

Mersey Burns App



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Introduction

Major burns are devastating injuries, a significant cause of mortality and associated with lifelong morbidity. The appropriate assessment of burn size in a burn injured patient is essential and directly affects the outcome in terms of both mortality and morbidity but is a difficult task for inexperienced clinicians. The commonly used Lund and Browder Chart (LB) offers an accurate tool but requires a series of 19 calculations to be carried out before fluid resuscitation can commence.

Motivation

Given the complexity of assessment and resuscitation for the relatively inexperienced clinician a tool was needed that would:

- be readily available to staff who may be faced with a major burn injury
- guide staff to assess the extent of a burn accurately
- correctly prescribe the appropriate fluids needed, both resuscitation and background.

Furthermore, information was required in a format that could be easily shared with a local burns unit to confirm management of the patient before transfer, and allow preparations at the burns unit to receive that patient and provide seamless, high quality care.

Development

'Mersey Burns' (MB) is an application (app) for use on smartphones and tablets designed to improve assessment and fluid resuscitation following burn injury. The app allows clinicians to shade the burn pattern onto the screen in real time, and then generate detailed fluid protocols as well

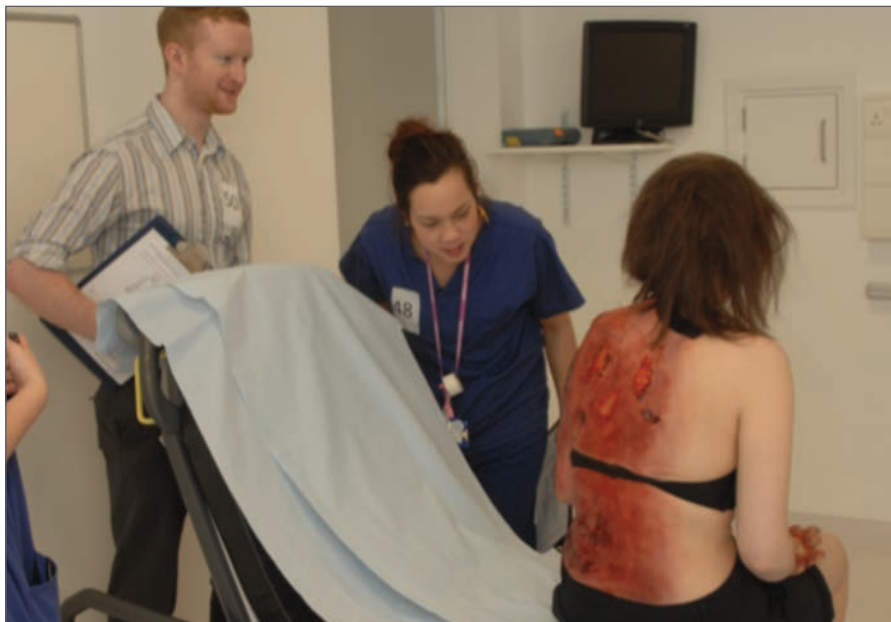


Figure 1 - simulated burn for assessment

as an email that can be sent to a receiving burns unit. Users were allowed to shade in the burnt regions of the patient's body by touch rather than needing to click or type.

Creating the app itself was a relatively straightforward task for lead clinician Rowan Pritchard Jones, a plastic surgery registrar at the time, computer science PhD Student Chris Seaton and plastic surgeon Paul McArthur, with clear clinical steer on the touch interaction between user and tablet or smartphone.

Results

Early, accurate assessment of major burn injuries saves lives. The challenge is to support doctors in emergency departments, who encounter serious injuries infrequently, allowing them to rapidly assess, treat and transfer patients. The solution harnesses agile technology using tablets and smartphones to manage these patients and share the details with a receiving burns unit by email. Mersey Burns is the first UK healthcare app carrying a CE Mark from the Medicines and Healthcare products Regulatory Agency (MHRA).

The app allowed fluid calculations to be performed more quickly and accurately than Lund and Browder charts when used by medical students inexperienced in burns care (see Figure 1). This suggests the app can be usefully applied in the care of burns patients by inexperienced staff, providing both confidence and timely delivery of care. It also highlights a novel use of technology to train the next generation of burns care clinicians.

Extensive results taken from trials of this app can be found via this link: <http://emj.bmj.com/content/early/2014/11/04/emered-2013-203416.short>

Next steps

The team behind the Mersey Burns app is seeking to improve and update this application for use in more hospital across the UK. The team believes that better use of data and technology has the power to improve health, transforming the quality and reducing the cost of health and care service.