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# Creation of a standardized burn course for Low Income Countries: Meeting local needs

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ARTICLE INFO

*Article history:*
Accepted 10 January 2014

*Keywords:*
Burn
Low income country
Standardized training
Essential Burn Management
Multidisciplinary
Education

ABSTRACT

*Introduction:* Standardized courses for the care of the burn patient have historically been developed in High Income Countries (HIC). These courses do not necessarily reflect the challenges and needs of Low Income Countries (LIC) and some components may not be relevant there (i.e. use of ventilators in a country that has no or very limited number of ventilators). We are developing a Burn Management Course for East Africa. This course was created and trialed in a LIC and subsequently a formal manual and course curriculum created. Recently the first iteration of the course was undertaken in a major regional burn centre in East Africa. We present participant feedback on the course content, and potential future directions for course development.

*Objective:* (1) To evaluate the ability of a standardized burn course for LIC to meet the needs of the participants. (2) To explore characteristics of burn care and needs related to delivery of burn care in LIC.

*Methods:* 21 students participated in a multidisciplinary burn management course. They were asked to complete an anonymous questionnaire at the end of the course.

*Results:* There were 11 nurses, 6 doctors, a physiotherapist, occupational therapist, and a dietician. 15 worked in either the adult or pediatric burn units, the other six worked in emergency, ICU or the operating room. The majority of respondents (56%) had less than 3 years of experience working with burn patients. Overall agreement that the course met their objectives was rated as 4.6 out of 5. As well the students agreement that they had a better understanding of burn injury was rated as 4.8/5.

55.6% indicated that scalds were the most commonly seen injury followed by 27.8% responding that flames were the most common.

Some responses to the question of top difficulties facing the caregivers were similar to HIC: staffing shortages, bed shortages, and finding useable donor site in large burns. Other responses highlighted the challenges these care givers face: poverty stricken patients, not enough appropriate food available, and deficiencies in infection control practices.

*Conclusion:* It is possible to create a course that translates knowledge from a HIC setting to meet the needs of the end-user in a LIC setting.



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http://dx.doi.org/10.1016/j.burns.2014.01.007
0305-4179/

## 1. Background

Burn is a serious public health concern around the world. The WHO estimates that there are over 300,000 deaths every year from fires alone, not including other causes of burns [1]. Among pediatric populations, burns are the leading cause of injury death in children under 5 [2]. Although burns in high-income countries are decreasing in number, in low-income countries (LIC) numbers are still high. Ninety-five percent of fire-related deaths occur in low to middle-income countries, highlighting the magnitude of burns in low-income countries [1,3]. While countless individuals die as a result of their burn, millions survive and live with severe disabilities and disfigurement [4–6]. Burn survivors in LIC may find themselves in a health care system that may not be able to fully manage this complex problem [6,7]. The impact of burn injury is severe and not only felt by the individual who is coping with the consequences of these injuries, but also the persons involved with the care and reintegration of these individuals into society [6,8]. As such, burn injury is an important and complex public health problem. Due to this overrepresentation in LIC, targeting efforts at burn prevention and care in this population would significantly impact the global burden of illness from burn injury [6].

One way to target efforts at burn prevention and care in LIC is through structured education. A uniform course designed to inform burn care and treatment could be promulgated to centers worldwide ensuring consistent content independent of the instructor, as is done with other courses such as Advanced Trauma Life Support (ATLS) [9]. While Advanced Burn Life Support (ABLS) [10] exists, this standardized course has been developed in and for High Income Countries (HIC), and does not necessarily mirror the challenges and needs of LIC with components not reflecting the needs of these populations [11]. Recognizing these limitations, the International Network for Training Education and Research in Burns (Interburns) created a report (2012) highlighting the importance of setting standards and creating a framework for teaching burn care in LICs [12]. Acknowledging the importance of standardized guidelines, the importance of needs based assessments and evaluation, this following paper aims to address these gaps in the literature [13]. The goal of this paper is to briefly highlight the development and ongoing evaluation of Essential Burn Management (EBM) [14], a burn training program created for East Africa in 2005 in conjunction with the Canadian Network for International Surgery. Program evaluation used an appreciative inquiry approach to seek out information on both the strengths and limitations of EBM. This approach builds on the strengths of EBM in order to guide future direction and utilized a combination of inductive, deductive and user-focused methods. Specifically, course participants were asked to provide their feedback regarding course content; course facilitators; their needs; potential for improvement; and potential future directions for course development. Participants also rated their knowledge in a variety of areas both prior to and following the workshop, and provided basic demographic data and information regarding their experience with burn care. This evaluation is unique in that both pediatric and adult burn units participated in the training program and evaluation.

## 2. Objectives

1. To evaluate the ability of a standardized burn course for LIC to meet the needs of the participants.
2. To explore characteristics of burn care and needs related to delivery of burn care in LIC.

### 2.1. *Essential burn management in East Africa: study location and course development*

Africa represents a significant proportion of global burn injury, having the second highest rate of fatal burns worldwide, and is responsible for 15% of global fire-related deaths [11]. In order to address the need for standardized burn care in East Africa, starting in 2005 the Canadian Network for International Surgery designed and piloted EBM. Over the next 5 years, EBM was created and piloted in Jimma, Ethiopia and eventually a full course was implemented in Dar Es Salaam, Tanzania. Original course content was based on standard burn teaching for students and residents at the University of Alberta, Canada, and modified through discussion with course participants and burn surgeons in Jimma and Dar Es Salaam. The course was built on continuous feedback from both faculty and students at all the centers where it was given. Course content was initially informed by post course questionnaires and using a modified Delphi technique. The first iteration of the complete course including a course manual, and standardized course slides was held at the regional burn unit at Muhimbili Hospital in Dar Es Salaam in March 2012. Three international and one local instructor taught the course. Dar Es Salaam is a sub-Saharan urban centre in Tanzania. Dar Es Salaam is Tanzania's largest urban economic centre, having a population of 2.5 million people, and representing almost 30% of the total urban population in Tanzania [8].

### 2.2. *Brief course description and evaluation methodology*

EBM is a three day course comprised of 4 components: (1) seminar instruction with slides; (2) group seminars for case discussion; (3) skill stations using models and simulation; and (4) intraeroperative modules on the final day to discuss blood conservation, surgical excision, and grafting techniques. The overall course objective of EBM is ''to provide the knowledge base, technical skills and rationale to create effective and competent burn teams in low-resource centres'' (more EBM course details available from CNIS upon request). As part of the curriculum there is a requirement for a faculty meeting the day prior to the course to discuss the local environment and needs, building cases scenarios for discussion around local experience. The complete evaluation of EBM employs three tools including; (1) the learner course evaluation questionnaire (see AppendixA); (2) the learner pre/post-course test; and (3) the facilitator and faculty post-course evaluation meeting. This paper will present findings from the learner course evaluation questionnaire.