**Title:**

Educating staff working in long-term care about delirium: the Trojan horse for improving quality of care?

**Short running head:**

A facilitated educational intervention for delirium

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**Abstract**

***Objective:*** To design a multi-component intervention to improve delirium care in long-term care facilities for older people in the UK, and to identify the levers and barriers to its implementation in practice.

***Methods:*** The research incorporated the theoretical phase and phase 1 of the MRC framework. We designed a multi-component intervention based on the evidence for effective interventions for delirium and for changing practice. We refined the intervention with input from care home staff and field visits to homes.

Our intervention incorporated the following features: targeting risk factors for delirium; a 'delirium practitioner' functioning as a facilitator; an education package for care home staff; staff working groups at each home to identify barriers to improving delirium care, and to produce tailored solutions; a local champion identified from the working groups; consultation; liaison with other professionals; audit or feedback.

The delirium practitioner recorded her experiences of delivering the intervention in a contemporaneous log. This was analysed using framework analysis to determine the levers and barriers to implementation.

***Results:*** We introduced a multi-component intervention for delirium in 6 care homes in Leeds. Levers to implementation, included flexibility, tailoring training to staff needs, engendering pride and ownership amongst staff, and minimising extra work. Barriers included time constraints, poor organisation, and communication problems.

***Conclusion:*** We were able to design and deliver an evidence-based multi-component intervention for delirium that was acceptable to staff. The next steps are to establish its feasibility and effectiveness in modifying outcomes for residents of care homes.

**Keywords**

Delirium; Education; Long-term care; Quality of care, Complex interventions

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## Introduction

Long-term care facilities (referred to as residential and nursing homes in the UK) have expanded in recent decades in response to the needs of an increasingly older demographic profile in developed countries[1]. Providing care that respects and supports these needs has proved challenging with recurring concerns about the quality of care provided for older people in long-term care[2]. Moreover, with increasingly frail and physically unwell residents[3], there is a concern that the education and training of staff has not kept pace with the changing demands and role[4], particularly because much of the care is delivered by non-nursing trained staff. In addition, recruitment difficulties have led to efforts to attract trained staff from overseas[5] who, although usually highly trained, may have had little experience of working in long-term care or with older people.

Few studies have investigated the burden of delirium in long-term care facilities. However, it is likely to be considerable given the clustering of known risk factors[6, 7], especially the high prevalence of dementia. Prevalence rates ranging from 6% to 60% have been reported[8-15]. There is a strong argument that optimum delirium care is fundamentally the provision of good quality supportive care[16-19]. Delirium prevention in hospitals has been successfully achieved through care systems that target modifiable risk factors such as dehydration, constipation, pain and sensory impairments, and encouraging mobility[20-24]; areas of care that are equally applicable to long-term care. Similarly, treatment involves early recognition of

common precipitants such as urinary infections and possible culprit medications, again issues important in long-term care. Thus, education and training in delirium prevention and treatment might serve as a useful lever to improve professional knowledge and skills of general relevance to the care of frail older people; and the desire to achieve greater competency with delirium management may act as a driver to improve care overall, with additional benefits of potentially reducing morbidity and hospital admissions. For staff inured to endless messages to improve quality of care, a focus on delirium may be the 'Trojan horse' through which to achieve this.

Successful implementation of any intervention for delirium is likely to be mediated not only by individual members of staff, and availability of evidence-based guidance, but also by the complexity of the intervention and the interplay of resident and organisational factors[25, 26]. The literature suggests that the specific barriers to change in any given setting must be attended to, and strategies 'tailored' to overcome these [27, 28]. Here we describe our experience of developing and implementing such an intervention using the Medical Research Council's (MRC) framework for the design and evaluation of complex interventions[29]; this consists of a phased approach to designing the intervention, testing its feasibility, and developing and optimising evaluation parameters.

Aims

The aim was to design a multi-component intervention to improve delirium care in care homes for older people in the UK, to model its key components and identify the levers and barriers to implementation in practice.

## Methods

The research incorporated the theoretical phase and phase 1 of the MRC framework, namely establishing the theoretical basis for the intervention, and modelling to gain an understanding of its components and possible effects[30, 31]. For clarity the design and delivery of the intervention are described separately, but in practice it was an iterative process; the intervention was refined throughout its delivery, with insights from earlier phases informing the contents of later stages. The study duration was 16 months, with the first 6 months spent in preliminary developmental work and recruitment.

Design of the intervention

We developed a draft intervention based on the research evidence for effective interventions for delirium[20-23, 32-34], and for changing practice[4, 5, 27, 35-38]. We also examined key documents, existing guidelines and training packages[39-41], and various models of relevance to the organisation and delivery of delirium care[42-44]. As the strongest evidence is for delirium prevention through addressing common risk factors[32-34], this was chosen as the focus of the intervention. Figure 1 lists the broad principles of our intervention.

In order to increase relevance and to encourage a sense of 'ownership', a workshop was held for care home staff (including care managers, care assistants, nursing staff, and community matrons) to give feedback at an early stage in the development of the intervention. Researchers also visited two homes, to gain an understanding of the context. It was apparent that support staff, such as healthcare assistants (commonly with high staff turnover), delivered most direct care and had considerable knowledge of individual residents; most were keen for training.

The intervention

Implementing multi-component interventions is challenging, requiring significant changes not only in individual practice but also in organisation of care[45]. Facilitation is one method that has been used in health and social care services to support change and improve quality[38]. We used a form of facilitation (common in liaison psychiatry[46, 47]); this model employs the expertise and experience of an external, specialist practitioner, not to deliver care directly, but to help groups work together, providing the necessary information and training, maintaining motivation and giving feedback and practical help when needed.

We designed the post of a full time (37 ½ hours) specialist practitioner- the 'delirium practitioner'. A delirium educational package was developed, and used by the practitioner to train both qualified and support care staff. In order to capitalise on the expert knowledge of care staff about residents and the care home environment, the practitioner established 'working groups' at each home, made up from staff volunteers who had attended the delirium training. The purpose of these groups was to identify barriers to good delirium care specific to each home and to develop locally acceptable solutions. The practitioner facilitated the groups, but ideas and solutions were generated by group members.

The delirium practitioner also identified and liaised with key professionals working in care homes to embed the intervention in the wider context of residents' care. Consultation and advice on delirium and related mental health issues were also offered.

Setting

We recruited care homes from a list of all homes providing residential or nursing care for older people within a reasonable geographic area for one practitioner to visit

(using public transport). Homes were purposively selected to include a range of residential, nursing and dementia units.

Data collection

The proportion of staff who attended training in each home was recorded. A brief structured questionnaire was used for feedback from staff after each training session. Information about the number of working groups held, and the materials developed was recorded. The delirium practitioner made observations on the delivery of the intervention fortnightly in a reflective log. Records were kept of expenditure on salaries, travel, and production of written materials to estimate the direct costs of the intervention.

Data Analyses

Quantitative data were summarised using appropriate frequency measures. The practitioner log was analysed using framework analysis[48] focusing on issues pertaining to the levers and barriers to delivery of the intervention. The initial categories and themes identified were refined and grouped to form key themes.

## Results

The intervention was introduced into six care homes in Leeds (one residential and five mixed dementia and nursing homes, with a total of 286 residents) over ten months in 2007 by two practitioners, a Clinical Psychologist (who left for maternity leave), and then a Registered General Nurse with experience in nursing older people.

In the first six months, the practitioner delivered the delirium training at care homes whilst staff were on duty during day and night shifts; sessions were flexible in both length and timing. Of the 209 staff working in the homes during the study period, 191

attended at least one delirium training session (including 41 of 49 night staff). Participants rated training positively. Feedback questionnaires indicated that the overwhelming majority of participants thought it was time well spent (97.9%), relevant to their work (99.7%), and that the content was appropriate to their needs (88.9%).

Working groups met at each home, for six 45-minute sessions over four months. Key target areas to improve delirium care identified were communication (between care home staff and with GPs), dehydration, catheter care, constipation, pain and aspects of the physical environment. Groups developed a range of solutions, such as introduction of a 'handover' time between shifts, adaptation of fluid balance charts, a delirium poster, leaflets for residents and relatives on delirium and dehydration, a delirium checklist to facilitate communication between staff and with GPs, and various care pathways. Although the aim of each working group was to generate suitable solutions and materials for their particular home, groups were keen to share outputs between homes, suggesting a degree of transferability in the ideas and materials produced.

Written materials used in training sessions and those produced by working groups were collated and made available in a delirium resource box placed in the staff room to reinforce the intervention and function as reminders. Examples of these can be seen at www.europeandeliriumassociation.com.

By the end of the study period, working groups had started to implement solutions but had not yet begun to audit their practice as originally planned.

There was limited take up of the delirium practitioner support for advice on the management of individual residents. However, advice on issues such as covert

administration of medication and managing challenging behaviour was sought, particularly during training sessions.

The delirium practitioner was able to liaise with a number of other professionals working in care homes (two community matrons, a nurse practitioner, GPs, a pharmacist, a dietician, and the BUPA training co-ordinator).

Two of the six homes identified "local champions" to take on training of other staff, to continue to facilitate working groups and to promote good delirium care. In the remaining homes, the care managers indicated that they would continue to support use of the materials already produced.

Several levers, barriers and suggestions to improve the intervention were identified from the practitioner log (Figure 2). The direct costs of the intervention over 10 months were £33,502.

**Discussion**

We designed, delivered, and defined a multi-component intervention for delirium in long-term care. Care home staff were receptive to training; support from managers was essential in enabling staff participation. Working groups were able to produce a range of solutions and high quality written materials. We had anticipated that this output would be specific to each home, but in practice, many of the solutions were shared between homes.

Several care homes identified communication as a priority to improve delirium care. Communication difficulties also impinged on the delivery of our intervention e.g. difficulties passing on information to night staff.

A limitation of the study was that the preliminary developmental work and training took longer than anticipated, leaving only 4 months for the working groups to agree and implement changes in practice. This left insufficient time for the groups to undertake an audit to assess the extent to which care has improved or for the researchers to ascertain the sustainability of the groups.

Several interventions for delirium prevention in hospitals have already been described and evaluated[20-24]. Our intervention has much in common with these: targeting risk factors, and educating staff , but is distinguished mainly by 3 features: a) using a phased approach to design and tailor the intervention to the setting b) ownership and empowerment of staff through working groups and c) use of multiple approaches to increase adherence to best practice.

The next steps are to investigate its feasibility and effectiveness in modifying adverse outcomes for residents (for example, unplanned hospital admissions). In assessing feasibility, key questions will be who can deliver the role of the delirium practitioner, and longer-term sustainability. In our study, funding for the intervention was provided through research grants and the direct costs (mainly attributable to the salary of the practitioner) were relatively high. Although we cannot comment on whether the intervention is cost-effective at this stage, in resource-constrained health and social care settings, it is unlikely that funding for such a ‘stand alone’ practitioner will be available. However, we are investigating the approach rather than a specific practitioner role. If this is successful, there may be a number of health professionals concerned with reducing morbidity and improving quality of care in care homes (for example, in the UK, community matrons, link liaison nurses, practice nurses, care home trainers) who may be able to usefully incorporate it into their work. Moreover, many of the time-consuming stages of developing the intervention and materials

would not need replication. We also know from our experience in this study that the teaching sessions can be 'streamlined', thus further reducing practitioner time and costs.

With such a 'complex intervention' it will be important to determine not only the impact of the overall intervention but also 'what works, where, and why?' through qualitative studies alongside trial evaluation[30].

We have yet, of course, to demonstrate effectiveness of this approach. Nevertheless, we think that our experience of developing an enhanced educational intervention, focusing on delirium prevention and engaging staff early on through working groups may be useful not only for researchers in this field, but also for clinicians working in long-term care settings.

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