Rwanda Medical Journal RMJ

Conference report Open access

RMJ CONFERENCE SUPPLEMENT:
4th African Conference on Emergency Medicine 2018
7 Nov 2018 – 9 Nov 2018
African Federation of Emergency Medicine

4TH AFRICAN CONFERENCE ON EMERGENCY MEDICINE 2018 - AFCEM 2018

AfCEM is the premier international conference among African emergency care providers. The theme of AfCEM 2018 was Breaking Barriers in Emergency Medicine Education with an emphasis on increasing emergency medicine coverage across Africa. In line with our theme, we are excited to continue the growing discussion of FAME: freely accessible medical education. The focus of this conference was on what is needed in Africa and other resource-constrained settings, to deliver high-quality and up-to-date education in emergency care. It is not just about social media or technology. It is about breaking barriers in education: making education available, appropriate and affordable for Africa.

Potential Conflicts of Interest (CoI): All authors: no potential conflicts of interest disclosed. **Funding. All authors:** no funding was disclosed. **Academic Integrity. All authors:** confirm that they have made substantial academic contributions to this manuscript as defined by the ICMJE. **Ethics of human subject participation:** Local Institutional Review Board approval was gained where required. Informed consent was sought and gained where applicable. **Originality: All authors:** this manuscript is original has not been published elsewhere
Review: This manuscript was peer-reviewed by two reviewers of the AFCEM committee, in a double-blind review process as part of scientific conference
Original submission: 20th November 2018. **Original decision:** 13th December 2018

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E08 - BLENDING ONLINE AND IN-PERSON EDUCATIONAL METHODS TO INCREASE ACCESS TO EMERGENCY MEDICINE TRAINING COURSES FOR MEDICAL STUDENTS – A PILOT AT MAKERERE UNIVERSITY COLLEGE OF HEALTH SCIENCE

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Objectives: Although the burden of emergency conditions is heaviest in low-income countries, access to care is often the lowest in these areas, restricted by many factors including scarcity of appropriately trained provider. Students in many parts of the world have limited exposure to emergency medicine, likely reducing the number of clinicians pursuing careers in the field. Challenges exist at many levels including inadequate local emergency medicine educators, and limited high-quality, locally appropriate educational materials. To address these issues, partners implemented a blended methods emergency medicine training course tailored to medical student level learners.

Methods: A 5-week modular curriculum was created. Each week students received a package of case-based, online videos to be view asynchronously and received messages containing topic reviews and additional resources. Each weekend, students met with local partners to engage in case discussions, simulations, and hands-on skill sessions. The course was offered to a group of 55 students (61% male, 95% fourth-year students) at Makerere University. Pre- and post-testing and surveys were used to assess knowledge gains and student's impressions of the course.

Results: Student's scored significantly higher on the post-test relative to the pre-test. Based on survey results, student's comfort assessing each of the chief complaints covered increased significantly, as did their comfort with each of the critical procedures taught. 95% of students surveyed felt that emergency medicine should be included as a required medical school rotation, while 100% would recommend the course to their colleagues. Notably, 95% of students indicated that they would like to pursue post-graduate training in emergency medicine.

Conclusions: A blended methods emergency medicine course was an impactful learning tool for the students who participated. This approach overcame many challenges currently limiting the spread of emergency medicine education to the area and has the potential to do so in many other similar settings.

M10 - PAEDIATRIC SEPSIS AND HIV: A QUALITATIVE STUDY TO EVALUATE THE DECISION TO TEST, BARRIERS TO TESTING, AND HOW KNOWLEDGE OF HIV STATUS CHANGES EMERGENCY DEPARTMENT MANAGEMENT OF PAEDIATRIC SEPSIS AT AN URBAN TERTIARY REFERRAL HOSPITAL IN TANZANIA

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Objectives: Sepsis is a leading cause of death among children with HIV. The World Health Organization and Tanzania HIV guidelines recommend that counseling and testing be initiated for all children accessing healthcare in sub-Saharan Africa. However, HIV testing in the Emergency Department (ED) is not currently performed on all septic children presenting to the Muhimbili National Hospital (MNH) ED in Tanzania. This study explored decision-making practices for HIV testing, barriers, and facilitators to testing, and changes in pediatric sepsis management based on knowledge of HIV status in the ED.

Methods: Thirty in-depth qualitative interviews were conducted in English with randomly-selected ED providers. Interviews were semi-structured using a pre-validated interview guide, digitally-recorded, and transcribed. An inductive, iterative, thematic analysis was used to generate and analyze themes. Topics included: 1) determinants of HIV testing 2) barriers and facilitators to testing, and 3) changes to sepsis management based on HIV status.

Results: Four themes were identified: barriers to HIV testing, facilitators to HIV testing, testing practices, and management practices. Patients' concerns regarding confidentiality and fear of stigma were the most notable barriers to HIV testing while good availability of resources facilitated Point-of-Care HIV testing in the ED. Most ED staff considered it clinically important to test all septic children for HIV, but many providers chose not to test in the ED. This is despite the fact that many providers also reported that knowledge of HIV positive status would lead them to consider broader differential diagnoses and more aggressive treatments.

Conclusions: Knowledge of positive HIV status can change the clinical management of pediatric sepsis in the ED. However, despite the availability of testing resources, ED-based HIV testing is not performed on all children with sepsis presenting to the MNH-ED. Stigma, confidentiality and provider discretion to test need to be further addressed to facilitate ED-based HIV testing.

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P06 - COMPARISON OF A FULLY EQUIPPED EMERGENCY MOTORCYCLE(AMBU-CYCLE) AND A REGULAR AMBULANCE VAN FOR FIRST RESPONSE BY EMTS IN GHANA: A TIME TRIAL STUDY

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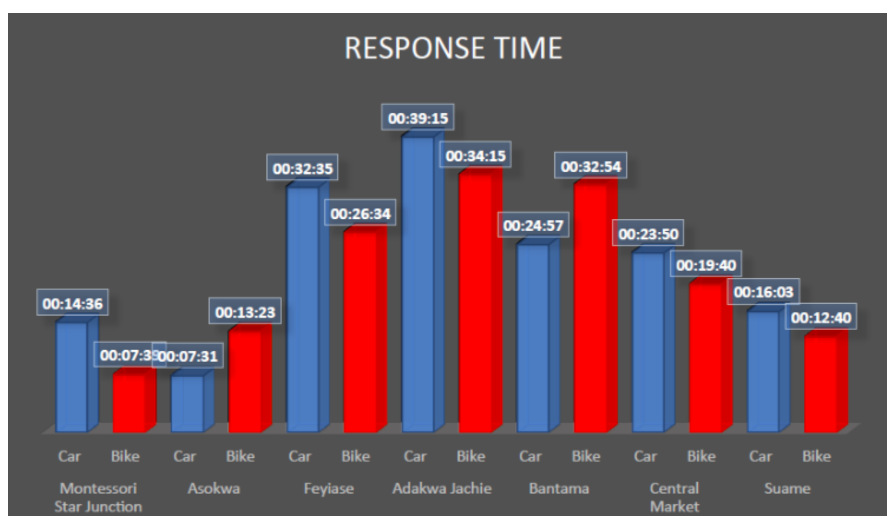
Objectives: Delays in reaching the acutely ill and injured patients contribute significantly to morbidity and mortality. This delay is more pronounced in resource limited settings where poor road networks and few available ambulances further increases response times. The study therefore sought to compare the first response time between a fully equipped emergency motorcycle (ambu-cycle) and a regular ambulance van by EMTs in the Ashanti Region of Ghana.

Methods: A low-cost motorcycle was retrofitted into an emergency bike using reflectors, a siren, GPS device and an emergency first aid kit with emergency supplies similar to that in a regular ambulance van. EMTs with a valid driving license were recruited to ride the motorbike. EMTs wore protective padding and gears during the time trials. The time trial was conducted to compare the response time of the bike and the current van ambulances. Seven callouts were made to 7 sites KATH Polyclinic > Montessori Star Junction > Asokwa > Feyiase > Adakwa Jachie> Bantama > Central Market > Suame.

Results: It was found that on valid runs, the bike got onto the scene 5 minutes and 6 seconds earlier than the van. The significance of this is underscored when this is compared to the WHO target response time of 8 minutes.



Conclusions: The study concluded that instead of running a fleet of ambulances costing $80 000 each, patients' outcomes could be improved by using emergency equipped motorcycles(ambu-cycles) worth $1500 each as first response. These EMTs could provide the needed initial emergency care and stabilization to critically ill and injured patients before they are transported by regular ambulance vans to the hospital.

1N09 - THE PERFORMANCE OF MUHIMBILI NATIONAL HOSPITAL TRIAGE TOOL AMONG PAEDIATRIC PATIENTS ATTENDING EMERGENCY DEPARTMENT: COMPARISON STUDY

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Affiliations: 1. Muhimbili University of Health and Allied Sciences, Department of Emergency Medicine 2. Department of Emergency Medicine, Muhimbili National Hospital 3. Department of Emergency Medicine, University of California, San Francisco, California, USA

Objectives: To compare the performance of local triage tool with Australasian, Manchester, Canadian and South African triage scales in predicting outcomes among pediatric patients presenting to the emergency department.

Methods: Prospective study of consecutive under-fives seen at Muhimbili National hospital, November 2017 to April 2018. Patients were triaged according to local triage system (LTS), Canadian Triage and Acuity Scale (CTAS), Australasian Triage Scale (ATS), Manchester Triage Scale (MTS) and South African Triage Scale (SATS), then waiting time, disposition and 24 hours outcome recorded to calculate Sensitivity, specificity, and predictive values.

Results: We enrolled 384 pediatric patients; their median age was 17 months (IQR 7-36 months). According to LTS 67 (17.4%) patients were triaged in level one, among them only 36 (53.7%) and 25 (37.3%) were identified as level one by South African and Manchester triage scales respectively. Among the least urgent patients by LTS, 21(80.8%) were also categorized least urgent by SATS. Although all triage scales showed high sensitivity in predicting mortality but performed poorly in predicting a need for admission.

Table 1. **Performance of triage scales in predicting outcome**

Outcome prediction		LTS	MTS	ATS	CTAS	SATS
Need for admission	Sensitivity	27.1%	28.4%	28.4%	27.5%	28.4%
	Specificity	98%	96.7%	96.7%	96.7%	95.4%
	PPV	95.4%	92.9%	92.9%	92.6%	90.3%
	NPV	47.3%	47.4%	47.4%	47.1%	47.1%
Mortality	Sensitivity	80%	100%	100%	100%	100%
	Specificity	81.4%	80.2%	80.2%	80.8%	79.9%
	PPV	6%	6.9%	6.9%	7.1%	6.8%
	NPV	99.6%	100%	100%	100%	100%

Conclusions: There are performance variations in patients' distributions hence prioritizing urgency to medical care among the triage scales (LTS, MTS, CTS, ATS, and SATS). Although all triage performed well in mortality prediction, they have poor ability to predict a need for admission in Paediatric population.

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1A10 - IMPLEMENTATION OF THE WHO-ICRC BASIC EMERGENCY CARE COURSE IN TANZANIA AND UGANDA

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Objectives: As part of efforts to support strengthening of emergency care delivery in resource-limited settings, the World Health Organization (WHO), in collaboration with the International Committee of the Red Cross (ICRC), has developed Basic Emergency Care (BEC), an open-access training package addressing core emergency presentations: ABC, Trauma, Difficulty in Breathing, Shock and Altered Mental Status. We describe an early implementation in East Africa executed by local provider-trainers with minimal external support.

Methods: The BEC was implemented in 4 hospitals in Tanzania and Uganda over one month in 2017. Hospitals were chosen for their high volume, locations on major roads, and supportive administration. Each 5-day course was taught by local providers previously trained in a BEC pilot and 2-day train-the-trainer course. Trainees were selected by hospital leadership for being likely to care for emergency patients. All completed a 25-question multiple choice exam and confidence reporting before and after training. Structured feedback was also collected on each course component.

Results: 59 health care providers were trained in four courses by seven local facilitators, including five nurses, one doctor, and one clinical officer. Among trainees, 41% were nurses, 25% doctors, and 29% other cadres. Post-test scores improved significantly at all sites (ranging from an 11-27 absolute increase, and 16%-57% relative improvement). Confidence in emergency care skills improved at all sites. Main qualitative feedback themes were: positive reception of the sessions, especially hands-on skills; requests for additional BEC trainings; requests for obstetric topics; the need for more allotted training time.

Conclusions: Implementation of WHO-ICRC BEC by local provider-trainers was feasible, acceptable, and well-received at four sites in East Africa. Pre- to post-test scores and trainee confidence increased at all sites. The BEC is a low-cost intervention that can improve knowledge and skill confidence across provider cadres.

2N02 - A CORONARY CARE NETWORK MODEL FOR PATIENTS REQUIRING REPERFUSION IN THE NORTH WEST PROVINCE OF SOUTH AFRICA: RECOMMENDATIONS BASED ON OPTIMISATION MODELLING AND GEOSPATIAL ANALYSIS

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Affiliations: 1. Stellenbosch University, Division of Emergency Medicine 2. Karolinska Institute, Department of Clinical Research and Education

Objectives: By using optimisation modeling and geospatial analysis, we aim to propose a coronary care network model for patients who present with ST-elevation myocardial infarction in the North West province, of South Africa.

Methods: We extend geospatial analysis with network optimisation modeling, to determine which strategy (prehospital thrombolysis, in-hospital thrombolysis or percutaneous coronary intervention) is most appropriate for patients presenting within each of the municipal wards of the North West province. We present these recommendations geographically.

Results: Using our model, an efficient and swift recommendation for the best reperfusion strategy is obtained, even in the instance of a large amount of ward data with additional constraints. For the majority of municipal wards (204, 53%) percutaneous coronary intervention is the preferred reperfusion strategy based on proximity. For the remainder of the wards (138, 36%), prehospital thrombolysis is recommended.

Conclusions: We present a scalable and efficient method of determining the most appropriate reperfusion strategy for a patient presenting with ST-elevation myocardial infarction in the North West province. This method can be implemented in other settings internationally and can form the basis of regional coronary care network development priorities.

2V03 - CARE OF CRITICALLY ILL PATIENTS DURING INTER-HOSPITAL TRANSPORTATION: A DESCRIPTIVE STUDY IN DAR ES SALAAM, TANZANIA

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Affiliations: 1. Muhimbili National Hospital, 2. Muhimbili University of Health and Allied Science

Objectives: Identify if escorting personnel have knowledge about care; determine the extent of care provided, and identify challenges affecting the provision of care during inter-hospital transportation of critically ill patients.
Methods: A cross-sectional descriptive design, employing a quantitative approach, was used. The study population was escorting personnel transporting critically ill patients to Muhimbili National Hospital via the Emergency Medicine Department (EMD).

Results: Majority of the 130 respondents were nurses. However, only 8.5% reported to have received ambulance training. Knowledge about Basic Life Support (BLS) and Advanced Cardiovascular Life Support (ACLS) was low 45.4% (59) and 6.2% (8) respectively among participants. The respiratory rate was the most common vital sign monitored, with no documentation provided. Among the critically ill patients, 17.7% required airway support, and 8.7% received it. Many (67) patients required oxygen support however only 12 were escorted with oxygen. While 9/14 ambulances had a functional oxygen cylinder, only three had suction, and none contained a portable monitor. Challenges identified by the escorting personnel included; lack of essential equipment, lack of consumables, insufficient ambulance training and transporting more than one patient in the ambulance.

Conclusions: Critically ill patients are escorted mostly by nurses, with suboptimal care being provided on transit. Contributing factors include lack of specialized training and minimal knowledge of BLS and ACLS. Moreover, inadequate resuscitation and monitoring are compounded by no documentation and a lack of equipment. Improvement of patient safety and care during inter-hospital transportation requires a multi-faceted approach to educate escorting personnel and ensure fully equipped ambulances are available.

1N04 - IMPROVISATIONS IN THE EMERGENCY DEPARTMENT OF MBARARA REGIONAL REFERRAL HOSPITAL (MRRH)

Authors: Kizito, PM[1]; Bagonza, KD[1]; Odakha, AJ[1]; Nalugya, LG[1]; Opejo, P[1]; Chen, H[1]; Harborne, DJ[1].

Affiliations: 1. Mbarara University of Science and Technology

Objectives: To compare the performance of improvised cardboard collars versus rigid commercial collars in restricting neck movement.

Methods: A pilot study was undertaken to generate a hypothesis regarding the effectiveness of cardboard collars. A prospective study involving six healthy volunteers was done at MRRH ED. Using commercial collars (LaerdelTM), wooden templates of all collar sizes were manufactured, and these were then used to make cardboard collars. The appropriate collar size was obtained by measuring the chin to shoulder fingerbreadth. Using a goniometer, three physicians measured neck movements in six directions, i.e. flexion, extension, left rotation, right rotation, left lateral bending and right lateral bending. Physicians took measurements without a collar (Mob F), with a commercial collar (CC) and with a cardboard collar (CB) for each subject.

Cardboard collar

Wooden template

Results:

MOVEMENT	Ave. Mob F_0	Ave. CC_0	Ave. CB_0	CC% immob	CB % immob
Flexion	40.0	7.2	2.0	82%	95%
Extension	58.3	7.5	6.2	87%	89%
Right Lateral bending	36.3	6.5	3.8	82%	89%
Left Lateral bending	37.2	9.3	5.7	75%	85%
Right Rotation	61.5	10.7	7.0	83%	89%
Left Rotation	58.3	6.7	5.7	89%	90%

F-Free neck movement, CC- commercial collar and CB- cardboard collar, Mob-mobilization, Immob- Immobilization

Conclusions: The study results support the conclusion that the cardboard made collar is not inferior to commercial collars and in fact, may perform better in restricting all six neck motions. A study with more participants will be carried out to prove the above hypothesis in a valid statistical manner. If the preliminary findings are valid, and the cardboard collar is at least as effective as the commercial one, this could be a highly economical solution to a common problem encountered in Emergency Departments in low-resource settings.

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1A06 - ONLINE DISTANT LEARNING MODULE FOR CONTINUOUS MEDICAL EDUCATION FOR EMERGENCY MEDICINE TECHNICIANS; A STUDY IN THE ASHANTI REGION, GHANA

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Affiliations: 1. Komfo Anokye Teaching Hospital 2. Oxford University 3. National Ambulance Service, Ghana 3

Objectives: The objective of the study was to assess the feasibility of developing distant learning modules for the training and continuous medical education for Emergency Medicine Technicians in Ghana

Methods: Emergency Medicine Technicians in the Ashanti Region were randomly selected to be part of the study. They received online lectures and notes that were accessible from their mobile phones. They all received a test at the end of each module. The study measured their willingness to participate, average attendance for each module and the scores for each module test. The study also measured the overall feasibility of the distant learning program.

Results: The study developed a training course comprising of 7 modules: trauma and surgical emergencies, obstetric emergencies, pediatric emergencies, disaster management, medical emergencies, basic ultrasound, and medical research. Tests and quizzes were electronically sent to EMTs over the course of the research period. The average test score was 70.14% (low: 35%, high: 95%) for the cohort. Feedback from participants showed gains in knowledge and skill delivery. The average attendance for all modules was 56.6% ranging from 47.37%-63.16%. Challenges for attendance included internet access, heavy duties, and other personal reasons. The post-training interview showed 100% willingness to participate in future online programs with the most common reason stated as low cost, ease of attendance for modules and reduced expense.

Conclusions: The study concluded that online distant learning modules can be used in Ghana for training and continuous medical education for Emergency Medicine Technicians and it is an easy and cost-
The effective model compared to face to face model.

2A03 - COMPARISON OF CLINICAL PROFILE AND OUTCOME OF TRAUMA PATIENTS PRESENTING DURING REGULAR VERSUS OFF HOURS AT EMERGENCY DEPARTMENT OF URBAN TERTIARY HOSPITAL IN TANZANIA

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Objectives: We aimed at assessing practices of pain assessment and management of adult trauma patients presenting to the emergency department.

Methods: This was a prospective comparative descriptive study of adult trauma patients presenting to EMD-MNH from July 2017 to December 2017. Structured questionnaires incorporated into online data capture software was used to document patients' demographics, clinical characteristics, care received and outcomes. Primary outcomes were the difference in clinical presentation, and EMD care and secondary outcomes were mortality, length of hospital stay and disposition. Study data was summarized with descriptive statistics including mean, standard deviation, median and interquartile range. Student's t-test (t-test) was used for comparison of mean and descriptive categorical data was analyzed using Chi-square (x^2) with SPSS version 21.0.

Results: We enrolled 1395 (49%) patients from 2898 trauma patients who presented to the ED. Of those enrolled 818 (58.6%) presented during off hours. The median age of presentation of those enrolled was 33 years (interquartile range 26-44 years), and overall 1069 (76.6%) were male. Overall 1261 (90.4%) had minor Injury Severity Score (ISS), and 98 (7.0%) had moderate ISS, while 36 (2.6%) had major ISS. Among 36 (2.6%) with major injury (ISS≥15), 3(0.5%) presented during regular hours versus 33(4.0%) during off-hours with ($p < 0.001$). Overall 40 (2.9%) had used alcohol, and the majority of these 35 (4.3%) presented during off-hours versus 5(0.9%) of regular hours ($p < 0.000$). Overall 24h mortality was 2 (0.1%) with 2 (0.2%) presenting during off-hours, and none died during regular hours, <0.235.

Conclusions: Off-hour presentation was associated with high male proportion, major trauma, and injuries associated with alcohol influence. Even though these factors did not seem to
impact on the ED and 24h mortality, clinicians are to be keener due to higher acuity and
severity of patients presenting in off-hours in LIC.