

Factors associated with delays to surgical presentation in North-West Cameroon

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Background. Few studies have examined critically the delays in definitive management for surgical diseases in Sub-Saharan Africa. This study investigates factors contributing to delays at Mbingo Baptist Hospital, a tertiary referral hospital in Cameroon.

Methods. During a 6-week period, we randomly interviewed 220 patients (39.2%) admitted to the surgical or orthopedic service and/or their caregivers. All patients >age 15 years admitted with a diagnosis of cancer or urgent operative condition (defined as requiring a definitive operation within 48 hours of admission) including trauma were interviewed. Delay was defined as receiving treatment >7 days after symptoms appeared in the urgent cohort and >1 month for the cancer cohort.

Results. In the urgent cohort, 60.3% patients had delays >7 days to hospital presentation. Compared with nondelayed patients, delayed patients were more likely to have sought care >1 day after symptoms appeared (45.4% vs 6.3%, $P < .0001$) and to have received previous medical care (92.8% vs 73.4%, $P = .0007$). Of all patients who received previous care, those with delays, compared those with no delays, visited ≥ 2 other providers (50.5% vs 18.8%, $P < .0001$), received a surgical procedure at previous episode(s) of care (21.1% vs 6.4%, $P = .026$), and felt no improvement after this care (80.4% vs 61.0%, $P = .003$). In the cancer cohort, 100% experienced >1 month delay. 100% had received medical care prior to arriving at Mbingo Baptist Hospital, 81.4% sought care from at least 3 different facilities, and none believed this care addressed their health concerns.

Conclusion. Significant delays most often were caused by time spent on previous failed attempts at care. This information can be used to inform policy discussions about optimal health care organization within the country. (Surgery 2015;158:756-63.)

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IN SOME SURGICAL DISEASES, THERE IS A CORRELATION between time to receiving definitive treatment and overall outcome. For example, time to definitive treatment for an incarcerated hernia would have greater impact on patient mortality than time to definitive treatment for a symptomatic non-incarcerated hernia. Delays in definitive management can be present in health systems regardless

of a country's economic status, but few studies have critically examined delays to surgical presentation in low-income countries in Sub-Saharan Africa (SSA). This finding is relevant and timely because of the increasing awareness of the importance of surgical disease in the overall health metrics for any nation. Current estimates suggest that 11% of the global burden of disease is represented by surgical diseases.¹

The global burden of surgical disease comprises a variety of conditions that include both urgent and nonurgent disease. Trauma, which makes up a significant portion of urgent disease, represents one of the better-characterized surgical conditions in low- and middle-income countries (LMICs), as 90% of injury-related deaths worldwide occur in these settings.² Urgent digestive disease, including appendicitis and bowel obstruction, account for almost half a million deaths based on the Global Burden of Disease Study 2010 data.³ Cancer, a

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disease of expediency but not emergency, has been incompletely characterized in LMICs. Although its full impact has yet to be completely delineated because of a lack of tumor registries, currently it is believed that more than 60% of new cancer diagnoses and 70% of cancer deaths occur in LMICs.⁴ Currently there are almost no screening programs in low-income countries to identify early-stage disease; the net effects are patients presenting with symptomatic late-stage disease. It is common to see cancers present as palpable, often fungating masses or bowel or urinary obstruction. In a review of 344 breast cancers in Yaoundé, the capital of Cameroon, 100% presented with a palpable breast mass, 62.8% were locally advanced with T3/T4 tumors, and 86% had clinically positive regional nodes.⁵ The authors concluded that systems issues such as delayed presentations for care, ineffective care and/or diagnosis by health providers, and limited technology for cancer screening, diagnosis, and treatment contributed to these late-stage presentations.⁵ As more nations provide basic surgical care to citizens it will be critical to understand how populations access care and whether they are able to do so in a timely manner. Many factors such as religion, finances, education, and location influence timely use of the health system. In this work we will explore patient factors and reasons for delays in the treatment of urgent surgical conditions.

This study was conducted at Mbingo Baptist Hospital (MBH), a referral hospital in North-West Cameroon. Cameroon, located in Central Africa, is a country slightly larger than the state of California with a population of 22.82 million people.⁶ It ranks 150 of 186 on the United Nations Human Development Index⁷ and has 0.08 physicians per 1,000 population compared with the US 2.42 physicians per 1,000 population.⁸ The age of the population is not normally distributed: the median age is 19.7 years with 40% of the population age 0–14 years and 60% of the population 25 years old or younger. Health expenditures based on gross domestic product is 5.2%, which ranks the country 137th of a total of 190. Health care in Cameroon is primarily self-funded by the patient or their family and access is further limited in some regions because a large portion of the physician workforce is centrally localized in the capital (Yaoundé, Centre region).⁹

There have been previous reports examining delays in care in Cameroon. For example, one study of acute appendicitis in adults in Yaoundé concluded that shortening delays in time to operation would help decrease the morbidity of acute appendicitis,¹⁰ whereas another demonstrated that longer

time-to-care was correlated with an increase in obstetric complications as well as increased maternal mortality.¹¹ To the best knowledge of the authors, however, no studies have yet to examine delays to definitive surgical treatment in Cameroon. Reasons contributing to delays to definitive treatment are complex and often multi-factorial, including cultural, socioeconomic, and access issues. One helpful framework is the 3-delay model, in which delay to care is attributed to 1 of 3 steps that make up the process needed to receive health care: delays in deciding to seek care, delays in arriving at the health facility, and delays in the health system that provides care.¹² This study investigates factors contributing to the first and second steps of delays in treatment in a faith-based rural North-West Cameroon hospital.

METHODS

Study design and study population. We conducted a cross-sectional study at MBH, a 300-bed referral hospital located in rural North-West Cameroon. During the 6-week period from June 23 to August 5, 2014, that the study was conducted, 561 new patients were admitted to the surgical and orthopedic wards, and of those patients, 547 received an operation. A survey was administered randomly to an average of 5 new admissions daily to the surgical or orthopedic ward. This was a convenience sample of cases presenting to the hospital. It represented a heterogeneous grouping of conditions broadly categorized as cancer, general surgical, gynecological, and trauma cases. All patients fulfilling the inclusion criteria and present on these wards at the time of data collection were consented to participate. If the patient could not participate the caregivers were asked to participate.

Patients with conditions requiring surgical treatment, ≥ 15 years of age, and admitted with cancer or urgent operative conditions (defined as requiring a definitive operation within 48 hours of admission) were included in the study. Given the differences in the nature of cancer and urgent patients, especially in regards to the urgency of the care needed, we separated patients into 2 cohorts so that the measured delay could be analyzed in context. The urgent cohort included patients with trauma-related injuries as well as those diagnosed with urgent surgical diseases such as perforated ulcer, severe infections, intraperitoneal abscess, and gynecological emergencies. In this cohort, 48.8% of diagnoses were related to orthopedic trauma, 11.3% to intraperitoneal abscess, and 10.6% to severe soft tissue infections/abscess. The other most frequent diagnoses were gynecological emergencies, operative abdominal, and

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