyed. Night time deliveries were could not be resumed until August 2023.

The proportion of women receiving family planning (FP) methods has followed the same trend as that of deliveries, as the required inputs were burnt during the attack. (Figure 5).

"...il [this incident] affected women more than men because women were forced to go elsewhere for ANC and others delivered in the house because other health centers were far away..." (Community Focus Group Discussion)

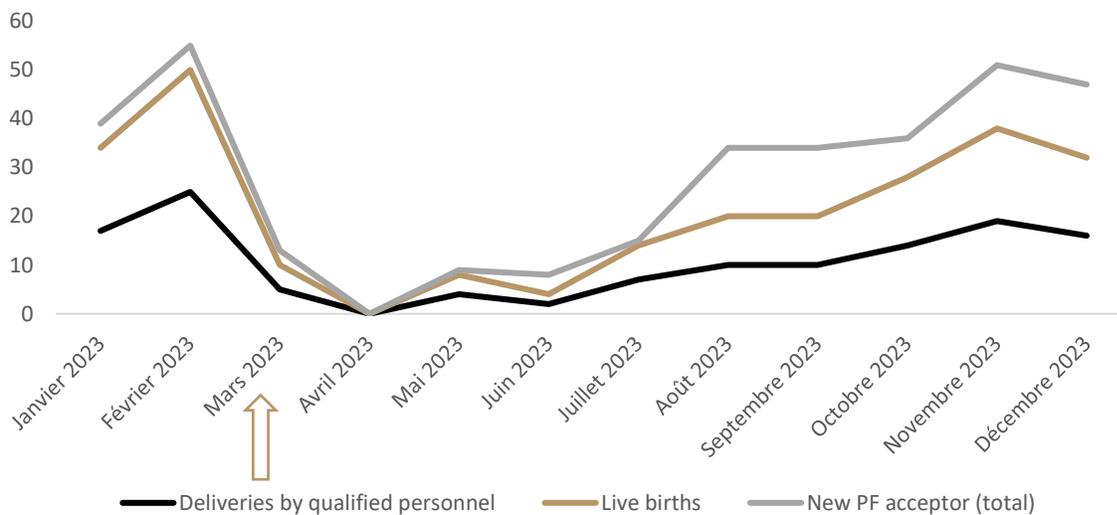


Figure 5: Trends in births attended by skilled personnel, live births and family planning methods in Kirindera from January to December 2023

→ **Impact on children's health services**

The post-natal consultation (PNC) rate for children had fallen sharply during the month of the incident and was virtually nil the following month, especially for the first consultation, six hours after birth. This was linked to the fact that women who had just given birth were more likely to immediately go home, especially after 3pm (Figure 6).

almost 25% in the days following the attack. This reduction lasted over a month.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4658384

"...when you give birth and go home the same day, there was a real risk of bleeding, it gets complicated and they have to take you back to hospital in the evening..." **(Community Focus Group Discussion)**

The number of children seen at the pre-school consultation (CPS), for children under 5, fell sharply in the month of the incident and the month following. Two months later, thanks to the gradual resumption of activities at the health center, this rate increased. (Figure 7).

"...children under 5 years of age no longer benefited from the assistance and care they had received prior to this incident. No vaccinations; no nutrition..." **(Health personnel)**

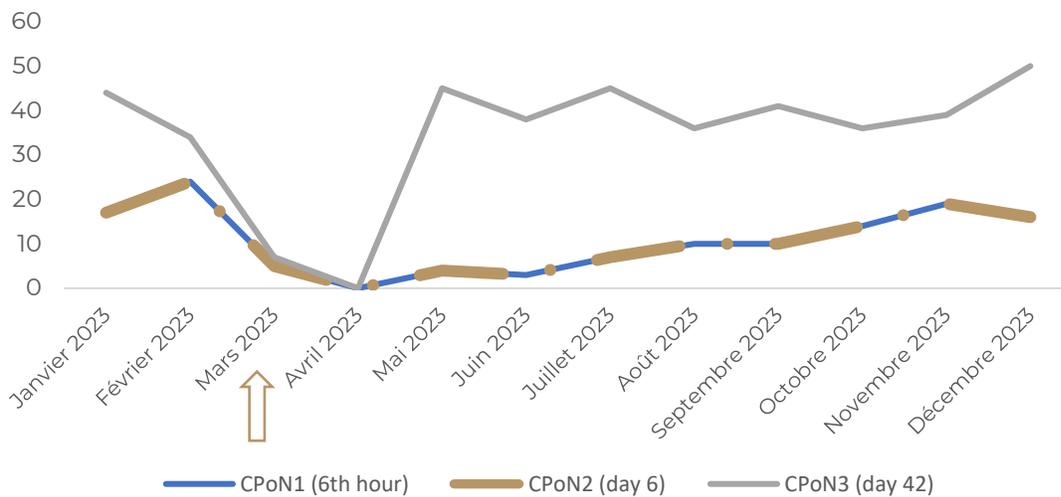


Figure 6. Change in postnatal consultation rate in Kirindera from January to December 2023

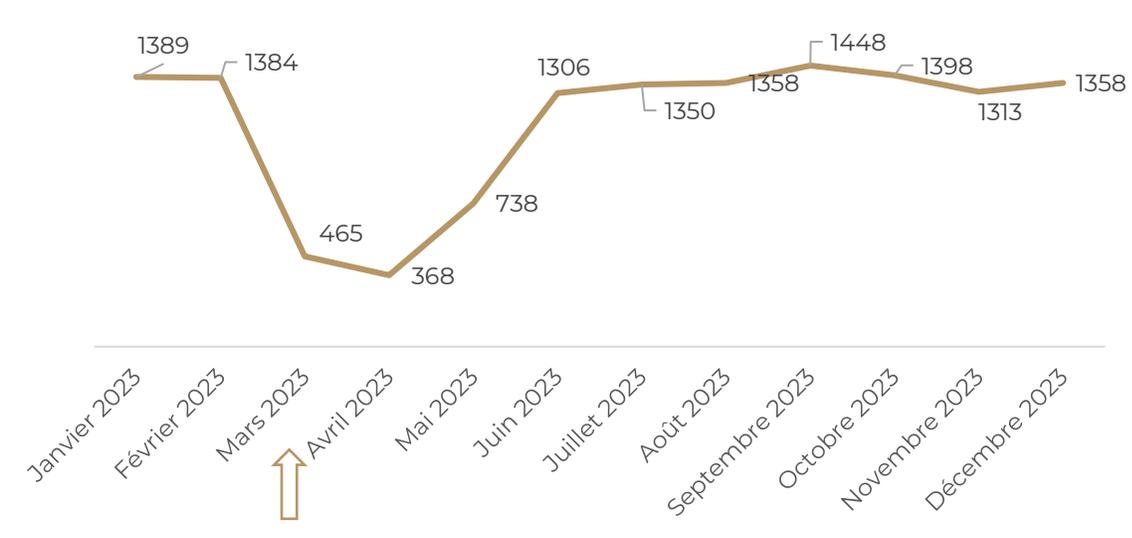


Figure 7. Change in the number of children attending the Kirindera pre-school consultation from January to December 2023

Nutritional monitoring of children was abandoned, and as a result some formerly malnourished children relapsed. Vaccination activities for children were severely compromised as the stock of vaccines was destroyed and the refrigerator used to store these was burnt down. The rate of vitamin A supplements for children, for example, fell sharply in the month of the incident and the month afterwards (Figure 8).

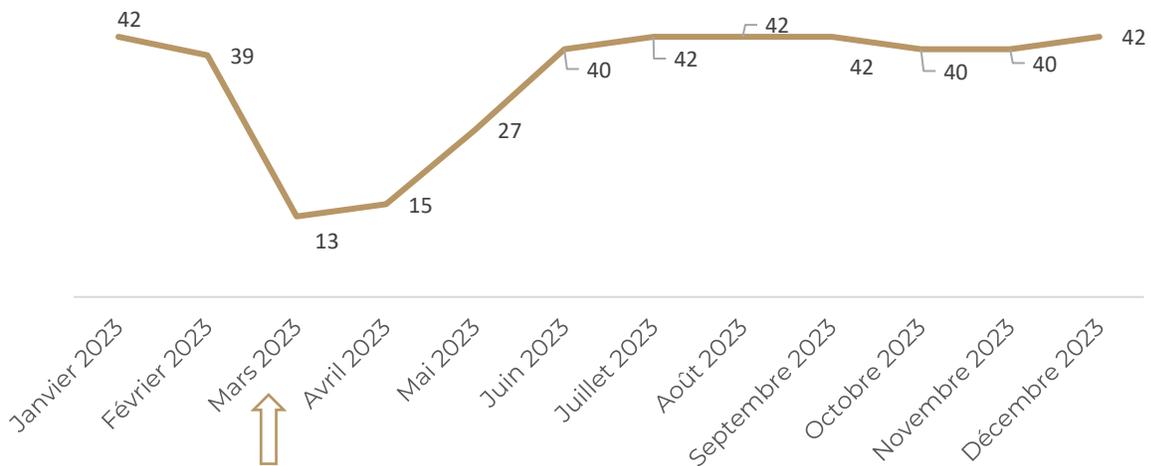


Figure 8. Supplementation rate of children in Kirindera from January to December 2023

c) Adaptation and support mechanisms in place

This event created significant post-traumatic stress among health care personnel, which resulted in a difficulty returning to work, fear of night shifts and a desire to be transferred to another healthcare facility, and within the community .

"We were all touched by the incident. The event had affected everyone... after this attack, where we were, we always wondered if we should leave the job or how..." (Health Worker)

In order for the health staff to resume their work at the health center and for the population to continue to use the health facility without fear, the following measures were implemented:

- 1) The central office of the Health Zone took stock of the damage caused by the incident and identified ways to rehabilitate the health center and provide medical equipment and medicines. It also provided important psychological support for the health staff.
- 2) Health staff from another health center, who had been through the same experience in the past, came to spend time with their colleagues to boost their morale and get them back to work for the benefit of the community.

"...staff from the Chalumba health center used to come and console us, saying that they too had suffered such an attack, and that they too were gradually recovering... those from the Central Zone Offices also came to console us" (Health Worker).

- 3) Local leaders took time to negotiate with the health staff to resume activities at the health center. Community focal points were responsible for spreading the word about the resumption of activities at the health center, once it was up and running. A community leader donated building materials and medicines in support of the reopening of the health centre.

"... during these months there was a member of parliament who came to the health center. Having noticed the damage, he gave us sheet metal and medicines, and we rebuilt the building. "
(Community Focus Group Discussion)

- 4) Before the center reopened, the managers organized minimum services in a hangar of the health center that had been spared by the fire. Cases requiring more advanced care were taken care of in health facilities in neighboring health areas, or at the General Reference Hospital in the health zone.

d) Interventions suggested by respondents to reduce the impact of the attack studied

In the short term, the interventions suggested by healthcare staff and the community following an attack were essentially focused on :

- Rehabilitation of the health structure that was destroyed and set on fire
- The provision of medical equipment and medicines to be able to provide a minimum package of services to the population.
- Psychological support for healthcare staff and the community
- Improving the remuneration of healthcare staff to ensure continued motivation
- Securing the health center by the local police in collaboration with the local community and building a fence for the health center.

"Following this incident, I would like us to be reinforced on the stock of medicines but also on the motivation or bonus for the nursing staff..." (Health personnel)

In the medium to long term, the most frequently cited recommendations were: (a) to strengthen security at local level, involving not only the police but also the intelligence services; (b) to improve the living conditions of the (otherwise poor) population; and (c) to set up a warning system within the community, in conjunction with the law enforcement agencies, to report such incidents rapidly.

"In any case I'd advocate that we have at least one police unit in this environment. And that the intelligence service could involve us in security intelligence" (Health personnel)

"... our big prayer is that peace will return, we don't need to be supported by NGOs, but we only want peace because we think that if we have peace we can resume all our activities and we will be self-sufficient..." (Health personnel)

"The only proposal is for peace to return... if the service provider is in a state of uncertainty and insecurity, he can't pay attention to the needs of his patients..." (Healthcare staff)

III.2. CASE 2: IBINZA (WALUNGU HEALTH ZONE, SOUTH KIVU)

a) Event description

The Ibinza Health Center is an integrated health facility in the Ibinza health area. It is a health center serving a health area relatively remote from the center of the Walungu Health Zone in South Kivu. Ibinza is located 20 km from the Walungu health zone central office, and in 2023 served a population estimated at almost 13,500, in 10 villages¹⁴. It delivers the Minimum Package of Activities of Primary Health Care, including all maternal and child health care planned for the first line of care. In addition to Ibinza, there is a health post with very little involvement in the provision of services.

The attack on the Ibinza Health Center by armed individuals took place on December 13, 2023. It was after 9pm. Villagers living in the vicinity of the centre heard the noise resulting from the attack. They intervened to find out what was going on, but only after the assailants had left. The assailants, some eight in number, armed with firearms and knives, attacked several other households and small businesses in their path, in addition to the health centre. At the centre they committed a violent intrusion, destroying the doors of the health center. They attacked health staff and patients alike. Two nurses were injured in the attack. Several items of personal property, some equipment and medicines, as well as the cash registers were looted. During the attack, two women were in the maternity ward, in labor.

"... the surgery boxes microscope, sterilizing device, all that, that's what was stolen." (Health Worker)

"... the one who had already given birth had bled a lot because the carers had already fled. This patient had almost died, before the bandits released the carers who went to rescue this lady." (Community Focus Group Discussion)

"...there was a midwife who was directing the delivery at the time, they beat her up and injured her hand." (Health Worker)

b) Impact of the attack on the healthcare system

→ Impact on use of and access to services at the health center level

In the days following the incident, there was a decrease in the health center's care services due to three main causes:

¹⁴ Pyramide sanitaire des zones de santé du Sud-Kivu, édition 2023, Division Provinciale de la Santé du Sud-Kivu

- (i) **Difficulty in organizing duty and night shifts:** nursing staff, including those who had not been direct witnesses/victims of the attack, were traumatized by the attack. They dreaded working night shifts, for fear of falling victim to another attack. They were also wary of patients who came for consultations at night: before opening door to them, their identity had to be confirmed.
- (ii) **Lack of inputs, equipment and financial resources:** For several weeks, the center's ability to provide services was affected by a lack of resources (money, equipment and medicines were stolen). It should be remembered that, although they may receive support for certain services, health facilities in the DRC generally operate largely on a self-financing basis, using money collected from patients.
- (iii) **Widespread fear among the local population:** The trauma of direct witnesses to the attack has affected the local population. Respondents observed significant reductions in routine activities at the health center, linked to the population's fear of frequenting the centre for fear of possible attacks. The community now preferred to travel longer distances for treatment elsewhere rather than seek care at Ibinza, especially if this was to take place at night.

"...besides, most people are beginning to be afraid to come here for treatment. in Bideka, Izege ... in Bideka there are policemen and soldiers. That day, if there were policemen here in Ibinza, those thieves wouldn't escape." (Community Focus Group Discussion)

→ **Impact on women's health services**

Access to maternal health services, mainly deliveries, was immediately and permanently affected, as well as throughout the month that followed.

- (i) In the weeks that followed, women in the Ibinza health area preferred to give birth in health centers further away than Ibinza, for fear of ending up there at night, in the event of labor dragging on well into the night. This situation exposed women in labor to long traveling risking their pregnancies and their lives.
- (ii) **Variability by time of day:** Daytime services, which the population considers to be safe, were not greatly affected by the disruption. Women continued to come for prenatal consultations and family planning. Childbirth was the maternal health service most affected, given the probability of night-time occurrence. Figure 9 below shows a sharp drop in deliveries in

December, before the curve starts to rise again in January. However, new family planning memberships only fall the following month, in January, as a consequence of the drop in deliveries the previous month, since it is generally the women who return a few weeks after giving birth to take contraception. Figure 10, on the other hand, illustrating prenatal consultations, does not seem to be affected, as this is strictly a daytime activity.

- (iii) **Decline in the quality of care:** the decline in the facility’s ability to provide appropriate care, linked to the theft of medicines, also had an impact on preventive maternal health care. Pre- and postnatal consultations, while still provided, were no longer of good quality due to a lack of certain necessary inputs. Figures 11 and 12 show a break in the curves for iron and folic acid supplementation and malaria preventive treatment in December 2023.

"It's the women who have been most affected. Men can come for treatment, there's no problem, but imagine a woman who's just given birth here, her phone or her belongings looted, she won't be able to tell her friend or another woman to come back here to the health center. It's during the day that we have women who come to give birth, but in the evening they go elsewhere." (Health Worker)

"Nowadays you can come to hospital and get one vaccine and miss another. In the past, when we came to the hospital we received folic acid, Fansidar and vitamin B12: now we cannot find any of that..." (Community Focus Group Discussion)

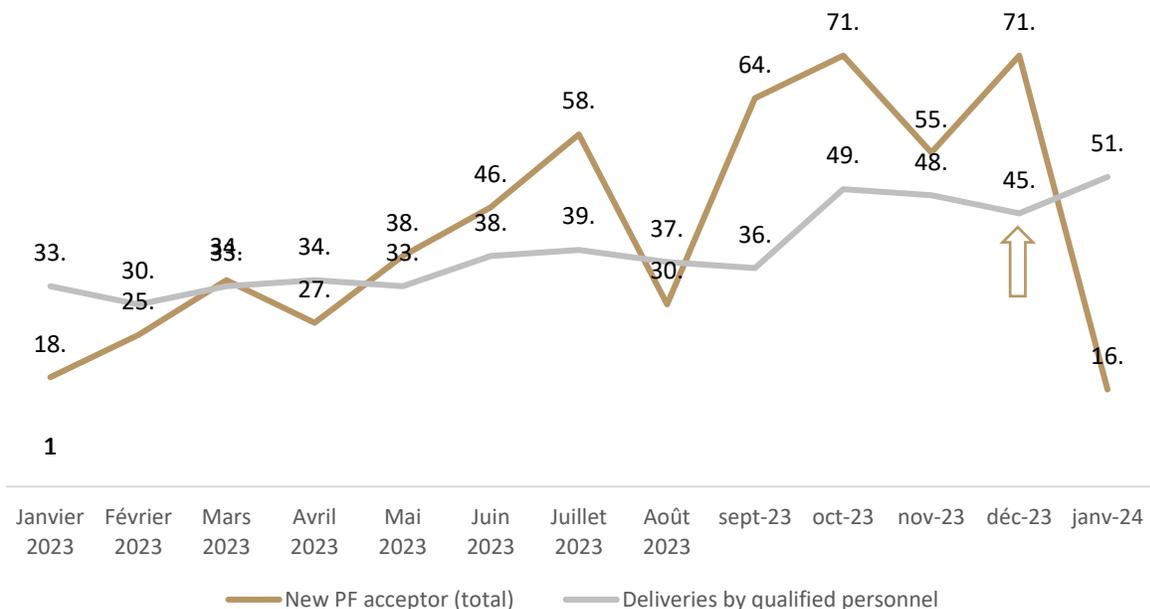


Figure 9: Births and family planning in Ibinza Jan2023 - Jan2024

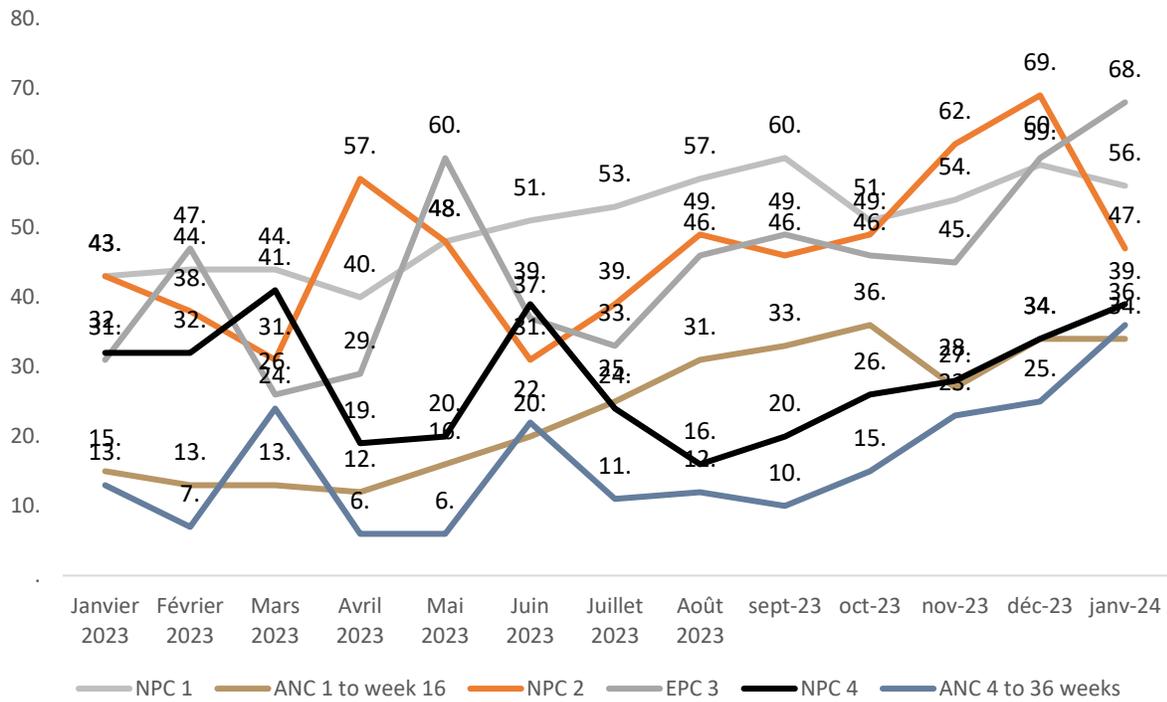


Figure 10 : Prenatal consultations in Ibinza Jan2023 - Jan2024

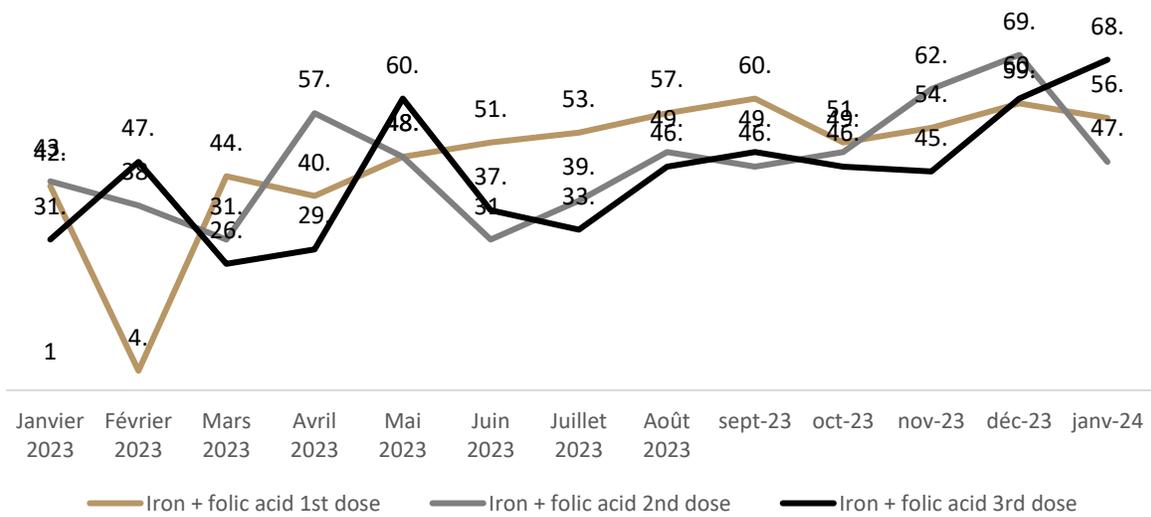


Figure 11: Micronutrient supplementation among pregnant women in Ibinza Jan2023 - Jan2024

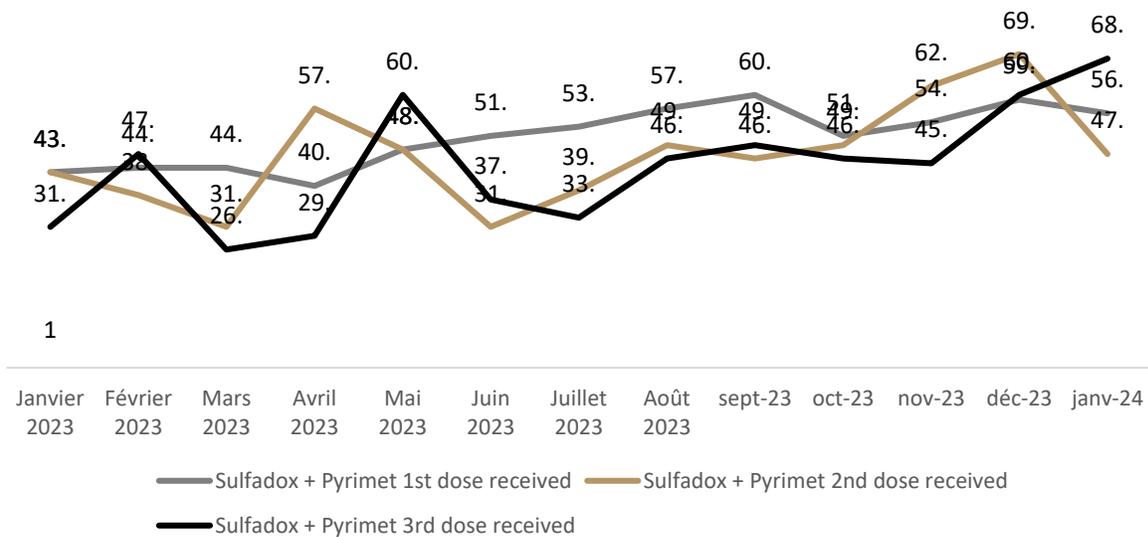


Figure 12: Preventive treatment of malaria among pregnant women in Ibinza Jan2023 - Jan2024

→ **Impact on children's health services**

Similarly, access to pediatric services has been affected by the attack, impacting children's health and well-being. This happened through the three mechanisms already described:

- **Difficulty in organizing duty and night shifts:** staff were reluctant to go on duty because they were traumatized. They lived in constant fear of new attacks and were wary of patients coming for consultations at night. This reluctance particularly affected essential services for children provided during the night, such as the urgent management of life-threatening conditions like severe diarrhea, respiratory distress, or severe nocturnal febrile states, where intervention time can be critical to a child's prognosis.

"... for example, my sister-in-law's child had fallen ill. When we got to the hospital, all the nursing staff went into hiding. And yet, the child is ill and it's around 11 p.m., so they have to check who we are first (before opening the door). This shows the fear they have. (Community Focus Group Discussion)

- **Lack of inputs, materials and financial resources:** money, equipment and medicines were taken away by the assailants, yet the centre operates mainly on a self-financing basis. Figure 13 illustrates the break in December 2023 in preventive activities for children,

which could be explained by a lack of supplementation inputs (notably vitamin A and pre-school consultations for children under 5).

"I used to take my child to get Plumpy, but now I don't know what's happening. we don't get anything anymore... And for us breastfeeding mothers, we used to get porridge flours but now nothing works... for me it's the first time I've brought my child to the hospital but the hospital doesn't have any medicine."
(Community Focus Group Discussion)

- Fear among the local population:** the community prefers to travel longer distances for treatment elsewhere, rather than seek care at Ibinza, especially if this takes place at night, for fear of further attacks. Figure 14 shows a break in post-natal consultations in December 2023, which mirrors the disruption of deliveries during the same period.

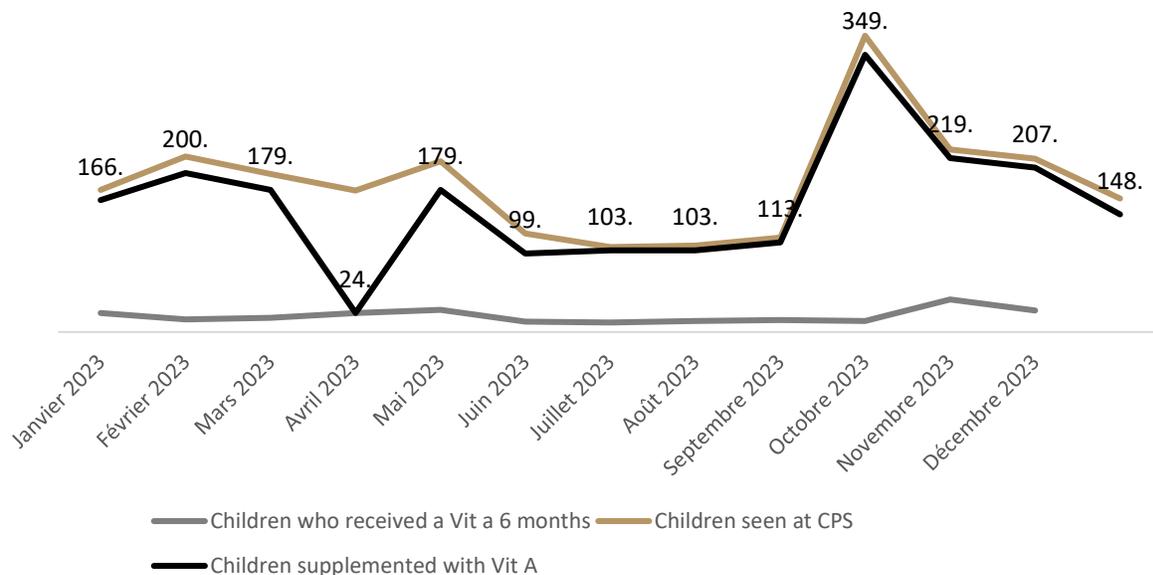


Figure 13: Supplementation activities among children under 5 in Ibinza Jan2023 - Jan2024

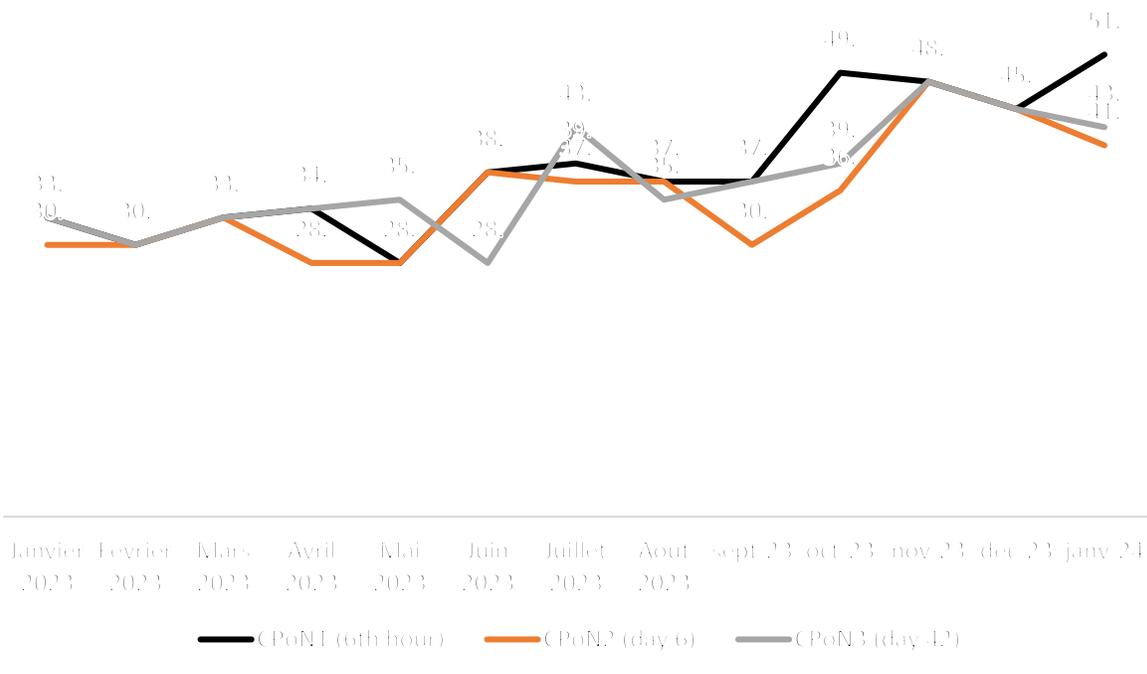


Figure 14: Post-natal follow-up of newborns and their mothers in Ibinza Jan2023 - Jan2024

c) Adaptation and support mechanisms in place

- Immediate response:** That night, although one of the nurses managed to raise the alarm by telephone to her superior during the attack, there was no immediate external response. The first people arrived on the scene only after the attackers had left. As a result, the staff of the Ibinza health centre who experienced the attack had to rely on themselves to try and contain the immediate material and psychological consequences of the attack and ensure continuity of care for patients who were in the health centre during the attack, while waiting for daybreak. Two women were in labor during the attack. It was therefore necessary to continue monitoring their labor until they gave birth. Similarly, the nurse with the knife wound was bandaged by her colleagues, pending her transfer the following day to the referral hospital for appropriate care. The very next day, the head of the health center quickly proposed a reorganization of services pending the rehabilitation

of the nurses who had been victims of the attack. The nurses were given a rest period and benefited from the compassion of their colleagues.

"... the two nurses who were attacked first took some time off; and another team stayed on to organize the shifts... ". (Health personnel)

- **Long-term resilience:** Several efforts community awareness-raising efforts were initiated to increase the use of the health centre by the community. This was done in particular during the Ante Natal Care (ANC) appointments hosted by health centre staff: on these occasions, the staff took the opportunity to remind in particular the women that they were no longer in any danger of coming to the clinic for treatment at night.

"... there was one (pregnant woman) who said "ooh, I'm not going to give birth here at night anymore, God help me so I can give birth to this pregnancy during the day". We told her no, the health staff is available in the facility, you can always come because we can't prevent you from going into labor, it comes unexpectedly" (Health Worker).

- **External support:** The local authorities reinforced security by assigning, albeit temporarily, elements of the police force to guard the centre, and by improving public lighting. The Central Zone Offices supported the operation of the centre through the provision of equipment and medicines to ensure the continuity of minimal services. This support of the local authorities, though modest, has been important.

"... two weeks later we had been supplied with medicines, from the Central Zone Offices pharmacy, on that, we still supplied our pharmacy gradually. And up to now (Ed. note: at the time of this survey, February 2024), we haven't yet received any other outside help, apart from our Central Zone Offices pharmacy and the installations of military units here." (Health Worker)

d) Interventions recommended by healthcare personnel and the community to reduce the impact of the attack studied

- **Reinforcing security and reconstruction:** Respondents in both individual and group interviews stressed the need to reinforce security around the health centre to prevent future attacks. This included the installation of surveillance systems, the hiring of security guards (they pointed out that the guard the centre had at the time of the attack was a retired old man, who was easily neutralized by the assailants), the reopening of the local police station, and the installation of more resistant physical barriers (the front door of the centre easily gave way to the forcing of the assailants).

"... in the neighborhood because there is a former post of soldiers here, if they are there, no one can attack the health center. Like for example in Kampusi, they were facing the same problems as us, the authorities posted soldiers there, and since then these events haven't happened anymore." (**Community Focus Group Discussion**)

- **Psychological support for staff:** The need to provide psychological support for healthcare staff affected by the attacks was frequently mentioned. Respondents recommended counseling and emotional support services to help staff overcome the trauma. Our survey took place more than a month after the incident, but the nurses who were victims were still obviously deeply traumatized¹⁵.

"At home, we avoid doing anything that reminds me or scares us, like knocking on the door.... Sometimes, when I'm on duty here at the centre, I can't sleep. Whether there's a sick person or not, I always stay awake, because in my head things are happening that make me think the attackers could come at any moment." (**KII-IF1**)

- **Improved speed of material replenishment:** In the face of looting and destruction, respondents expressed the urgent need to replenish the health center's supply of essential medicines and medical equipment to ensure continuity of care.

"... it was a long time before the health center was supplied with medicines" (**Health personnel**)

- **Staff training on how to deal with attacks:** Several respondents suggested that healthcare staff should receive specific training on how to react in the event of an attack, in order to minimize risks and manage emergency situations effectively. According to several respondents, the injured nurse was injured because of an uncalculated panic reaction to the attackers.

"...my colleague who tried to scream was stabbed in the hand." (**Healthcare staff**)

- **Material and financial support for staff:** To motivate and retain healthcare staff in high-risk areas, respondents recommended increasing salaries and providing other material incentives.

¹⁵ The long-term impact on the psychological well-being of healthcare workers has been widely documented in other contexts too, see for example: Abbara, Haar et. al. "Actually, the psychological wounds are more difficult than physical injuries:" <https://conflictandhealth.biomedcentral.com/articles/10.1186/s13031-023-00546-5> and the IRC Joint Health Staff Survey <https://www.rescue.org/report/joint-health-staff-survey-protection-health-care-south-sudan>

"...in relation to healthcare staff, security remains paramount if they are well secured that's good, but also allocate a good salary for healthcare staff, including for social security... because if he has a salary that suits, all these issues can be mitigated." (Health personnel)

III.3. CASE 3: KAFULO (FIZI HEALTH ZONE, SOUTH-KIVU)

a) Event description

The Kafulo Health Center is the only health facility in the Kafulo health area. It delivers the Minimum Package of Activities (MPA) of Primary Health Care (PHC), including all maternal and child health care provided for the first line of care. The population of the 9 villages served by this health center is estimated at nearly 6,000 in 2023¹⁶. Kafulo is 33 km from the central office of the health zone, which is considered by local managers to be a very remote health center due to the very poor practicability of the road: it is practically difficult to make a round trip between the Central Zone Offices and this health center in a single day, and night travel is discouraged due to the endemic insecurity in the area.

Two major incidents occurred on November 17, 2023, and December 23, 2023 respectively in the Kafulo health area, in the Fizi HZ, South Kivu. In the first incident, unidentified armed groups attacked the village of Kafulo, killing the village chief and causing widespread chaos. The local health center was ransacked, with looting of medicines and other goods. The second incident involved another armed group who operated from 5am, stealing cows from a neighboring village, Bibogobogo, then looting the Kafulo health center on their return, spreading great terror within the community and forcing residents to flee into the bush to escape the violence.

"Concerning the first incident in Fizi on November 17, 2023, unidentified armed people entered the village and killed the village chief. Then another force came and our health center was not spared. They ransacked the health centre, they looted the medicines and other goods in the Kafulo health center" (Health personnel).

"The second event was on 23/12/2023 when some armed men went to Bibogobogo and came down with the cows. The population lost a lot of property when they fled, and these assailants also entered the health center and took stuff from there, putting people's lives in danger" (Health Worker).

The testimonies of the participants highlight the terror experienced by the population during these attacks, with bullets crackling in the village, people fleeing in panic, and widespread acts of looting. An

¹⁶ Pyramide sanitaire des zones de santé du Sud-Kivu, édition 2023, Division Provinciale de la Santé du Sud-Kivu

aspect of ethnic conflict was also noted, highlighting the context in which two armed groups confronted each other. Women and children were particularly affected, being the most exposed to violence. The repercussions of these incidents are multiple, ranging from the temporary closure of the health center to the exodus of the population, including the loss of property and the disruption of community activities such as the functioning of local markets. These incidents have had a devastating impact on local communities, severely disrupting health services and the daily lives of local residents.

"On this December 23, 2023, it was really a big problem because it was already night, we were asleep around 5 a.m. I think... the bullets started crackling around the village, and people started running in all directions. Some left their children behind. (Health worker).

"In short, the Mayi-Mayi set off to take or steal cows from Bibogobogo, they came down with these cows and others there, the "NGUMINO" (a Banyamulenge militia) pursued them to take them back until they arrived in the village and looted the whole center. For three days, there was no one in the village, and no one at the health center was being treated". (Forces de l'ordre).

b) Impact of the attack on the healthcare system

→ **Impact on use of and access to services at the health center level**

Respondents highlighted the scale of the challenges faced by the health center and local population due to insecurity and looting, severely affecting access to essential healthcare.

Firstly, the nursing staff fled out of fear for their lives, leaving the patients without care.

"The nursing staff were afraid of dying..., with a lot of bullets in the village and the nursing staff have no weapon or anything else to defend themselves, the service providers fled, the patients who already had some strength also fled." (Community Focus Group Discussion)

"The health center was closed. [...] Everyone had taken refuge in the bush..." (Community Focus Group Discussion)

In addition, there was an impact on the quality of care: the period during which the incident took place manifested itself in a drop in the quality of healthcare, due to the fact that there were no longer any healthcare providers in the facility, but also as a result of the theft of all the medical inputs needed to receive quality healthcare.

"During all this time there was no longer any quality care because there were no longer any care providers... Even when the nurses were back, the care wasn't always of good quality because there were no more medicines or care materials. Everything had been stolen." (Community Focus Group Discussion)

Looting and destruction of medical equipment in the health center: the looting caused considerable damage to medical equipment, medicines and health center facilities, significantly affecting the provision of care.

"There was looting of medicine, lab equipment and medical supplies. (Health Worker).

"They stole the medicines, 2 mattresses from the health center... we had also brought other materials from the maternity ward and they broke the beds of the patients." (Community Focus Group Discussion)

Another consequence of the attack was the temporary closure of the health center, for around 4 days due to insecurity and the looting of medicines and medical equipment.

"...It closed its doors for 4 days due to insecurity and lack of the necessary tools to provide services." (Health Worker).

The local population resorted to several coping mechanisms: Patients were obliged to visit the Kafulo health staff in the bush to receive health care. This same staff referred them to neighbouring villages, including the village of Katanga which is over 15 km from Kafulo. Given the long distance between Kafulo and Katanga, most patients were forced to resort to alternative strategies such as traditional medicine or self-medication.

"...Yes, patients were seeking treatment, but unfortunately the health center was closed. Some used traditional medicine and others went to pharmacies for help." (Health Worker).

"...the sick would even meet us in the bush where we were, and we would ask them to go to Katanga" (Health Worker).

"...Most went to search for traditional care because leaving Kafulo to Katanga is more than 15 kilometers." (Health Worker).

Even after the reopening of the health center, services could not resume at full capacity due to the persistent shortage of medicines and medical equipment; also, persistent insecurity continued to dissuade local populations from visiting the health center for fear of further attacks. The use of alternative services and the persistence of the problem led to a drop in the use of services.

"Even when the nurses were back, the care was not always of good quality, because there were no medicines or care materials left... Everything had been stolen. Many patients escaped" (Health worker).

→ **Impact on women's health services**

There were two main consequences of the attack on maternal health care were:

1. **Limited access to maternal health services :**

Before the incident, many women gave birth at the health facility. Following the incident, due to the displacement of health care staff, pregnant women were forced to give birth in precarious and dangerous conditions, sometimes in the bush or with the help of traditional practitioners. Attendance at antenatal clinics fell sharply due to the fear linked to insecurity, resulting in pregnancies without adequate follow-up and increasing the health risks for women and newborns.

"First of all, the maternity ward; some women were going to give birth at the facility, but as all the health care providers were on the run, they were forced to give birth in the bush, while others went to quacks." (Community Focus Group Discussion)

Most maternal health indicators fell, as can be seen in the graph below; the numbers of live births and deliveries by qualified personnel fell in November 2023, the period corresponding to the first incident, then took a slight upward trend towards December 2023; the same applies to women who accessed family planning, their numbers fell in December 2023, corresponding to the second incident, with a recovery trend in January 2024. There were fewer new patients under the age of 20 after November and December 2023, and other preventive activities at ANCs were used less. The number of births receiving vitamin A, also fell during the same period; these activities probably continued to decline in the following month, but the graph does not show this due to the recent nature of the event (Figure 15).

"The number of women attending the ANC and CPS before the incident has dropped; they have fled because of the war; pregnant women have not respected the vaccination schedule, so pregnancy without follow-up, infections for pregnant women and this has had a negative impact on the health of the woman and the baby." (Community Focus Group Discussion)

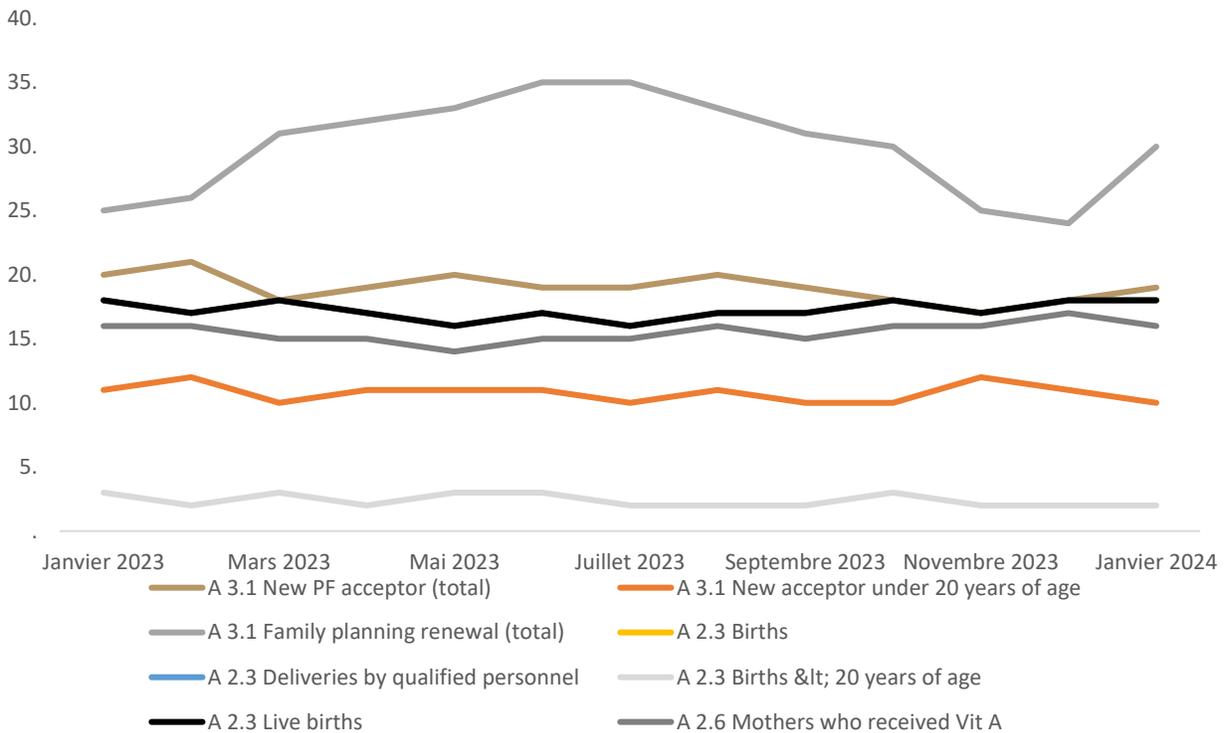


Figure 15. Trends in key maternal health indicators from January 2023 to January 2024 at Kafulo

2. Lack of medicines and medical equipment and their impact on women's health and well-being

Even after the resumption of activities in the health centre, the persistent shortage of medicines and medical equipment continued to compromise the quality of care, forcing some women to give birth in unsanitary conditions, sometimes on the floor for lack of maternity beds. The looting of medicines and medical equipment made it difficult to treat pregnant women and children, sometimes leading to transfers to other health centers in search of medicines. The health center continued to operate with limited resources, sometimes forcing women to buy their own medicines from pharmacies. In December 2023, fewer women received CPN1 and CPN4 at 16 and 36 weeks respectively (Figure.16).

"We can say that the effects are negative because even after these 3 months, the stolen materials and medicines have not been returned or replaced; there was still deficiency, and the women were still suffering and until today." (Community Focus Group Discussion)

"During this period, no activities were carried out, because they took away our equipment from the maternity ward. There was no way we could run to the centre, because even the beds were destroyed. No medicines for pregnant women. " (Community Focus Group Discussion)

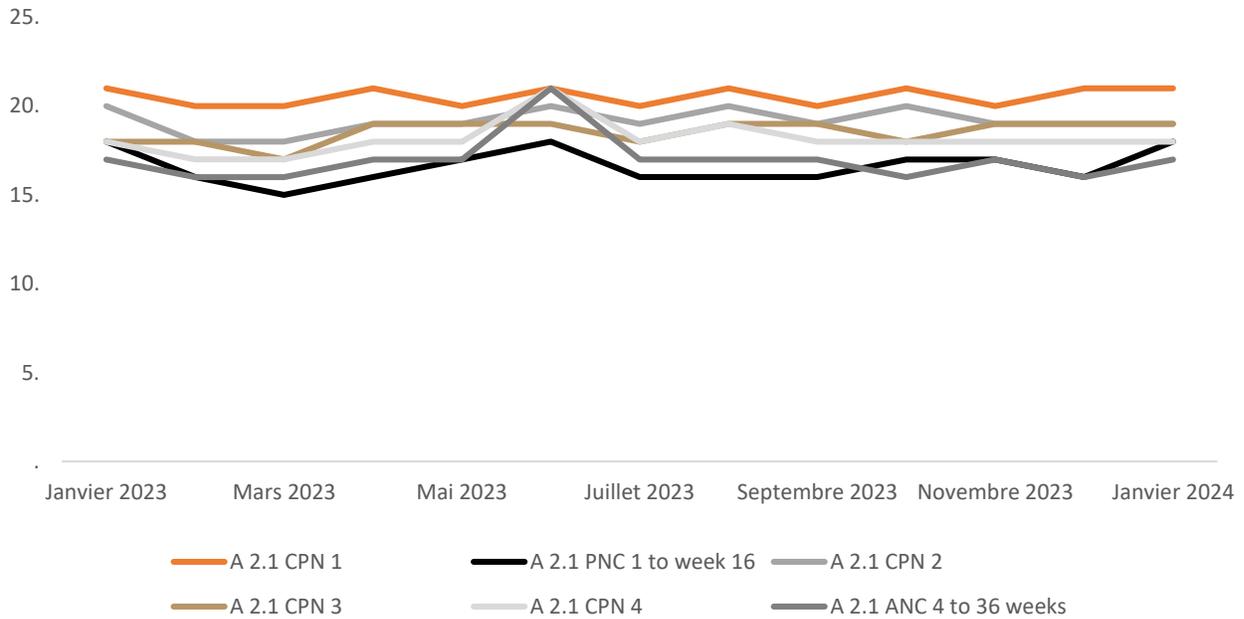


Figure 16. Evolution of ANC cases from January 2023 to January 2024 at Kafulo

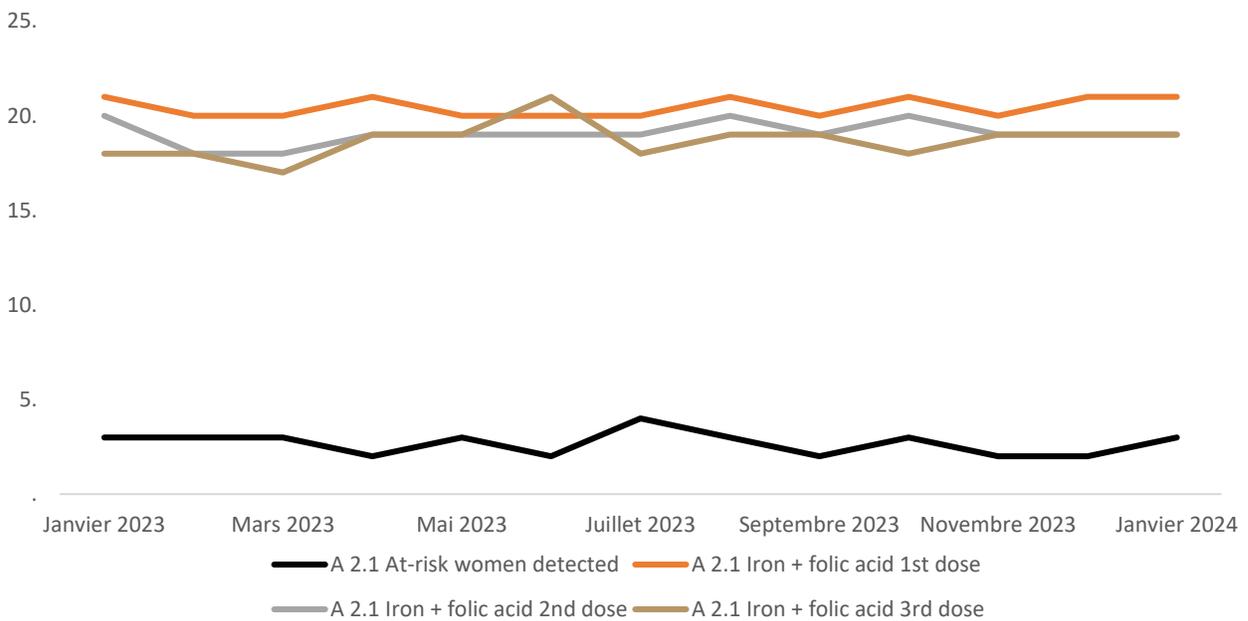


Figure 17. Trends in micronutrient supplementation in pregnant women (iron and folic acid) from January 2023 and January 2024 at Kafulo

→ **Impact on children's health services**

There has been an important impact on children's health services, with particular repercussions for children under five. According to eyewitness accounts, the theft of medicines intended for malnourished children, such as Plumpy'Nut, has hampered their medical care, leading to an increase in cases of malnutrition. In addition, children have been exposed to physical and psychological trauma, notably due to forced displacement and exposure to unsanitary conditions, risking the outbreak and spread of diseases such as malaria, measles, and scabies. Children have been deprived access to basic needs for their health and well-being, such as a good night's sleep under a roof, access to drinking water and a healthy diet, all linked to the two attacks and creating a vicious circle of factors that have contributed to making the state of health of children under 5 even more fragile and vulnerable during this period in the Kafulo health area.

"...they stole the medicines from the malnourished children, the plumpynut. The malnourished children have lacked medicine for the whole month and there has been an increase in the number of malnourished children... moving from one area to another for children with bullet wounds, psychologically the children must be affected." (Community Focus Group Discussion)

"... Among the children there was malnutrition, measles and scabies. All these diseases developed during this period... what I will add is that many diseases developed because when we left, we left without mosquito nets so we had many cases of malaria and especially in children." (Community Focus Group Discussion)

"...Personally, my child was a victim of this incident. With this move from the house to the bush and we spent 3 days there under the stars, with no blanket, no mosquito net, no food or drink, he fell ill and until now he's at the general hospital in Baraka." (Community Focus Group Discussion)

Medical activities, including vaccination and consultations for children, were suspended following the closure of the centre for several days, leaving many children without access to essential care. Even after activities resumed, the lack of medical resources affected the quality of care for children under 5, resulting in a lack of follow-up to medical activities, for example inadequate provision of nutritional activities including the theft of equipment such as scales. This also led to other tragic consequences for children, including preventable deaths.

"...children who fell ill on the day of the attack and in the days that followed were not cared for." (Community Focus Group Discussion)

"... all these activities have stopped. And to this day even weighing children is a problem because there aren't even any child scales... We can do what we can but this activity has lost its value." (Health worker).

"...I myself gave birth to a low-weight baby in January, but due to a lack of care the baby died a few days later." (Community Focus Group Discussion)

As a result of the looting of household goods, the communities socio-economic situation has been affected, depriving them of income-generating activities on a daily basis, making it difficult to meet basic household needs.

"Yes, the impact has affected women and children much more. Economically, they stole their possessions, livestock, chickens etc." (Health Worker)

→ **Impact on healthcare personnel (psychological, professional, social, etc.)**

The analyses highlighted worrying psychological and professional challenges; the impact on healthcare staff is profound and multifaceted, ranging from constant fear to the inability to provide adequate care due to lack of resources. Work motivation is also affected, with repercussions on the quality of healthcare services in the region.

Testimonies reveal an atmosphere of fear and tension among staff, as well as challenges in performing their duties. Several staff expressed their desire to leave their posts or even resign due to the continuing insecurity. In addition, these attacks have affected their professional lives, diminishing their concentration and motivation at work.

"Personally, I felt the need to leave the environment and take refuge elsewhere, I even had the intention of resigning for my own safety... Yes, this incident has affected my professional life, we live in insecurity; limited in life, no way to undertake." (Healthcare worker).

In addition, the lack of material and financial resources has complicated their ability to provide quality care, leading to further frustration.

"We nurses live thanks to the population, because they took everything away. We don't have any equipment to treat people, so we've been affected financially and psychologically". (Health Worker)

Social relations have also been affected, with tensions between health professionals and the local population, as well as between the various health centers; given the socio-cultural context, conflicts have erupted due to suspicion and accusations of complicity with the aggressors.

"... In fact, to this day we don't talk to the Bibogobogo nurses. They say we treat their attackers. We're a health center, and when the wounded come, it's for treatment, but when they go to fight, they won't tell us." (Health Worker)

c) Adaptation and support mechanisms in place

Despite the lack of resources and material support, actions were taken to immediately stabilize the situation and resume health activities in the Kafulo health centre. Local authorities promptly reported the attack to higher authorities, while health officials sensitized staff to return to the centre to resume activities.

"When the armed men invaded the village, the local authorities directly reported the government to the FARDC (the armed forces). The FARDC calmed the situation down." (Community Focus Group Discussion).

Several local initiatives were implemented, such as the repair of damaged beds and the manufacture of new beds for patients, and the supply of other medicines by the Central Zone Offices. However, these efforts were limited by the lack of available resources.

In addition, collaboration with the security forces, such as the FARDC and the police, was highlighted as a means of guaranteeing security in the community.

"... The health zone has brought in some medicines, but it's not enough... At community level, we've tried to repair some broken beds, we've made other beds from the wood to enable the sick to find somewhere to sleep" (Community Focus Group Discussion).

"We provided security in collaboration with the FARDC. We guarded the village well and to this day we continue to do so." (Security Forces).

Despite these efforts, the lack of material and financial support persists, compromising the quality of healthcare. Testimonies highlight a sense of neglect on the part of higher authorities and the community at large, with little or no concrete help provided to restore healthcare services in the affected region . Although attempts have been made to address the crisis, the lack of effective support has hampered efforts to recover and rebuild health services. It is also noted that the security provided by law enforcement agencies has not been as effective to date.

"We haven't had any support. We would have liked to have material support, medicines and care materials to replace those that were stolen." (Health Worker).

"...that of the local FARDC force, which had strengthened the team, but also the national police had strengthened its team to see how to secure the population of Kafulo and even the road leading to Kafulo, but it has not yet responded, because up to now insecurity remains in this area." (Health Worker).

d) Interventions suggested by healthcare personnel and the community to reduce the impact of the attack studied

Short term

Improving maternity facilities and supplying medicines: Providing medicines and improving maternity conditions are crucial to the well-being of mothers and newborns. This includes protective equipment, the supply of medicines and the acquisition of additional maternity beds to limit transfers.

"The type of support we wanted was firstly medicines, but also to improve the conditions of the maternity ward for the well-being of the mother and baby... protective gear, Equip us with work equipment." (Health personnel).

Raising awareness among authorities and armed groups: Another recommended intervention is to raise awareness among authorities and armed groups of the importance of protecting health centers and guaranteeing access to healthcare for the local population.

"We also wanted to see the authorities take immediate initiatives to find a solution to the problem of these armed groups, because even if we have the medicines for as long as we don't know what the problem is, as soon as these armed groups enter, the medicines will be taken away again... we needed these groups to be made aware of the problem." (Community Focus Group Discussion)

Availability of means of transport and subsistence equipment for the displaced: In addition, it is crucial to provide affected populations with means of transport to facilitate their movement in the event of an emergency, as well as survival equipment such as tarpaulins and mosquito nets to help them when they flee to the bush. This could reduce the occurrence of adverse health consequences.

"They should give us the means of transport. During attacks like this, people find it hard to leave... If we have the means of transport and the attackers are still far away, we can move around easily. They should even give us motorcycles, tarpaulins, mosquito nets..." (Health Worker)

- **For the medium and long term :**

In particular, healthcare staff and the community made the following recommendations to reduce the impact of such violence on healthcare in the medium and long term:

Reinforce security by setting up a military camp close to health facilities and the community in general:

Having law enforcement agencies close to the population and health facilities would help to prevent attacks and save time in terms of responding to an assault, and in turn, control the assailants. In the same vein, there was talk of increasing the number of security forces.

"...I was going to propose to the government that they put a military camp nearby for the protection of the health structure in particular and the community in general." **(Community Focus Group Discussion)**

"I'd like the police to stay there permanently without moving and the infantry soldiers. Because if we remain permanent, we can't not know how to defend the population." **(Security Forces).**

"Our security forces, FARDC and police should have camps if necessary for them around the structures... So, it would be important to increase the number of soldiers and police in certain villages in relation to our health areas." **(Health Worker).**

Efficient supply of medicines to the health centers concerned: Ensure adequate supplies of medicines and medical equipment for health centers affected by the attacks, without waiting for stocks to run out, and so that the beneficiary population always has easy access to the former.

"We need medicines, maternity supplies, and Plumpy'Nut for the weights of our malnourished children." **(Community Focus Group Discussion)**

Raising awareness among authorities and armed groups of the importance of sustainable peace: One recommendation that was repeated even in the long term was to always raise awareness among authorities and armed groups of the importance of protecting health centers and guaranteeing their security.

"We need safety for everyone whether it's us or members of the community." **(Community Focus Group Discussion)**

▪ **Other health determinants :**

Security for the population: Respondents stressed the need to ensure security to enable the population to resume its daily activities, in particular farming and livestock breeding, in order to avoid a food shortage, with malnutrition as a major consequence.

"The main impact is malnutrition, and to reduce this impact we need security, so that the population can continue with their daily activities, farming, animal husbandry." **(Community Focus Group Discussion)**

Financial support for affected households: Provide financial support for families affected by conflict, in particular by helping women to set up small economic organizations that will enable them to provide for their daily needs independently.

"We also need economic support. People don't work anymore, they don't farm, the income is really very low; we need to raise women's awareness, bring them together in small organizations and give them financial support..." **(Community Focus Group Discussion)**

Raising awareness of the need to disarm illegal armed groups: Another long-term intervention is to raise awareness of the need to disarm illegal armed groups and promote peaceful cohabitation. This should be the responsibility of the competent authorities.

"Among the measures, we need to disarm those who carry weapons illegally, raise awareness about peaceful cohabitation." (Health Worker)

Availability of means of transport and subsistence equipment for the displaced: In addition, it is crucial to provide affected populations with means of transport to facilitate their movement in the event of an emergency, as well as survival equipment such as tarpaulins and mosquito nets to help them when they flee to the bush.

"They should give us the means of transport. When there are attacks like that, people find it hard to leave... If we have the means of transport and the attackers are still far away, we can move around easily. We should even be given motorcycles, tarpaulins, mosquito nets..." (Health Worker).

IV. DISCUSSION

4.1. METHODOLOGY TO ASSESS THE IMPACT OF ATTACKS

Case studies are proving to be an appropriate methodology for exploring in depth the impact of attacks on health care on the health of the surrounding population. The use of mixed methods (qualitative and quantitative) allows for the triangulation of sources and types of data to provide a better picture of the situation.

The results of this study relate only to the geographical area covered by the study and cannot be extrapolated to all attacks in the DRC. The method used to select participants for interviews and focus groups could introduce a bias, as it may be based on availability or willingness to participate, rather than a balanced representation of all relevant stakeholders.

Retrospective data collection based on respondents' memories may be subject to retrospection bias, where participants may find it difficult to recall events accurately or to interpret their past experiences through the prism of their current knowledge. In addition, in a health center that suffered devastating attacks, some important information on the functioning was lost or burnt. Due to the loss or destruction

of the health center reporting registers following the attacks, quantitative data for this study were collected from the DHIS2 system, and not directly from the affected health centers. This data covers the entire health area, including not only the main health center but also one or two small sentinel health posts that are generally not very active. Despite this wider coverage, the researchers feel that the DHIS2 data reflects the reality of the main health center, given that this is the most frequently used front-line structure in a health area. Thus, although this method of data collection may introduce a certain margin of error, we consider that the information obtained remains an accurate reflection of the situation within the health center targeted by our study.

In addition, with regard to quantitative data, certain observations from this research are worth mentioning: (1) the health information system often had missing data, making it impossible to assess the impact of the attacks on the care of women and children under 5. Supplementing these data with raw information from reports from the health centers attacked (when available) enabled a more detailed analysis for certain sites (e.g., Kirindera). Also, triangulation with qualitative data proved important to better interpret these quantitative data; (2) joint discussions between the data collection team, the support teams (IRC, Insecurity Insight, DPS) and the data analysts at provincial level was vital for checking the quality of these data and correctly interpreting their trends; (3) certain key maternal health indicators, such as community maternal mortality, were not found in the DHIS2.

The attacks studied are often complex, rooted in inter-community conflict. Most of the time, it is difficult to dissociate the effects of violence in general from a specific attack on the health system. The example of Kafulo best illustrates these kinds of cases. There is a ripple or exacerbating effect of an attack on health, forcing people to flee and also depriving them of health care.

4.2. LIMITS OF THE STUDY

Key limitations of the study include:

- The study focuses on large-scale attacks and does not cover the impact of other types of attack that may be of lesser magnitude, such as staff harassment.
- It is difficult to distinguish the impact on health of a general attack on an area. Thus, answers could refer to the chain of causality triggered by the general attack.

- It is difficult to measure the impact of the attacks in the immediate aftermath. Although this reduces retrospection bias, quantitative impact indicators should be assessed several months after the attack, not only to see the immediate impact but also the health center's capacity to absorb the shock. This approach also provides more information on adaptation to repeated attacks, as was the case in Fizi.
- The study does not take into account the indicators of the health structures to which the population went for treatment after the closure of the health centers attacked to see their trend.

ANNEXES

- FOCUS GROUP DISCUSSION GUIDE
- KEY INFORMANT INTERVIEW GUIDE