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Availability of resources for emergency care at a second-level hospital in Ghana: A mixed methods assessment



Disponibilité des ressources allouées aux soins d'urgence dans un hôpital de deuxième niveau au Ghana: évaluation de méthodes combinées

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Introduction: Emergency care is an essential component of health systems, particularly in low- and middle-income countries. We sought to assess the availability of resources to provide emergency care at a second-level hospital in Ghana. By doing so, deficits that could guide development of targeted intervention strategies to improve emergency care could be identified.

Methods: A qualitative and quantitative assessment of capacity for care of emergency patients was performed at the Emergency Centre of the Police Hospital, a second-level hospital in Accra, Ghana. Direct inspection and job-specific survey of clinical, orderly, administrative and ambulance staff was performed. Responses to quantitative questions were described. Qualitative responses were examined by content analysis.

Results: Assessment revealed marked deficiencies in many essential items and services. However, several successes were identified, such as laboratory capacity. Among the unavailable essential items, some were of low-cost, such as basic airway supplies, chest tubes and several emergency medications. Themes from staff responses when asked how to improve emergency care included: provide periodic training, increase bed numbers in the emergency unit, ensure availability of essential items and make personal protective equipment available for all staff caring for patients.

Conclusion: This study identified opportunities to improve the care of patients with emergency conditions at the Police Hospital in Ghana. Low-cost improvements in training, organization and planning could improve item and service availability, such as: developing a continuing education curriculum for staff in all areas of the emergency centre; holding in-service training on existing protocols for triage and emergency care; adding checklists to guide appropriate triage and safe transfer of patients; and perform a root cause analysis of item non-availability to develop targeted interventions.

Introduction: Les soins d'urgence sont une composante essentielle des systèmes de santé, notamment dans les pays à faible et moyen revenus. Nous avons cherché à évaluer la disponibilité des ressources allouées aux soins d'urgence dans un hôpital de deuxième niveau au Ghana. Il serait ainsi possible d'identifier les lacunes et ainsi guider le développement de stratégies d'intervention ciblées afin d'améliorer les soins d'urgence.

Méthodes: Une évaluation qualitative et quantitative de la capacité de prise en charge des urgences a été réalisée au sein de l'Unité accidents et urgences de l'hôpital de la Police, un hôpital de second niveau situé à Accra, au Ghana. Un examen direct et propre à la profession a été réalisé à propos du personnel soignant, administratif et ambulancier. Les réponses aux questions quantitatives ont été décrites. Les réponses qualitatives ont été examinées par une analyse de leur contenu.

Résultats: L'évaluation a révélé des déficiences prononcées dans nombre d'articles et services essentiels. Cependant, plusieurs succès ont été enregistrés, tels que la capacité des laboratoires. Parmi le matériel essentiel faisant défaut, il s'agissait pour certains de matériel peu coûteux, comme les dispositifs d'alimentation des voies aériennes de base, les drains thoraciques et plusieurs traitements d'urgence. Les réponses fournies par le personnel à la question de savoir comment améliorer les soins d'urgence incluaient les thèmes suivants: l'accès à une formation périodique, l'augmentation du nombre de lits au sein des urgences, la garantie de la disponibilité du matériel essentiel, et la mise à disposition de tous les employés s'occupant des urgences d'un équipement de protection individuelle.

Conclusion: Cette étude a identifié des opportunités d'amélioration de la prise en charge des urgences au sein de l'hôpital de la Police au Ghana. Des améliorations peu coûteuses en termes de formation, d'organisation et de planification pourraient améliorer la disponibilité du matériel et du service, telles que l'élaboration d'un programme d'enseignement médical continu dans tous les domaines du centre des urgences, la tenue d'une formation interne sur les protocoles de triage et de soins d'urgence existants, l'ajout de listes de vérification afin de permettre un triage approprié et le bon transfert des patients, et la conduite d'une analyse des causes premières de la non-disponibilité de matériel afin d'élaborer des interventions ciblées.

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African relevance

- Secondary-level hospitals play an integral role in hierarchical African healthcare systems.
- Staff responses highlighted need for in-service training.
- Personal protective equipment (PPE) should be available to anyone with patient or potentially-hazardous material contact.

Introduction

Emergency care is an essential component to health systems and of growing importance given the increasing burden of medical, surgical and traumatic emergency conditions.^{1,2} Inopportunely, this burden is highest in low- and middle-income countries (LMICs), which are least prepared to evaluate and treat emergency conditions due to deficiencies in organization and planning, trained personnel and physical resources.^{3–5} In response, efforts have been made to develop capacity and quality improvement programs for emergency care in LMICs.^{6,7}

Most emergency health system strengthening efforts have focused attention at the pre-hospital level and first- and tertiary-level hospitals.^{8–10} In Ghana, this has been evidenced by the foundation of a National Ambulance Service, investment in district-level obstetric emergency care and creation of an emergency medicine residency training program at a teaching hospital.^{6,11,12} Second-level hospitals are often overlooked during these important capacity building initiatives, yet are an important essential for emergency care in most LMIC healthcare systems.¹³

Second-level hospitals are in a challenging position in the healthcare hierarchy of LMICs. They receive patients referred from district-level hospitals, many of whom have had prolonged pre-hospital times, were under-resuscitated and arrive in urgent need of prompt diagnosis and treatment to avert preventable death and disability.¹³ However, some advanced diagnostics and definitive care items are infrequently available at these facilities (e.g. computed tomography scan, neurosurgery), requiring safe transfer to higher levels of care.⁵ Despite the integral role these hospitals occupy in LMIC emergency systems, emergency care capacity assessments at second-level facilities are underrepresented in the literature.^{14–18}

To address this gap, we sought to assess the availability of resources to provide emergency care at a second-level hospital in Ghana. By doing so, the findings might identify deficits in the essential components of second-level hospitals that would allow development of targeted intervention strategies to improve emergency care.

Methods

Ghana is a heavily indebted, lower-middle income country in West Africa with a population of 26 million people and an annual per capita income of US\$ 1760.¹⁹ Ghana has 10 regions divided into 110 districts. Most districts have several primary health centres (PHC) and a government or mission hospital that serves as a district (first-level) hospital. PHCs provide only basic public health and primary care services. Subsequently, most emergency cases are referred to district-level hospitals. District-level hospitals are staffed by medical

officers and nurse anaesthetists, typically offer some surgical services and have between 50 and 100 beds. Emergencies requiring more complex care are referred to one of the regional or four teaching hospitals. In addition to medical officers and nurse anaesthetists, second-level (regional) hospitals are staffed by specialist providers (e.g. paediatricians, obstetricians, and general and orthopaedic surgeons) and contain between 100 and 400 beds. Emergency and surgical services offered at regional hospitals are broader in scope. However, sub-specialist care (e.g. cardiology, neurosurgery, critical care) is usually not present. Therefore, patients requiring advanced care are referred to a tertiary facility.

Among the second-level hospitals is the Police Hospital in Accra. Though initially developed to care for police service-members and their families, the crowded healthcare system has required the Police Hospital to care for any patient with medical, surgical and traumatic emergencies from the surrounding area. The hospital receives emergency cases from the eastern area of Accra, as the tertiary care centre is in western Accra and is difficult to reach when traffic is congested. The Police Hospital also receives referrals from district-level hospitals around the country.

To assess emergency care capacity, a survey instrument was developed to capture staff perceptions of and/or challenges with the availability of emergency care services and the resources (human and physical) needed to provide these services. Staff members working at the Emergency Centre of the Police Hospital were purposively sampled to represent all professions necessary for emergency care. Variations of the survey instrument were used for collecting job-specific data from different staff (e.g. ambulance drivers, orderlies, clinicians, and administrators) and some sections that were not applicable to a specific job were omitted.

The instruments assessed trauma care items considered essential by the Ghana Health Service (GHS) Emergency Supply Checklist or the World Health Organization's (WHO) *Guidelines for essential trauma care* or *Integrated management for emergency and essential surgical care (IMEESC) tool kit*.^{20–22} Staff members based in the Emergency Centre were asked about the availability of each item. In addition, direct inspection was used to corroborate reported item availability. Item availability was rated as: 0 – Absent but should be present; 1 – Inadequate, available to less than half of those who need it; 2 – Partially adequate, available to more than half, but not to everyone who needs it; or 3 – Adequate, present and readily available to almost everyone in need and used when needed. Staff members were also asked about their opinions on ways to overcome deficiencies and to strengthen emergency care provided at the hospital.

Data were collected in 2014. Data were collected on paper forms and entered into Microsoft Excel (Redmond, WA, USA). Responses to quantitative questions were described using Stata v13 (College Station, TX, USA). The proportion of essential items available, as recommended by the GHS or WHO essential emergency equipment and supply list, were tabulated and plotted. Responses to qualitative questions on recommendations for strengthening care were examined using a content analysis framework.²³ First, qualitative responses were grouped into categories based on codes representing clustered responses. Next, categories were further refined into useful themes and described. Responses

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