

Evaluation of Access and Coverage of Integrated Management of Acute Malnutrition Program

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ABSTRACT

Background: Wasting remains a critical public health concern in Nepal, with many children unable to access timely treatment despite national efforts. Evidence on program coverage is lacking in Syangja district. The objective of this study is to identify the underlying factors supporting and hindering the program and to estimate its coverage.

Methods: The Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) approach was implemented in three stages using a mixed-method design. Stage I involved qualitative data collection through key informant interviews (KII), Focus Group Discussions (FGD), and direct observations (DO) in seventeen different locations. Stage II tested a hypothesis about proximity and coverage via small-area surveys using active and door-to-door case finding. Due to inconclusive results, Stage III was not executed. Quantitative data from DHIS-2 and IMAM registers were analyzed for trends and performance indicators, while qualitative data were thematically analyzed and triangulated across participants, types and methods. A Barriers, Boosters, and Questions (BBQ) scoring exercise informed prior coverage estimation.

Results: Twelve boosters and twenty-five barriers affecting program access and coverage were identified. Boosters included strong family support, motivated frontline workers, and local government initiatives. Barriers involved stigma, logistical challenges, inconsistent protocol adherence, limited training, and stockouts. The estimated prior coverage was 34.3%. Hypothesis testing on distance-related coverage was inconclusive, halting progression to a wide-area survey. Additional qualitative investigation confirmed gaps in health worker capacity, community engagement, and IMAM protocol compliance.

Conclusions: The IMAM program in Syangja district faces systemic and community-level challenges. To improve coverage, targeted interventions are needed to strengthen service delivery, enhance staff capacity, ensure supply availability, and increase community awareness and engagement.

Keywords: Access; barriers; boosters; coverage.

INTRODUCTION

Wasting is one of the leading causes of child morbidity and mortality. Children with moderate wasting have 3-4 times higher risk of dying while children with severe wasting have 5-20 times higher risk of dying.¹ Wasting is a major threat to children's long-term health and development, the impacts of which are felt by individuals, their communities, and their countries. The trend of wasting has remained consistently high with slight changes over the decades in Nepal with 10% in 2016 to 8% in 2022.² Aligned with the Second Long-Term

Health Plan, the Government of Nepal aimed to reduce wasting to less than 5%. Additionally, the Multi-Sector Nutrition Plan I and II were also focused on implementing interventions to reduce wasting below 5%. Despite these targets, Nepal fell significantly short of achieving them. The Sustainable Development Goals (SDGs) have set even more ambitious target less than 5% by 2025, and further to 4% by 2030.³

With an aim to manage the acutely malnourished children at the community level, Government of first implemented IMAM, previously Community Management

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of Acute Malnutrition or (CMAM) program in 2008/9, expanded from 5 districts in 2011/12 to 38 districts by 2020⁴. Despite this expansion and ongoing efforts to meet targets for treating children with wasting, many severely and moderately wasted children remain undiagnosed within the community, resulting in a lack of timely and appropriate treatment. There is limited information on the access and coverage of the IMAM program implemented by the government. Furthermore, the Comprehensive Nutrition Specific Intervention (CNSI) package has been endorsed and implemented across all 77 districts of Nepal with the aim of improving the country's nutritional status. The Nepal Government has integrated key components of the IMAM program into the CNSI package, leading to its nationwide scale-up. The IMAM program addresses wasting through a community-based approach, including nutrition education, therapeutic feeding, and health services. Specifically, SAM cases without medical complications are treated at OTCCs, while those with medical complications are managed at Inpatient Therapeutic Care Centres (ITCCs). Moderate wasting is addressed through counselling mothers/caretakers on Infant and Young Child Feeding (IYCF) practices, care practices, hygiene, and sanitation.

Even though the program has been implemented in the district for 2 years at the time of assessment, there was no any evidences on coverage and access of the IMAM program.

METHODS

The study deployed the mixed method adopting Semi Quantitative Evaluation of Access and Coverage (SQUEAC), a standard methodology and tools developed by Valid International, FHI 360 / FANTA, UNICEF, Concern Worldwide, World Vision International, Action against Hunger, Tufts University, and Brixton Health was deployed to evaluate access and coverage of IMAM program in Syangja. SQUEAC is a coverage assessment method that can be used to investigate and improve three aspects of IMAM program which includes effectiveness, coverage, and ability to meet need⁵

This methodology is designed to rapidly accumulate new and relevant information about coverage and factors influencing coverage⁵, while also allowing for the development of related hypothesis. Unlike in conventional studies that calculate the sample size in advance, two-stage procedure was implemented where the sample size was determined progressively at each stage. Although the participants for the study were

predetermined, the number of participants depended on emerging findings at each stage.

This study involved purposively selected stakeholders, including service providers, service seekers, and community actors, to explore barriers and enablers influencing the IMAM program. Participants included mothers or caretakers of severely acutely malnourished children who are in the program, who defaulted from the program, who are cured from the program and mothers of under five children, Nutrition Focal Person at OTCCs and district based Health Office, Outpatient Therapeutic Care Centres (OTCCs) in-charge, Female Community Health Volunteers (FCHVs), teachers, ward representative and Community based Organizations (CBOs) at ward level, and teachers, offering diverse insights into program implementation and effectiveness.

The study covered all the ten rural/municipalities from Syangja district of Gandaki Province. For Stage I, qualitative information was collected from 17 all rural/municipalities. For Stage II, data was collected from 6 locations each from rural and urban context. The data was collected from November to December 2024.

Ethical approval from the Nepal Health Research Council (NHRC) under the approval number 543_2024 was taken prior to the commencement of field activities with additional approval from the Family Welfare Division (FWD) under the Ministry of Health and Population (MoHP) and the district-based Health Office in Syangja. All participants, including caretakers, FCHVs, health workers, and community stakeholders, were informed about the study's purpose methods, potential risks and benefits. Written informed consent was obtained prior to conducting interviews, Focus Group Discussions (FGD), and anthropometric assessments. Participation was entirely voluntary, and participants retained the right to withdraw the interview at any point. Confidentiality and anonymity were strictly maintained throughout the study, and data were securely stored with access limited to authorized personnel. This restriction was implemented to protect participants' privacy, prevent unauthorized use or disclosure of sensitive information. The assessment adhered to national ethical standards and respected the dignity, privacy, and autonomy of all participants. This was ensured through NHRC approval and implementation of approved informed consent procedures, confidentiality safeguards, trained data collectors, and field monitoring to protect participants' dignity, privacy, and autonomy.

This study includes secondary data of fiscal year 2080/81.

This secondary data was obtained from District Health Information System (DHIS 2) submitted by the health facilities of the study districts. Physical verification of the primary source i.e., IMAM register available in the health facility was conducted at the time of assessment only.

Stage I: A two-stage sampling approach was applied. In the first stage, 17 locations representing areas of both high and low program coverage were identified based on routine program data and stakeholder consultation. In the second stage, participants were purposively selected from these locations for Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Both qualitative and limited quantitative information were collected through KIIs and FGDs, and data collection continued until saturation was achieved.

Stage II: Small-area surveys were carried out using active case finding in rural areas and door-to-door case finding in urban areas, targeting children aged 6-59 months. Sample size was determined by the total number of SAM cases identified during the investigation, as per SQUEAC guidance.

Stage III: A wide-area survey was planned but not executed due to inconclusive Stage II findings.

This study employed a mixed-method study design with a descriptive and exploratory approach, combining both quantitative and qualitative methodologies.

Quantitative Data Collection

Quantitative data was collected from the routine program data based on 2080/81 DHIS 2 data and the HMIS 2.6 register to assess the data on admission, admission over time, discharge and discharge over time, MUAC data, length of stay. Quantitative data were obtained from the DHIS 2 and the HMIS 2.6 registers to support the identification of areas with relatively high and low program coverage, which subsequently informed the selection of locations for qualitative data collection.

Qualitative Data Collection

The collection of qualitative data is guided by the two fundamental principles of exhaustiveness of information up to the point of saturation and triangulation of information that is collected from different sources (participants) using alternative methods and cross-checking data until findings reach the saturation point. Altogether 41 semi-structured key informant

interviews, 9 FGDs and 7 direct observations were used for qualitative data collection.

Quantitative Data: Routine program data from DHIS 2, IMAM registers, and HMIS were reviewed.

Qualitative Data: Data were collected through Key Informant Interviews (KIIs), FGD, Direct Observations, and case stories using pre-tested semi-structured guides and checklists developed and adapted from standard SQUEAC tools.

MUAC tapes and bilateral oedema assessments were used to screen for SAM cases.

All collected data underwent a rigorous process of management and analysis to ensure accuracy, completeness, and reliability. Quantitative data was sourced from routine program records, including the DHIS 2 and IMAM registers maintained at health facilities. These datasets were reviewed for completeness and internal consistency, and any discrepancies, such as missing admission criteria or follow-up records, were carefully documented during field observations.

Qualitative data were collected through KIIs, FGDs, and Direct Observations, using standardized but context-adapted guides. All interviews and discussions were documented in field notes, and daily debriefing sessions were held with field teams to organize emerging findings. Thematic content analysis was applied to qualitative data, identifying recurrent patterns, perceptions, and operational challenges related to program access and uptake. Data was triangulated across multiple sources (e.g., caretakers, health workers, FCHVs) and methods (e.g., interviews, group discussions, observations) to validate the findings and ensure analytical saturation.

All analyses were conducted with careful adherence to the SQUEAC methodological framework, and findings were synthesized to inform the identification of program strengths, gaps, and actionable recommendations.

Data analysis was conducted in accordance with the SQUEAC methodology to address the study objectives of assessing access to and coverage of the IMAM program. Qualitative data from key informant interviews, focus group discussions, and observations were systematically organized, and triangulated to identify barriers and boosters influencing program access. Quantitative routine program data extracted from DHIS 2 and HMIS 2.6 registers were used to describe program performance and to support hypothesis formulation and testing. In

Each barrier and boosters identified were rated as simple score where all the scores were given a score of 4 and the weighted score where each of the barriers and boosters were scored from 1 to 4 depending on the strength of its influence on coverage and access of the program.

Based on barriers and boosters identified and the scoring obtained during BBQ exercise, the hypothesis was set.

For hypothesis testing in Stage 2, a small-area survey was conducted using active adaptive case finding in rural areas and door-to-door case finding in urban areas.

Hypothesis: *“Coverage of the program is high in villages near (< or = 30 minutes by walking distance or by means of transportation) the OTCC and low in villages far (> 30 minutes by walking distance or by means of transportation)”*

Based on the BBQ exercise, the prior mode was derived from the summation of weighted and simple score values $\{(24\%+44.5\%)/2\} = 34.3\%$ approx. 35%. and plotted using the Bayes SQUEAC calculator with $\pm 25\%$ uncertainty. With the prior mode calculated 35% at 25% uncertainty level as per SQUEAC guideline the alpha was 11.1 and beta 20.6. A prior alpha and prior beta values necessary to calculate the sample size for wide area survey (Stage 3). Although a Stage 3 wide-area survey was planned, it was not conducted due to inconclusive hypothesis testing. SAM cases were identified using MUAC <115 mm and/or presence of bilateral pitting oedema, and LQAS was used to assess coverage against thresholds of 50% (rural) and 70% (urban). Further in-depth qualitative investigations were conducted revealed that similar findings as identified during stage I such as critical gaps in training, knowledge, and implementation of IMAM protocols among health workers, FCHVs, and OTCC staff. Despite receiving CNSI training, inconsistencies in duration, lack of refresher sessions, and diluted IMAM content have limited health workers' practical capacity, particularly in anthropometric measurements and proper RUTF distribution. OTCC observations highlighted irregular follow-up schedules, inappropriate use of weight-for-age for diagnosis and discharge, and widespread shortages of essential tools. FCHVs faced similar challenges, including outdated or absent training, inadequate supervision, and inconsistent screening practices, compounded by community reliance on traditional healers. Beneficiary interviews further showed weak counselling and follow-up, with deviations from IMAM guidelines. These findings underscore the urgent need for standardized training, consistent

supervision, proper equipping of service sites, and strengthened community engagement to improve child nutrition outcomes.

DISCUSSION

IMAM program has been in operation in Syangja district since fiscal year 2079/80 and hence this coverage assessment is the first systematic effort to evaluate the effectiveness and coverage and access of the program in the district. This effort is crucial as no prior evidence has been generated on the program since its implementation. Consequently, there is not any insights about its effectiveness and coverage and access limiting the opportunities for informed or evidence decision making. Despite the program being implemented for two years, absence of data on coverage and access created a critical gap in the understanding of the factors associated for programs' high or low coverage and the opportunities to correct those factors. This effort following the SQUEAC methodology was undertaken to address that gap, identifying barriers and boosters to service uptake and estimating program coverage using a Bayesian approach.

The assessment identified several factors that positively influenced the programs' coverage such as strong community engagement and governance structure. Factors like family support to caretaker and mothers significantly influenced care-seeking behavior. Additionally, motivated FCHVs and health workers contributed to program success by offering consistent counselling, identifying malnutrition cases, and ensuring timely interventions. These factors resonate results of the Saptari SQUEAC assessment, which recommended the importance of community mobilization and trained frontline workers in improving program uptake.⁶

Despite its successes, the IMAM program encountered several barriers, particularly in community engagement and gender inclusion. Stigma associated with malnutrition discouraged caretakers from seeking timely treatment while cultural barriers, including gender biases, limited access to nutritional resources for girl child. These barriers are consistent to global findings, such as study done in Kenya which concludes that stigma is one of the under recognized influencing factors that hinders the programs' coverage.⁷

Additionally, the gap in caretaker's knowledge, awareness and responsiveness about nutrition of their children hindered the program's reach. This finding is similarly to findings from coverage of community-based

management of severe acute malnutrition programs in twenty-one countries which revealed that unawareness regarding the program and malnutrition among communities hinders the effectiveness of the program.^{8,9} Access to services also remained a challenge, especially for the communities far from OTCCs. While efforts were made to expand OTCC to improve the program reach, newly established service delivery sites lacked basic requisite of OTCCs such as trained staff, MUAC tapes, referral slips, IMAM guidelines. Similar issues were identified in Saptari, where service quality and protocol adherence were found to be major gaps.^{6,9} Moreover, the assessment identified that FCHVs in Syangja struggled in taking MUAC measurements, and health workers often failed to follow national treatment guidelines. These findings underscore the need for structured capacity-building interventions, aligning with global evidence from a recent meta-analysis in Somalia also state that major challenges to the program coverage is hindered due to non-adherence to treatment guidelines such as delayed treatment, discharge before meeting the criteria, mixed feeding while the child is undertreatment and sharing RUTFs.¹⁰ Similarly, the study in Bangladesh also revealed that the capacity building of health workers of the health facilities and community workers to ensure the effectiveness of the program and increase the reach of the program.¹¹

A Barriers, Boosters and Question (BBQ) exercise was conducted to estimate prior coverage belief, yielding a mode of 34.3%. However, due to unconfirmed hypothesis, the assessment could not progress to Stage 3 (wide-area survey). Despite this limitation, the qualitative data and BBQ findings offer valuable insights into the perceived and actual program constraints. With wasting contributing to nearly 1 in 5 deaths among children under five globally and millions of severely wasted children remaining untreated each year.¹

CONCLUSIONS

This study identified 12 boosters and 25 barriers, which were not isolated factors but rather interlinked with one barrier reinforcing or leading to another, and the same pattern observed among the boosters. The prior was estimated at 34.3%, suggesting that program coverage might be around this value. Based on identified barriers and boosters, targeted interventions are needed on both the service provider and service seeker sides.

On the service provider side, it is essential to ensure strict adherence to the IMAM guidelines, strengthen the health information system, build the capacity of

health workers and FCHVs, and guarantee the consistent availability of IMAM program requisites. On the service seeker side, efforts must focus on raising awareness about malnutrition and the availability and importance of the IMAM program. The program coverage and access can be improved if the targeted interventions are achieved.

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CONFLICT OF INTEREST

Authors declare there are no any conflicts of Interest.

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