


An educational board game for learning and teaching burn care: A preliminary evaluation

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Abstract



Timely and effective assessment, resuscitation and transfer of patients with severe burns has been demonstrated to improve outcome. A dedicated one-day course exists to equip all frontline emergency healthcare workers with the necessary knowledge and skills to manage severe burn injuries. More recently, a board game has been developed which aims to act as a learning and practice development tool for those managing burn injuries. We present the findings of our preliminary evaluation of this game. We played this game with a multidisciplinary group of staff including doctors, nurses and therapists. A proportion of these participants had previously completed the Emergency Management of Severe Burns (EMSB) course. We obtained subjective results from a questionnaire, using both Likert-type ratings and open-ended questions. The styling of the game and ease of instructions was rated from ‘average’ to ‘excellent’. The relevance of questions was rated from ‘good’ to ‘excellent’. The usefulness of the game to increase knowledge and stimulate discussion was rated between ‘good’ and ‘excellent’. All participants stated that they would recommend the game to other healthcare professionals. This is the only burns and plastic surgery-related educational game in the literature. Educational games adhere to principles of adult learning but there is insufficient evidence in the literature to either confirm or refute their utility. Our preliminary evaluation of this game has shown that it achieves its main aims, namely to increase knowledge in burn care and to stimulate discussion. Further work is required to assess the board game.

Keywords

Burns, education, Emergency Management of Severe Burns (EMSB), multidisciplinary-team learning, board game, learning tool

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Lay summary

Staff who work in emergency areas should know how to assess, treat and transfer patients with severe burns. This improves the outcome for these patients. Board games have been used in other areas of teaching in medicine.

This article shows the way we used a board game to teach doctors, nurses and therapists about how to assess and treat burns. This board game has been made to increase knowledge and to help players talk about and share how they have managed these injuries in the past.

We asked staff to play the game and tell us what they thought about the design and the instructions. We also asked whether it helped them increase their knowledge and if it helped to start a discussion about treating burns. We asked if they thought other staff should use the game.

We found that the staff who played the game rated the style and instructions from 'average' to 'excellent'. They rated the questions and if it helped to start a discussion as 'good' to 'excellent'. All staff would recommend the game as a way of teaching about burns.

This is the only game which exists to help staff learn about treating burns. We feel it should be used with all staff who see and manage patients with burns. More work needs to be done to look at this game in more detail.

Introduction

Timely and effective assessment, initial management and appropriate transfer of a patient with a severe burn has been demonstrated to improve outcomes. The Emergency Management of Severe Burns (EMSB) course was developed to equip all emergency healthcare workers with a systematic and multidisciplinary approach to the resuscitation of patients with severe burns.^{1,2} The EMSB course is a one-day course with a combination of theory and practical workshops to teach healthcare professionals about the care of burn injuries. More recently, an educational board game has been developed with a similar content structure to the EMSB course, which aims to increase knowledge in burn care.³

An educational game uses an instructional method to help learners to gain knowledge by engaging them in a competitive activity with pre-set rules.⁴ The use of educational games is supported by the four principles of Knowles' theory of adult learning,⁵ namely:

1. Adults are autonomous and self-directed; games give the learner active control of learning which can promote the learner's independence.
2. Adults' past experiences become a resource for learning; games facilitate this process as feedback is given to learners by peers based on their past experiences
3. Adults are goal-oriented; organised games with clearly defined elements help adults attain their learning goals.

4. Adult learning is problem-centred rather than content-oriented; games allow students to apply their knowledge in a situation that resembles real-life problems.

Educational board games have been used in some areas of medical and allied health professionals' training⁶ and have been shown to enhance learners' knowledge, enjoyment and interest in the subject.⁷

This paper provides an overview of The Burns Game and our experience of using this educational tool among different staff groups at the Mersey Regional Burns Service. The main aim of this study was to evaluate whether the Burns Game could be used as an educational tool to improve knowledge in burn in frontline multidisciplinary staff. Second, we wanted to present our experiences of playing The Burns Game.

Methods

The Burns Game is an educational board game developed in partnership with the British Burns Association (BBA) and Birmingham City University, as a 'learning and practice development tool' for frontline healthcare staff to consolidate their existing knowledge, to help them to acquire new knowledge and to share their experiences.³

The game is packaged within a sturdy box, similar to a traditional board game. Within the box, there is a fold-out playing board, a box containing 88 question cards, two playing pieces,

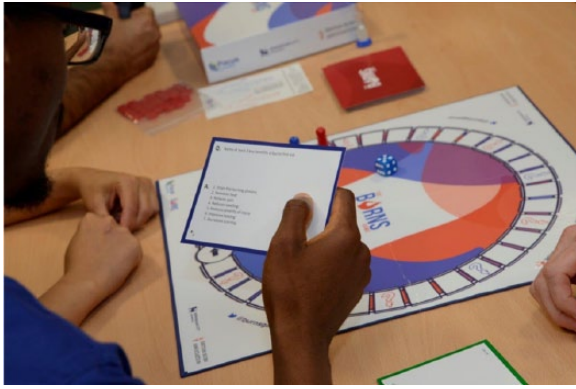


Figure 1. Photograph of the board game and question card.

points tokens, a dice, a sand timer and a clear instruction sheet which describes the set-up and gameplay (Figure 1).

The questions are printed on gloss card and are divided into seven categories listed below:

1. Introduction
2. First Aid
3. Airway and breathing
4. Disability, fluids and exposure
5. Wound assessment
6. Referral and transfer
7. Specialist burn injuries

Some of these cards are 'starred' and these form a group of questions from all seven categories which the developers feel explore the fundamental aspects of burn care. These starred questions, in other words, give a thorough overview of burn care.

Two teams of players take turns to roll the dice and move their piece around the board. They either land on a blank square or a square with a question mark and are asked a question by the opposing team. If they answer correctly having landed on a square with a question mark, they are awarded a point. If they answer correctly but on a blank square, the team does not receive a point. There is no negative scoring for incorrect answers (Figures 2 and 3).

The Burns Game was test-played with a group of plastic surgery junior doctors, nursing and therapy staff. Player demographics and level of burn care experience was recorded. To determine whether this educational game improved player knowledge and their experience of the game play, we evaluated the game using subjective measures facilitated by use of a self-completed and anonymised questionnaire. The questionnaire asked participants to rate the styling of the game, the ease of instructions, the



Figures 2 and 3. Photographs of gameplay.

relevance of the questions, how well the game had helped to gain knowledge and how the game had stimulated discussion. These were measured in the form of Likert scales from 'very poor' through to 'excellent'. Open-ended questions were also asked with regards to potential improvements to the game and also to ascertain whether or not participants would recommend it to others.

Results

Participants evaluated included eight junior doctors, five nursing staff and one therapy staff. Among all participants, five had completed the EMSB course. Burn experience ranged from one month to 22 years.

Improving knowledge in burn care

With regards to rating the game at improving knowledge, 13 out of 14 stated 'excellent' (93%) and one participant rated 'good'.

Experience of playing The Burns Game

Participants rated the overall styling of the game as 'average' (3/14), 'good' (5/14) or 'excellent'

(6/14). With regards to the ease of the instructions enclosed in the game, these were rated at 'average' (1/14), 'good' (6/14) and 'excellent' (7/14). When asked to rate the relevance of the questions, 12 out of 14 participants said they were 'excellent', with two giving a rating of 'good'. Eleven out of 14 rated the game as 'excellent' at stimulating discussion while the remainder gave a rating of 'good' (3/14). All participants stated that they would recommend this game to other healthcare professionals who manage burn injuries in the acute setting.

We also gave space for 'other comments' on the questionnaire. Below is a selection of these comments:

- 'Would be good to have a spinning wheel/ arrow in middle of the board with various levels of question difficulty'
- 'Generated group discussion around burns assessment, intervention and treatment'
- 'A novel and interesting method to learn about burns management'

Discussion

The Burns Game is the only board game in the literature in the field of burn education. Other games have been described in the literature on topics such as paediatric medicine,⁸ neonatology⁹ and pharmacology,^{10,11} however they are targeted at teaching specific groups of healthcare professionals rather than improving education in a multidisciplinary setting. A Cochrane Review in 2013 was unable to confirm or refute the utility of games as a teaching strategy but did go on to identify a need for more research in this field.¹²

We found that the design of the game was professional and certainly looked and felt like a typical board game. We did feel, however, that the colours and board which the teams move around were a little plain and simplistic. This was reflected in the ratings given by game participants.

The game costs £60 (excluding VAT). We asked participants how much they would pay for the game and the average price given was £20. This may represent some naivety as to the perceived cost of educational board games but the cost may discourage the uptake of this tool.

As previously described, players only receive a point when they land on specific squares and answer a question correctly. If a question is answered correctly on a blank square, no point is awarded to that team. We felt that a lack of incentive for a correct answer on these non-scoring squares was a negative aspect of the game.

The content of the questions is similar to those in the multiple-choice and group discussion elements of the EMSB course. Some question cards have a range of options from which teams select the most appropriate answers, others ask for a specific number of answers from a range of correct choices. Some of these cards have a small paragraph of information at the bottom that will further explain the answer or lead to a point of discussion. The results illustrate that participants felt that the game was 'excellent' at improving knowledge and stimulating discussion.

This is a small study designed merely to give a preliminary evaluation of a new board game and its utility as an educational tool in the field of burn care. The study was not randomised and only conducted within a burn and plastic surgery audience. Only subjective measurements were used to evaluate the board game and the small number of players makes statistical analysis not feasible. Future studies with objective measurements in a broader and larger cohort, including pre- and post-testing questionnaires to evaluate knowledge acquisition would be beneficial.

Conclusion

The Burns Game represents an interactive method of teaching the initial management of burns care, paying particular attention to the principles of the EMSB course.

We found that the game flowed well and needed little in the way of facilitation once it was set up and started. The feedback was generally positive and all participants felt it helped in the acquisition of knowledge and was a useful tool in stimulating discussion.

All participants in the game stated that they would be happy to recommend it to colleagues. The game is an educational tool that offers a relaxed learning environment for participants. We feel it would be beneficial to integrate this learning tool as part of the educational programme for any healthcare professional treating burn injuries. Future work needs to be done to assess whether there is evidence of knowledge acquisition after this game is played and to determine how best this tool should be utilised in an education programme.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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