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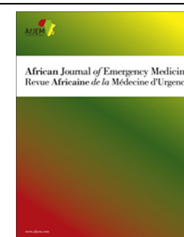

ORIGINAL RESEARCH

A descriptive analysis of Emergency Department overcrowding in a selected hospital in Kigali, Rwanda

Analyse descriptive de la congestion d'un service d'urgence dans un hôpital sélectionné à Kigali, au Rwanda

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Introduction: Emergency Centre (EC) overcrowding is a global concern. It limits timeous access to emergency care, prolongs patient suffering, compromises quality of clinical care, increases staff frustration and chances of exposing staff to patient violence and is linked to unnecessary preventable fatalities. The literature shows that a better understanding of this phenomenon may contribute significantly in coming up with solutions, hence the need to conduct this study in Rwanda.
Methods: A quantitative descriptive design, guided by the positivist paradigm, was adopted in this study. Self-administered questionnaires were distributed to 40 nurses working in the EC. Only 38 returned questionnaires, thus making the response rate 95%.
Results: The findings revealed that EC overcrowding in Rwanda is characterised by what is considered as reasonable waiting time for a patient to be seen by a physician, full occupancy of beds in the EC, time spent by patients placed in the hallways waiting, and time spent by patients in waiting room before they are attended. Triggers of EC overcrowding were classified into three areas: (a) those associated with community level services; (b) those associated with the emergency centre; (c) those associated with inpatient and emergency centre support services.
Discussion: A number of recommendations were made, including the Ministry of Health in Rwanda adopting a collaborative approach in addressing EC overcrowding with emergency trained nurses and doctors playing an active role in coming up with resolutions to this phenomenon; conducting research that will lead to an African region definition of EC overcrowding and solutions best suited for the African context; and increasing the pool of nurses with emergency care training.

Introduction: La congestion des services d'urgence (SU) est un enjeu mondial. Celle-ci limite l'accès en temps utile aux soins d'urgence, prolonge la souffrance des patients, compromet la qualité des soins cliniques, augmente la frustration du personnel et les risques d'exposition du personnel à la violence des patients, et est associée à des décès évitables. D'après la recherche, une meilleure compréhension de ce phénomène pourrait dans une large mesure contribuer à la détermination de solutions, d'où la nécessité d'entreprendre cette étude au Rwanda.
Méthodes: Une méthode descriptive et quantitative, guidée par le paradigme positiviste, a été adoptée dans cette étude. Des questionnaires auto-administrés ont été distribués à 40 infirmières travaillant au sein du SU. Seuls 38 questionnaires ont été retournés, d'où un taux de réponse de 95%.
Résultats: Les conclusions ont révélé que la congestion des SU au Rwanda se caractérisait par ce qui était considéré comme un temps d'attente raisonnable avant qu'un patient soit examiné par un médecin, un taux d'occupation des lits aux SU de 100 pour cent, le temps passé par les patients qui attendent dans le hall d'entrée et le temps passé par les patients en salle d'attente avant d'être vus. Les causes de la congestion ont été classées selon trois catégories: (a) les motifs associés aux services communautaires; (b) les motifs associés au service d'urgences; et (c) les motifs associés aux services internes et aux services d'appui au services des urgence.
Discussion: Plusieurs recommandations ont été formulées, notamment l'adoption par le ministère de la Santé rwandais d'une approche collaborative à la gestion de la congestion, les infirmières et médecins urgentistes qualifiés jouant un rôle actif dans la détermination de résolutions quant à ce phénomène; la réalisation d'études qui conduiront à une définition par la région africaine de la congestion des SU et des solutions les mieux adaptées au contexte africain; et l'augmentation du réservoir d'infirmières formées aux soins d'urgence.

African relevance

- Emergency centres in Africa are often overcrowded.
- Understanding the characteristics of EC overcrowding may generate practical solutions.
- Policies and guidelines should consider the limited resources in African ECs.

Introduction

Overcrowding[1] in emergency centres is a worldwide concern and represents an international crisis that may affect access

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to health care and the quality of services.[2] Although the triggers of overcrowding in emergency centres are complex, multi-factorial and beyond the control of the emergency centre,[3] the key reason is that emergency centres are normally too small and understaffed for the population they serve.[4] Understanding the triggers and consequences of overcrowding in an emergency centre is essential to providing the effective leadership that is required to address them.[3,4] Some authors[4,5] associate overcrowding in emergency centres with poor outcomes of care and a greater likelihood of the absence of care, especially where there are more patients than resources.

Despite the empirical evidence that suggests that emergency centre overcrowding is a well-researched area, there is no universally acceptable definition or measurement of emergency centre overcrowding.[6,7] Fatovich, Nagree and Sprivulis[8] define overcrowding as a situation where the "emergency department function is impeded, primarily because the number of patients waiting to be seen, undergoing assessment and treatment or waiting for departure exceeds the physical or staffing capacity of the emergency department" [*sic*](p351). Viccellio, Schneider and Asplin[9] define emergency centre overcrowding as a crisis situation resulting from the emergency centre serving as a holding area for patients awaiting admission. In the study by Schull and Cookes that targeted the United States of America Emergency Department Directors[10] [*sic*], emergency overcrowding was characterised by (a) patients waiting for more than 60 min to see a physician; (b) all emergency centre beds being occupied for longer than 6 h a day; (c) patients being placed in corridors for longer than 6 h a day; (d) emergency physicians working consistently for more than six hours without a healthy break, but still failing to cope with the patients load; (e) the emergency centre waiting rooms filled with patients who have to wait for at least six hours before being attended. Overcrowding of emergency centres may lead to a decision of no longer receiving emergency cases, and ambulances being diverted to other hospitals.[10] From the presented definitions of emergency centre overcrowding, one may make an assumption that overcrowding in emergency centres occurs when the capacity of the centre is less than the load of cases seeking emergency care.

Reviewed literature[11,14–17] reflects that there is no single factor that stands out as to why overcrowding in emergency centres occurs. According to Estey et al.[11] emergency centre overcrowding appears to be a product of several complex internal and external factors, most of which are beyond the control of emergency centre personnel. The literature[3,12–17] cites a number of possible triggers, as outlined in Table 1.

Table 1 Possible triggers of emergency centre overcrowding.

- The use of an emergency centre for non-emergency cases
- High patient volume and insufficient inpatient beds
- Increasing patient complexity and acuity
- Shortage of staff or inappropriate nurse-to-patient staffing ratios
- Gross shortage of emergency physicians on call to manage complicated cases requiring specialised care
- Diagnostic and ancillary services which are inefficient
- Inadequate community resources to effectively handle discharged patients
- Health and human resources shortages
- Lack of alternative health care settings that may provide emergency care
- Delays as a result of waiting for laboratory tests
- Lack of public education regarding appropriate emergency centre usage

Empirical literature[11,18,19] strongly recommend studies aimed at establishing what defines emergency centre overcrowding and understanding factors leading to emergency centre overcrowding, as these are the first steps in finding a solution. This study, therefore, aimed to describe the phenomenon of overcrowding in the emergency centre of one of the referral hospitals in Kigali, Rwanda and to identify triggers of overcrowding.

The hospital where this study was conducted is one of three referral hospitals in Kigali, with 515 inpatient beds. This hospital receives patients from a wide base from both within and outside Rwanda, including the Burundi and the Democratic Republic of Congo. Furthermore, the Rwandan population is growing rapidly. According to the Rwanda National Population and Housing Report,[20] Kigali city had 603,049 habitants in 2002, increasing to one million in 2008. The emergency centre of this hospital is open 24 h a day and manages medical, surgical and trauma patients. Paediatric, obstetric and gynaecological patients are managed within their appropriate units. At the time of the study, there were a total of 40 nurses (enrolled nurses and professional nurses) and two general doctors employed in the emergency centre. Specialist doctors only come to the emergency centre to do their rounds in the morning and when they are called in as consultants to attend to complicated cases. The emergency centre has five beds reserved for patients who are waiting for an available inpatient bed.

Methods

A quantitative descriptive design was used for this study. The research population comprised of 40 nurses, which included both professional and enrolled nurses working in the emergency centre. Only 38 questionnaires were returned, thus making the response rate 95%. A self-administered questionnaire in both French and English was used to collect data. A Cronbach Alpha test was performed to establish the reliability of the whole instrument and was .837, thus making the instrument reliable. Validity was established by subjecting the questionnaire to the scrutiny of the experts in emergency care and experts in research methodology, and by ensuring that the items in the questionnaire are aligned to the research objectives. Ethical clearance was obtained from the University of KwaZulu-Natal Ethics Committee and the Kigali Hospital Ethics Review Board. Ethics Clearance Number was HSS/0389/08M. Permission to conduct the study was sought from appropriate hospital authorities and respondents signed an informed consent before completing the questionnaire.

Results

Emergency overcrowding in this study was described in terms of four characteristics. These included what participants regarded as being reasonable in terms of (a) waiting time for a patient to be seen by a physician in an emergency centre; (b) length of time in which all emergency centre beds are occupied; (c) length of time patients are placed in hallways without being attended to; (d) length of time for patients to spend in the

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