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Research paper

Designing a nurse-delivered delirium bundle: What intensive care unit staff, survivors, and their families think?

Leona Bannon, RGN, BSc [a, *]
Jennifer McGaughey, RGN, RMN, RNT, BSc, MSc, PhD [b]
Mike Clarke, D Phil, BA Chemistry [a]
Daniel F. McAuley, MD, MB, BCh, BAO, MRCP, FRCP, FICM [a, c]
Bronagh Blackwood, RGN, PhD, MSc, BSc [a]

[a] School of Medicine, Dentistry & Biomedical Sciences, Queen's University Belfast, Northern Ireland, UK
[b] School of Nursing & Midwifery, Queen's University Belfast, Northern Ireland, UK
[c] Regional Intensive Care Unit, Royal Victoria Hospital, Belfast Health and Social Care Trust, Belfast, Northern Ireland, UK

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ABSTRACT

Background: Implementation of quality improvement interventions can be enhanced by exploring the perspectives of those who will deliver and receive them. We designed a non-pharmacological bundle for delirium management for a feasibility trial, and we sought to obtain the views of intensive care unit (ICU) staff, survivors, and families on the barriers and facilitators to its implementation.
Objective: The objective of this study is to determine the barriers and facilitators to a multicomponent bundle for delirium management in critically ill patients comprising (1) education and family participation, (2) sedation minimisation and pain, agitation, and delirium protocol, (3) early mobilisation, and (4) environmental interventions for sleep, orientation, communication, and cognitive stimulation.
Methods: Nine focus group interviews were conducted with ICU staff (n = 68) in 12 UK ICUs. Three focus group interviews were conducted with ICU survivors (n = 12) and their family members (n = 2). Interviews were digitally recorded, transcribed, and thematically analysed using the Braun and Clarke framework.
Results: Overall, staff, survivors, and their families agreed the bundle was acceptable. Facilitating factors for delivering the bundle were staff and relatives' education about potential benefits and encouraging family presence. Facilitating factors for sedation minimisation were evening ward rounds, using non-verbal pain scores, and targeting sedation scores. Barriers identified by staff were inadequate resources, poor education, relatives' anxiety, safety concerns, and ICU culture. Concerns were raised about patient confidentiality when displaying orientation materials and managing resources for early mobility. Survivors cited that flexible visiting and re-establishing normality were important factors; and staff workload, lack of awareness, and poor communication were factors that needed to be considered before implementation.
Conclusion: Generally, the bundle was deemed acceptable and deliverable. However, like any complex intervention, component adaptations will be required depending on resources available to the ICU; in particular, involvement of pharmacists in the ward round and physiotherapists in mobilising intubated patients.

1. Introduction

Critically ill patients have an increased risk of developing delirium during their intensive care stay. Delirium is a common and devastating syndrome characterised by inattention and associated with increased mortality and morbidity.[1–3] Pharmacological

* Corresponding author at: Wellcome Wolfson Institute for Experimental Medicine, Queen's University Belfast, Northern Ireland, UK.
E-mail address: lbannon01@qub.ac.uk (L. Bannon).

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therapies remain the popular choice for delirium management in the United Kingdom (UK) intensive care units (ICUs) despite the publication of recent studies and guidelines that indicate that there is insufficient evidence to support their use.[4–6] A multicomponent non-pharmacological intervention may reduce incidence and severity of delirium by targeting known risk factors such as sensory deprivation, sleep deprivation, and immobilisation in critically ill patients. Non-pharmacological interventions for delirium management have been effective in non-ICU populations but whether they are effective for critically ill patients has not been adequately researched.[7,8]

We conducted a systematic review of studies evaluating non-pharmacological interventions for delirium management in critically ill patients to determine which interventions were most effective for reducing the incidence and/or duration of delirium.[9] Findings indicated a number of effective interventions, some that could be delivered singly or in combination.[10–19] These findings were presented to a panel of international, multidisciplinary delirium experts for agreement at the 2016 Intensive Care Society State of the Art meeting in London. Following discussion with the panel, a delirium bundle based on best evidence was designed to be tested in a feasibility study. The bundle comprised four components: (1) education and family participation; (2) sedation minimisation and pain, agitation, and delirium protocol; (3) early mobilisation; and (4) environmental interventions.

Translating knowledge to practice for healthcare professionals can be more successful if it is informed by an assessment of the barriers and facilitators.[20] Therefore, the aim of this study was to elicit the perspectives of ICU staff, survivors, and families about the barriers and facilitators to delivering and receiving this delirium bundle that would inform design, delivery, and implementation.

2. Methods and materials

2.1. Research approach

The research approach was guided by the Medical Research Council framework for the development of complex interventions[21] and a systematic review of key factors affecting intervention implementation.[22] This approach enabled us to examine deliverability and acceptability of the components in the bundle using focus group interviews. We elicited the perspectives of ICU staff, survivors, and their families using focus group interviews conducted between July and September 2016.

Semistructured questions in the interview guide were framed around the key findings from Durlak and DuPre's systematic review[22] (see appendix 1 for interview schedule). The study was approved by an National Health Service (NHS) research ethics committee (OREC/16/EM/0208). The standards for reporting qualitative research were applied[23].

2.2. Setting

Staff interviews took place in 12 NHS adult general ICUs in England, Scotland, Wales, and Northern Ireland. We used a sampling matrix to ensure inclusion of units from all four devolved nations of the UK and staff with a range of experience from less than 1 year to more than 10 years. ICUs ranged in size from seven beds to 52 beds with a range of specialities including medical, surgical, trauma, and burns. Interviews with ICU survivors and their families were conducted face-to-face at ICUsteps group meetings in England and Northern Ireland and online using Skype technology with each participant in their own home.[24]

2.3. Participant recruitment

ICU staff who were members of the British Association of Critical Care Nurses (BACCN), the professional organisation for critical care nurses in the UK that has representation in the majority of UK ICUs, were recruited. The ethos of the association promotes engagement in research for patient benefit, which is why I chose this method. Approval was granted by BACCN to post a study advertisement on the website and in the newsletter. Interested members discussed potential participation with staff in their ICUs, received approval from the ICU managers, and recruited staff to attend focus group interviews. Interviews took place in a hospital or university meeting room.

Inclusion criterion was staff with more than 6 months experience working in critical care, and purposeful sampling method was encouraged to ensure a range of professions and experience within the focus group (Table 1).

ICU survivors and families were recruited from ICUsteps, a charity that supports survivors of critical illness and their families. Approval was received by ICUsteps to circulate study information via the ICUsteps newsletter and website: potential participants then contacted an investigator (LB) directly. Inclusion criterion was that ICU survivors had to have been cared for in ICU for more than 48 h.

2.4. Data collection

Focus groups interviews were approximately 60–90 min in length and conducted by LB with experience in critical care nursing and research. The interview was preceded by a PowerPoint presentation of the multicomponent delirium bundle to initiate the discussion. Interviews were recorded using a WS-831 Digital Voice Recorder (Olympus Imaging Corp, Tokyo, Japan) and transcribed verbatim by an independent transcriber. Interviews continued until data saturation was obtained which was judged by no new data arising in the interviews.[25]

2.5. Data analysis

The transcripts were reviewed by the interviewer (LB) and compared with the voice recordings and the handwritten notes taken during discussions to reduce the risk of errors and missing information. The corrected transcripts were thematically analysed using the Braun and Clarke thematic analysis framework to identify barriers and facilitators to the multicomponent bundle.[26]

Table 1
Characteristics of staff participants (n = 68).

Variable	Characteristics, n (%)
Sex, n (%)	
Male	13 (19%)
Female	55 (81%)
Years employed in critical care setting, n (%)	
Up to 5 years	16 (23.5%)
5–10 years	19 (28%)
10 years or more	33 (48.5%)
Professions, n (%)	
Nurse	44 (65%)
Doctor	8 (12%)
Physiotherapist	7 (10%)
Pharmacist	3 (4%)
Clinical psychologist	2 (3%)
Critical care scientist	2 (3%)
Nursing assistant	1 (1.5%)
Occupational therapist	1 (1.5%)

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