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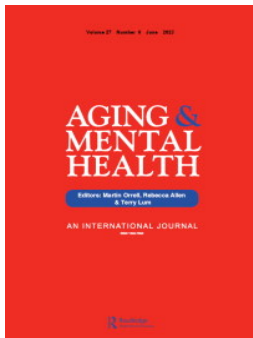
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The use of constant observation with people with dementia in hospitals: a mixed-methods systematic review

Melanie Handley^a, Danai Theodosopoulou^b, Nicky Taylor^c, Rebecca Hadley^a, Claire Goodman^a, Rowan H. Harwood^b, Rosemary Phillips^a, Alex Young^d and Claire Surri^c

^aCentre for Research in Public Health and Community Care, University of Hertfordshire, Hatfield, UK; ^bFaculty of Medicine & Health Sciences, University of Nottingham, Nottingham, UK; ^cCentre for Dementia Research, Leeds Beckett University, Leeds, UK; ^dCancer Awareness, Screening and Diagnostic Pathways (CASP) Research Group, Hull York Medical School, University of Hull, Hull, UK

ABSTRACT

Objectives: Constant observation is used in hospitals with people with dementia to manage their safety. However, opportunities for proactive care are not consistently recognised or utilised. A systematic review of constant observation was conducted to understand measures of effectiveness and facilitators for person-centred approaches.

Method: Electronic databases were searched between 2010 and 2022. Four reviewers completed screening, quality assessments and data extraction with 20% checked for consistency. Findings were presented through narrative synthesis (PROSPERO registration CRD420221078).

Findings: Twenty-four studies were included. Non-registered staff without specific training were the main providers of constant observation. Assessments and processes clarifying the level of observation encouraged reviews that linked initiation and discontinuation to a patient's changing needs. Examples of person-centred care, derived from studies of volunteers or staff employed to provide activities, demonstrated meaningful engagement could reassure a person and improve their mood. Proactive approaches that anticipated distress were thought to reduce behaviours that carried a risk of harm but supporting evidence was lacking.

Conclusion: Non-registered staff are limited by organisational efforts to reduce risk, leading to a focus on containment. Trained staff who are supported during constant observation can connect with patients, provide comfort and potentially reduce behaviours that carry a risk of harm.

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Constant observation; dementia; person-centred care; hospitals; systematic review

Introduction

Patient safety is a major priority for hospitals and their staff. People with dementia who are admitted to hospital are at high risk of falls and delirium and may display other behaviours considered to carry risk of harm (Handley et al., 2019; Sinvani et al., 2019; White et al., 2017). One model of care for supporting people with dementia assessed as being at risk of harm in hospital is constant observation. Constant observation is the close monitoring of one or more patients, ranging from one-to-one supervision, also known as 'specialling', to monitoring a small group of patients in one area of the ward, commonly referred to as 'cohorting' (Coyle et al., 2020; Dewing, 2013; Wood et al., 2018). The evidence-base for the effectiveness or unintended consequences of constant observation for people with dementia in hospital is limited (Dewing, 2013). Recent studies demonstrate a wide variation in practice, with opportunities constant observation offers to get to know the person and provide person-centred care missed (Bail et al., 2023; Goldberg et al., 2014; Handley et al., 2019; Wood et al., 2018). Constant observation is resource intensive and its focus on risk management can increase distress because of an emphasis on restricting movement and containing the person with dementia.

Person-centred care requires staff to understand care from the point of view of the person and to support their fundamental psychological needs (comfort, identity, inclusion, attachment, and occupation) (Brooker & Latham, 2015; Kitwood, 1997). In hospital

settings this can be compromised by competing treatment demands and system priorities (Clissett et al., 2013). Staff are more likely to engage in person-centred care for people with dementia if it fits with hospital and staff priorities and can be embedded in routine practice (Chenoweth et al., 2022; O'Brien et al., 2018). Developing evidence-based resources to facilitate a more person-centred approach within constant observation could support best practice and mitigate situations of stress and risk.

Previous research that has looked at the practice of constant observation has mainly focused on its use in mental health settings. Its impact on people with different needs and why they are assessed as being a risk to themselves or others are not widely discussed. Reviews of constant observation with older people in hospitals have found no evidence for how the practice could be adapted and applied with this patient population, noting a lack of agreed standards or guidelines, and detail of its impact on patient outcomes were a concern (Dewing, 2013; Wood et al., 2018). The aim of this review is to synthesise evidence on constant observation for people with dementia and/or older adults with delirium or cognitive impairment to address the following questions:

1. How and why is constant observation used to support people with dementia and/or delirium during their hospital admission?
2. How is effectiveness of constant observation understood and measured?

CONTACT Melanie Handley  m.j.handley@herts.ac.uk

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- a. What is the evidence that constant observation improves outcomes for people with dementia?
- b. What outcomes for staff are achieved/desired through improved constant observation practices?
3. How is person-centred care applied and supported during constant observation?

Methods

The review was reported in accordance with the Preferred Reporting items for Systematic Reviews and Meta-Analyses (PRISMA 2020) (Page et al., 2021). The study protocol was registered with PROSPERO (CRD42020221078). Ethical approval was not required for the review.

Search strategy

We searched electronic databases Medline (PubMed), CINHAL, Psycinfo, and The Cochrane Library for English language articles. Building on the work of Dewing (2013), who reported on studies published between 2000 and 2010, search dates were restricted to 2010 onwards. Initial searches took place in July 2021, with surveillance searches continuing to December 2022. Search terms were generated from previous studies (Dewing, 2013; Wood et al., 2018) describing the population (e.g. 'dementia', 'Alzheimer*', 'delirium', 'cognitive*') and model of care (e.g. 'one to one nurse special*', 'one to one care', 'special observation', 'constant observation', 'bay nursing', 'specialling', 'sitters').

In addition, we ran key word searches on Google Scholar and forward and backward citation searches of reviews and included papers.

Inclusion criteria

The review explored: measures of effectiveness of constant observation; the purpose of constant observation with people with dementia; factors that support person-centred approaches during constant observation; and outcomes for people with dementia and hospital staff. Therefore, all published research evidence and service evaluations were included. We did not include other forms of grey literature, for example conference abstracts (Scherer & Saldanha, 2019).

Studies reporting the use of constant observation or similar monitoring activities that involved staff, volunteers or families providing one-to-one support or support to a small group of patients within a specified area of the ward, such as a bed bay, were eligible for inclusion. Studies that reported constant observation activities with people with dementia, older people with delirium (with or without dementia), and older people with unspecified cognitive impairment were included. Studies with mixed patient populations that included people with dementia, were also included. Excluded studies were those that provided no information about who was observed, those located in care homes, mental health hospitals, high dependency and intensive care units or rehabilitation wards. We excluded studies reporting alternatives to constant observation, such as the use of technological innovations for monitoring patients.

Screening

Search results were downloaded into Rayyan (Ouzzani et al., 2016) and two reviewers (DT, AY) independently screened all

titles and abstracts, with a 20% random selection checked by a third reviewer (MH). Where decisions were unclear or conflicting, papers were taken to full-text review. Full texts were screened by three reviewers (NT, DT, AY) with 20% double screened for consistency. Decisions were recorded using Excel. Disagreements or uncertainty were resolved in discussion with a fourth reviewer (MH). Screening of lateral and surveillance searches were completed by two reviewers (ReH, MH). The selection process is shown in Figure 1.

Data extraction and quality appraisal

Data were extracted by four reviewers (MH, NT, DT, AY) using a bespoke data extraction form. Data extracted included study characteristics, data collection methods, characteristics of constant observation, comparator details where applicable, participant characteristics, and outcomes related to people with dementia (e.g. falls, patient experience), staff (e.g. knowledge) and processes (e.g. use of person-centred care, feasibility and acceptability). A random sample of 20% was double extracted by two reviewers (DT, AY) to check for consistency in the process. Inconsistencies were discussed with a third reviewer (MH) to reach agreement.

Quality appraisal

The quality of empirical studies was assessed using design appropriate checklists; Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018), Critical Appraisal Skills Programme (CASP) for qualitative (Critical Appraisal Skills Programme, 2022b) and cohort studies (Critical Appraisal Skills Programme, 2022a). Service evaluations were not assessed. Four reviewers (MH, NT, DT, AY) independently completed quality appraisal checklists, including strengths and weaknesses of studies. A random sample of 20% were double rated to check for consistency in scoring.

Data synthesis

Following data extraction and quality appraisal, findings were synthesised using a convergent segregated approach (Stern et al., 2020). As meta-analysis of quantitative data and meta-aggregation of qualitative data were not possible narrative syntheses for qualitative and quantitative were undertaken. Qualitative data were coded in NVivo into categories that explored: the use of constant observation with people living with dementia; characteristics of those providing and receiving constant observation; and evidence of person-centred theories and practice. Outcome data were tabulated according to outcomes measured and organised by intervention type. Data for all intervention studies relating to implementation, fidelity and sustainability were tabulated according to the TiDier framework (Hoffmann et al., 2014). We recorded data relating to the sustainability of the intervention beyond the study. In addition, any evidence of co-design of the intervention (broadly defined to include for example, working groups of hospital staff as part of a quality improvement project), was documented (supplementary file 1). Quantitative and qualitative syntheses were then combined in tables and descriptive accounts of the evidence.

Findings

Initial searches identified 1905 records after duplicates were removed. A total of 116 full-text records were assessed for

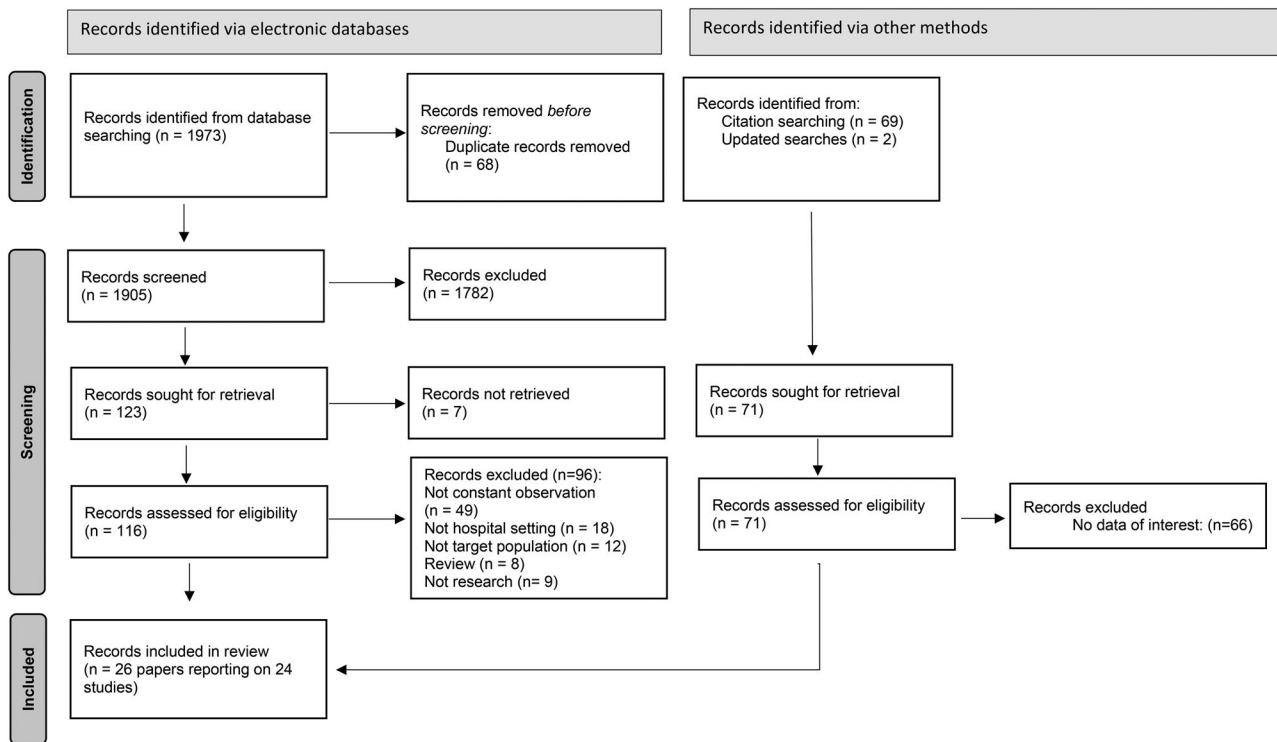


Figure 1. PRISMA 2020 diagram of study selection process.

eligibility, of which 21 met the inclusion criteria, reporting on 20 studies (Figure 1). Citation and surveillance searches identified an additional six records related to four studies, leading to a total of 26 papers reporting on 24 studies (Table 1). Seven quantitative, eleven mixed methods and six qualitative studies reported use of constant observation with people with dementia, older people with delirium (with or without dementia) and older people with cognitive impairment. Fourteen studies implemented interventions aimed at improving constant observation and ten studies reported current constant observation practices and processes.

Eleven studies were undertaken in Australia, seven in USA, five in the UK, and one in Canada. The majority ($n=20$) took place in a single hospital site and four in multiple sites (range 2–7).

The fourteen intervention studies reported the impact of adaptations to constant observation in terms of: how patients were assessed as needing constant observation; the experience of patients; and patient, staff and organisational outcomes. All intervention studies were multi-component, combining elements of staff training, changes to constant observation allocation processes, and/or the development of policies or guidelines. Eight studies reported training staff or volunteers to provide one-to-one or group activities. Four studies adapted the environment so constant observation could be provided by a member of staff to more than one person at a time (e.g. cohorting). Four studies focused on improving assessments and processes for allocating patients to different levels of constant observation throughout their admission.

Participants included patients with dementia, delirium or cognitive impairment allocated to constant observation ($n=13$), hospital staff involved with the provision of constant observation ($n=14$), carers ($n=1$), and volunteers ($n=2$). For studies that included participants with dementia and/or cognitive impairment, the sample size ranged from 12–458 people. Twenty studies focused only on the use of constant observation with people with dementia and/or delirium or older people with cognitive impairment, while four studies reported the use of

constant observation with mixed patient populations including those with dementia and/or delirium.

Across intervention studies, adaptations to constant observation were followed-up for between three months to two years. Reporting of the organisation of constant observation varied across studies with some detailing the number of patients supported and/or the time support was available.

Use of constant observation with people with dementia admitted to hospital

Why people with dementia are allocated to constant observation

All studies found that constant observation was used to mitigate a range of safety concerns in people with dementia. These included, risk of falling, developing delirium, behaviours expressing distress that put a person at risk of harm, such as pulling at intravenous lines or physical aggression towards staff and other patients.

Constant observation processes and practices

Constant observation involved different staff to patient ratios, from one-to-one ('specialling') to one-to-four or more. The proximity of a member of staff to the patient ranged from being in touching distance to staying in the same bed bay or maintaining visual contact. Eleven studies focused on constant observation as one-to-one activities, four studies focused on 'cohorting' constant observation activities where patients were cared for in the same bed bay, and nine studies described using combinations of the two practices. From the nine studies describing use of different levels of constant observation, four associated this decision with the completion of risk assessment tools (Bartlett & Planning, 2014; Connors et al., 2017; Jones et al., 2019; Wray & Rajab-Ali, 2014).

Staff and volunteer responsibilities during constant observation were described with reference to activities that reduced

Table 1. Characteristics of included studies.

Author (year)	Country	Study type (Design)	Data collection methods	*Intervention or focus	Control/ comparison	Single or Multi-site	Study participants (sample size)	Duration of evaluation
Bartlett and Planning (2014)	Australia	Quantitative (Service evaluation)	Retrospective medical notes review	<i>Audit of nursing assessments</i>	n/a	Single site	People with dementia and/or delirium (150)	n/a
Bateman et al. (2016)	Australia	Mixed Methods (Quasi-experimental pre-post design)	Medical notes review Questionnaires Standardised Mini-Mental State Examination	*Volunteer programme	n/a	Single site	People with dementia and/or delirium (64) Staff (50) Volunteers (18)	7 months
Blair et al. (2018) (primary study)	Australia	Mixed-methods (Non-randomised controlled trial)	Medical records Organisational records	*Volunteer programme	Historical	Multi-site (7 hospitals)	People with dementia and/or delirium (458)	Not reported
Blair et al. (2019) (associated paper to Blair et al., 2018)	Australia	Mixed-methods (Non-randomised controlled trial)	Interviews Surveys Focus groups	*Volunteer programme	n/a	Multi-site (7 hospitals)	Staff (119 survey, 61 focus group) Family carers (80)	Not reported
Bray et al. (2015)	UK	Mixed-methods (Quality improvement)	Not reported	*Bay nursing and activities co-ordinator	Usual care	Single site (2 different interventions reported from 2 hospitals)	Not reported	6 months
Brooke and Herring (2016)	UK	Mixed methods (Quality improvement)	Routine service data	*Activities crew	n/a	Single site	People with dementia (not reported)	2 years
Colella et al. (2017)	USA	Mixed methods (Quality improvement)	Routine service data	*Clinical Assessment Bundle	n/a	Single site	Staff (not reported)	5 months
Connors et al. (2017)	UK	Qualitative (Quality improvement)	Questionnaires Documentary review Incident reports	*Person-centred observation	n/a	Single site	Staff (unclear)	9 months
Cook et al. (2020)	Australia	Mixed methods (Observational)	Quality of interactions schedule (QUIS) Emotional responses in care assessment (ERIC) Qualitative field notes	<i>One-to-one constant observation practices</i>	n/a	Single site	Older patients with delirium or falls risk (12)	5 months
de Jong et al. (2020)	Australia	Mixed methods (Survey)	Cross-sectional survey	<i>Staff falls prevention readiness</i>	n/a	Multi-site (5 hospitals)	Staff (28)	n/a
Eeles et al. (2013)	Australia	Quantitative (Pre-post design)	Medical notes review	*Close observation unit for delirium management	Usual care	Single site	Patients with delirium (105 compared with 175 controls)	5 months
Ervin and Moore (2014)	Australia	Qualitative (Action research)	Interviews	*Volunteer programme	n/a	Single site	Staff (15)	Not reported
Flaherty et al. (2010)	USA	Quantitative (Retrospective observational study)	Medical notes review	*Delirium room	Patients without delirium	Single site	Patients with delirium (44 compared with 104 controls)	4 months
Flaherty et al. (2010) (associated paper to Flaherty et al. (2010))	USA	Qualitative (Descriptive)	Describing set up	*Delirium Room	n/a	Multi-site (2 hospitals)	n/a	n/a
Graham et al. (2021)	Australia	Mixed methods (Descriptive study)	Survey	<i>Communication between nurses and one-to-one staff</i>	n/a	Single site	Staff (17)	n/a
Grealish et al. (2019)	Australia	Qualitative (Critical incident technique)	Discussion group Interviews	<i>Reflections on care following a fall</i>	n/a	Multi-site (2 hospitals)	Staff (16)	n/a
Jones et al. (2019)	UK	Mixed methods (Quality improvement)	Observation Documentary review Service data	*Enhanced supervision framework	n/a	Single site	People with dementia (not reported) Staff (not reported) Family carers (not reported)	6 months
McDonnell et al. (2014)	UK	Mixed methods (Service evaluation)	Interviews Routine data Interviews Focus groups Observations Focused conversations Interviews	*Volunteers	n/a	Single site	Staff (unclear) Volunteers (unclear)	1 year
Moyle et al. (2011)	Australia	Qualitative (Descriptive)	Interviews	<i>Staff perceptions of care for people with dementia</i>	n/a	Single site	Staff (13)	n/a
Rocheffort et al. (2012)	Canada	Quantitative (Prospective study)	Medical notes Service data	<i>Relationship between patient and staff characteristics and CO (1 to 1) use</i>	n/a	Single-site	Mixed patient group including people with dementia (1151, 283 people with dementia)	n/a
Schroeder (2016)	USA	Qualitative (Phenomenology)	Interviews	<i>Experiences of staff providing CO</i>	n/a	Single site	Staff (5)	n/a
Sinivani et al. (2018)	USA	Quantitative (Retrospective chart review)	Medical notes review	* Multi-component intervention (cohorting, multidisciplinary approach, patient engagement specialists, staff education)	Usual care	Single site	Mixed patient group including people with dementia (Total = 952, intervention = 476, control = 476)	1 year
Sinivani et al. (2019)	USA	Quantitative (Cross-sectional survey)	Survey	<i>Staff practices and perceptions of CO</i>	n/a	Multi-site (5 hospitals)	Staff (231)	n/a
Waszynski et al. (2013)	USA	Mixed methods (Quality Improvement)	Agitated Behavior Scale (ABS) (Bogner et al., 1999)	*Individualised therapeutic activities	n/a	Single-site	Mixed patient group including people with dementia (74)	7 months
Wilkes et al. (2010)	Australia	Mixed methods (Pilot study)	Staff reports Retrospective medical notes review Interviews	<i>Exploring the concept of CO</i>	Historical	Single site	Mixed patient group including people with dementia (50) Staff (10)	n/a
Wray and Rajab-Ali (2014)	USA	Quantitative (Quality improvement)	Monthly hospital data	*Safety Watch Streamlining constant observation allocation processes	Historical	Single site	People with dementia (unclear)	1 year

distress and/or distracted people with dementia/delirium. How staff and volunteers provide support during constant observation reflected their understanding of the role and whether there was a social element built into the work. In three studies focused on delirium prevention and management, proactive approaches were expected of staff providing constant observation (Eeles et al., 2013; Flaherty et al., 2010; Sinvani et al., 2018). This included staff orientating patients to time and place, promoting a healthy sleep-wake cycle, encouraging independence (consisting of activities such as supporting personal hygiene, mobility, nutrition, hydration and continence), pain assessment and management, providing activities and ensuring sensory aids were used (e.g. glasses and hearing aids). Nine studies aiming to meet a person's emotional, psychological and social needs used staff or volunteers to provide meaningful activities (Bateman et al., 2016; Blair et al., 2018; Bray et al., 2015; Brooke & Herring, 2016; Ervin & Moore, 2014; Jones et al., 2019; McDonnell et al., 2014; Sinvani et al., 2018; Waszynski et al., 2013). Volunteers provided companionship and activities, and talked with the patient's family to build an understanding of the person that could inform their work and the work of the ward team (Bateman et al., 2016; Blair et al., 2018; Ervin & Moore, 2014; Jones et al., 2019; McDonnell et al., 2014). Staff providing activities were often healthcare assistants who could also support personal care tasks (Bray et al., 2015; Brooke & Herring, 2016; Sinvani et al., 2018; Waszynski et al., 2013). The expectations to engage actively with patients were in contrast to how constant observation was reported in studies of usual practise. These studies found staff providing constant observation regularly provided patient care to people that they had not been assigned to work with (Cook et al., 2020) and often did not engage with the person they were working with beyond specific care tasks (Moyle et al., 2011).

Staff who provide and supervise constant observation

The majority of studies ($n = 18$) reported that healthcare assistants (termed variously as sitters, assistants in nursing (AInS), healthcare assistants, care assistants, certified nursing assistants (CNAs), patient associates) were allocated to provide constant observation. Six studies reported the use of temporary ('agency' or 'bank') staff (Colella et al., 2017; Connors et al., 2017; Cook et al., 2020; de Jong et al., 2020; Grealish et al., 2019; Wray & Rajab-Ali, 2014). Student nurses were used in two studies (Bartlett & Planning, 2014; Wilkes et al., 2010) and registered nurses in four studies (Bray et al., 2015; Cook et al., 2020; Flaherty et al., 2010; Jones et al., 2019); the use of both student and registered nurses were in combination with healthcare assistants. In all cases, constant observation provided by healthcare assistants, temporary staff and student nurses was overseen by a named registered nurse. The level and frequency of supervision was not reported. One survey study of healthcare assistants reported variation in their experiences of supervision from registered nurses, ranging from none at all to regular and supportive contact (Graham et al., 2021). Staff with responsibilities for patient engagement and activities ($n = 4$) (Bray et al., 2015; Brooke & Herring, 2016; Jones et al., 2019; Sinvani et al., 2018) and volunteers ($n = 5$) (Bateman et al., 2016; Blair et al., 2018; Ervin & Moore, 2014; Jones et al., 2019; McDonnell et al., 2014) were supervised by a registered nurse, a senior healthcare assistant and/or a volunteer co-ordinator.

Training of staff was discussed in fifteen studies. Studies reported that the format of training was face-to-face either

through workshops, classroom-based teaching or brief ward-based sessions ($n = 7$) (Blair et al., 2018; Brooke & Herring, 2016; Connors et al., 2017; Eeles et al., 2013; Ervin & Moore, 2014; Sinvani et al., 2018; Wray & Rajab-Ali, 2014). Two studies used self-directed learning methods using workbooks or an online course (Bray et al., 2015; Graham et al., 2021). Where the length and frequency of training was reported ($n = 9$), this varied from regular <30 min sessions (Flaherty et al., 2010; Sinvani et al., 2018; Wray & Rajab-Ali, 2014) to full-time training for three weeks (Sinvani et al., 2018). Training of one day or more was provided for volunteers (Bateman et al., 2016; Blair et al., 2018; Ervin & Moore, 2014) and for staff providing constant observation that focused on delirium management and prevention (Eeles et al., 2013; Sinvani et al., 2018). Only two studies reported the impact of training; volunteers' attitude to people with dementia improved (Bateman et al., 2016) and staff made commitments to use person-centred approaches during constant observation (Connors et al., 2017). Whether these changes improved constant observation practices was unclear.

Measures of effectiveness of constant observation

Outcome measures

Twelve intervention studies reported patient outcomes, seven staff outcomes and ten process outcomes. Studies focused on current practices of constant observation reported patient outcomes ($n = 1$), staff outcomes ($n = 7$) and process outcomes ($n = 6$) (see Table 2).

Patient outcomes

The majority of intervention studies measured effectiveness of constant observation in terms of patient outcomes related to safety and health status such as falls, length of stay and mortality ($n = 10$) (Bateman et al., 2016; Blair et al., 2018; Bray et al., 2015; Brooke & Herring, 2016; Colella et al., 2017; Eeles et al., 2013; Flaherty et al., 2010; Jones et al., 2019; Sinvani et al., 2018; Wray & Rajab-Ali, 2014). Patient experience in terms of emotional, psychological and social wellbeing was only reported in three intervention studies (Bray et al., 2015; McDonnell et al., 2014; Waszynski et al., 2013) and one study of usual practice (Cook et al., 2020).

Safety and health status related patient outcomes were mixed. Falls (measured in nine studies) were reduced in three studies (Bray et al., 2015; Brooke & Herring, 2016; Wray & Rajab-Ali, 2014) and were unchanged in five studies (Bateman et al., 2016; Blair et al., 2018; Colella et al., 2017; Eeles et al., 2013; Jones et al., 2019). Length of stay ($n = 5$) reduced in two studies (Bateman et al., 2016; Sinvani et al., 2018), was unchanged in two (Eeles et al., 2013; Flaherty et al., 2010) and increased in one (Blair et al., 2018). Two studies of multi-component constant observation interventions for delirium care found a significant reduction in mortality (Eeles et al., 2013; Sinvani et al., 2018). All four studies reporting discharge destination reported no change (Blair et al., 2018; Eeles et al., 2013; Flaherty et al., 2010; Sinvani et al., 2018). One study reported lower incidence of readmission (Blair et al., 2018).

Three studies recorded medication use: one study of a volunteer programme found that patients were more likely to be discharged with analgesics potentially demonstrating increased awareness and treatment of a person's pain (Bateman et al., 2016); one study of cohorting that included a multidisciplinary

Table 2. Outcomes by intervention type and usual practice studies.

Author (year)	Description of intervention	Patients Outcomes (measure)	Summary of findings	Staff Outcomes (measure)	Summary of findings	Process and economic outcomes	Summary of findings
<i>Activities and volunteers</i>							
Bateman et al. (2016)	Trained Volunteers provide person-centred care	Length of stay Falls Medications Mortality Delirium (medical notes)	Reduced Length of stay, more likely discharged with analgesics, no difference to falls, mortality, delirium	Staff Stress (Carer Stress Scale). Staff and volunteer attitudes to dementia (Approaches to Dementia questionnaire), (Alzheimer's Disease Knowledge Test), Volunteers' knowledge of delirium (Questionnaire)	No difference to staff stress or attitudes to dementia, significant improvements to volunteer confidence and attitudes to dementia	Acceptability Cost	Acceptable to staff and volunteers Low cost, although costings not reported
Blair et al. (2018)	Trained volunteers provide person-centred care	Length of stay Readmission Falls Medication Mortality Pressure sores Place of discharge Adverse behavioural incidents (medical notes)	Statistically significantly longer LOS and lower readmission rates, no difference to falls, medication, mortality, pressure sores, place of discharge, adverse behavioural incidents			Volunteer involvement Complaints Allocation to one-to-one support	Number of volunteer sessions provided, no formal complaints, significantly lower use of one-to-one
Bray et al. (2015)*	Trained activity worker (HCA with additional dementia training)	Patient experience (Dementia Care Mapping)	Improved wellbeing during time in activity room, reduced falls				
Brooke and Herring (2016)	Trained HCAs provide activities.	Falls (routine data) Falls (per 1000 bed days) Experience of care Friends and family score (survey)	Reduction in falls, improvement in staff performance rated by visitors			Allocation to one-to-one care (by shift type) Acceptability of care crew (informal conversations) Utilisation of activities staff	Reduced number of patients requiring one-to-one, staff valued care crew, number of patients supported each month
Ervin and Moore (2014)	Trained volunteers to provide person-centred care			Acceptability of the programme (Interviews)	Provided care staff did not perceive they had time, more time for other tasks, perceived as enhancing patient experience of care and improving safety Perceived had more time for patients		
McDonnell et al. (2014)	Trained volunteers supervised by Dementia Nurse Specialist	Patient experience (Interviews and observations)	Improved mood and engagement, reduced distress	Staff experience (interviews and observations)		Acceptability of volunteers	Fitted in with the ward and complemented the roles of staff
Waszynski et al. (2013)	Nursing assistants providing activities	Agitation level pre/during/post therapeutic activity (Agitated Behaviour Scale (Bogner et al., 1999)	Decreased agitation during individualised therapeutic activity				

(Continued)

Table 2. Continued.

Author (year)	Description of intervention	Patients Outcomes (measure)	Summary of findings	Staff Outcomes (measure)	Summary of findings	Process and economic outcomes	Summary of findings
<i>'Cohorting' of people with dementia and delirium</i>							
Bray et al. (2015)*	Bay nursing	Patient experience (observation, conversations with patients and family members) Falls Pressure sores (routine data)	Observed use of communal areas (table for meals, communal activities) Patients felt safer, and more involved in their care, families reassured patient being looked after, reduction in falls, No pressure sores Significant reduction in mortality, no change in length of stay, discharge destination or falls	Staff experience (observations and interviews) Staff sickness (administrative data)	Know patients better, work more proactively to identifying and addressing a person's needs, improved staff morale and satisfaction, low staff sickness levels	Costs Use of one-to-one (administrative data) Fidelity	Higher nursing staff costs, reduced use of one-to-one support. Not possible when inadequate staffing in other areas
Eeles et al. (2013)	Four-bedded Close Observation Unit	Length of stay Falls Mortality Place of discharge (medical notes)					
Flaherty et al. (2010)	Four-bed Delirium Room unit	Length of stay Mortality Place of discharge Activities of daily living (ADL) (Medical notes review)	Improved ADL function No significant difference in discharge destination, length of stay or mortality				
Sinvani et al. (2018)	Cohorting	Medications Readmission Mortality Use of restraints (Medical notes review)	Lower mortality Reduced length of stay No difference in discharge destination or readmission rate, less likely prescribed antipsychotics or restraints			Allocation to one-to-one supervision	Less likely allocated one-to-one
<i>Processes to support decision-making for initiation and discontinuation of constant observation</i>							
Colella et al. (2017)	Clinical Assessment Bundle	Falls (unclear) Use of restraints (unclear)	No difference in falls or use of restraints			Costs (unclear) Use of one-to-one (administrative data)	Reduced care costs, reduced one-to-one
Connors et al. (2017)	Staff training, risk assessment and constant observation policy			Understanding of constant observation (questionnaire)	Improved understanding of how to enhance care	Effective use of constant observation (case study scenarios)	Risk assessment supported decisions for level of constant observation
Jones et al. (2019)	An enhanced supervision framework (ESF)	Falls Behaviour-related incidents	No change in falls or behaviour related incidents	Staff experiences (interviews)	Changes supported shared decision making and improved confidence in assessment process	Staffing hours (weekly bank and agency hours) Staff costs (weekly spend on bank and agency staff)	Reduced use of bank and agency staff, reduced spend on bank and agency staff
Wray and Rajab-Ali (2014)	Safety watch: Decision tool for allocation to constant observation	Falls (per 1000 patient days) Use of restraints	Reduced falls rates reduced and restraint			Costs Use of constant observation (hours per year and per 100 patient-days, Administrative data)	Constant observation costs and hours reduced

(Continued)

Table 2. Continued.

Author (year)	Description of intervention	Patients Outcomes (measure)	Summary of findings	Staff Outcomes (measure)	Summary of findings	Process and economic outcomes	Summary of findings
<i>Non-intervention studies</i> Bartlett and Planning (2014)							
Cook et al. (2020)		Experience of care (observations: Emotional responses in care assessment (ERIC) Fleming, 2005)	Majority of emotional responses to care positive	Care interactions (Observations: Quality of interactions schedule (QUIS) Dean et al. 1993)	Majority of interactions positive	Environmental aspects influencing care (Observation field notes)	<p>Compliance with constant observation policy and procedures</p> <p>Variability in compliance with different processes: Low completion rates for cognitive assessments and reassessing need for constant observation. High completion rates for medical reviews and behavioural charts.</p> <p>Negative care linked to staff being unfamiliar with the ward and the patient they were supporting.</p> <p>Medical devices, such as catheters, influenced how fundamental care was provided.</p> <p>The ward environment caused negative responses from patients to their care.</p>
de Jong et al., (2020)				Falls prevention capability and self-efficacy (survey)	Motivated to prevent falls but fall prevention capability limited.		
Graham et al. (2021)						Quality of handovers (survey, online group discussion)	<p>Most handovers in first 15 min, minority received none. Most handovers between healthcare assistants not RN to healthcare assistant.</p> <p>Handovers perceived to lack detail for adequately supporting person.</p> <p>Emphasis on physical care.</p> <p>Variation in consistency of communication.</p>
Grealish et al. (2019)						Descriptions of processes involved with constant observation (Interviews with staff)	<p>Use of monitoring strategies including frequent rounding, moving patients to easily observable beds, using motion alarms, cohorting.</p> <p>Constant observation was confounded when there were multiple observers and staff were unclear when responsibility changes from one observer to another, for example to provide personal care.</p> <p>Little evidence of nurse-family collaboration or communication.</p>

(Continued)

Table 2. Continued.

Author (year)	Description of Intervention	Patients Outcomes (measure)	Summary of findings	Staff Outcomes (measure)	Summary of findings	Process and economic outcomes	Summary of findings
Moyle et al. (2011)				Staff experience (interviews)	Constant observation was challenging work that was not valued. Focus on managing risk, often with limited interaction between member of staff and patient.	Costs (Clinical and administrative data)	Higher sitter use costs for people with dementia, delirium and other cognitive impairments than in other patient characteristics Every additional worked hour per patient per day by Registered Nurses and by patient care assistants reduced the likelihood of high sitter use costs.
Rochefort et al. (2012)							
Schroeder (2016)				Experience of constant observation (interviews)	Staff recognised the need to accept person and understand their situation, understood the importance of being present with the person, valued their role and benefited from knowing they made a difference.		
Sinvani et al. (2019)				Perceptions of use of constant observation (survey)	Most considered beneficial for patient care, majority tried to decrease the use constant observation, with half feeling pressured decrease its use. 22.1% had training in managing behaviours that are challenging for staff	Constant observation practices (survey)	Most wards used constant observation with at least 1 patient per week, dementia with agitation most frequent use of constant observation
Wilkes et al. (2010)				Perceptions of constant observation (Interviews)	Recognised the need to adapt services for older people with behaviours that were challenging for staff, felt specialist education for staff providing constant observation was important.	Use of constant observation (Requests for constant observation forms)	Majority requesting 24-h supervision for agitation or confusion, just over half patients had level of care assessed

* Bray et al. (2015) reported two interventions in two hospitals.

approach to the care and treatment of patients with or at risk of delirium, found patients were less likely to be prescribed antipsychotics (Sinvani et al., 2018); and one study of the use of volunteers for engaging patients found no difference to medications prescribed (Blair et al., 2018).

Incidents of adverse events were reported in a number of studies, most reporting no change, for example due to behavioural incidents (Blair et al., 2018; Jones et al., 2019), pressure sores (Blair et al., 2018; Bray et al., 2015) and mortality (Bateman et al., 2016; Blair et al., 2018; Flaherty et al., 2010). Restraint use was reported in three studies, one found no change (Colella et al., 2017) while two reported they were less likely to be used (Sinvani et al., 2018; Wray & Rajab-Ali, 2014). One retrospective observational study of people with delirium reported improvements in activities of daily living upon discharge for those cared for on a cohorted bay for managing their delirium (Flaherty et al., 2010) and one study of a volunteer programme reported no change in incidence of new delirium (Bateman et al., 2016).

Studies reporting patient experience following changes to constant observation practices found improvements to patient and staff interactions. The introduction of 'bay nursing' led patients to feel safer and more involved in their care (Bray et al., 2015). Volunteer programmes and meaningful activities with staff improved patients' mood, increased their engagement, relieved distress (Bray et al., 2015; McDonnell et al., 2014) and reduced agitation during and for a period after the activity (Wray & Rajab-Ali, 2014). One study of usual practice of patient and staff interactions during constant observation found that the majority of emotional responses to interactions with staff were often positive, measured using a structured observational tool (Emotional responses in care (ERIC (Fleming, 2005)) (Cook et al., 2020). Staff's familiarity with the ward and with the person they were providing constant observation for were mediating factors that influenced the patient's experience.

Staff outcomes

Intervention studies reported staff reactions to constant observation and changed practices ($n=5$), impacts on staff knowledge, confidence and attitudes towards people with dementia ($n=3$), and outcomes for staff ($n=4$).

Changes to practices, such as use of activities during constant observation and clearer processes for allocating patients to constant observation, were linked to increased job satisfaction, reduced stress and burden and increased knowledge of their patients both for staff providing constant observation as well as other staff on the ward (Bateman et al., 2016; Blair et al., 2019; Bray et al., 2015; Connors et al., 2017; Ervin & Moore, 2014; Jones et al., 2019; McDonnell et al., 2014). Studies of usual practice that found constant observation was not recognised as skilled, important work by staff who were focused on risk management through restrictive practices (Moyle et al., 2011; Wilkes et al., 2010). In contrast, staff providing constant observation who recognised the model's potential to benefit patients reported the importance of being empathic and present with the person (Schroeder, 2016). Despite staff recognition of the potential benefits of constant observation, one survey reported that staff felt pressured to decrease its use (Sinvani et al., 2019).

Knowledge, confidence and attitudes towards people with dementia improved following changes to constant observation, but it was unclear the impact this had on practice (Bateman et al., 2016; Connors et al., 2017; Jones et al., 2019). One study that surveyed

staff on their current understanding of falls prevention (de Jong et al., 2020) found that while staff were knowledgeable of the risk factors associated with falls, they were limited in their capability to prevent a fall or actions to take following a fall.

Process outcomes

Process outcomes were reported in ten intervention studies focusing on the acceptability of new ways of working (Bateman et al., 2016; Blair et al., 2018; Bray et al., 2015; Brooke & Herring, 2016; McDonnell et al., 2014), changes in the allocation of constant observation (Blair et al., 2018; Brooke & Herring, 2016; Colella et al., 2017; Connors et al., 2017; Jones et al., 2019; Sinvani et al., 2018; Wray & Rajab-Ali, 2014), and numbers of patients supported through the new intervention (Blair et al., 2018).

The introduction of staff and volunteers to provide activities and engage people with dementia on a one-to-one or group basis was largely welcomed by ward staff (Bateman et al., 2016; Blair et al., 2018; Bray et al., 2015; Brooke & Herring, 2016; McDonnell et al., 2014). One mixed methods study of a non-randomised controlled trial reported initial concerns from staff about the suitability of volunteers to provide certain support, such as at meal times and for mobility (Blair et al., 2019). Following implementation that included clarifying the roles of volunteers, staff considered volunteers to be members of the team who contributed to the work on the ward.

Seven studies reported allocating patients to lower staff:patient ratios of constant observation, changes to decision-making processes and use of activities (Blair et al., 2018; Brooke & Herring, 2016; Colella et al., 2017; Connors et al., 2017; Jones et al., 2019; Sinvani et al., 2018; Wray & Rajab-Ali, 2014). Only one study reported the numbers of patients supported through the intervention (Blair et al., 2018).

Economic outcomes

Costs of the interventions were reported in terms of acknowledging the cost of implementing an intervention (Bateman et al., 2016; Bray et al., 2015). The details and impact on resource use, such as length of patient stay, were not, however, reported. Three studies reported reductions to staffing costs where an intervention had reduced the use of one-to-one support or provided one-to-one support differently through activities staff and volunteers (Colella et al., 2017; Jones et al., 2019; Wray & Rajab-Ali, 2014).

How is person-centred care applied and supported during constant observation?

Four intervention studies referenced person-centred frameworks as informing changes to constant observation practices and training of staff and volunteers (Bateman et al., 2016; Blair et al., 2019; Connors et al., 2017; Ervin & Moore, 2014). Not all studies referred to person-centred care, some referred to therapeutic approaches to constant observation and some referred to both. Therapeutic approaches was a generic term for interventions focused around practical aspects of care, such as getting a person out of bed and getting dressed, as well as providing activities (Jones et al., 2019), pain management, regular help to use the toilet, involvement of the family (Bartlett & Planning, 2014).

The components of interventions were described, however data relating to the fidelity of their use were often lacking

(supplementary file 2). Five intervention studies reported use of a document to collect personal and social information from the person and their family that could be used to inform activities and care (Bateman et al., 2016; Blair et al., 2019; Bray et al., 2015; Ervin & Moore, 2014; Waszynski et al., 2013). However, none of the studies reported how well these documents were completed or how often they were referred to inform practice. One service evaluation of usual care using retrospective review of medical notes (Bartlett & Planning, 2014) reported evidence of involvement from a person's family in care notes, although a form to gather key personal information was only completed for 13% of patients receiving constant observation.

Descriptions of person-centred care during constant observation were reported in eight intervention studies (Blair et al., 2019; Bray et al., 2015; Brooke & Herring, 2016; Connors et al., 2017; Ervin & Moore, 2014; Jones et al., 2019; McDonnell et al., 2014; Waszynski et al., 2013). This focused on examples related to volunteers or staff interacting with people with dementia in conversations and activities (Blair et al., 2019; Bray et al., 2015; Brooke & Herring, 2016; Connors et al., 2017; Ervin & Moore, 2014; Jones et al., 2019; McDonnell et al., 2014; Waszynski et al., 2013). With the exception of one case study that observed practice using Dementia Care Mapping to measure levels of wellbeing (Waszynski et al., 2013), all examples from the eight studies were self-reported by those providing constant observation or from interviews with other ward staff.

The links between applying person-centred approaches to mitigate risk and reduced instances of distressed behaviours were considered in four intervention studies (Blair et al., 2019; Bray et al., 2015; McDonnell et al., 2014; Waszynski et al., 2013). These studies suggested that by engaging with a patient's social and emotional needs, staff could improve a person's mood, help the person to be calmer and reduce the need to use more restrictive practices to ensure a person's safety. In two studies on the use of volunteers, staff interviews suggested there were links between occupation and less restrictive practice (Blair et al., 2019) and reduced distress (McDonnell et al., 2014). Feedback from staff providing cohort nursing suggested that the changes had reduced incidents of aggression (Bray et al., 2015). However, in these three studies, with the exception of reductions in the use of one-to-one nursing support (Blair et al., 2018; Bray et al., 2015) pre-post measures related to practice and patient responses to care were not collected. One study from the USA of the use of personalised activities during constant observation (Waszynski et al., 2013), did measure levels of agitation before, during and after activities using the Agitated Behaviour Scale (Bogner et al., 1999). This study found reductions in levels of agitation during and after activities even for people rated as severely agitated. Staff reflective accounts supported these observations, suggesting that meaningful engagement with the person was beneficial. Only one study of usual practice explored the quality of interactions between staff and patients and the responses of patients to those interactions during constant observation (Cook et al., 2020). While the majority of interactions and responses to those interactions were rated as positive, staff attempts to reassure distressed patients received negative responses. Several studies outlined strategies staff could use to reduce distress but whether they were effective or not was not measured (Colella et al., 2017; Flaherty & Little, 2011; Wray & Rajab-Ali, 2014).

When person-centred approaches to constant observation extended to consider the needs of a patient's family and the needs of staff this could reduce carer burden, provide respite

and emotional support (Blair et al., 2019). Staff providing activities during constant observation found the work rewarding (Waszynski et al., 2013).

Embedding person-centred practices for constant observation was influenced by how engaged all ward staff were with the intervention. Specifically, if there was a shared understanding of constant observation responsibilities, if staff were available, and if the organisation valued this work. One study found that while there was good engagement with changes to constant observation practices in the study ward, wider engagement across the hospital was lacking (Connors et al., 2017). Support for cohort nursing was accepted by participating staff but they were frustrated when staff shortages meant the bay had to revert to normal ward cover practices (Bray et al., 2015).

In studies reporting the use of volunteers to provide engagement with people living with dementia, they were a welcome addition to the ward (Bateman et al., 2016; Blair et al., 2019; Ervin & Moore, 2014; McDonnell et al., 2014). Volunteers' roles were understood as distinct to staff roles, with nursing staff acknowledging that when volunteers were working with patients, staff had time to work with other patients. In only one of these studies did nursing staff report that they had learnt and incorporated new strategies for working with people with dementia into their own practice (Blair et al., 2019). This reflected how the role of constant observers was represented as set apart from ward based work, with a division of responsibilities between staff that worked with patients receiving constant observations and those providing ward based care (Cook et al., 2020; Moyle et al., 2011; Schroeder, 2016).

Discussion

The review synthesised evidence from 24 studies that reported current practices and interventions to enhance constant observation for people with dementia and/or delirium during hospital admissions. Most of the studies were in single sites and reported quality improvement initiatives or descriptive accounts of practice. Constant observation was used for people with dementia who were a risk to themselves or others or who had developed delirium (Dewing, 2013; Wood et al., 2018). Non-registered staff were instrumental in delivering constant observation. The exception was where staff provided constant observation for patients with delirium or were offering social engagement as part of their role. The organisational reliance on non-registered staff with inconsistent access to professional supervision or review would infer that despite the range of issues and patient needs being addressed, this work is not seen as complex or difficult. Preparation of non-registered staff working with patients with cognitive impairment often focuses on tasks but overlooks relational aspects of care despite recognition that patient experience is enhanced when care is provided with dignity and empathy (Sarre et al., 2018). This, combined with a focus on prevention of falls and reduction of risk may explain the variable quality of handover information, the lack of documentation and patient specific action plans described in the studies.

Patient outcomes mainly related to safety and health status are important for both patients and hospitals. However, there was limited evidence that changes to constant observation practices and processes impacted these outcomes. This resonates with hospital studies implementing person-centred practices more generally with people with dementia that report

improvements to patient and carer experience but not health status outcomes (Goldberg et al., 2013). Several studies theorised that patient experience could be enhanced in using therapeutic approaches to constant observation, this included efforts to maintain a person's identity through meaningful interactions and promote independence. Interventions that focused on providing patients opportunities for conversations and activities were linked to improved engagement and reduced distress for people with dementia. Similar findings have been reported in systematic reviews of activities in hospitals and care homes for people with dementia (Lourida et al., 2020; Travers et al., 2016). Evidence associating engagement during constant observation with reductions in behaviours considered to carry risk of harm and/or decreasing a person's actual risk of harm was lacking. Understanding if and how person-centred approaches to constant observation can meet a person's psychosocial needs and reduce their physical risk of harm is an area for future research. While there are notable challenges to providing person-centred care in hospitals (Clissett et al., 2013; Grealish et al., 2019), it is possible and may address some of the deficiencies of the care environment. A recent pilot study of ward-wide training and on-going endorsement for person-centred care did report improvements in care quality and reductions in distressed behaviours (Chenoweth et al., 2022). However, reduction in distressed behaviours was not sustained over time for people with dementia with longer length of stay. Managing the complex interaction between the environment, the person and how staff are equipped to provide support is an implementation challenge.

Suggestions for strategies when working with patients in moments of severe distress and when behaviours were considered to carry risk of harm were offered as part of a few decision tools, but their effectiveness was not explored. Evidence of strategies for working with people with dementia with different needs during constant observation were limited to times when patients were able to engage with staff and volunteers in conversations, activities or when being supported with everyday tasks such as getting dressed. Examples of constant observation at times of severe patient distress were limited to a few brief reports and how staff provided constant observation at these times was not reported. There was also limited reference to staff training in de-escalation techniques. Previous studies have explored refusals of care of people with dementia in care homes and hospitals (Backhouse et al., 2022; Featherstone et al., 2019; O'Brien et al., 2020). In developing a training intervention to improve hospital staff communication skills with the potential to reduce refusals of care, Harwood et al. (2018) acknowledged the tensions of delivering health-care tasks while employing a person-centred approach. Operationalising person-centred approaches for constant observation at times of heightened distress will require more understanding of strategies used in the moment that can support a person's best interests without increasing their distress and associated risks of harm.

The question that was the starting point for this review remains, how can person-centred approaches be consistently applied in risk averse environments (Handley et al., 2019)? All interventions were multi-component and often multidisciplinary, demonstrating the complexity of embedding new ways of working. Learning from related improvement initiatives, such as *End PJ Paralysis* (Skrypak, 2018) and the *TOP 5* documents in Australia (Isaac et al., 2018; Luxford et al., 2015), suggest implementation strategies that help to build a shared sense of responsibility and support staff to work closer with

families or other key supporters are important factors. The level of encouragement required is likely to differ across and within hospitals depending on whether staff with different levels of responsibility and ward leadership recognise the value of any changes to practice (Aarons et al., 2015; Stetler et al., 2014). An additional challenge for constant observation will be addressing the ambiguities of developing a shared sense of responsibility when the activity is often viewed as the role of a single staff member. Building and sustaining value for new ways of working across ward teams is likely to be key for embedding change (Fossey et al., 2019).

Limitations

The limitations of studies related to their transferability and potential for bias have been described as part of synthesising the evidence. The majority of included studies had small sample sizes and were conducted at single sites, some findings could be context dependent. Several studies reported service evaluations and quality improvement efforts, increasing the potential for bias. We excluded studies using interventions aimed at reducing the use of constant observation, the focus of this review was to understand how constant observation is used with people with dementia and how a person-centred approach could be achieved. It is possible that these excluded studies offered additional insights. However, their focus on the use of technology or regular rounding were unlikely to address the purpose of the review.

Conclusion

A person-centred approach to constant observation for people with dementia is likely to improve the experience for both patients and staff and could anticipate and reduce distress. When constant observation is used by staff to engage a person with dementia and their visitors in a meaningful way, the person is likely to feel comforted and connected with staff. There was a tension in the evidence for whether non-registered staff with some additional training and supervision could provide effective care when faced with organisational priorities to reduce risk through strategies that favour containment. Approaches more likely to succeed are those that are grounded in patient and staff experiences linking with wider systems of care to identify the range of skills and organisational support needed to improve the inpatient experience of people living with dementia.

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Author contributions

MH, CG, RHH, RP and CS contributed to the study concept and design. MH led the conduct of the systematic review, synthesis and manuscript preparation. DT, RH, NT and AY completed data collection and extraction. All authors participated in the interpretation of results, revision of the manuscript and read and approved the final manuscript.

Data sharing statement

All the data of this systematic review is available in the manuscript.

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