

# Childhood Burkitt Lymphoma in Nigeria

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Burkitt lymphoma (BL) is a curable, aggressive pediatric cancer, yet in low- and middle-income countries like Nigeria, children with BL face poor survival outcomes. Identifying barriers to and facilitators of cancer care for children with BL in Nigeria can reduce inequitable outcomes. This article reviews BL in Nigerian children and barriers to care, and provides recommendations for future organizational involvement and research studies to improve care.

## AT A GLANCE

- Children with BL in low- and middle-income countries such as Nigeria face lower survival outcomes compared to children in high-income countries.
- Identifying and addressing tangible as well as structural barriers to care for children with BL living in Nigeria may help improve access to care.
- Research on trends in BL occurrences in specific locations and their effects on the overall prevalence of BL in Nigeria, as well as implementation of multicenter treatment protocols, if feasible, may lead to significant improvement in survival rates of Nigerian children with BL.

## KEYWORDS

Burkitt lymphoma; Nigeria; survival; low- and middle-income countries

## DIGITAL OBJECT IDENTIFIER

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Childhood cancer is the second leading cause of death in children aged 1–14 years in the United States (American Cancer Society, 2023). Despite marked improvements in survival because of innovative cancer-directed therapies (American Cancer Society, 2023), survival outcomes of children with cancer living in low- and middle-income countries (LMICs) are much lower than those in high-income countries (Mutya et al., 2019; van Heerden et al., 2020). In particular, the survival outcome for childhood cancer in LMICs is 20%, and the survival rate is even lower depending on certain factors (e.g., cancer type) (Howard et al., 2018).

Burkitt lymphoma (BL) is an aggressive hematologic malignancy characterized by high proliferation of malignant B lymphocyte cells (Redmond et al., 2020). BL is grouped into three categories: endemic, sporadic, and immunodeficiency related (Couitchere et al., 2019) (see Table 1). First discovered in Uganda and described in 1958 by Denis Burkitt, endemic BL (EBL) is strongly linked to Epstein–Barr virus and areas with endemic malaria (Burkitt, 1969; Redmond et al., 2020). The initial study on BL suggests that *Plasmodium falciparum* is associated with the severe form of malaria, although this organism is not known to directly cause EBL, intense exposures to *Plasmodium falciparum* and Epstein–Barr virus may increase the risk for EBL (Burkitt, 1969).

## Childhood BL in Nigeria

BL is one of the most common pediatric cancers in sub-Saharan Africa, where more than 50% of cases involve the head and neck (Kalisz et al., 2019). Historic data suggest that EBL accounts for 40%–60% of all pediatric cancers in children aged 4–8 years in Nigeria (Hadley et al., 2012; Ochicha et al., 2012). Survival outcomes of children with EBL are negatively affected by porous healthcare structures, high costs of healthcare services, inadequate access to cancer care, lack of trained cancer care professionals, inadequate access to chemotherapy agents, and pervasive social inequalities (e.g., abject poverty) (Howard et al., 2018; McCormack & Newton, 2019). EBL is curable in high-income countries, but survival rates for children with the disease in LMICs like Nigeria pale in comparison (McCormack & Newton, 2019). This article reviews barriers to and facilitators of care for children with EBL in Nigeria and proposes strategies to improve care, including future research and organization-level involvement.

## Barriers to Care for Children With BL in Nigeria

**CONCEPTUALIZATION OF ILLNESS AND HEALTH:** Because of the sociocultural context in Nigeria, development of illness may be conceptualized as spiritually driven. Using a biomedical lens to inform diagnosis and treatment