Analyzing 3-Year Malnutrition Screening Coverage and Equity in Sidama's Zones and Districts (2022–2025)

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Abstract

Background:

This study examined 36 months (July 2022–June 2025) of routine program data to evaluate child malnutrition screening performance and equity across Sidama's Zones and Districts. While overall regional coverage improved over time, it remained unstable and highly unequal. District-level analysis revealed striking disparities, with some towns achieving nearly full coverage while others, such as Leku (1.4%) and Wondogenet (11.2%), recorded critically low rates. These gaps reflect deep inequities in access to essential screening services. Urgent, district-specific interventions—through targeted resource allocation and technical support—are needed to strengthen weak areas and ensure equitable, life-saving malnutrition screening across the Sidama region.

Introduction

Acute malnutrition remains a leading cause of child morbidity and mortality globally. Screening coverage, defined as the proportion of children accurately assessed for nutritional status, is a critical operational indicator of a program's reach and effectiveness. Ensuring equity in coverage—that all geographic areas and populations have similar access to screening services—is paramount for achieving public health goals. This study focuses on identifying temporal trends and spatial disparities in screening coverage within the Sidama region to inform strategic resource allocation and policy adjustments during high-demand months.

Objectives

1. To confirm the monthly and annual trends in regional malnutrition screening coverage.

2. To analyze the equity performance across the five administrative Zones.

3. To quantify and rank the 38 Districts based on their average three-year screening coverage to identify persistent service delivery failures.

Method

Study Design: Retrospective time-series and cross-sectional comparative analysis.

Data Source: Routine monthly under-five children malnutrition screening data from health facilities, spanning 36 months (July 2022 – June 2025).

Key Indicator: Sum and average Three-Year Screening Coverage (Rate):

$$\textbf{Screening Coverage}\ (\%) = \left(\frac{\textit{Total Children} \leq 5\ \textit{yr Screened}}{\textbf{Total Estimated Children} \leq 5\ \textit{yr}}\right) \times \mathbf{100}$$

Analysis: Data was aggregated into pivot tables to calculate the regional, zonal, and district average screening rates over the study period.

Results

. 4.1. Regional Trend and Zonal Context

The overall regional average screening rate showed a positive trend, rising over the three years (Fig 1). However, this positive trend masks deep inequities across administrative zones (Fig 2). Central Sidama Zone consistently recorded the highest annual average, while Northern Sidama Zone was consistently lower, pointing to structural differences in service delivery capacity.

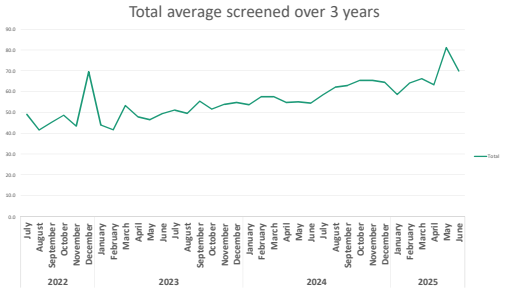

Fig 1. Regional Monthly Trend of Malnutrition Screening Coverage Rate in Sidama (July 2022 – June 2025)

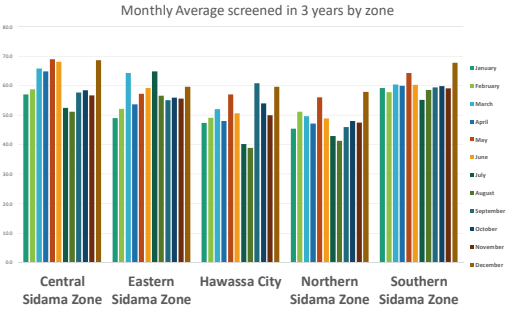

Fig 2. Comparative Analysis of Annual Malnutrition Screening Coverage Rates by Zone (2022, 2023, 2024, 2025)

4.2. **Critical Finding: District-Level Programmatic Inequity**

The three-year district-level average screening rates revealed a vast and unacceptable range of performance. The regional grand total average was 55.9% (the table you provided).

• High Performers (Effective Systems): Districts like Daye Town (98.9%) and Borricha (90.3%) demonstrate that high, near-universal coverage is programmatically feasible.

• Low Performers (Critical Failures): A significant number of districts fall critically short, indicating severe barriers to access and program operations. Examples include:

• Leku Town: 1.4% * Wondogenet Town: 11.2% * Chire: 16.6% * Hawella: 31.5% This profound variation confirms that geographic location is a primary determinant of a child's access to life-saving screening, violating the principle of equity.

4.3. Intra-Month Variation by Zone

Analysis of month-to-month variation within zones shows that even the highest performing zones experience significant drops in certain months (Fig 4), suggesting recurrent operational failures (e.g., during holidays or heavy rainy seasons) that affect entire zones.

Results

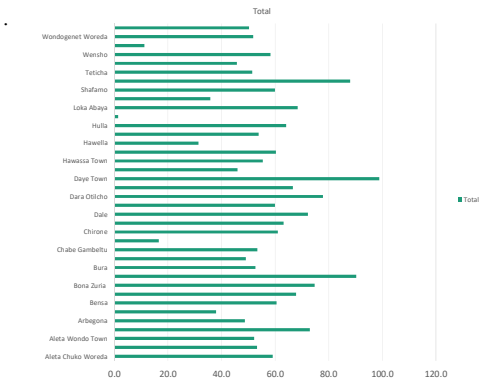

Fig 4: District-Level Screening Performance Variation Across All Months (3-Year Average)

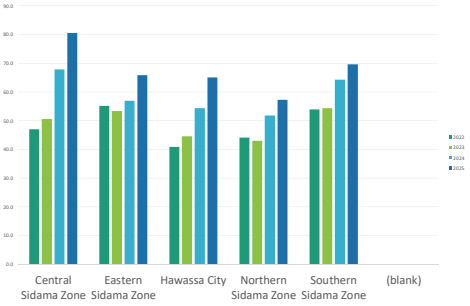

Fig 4: Average Monthly Screening Coverage Rate by Zone, Highlighting Intra-Annual Volatility (3-Year Aggregation)

Conclusion and Policy Implications

The analysis clearly demonstrates that the Sidama nutrition program faces a significant programmatic equity challenge. The massive three-year gap in screening performance—ranging from exemplary coverage (98.9%) down to critically failing rates (1.4%)—is highly detrimental to child health outcomes. This disparity strongly supports the adoption of a strategic, equity-focused triage model to address systemic bottlenecks and ensure all children receive their right to essential services.

Suggested Policy Directives:

1. Establish a Priority Tier: It is recommended that the Regional Health Bureau (RHB) consider designating all districts with a three-year average screening rate below 30% as Tier 1 Priority areas for immediate intervention.

2. Prioritize Targeted Support: We propose the formation of a dedicated Rapid Operational Support Team to assist Tier 1 districts in diagnosing and resolving root causes of failure (e.g., addressing critical stock-outs, resolving staff deployment issues, and strengthening community mobilization) within a 90-day acceleration period.

Review Incentive Structures: The RHB is encouraged to explore mechanisms for linking non-salary incentives, training slots, and resource allocation to the achievement of a minimum acceptable screening threshold (e.g., 60%) to positively drive performance in the lowest-ranking districts.

References

1. Routine monthly service delivery reports extracted from the DHIS2 platform (July 2022 – June 2025).
2. Sidama RHB Annual Performance Reports (2024/2025).
3. Ethiopia. National Food and Nutrition Strategy (2021–2030)
4. 4. Ethiopia's Health Management Information System (HMIS) / DHIS2 Data Quality and Use Manual (Latest Edition)

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