

# The Resistable Rise of Surgical Sepsis in Malawi

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## Abstract

*Objective: To quantify the suspected increase in the amount of sepsis facing surgeons in Malawi*

*Design: Analysis of hospital theatre operating logbooks in three hospitals*

*Setting: Malawi, Central Africa*

*Results: In each of the three hospitals observed there has been a threefold increase over the last 25 years in the percentage of surgical cases presenting with sepsis.*

*Conclusions: The reasons for such an increase in sepsis are discussed, as are the consequences for the individual with the infection, other patients sharing the theatre, and the theatre staff. Methods of managing this septic workload are outlined.*

## Introduction

There is general agreement among surgeons in all disciplines working in sub-Saharan Africa that an increasing percentage of their work now comprises the surgery of sepsis, eg abscesses, osteomyelitis, septic arthritis etc. We have also noticed this but have been unable to find any quantification of the phenomenon in published literature.

## Materials and Methods

We visited three hospitals in southern Malawi and reviewed their surgical operation registers. We counted the total number of operations done in all disciplines for the years ending in May 1976, 1986, 1996, and 2000. We then counted the number of operations that were performed because of septic pathology. The number of operations performed due to septic pathology was then expressed as a percentage of the total number of operations. The year 1976 was taken as the starting year as that was the first year that reliable records could be found for two of the three hospitals. The hospitals visited were Queen Elizabeth Central Hospital in Blantyre, Zomba Central Hospital, and Mulanje District Hospital.

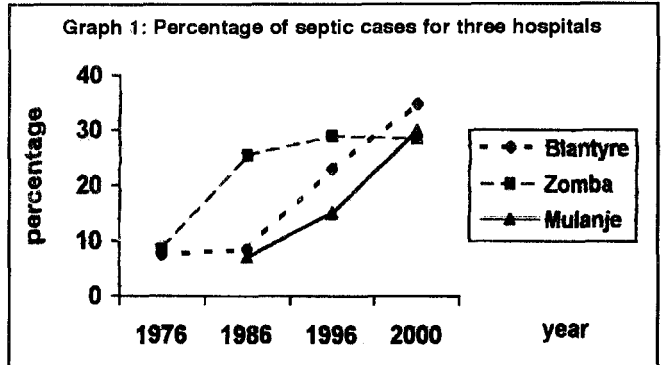
## Results

It can be seen from graph 1 that in all three hospitals the surgical workload due to sepsis rose from less than 10% to around 30%.

## Discussion

### i) Causes

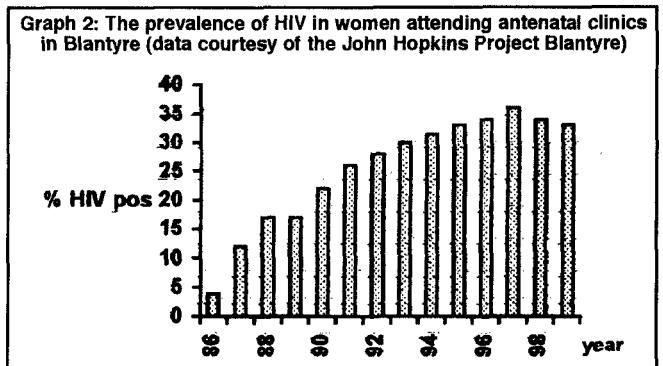
It is clear from our results that there is a threefold increase in the proportion of operations that are due to surgical sepsis in this region over the last twenty five years. It is tempting to think that the rise in incidence of HIV is responsible for this and it is indeed likely that it plays a major part in the community's overall reduced resistance to infection. (see graph 2 illustrating the increase in prevalence of HIV infection in antenatal women in Blantyre.)



Graph 2 the prevalence of HIV in women attending antenatal clinics in Blantyre

(data courtesy of the Johns Hopkins Project Blantyre)

Other factors for this rise in surgical sepsis should also be



considered. Firstly the community's resistance to infection may be reduced by factors other than HIV, for example malnutrition and co-existing diseases such as malaria, both of which are endemic in this region. Secondly there may be an increase in the virulence of the infecting bacteria due to wide spread antibiotic abuse. All types of antibiotic are available in local markets and the vendors have no training or knowledge of their use. It is common for example for patients to buy a single dose, or a few days supply rather than a full course, just to save money. And there is often no correlation between the antibiotic purchased and the condition being treated.

A third factor is the deterioration in the primary health services in Malawi. This makes it much more likely for patients with infections to present late, when surgery is needed, rather than early, when antibiotics might well have been sufficient. Deterioration in the secondary and tertiary health services may

not actually increase the number of people needing surgery for sepsis, but it can increase the proportion of such cases. A lack of surgical facilities means that non urgent elective cases cannot be done, and therefore urgent cases such as surgical sepsis comprise a higher proportion of the total.

### *ii) Consequences*

There are several consequences of an increase in surgical sepsis. Firstly with such a large number of septic patients entering the theatre there is a risk to other patients being treated in the same theatre. Secondly there is an increase in risk of infection to theatre staff, especially those dealing with a lot of sepsis, and it is important that proper protective clothes and equipment are available and used. Thirdly, the increase in absolute number of infected cases in a country with limited health resources, means that reduced facilities and surgical time are available for other conditions, and inevitably elective surgery is the first casualty.

### *iii) Management*

What can be done about the increasing number of cases of surgical sepsis? Prevention should certainly be an aim. It is beyond the scope of this paper to discuss HIV control, but effective public health measures in this field will certainly help reduce community susceptibility to infection. Similarly public health education in the importance of effective treatment of early soft tissue infections is important, before they get to the stage of needing surgery. Legal controls of antibiotic sales would help but are difficult to police, especially as the source of market antibiotics is often a government hospital worker. Finally treatment of surgical sepsis needs to be effective. It is not sufficient to leave all infected cases to the end of the operating list for an inexperienced 'junior' to do. The first author has seen many cases of inappropriately treated osteomyelitis and septic arthritis which have resulted in the infection becoming chronic and needing further extensive surgery, even amputation. Adequate and appropriate treatment methods for surgical sepsis should be taught to all levels of personnel involved in the management of these conditions.

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# Audit of orthopaedic referrals to the tertiary centre

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## Introduction

Queen Elizabeth Central Hospital, Blantyre(QECH) is the tertiary referral centre for orthopaedic cases for the whole of Malawi. As such, not only does the hospital receive patients from the Blantyre area, but also those referred from district hospitals and the central hospitals in Lilongwe and Zomba. Referrals make up about a third of admissions and almost half the operative case-load. The orthopaedic service at QECH faces pressure on beds, and at times there is a backlog of cases waiting on the wards for operative procedures. Inter-hospital transfer of patients is costly and may increase patient morbidity. We conducted this prospective audit in order to evaluate the number and nature of referred cases and instigate any necessary changes in referral patterns.

## Method

The prospective audit was undertaken over an eight week period from late May to early July 2000. All cases admitted to QECH during the study period were entered and data recorded by a sole assessor (CK). Cases were identified at the morning surgical report, and ward admission books were examined to identify any missed cases. Cases were included if they had been referred from another centre, usually a health centre, mission hospital, private hospital, district hospital, or central hospital. Patients referred by general practitioners or admitted through casualty or clinics held at QECH were excluded. Data were obtained from the patient case notes and by consultation with the patients themselves. Data recorded related to the following areas:

- \* Age and sex
- \* Nature of injury/ condition
- \* Referring clinician and centre
- \* Reason for referral
- \* Time elapsed from initial presentation to referral
- \* Information provided with referral
- \* Consultation at QECH
- \* Management and disposal.

## Results

104 cases were identified during the 8 weeks of the study period.

### *Demographics*

The majority (83%) of referrals were male, with only 17%