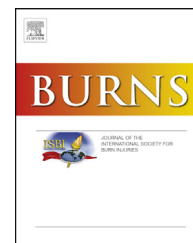


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Bed net related burns at Mulago National Referral Hospital, Uganda: A case series report

Edris W. Kalanzi^{a,*}, Lyndsay M. O'Hara^b, Nathan N. O'Hara^c,
James C. Boyle^d

^a Department of Surgery, Mulago National Referral Hospital, Kampala, Uganda

^b School of Population and Public Health, University of British Columbia, Vancouver, Canada

^c Office of Pediatric Surgical Evaluation and Innovation, University of British Columbia, Vancouver, Canada

^d Department of Surgery, University of British Columbia, Vancouver, Canada

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ABSTRACT

Background: Insecticide-treated bed nets are essential tools to prevent malaria in endemic regions, however, increasing trends in bed net related burns in Kampala, Uganda are concerning.

Methods: Data were collected from burns unit admission records at Mulago National Referral Hospital in Kampala, Uganda for the years 2008–2011 inclusive. Retrospective analyses on the characteristics of patients admitted with bed net related burns within this period were conducted.

Results: A total of 45 patients were admitted to the burns unit with bed net related burns during the study period. Most burns occurred among individuals who were 0–1 years old (33.3%) and 26–35 years old (24.2%) and the majority were male (71%). Bed net related burns at Mulago Hospital are severe, as evidenced by the fact that 15 of 45 patients died (crude mortality rate = 33%) and that 26 patients (57.8%) had total body surface area burn percentages that were greater than 20%. The average length of stay in hospital for patients with bed net related burns was 30.4 days.

Conclusion: Organizations responsible for malaria prevention should consider incorporating fire and burn prevention awareness, strategies and training into their bed net distribution programs.

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1. Background

Malaria is currently endemic in 99 countries [1] and was responsible for an estimated 1,238,000 deaths worldwide in 2010 [2]. Uganda bears a particularly high share of the world's malaria burden with an estimated 11 million malaria cases in 2010 [3] among a population of 34 million people [4]. There have been increasing efforts to minimize the morbidity and mortality associated with malaria in endemic countries. One of the key prevention strategies supported by the Global Fund

to Fight AIDS, Tuberculosis and Malaria and the President's Malaria Initiative, among other governmental and non-governmental agencies, is to promote the distribution and use of insecticide-treated bed nets [5,6]. In 1995, the Ugandan Ministry of Health established the National Malaria Control Program to manage the distribution of bed nets to prevent exposure to mosquitos, specifically targeting children and mothers [7]. When used regularly and as intended, bed nets are an effective method to reduce the transmission of malaria [8].

* Corresponding author. Tel.: +256 772627800.

E-mail address: kalanziw15@gmail.com (E.W. Kalanzi).
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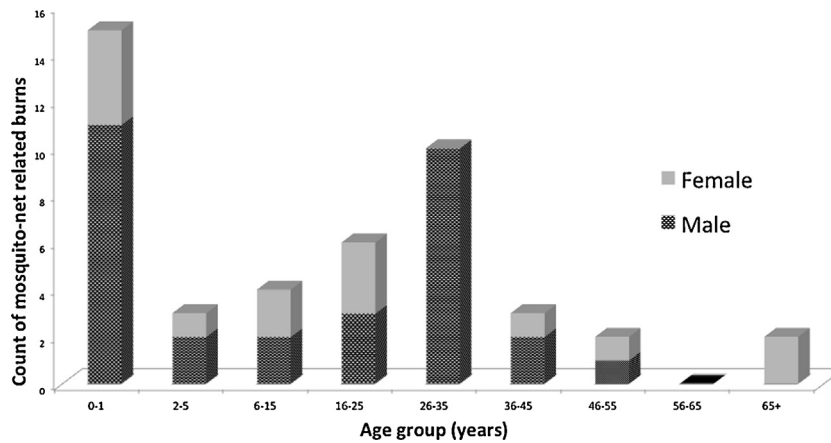


Fig. 1 – Distribution of age group by gender.

Electricity coverage in Uganda remains poor with 96% of the country's households lacking electricity [3]. Most households therefore rely on paraffin lanterns and “tadodas” (locally made candles) for lighting [9]. Most bed nets used in Uganda are manufactured from highly-flammable cotton, polyester, polyethylene and polypropylene [10]. It is hypothesized that an increase in bed net usage in Uganda, coupled with the high prevalence of open flames used for lighting in crowded households may contribute to an increase in the burns caused by ignited bed nets.

Mulago National Referral Hospital, located in Kampala, hosts the only burns unit in the country. The burns unit is comprised of 40 beds, 8 intensive care beds and one bed allocated specifically to the operating theater. This public unit is the only burns referral center for the 34 million people in Uganda and also admits patients from the Democratic Republic of Congo, South Sudan and Rwanda. Burns patients who reside outside of the Kampala area whose injuries are too severe for treatment at small health centers and hospitals, often face delays in transportation to Mulago Hospital, increasing the burden of burn sequella. Many patients who suffer burns as a result of a bed net catching fire present with

severe burns, often affecting the facial areas and lower limbs. Due to the highly flammable nature of bed net materials, these burns are often deep and extensive enough to cause disfigurement and amputation.

A search of the recent published literature for bed net related burns, and other variations of these search terms, revealed one report of two cases by Burd and Ahmed in Burns [11]. This paper presents the cases of two boys (aged 8 and 10) from China who sustained severe burns after their bed nets caught fire [11]. Stimulated by this publication, the overall purpose of this study is to systematically document the patterns and prevalence of burn injuries at Mulago National Referral Hospital resulting from bed net related fires and to describe the characteristics of these patients.

2. Methods

2.1. Source of data

A retrospective analysis was conducted of the burns unit admissions records at Mulago National Referral Hospital in

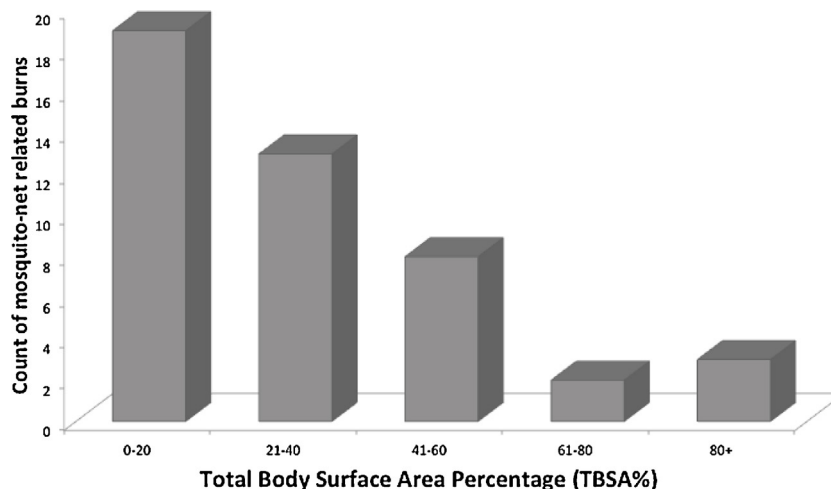


Fig. 2 – Distribution of burn size (total body surface area percentage or TBSA%) of mosquito-net related burns.

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