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Emergency care capabilities in the Kingdom of Swaziland, Africa

Les capacités des services d'urgence au Royaume du Swaziland, Afrique

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ORIGINAL ARTICLE

Introduction: Emergency care is available in many forms in Swaziland, and to our knowledge there has never been a systematic study of emergency centres (ECs) in the country. The purpose of this study was to describe the characteristics, resources and capacity of emergency centres in the Kingdom.

Methods: The National Emergency Department Inventory (NEDI)-International survey instrument (www.emnet-nedi.org) was used to survey all Swaziland ECs accessible to the general public 24/7. EC staff were asked about calendar year 2014. Data were entered directly into Lime Survey, a free, web-based, open-source survey application. Responses were analysed using descriptive statistics, including proportions and medians with interquartile ranges (IQR).

Results: Sixteen of 17 ECs participated (94% response rate). Participating ECs were either in hospitals (69%) or health centres (31%). ECs had a median of 53,399 visits per year (IQR 15,000–97,895). Fourteen (88%) ECs had a contiguous layout, and the other two (12%) were non-contiguous. Overall, eight (53%) had access to cardiac monitors and 11 (69%) had a 24/7 clinical laboratory available. Only 1 (6%) EC had a dedicated CT scanner, while 2 (13%) others had limited access through their hospital. The typical EC length-of-stay was between 1 and 6 h (44%). The most commonly available specialists were general surgeons, with 9 (56%) ECs having them available for in-person consultation. No ECs had a plastic surgeon or psychiatrist available. Overall, 75% of ECs reported running at overcapacity.

Discussion: Swaziland ECs were predominantly contiguous and running at overcapacity, with high patient volumes and limited resources. The limited access to technology and specialists are major challenges. We believe that these data support greater resource allocation by the Swaziland government to the emergency care sector.

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visites par an (IQ compris entre 15 000 et 97 895). Quatorze (88%) SU étaient attenants à une structure de soins, les deux autres (12%) ne l’étaient pas. Au total, huit (53%) avaient accès à des moniteurs cardiaques et 11 (69%) disposaient d’un laboratoire clinique disponible 24 h/24, 7 j/7. Un seul (6%) SU disposait d’un CAT scan, et deux autres (13%) n’y avaient qu’un accès limité par l’intermédiaire de l’hôpital auquel ils étaient rattachés. La durée moyenne de séjour au SU variait entre une et six heures (44%). Les spécialistes les plus fréquemment disponibles étaient les chirurgiens généralistes, neuf (56%) SU les ayant à dispo- sition pour des consultations individuelles. Aucun SU ne disposait de chirurgien esthétique ou de psychiatre. Globalement, 75% des SU indiquaient fonctionner en surcapacité.

Discussion: Les SU au Swaziland étaient essentiellement attenants à une structure de soins et fonction- naient en surcapacité, avec un volume élevé de patients et des ressources limitées. L’accès limité à la technologie et aux spécialistes constituait des défis majeurs. Nous considérons que ces données vien- nent appuyer une allocation plus importante de ressources par le gouvernement swazi au secteur des soins d’urgence.

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In-person consultants were available in Swaziland ECs, and included surgeons, obstetricians, anaesthesiologist, cardiologists, neurosurgeons, neurologist and orthopaedic surgeons. By contrast, plastic surgeons and psychiatrists were not available in any EC and general surgeons were available in only 56% of ECs. Most specialists were not available 24/7 (Fig. 2).

**Discussion**

The Kingdom of Swaziland handles health emergencies in diverse healthcare settings. Although next to South Africa, where emergency medicine became a specialty in 2003, Swaziland still does not recognise emergency medicine as a specialty and emergency care is not standardised across hospitals. While 88% of ECs in Swaziland were contiguous, most (79%) overlapped with the hospital’s OPDs. The non-contiguous ECs saw emergencies in a combination of areas in the hospital (e.g. OPDs, casualty units, surgical units, maternity and paediatrics). We were surprised to see that emergencies within the country were mostly seen in hospital OPDs that also see non-emergent cases and provide public health interventions (e.g. immunizations and family planning). For example, this differs from the neighbouring country of South Africa where emergencies are seen in emergency centres that do not see primary care visits [6]. As a result, emergencies in Swaziland OPDs are not distinguished from primary care visits in annual reports. The median volume of 53,399 visits per year might be smaller for actual emergency visits, as commonly seen in the US or Europe. Some ECs reported high patient volumes (e.g. 200,000+ in one EC) and that cannot be entirely attributed to OPD primary care visits. For example, one EC with patient volumes in excess of 200,000 is a referral hospital and receives emergencies from distant clinics and health centres. Other reasons for high EC volumes could be the result of poor utilization of more traditional primary care clinics and lack of public education on when to present to the EC, but...
reasons for this were not formally evaluated and require further study. However, if poor utilisation is the cause, investing time and resources into primary care clinics and educating the public could be critical in offloading crowded ECs. Hospital resources could then be reserved for true emergencies and hospitalised patients.

Emergencies were not only seen in hospitals, but in health centres as well. Hospitals are in the various regions of the country, while health centres are mostly in rural areas within 2 h of the hospitals. Hospital ECs are more equipped than health centres, but also share similar problems. Almost all hospitals have a surgeon on call who can deal with a wide range of surgical emergencies. More specialised surgeons, such as neurosurgeons and orthopaedists, are located in the major hospitals but still rare — e.g., 18% of ECs have neurosurgeons available 24/7 and 19% of ECs have orthopaedists available 24/7. With trauma secondary to road traffic accidents among top causes of death in the country, these consultants are crucial and their limited availability is of major concern. Plastic surgeons and psychiatry are unavailable across all Swaziland ECs; the conditions these specialists treat may not seem as crucial as neurosurgeons, general surgeons, obstetricians or orthopaedic surgeons, but their absence from ECs may contribute to long-term disability and morbidity for many patients. This shortage of specialist availability is certainly not unique to Swaziland. Currently Swaziland deals with the lack of specialists by providing programs to refer stable patients to South Africa who require specialised care. However, this is not an option when faced with an unstable patient. Consequently, our study indicates the need to improve specialist availability for Swaziland ECs.

Health centres provide primary care needs for the public and like hospitals, they are open 24/7 for emergencies and have inpatient beds. They are necessary for the care of many individuals who have emergencies and may not be able to get to hospitals in a timely fashion because of transportation. Unfortunately, many of these health centres lack technological resources or specialist to treat most emergencies. Our national study revealed that none of the health centres had cardiac monitors or mechanical ventilators available for their departments. Critically ill trauma patients were being treated without these resources. Consultants were scarce, with none of the health centres having access to neurosurgeons, orthopaedists or plastic surgeons available for consultation. Complex patients are routinely transferred to the nearest referral hospital for definitive management. The observed lack of resources at most of these health centres seems likely to have an adverse impact on patient care. Indeed, some of these health centres are quite far from referral hospitals and waiting for transport (without proper equipment or resources to stabilise sick patients) is likely to have led to serious morbidity or mortality.

All ECs lacked adequate technological resources. Overall, 53% of ECs had available cardiac monitors and 19% had mechanical ventilators; 69% had a 24/7 laboratory with capability of performing a stat blood gas with potassium. Health care funds to provide for these essential EC items need to be a priority, especially in distant health centres where clinicians have no choice but to keep patients overnight for transfer in the morning. With only three CT scans in the country, we were not surprised to learn that only one EC had a dedicated CT scanner. All other ECs shared their CT with the inpatients. Hospitals should consider prioritising emergency patients in radiology queues and ensuring that ECs are within proximity to the available CT scan within that hospital. Lastly, and perhaps of greatest concern, is the lack of a negative pressure room in all ECs. As listed above, tuberculosis is among the top 5 causes of death in the country and, even though Swaziland has a TB-dedicated hospital, this does not protect ECs from seeing patients with undiagnosed TB. With the repercussions of this disease and other air

borne illnesses, the lack of a negative pressure room in ECs could pose a major public health threat in a country of more than 1 million people. This shortcoming requires urgent attention from government since negative pressure room should be a requirement for all Swaziland ECs.

With the longstanding limited resources to care for emergency patients, it’s possible that nurses and physicians are comfortable with caring for sick patients in this austere environment. Although there are currently no public medical schools or formal emergency training programs for physicians in the country, training for all providers who work in ECs can come in the form of formalised emergency education such as special courses and “in-service” training. This does not solve the shortage of available specialists, but with medical training in emergency care, providers can learn to more effectively stabilise patients and prepare them for transfer to tertiary hospitals where the few specialists are available. We did not evaluate emergency medical care training amongst nurses and physicians, but plan to pursue such work in the years ahead.

Swaziland ECs are primarily contiguous with high visit volumes and few EC beds. Many ECs reported being overcapacity and lacking technological resources. We believe that these challenges in emergency care could be addressed with improved resource allocation to the emergency care sector in the country. Other options include importing specialists to the country and promoting emergency care training among all EC staff.

A major limitation of this study was the inability to separate primary care visits from emergency centres.

Dissemination of results

Results were presented to the Minister of Health in Swaziland and hospital Administrators.

Authors’ contributions

Authors ED, JE, AS, CC all designed the study. Authors EC and MM acquired the data. Authors JE, AS analysed the data. All authors edited and approved the final version of the manuscript for publication.

Conflicts of interest

The authors declare no conflict of interest.

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