

## **ABSTRACT**

Sickle cell disease is a genetic disease with a predisposition to infections caused by encapsulated organisms, especially *Streptococcus pneumoniae*. Pneumococcal vaccines and prophylactic penicillin have reduced the rate of this infection and mortality in sickle cell disease. However, implementation of these interventions is limited in Africa. The objectives of the study were to assess health care providers' behaviours with the implementation of pneumococcal vaccination and penicillin prophylaxis and to identify barriers to their use. A 25-item online questionnaire was administered through Sickle in Africa: a network of researchers, and healthcare providers, in Ghana, Nigeria, and Tanzania, working to improve health outcomes of sickle cell disease in Africa. Data was collected and managed using the Research Electronic Data Capture (REDCap), tools and data analysis was done using STATA version 13 and R statistical software. Eighty-two medical practitioners responded to the questionnaire. Only 54.0 and 48.7% of respondents indicated the availability of published guidelines on sickle cell disease management and pneumococcal vaccine use, respectively, at their facilities. The majority (54.0%) perceived that the vaccines are effective but over 20.0% were uncertain of their usefulness. All respondents from Ghana and Tanzania affirmed the availability of guidelines for penicillin prophylaxis in contrast to 44.1% in Nigeria. Eighty-five percent of respondents affirmed the need for penicillin prophylaxis but 15.0% had a contrary opinion for reasons including the rarity of isolation of *Streptococcus pneumoniae* in African studies, and therefore, the uncertainty of its benefit. Lack of published guidelines on the management of sickle cell disease and doubts about the necessity of prophylactic measures are potential barriers to the implementation of effective interventions.