Emergency care in sub-Saharan Africa: Results of a consensus conference

Emilie Calvello a, Teri Reynolds b,c, Jon Mark Hirshon a, Conrad Buckle d, Rachel Moresky e, Joseph O’Neill f, Lee A. Wallis g,*

a Department of Emergency Medicine, University of Maryland, United States
b Emergency Medical Department, Muhimbili National Hospital, Dar es Salaam, Tanzania
c Department of Emergency Medicine, University of California, San Francisco, United States
d Emergency Medicine Department, Barnet and Chase Farm Hospitals NHS Trust, United Kingdom
e Department of Medicine and Population & Family Health, Columbia University Mailman School of Public Health, United States
f Director of Global Initiatives, University of Maryland, United States
g Division of Emergency Medicine, University of Cape Town, South Africa

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Abstract The communities of sub-Saharan Africa face a disproportionate burden of acute injury and illness. While acute care systems can substantially lower the morbidity and mortality associated with a wide range of medical and surgical conditions in adults and children, few healthcare facilities in the region adopt an integrated approach to resuscitation and stabilization. The term acute care encompasses the health system components used to treat patients with urgent or emergent conditions, and governments, health care facilities, funders, and academic institutions would benefit from a clearer understanding of acute care in an African context. In November 2011, the African Federation of Emergency Medicine held the first in a series of conferences on acute care in Africa to engage stakeholders in the development of consensus statements for the region. This first meeting engaged a range of acute and emergency care providers working in sub-Saharan Africa, and effective acute care was defined as:

The provision of initial resuscitation, stabilization, and treatment to acutely ill and injured patients, and delivery of those patients to the best available definitive care, regardless of their ability to pay. Focus areas included: (1) Acute care referral systems (pre-facility, transfer, and field care), (2) Facility-based acute care, (3) Emergency medicine specialist training, (4) Emergency nursing, (5) Sustainability strategies (advocacy, policy, and funding).

* Corresponding author. Tel.: +27 21 948 9908; fax: +27 82 524 9704.
E-mail address: lee.wallis@afem.info (L.A. Wallis).
“Emergencies occur everywhere, and each day they consume resources regardless of whether there are systems capable of achieving good outcomes”.
Bulletin of the World Health Organization.[1]

Introduction

Early resuscitation and stabilization substantially reduces the morbidity and mortality associated with a range of acute medical, surgical, and obstetric conditions.[2-6] The burden of acute illness is particularly overwhelming in low and middle-income African countries, which suffer the highest rates of every category of injury from road-traffic to drowning; the highest rates of maternal death from acute complications of pregnancy; and the highest rates of acute complications of communicable diseases, including respiratory infections, malaria, and HIV.[7] In addition, the rapidly growing burden of cardiovascular and diabetic diseases has only increased the need for acute care, as the region also suffers the highest mortality from acute complications of non-communicable disease[8,9]. The term acute care encompasses the health system components used to treat patients with urgent or emergent conditions, and includes, but is not limited to emergency medicine. Despite the fact that there are at least three Millennium Development Goals (MDGs) that can be directly addressed by robust acute care systems (child health; maternal health; infectious diseases), a systematic approach to acute care has been lacking in discussions on how to achieve the MDGs, and is conspicuously absent from the recent UN consensus statement on non-communicable diseases.[10,11] International health priorities have traditionally focused on controlling communicable diseases via what the Commission on Health Research for Development terms “vertical programs which are not fully integrated in the national health research picture and therefore do not contribute optimally to the development of a strong and self-reliant national health research system.”[12]

AFEM and meeting background

The African Federation for Emergency Medicine (AFEM) has brought together a critical mass of community, pre-hospital, and facility-based practitioners seeking to improve acute care in sub-Saharan Africa, and has begun to coordinate efforts, disseminate materials, and articulate a scientific agenda. The scientific activities of AFEM include documenting the burden of acute disease and current state of acute care systems in the region; developing training materials and clinical and operational guidelines; and establishing criteria for the evaluation of programmatic impact. To accelerate the development of acute care within Africa, AFEM have planned a series of consensus conferences and held the first in November 2011 in Cape Town, South Africa. Over 100 leaders in acute and emergency care from Africa and around the world participated.

For the purposes of this meeting, effective acute care was defined as:
The provision of initial resuscitation, stabilization, and treatment to acutely ill and injured patients, and delivery of those patients to the best available definitive care, regardless of their ability to pay.

Meeting process

Plenary sessions on general principles alternated with smaller focus group sessions. Five workgroups were formed:

- Emergency care referral systems (pre- and out-of-hospital emergency care).
- Healthcare facility based emergency care.
- Emergency medicine specialist training.
- The role and importance of emergency nurses.
- Sustainability strategies.

The groups were given a mandate to develop recommendations consistent with the core principles that interventions should:

- Integrate into existing health systems.
- Prioritize cost-effectiveness.
- Have measurable impacts.
- Be flexible enough to be scaled and specified to a variety of settings.

The overall meeting endorsed the following points of recognition:

- All people should have equal access to acute care. Access should not be limited by the inability to pay, the lack of health care providers or facilities, or be restricted by geography, culture, gender, religion, or disability.
- There exist gross inequalities and disparities in health status and health care within Africa, and between Africa and the rest of the world.
- There is a significant shortage of properly trained personnel in emergency medical care at all levels of the health workforce.
- Quality, timely acute care can substantially reduce morbidity and mortality.
- Acute care system development is crucial to meet the Millennium Development Goal targets.
- Acute care interventions should aim to attain maximum impact from limited resources.
• Robust acute care system development must occur in the context of a national health system and according to national priorities. Targeted need assessments should precede interventions.
• The impact of acute care interventions should be routinely analyzed and results integrated into existing national health surveillance systems.
• The practice of acute care should be evidence-based, as far as possible.
• Maintaining the quality of services requires well-trained acute care practitioners working within an environment that provides adequate human and physical resources, and ongoing training.
• Acute care providers should perform regular reflection on their practice, building on strengths and correcting weaknesses in the acute care system on a regular basis.
• The current engagement of professional organizations (AFEM and the International Federation for Emergency Medicine) and the increasing interest of governments, academic institutions, non-governmental organizations, donors and other stakeholders create an unprecedented opportunity for advancing acute care in Africa.

We note the following barriers to the integration of acute care into the health systems of sub-Saharan Africa:

• The burden of acute disease in sub-Saharan Africa is severely under-documented.
• Most healthcare facilities in the region lack an integrated approach to triage, resuscitation, and stabilization of acutely ill patients.
• There are limited resources for health care in Africa, including a critical shortage of trained healthcare personnel in all cadres.
• There is a lack of standardized regionally-appropriate clinical guidelines for acute care at the sub-district and community level.
• Essential components of acute and emergency care have not been established, and there is no consensus on how to define the success of initiatives.
• There is no current advocacy plan for placing acute care on the global health agenda.

A final session was held for presentation, discussion, and ratification of the workgroup products. Because the workgroups engaged distinct system components at different levels of strategy development, the consensus statements below are intended only as a summary of the meeting conclusions and are not parallel across groups; they range from general to specific and include both action and discussion points.

Consensus statements

Acute care referral systems

Acute care does not begin at the front door of a hospital; a large component of care delivery can and should occur at the community or transportation level. There are several terms which refer to this component of an acute care system, including pre-hospital care and out-of-hospital care. The workgroup adopted the term acute care referral system to apply to that component of acute care delivered outside the confines of a healthcare facility.

Acute care referral systems:
• Must comprise components relating to practitioner education, access, communication, treatment, and transportation to and between healthcare facilities.
• Should be centrally managed but responsive to local requirements.
• Should make use of trained community members to deliver first responder care.
• Must make use of existing private and public transportation networks in the early stages of EMS development.
• Should make use of a single national emergency access number, designed to be easily recalled.

Local stakeholders should:
• Actively advocate for the development of out-of-hospital care systems as a health system priority in their country.
• Develop regional collaboration to derive a regionally appropriate model of out-of-hospital care, along with an implementation strategy.

AFEM should:
• Prioritize acute care referral system documentation and development in its scientific agenda.

Healthcare facility based acute care

Acute care delivery in healthcare facilities is not limited to a small number of large hospitals with dedicated Emergency Departments; all facilities, including clinics, must be able to provide at least basic acute care services. Functional referral mechanisms are critical to provide comprehensive acute care services. In general, there should be a dedicated space for acute care connected to a triage area and accessible to patients arriving on their own or via the referral system.

Health workforce:
• Pre and in-service training in acute care should be coordinated with government ministries and academic institutions to best serve facility-based providers and their patients.
• Distribution of acute care personnel should be matched to the acute care needs of the facility catchment area.
• Health facilities should develop specific strategies to retain acute care personnel.

Service delivery:
• Acute care facilities at and above the district level should provide 24 h care.
• Communities should be engaged, educated and empowered around all facets of emergent health problems.
• Acute care providers should integrate with the local provider network to assure appropriate follow up and preventive care for their patients.
• Longitudinal support from governmental and facility administration is critical to ensure the necessary human resource development and infrastructure for quality acute care service delivery.
Medical products and technologies:
- Timely and equitable access to essential acute care diagnostics, pharmaceuticals and supplies is essential to high-quality care.
- Reliable procurement and supply chain management are essential at all levels of the health care system.

Health information:
- Acute care metrics should be integrated into current facility-based surveillance strategies to assess the acute care needs of the population.
- Recommended indicators of infrastructure improvement include:
  - Percentage of patients getting appropriate therapy for sentinel presentations.
  - Mortality rates associated with sentinel presentations at the facility.
  - Length of stay in acute care intake areas.

Advocacy should include a multi-level strategic plan that includes the facility medical directors, district technical directors and national Ministries of Health.

AFEM should:
- Develop emergency clinical practice guidelines to serve as a resource for national development of context appropriate care.
- Advocate for the integration of acute care metrics into routine health surveillance systems.
- Establish the elements that are critical for timely, efficient, effective acute care services at each level of the health care system.

Emergency care specialist training

Emergency specialist training is an essential component of a robust acute care system. While specialists may never deliver the majority of acute care in the region, a small number of well-trained specialists can have a large impact on health systems by leadership in clinical care, training, advocacy, and system change. There are currently established emergency medicine training programs for specialists in Botswana, Ethiopia, Ghana, South Africa, Sudan, and Tanzania, and programs planned in Rwanda and Uganda.

In general:
- A review of current programs and a need analysis should precede initiation of any new training programs.
- Shared models of (and shared resources for) emergency specialist training can help maximize the impact of the training programs while minimizing costs, but programs should recognize the limitations of existing resources that may not speak to African context.
- Partnerships with other emergency training programs (in-country or international) may be an important component of specialist training, especially for new programs. While partnerships should be mutually beneficial, they should prioritize the needs of the developing program.
- Trainees should be equipped with basic resuscitation and stabilization skills at the very beginning of training.
- Rotations to external sites, including international rotations should:
  - Establish explicit learning objectives a priori.
  - Be structured to fill gaps in locally available experience.
  - Have a clear plan for comparative analysis of strengths, limitations and relevance of the external setting.

Specialist training programs should:
- Be oriented to local needs, culture, priorities, resources, and practice patterns.
- Be developed and based within the region graduates are expected to serve.
- Establish EM role models, culture, and identity to create credibility and promote recruitment.
- Collaborate with local healthcare systems and emphasize intra-departmental and inter-departmental co-operation.
- Integrate into existing national/regional credentialing pathways.
- Engage in early advocacy to attain Ministry support for residency funding, specialist salary lines, and faculty positions.
- Liaise with regional or international organizations to allow coordination of efforts and resource-sharing.

Critical human resources include:
- Local or partner emergency medicine faculty.
- Other specialty faculty (surgery, OB, trauma, orthopedics, anesthesia, radiology, critical care, pediatrics).
- Local “champions” who understand the existing health care system and can identify key stakeholders, and drive processes forward.
- A network of key stakeholders.

Critical infrastructure resources include:
- Adequate hospitals with a dedicated emergency department.
- Lecture theaters.
- Medical equipment.
- Clinical skills laboratory for simulation training.
- Support facilities (such as laboratory, radiology, blood bank, pharmacy, library including e-resources).

AFEM should:
- Develop regionally-appropriate courses.
  - All such courses should be a starting point only and adapted to local needs.

Emergency nursing

The emergency nursing workgroup endorsed the general principle that the emergency nurse plays a crucial role in the identification and care of patients with medical, surgical and injury related emergencies, with a focus on the level of severity and time-critical interventions. The group developed a summary of current challenges currently facing emergency nurses in Africa, and a framework for emergency nursing practice in the region. Their complete consensus statement is available in the African Journal of Emergency Medicine, and summary tables are reproduced below Tables 1 and 2.

Sustainability strategies

Unlike basic primary care that can be delivered by single or small groups of practitioners working in relative isolation,
acute care cannot develop in Africa without strategies and secure funding for system development, specialty training and infrastructure. These will require targeted government policy and financial strategy development by advocates and experts. We consider the feedback from this workgroup to be a point of departure for this future work.

Funding Sources include national governments (health, defense, education ministries etc.); regional and international government programs (DFID, CDC, USAID etc.); global philanthropies; local and international businesses and private financial institutions; academic institutions and multinational health and development organizations (WHO, UN, World Bank etc.). Advocates should develop a tailored strategy that is aligned with the funder’s priorities and vision. For example, a donor organization whose ethos is that “health care is a human right” should be approached from the perspective that “acute care is a human right”.

- Private sector for-profit organizations can be important sources of support. Care must be taken to understand an organization’s agenda and priorities so that funding requests may be aligned with them. Do they, for example, have employees who stand to be harmed if acute care is not available? These same issues are relevant to financial institutions that might consider investment in acute care: their return on capital and, hence, their willingness to support acute care services will be determined by market forces.

- Private not for profit organizations like foundations (Gates, Clinton, Mohd Yousef, Soros, etc.) can also be important sources of funding. Such organizations also often have well-defined agendas, priorities and perspectives that can be leveraged.

- Academic organizations are rarely funders. They can, however, be important allies and partners where interests are aligned and comparative advantages are complementary.

- Public funding, be it local, regional, bilateral or multinational, is accessible (to varying degrees) to political process. Establishing relationships with key ministry officials, politicians, and other influential entities will therefore be very important in advancing the acute care agenda. It will be essential to educate and advocate for public support. Additionally, it is key that the case for acute care is aligned with public priorities.

- Clearly identifying the role of emergency care within a “health systems strengthening” agenda will be essential.

Strategy will vary depending upon the targeted potential funder but there are several universal issues of importance:

- Advocacy is always helped by a mobilized and informed public opinion.

- Technical and policy champions embedded within key organizations can be especially helpful as can the formation of strategic alliances with individuals or organizations already operating within the space: for example, national and international emergency care societies, non-emergency medical societies and even non-medical humanitarian organizations.

- A set of talking points containing “killer stats” (i.e. very compelling statistics that demonstrate the importance of acute care) should be developed and widely disseminated for advocacy purposes.

- It is especially important to have or create “proof of concept” examples. These should ideally be instances where the impact of acute care on desired outcomes can be clearly demonstrated.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Challenges and issues facing emergency nursing in Africa.14</th>
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<tbody>
<tr>
<td><strong>Practice</strong></td>
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<tr>
<td>• Emergency nurses work in a variety of settings: public/private, clinic/hospital/transport/pre hospital.</td>
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<tr>
<td>• Emergency care settings are understaffed.</td>
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<td>• Nursing shortages across Africa.</td>
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<tr>
<td>• Shortage of doctors often leads to task shifting to nurses with limited guidelines or standards.</td>
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<tr>
<td>• Scope of practice for emergency nurses is undefined in most settings.</td>
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<tr>
<td>• Expectations of nurses to operate outside their scope cause frustration.</td>
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<tr>
<td>• Emergency nursing has greater occupational health hazards.</td>
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<td>• Triage protocols are lacking or not followed.</td>
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<tr>
<td>• Ineffective processes.</td>
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<td>• Lack of handover information from referral hospitals.</td>
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<tr>
<td>• Ineffective pre-hospital care.</td>
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<tr>
<td><strong>Education/training</strong></td>
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<tr>
<td>• Limited basic emergency knowledge and skill is included in undergraduate nurse training programs.</td>
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<td>• Not all nursing programs include rotations through emergency centers.</td>
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<tr>
<td>• Development of critical-thinking is not sufficiently addressed in training, which is vital to emergency nursing.</td>
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<tr>
<td>• Limited number of emergency nurse trainers.</td>
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<tr>
<td>• Many diverse and limited projects/trainings offered by public and private entities without guidance.</td>
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<tr>
<td>• Countries have standards for health professional training but not for specialized nurse training programs.</td>
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<tr>
<td><strong>Professionalism</strong></td>
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<tr>
<td>• Diverse range of experience and educational backgrounds represented by emergency nurses across Africa.</td>
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<tr>
<td>• Inconsistency in terminology across African countries for levels of nursing.</td>
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<tr>
<td>• Disrespect and non-recognition for nurses by other multi-disciplinary team members.</td>
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<tr>
<td>• Emergency nurse specialty training is not reflected in compensation.</td>
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<tr>
<td>• Nurse salaries are not always paid or paid on time.</td>
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<tr>
<td>• There are no standards for safe staffing in emergency care settings.</td>
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<tr>
<td>• The only professional organization representing emergency nurses is in South Africa.</td>
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<tr>
<td>Level of emergency nurse expertise</td>
<td>Description of the level</td>
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<tr>
<td>-----------------------------------</td>
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<tr>
<td>Novice</td>
<td>Task-oriented, task focused, protocol driven</td>
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<tr>
<td>Advanced-beginner</td>
<td>Some clinical experience, beginning to make predictions protocol driven</td>
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<tr>
<td>Competent</td>
<td>Make connections between history, chief complaint follow algorithms</td>
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<tr>
<td>Proficient</td>
<td>Holistic understanding, seek out critical cues, focused assessments</td>
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<tr>
<td>Expert</td>
<td>Intuitive application autonomy</td>
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Working with leading professional and political organizations to help them adopt emergency medicine policies is the key. The World Health Organization is exceptionally important in this regard because health ministries around the world look to them for guidance and policy support.

**Way forward**

This conference was the first in a series planned and hosted by AFEM. The second is planned for November 2013, with a focus on the components of AFEM’s advocacy and scientific agenda:

- Evaluate the current status of emergency care delivery in the region.
- Incorporate syndromic surveillance based on acuity into national surveillance systems.
- Define essential components of effective emergency care initiatives (based on successful examples in the region).
- Develop standardized process indicators, programmatic impact, and cost-effectiveness for emergency care interventions within Sub-Saharan Africa.
- Produce integrated clinical guidelines to help ensure the provision of quality care, regardless of the availability of resources.
- Produce training resources for all cadres of emergency care personnel.
- Identify emergency care research priorities.
- Establish communication between researchers, policy makers, clinical providers, and other stakeholders to maintain efficient transfer of knowledge on acute care programing and research.
- Produce scholarly works to inform future emergency care program development and research in the region.
- Educate the public and funders regarding the importance of an integrated approach to the care of acutely ill patients and increase awareness of the burden of acute disease.
- Develop multi-sector funding strategy across ministries, international organizations, foundations, non-governmental organizations, and public/private partnerships, and other stakeholders.

**Conclusions**

Effective acute care substantially reduces the morbidity and mortality associated with a wide range of medical and surgical conditions. AFEM, through a series of consensus conferences and on-going collaborations, aims to drive the acute care agenda in the sub-Saharan region. The first meeting of this series established a set of relevant general principles for discussion, as well as a series of guidelines in specific areas. We hope that these will serve to inform future discussion and the development of future programs, as well as assist those working to advance acute care in Africa.

**References**