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REGULAR FEATURES

Uchunguzi (Journal Watch/*Montre de Journal*)



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Uchunguzi means investigation in Swahili and provides a summary of some of the most recent international literature as presented in other leading journals, but with an emphasis on what is relevant to our continent.

24 million deaths and counting

Emergency care can significantly improve mortality rates from emergent conditions and be highly cost-effective even in low- and middle-income countries (LMICs). Emergency care systems encompass a spectrum of care, beginning with laypersons at the scene and ending in dedicated medical facilities. Connecting these two points are critical systems such as pre- and inter-hospital transport, health centres, and district hospitals. In this latest research, data based on the global burden of disease study indicate that 24 million deaths related to emergency medical conditions occur in LMICs annually, accounting for an estimated 932 million years of life lost. The article highlights the current state of knowledge regarding feasibility, cost-effectiveness, and outcomes of emergency care systems in LMICs and makes recommendations regarding future directions for research and policy on health care prioritisation in LMICs. Investment in evidence-based emergency care, research on implementation, and system coordination in LMICs could lead to a more cost- and outcome-effective emergency care system than exists in advanced economies. Coordination of the emergency medical response at all stages, with effective facilities and systems management oriented to the needs of the critically ill could lead to reduced rates of death and disability.

Hsia RY, Thind A, Zakariah A, et al. Prehospital and emergency care: updates from the disease control priorities,

version 3. *World J Surg* 2015. <http://dx.doi.org/10.1007/s00268-015-2997-5>.

Another EM programme is born in Africa

Rwanda is one of Africa's smallest and most densely populated countries. It's multi-tiered healthcare system utilises over 430 health centres to provide nurse-supervised primary care supported by 44 district hospitals that provide inpatient and outpatient care and four national referral hospitals which provide specialty care. Although some emergency cases present first to health centres where emergency equipment and skills are very limited, most emergency patients are expedited to district hospital care which are staffed by recent medical school graduates with no formal postgraduate level training. Cases requiring complex care are transferred to a referral hospital. To address the gaps in emergency care, sidHARTe (Systems Improvement at District Hospitals and Regional Training of Emergency Care) in collaboration with Human Resources for Health (HRH) has established a two-tiered system that addresses an immediate need for trained EM practitioners and specialists. The first tier consists of a 2-year, part-time postgraduate diploma (PGD) course in emergency and critical care medicine to create capacity for establishing emergency medicine at the country's district hospitals. The second tier will recruit graduates from the PGD course to continue training for another 3 years to earn a master of medicine in emergency medicine. Though emergency medicine (EM) is still a nascent field in Rwanda, the first EM trainees are already playing a unique and important role in the implementation of emergency care systems and education in the country's district hospitals.

Mbanjumucyo G, DeVos E, Pulfrey S, Epino HM. State of emergency medicine in Rwanda 2015: an innovative

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trainee and trainer model. *Int J Emerg Med* 2015;**8**(20). <http://dx.doi.org/10.1186/s12245-015-0067-2>.

Highway to Muhimbili National Hospital Emergency Centre

Injury remains among the leading causes of morbidity and mortality worldwide, particularly in LMICs. According to the WHO, 5.8 million people die from injury every year, 90% from LMICs. In this interview-based qualitative study from a Tanzanian tertiary care hospital, the authors sought to characterise how trauma patients were transported and treated prior to arrival to the tertiary care hospital. Numerous deficiencies within the existing clinic-to-hospital referral network were identified, including missed/delayed diagnoses, limited management capabilities at pre-referral facilities and interfacility transfer delays. Potential barriers to Emergency Medical Services (EMS) implementation included patient financial limitations and lack of insurance, limited public infrastructure and resources, and the credibility of potential first aid responders. Potential facilitators of EMS included communities' tendency to pool resources, individuals' trust of other community members to be first aid responders, and faith in community leaders to organise EMS response. Participants also expressed a strong desire to learn first aid. Though the findings characterised an environment of inadequate prehospital care for injured patients, with long delays to definitive care, they also suggested a favourable climate for community-based-response models.

Kuzma K, Lim AG, Kepha B, et al. The Tanzanian trauma patients' prehospital experience: a qualitative interview-based study. *BMJ Open* 2015;**5**(4):e006921.

Ambulances; an essential component of the district health system

Many scholars emphasise emergency referral care as an essential component of the district health system. This arises from the increasing prominence of accidents and other time-sensitive conditions such as dehydration, severe infections, (un-)intentional injuries, postpartum bleeding and myocardial infarction. Obstacles to developing effective emergency referral systems in low-income countries include the absence of successful models for systematically improving the overall provision of emergency medical care, inappropriate training of the expected operators and concerns about cost and thus sustainability. In this study from rural Cambodia, the authors assessed the extent to which an ambulance service was financially and politically feasible as part of a district health system. They found that ambulance services were mainly used by the poor and by women, especially for emergency obstetric care. Less than half the number of transported patients, 44%, was considered a medical emergency. The direct cost per collected emergency case was \$34.4. This highlights the fact that when certain conditions are met, effective ambulance services can be an integral part of the district health system and positively contribute to the population's appreciation of the hospital services and respective district health system. Similar studies should be performed in other low-income countries to inform policymakers on the feasibility of establishing effective ambulance services as a means to enable timely access to emergency care and to reinforce the hospital's role in the district health system.

Jacobs B, Men C, Sam OS, Postma S. Ambulance services as part of the district health system in low-income countries: a feasibility study from Cambodia. *Int J Health Plann Manage* 2015. <http://dx.doi.org/10.1002/hpm.2285>.

Triage is an art

South African emergency centres' (EC's) workload is one of the highest worldwide due to poorly resourced, overcrowded, under-staffed, and under-funded hospitals. An accurate triage system that can be used with speed to prioritise the large EC workload of both trauma and medical patients is thus required. The Cape Triage Score (CTS), synonymous to the South African Triage Score (SATS), is a valid and reliable triage tool used by EC doctors and nurses since 2006. The CTS comprises a physiologically based scoring system, the Triage Early Warning Score (TEWS), and a list of discriminators such as mechanism of injury, hyperglycaemia or abdominal pain, bleeding history, and so forth. The aim of this study was to evaluate the effectiveness of the Cape Triage Score at one EC in South Africa. From the findings, more than half (52%) of side-room investigations were omitted or inappropriate. The adjustment of the TEWS to the SATS was done incorrectly in 52% of cases. The majority of patients (69.9%) were discharged home after treatment, although 88% were SATS orange coded. Over-triage occurred in 8.1% of TEWS and 67.8% of SATS cases. The mean waiting time from triage until the patient was seen by the doctor was 2 h. These findings highlight some fundamental issues pertaining to triage and the authors have made several recommendations useful for other ECs setting up triage systems in Africa. Chronically ill patients (especially those with HIV-related complaints) can receive minor interventions at initial triage assessment (intravenous fluids, Oxygen mask) and can then be down-triaged. This will dramatically decrease the over-triage to higher statuses. Nursing staff need adequate continuous training in triage and its implementation. This should be a continuous process that is frequently reinforced. Doctors need to be involved in the initial triage assessment as well as the down-triaging of chronic patients and re-direction of less urgent patients.

Gordon S, Brits H, Raubenheimer JE. The effectiveness of the implementation of the Cape Triage Score at the emergency department of the National District Hospital, Bloemfontein. *S Afr Fam Pract* 2015;**57**(1):18–23.

Malaria: a comprehensive look at an old foe

Over 90% of the world's severe and fatal *Plasmodium falciparum* malaria is estimated to affect young children in sub-Saharan Africa, where it remains a common cause of hospital admission and inpatient mortality. Children typically present when they are critically ill with life-threatening complications yet, in most African hospitals, few will ever be managed on an intensive care unit or in a high dependency facility and, therefore, rely on simple supportive treatments and parenteral anti-malarials. Severe malaria encompasses a complex syndrome affecting many organs resulting in biochemical and haematological derangements which have many features in common with the pathophysiological derangements complicating children with severe sepsis. This

review highlights the spectrum of complications in African children with severe malaria including, cerebral malaria, severe anaemia, metabolic acidosis and respiratory distress, hypoglycaemia, haemoglobinuria and bacteraemia. The article further highlights the therapeutic challenges of managing these in resource-poor settings and examines in-depth the results from clinical trials with a view to identifying the treatment priorities and a future research agenda. While human trials carried out on the basis of pathophysiology studies, have so far made little progress on reducing mortality, despite appearing to reduce morbidity endpoints (such as convulsions, shock reversal or improvements in acid base balance or cytokines); more often than not, the supportive interventions have shown harm.

For the key risk factors for poor outcome – coma, abnormal renal function, hypoglycaemia and acidosis – further studies and trials need to be conducted to help us understand how best to treat these complications.

Maitland K. Management of severe paediatric malaria in resource-limited settings. *BMC Med* 2015;**13**(42). <http://dx.doi.org/10.1186/s12916-014-0263-6>.

Conflict of interest

The author declare no conflict of interest.