



# Managing medical emergencies in mental health settings using an interprofessional in-situ simulation training programme: A mixed methods evaluation study



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## ABSTRACT

**Background:** In the UK, people with severe mental illness die up to 20 years earlier than the general population, prompting increased focus on physical health in mental illness. However, training for mental health inpatient staff to meet patients' physical health needs has not received the same attention, with physical health training often being reactive and lacking evidence of effectiveness.

**Objectives:** To evaluate an interprofessional, in situ, simulation training intervention for managing medical deterioration in mental health settings. Investigating the impact of training on: 1. Participants' knowledge, confidence, and attitudes towards managing medical deterioration; and 2. Incident reporting, as an objective index of incident management. Participants' perceptions of the impact on their practice were qualitatively explored.

**Design:** This evaluation employed a mixed-methods pre-post intervention design.

**Participants & Settings:** Fifty-three healthcare professionals participated including: mental health nurses, psychiatrists, healthcare assistants, and activity co-ordinators from two busy psychiatric triage wards in South London, UK.

**Methods:** The intervention comprised eight half-day sessions delivered weekly across two wards. Structured surveys assessed participants' knowledge, confidence, and attitudes towards medical deterioration pre and post training. Participants' experience of training was qualitatively captured through post-course surveys and focus groups three months post training. Incident reporting rates for seven-month periods pre and post training were compared.

**Results:** Following training, participants showed significant improvement in knowledge ( $p < 0.001$ ), confidence ( $p < 0.001$ ), and attitudes towards ( $p < 0.02$ ) managing medical deterioration. Incident reporting increased by 33% following training. Participants' reported improved confidence in managing medical deterioration, better understanding of effective communication, improved self-reflection and team working, and an increased sense of responsibility for patients' physical health.

**Conclusions:** Interprofessional, in situ simulation training for medical deterioration yielded promising outcomes for individuals and teams. Simulation is an under-used training modality in mental health, offering a holistic training approach with the potential to provide educational and clinical benefits while supporting workforce resilience.

## 1. Introduction

People with severe psychiatric diagnoses are prone to physical comorbidities, including cardiovascular disease, respiratory disease and diabetes (Robson and Gray, 2007), which contribute significantly to their increased mortality, with patients in the UK dying up to 20 years younger than their peers (Doherty and Gaughan, 2014). This

momentous health inequality has prompted adaptations to UK healthcare strategy and service provision, particularly in community settings (Mental Health Taskforce, 2016). However, people with severe psychiatric diagnoses may still require inpatient mental health services, which are frequently located off general hospital sites (Mental Health Foundation, 2013). Thus, it is imperative that mental health inpatient staff have the skills to effectively manage both acute medical

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emergencies and patients' long term physical health needs (Mental Health Foundation, 2013; Mental Health Taskforce, 2016).

Deaths from natural causes in mental health settings are over twice as high as that of prison populations (Coles et al., 2015). Inquests of such circumstances cite some common features including: inadequate emergency response training; a lack of, and/or poor use of, lifesaving equipment; and poor team cohesion and communication (Coles et al., 2015).

Mental health nurses working in inpatient settings echo these findings, reporting that they feel unprepared and unskilled in managing physical illness (Nash, 2005, 2009; Walsh, 2015). Despite welcoming further training (Robson et al., 2013), staff report feeling unsupported at a managerial level to do this (Blythe and White, 2012). The need for training is not limited to nursing staff; improved, mandatory acute medicine training for psychiatrists has also been recommended to improve their knowledge, overcoming the communication barrier between acute and mental health teams (Latoo et al., 2013).

As inquest findings highlight, the management of a medical emergency requires not only the clinical knowledge and lifesaving skills, but the human factor qualities that underpin this work such as effective communication with colleagues to work as a coordinated, interprofessional team (Coles et al., 2015). This is the case across diverse healthcare fields as incident reporting suggests that poor communication and teamwork are central to medical errors (Leonard et al., 2004), particularly when adding the complexity of inter-disciplinary working (Alvarez and Coiera, 2006), which is critical to addressing the interaction between patients' mental and physical health (Mental Health Foundation, 2013; Mental Health Taskforce, 2016).

### 1.1. Simulation Training

Educational research has demonstrated the value of simulation training for improving technical clinical skills such as use of equipment and procedure, alongside improving the human factors based aspects of healthcare such as communication and teamwork (Billon et al., 2016; Cook et al., 2011; Miller et al., 2012; Thomson et al., 2013). Delivering simulation training in situ has the additional benefits of training whole multi-disciplinary teams together (Weaver et al., 2014), while identifying, and addressing, latent threats to patient safety in the environment, such as inadequate equipment or procedures, gaps in knowledge or skills, or poor communication (Jordan et al., 2014). Although the value of simulation training is widely recognised and its direct benefit to patients has been demonstrated (Zendejas et al., 2013), it remains underused in mental health training (Attoe et al., 2016; Jordan et al., 2014).

In response to a series of physical health incidents locally and nationally, clinical educators in South London have developed an intensive, in situ simulation-based training course designed to support inpatient mental health teams to manage medical deterioration. As a simulation training, this intervention will aim to improve participants' clinical skills alongside their human factors skills such as teamwork and communication. Furthermore, the delivery of the training in-situ facilitates identification of latent environmental threats.

The training employs simulated emergency medical scenarios, with high fidelity mannequins, and structured reflective debriefing in order to improve clinical skills and human factors. Training interventions of this kind are usually developed in response to a real incident. As such, priority is given to training delivery rather than evaluation. This has led to a lack of evidence regarding the impact of educational interventions targeting physical health care for people with mental illness (Hardy et al., 2011). This study will contribute to this evidence, providing an evaluation of this training intervention delivered to all staff on two psychiatric triage wards in South London.

The aim of this study is to explore the impact of the training on: (1) staff knowledge, confidence, and attitudes towards managing a medically deteriorating patient; and (2) incident reporting in the triage

units, as an objective index of appropriate incident management. Participants' perceptions of the training, their own learning and its impact on their practice will be qualitatively explored.

## 2. Methods

### 2.1. Study Design

This study was a mixed-methods evaluation of an intensive, in situ simulation training course for interprofessional management of medical deterioration in mental health settings.

### 2.2. Participants

Training was delivered to all staff working on two 16-bed psychiatric triage units in South London. Training was attended by 53 participants across the two triage units including; mental health nurses (n = 36), psychiatrists (n = 6), healthcare assistants (n = 9), and activity coordinators (n = 2). Each session was attended by an average of seven participants (range = 4–10). All participants had completed Basic or Immediate Life Support training.

### 2.3. Course Content

Prior to commencing training, a full risk assessment of the training area was carried out to ensure the safety of patients, staff, and participants. All ward staff were aware that training was taking place and the nurse in charge was informed at the start and end of each session. Ward equipment was used but could be accessed at any time as needed, with additional equipment supplied by the training team.

Training was delivered across eight weekly half-day sessions, two on one triage ward and six on another. The training session began with an introduction to the principles of simulation, before participants were oriented to the high fidelity mannequin and its features (i.e. speech, pulse). Three high fidelity simulated scenarios then followed on topics identified collaboratively as priority training needs including: respiratory arrest, diabetic hypoglycaemia, hanging, and choking. Simulated scenarios involved 2 to 5 participants, while those not participating watched the scenario via live video-stream in an adjacent room. Each scenario was followed by a structured and reflective debrief involving all participants, using the Diamond model to address human factors, and incorporating brief didactic teaching on relevant topics (Jaye et al., 2015).

The course aimed to increase confidence in working as part of a multi-disciplinary team; develop knowledge and skills in managing medical emergencies, including incident reporting; increase awareness of human factors such as communication, teamwork, and situational awareness; and improve interprofessional collaborative working.

### 2.4. Data Collection Procedure

Prior to each training session, participants provided informed consent to take part in the study and were informed of their right to withdraw and the researchers' contact details. Participants anonymously completed a course questionnaire battery before and after training. Ethical approval was awarded by the Psychiatry, Nursing, and Midwifery Research Ethics Subcommittee on behalf of the UK Health Department's National Research Ethics Committee.

Three months after completion of the training participants (n = 8) were invited to a 1-hour focus group to provide feedback on their experience of training, the impact on individual learning, team development, and clinical practice. The focus group discussion was audio-recorded, with participants' informed consent.

The triage wards involved utilise an online incident reporting system (Datix) to record incidents including medical deterioration. In order to explore the effect of training on incident reporting, the online

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