

Stop Delirium!



**A complex intervention for delirium in care
homes for older people**

Final report

Summary

September 2009

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Abstract

Background: Delirium has been recognised for millennia as a distressing condition associated with increased morbidity, mortality and healthcare costs. Despite this, it has received little attention from health researchers and the evidence for delirium care is sparse, particularly so for delirium in care homes. Few studies have investigated the burden of delirium in long-term care facilities (with no studies from the UK).

However, it is likely to be considerable given the clustering of known risk factors especially the high prevalence of dementia. Wide-ranging rates have been reported, with a median point prevalence of 14% in studies from countries where the provision of care is similar to the UK. There is a strong argument that optimum delirium care is fundamentally the provision of good quality supportive care. 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- areas of care that are equally applicable to 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 prevention 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.

Objective: We aimed to develop an intervention for delirium prevention, recognising that any intervention and its evaluation are likely to be complex.

Method: We used the approach outlined in the MRC framework for complex interventions. We first designed the intervention based on a literature review of delirium and interventions to change practice. The intervention was then delivered to six care homes over 10 months in a before and after study, using mixed methods to i) describe the context of the intervention, ii) determine its feasibility and potential impact, and iii) optimise parameters to inform the design of a future trial.

Results: We designed a complex intervention for delirium prevention in care homes. Components included a specialist practitioner delivering an enhanced educational package for care home staff, staff Working Groups, written materials, consultation,

and liaison. The intervention was successfully implemented and acceptable to care home staff. The cost over 10 months was £33,502. Key facilitators included minimising demands on staff time, flexibility of approach, and securing ownership and support from managers. Although the study was not powered to demonstrate effectiveness, (and qualitative data suggested it was too early to expect change at this stage), we found preliminary evidence supporting changes in staff attitudes and practice, with significant improvements in staff confidence in delirium care. We also found improvement in resident outcomes e.g hospital admissions and A&E attendance.

Conclusion: A complex intervention for delirium prevention in care homes is feasible, acceptable to staff, and has the potential to improve staff practice and resident outcomes. This work provides the basis for the next phase of the evaluation to establish its effectiveness and cost-effectiveness.

Lay Summary

Delirium (also known as Acute Confusional State) is common among older people and is associated with high morbidity and mortality. There is very little research on delirium in general, but this is particularly true of delirium in the care home setting. Residents of care homes are likely to be at high risk of delirium for a number of reasons. Dementia, older age, poor mobility and physical illness are all risk factors for the condition, common in the care home population. Moreover, care homes share with hospitals many of the environmental and organisational features that might predispose to delirium. Prevention of delirium fundamentally comprises the provision of good quality care. Addressing the problem of delirium could, therefore, also drive up the quality of care and improve outcomes for residents including reduced A&E attendances and unplanned admissions to hospital.

We set out to design and evaluate an intervention to promote better prevention and detection of delirium in care homes for older people. In designing the intervention, we included not only what is known about preventing delirium, but also the evidence for

influencing and changing practice. We involved care home staff from the outset in the design and delivery of the intervention to ensure relevance and ownership.

We developed an enhanced educational package targeting care home staff. This was delivered by a Specialist Practitioner working into 9 units in 6 homes (6 nursing units, 2 dementia units and one residential home) over a 10-month period. The essential components of the intervention were:

- *A Delirium Champion* - (the Specialist Practitioner) to engage staff in the project
- *Education/ training* - 3 x 20 minute interactive sessions delivered to all staff, including night staff
- *Focus on targeting risk factors* - to target prevention
- *Staff engagement & ownership* - Working groups were recruited from staff (qualified and unqualified) who chose to participate in tackling delirium on their unit. These groups identified key issues relevant to their unit and developed appropriate solutions and relevant materials. The Specialist Practitioner facilitated the groups, but the ideas and solutions were generated by the unit staff.
- *Liaison with other professionals* e.g GPs, Community Matrons

We investigated the feasibility of the intervention in a Before and After study. We determined feasibility in terms of successful implementation, acceptability to staff, costs, and potential for the intervention to improve care processes and resident outcomes. We used both qualitative and quantitative methods. We found that most components were successfully implemented and the intervention was accepted and highly appreciated by staff. The cost to deliver the intervention over 10 months was £33,502. Although the study was not designed to definitively determine effectiveness, we found evidence of positive change in a range of measures of processes of care and resident outcomes, including cognitive screening and hospital admissions. Staff reported increased confidence in delirium care. There was also evidence that staff benefited in terms of self-esteem and confidence through participation in working groups. This is an important finding as staff confidence is associated with better quality of care.

The next stage of research will be to address issues of ‘scaling-up’ and implementation in practice to deliver the intervention efficiently, and then to determine its effectiveness and cost effectiveness in a cluster randomised trial.

1. Background

Delirium is a condition of acute, fluctuating confusion, which commonly affects older people who are unwell. It is associated with poor outcomes for sufferers, with an increased risk of death, reduced longer-term function, and a longer length of hospital admission. Although few studies have investigated the burden of delirium in long-term care, it is likely to be considerable given the clustering of known risk factors(1, 2), especially the high prevalence of dementia – the major risk factor for delirium. Studies estimating prevalence rates for delirium in these settings report a range of 6% to 60%, the higher rate presumably reflecting a more unwell population(3-10).

Optimum delirium care is fundamentally based on the provision of good quality supportive care(11-14). There is a strong argument then that 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. 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.

The Stop Delirium! project set out to design an evidence-based intervention for delirium aimed at care home staff. The premise was that for staff inured to endless messages to improve quality of care, a focus on delirium could be the means to achieve this.

2. Objectives

The aim of this project was to design and define a multi-component or ‘complex’ intervention’ to prevent delirium in care homes, suitable for a subsequent trial evaluation. We aimed to test its feasibility in terms of acceptability and likely impact

on processes of care and care home resident outcomes. Alongside this, we aimed to develop and optimise trial parameters in order to inform the design of a trial.

3. Methods

The research used the approach outlined in the MRC framework for complex interventions to design and test feasibility of the intervention. For clarity, the design, delivery and feasibility testing of the intervention have been described separately here, but in practice it was an iterative process; the intervention was refined throughout its delivery and feasibility testing, with insights from earlier phases informing the contents of later stages. The two functions of designing the intervention and testing feasibility are described as Study A and Study B respectively.

3.1. Study design

The study consisted of a series of investigations. Figure 1 (page 8) gives an overview of the process and the various investigations used in studies A and B. The study duration was 24 months, with the first 6 months spent in preliminary developmental work and recruitment, 10 months in delivering the intervention, and the remaining time in completing data collection, analyses and reporting findings.

3.2. Theoretical basis for the delirium intervention

We developed a draft intervention based on the research evidence for effective interventions for delirium(15-21), and for changing practice(22-28). We also examined key documents, existing guidelines and training packages(29-31), and various models of relevance to the organisation and delivery of delirium care(32-34).

Table 1 (page 8) lists the broad principles of the delirium intervention derived from the literature.

Figure 1: Overview of study design

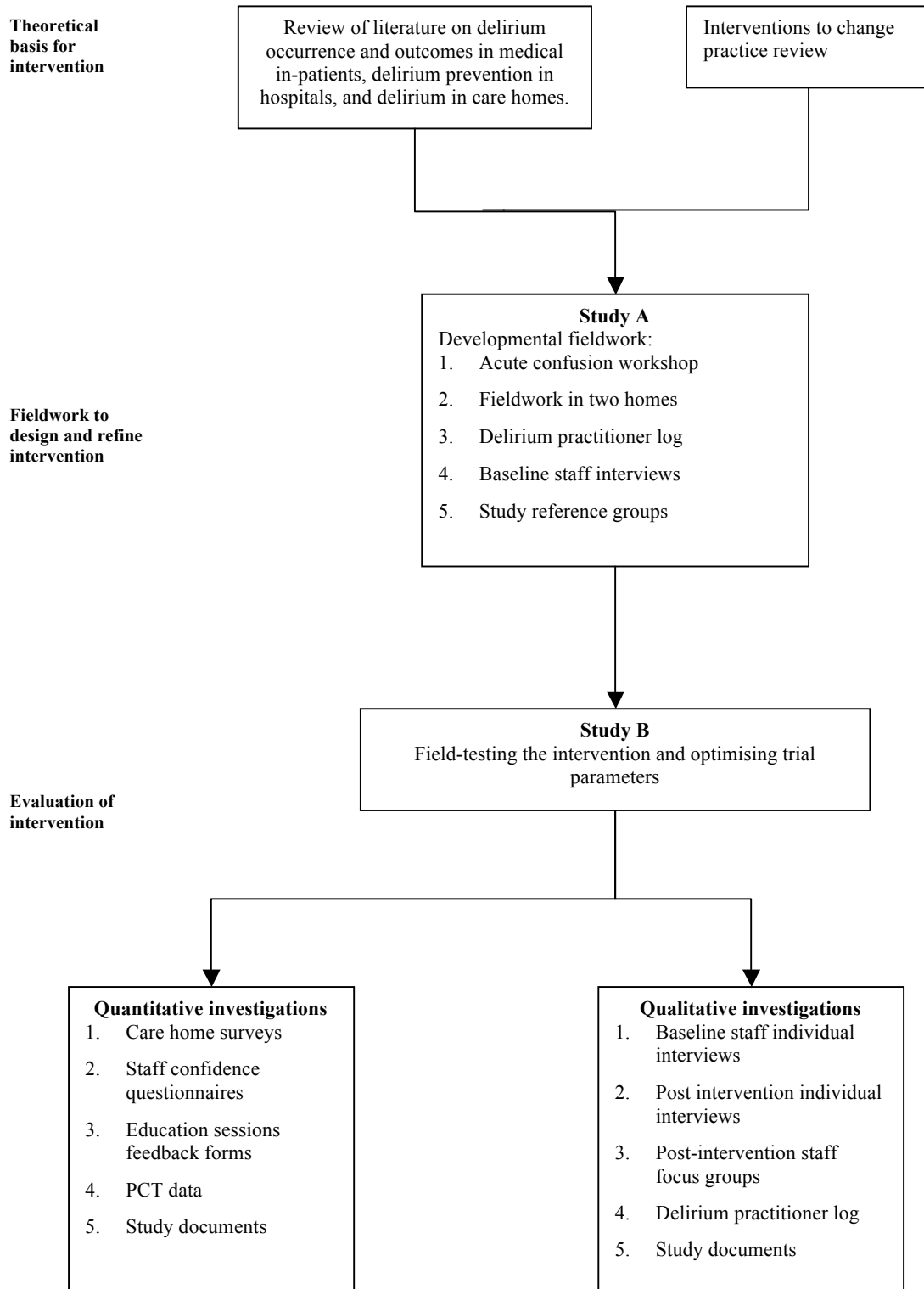


Table 1: Broad principles for an intervention to improve delirium care

Measure	Evidence
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Focus on prevention rather than treatment.	One RCT demonstrating effectiveness of a multi-component intervention in preventing delirium
	Another RCT showing haloperidol could reduce severity and duration of hospital stay if used as part of a delirium prevention intervention.
	A non-randomised (but matched controlled) trial of the HELP intervention showing effectiveness of this approach in delirium prevention.
	Systematic review of interventions to treat delirium found no effect on adverse outcomes.
Measures to identify and modify reversible patient risk factors e.g. facilitating use of aids for visual and hearing impairment, nutritional assessment.	Several patient risk factors identified for delirium.
	Trial of the HELP delirium prevention intervention showing effectiveness of this approach.
	RCTs of two delirium prevention interventions, also included addressing risk factors.
	Consensus support for this approach.
Changes to the physical environment to reduce its propensity to cause or worsen delirium e.g. use of adequate lighting and clear signs	Consensus support.
	Part of HELP delirium prevention intervention.
	Delirium unit in Carlisle successfully using this approach.
Examination and modification of organisational factors which may impact on delirium e.g. hand-washing policies, systems to review medication by pharmacist	Part of HELP intervention.
	Also part of Delirium unit in Carlisle practice.
	Consensus support.
Screening and early detection of delirium and prompt investigation for underlying causes	Part of Marcantonio et al's intervention, demonstrated in one RCT to prevent delirium.
	Consensus support.
Education and training of staff, and information for carers and patients	Used in HELP intervention and demonstrated effectiveness in reducing delirium in one before and after study.
	Systematic review evidence for effectiveness of a combined approach to education and training in changing professional behaviour.
Reminders	Systematic review evidence of effectiveness in changing professional behaviour.
Systems to check and improve implementation of changes to practice e.g. audit and feedback	Systematic review evidence of effectiveness in changing professional behaviour.
Presence of a champion or opinion leader to facilitate implementation and drive change.	Used in the HELP intervention and identified as key factor in effectiveness. Systematic review evidence.
Use of multiple approaches to increase adherence.	Systematic review evidence.
Keeping the intervention simple	Systematic review evidence.
Tailoring intervention to overcome identified barriers	Systematic review evidence.
Local ownership on the part of those expected to implement the intervention.	Used in the HELP intervention and identified as key factor in effectiveness.
	Consensus support.

3.3. Study A: Developmental field work

We undertook developmental work with care home staff in the form of a workshop and field visits to two care homes. We also recruited care home staff for a Staff Reference Group, which met approximately monthly for the duration of the study and gave feedback to inform the development of the intervention. Working with staff at this early stage of development was designed to increase ownership on the part of care home staff, and other relevant professionals.

In addition to the above, information from the Delirium practitioner log and Baseline staff interviews was used to inform the design of the intervention. These are described below in Study B to avoid repetition, as they also formed part of that study.

3.4. The intervention

We designed the post of a full time (37 ½ hours) specialist practitioner- the ‘delirium practitioner’. An enhanced educational package for delirium 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 delirium practitioner’s role was to facilitate the groups, but ideas and solutions were to be 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. Written educational materials were made available to act as reminders and to reinforce the teaching. Figure 2 summarises the components of the delirium prevention intervention.

Figure 2: The delirium prevention intervention

- ◆ **A Delirium Practitioner** working in 6 homes over 10 months
- ◆ Focus on **targeting risk factors** for delirium
- ◆ **Education/training package:**
 - 3 x 20 minute flexible & **interactive** sessions for all staff, including night staff
 - Variety of **written materials** for staff, residents and relatives used in teaching sessions and distributed to homes
- ◆ **Working Groups**
 - Recruited from staff (qualified and unqualified) who chose to participate, facilitated by delirium practitioner
 - Working Groups identified **key issues relevant to their home**. Groups produced a variety of **materials** which were then shared between homes e.g. **Delirium checklist** (developed with input from GPs), **care pathways**, and a **delirium poster**
- ◆ **Consultation** for specific residents or advice on difficult issues
- ◆ **Liaison** with key stakeholders working into homes
- ◆ **Delirium Box**- a package of all the materials developed during the project to reinforce the work done and to provide a resource for ongoing learning.

3.5. Study B: Feasibility testing

The delirium intervention described above was delivered by the Delirium practitioner to six study care homes over 10 months in a Before and After study to test its feasibility.

3.6. Setting

We recruited care homes from a list of all homes in Leeds 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 care units.

3.7. Data collection

We used a range of methods to collect quantitative and qualitative data relevant to the delivery of the intervention, its feasibility, potential impact, and future trial evaluation.

3.7.1. Individual interviews

These were conducted at the start of the feasibility study, and at 10 months.

In addition to care home staff, other relevant professionals providing health care in these settings e.g. doctors and community matrons were interviewed. All interviews were tape-recorded and transcribed. Contemporaneous notes were made of any difficulties encountered with arranging and conducting interviews.

3.7.2. Focus groups

Focus groups were conducted 6 months following the start of the delirium intervention. Participants were recruited from care homes in the study, to provide a purposive sample including managers, nursing and support staff. Separate groups consisting of 6 to 8 participants were conducted for managers, staff in the Working Groups and non-Working Group staff.

3.7.3. Delirium practitioner log

The delirium practitioner recorded a contemporaneous fortnightly written log describing the process of introducing and delivering the intervention, noting difficulties encountered, and summarising the time and resources spent on various activities.

3.7.4. Quantitative data collection

The purpose of quantitative data collection was to a) describe aspects of the delirium intervention, b) describe the care homes, staff and residents in the study, c) assess likely impact on process measures and resident outcomes, and d) learn about the feasibility of collecting various outcomes measures.

3.7.4.1. Care home surveys

We carried out baseline and post-intervention surveys 10 months apart. Data on care home staff, residents, care processes and the physical environment in care homes were recorded.

3.7.4.2. Staff confidence questionnaires

Staff confidence questionnaire surveys were conducted at the start of the intervention and repeated 10 months later. Questions were asked

about staff roles, frequency of seeing delirium and confidence in its recognition, prevention, and management.

3.7.4.3. *Education sessions feedback form*

A third source of quantitative data was information from feedback forms for education sessions. The aim was to gather information about the coverage of the sessions, relevance of their contents, and appropriateness of training methods for care home staff.

3.7.4.4. *PCT data*

The fourth source of quantitative information used in study B was data on hospital admissions supplied by the Primary Care Trust (PCT). We investigated the feasibility of these data to measure admission to hospital as a primary outcome in a future trial of the delirium intervention.

3.7.4.5. *Study documents*

In addition, study documents including notes kept by researcher assistants and expenses records were examined and used to inform calculations for the cost of the intervention and to identify challenges in data collection.

3.8. Data Analyses

Quantitative data, including missing data were summarised using appropriate frequency measures. Comparative parametric and non-parametric statistics were used to investigate changes between baseline and at 10 months. SPSS software was used to record data and carry out analyses.

The delirium practitioner log was analysed using thematic analysis⁽³⁵⁾ 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.

Focus group and individual interviews were also analysed using thematic analysis to identify analytical headings, define concepts and themes, account for patterns and ranges, establish linkages and provide explanations relevant to the aims of the study. NVivo software was used for analysis of the individual interviews.

A mixed methods analysis was also conducted using the concurrent approach. In this, quantitative and qualitative data analyses are kept separate for the initial analysis, and results then merged. The qualitative data set was used for the most part (although not exclusively) to comment on the quantitative results.

Comparisons were made following the initial analyses, by examining the similarities (and differences) in results from the two data types. Salient points, where merging the data added to, confirmed, gave explanations for, or contradicted the results of individual investigations were reported.

3.9. Research team meetings

The research team met as required and provided monitoring and feedback at all stages of the project, including study design, design of the intervention and written materials, data collection and analyses. The delirium practitioner and research assistants presented issues and difficulties and drew on the expertise of the team for advice.

3.10. Project plan

Figure 3 (page 16) gives an overview of the timetable for the project.

3.11. Ethics approval

Ethical approval was given by the Leeds West Research Ethics Committee and Research and Development approval by Bradford District Care Trust on behalf of the West Yorkshire R&D consortium.

We sought guidance from the Research Ethics Committee following implementation of the Mental Capacity Act (2005) on the need to reassess capacity for those residents who had consented to participate at the start of the

study. The committee agreed that it would be disproportionately intrusive to do so, given the minimal risks of participation in the study.