



Review

Healthcare-associated infections in sub-Saharan Africa

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SUMMARY

Background: Healthcare-associated infections (HCAIs) are the most frequent adverse consequences of healthcare worldwide, threatening the health of both patients and healthcare workers (HCWs). The impact of HCAI is particularly felt in resource-poor countries, with an already overstretched health workforce and a high burden of community-acquired infection.

Aim: To provide an overview of the current situation in sub-Saharan Africa with regards to the spectrum of HCAI, antimicrobial resistance, occupational exposure and infection prevention.

Methods: We reviewed the literature published between 1995 and 2013 and from other sources such as national and international agencies.

Findings: Sparse data suggest that HCAIs are widespread in sub-Saharan Africa, with surgical site being the dominant focus of infection. Nosocomial transmission of multidrug-resistant tuberculosis is a considerable concern, as is the prevalence of methicillin-resistant *S. aureus* and resistant Enterobacteriaceae. In HCWs, vaccination rates against vaccine-preventable occupational hazards are low, as is reporting and subsequent human immunodeficiency virus-testing after occupational exposure. HCWs have an increased risk of tuberculosis relative to the general population. Compliance with hand hygiene is highly variable within the region. Injection safety in immunization programmes has improved over the past decade, mainly due to the introduction of autodestruct syringes.

Conclusions: Despite the scarcity of data, the burden of HCAI in sub-Saharan Africa appears to be high. There is evidence of some improvement in infection prevention and control, though widespread surveillance data are lacking. Overall, measures of infection prevention and occupational safety are scarce.

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Introduction

Healthcare-associated infections (HCAIs) are increasingly recognized as a major contributor to patient morbidity and mortality worldwide, though most published evidence on the

topic related to a high-income setting. The contribution of data from sub-Saharan Africa (SSA) to previously published reviews of HCAI in low-income countries is small, potentially limiting the relevance of conclusions reached.^{1,2}

The aim of this review is to identify and discuss the available evidence on HCAI in SSA, focusing on three key areas: nosocomial infection and antimicrobial resistance; occupational exposure of healthcare workers; and individual and programmatic approaches to infection prevention and control.

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Methods

The literature published on PubMed between 1995 and March 2013 was reviewed. Each search started with 'sub-Saharan Africa' or 'Africa, South of the Sahara' or 'Africa' and was combined with one or more of the following search terms: 'bacterial OR drug resistance', 'catheter-related infection', 'cross infection', 'equipment contamination', 'hand hygiene', 'healthcare-associated infection', 'health personnel OR health-care worker', 'hospital-acquired infection', 'hospital hygiene', 'infection control OR prevention', 'infectious disease transmission', 'needle stick injury', 'nosocomial infection', 'occupational health OR safety OR exposure', 'professional to patient transmission', 'surgical wound infection', 'surgical site infection'.

Literature databases by the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), World Bank, United Nations, and the International Labour Organization were used and their websites accessed for relevant information.

Titles and abstracts were reviewed and relevant articles selected. The search was limited to articles with abstracts published in English. Where available, full texts were accessed via HINARI. References of full text articles were reviewed and further relevant publications identified.

The published research is dominated by studies from a small number of countries, notably Nigeria and South Africa (Figure 1).

'Healthcare-associated infection' is the term used to refer to infections acquired during contact with any part of the healthcare system, including those acquired occupationally by staff at work. The terms 'hospital-acquired' and 'nosocomial'

are used interchangeably, and refer exclusively to infections in hospital in patients that present at least 48 h after admission.

Spectrum of nosocomial infections and antimicrobial resistance

There is a scarcity of published evidence on nosocomial infection in SSA. A 2011 meta-analysis found that 66% of developing countries worldwide had no published data on the endemic burden of HCAI.¹ Most studies are from single centres – often large, referral hospitals in urban areas – and will therefore be a poor representation of the wider healthcare systems in the region. Furthermore, there is a predominance of studies originating from the middle-income countries of the region. Yet, the available evidence is sufficient to raise concern that nosocomial infections are significantly adding to the already high burden of infection in SSA.

Bacterial infections

A 2011 meta-analysis examining HCAI in low/middle-income countries globally found an overall prevalence of 10.1%, though this increased to 15.5% when low-quality studies were excluded.¹ Few studies from SSA contributed to the analysis, and subsequent surveys from the region have demonstrated prevalence rates of hospital-acquired infections (HAIs) ranging from 6.7% to 28%.^{3,4} By comparison, the overall prevalence of HAIs in Europe has been estimated as 7.1%.⁵

By contrast with developed countries where urinary and respiratory tract infections dominate, surgical site infections (SSIs) accounted for 29.1% of HCAI in low/middle-income

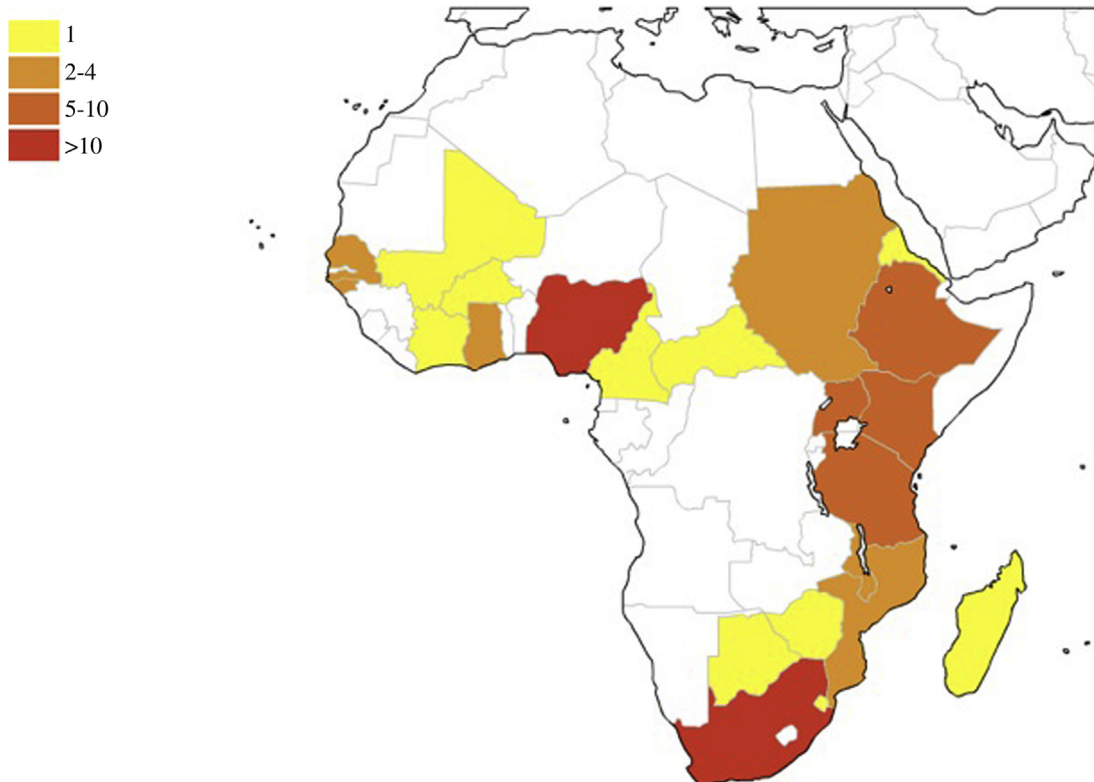


Figure 1. Origin of referenced studies.

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