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Background: Sickle cell disease (SCD) is the most common life-threatening monogenic disorder globally (1). Tanzania is the fifth-highest burden country for SCD, with prevalence of SCD (HbSS) ranging between 0.8% – 1.4%, and prevalence of sickle cell trait (HbAS) ranging from 13% in coastal regions to 20% in Lake Zone regions (2). Without comprehensive care, SCD is associated with high morbidity and mortality (1-3), accounting for 7% of deaths among children under five in Tanzania (2). Early diagnosis and enrolment into comprehensive care significantly reduce the mortality and improve the health-related outcomes among children with SCD (4, 5). Despite this burden, epidemiological data and newborn screening programs in Tanzania are largely limited to the Lake Zone and Dar es Salaam regions, with minimal evidence from other regions such as Tabora. This gap limits equitable planning for screening and early initiation of SCD comprehensive care.

Objective: To determine the prevalence and geographic distribution of SCD and sickle cell trait among newborns and children under five in Tabora Region, Tanzania.

Methods: We conducted a cross-sectional screening of newborns and children under five years attending reproductive and child health (RCH) clinics across 8 districts in Tabora Region from February 2025 to April 2026. Screening was performed using HemoTypeSC™ point-of-care test. Data were analysed descriptively using SPSS v20.0 and findings were summarised by frequencies and percentages.

Results: A total of 33,867 children were screened, of whom 50.6% were males. Overall, 82.8% had HbAA, 14.7% HbAS, 2.2% HbSS, 0.01% HbAC, 0.01% HbSC, and 0.01% HbCC. The overall prevalence of SCD (HbSS/HbSC) was 2.2%. Marked geographic variation was

observed across districts, with HbSS prevalence ranging from 1.1% in Nzega Town Council (TC) to 3.5% in Tabora Municipal Council (MC). Seven districts had higher prevalences of SCD than the reported national SCD prevalence of 1.4%. Higher proportions of HbAS were observed in Nzega Town Council (18.1%) and Sikonge DC (18.4%). HbSC cases were rare (4 children) and identified only in Nzega DC and Urambo DC. We also established an electronic regional SCD registry and enrolled all diagnosed children into SCD clinics. Free comprehensive SCD care was initiated, including Folic Acid, Penicillin V and Hydroxyurea for children aged 9 months and above.

Future Plans: The result of this implementation project establishes the role of primary healthcare facilities in newborn screening strategies. The project focus on system strengthening to enable newborn screening at the primary healthcare level and linkage to SCD care. It is scaling up to high prevalence regions in the Lake Zone and coastal regions.

Conclusion: This study provides the first large-scale SCD screening data from Tabora Region, revealing a substantial burden and significant geographic variation. These findings highlight the need to expand newborn and early childhood screening and strengthen linkage to care in underrepresented regions to improve early diagnosis and survival outcomes of children with SCD in Tanzania.

Table 1: Distribution of haemoglobin genotypes across districts in Tabora Region

District	Total screened	HbAA %	HbAS %	HbSS %
Igunga DC	4,248	84.4%	13.6%	2.0%
Kilua DC	4,648	84.8%	13.6%	1.6%
Nzega DC	5,681	85.8%	12.9%	1.3%
Nzega TC	4,223	80.4%	18.1%	1.5%
Sikonge DC	3,333	78.2%	18.4%	3.3%
Tabora MC	5,347	82.9%	13.6%	3.5%
Urambo DC	4,306	83.1%	15.2%	1.6%
Uyui DC	2,081	83.4%	13.3%	3.3%
Total	33,867	82.8%	14.79%	2.39%

Supporting Partner



Scan to watch SickleCare
Project Documentary



Reference:

Inusa B et al, Int J Neonatal Screen. 2019; 5⁽¹⁾, Makani J et al, PLoS One. 2011;6(2)⁽²⁾, Ally M et al, Semin Hematol. 2023; 60(4):192–9⁽³⁾, Telfer P et al, Hematologica. 2007;92:905–12 ⁽⁴⁾, Quinn CT et al, Blood. 2010;115:3447–52⁽⁵⁾.