Evaluating measles vaccination coverage after a remotely supported mass campaign by MSF in Uvira health zone, South Kivu, DRC

Shukuru Kalere Wakabumba[1], Isidro Carrion-Martin[2], Edwige Bagula[1], Joseph Matundanya Assumani[3], Gabriel Kinsamba[4]

[1]Médecins sans Frontières – Operational center Amsterdam (MSF-OCA), South Kivu, DRC, [2] Manson Unit, MSF-UK-IE,
[3]Expanded Program of Immunization, South Kivu, DRC, [4]FOSOF NGO, South Kivu, DRC

BACKGROUND

The Expanded Program on Immunization (EPI), which includes routine vaccination and supplementary immunization activities (SIAs), remains insufficient, with only 55% of children fully vaccinated—far below the WHO-recommended 95%.

In 2022, there was a big measles outbreak in the Uvira health zone, 1,136 measles cases and 36 deaths (CFR: 3.2%) were recorded. Limited access to healthcare and inadequate infrastructure hampered effective outbreak response.

To respond to this outbreak MSF remotely supported the Ministry of Health during a mass vaccination campaign targeting all children from 6 to 59 months old in Uvira Health Zone. From 2 to 9 January 2023, 64,118 children were vaccinated

OBJECTIVES

Main objective

- To estimate the coverage of the mass measles vaccination campaign carried out by the Ministry of Health team with remote support from MSF.

Secondary objectives

- To estimate overall measles vaccination coverage in the area (all possibilities: MSF campaign, routine vaccination, and previous campaigns).
- To estimate measles immunity levels among children aged 6 to 59 months (by asserting vaccination status and/or history of measles infection).
- To describe the reasons for non-vaccination in eligible groups (6-59 months) during the mass vaccination campaign.

METHODS

A cross-sectional survey was conducted among children aged 6–59 months in the Uvira Health Zone. A two-stage sampling design was used. In the first stage, 35 clusters were selected using probability proportional to size. In the second stage, 14 households were selected within each cluster using systematic random sampling, resulting in a total sample of 488 households. One eligible child per household was included. Data were collected using KoboCollect and analyzed with R software. Both weighted and unweighted vaccination coverage estimates were calculated, along with 95% confidence intervals, accounting for the cluster design.

RESULTS

1.Vaccination coverage: MSF Vaccination campaign

Vaccination status	Children (n)*	% (95% CI)	Design effect
Vaccinated	687	84.1% (77.7-88.9)	4.8
Unvaccinated	153	15.4% (10.8-21.4)	4.4
Unknown	7	0.5% (0.2-1.8)	1.6

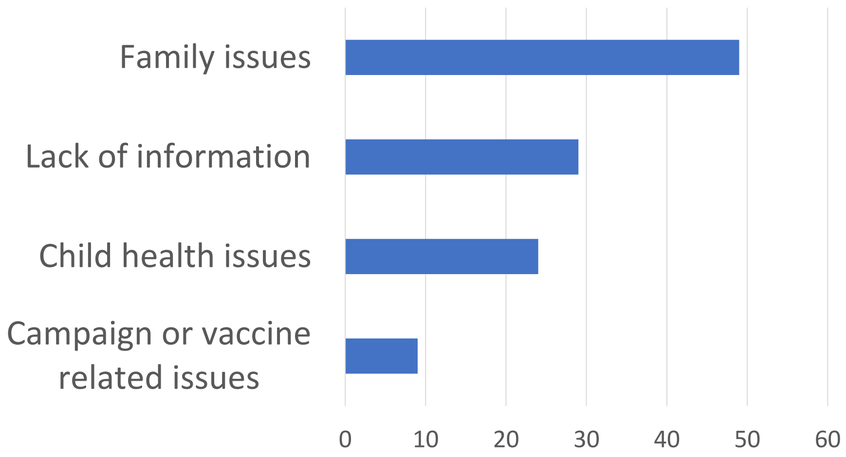
2. Vaccination coverage: all vaccines (SIA, routine and mass vaccination combined)

Vaccination status	Children (n)*	% (95% CI)	Design effect
Vaccinated	804	95.4% (91.9-97.4)	3.3
Unvaccinated	37	3.9% (2.3-6.8)	2.6
Unknown	6	0.6% (0.2-2.5)	2.5

3. Considering previous vaccination and/or infection

Immune status	Children (n)	% (95% CI)	Design effect
Immune	828	98.1% (96.4-99.0)	1.6
Non immune	19	1.9% (1.0-3.6)	1.6

4. Major reasons for non-vaccination during the MSF supported vaccination campaign)



CONCLUSIONS AND RECOMMANDATIONS

- The remotely supported vaccination campaign did not achieve the desired 95% coverage.
- However, considering the challenges of remote support and the fact that the estimated immunity is above 95% we can consider this coverage as acceptable.

Recommendations

- strengthen routine immunization systems
- deploying mobile teams to reach underserved populations,
- adapt service delivery schedules to community availability
- improve risk communication and community awareness to increase uptake,
- integrating seroprevalence studies to better understand population immunity and guide interventions.