

Systematic review of interventions to improve constant observation on adult inpatient psychiatric wards

Abstract

Constant observation is frequently conducted on inpatient psychiatric units to manage patients at risk of harming themselves or others. Despite its widespread use, there is little evidence of the efficacy of the practice or of its impact on patients and nursing staff. Unnecessary use of this practice can be restrictive and distressing for all involved, and can cause considerable strain on healthcare resources. We sought to review interventions aiming to improve the quality and safety of constant observation or to reduce unnecessary use of this restrictive practice on adult inpatient psychiatric wards. A systematic search conducted in December 2018 using PubMed, PsycINFO, CINAHL, EMBASE and Google Scholar identified 24 studies with interventions related to constant observation. Only 16 studies evaluated a total of 13 interventions. The most common intervention components were changes to team, education and training for staff, changes to record keeping and assessment, and involving patients in care. A range of outcome measures were used to evaluate interventions. Over half of the interventions showed some positive impact on constant observation. One study recorded patient feedback. All interventions were targeted towards mental health nurses. Overall, there is no consensus on how best to improve the safety and quality of constant observations or reduce its unnecessary use. Studies vary widely in design, intervention and outcome measures. Existing research does however suggest that teamwork interventions can improve the patient experience of constant observation and safely reduce their degree and frequency. Priorities for future research on constant observations are highlighted.

Registration: Systematic review preregistered on PROSPERO under the record CQRD42018117349

1. Introduction

Inpatient psychiatric services manage high risk and unpredictable patients, a large number of whom are admitted involuntarily. Behaviours such as violence, aggression, self-harm and absconding are a frequent occurrence on the ward, and can be difficult to manage in a mental health context where patients have reduced insight and capacity and are prone to self-neglect (Meehan *et al.*, 2006; Bowers *et al.*, 2014; Iozzino *et al.*, 2015; Slemon, Jenkins and Bungay, 2017). Constant observation is a critical restrictive tool used by mental health nursing staff to monitor and manage patients' behaviour (Buchanan-Barker and Barker, 2005; Slemon, Jenkins and Bungay, 2017). This practice may be known by different names (e.g. enhanced, special or continuous observation), but typically refers to close supervision of one inpatient by at least one mental health nursing staff in order to minimise the risk to the patient or others (Chu, 2016).

1.1 Prevalence and costs of constant observation

Between 8% and 23% of adults admitted on inpatient wards in the UK are placed on constant observation at some point during their care (Bowers and Park, 2001; Stewart, Bowers and Ross, 2012; Lambert *et al.*, 2018). This equates to around 45 hours of nursing time spent per week monitoring patients at risk (Bowers *et al.*, 2007) and around 85,000 hours annual patient time spent being observed (Lambert *et al.*, 2018). In terms of the cost to the National Health Service in the UK, studies estimate an annual ward cost at over £70,000 to over £850,000 on forensic wards (Flood *et al.*, 2008; Lambert *et al.*, 2018), with an estimated national cost of £35 million (Flood *et al.*, 2008). Similar estimates of prevalence and costs have been reported in the US and Canadian inpatient psychiatric services (Tardiff, 1981; Shugar, Rehaluk and G., 1990; Moore *et al.*, 1995; Green *et al.*, 1996), and constant observation is also widely reported in psychiatric services throughout Europe (Steinert and Lepping, 2009; Bak and Aggernæs, 2012). It is difficult to provide definitive figures on frequency and costs of observation due to large differences in how these data are reported.

However, these estimates show that constant observation is clearly a ubiquitous, resource-intensive and expensive activity.

1.2 Variability in constant observation practice

Constant observation is a highly variable practice, and how and when the practice is conducted is dependent on the setting, the staff and the patient. Recommendations for mental health services state that decisions about constant observations should be jointly made by psychiatrists and registered psychiatric nurses (Department of Health, 1999). In practice, decisions are largely initiated by the psychiatrist with some input provided by nursing staff (Kettles and Paterson, 2007; Chu, 2016). This can sometimes affect the duration of the practice; for instance, patients may be kept on constant observations longer than necessary when the ward psychiatrist is unavailable (Duffy, 1995; Bowers, Gournay and Duffy, 2000). It is also expected that only experienced nursing staff will monitor the most acute and distressed patients during constant observation. This can help to safeguard vulnerable patients and facilitate a therapeutic rather than custodial practice, and aligns with the current guidelines to reduce restrictive practices in mental health (Department of Health, 2014). Yet, when resources on the ward are stretched, observation is carried out by the least experienced and skilled nursing staff such as agency workers, student nurses or healthcare assistants who may be unfamiliar with the patient (Bowers and Park, 2001; Stewart and Bowers, 2012). Guidelines on what exactly should happen during constant observation are also not well-defined. Nursing staff are free to conduct observations as they see fit and adapt to patient's behaviours and needs during observation (Mackay, Paterson and Cassells, 2005; Chu, 2016).

1.3 Efficacy of constant observation

Evidence for the efficacy and impact of constant observation is limited. Surveys find that proportionally fewer suicides occur while patients are on constant observation compared to observations that happen intermittently (Meehan *et al.*, 2006; Flynn *et al.*, 2017), especially for those with a known self-harm or suicide risk (Stewart, Bowers and Ross, 2012). This is in contrast to

studies that find no relationship between constant observation and frequency of self-harm on inpatient psychiatric wards over time (Stewart, Bowers and Warburton, 2009), or studies that find observations conducted at regular intervals is sufficient at reducing suicides as opposed to observation conducted continuously (Green *et al.*, 1996). One study also reported harmful effects associated with constant observation; violent incidents were higher during this practice than violent incidents preceding it (Stewart, Bowers and Ross, 2012). There appear to be no controlled trials that can accurately determine the efficacy and risks of constant observation, probably because of ethical concerns of preventing a group of inpatients at risk from being closely monitored (Muralidharan and Fenton, 2006; Manna, 2010).

1.4 Experience of constant observation

Several studies have obtained qualitative feedback from patients and mental health nursing staff about their experience with constant observation. Some patients report feeling safer, less anxious, distracted from suicidal ideation and have fewer suicidal impulses when they are being constantly observed (Pituala and Cardell, 1996; Fletcher, 1999; Jones *et al.*, 2000). Patients typically had positive experiences when clinicians interacted with patients during constant observation, such as when observers acknowledged patient's distress, showed care and concern or took part in activities with patients (Pituala and Cardell, 1996; Fletcher, 1999; Jones *et al.*, 2000). However, patients also commonly report feelings of distress, anxiety, isolation and rebelliousness during the coercive practice, some of which appear to be engendered by being observed. Negative feelings generally occurred because patients felt restricted, had little to no privacy, were observed frequently by different members of staff and had very little interaction with the observers (Pituala and Cardell, 1996; Fletcher, 1999; Jones *et al.*, 2000; Waldemar *et al.*, 2018). Nursing staff view constant observation as a necessary tool to keep patients safe from harm (Holyoake, 2013), as it provides nurses with an opportunity for quick intervention, allows them to assess and monitor the risk of patients and identify deviations in patient behaviours (Cleary *et al.*, 1999; Mackay, Paterson and

Cassells, 2005; Holyoake, 2013). On the other hand, staff also report feeling regret at having to use such a custodial practice, and felt it could undermine their therapeutic relationship with the patient (Duffy, 1995; Holyoake, 2013; Manuel *et al.*, 2018). Nurses also report feeling overwhelmed, isolated and bored when constantly monitoring patients (Cleary *et al.*, 1999; Mackay, Paterson and Cassells, 2005), which can likely trigger burnout in staff on inpatient wards (O'Connor, Muller Neff and Pitman, 2018). No feedback has been sought from psychiatrists making decisions about constant observations for patients.

1.5 Aims

Constant observation is a commonly used mental health practice worldwide intended to promote patient and staff safety on inpatient psychiatric wards but can have unintentional harmful effects for both patients and staff. Interventions have been designed to maximise the benefits and minimise the risks of this practice on inpatient psychiatric wards, but have only been partly compared in narrative reviews (Bowers and Park, 2001; Cox, Hayter and Ruane, 2010; Chu, 2016). The current systematic review attempts to describe and categorise all interventions relevant to constant observations and integrate learning from these interventions to improve this widespread practice and to minimise its restrictive use on psychiatric wards.

2. Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations were used as guidelines to report this review (Moher *et al.*, 2015). A protocol for the review was registered with PROSPERO.

2.1 Systematic literature search

The systematic literature search was conducted in December 2018 using the following databases: PsycINFO, CINAHL, PubMed, EMBASE and Google Scholar. Relevant articles were also identified by

screening references and searching manually through key journals. Search terms were developed by authors and were adapted for each database as necessary (see Table 1).

2.2 Eligibility criteria

Studies were included in the review if the following criteria were met: peer-reviewed, in English, any year, any country, and about an intervention designed to impact constant observation on an inpatient psychiatric ward. Constant observation was defined as close monitoring and supervision of patients by at least one member of clinical staff either by keeping the patient within eyesight or at arm's length (Chu, 2016). Studies were included if constant observation was addressed as part of a larger intervention or was a key outcome measure of an intervention. Interventions based on any adult inpatient psychiatric settings were selected, including acute, intensive and forensic psychiatric wards. Interventions were included even if they were designed for an inpatient psychiatric population but were not actually implemented on an inpatient psychiatric ward. All study designs were eligible providing the inclusion criteria were met.

Studies were excluded if the focus was on physical health settings or services other than adult inpatient psychiatric wards. Studies were further excluded if the intervention addressed only general observation practice (knowledge of the whereabouts of the patient) or intermittent observation (monitoring the patient at dedicated intervals, usually every 30 minutes). Studies offering recommendations on best practice of constant observation, or commentary and discussion pieces on specific interventions were further excluded.

2.3 Screening and data extraction

All titles and abstracts were screened. After initial screening, 84 studies were considered eligible for the review and full texts were accessed. Author-developed data extraction forms were used to extract relevant information from full texts and assess eligibility. Extraction was initially carried out by one reviewer and was then verified by another. A total of 24 studies were shortlisted at this stage

and were included into the final review (see Figure 1). Of these, eight studies were primarily descriptive and 16 studies attempted some formal evaluation of intervention.

Key information about interventions was extracted based on the TiDier approach (Hoffmann *et al.*, 2016). This includes, when available: aim, rationale, materials and procedures, intervention provider, method of delivery, setting, duration and frequency, whether the intervention was tailored or modified, and if fidelity of intervention was considered and assessed. For interventions that had been evaluated, information was also extracted about the type of study design, demographics of patients and staff, baseline data, control group, outcome measures and results. Relevant data was obtained from information provided in text, tables and graphs, and statistical analysis if reported. Any discrepancies between author extractions were resolved by discussion.

2.4 Quality assessment

Quality rating was only completed for the 16 studies that evaluated the interventions. All studies were evaluated using the Effective Public Health Practice Project (EPHPP) quality assessment tool. This tool was chosen because it can assess quality for all study designs conducted in health care settings (Thomas *et al.*, 2004), has high interrater reliability (Armijo-Olivo *et al.*, 2012), and has been recommended and used in health-related systematic reviews (Jackson and Waters, 2005; Reen, Silber and Langdon, 2017). The final quality rating of each study was derived from the ratings on the following six measures: selection bias, study design, confounders, blinding, data collection methods, and withdrawals or drop-outs. No studies were excluded from this review based on the quality rating.

2.5 Data synthesis

Studies were grouped into either descriptive interventions with no evaluation or interventions that were formally evaluated. All interventions were categorised into one of six main intervention components. These components were adapted from strategies used to categorise interventions in

healthcare practice (Bravata *et al.*, 2009; Tricco *et al.*, 2012; Silver *et al.*, 2017; Munce *et al.*, 2018), themes emerging from a previous systematic review about alternative interventions to constant observations (Cox, Hayter and Ruane, 2010) and other key themes that emerged from studies in this review. These components have been described in Box 1.

3. Results

3.1 Study characteristics

Eight studies described interventions related to constant observations without conducting any formal evaluation (see appendix Table A.1). Three of these studies implemented the intervention on psychiatric wards in the UK (Ashaye, Ikkos and Rigby, 1997; Dennis, 1998; Pereira and Woollaston, 2007) and two studies implemented interventions in the US (Sullivan and Rivera, 2000; Janofsky, 2009). The remaining studies did not implement the intervention on an inpatient psychiatric ward or did not report whether the intervention had been implemented.

A total of 16 studies evaluated 13 interventions that had an impact on constant observation on inpatient psychiatric wards (see appendix Table A.2). The following study designs were used to evaluate interventions: pre-post (n=7), single-subject pre-post (n=1), randomised controlled trial (n=1), non-randomised controlled trial (n=1) and post-intervention evaluation only (n=3).

Of studies that implemented the intervention on a psychiatric ward, ten studies were conducted in wards in the UK and five studies were conducted in wards in the US. Interventions were implemented on 34 wards in total, of which 19 were acute or general psychiatric wards, one was a psychiatric intensive care unit and one triage/assessment ward. Studies included male only wards (n=3), female only wards (n=3), wards with no gender restrictions (n=3) and the remaining studies did not report the gender of patients on their ward. The number of beds on the wards ranged from

10-117. A total of 305 patients were given the interventions based on studies that reported this information.

3.2 Quality rating

Only the 16 studies that were formally evaluated were rated for quality using the EPHPP tool. One intervention had a strong quality rating (Bowers *et al.*, 2016; James *et al.*, 2017) and two interventions had a moderate quality rating (Jenkins, Dye and Foy, 2015; Ray *et al.*, 2017). The remaining interventions were all rated as poor based on their study design (see appendix Table A.3).

3.3 Nature and variability of interventions

A total of 13 interventions in this review had been formally evaluated by 16 studies. Two interventions were described by more than one study (Ray, Perkins and Meijer, 2011; Bowers *et al.*, 2016; James *et al.*, 2017; Ray *et al.*, 2017), and one intervention was replicated twice in separate settings (Bowers *et al.*, 2006, 2008). Eight out of the 13 interventions were specifically designed to address the constant observation practice. The aim of these studies were to improve the quality and safety of constant observation practice (Dennis, 1997; Reynolds *et al.*, 2005), reduce the unnecessary use of constant observation (Moran, 1979; Dodds *et al.*, 2001; Kettles and Paterson, 2007; Ray *et al.*, 2017), replace constant observations with another practice (Moran, 1979; Dodds *et al.*, 2001; Kettles and Paterson, 2007; Carr, 2012; Ray *et al.*, 2017), monitor frequency of constant observation following a change (Jenkins, Dye and Foy, 2015) or reduce the cost of constant observation (Triplett *et al.*, 2017). Larger interventions were also reviewed, providing that they included attempts to improve or reduce constant observation. These interventions also attempted to reduce violence and aggression (Sullivan *et al.*, 2005; Bisconer, 2006), reduce all harmful incidents on the ward (Bowers *et al.*, 2006, 2008, 2016; James *et al.*, 2017) or reduce other forms of restrictive practice (Sullivan *et al.*, 2005; Bowers *et al.*, 2006, 2016; James *et al.*, 2017).

Studies used many different strategies to develop interventions. Most studies gathered information directly from clinical wards by speaking with staff or patients (Dennis, 1997; Sullivan *et al.*, 2005; Bisconer, 2006; Bowers *et al.*, 2006, 2008; Carr, 2012; Triplett *et al.*, 2017), observing the practice (Bowers *et al.*, 2006, 2008) or reviewing ward data (Dennis, 1997; Carr, 2012). Other studies also looked at existing research to develop their intervention (Dodds *et al.*, 2001; Bowers *et al.*, 2006, 2008, 2016; Ray, Perkins and Meijer, 2011; Carr, 2012; James *et al.*, 2017; Ray *et al.*, 2017). The remaining studies designed their interventions by reviewing existing clinical guidelines (Reynolds *et al.*, 2005; Kettles and Paterson, 2007) and using author's personal experience (Moran, 1979). One study monitored the constant observation practice after a planned change (Jenkins, Dye and Foy, 2015).

Interventions were delivered by training members of staff (Dennis, 1997; Reynolds *et al.*, 2005; Bisconer, 2006; Kettles and Paterson, 2007; Bowers *et al.*, 2016; James *et al.*, 2017), meeting clinical teams (Moran, 1979), and getting approval by senior clinical staff (Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017). The remaining studies either did not describe how interventions were delivered (Sullivan *et al.*, 2005; Bowers *et al.*, 2006, 2008; Carr, 2012; Triplett *et al.*, 2017) or described a change that was already taking place at the time of the study (Jenkins, Dye and Foy, 2015).

3.4 Intervention components

Studies were categorised based on the main intervention components (see Box 1) and whether the intervention made changes directly to constant observation or made systemic organisational changes on the ward. Out of the eight descriptive interventions, three could be categorised into a single component (Janofsky, 2009; Björkdahl *et al.*, 2011; Bharti *et al.*, 2018) and the remaining interventions were complex consisting of two or more components (Ashaye, Ikkos and Rigby, 1997; Dennis, 1998; Sullivan and Rivera, 2000; Pereira and Woollaston, 2007; Russ, 2016). The most commonly used intervention component were staff education and training, and changes to record keeping and assessment, and one intervention described the use of technology as an alternative tool

to constant observations. These intervention components were largely similar to interventions that were formally evaluated (see appendix Table A.4).

Seven out of the 13 evaluated interventions could be categorised into a single component (Moran, 1979; Dennis, 1997; Bisconer, 2006; Bowers *et al.*, 2006; Kettles and Paterson, 2007; Bowers *et al.*, 2008; Jenkins, Dye and Foy, 2015; Triplett *et al.*, 2017), and the remaining were complex interventions with two or more components (Dodds *et al.*, 2001; Reynolds *et al.*, 2005; Sullivan *et al.*, 2005; Ray, Perkins and Meijer, 2011; Carr, 2012; Bowers *et al.*, 2016; James *et al.*, 2017; Ray *et al.*, 2017). The most common intervention component was changes to record keeping and assessment. No intervention in this section used technology to make changes to constant observation (see Table 2).

3.5 Intervention outcomes

Studies used a variety of outcome measures to evaluate interventions, which made it challenging to make comparisons between interventions (see appendix Table A.5 and Box 2). This does not take into account other variation in outcome measures, such as when the intervention was evaluated, whether the studies included a baseline assessment and the method of data collection (e.g. routinely collected data, author-developed forms, validated tools etc.).

3.5.1 Impact on patient and staff experience

Only one study obtained patient feedback following the intervention. Reynolds and colleagues (Reynolds *et al.*, 2005) updated their local observation policy, part of which encouraged educating patients about what to expect during constant observation. Over 60% of patients stated that they had received information about observation following the updated policy, understood why they were placed on constant observation, felt that the rationale behind nurse decisions were explained and felt that nurses interacted with them when patients were being observed. About 25% of patients felt that they were involved in all decisions related to constant observation. Patients mostly

found constant observations to be helpful with the updated policy. However, Reynolds and colleagues (Reynolds *et al.*, 2005) did not collect patient feedback before the policy was changed and therefore it was not possible to determine whether patient's experience of constant observation had truly improved.

Two interventions assessed nursing staff's experience following changes to constant observation (Reynolds *et al.*, 2005; Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017). One intervention developed a protocol to manage patients with mild to moderate risk of self-harm and aggression, instead of immediately using constant observations. This protocol was essentially a transitional level between intermittent and constant observation, and relied on engagement between clinicians and patients. A significant number of staff reported feeling safer after the intervention, especially when monitoring patients taking a shower (Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017). Another intervention that updated the policy of constant observation found that over 70% of 20 nursing staff reported no difficulties with the policy changes (Reynolds *et al.*, 2005). Staff did offer suggestions to improve record keeping of constant observation as part of the updated policy. Reynolds and colleagues (Reynolds *et al.*, 2005) made changes to the record form to reflect this feedback.

3.5.2 Reducing harmful incidents and restrictive practices on the ward

A small number of studies reported a reduction in harmful patient incidents and other restrictive practices on the ward (such as seclusion and physical restraint), as well having a positive impact on constant observations. One intervention that was designed to replace control-based constant observation to care-based constant observation also reduced self-harm, absconding and aggressive patient incidents by at least 33% in one year following the intervention, while also completely eliminating the controlling constant observation practice (Dodds *et al.*, 2001). Another study that changed how nurses were placed around the ward and introduced patient-led activities found that aggression and self-harm incidents drastically reduced, as well as a reduction in constant observations conducted at night (Carr, 2012). Other studies also reduced harmful patient incidents

on inpatient psychiatric wards but the impact on constant observation was unclear (Bisconer, 2006; Bowers *et al.*, 2006, 2008, 2016; Jenkins, Dye and Foy, 2015; James *et al.*, 2017).

One intervention that developed a protocol to engage patients at low risk of self-harm and aggression instead of immediately using constant observation showed a decrease in the number of restrictive practices used on patients post-intervention, as well as reducing the frequency of constant observations (Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017). Other studies also showed a reduction in restrictive practices on the ward, but either did not report the impact on constant observation (Bisconer, 2006; Bowers *et al.*, 2016; James *et al.*, 2017) or did not have any impact on the practice (Jenkins, Dye and Foy, 2015).

3.5.3 Reducing the frequency of constant observation

Eight interventions evaluated the frequency of observations following interventions, with three of these showing a significant reduction in frequency of constant observation (Dodds *et al.*, 2001; Ray, Perkins and Meijer, 2011; Carr, 2012; Ray *et al.*, 2017). Ray and colleagues (Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017) reported a monthly reduction in frequency by 0.07 when constant observation was adapted for patients at risk of self-harm and aggression. Dodds and colleagues (Dodds *et al.*, 2001) did not precisely report the frequency of constant observations following intervention, but reported that control-based constant observation had been completely eliminated after 18 months and was replaced by the intervention of care-based constant observations. However, the differences between control-based and care-based observations was not clearly described so it is very difficult to interpret this finding. One study which strategically changed how nursing staff were placed on the ward and introduced patient-led activities found that nightly constant observations reduced significantly after the intervention compared to pre-intervention (Carr, 2012). The authors did not provide the rate of reduction at each time point.

Five interventions assessed the impact of the intervention on the time patients spent being constantly monitored, with two interventions showing a reduction. Ray and colleagues (Ray, Perkins

and Meijer, 2011; Ray *et al.*, 2017) found that the median duration of time spent monthly on constant observation reduced from 66 hours to 33 hours and was highly significant. In another study, the monthly hours spent on constant observation reduced from 1740 hours to 143 hours following a behaviour checklist used to record behaviours and activities of patients (Moran, 1979). This study also found that the number of patients placed on constant observation reduced from 20 to 4 after one month post-intervention. Although these reductions were very large, the study did not report whether these differences were significant.

3.5.4 Reducing the costs of constant observation

Only one study evaluated the costs of conducting constant observation. Triplett and colleagues (Triplett *et al.*, 2017) compared the monthly cost of observers at baseline compared to the monthly cost of observers post-intervention, and found that the cost of staff conducting observations significantly reduced by over 50%. The reduction in cost was primarily attributed to the reduction in the number of agency staff used on the wards, which decreased from an average of 11.1 agency staff used in a month to 4.1 agency staff. This was achieved by employing a new member of staff to monitor the observation practices on the ward and work with the team to improve the practice and reduce the use of agency staff. This new member of staff was not required to conduct any constant observations themselves. Although having an additional team member did not contribute to the observer cost as an outcome of the intervention, it may still have increased the total costs on the ward. This was not reported in the study.

4. Discussion

Constant observation is a ubiquitous restrictive practice carried out on inpatient psychiatric wards to protect and manage patients at risk. The limited quantitative and qualitative research indicates that constant observation has some therapeutic benefit but can also be coercive and custodial, and

undermine the therapeutic relationship between patients and clinicians (Slemon, Jenkins and Bungay, 2017). Our review identified 24 studies, of which 16 studies assessed the efficacy of 13 interventions. Interventions that had been formally evaluated were mostly conducted in the UK and were mainly implemented on acute or general psychiatric wards. Eight interventions demonstrated a positive effect on constant observations by improving patient and staff experience (Reynolds *et al.*, 2005; Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017), reducing the frequency and duration of constant observation (Moran, 1979; Dodds *et al.*, 2001; Ray, Perkins and Meijer, 2011; Carr, 2012; Ray *et al.*, 2017), reducing the costs of conducting constant observation (Triplett *et al.*, 2017) and reducing harmful patient incidents and restrictive practices alongside reductions in constant observation (Dodds *et al.*, 2001; Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017). There was wide variability in aims, outcome measures, intervention components, and whether the intervention made changes to the practice or made organisational changes on the ward, which made it difficult to make any firm conclusions.

The strongest impact on constant observations was achieved by making adjustments to teams and teamwork. Changes were made to how nursing teams handled the constant observations practice and also how teams worked together in the general day to day life on the ward. The importance of effective teamwork skills for improved patient safety has been established in the literature, and includes good quality collaboration, shared goals, open communication, co-ordination and effective leadership skills (Manser, 2009). For example, poor communication within nursing teams or between nursing and medical staff can increase the likelihood of errors in patient care and need to be addressed (Green *et al.*, 2017). Some interventions in this review focused on improving communication between mental health staff that conduct observations. These included introducing a regular team review of observation levels or encouraging joint team decisions about various aspects of constant observation for patients. These changes may have brought a consistency in practice, enabled more reflection about the purpose of the observations and its impact on each patient. Future interventions should consider the role of teams when making changes to constant

observation. A priority for future work is to study how decisions to implement observations are made by mental health teams and the respective roles of psychiatrists and mental health nurses.

Approximately half of the interventions in this review attempted to bring about a more consistent approach to constant observation and reduce variability of the practice (Mackay, Paterson and Cassells, 2005; Chu, 2016; Slemon, Jenkins and Bungay, 2017). This included how frequently patients' observation levels are reviewed, how to ensure the practice is therapeutic rather than custodial, considering what patients need to know about the practice, how to minimise patient and staff distress during the practice, how long one staff member should observe per shift and per patient, and what information about the practice should be recorded (Dennis, 1997; Dodds *et al.*, 2001; Reynolds *et al.*, 2005; Kettles and Paterson, 2007; Ray, Perkins and Meijer, 2011; Ray *et al.*, 2017). This suggests that clear guidelines about how best to conduct each of these processes during constant observation may go some way in improving the quality and safety of this clinical practice, and reduce the potential for harm to vulnerable patients on inpatient psychiatric wards.

A proportion of studies included in this review described but did not formally evaluate interventions. Similar to evaluated interventions, non-evaluated interventions were mostly implemented on acute or general psychiatric wards in the UK. Intervention aims, development and delivery were also broadly similar between evaluated and non-evaluated interventions (see appendix A). One study used technology to develop a way of monitoring patients at risk of self-harm to replace the practice of constant observation for self-harming patients. This was a feasibility study which was not implemented or evaluated on an adult inpatient psychiatric ward but was rather tested for its algorithms with a few inpatients outside of the wards. Use of technology for close monitoring of patients has been explored in other healthcare settings (Mortenson, Sixsmith and Woolrych, 2015; Kroll *et al.*, 2019), and could be an important step to update this traditional restrictive practice on inpatient psychiatric units. However, considerations need to be given to patients' privacy and dignity when using technologies to monitor patients' behaviour instead of using an experienced member of

staff (Mortenson, Sixsmith and Woolrych, 2015) and will need further research. In sum, although the non-evaluated interventions could give some insights on how best to improve constant observations, these interventions do not differ substantially from those that were subjected to formal evaluation.

Findings from this review highlight areas that need further investigation. Interventions in this review generally targeted frontline mental health nurses or multidisciplinary teams together but no intervention has yet focused on the role psychiatrists play in decisions about constant observations for patients. In addition, studies in this review did not specify whether the interventions were sustainable in the long-term as no follow-up measurement was conducted. Studies were missing from specific settings and countries where constant observation is commonly used, such as throughout Europe (Steinert and Lepping, 2009; Bak and Aggernæs, 2012) and on forensic units (Lambert *et al.*, 2018), and need to be addressed in future work. Surprisingly, only one study in this review assessed patient feedback following the intervention (Reynolds *et al.*, 2005). Patients under observation may be too unwell to provide feedback at the time, but their later reflections on their experiences are surely critical in evaluating both the benefits and unintended negative effects of the intervention. Several studies did however consult with patients and staff during intervention development, so increasing the chances of the intervention to be aligned to their experiences (Dennis, 1997; Sullivan *et al.*, 2005; Bisconer, 2006; Bowers *et al.*, 2006, 2008; Triplett *et al.*, 2017). Future interventions may consider co-designing the constant observation practice with the patient to allow patients to have more say on what happens during this restrictive practice. The cost savings of developing interventions for constant observation have also not been reliably demonstrated in this review. Future interventions addressing all these possible areas are still needed.

4.1 Priorities for research

Mental health is an underrepresented area in patient safety research, and clinical practices used regularly in mental health such as constant observations have not been subjected to rigorous

evaluation (D'Lima *et al.*, 2016; Dewa *et al.*, 2018). Further research is needed to fully understand the practice in all its forms and identify what aspects of the practice can maximise benefits and minimise the risks for both patients and staff. It is by using this evidence that future interventions can best improve the safety and quality of this coercive practice and reduce its unnecessary use on inpatient psychiatric wards. With this in mind, recommendations for future research on constant observations have been set out in Box 3.

4.2 Clinical implications

Although the evidence is limited, findings from this review have some implications for clinicians that would like to reduce or improve constant observations on inpatient psychiatric wards. This includes considering the role of teams and teamwork skills when making changes to this practice, standardising parts of the practice to reduce variability and demonstrating the impact of these changes through proper evaluation. These recommendations are based on key intervention components from studies in this review that were likely to have a positive impact on patients and staff involved in constant observations, and have been summarised in Box 4.

4.3 Limitations

The current review is not without its limitations. Firstly, only peer-reviewed published projects were considered eligible for this review. It is possible that many interventions have been missed that may have been reported in other formats, only reported locally within a healthcare trust, or not reported at all. These interventions may have given further insights about how best to improve constant observations and reduce its unnecessary use. However, the current review found no marked differences between evaluated and non-evaluated interventions, and it is likely that other local interventions would not have changed the findings of this review. Second, this review did not address other types of observations that are typically conducted on inpatient psychiatric wards such as intermittent observations, which may have its own risks. Third, this review did not examine interventions for constant observations in settings beyond adult inpatient psychiatric units. The

practice of constant observation also needs to be addressed in adolescent and older inpatient units in future work.

5. Conclusions

Constant observation is a widely used mental health practice on adult inpatient psychiatric settings to manage vulnerable patients at risk and keep patients safe. This clinical practice also has the potential to be coercive, anti-therapeutic and damaging to both patients and staff, but continues to be used regularly without clear guidance and limited evidence for its efficacy. The current review integrated all interventions designed to improve the quality and safety of constant observation or reduce its unnecessary use on the wards, and identified intervention components that have a positive impact on this practice. The review also highlights the need for further research to fully understand the efficacy and risks of constant observation so that future interventions can be supported by evidence and targeted effectively.

6. Relevance to clinical practice

The findings and recommendations from this review are primarily relevant to mental health nursing staff, psychiatrists and other health professionals that carry out constant observations on inpatient psychiatric wards or make decisions about using this practice to manage patients at risk. Health professionals attempting to improve the quality and safety of constant observations should consider the roles of the team during constant observation, improve teamwork skills, standardise parts of the practice and properly evaluate interventions that may impact constant observations. This review also identifies areas that have not been fully addressed by current interventions on constant observations and should be considered in any future changes to the practice. This includes evaluating interventions for sustainability, improving constant observations in settings such as forensic psychiatric wards, and considering patients' experience of being on constant observation following intervention.

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Table 1. Search terms to shortlist studies in review

Database	Search terms
PubMed; CINAHL; PsycINFO; EMBASE;	<p>Observation</p> <p>AND</p> <p>Special OR continuous OR enhanced OR maximum OR close OR constant OR formal OR containment OR restrictive</p> <p>AND</p> <p>Mental OR inpatient OR psychiatry OR psychiatric</p> <p>AND</p> <p>Intervention OR change OR project OR reduce OR design OR improve OR programme OR training OR development OR evaluate</p>
Google Scholar ^a	<p>Special AND observation AND inpatient;</p> <p>Continuous AND observation AND inpatient;</p> <p>Enhanced AND observation AND inpatient;</p> <p>Maximum AND observation AND inpatient;</p> <p>Close AND observation AND inpatient;</p> <p>Constant AND observation AND inpatient;</p> <p>Formal AND observation AND inpatient;</p> <p>Containment AND observation AND inpatient;</p> <p>Restrictive AND observation AND inpatient</p>

^a = Pages 1-5 of google scholar were searched for each

Box 1. Intervention components (adapted from (Cox, Hayter and Ruane, 2010; Tricco *et al.*, 2012))

Changes to team: Interventions with a focus on making changes to team composition or ways of working. This includes recruiting additional team members, expanding or revising team's professional roles, or making changes to how teams approach a healthcare practice.

Staff education and training: Interventions that promote understanding of healthcare practices for staff, such as by providing training and education materials.

Record keeping and assessment: Interventions that make changes to how medical information is recorded or to forms used to assess patients.

Involving patients in care: Interventions that involve patients by promoting greater understanding of clinical practices or empower patients to make shared decisions about their clinical care.

Physical environment: Interventions that make any physical changes to the ward.

Technology: Interventions using technology to make changes to the healthcare practice.

Table 2. Intervention components that affect the constant observation practice or organisational ward change: Evaluated (n=16)

Intervention components	Change to constant observation practice	Organisational change on ward
Changes to team	Daily review of observation by team (Reynolds <i>et al.</i> , 2005)	Recruit new members of staff to change ward culture (Bowers <i>et al.</i> , 2006, 2008; Triplett <i>et al.</i> , 2017)
	Senior nurses to make changes to observation levels in the absence of medical staff (Reynolds <i>et al.</i> , 2005)	Staff to say something positive about patients during handover (Bowers <i>et al.</i> , 2016)
	Observation decisions to be made with a team of nursing staff (Reynolds <i>et al.</i> , 2005)	Staff to scan for bad news patients may receive and to intervene promptly (Bowers <i>et al.</i> , 2016)
	Replace controlling approach to observations with care-based approach (Dodds <i>et al.</i> , 2001)	
	Teams to work together on the ward floor; sometimes observe patients individually and sometimes in groups (Carr, 2012)	
Staff education and training	Education materials for staff on how to observe patients at risk of absconding (Dennis, 1997)	Encouraging staff's personal and professional development (Dodds <i>et al.</i> , 2001)
	Education materials to help staff make decisions about reducing observations (Dennis, 1997)	De-escalation training by an existing member of team (Bowers <i>et al.</i> , 2016)
		Prompts for staff on how to handle situations that might escalate into incidents (Bowers <i>et al.</i> , 2016)
Record keeping and assessment	Record information about the patient (Kettles and Paterson, 2007)	Checklist to monitor patient's behaviour and activities, to be completed during hourly observations (Moran, 1979)
	Record reason for observation level (Kettles and Paterson, 2007)	Record patient's risk behaviours, such as likelihood of violence (Reynolds <i>et al.</i> , 2005; Sullivan <i>et al.</i> , 2005; Bisconer, 2006)
	Record factors that may help to reduce observation level (Kettles and Paterson, 2007)	Personalised care plans that staff could use with patients generally (Bisconer, 2006)
	Personalised care plans for patients to be used for adapting constant observation (Ray, Perkins and Meijer, 2011; Ray <i>et</i>	

	<i>al.</i> , 2017)	
Involving patients in care	Patients encouraged to contribute in discussions about their observation levels (Reynolds <i>et al.</i> , 2005)	Patients to suggest interventions for them when presenting with risky behaviours (Reynolds <i>et al.</i> , 2005; Sullivan <i>et al.</i> , 2005)
	Patients to suggest interventions to be used when adapting constant observations (Ray, Perkins and Meijer, 2011; Ray <i>et al.</i> , 2017)	Patients encouraged to contribute to care plans and risk assessments (Reynolds <i>et al.</i> , 2005; Sullivan <i>et al.</i> , 2005; Ray, Perkins and Meijer, 2011; Ray <i>et al.</i> , 2017)
		Patients to share personal information about themselves with staff members (Bowers <i>et al.</i> , 2016)
		Encouraging regular patient meetings to support positive inter-patient relationships (Bowers <i>et al.</i> , 2016)
		Patients co-design activities to be conducted on the ward (Carr, 2012)
Physical environment		Pre-planned move to a new purpose-built ward (Jenkins, Dye and Foy, 2015)
		A box of distraction and sensory modulation tools to use with agitated patients, including objects such as stress toys, mp3 players with music, light displays and textured blankets (Bowers <i>et al.</i> , 2016)
		Locking rooms on the ward that have high incident rates, and strategically placing staff around the ward (Carr, 2012)

Box 2. Outcome measures of evaluated interventions (n=16)

Commonly used outcome measures (≥ 3 studies)

- Frequency of constant observation
- Number of patients on constant observation
- Duration of constant observation (hours or days)
- Number of all harmful incidents (e.g. self-harm, aggression, absconding)
- Number of restrictive practices, collapsed (e.g. restraint, seclusion)

Less commonly used outcome measures (< 3 studies)

- Frequency of constant observation post-review by staff
- Number of staff reviews per observation
- Staffs' experience of constant observation
- Patients' experience of constant observation
- Costs of constant observation
- Number of patients on the intervention
- Staff sickness
- Nursing staff injury
- Frequency of intermittent observation
- Patient's attitude towards 'named nurse'

Box 3. Priorities for research in constant observation**Research priorities in constant observation****Developing interventions**

- Identify all possible variations of constant observations in different wards and different countries. Variations should be identified in a consistent manner (e.g. reviewing the practice for at least 3 months on each ward)
- Evaluate the risks and efficacy of the different approaches to conducting constant observations (e.g. observation conducted by inexperienced vs experienced staff; observations implemented by psychiatrists vs joint decision)
- Identify the risks and benefits of each component of constant observation. Conduct controlled studies where possible
- Determine decision-making strategies to implement constant observation for patients. Conduct experimental studies with psychiatrists and nursing staff, and predictive analysis using routinely collected data
- Explore the use of technology to complement or replace the practice of constant observation

Targeting interventions

- Identify prevalence of constant observation across different wards and different countries. This should be collected in a consistent manner (e.g. average weekly data collected for at least 3 months on wards)
- Identify the costs of conducting constant observation across different wards and different countries. This should be collected in a consistent manner (e.g. determine the average hours spent by nursing staff on constant observation and nursing staff salary rates for at least 3 months on the wards)

Evaluating interventions

- Develop good quality studies to evaluate interventions for constant observation. Include baseline assessment, follow-up measurement and control groups where possible. Use outcome measures that are relevant and comparable across studies (e.g. frequency of constant observation, number of patients on constant observation etc.)

Box 4. Clinical implications based on current review

Clinical implications

- Clinicians should consider the respective roles of psychiatrists and mental health nurses in decisions about constant observations
- Clinicians should consider the roles of teams and teamwork skills when conducting constant observation
- Clinicians should attempt to standardise parts of the constant observation practice
- Patient experience should be considered during intervention development and following any changes to the practice
- Clinician-led interventions need to be appropriately evaluated and reported
- There is insufficient evidence to state whether interventions should make direct changes to constant observation or make general organisational changes on the ward