



DETERMINANTS OF CLINICAL OUTCOME AMONG COMPLICATED MEASLES PATIENTS HOSPITALISED IN BAY REGIONAL HOSPITAL, BAIDOA, SOMALIA:

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BACKGROUND AND OBJECTIVES

Measles, a highly contagious disease, saw a significant increase in global cases in 2023, totaling over 240,000 compared to 170,000 in 2022⁽¹⁾. Somalia, facing persistent armed conflict and political instability since the 1990s, has been particularly vulnerable to measles outbreaks.

In 2022, Baidoa became the second-largest city for displaced populations after Mogadishu, hosting over 800,000 people⁽²⁾ & with over 5,460 children admitted to Médecins Sans Frontières (MSF) facilities for measles treatment, a study was conducted to analyse the associations between measles clinical outcomes, demographic factors, and health-related factors among patients hospitalised in MSF supported Bay Regional Hospital (BRH), Baidoa, Somalia.

¹Thakkar, Niket, et al. "Estimating the Impact of Vaccination Campaigns on Measles Transmission in Somalia." *Vaccines* 12.3 (2024): 314.

² Integrated Food Security Phase Classification. Somalia: Acute Malnutrition Situation July–September 2022 and Projection for October–December 2022. <https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155886/?iso3=SOM>

RESULTS

Table 1; Descriptive analysis of the variables: Data from 2,790 patients shows 68% were children under 5 years, 35% were internally displaced, and 91% hadn't been vaccinated for measles. 2,740 patients were treated and discharged, with 20 deaths, yielding a 98% cure rate and 0.72% death rate.

Variables	Freq.	Percent (%)
Sex		
Female	1374	49
Male	1416	51
Age of the patients		
Under five	1886	68
Over five	904	32
Residence		
IDP	1017	36
Host community	1773	64
Vaccinated		
No	2551	91
Yes	239	9
Nutritional Status of patients		
Normal	1771	63
Malnourished	1019	37
Complications		
Acute laryngo-tracheobronchitis	15	1
digestive (diarrhea)	29	1
Acute otitis media	1	0
Other	1133	41
Pneumonia	1612	58
Patients outcome		
Death	20	1
CURED	2740	98
defaulter	17	1
transferred	13	0

Table 2 : Logistic regression of Measles patient outcome in BRH: Patients over 5 had higher recovery odds (aOR 2.7; 95% CI, 1.17 - 6.49). Severely and moderately malnourished patients had worse outcomes than non-malnourished ones, with adjusted odds ratios of 0.45 (95% CI 2.25 - 0.81) and 0.06 (95% CI 0.00 - 0.56), respectively, for death, default, or transfer.

Variables	Freq.	Not cured (%)	Cured (%)	COR (95% CI)	AOR (95% CI)
Under five	1886	43(86)	1843(67)	1	1
Over five	904	7(14)	897(33)	2.9(1.33 - 6.68)***	2.7(1.17 - 6.49)*
Nutritional Status of patients					
Non - Malnourished	1771	22(44)	1749(63)	1	
Malnourished	1019	28(56)	991(36)	0.44(0.25 - 0.78)***	0.49(0.3 - 0.91)*



METHODS

A retrospective study investigated children under 15 years old admitted between Jan and Dec 2022, focusing on demographic profiles and clinical features to diagnose clinical measles based on specific criteria like rash duration, fever, and respiratory symptoms.

Data collection involved thorough patient histories, physical exams, and documentation of measles complications from medical records. Vaccination status was confirmed via immunisation cards or parental verification.

Main outcome measures included clinical outcomes categorised as cured (patients discharged in good condition) or not cured (including death, defaulting, or transfer during treatment). Statistical analysis, using STATA version 15, employed logistic regression to explore associations between clinical outcomes and demographic and health factors. Results were presented with 95% confidence intervals, with significance determined by a P-value < 0.05.

DISCUSSION

- *The high cure rate observed for hospitalised measles patients at BRH may be attributed to several factors, including advancements in measles case management, improvements in the referral process, early health-seeking behaviour among patients and the potential for over-diagnosis of measles cases. Additionally, the large-scale under-five measles vaccination campaign organised by MSF and other partners in February 2022 in Baidoa likely contributed to this positive outcome.*
- *Pneumonia emerged as one of the most common complications of measles, often necessitating hospital admission.*
- *Notably, patients over 5 years old had a higher likelihood of being discharged (cured).*
- *Malnourished patients had lower odds of being cured, reflecting the high prevalence of malnutrition in the Baidoa area.*

Therefore, our findings suggest that nutrition support could play a crucial role in improving outcomes for measles patients in such contexts. Furthermore, timely vaccination, especially for malnourished children, is strongly recommended to prevent measles and its associated complications.

LIMITATION OF STUDY

Since the study was restricted to data available in clinical records and registry books, we were unable to assess many potentially important variables that might be associated with clinical outcomes in measles. Additionally, the retrospective nature of the analysis limits our ability to establish definitive causal relationships between variables.

ETHICS STATEMENT

Fulfills the exemption criteria set by the MSF ERB and was approved for submission by the OCBA Medical Director.