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# Managing suicidality in inpatient care: a rapid review



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**Managing suicidality in inpatient care: a rapid review**

## Purpose

The aim of this review was to identify the barriers and facilitators to implementing relational and environmental risk management approaches that address suicidality in inpatient mental health and learning disability services. To achieve this mapping process within the specified project timeframe a rapid review approach was chosen. A rapid review provides high-quality evidence in a form of knowledge synthesis in which elements of the review process are streamlined (e.g. searching fewer databases, restricting the timeframe of searches) or accelerated (e.g. omitting critical appraisal)(Langloios et al., 2019; Tricco et al., 2015). Rapid reviews produce evidence that is relevant to the review questions and have been conducted across a wide range of health-related topics for the purposes of identifying key concepts or knowledge gaps within a short timeframe(Barker et al., 2017; Cardoso et al., 2017; Thomas et al., 2017; Threapleton et al., 2017). This mixed methods rapid review considered both research (qualitative and quantitative studies) and non-research material (policies, guidance and reports) that explored relational and environmental risk management approaches that addressed suicidality in inpatient mental health and learning disability services. Approaches included but were not limited to special observation, zonal nursing, relational security, locked doors (in response to absconding), no suicide contracts, and environmental safety.

## Methods

The search strategy aimed to find published literature only, and was conducted across five databases: MEDLINE, EMBASE, EMCARE, PsycINFO and CINAHL for English language citations within the last 10 years (2009 to 2019), based on the following keywords in combination with the appropriate MESH headings that reflected the subject area.

Suicide OR ligature* or ligation or hang* or strangle* or strangulation* or asphyxia*

*AND*

Observ* or special* or monitor* one-to-one or supervi* or zon* or refocusing

OR

emotion* adj3 (connect* or tie or bond or relation* or attach* or secur*)

OR

secur* adj3 (relation* or therap* or dynam* or boundar* or base)

OR

therap* adj3 (relation* or alliance* or boundar*)

OR

environment* or contagion

OR

elop* or abscond* or pass* or AWOL or escap* or egress* or exit* or depart* or parol or leav*

*AND*

anti* or prevent* or improv* or proof* or safety or initiative* or safeguard* or manag* or protect* or precaution* or reduc* or mitigat* or strateg* or secur* or lock* or clos*

*AND*

(inpatient* or ward* or hospital* or unit* or facility* or setting*) and (psychiatry* or mental or learning disabilit*)

A google search was also conducted to identify any relevant policy and guideline documents. As this was a commissioned review designed to assist with addressing a pressing clinical need, the commissioners were invited to identify key publications that they felt were relevant. Screening and selection of all citations and extraction of data was conducted using standardised systematic review methods(Centre for Research and Dissemination, 2009). An assessment of methodological quality was not conducted which is consistent with a rapid review approach.

**Results**

It is recognised that people who are inpatients within mental health service are at high risk of suicide(HM Government, 2019). The most recent report from the UK National Confidential Inquiry into Suicide and Homicide (NCISH) by people with mental illness found that there were 92 suicides by in-patients in the UK in 2017. This represents a downward trend. The UK Government has an ambition for zero suicide in mental health inpatients along with improving safety across mental health wards(HM Government, 2019). The most recent report of the NCISH presents data from 2007 to 2017 and places a renewed emphasis on suicide prevention in in-patient settings and continues to suggest 10 ways to improve safety which include safer wards. Key elements of safer wards in mental health services consist of three components which are a removal of ligature points, reduction in absconding and skilled inpatient observation(Appleby et al., 2019, 2018, 2017, 2016).

*Ligature points*

As hanging is the most commonly reported method of suicide in-patient settings(Appleby et al., 2018; Bowers et al., 2008; Cardell et al., 2009; De Santis et al., 2015; Fedyszyn et al., 2011; Hunt et al., 2012; Mills et al., 2013), one way in which safety could be improved across mental health wards is the removal of ligature points, especially low lying ligature points(Appleby et al., 2019, 2018, 2017; De Santis et al., 2015; Mills et al., 2013). A ligature point is anything "*which could be used to attach a cord, rope or other material for the purpose of hanging or strangulation*"(Care Quality Commission, 2015)[, p.1.] and death by hanging on the ward are usually from low-lying ligature points (i.e. strangulation)(Appleby et al., 2019, 2018, 2017, 2016). The most common ligature points are doors, hooks, handles and windows(Bowers et al., 2011; Fedyszyn et al., 2011; Flynn et al., 2017; HM Government, 2012; Hunt et al., 2012) and the highest proportion of hangings are located in rooms in which patients spend time in private without direct supervision such as single rooms, toilets or bathrooms(Appleby et al., 2019; Cardell et al., 2009; Care Quality Commission, 2015; Hunt et al., 2012). Other types of ligature points include rails from ward fixtures (e.g. shower, toilet or wardrobes), coat hooks, pipes and radiators, bedsteads, bed curtain rails, shower fittings and taps, light fixtures ceiling fittings, handles, hinges and closures(Care Quality Commission, 2015; Hunt et al., 2012). The most common ligatures used in-patient settings are belts, shoelaces, sheets and towels(Appleby et al., 2019; Fedyszyn et al., 2011; HM Government, 2012; Hunt et al., 2012; Sakinofsky, 2014). Other items include those brought onto the ward by patients either through being

worn by the individual or as a personal belonging (e.g., luggage straps, ropes, cords from portable entertainment devices(Hunt et al., 2012; Mills et al., 2013) or electric cables from hair straighteners or hairdryers(Bowers et al., 2011).

*Removal of ligature points*

The removal of ligature points, especially low lying ligature points has been the main preventive strategy in reducing rates of suicide by hanging in in-patient settings(Appleby et al., 2019; Beavon et al., 2017; Bowers et al., 2011; Cardell et al., 2009; Department of Health, 2001; Georgiou, 2017; Georgiou and Holder, 2017; Perry et al., 2017; Rodell, 2016). The NCISH findings have contributed to the development of Care Quality Commission guidance on the removal of ligature points which recommends that such points could be made safe or replaced by anti-ligature fittings if possible within 7 days of any audit that has been conducted(Care Quality Commission, 2015). Since the introduction of collapsible curtain and shower rails, in-patient suicide using non-collapsible rails are classed as a 'Never Event' in England(NHS Improvement, 2018)and Wales(Welsh Government and NHS Wales, 2018) which are "*serious, largely preventable, patient safety incidents that should not occur if the available preventative measures have been implemented by healthcare providers*"(Welsh Government and NHS Wales, 2018)[, p.3]. It has been also been suggested that access to ligatures that inpatients may use to hang or asphyxiate themselves should be limited(Cardell et al., 2009; De Santis et al., 2015).

It is recognised however, that it is not possible to remove every potential ligature point and to limit access to potential items that could be used as a ligature from a ward area whilst maintaining a humane environment(Mills et al., 2013). However the cross-Government strategy for preventing suicide in England called on mental health services to make "*regular assessments of ward areas to identify and remove potential risks*"(HM Government, 2012)[,p.15]. The Royal College of Psychiatrists have also issued guidance for specific ward types (general inpatient wards, psychiatric intensive care units, low secure services, high secure services, assessment facilities) which includes an audit of all ligature points on an annual basis and risk management strategies agreed(Beavon et al., 2017; Georgiou, 2017; Georgiou and Holder, 2017; Perry et al., 2017; Rodell, 2016).

Mills and colleagues developed a checklist for Veteran Affairs mental health units (in the USA) known as the Mental Health Environment of Care Checklist (MHEOCC) so that physical changes to the environment could be carried out in order patient safety could be improved(Mills et al., 2013). The MHEOCC included identifying anchor points for ligatures and security issues related to absconding. The MHEOCC also suggested abatements for the potential hazards that were identified. After implementing the MHEOCC and abating potential hazards there was a significant decrease in suicide rates over the 2 year study period which was sustained over the longer term(Watts et al., 2017). Examples of hazards and abatements were anchor points in the bathroom which included the bathroom door, shower head, and towel bar or hook. Suggested abatements included shower heads that did not provide anchor points and breakaway towel hooks. In closets, common anchor points were the closet door and clothing rod and suggested abatements included open closet arrangements and breakaway clothing hooks(Watts et al., 2012). To date the MHEOCC has only been implemented in the US in Veteran Affairs mental health units.

Several studies make mention of concerns with regard to privacy. Allowing patients privacy whilst in their room poses an issue, as studies report that when privacy has been granted such as when a patient uses the toilet then the opportunity for privacy has been used to tie a ligature point(Bowers et al., 2011). Certain types of door designs have been suggested to overcome such

issues(Bayramzadeh, 2017). However, it is acknowledged that it is a challenge to keep patients safe whilst at the same time trying to promote recovery and maintain dignity.

*Absconding*

Absconding refers to "*patients leaving psychiatric hospitals in an unexpected and/ or unauthorized way*"(Voss and Bartlett, 2019), p.1. and can include leaving the ward without permission and failure to return at an agreed time either when on S 17 leave (when detained) or on agreed leave as an informal patient. Across the broader literature there are different definition of absconders and absconding. A review conducted in 2009(Muir-Cochrane and Mosel, 2008) found of 39 articles retrieved that only 10 defined absconding as patients being absent without permission with the length of absence ranging from more than 1 hour to when it was noticed that the patient was missing. Some authors view absconding as when as patient leaves the area and others as when who has left the hospital grounds and failed to return. Some health services do not consider a voluntary patient leaving the hospital without permission as absconding whereas all detained patients who go absence are recorded as having absconded.

Suicide after absconding is problematic with between 60 to 70% of patients taking their lives away from the ward, either on while on agreed passes and after having absconded (Hunt et al., 2010; Sakinofsky, 2014). One of the main ways to prevent such occurrences is through improving ward security through the locking of ward doors(Cleary et al., 2009; Huber et al., 2016; van der Merwe et al., 2009) or through video monitoring or swipe card systems to regulate patients' entry and exit(Hunt et al., 2010). Although locked doors reduce absconding, they increase the workload for staff, however open wards cause nurses to be anxious related to their vigilance(Sakinofsky, 2014) of patients' whereabouts. Other measures to reduce absconding that have been suggested include, transfer of high risk patients to a locked psychiatric intensive care unit, improved observation methods or an increased focus on engagement and support by staff on admission(Hunt et al., 2010).

Previous reviews have shown that suicides were just as prevalent on locked as well as open wards(Bowers et al., 2008). More recently Huber et al. 2016 conducted a 15-year naturalistic observation study of the occurrence of suicide and suicide attempts and absconding in 21 German psychiatric hospitals. They found that suicide attempts were less common on open wards than on locked wards, but completed suicide did not differ significantly between ward types(Huber et al., 2016). Clinicians who completed surveys as part of the 1997 to 2006 data set for the NCISH felt that suicides that took place as a result of the patient absconding who have been less likely to occur if there was closer patient supervising, better treatment compliance, increased staff numbers, improved communication and better staff training(Hunt et al., 2010). Data from a later NICSH survey revealed that closer monitoring of inpatients and access points, and improved risk assessments were important factors that would also help to reduce suicide in this patient group(Hunt et al., 2016).

*Observation and supervision*

Special observation was first introduced to reduce the risk of self-harm and suicide, and to prevent aggressive behaviour or absconding(Chu, 2016; Cox et al., 2010; Manna, 2010). There is however no universal standard definition of what constitutes observation with terms varying across mental health settings(Manna, 2010; Sakinofsky, 2014) it is generally agreed that special observations if implemented correctly can be lifesaving to the most seriously ill patients at risk from suicide(Chu, 2016; Manna, 2010; Russ, 2016; Slemon et al., 2017) although it is recognised that is a very resource intensive process(Chu, 2016; Manna, 2010). However, many authors have come to the conclusion

that special observations are often less than therapeutic and in some cases counterproductive(Cox et al., 2010; Slemon et al., 2017).

Observation of a patient may occur at random or scheduled intervals of time (intermittent) or take place continually (either visually or at arm's length)(Appleby et al., 2015). It has been suggested that scheduled checks of intervals longer than 15 minutes are inadequate as death by asphyxiation may occur in as little as five minutes and that randomly varied checks make it more difficult for a hospitalized patient to plan a suicide, and make it more likely that the plan will be discovered(Lieberman et al., 2004). It has been recommended that cameras/CCTV(Appleby et al., 2015; Cardell et al., 2009; Georgiou and Holder, 2017; Perry et al., 2017) or mirrors(Georgiou and Holder, 2017; Perry et al., 2017) be used to ensure that there are clear lines of site for staff members to view patients and that these could be used between 10-15 minute checks(Cardell et al., 2009) or when stepping down from constant observation(Appleby et al., 2015).

Results from limited studies are conflicting, one prospective longitudinal observational study did not shown any relationship between constant observation and self-harm (which include suicide attempts)(Stewart et al., 2009). There had not been any attempted suicides when constant special observations took place immediately on admission for those who deemed to be at risk. The study also showed that incidents had still occurred when constant special observations were introduced at some point during their admission(Stewart et al., 2012). However, a further study showed that intermittent observation may be an alternative way to reduce self-harm(Stewart and Bowers, 2012). Findings from previous reviews have shown that there is a lack of empirical evidence demonstrating the effectiveness of special observations increasing patient safety. These same reviews also acknowledge the difficulties of ethically conducted such studies(Chu, 2016; Manna, 2010). Incidents of suicide have been shown to still occur when as patient is under special observations(Appleby et al., 2015; Bowers et al., 2011; Chu, 2016; Flynn et al., 2017; Sakinofsky, 2014; Stewart et al., 2012). Patients were reported to have tied ligatures underneath the bedclothes while in bed or tied ligatures whilst they were allowed to go to the toilet unobserved or whilst a nurse stood to one side to give privacy. In such instances patients were reported to have run into bedroom, locked the door behind them and then had tied a ligature before access could be gained(Bowers et al., 2011). Other causes of inpatient suicide were incomplete or infrequent patient observations(Appleby et al., 2015; Sakinofsky, 2014), a failure to follow ward policies and procedures(Appleby et al., 2015; Sakinofsky, 2014), low staff to patient ratios(Appleby et al., 2015; Sakinofsky, 2014) or when observation was carried out by less experienced staff or staff who were unfamiliar with the patient(Appleby et al., 2015; Cox et al., 2010). Findings from the NCISH data set 1997 to 2007 revealed that problems were more likely to occur due to ward design issue or other disturbed patients. The findings also showed that clinicians felt that the deaths of those patients who died by hanging on the ward would have been less likely if there was closer supervision, improved staff training and increased staff numbers(Hunt et al., 2012).

Research shows us that it is often the less experienced staff members who are assigned to undertake special observations due to limited staff and financial resources(Flynn et al., 2017). Chu et al. 2016(Chu, 2016) in his review of special observations asked if there was any evidence that some types of staff may be more suitable for special observations than others. It was concluded that *"it is not the experience or the level of training that is important, but the relationship between the patient and the observer*".(Chu, 2016), p. 23

A qualitative review found that nurses feel that the practice of special observations lacks an evidence base, is intrusive and humiliating to patients and goes against what they belief about the nature of a therapeutic alliance (Sakinofsky, 2014). However, patients feel that the experience

enables them to feel safer and more hopeful when staff engage with them on a therapeutic level and are emotionally support even though the experience is intrusive. Nurses described how they spent time with patients when on special observations and how they could use this time to do some therapeutic work with the patient if they had the skills but that special observations were more about prevention than being about cure(Rooney, 2009).

Bowers et al. 2011(Bowers et al., 2011) reported that some suicides had been prevented because of staff actions such as when the nurses inadvertently intervened in suicidal planning by entering the patient's bedrooms such as to discuss an aspect of their care, to conduct a psychological assessment, to take their physical observations, for a fire safety check, or to ask if they wanted to go for a walk offering patients a drink, calling them for dinner, or for their medication. Patients were found because of staff *being 'caringly vigilant and inquisitive'* such as noticing suspicious actions or responding to an unusual noise. Bowers et al. 2011(Bowers et al., 2011) also reported that for their sample that most suicide attempts occurred in the evening or night hours and peaking during time of nursing shift handovers when supervision is at a reduced level. The authors suggested that increasing general observation and supervision during handovers and evening hours may help with suicide prevention(Bowers et al., 2011).

*Zonal observations*

Zonal observations are an approach that involves establishing areas known as zones where staff observe and engage with a particular group of service users within a specified ward area(Baker, 2018; Chu, 2016). It is seen as an alternative to continuous observation(Baker, 2018) or when stepping down from continual observation(Chu, 2016).There were no research studies that explored the effectiveness of zonal nursing on levels of suicide. However, a description of a zonal nursing initiative alongside an increase in patient engagement activities in a medium secure service has been described. Reduction in the level of adverse incidents, patient and staff injuries, self-harm and violence and aggression were reported. Patients were found to have engaged more with the nurses and as a result fewer staff were needed which led to a reduction of costs(Carr, 2012).

*No suicide contracts*

No suicide contracts or no harm contracts have been considered as an alternative or an adjunct to special observations(Bowers and Park, 2001). These take place during periods of high risk to determine if the intensity of observation can be reduced(Lieberman et al., 2004). They consist of a verbal or written agreement between staff and a patient, indicating that the patient agrees to not kill or harm himself or herself and that they will seek help when suicidal thoughts reach an extreme point(Puskar and Urda, 2011). Findings from recently published review articles have found that there is a lack of empirical evidence to support the use of no-suicide contract as an effective intervention for suicide prevention in in-patient settings(Cutcliffe and Stevenson, 2008; McMyler and Pryjmachuk, 2008; Puskar and Urda, 2011). Just one piece of research was found which was a survey of mental health practitioners. Physicians, mental health nurse practitioners, and allied health practitioners were asked about their practices and experiences with suicide prevention contracting in Australia across in-patient and outpatient settings(Edwards, 2010). It was found that there were three types of suicide prevention contracting in place, each was described as having a different clinical application. The different types were:

verbal no-suicide assurances (a brief verbal exchange a (single question and answer) where a patient is asked to assure the evaluator, they are able to refrain from suicidal behaviour;

a verbal non-suicide agreement (characterized by an extended process of negotiation where a patient agrees to refrain from suicidal behaviour for a specified time period. Safety strategies are agreed upon that each party will undertake in a suicidal crisis) and

written no-suicide contracts: these are documents usually co-signed with a copy retained by both the patient and practitioner stating that the patient has agreed to refrain from suicidal behaviour, often for a specific time period. Safety strategies are also included.

*Therapeutic environments*

Alternative approaches to enhanced observation methods have been described in the literature and include establishing and providing therapeutic programmes of meaningful structured activity(Cox et al., 2010). The notion of '*engagement'* has been greatly discussed as alternative approach to observations and involves "*forming a therapeutic relationship, conveying genuine acceptance and tolerance with hearing and understanding, emphasizing the value of compassion, emotional identification, trust and listening without prejudice*" [p.169.] (Cox et al., 2010)·. No empirical literature that explored the effectiveness of therapeutic environments or relationships was found. Ray et al. (2011) described the development of two processes designed to be a stepping-stone between constant special observations and intermittent special observations which they term Psychiatric Nurse Availability and Psychiatric Monitoring and Interventions. These interventions would be implemented in cases where a patient who is thought be at risk of self-harm or suicide has been able to develop a therapeutic relationship with staff. The patient would be encouraged to share in the responsibility for maintaining their safety and talk to staff about any distressing thoughts or feelings that may lead to self-injurious impulses as opposed to being under constant special observations. However, the authors have not evaluated this approach other than to report positive changes in seclusion, restraint and staff feelings of personal safety.

One further piece of work that was conducted as part of a clinical doctorate explored the concept of relational security (also named as therapeutic security). The Department of Health recently issued practice guidelines on relational security and described it *"Relational security is not simply about having 'a good relationship' with a patient. Safe and effective relationships between staff and patients must be professional, therapeutic and purposeful, with understood limits"* (Appleby, 2010) [p.5]. The study however, found no relationship between relational security and risk events on the forensic psychiatric wards(Arsuffi, 2017).

*Organisational factors and approaches*

Evidence suggests that implementing guideline recommendations, training and environmental changes related to ward safety have the potential to reduce suicide-related mortality(Cardell et al., 2009; De Santis et al., 2015; Kapur et al., 2016; Mokkenstorm et al., 2018; Navin et al., 2019). A number of organisational approaches have been described such as the Tidal Model(Barker and Buchanan-Baker, 2005) and the implementation of Wales Applied Risk Research Network (WARRN)(Gray et al., 2019; Snowden et al., 2019). In an evaluation of the Tidal Model within acute care settings(Barker and Buchanan-Baker, 2010), there were reductions in the number of self-harm and suicide attempts, reductions in aggressive verbal and physical events toward staff and fewer incidents needing physical control and restraint procedures.

The WARNN organisation was created in 2003 and took a formulation-based technique for the assessment and management of serious risk (e.g. violence to others, suicide, etc.) for users of mental health services(Gray et al., 2019; Snowden et al., 2019). An online survey was disseminated to NHS clinicians used to assess the effectiveness of WARRN within secondary mental health

services(Snowden et al., 2019) and child and adolescent mental health services(Gray et al., 2019). The clinicians perceived WARRN to have improved their clinical skill-set and their confidence in conducting risk evaluations and safety-planning, increased patient safety and the safety of the general public strongly and a belief that WARRN had saved lives(Gray et al., 2019; Snowden et al., 2019).

The most recent review conducted on strategies to reduce suicide-related mortality among in-patients cited environmental modifications as one of the promising solutions(Navin et al., 2019). The thematic analysis of the claims management system that holds details of every negligence claim notified to the NHS Resolution since 1995 was thematically analysed. It was reported that observation not carried out within prescribed time period, ligature risk due to environmental design and ineffective security on locked doors had contributed to a number of patient suicides within in-patient settings. The report concluded that although there are guidelines for the design of new mental health units to include safety features such as full lines of sight and anti-ligature facilities, there is however, no specific guidance as to how existing mental health inpatient units could be modified(Oates, 2018). Decreased visibility due to poor ward design was found to be of concern to staff in in-patient units particularly regarding bathroom doors and as a result the hospital installed specialised doors which have a trapezoidal shape. Staff reported that the hospital maintains an open-door policy(Bayramzadeh, 2017), however, this was cited as often being difficult to enforce. The importance of a centrally located nurses station that enables staff to observe patients in corridors and activity and other areas was felt to be of fundamental importance(Bayramzadeh, 2017).An analysis of the 1997-2012 data set from the NCISH and found that changes related to ward safety (removal of non-collapsible curtain rails and removal of low lying ligature points), staff training (clinical staff receiving training in the management of suicide risk), and implementation of policy (for example policy regarding response to inpatients who abscond) and guidance (for example implementing NICE self-harm guidance) were associated with a lower suicide rate after the introduction of these changes(Kapur et al., 2016).

## Discussion

### *Where the evidence lies*

The question that this rapid review sought to address was "What are the barriers and facilitators to implementing relational and environmental risk management approaches that address suicidality in inpatient mental health and learning disability services? The evidence outlines a number of approaches that might instinctively be considered to be helpful, empathic and supportive. Yet these have little or no underpinning research so we are not able to determine at the moment whether they are effective or not in reducing suicides in inpatient care. These approaches include relational security and risk events on the forensic psychiatric wards, therapeutic environments or relationships, the use of no-suicide contracts and the effectiveness of zonal nursing on levels of suicide. The Tidal model(Barker and Buchanan-Baker, 2005) does seem to show some evidence of fewer untoward incidents at ward level but further research would help determine the aspects of this model that are useful.

Bowers et al. 2011(Bowers et al., 2011) work was promising and could form the basis for further study. They reported that some suicides had been prevented further to observation or formal, regular checks. Other suicides were prevented because nursing staff had interrupted suicidal attempts as they were engaging the patients in other activities (discussing their care, conducting a

psychological assessment, taking physical observations, for a fire safety check, or offering to go for a walk, a drink, dinner, or medication). There might be some evidence to support the connection between the general visibility, activity and engagement of health care practitioners and prevention of inpatient suicides.

*Facilitators*

1. Without question, the removal of anti-ligature equipment has reduced suicide in hospital. Regular checks of the environment to identify and remove ligature points has been effective. In order to do this, the evidence suggests that the use an established checklist is helpful.

2. The standardisation of special observation processes is important. Healthcare practitioners who carry out these observations need to be well informed about the risks that the patient pose as well as knowing how to conduct the observations and what to do in the event of an incident occurring. Therefore, training and updates are important.

3. There is evidence that there is an opportunity to add support during two critical periods in a hospital stay for someone experiencing suicidal thoughts. Firstly, after someone has been on on-to-one special observations, there is evidence that they would benefit from a 'step-down' period that might contain a less intense level of observation, but during which they need a high level of support. It has been suggested that using mirrors or CCTV to support observations during this the interim period might be effective. However intermittent observations at 15-minute intervals is too long to interrupt a suicide attempt, 5-10 mins interval is better. Secondly, it was found that it is important to engage well with patients at high risk on admission as this can create a collaborative arrangement and improve engagement with treatment.

4. Whether a ward is locked or not is unrelated to suicidal activity per se. However, as suicide is linked to absconding, locked wards are one way to reduce absconding. Although improved staff training and engaging meaningfully with patients also appears to reduce absconding.

*Barriers*

1.Given that the highest proportion of hangings are located in rooms in which patients spend time in private without direct supervision such as single rooms, toilets or bathrooms then the creation of privacy has a counter effect upon suicidal attempts. There was no evidence that '*no-suicide contracts'* are an effective strategy to moderate increased privacy. Balancing individual patient independence and privacy against the need for constant observation continues to be a fundamental tension in the management of suicidal behaviour in hospital. Although alternatives such as zonal observation have been suggested and reported as being used in practice, there is not yet any evidence to demonstrate if this is effective in reducing suicide.

2.Observations were shown to have been carried out by nursing staff who either did not know the policies or had not adhered to them, had not adhered to the time intervals required, or allowed patients more privacy on special observations than was safe to do so. It is important to ensure that observing staff understand the particular patient's risk formulation, care plan and observational requirements as well as the service's policy and procedures, for example how to respond when absconding has occurred. The increased confidence that nurses have when using the WARNN formulation is noted(Gray et al., 2019; Snowden et al., 2019) but no evidence was located in this review that correlates reduced suicide in hospital and WARNN.

3. Most suicide attempts occurred in the evening or night hours and peaking during time of nursing shift handovers when supervision is at a reduced level. Strategies to manage these high-risk periods

need to be considered. We are aware of the WARNN initiative in Wales but were unable to locate any evidence of its impact. Nevertheless, a systematic approach to individualised engagement, creation of a therapeutic relationship, risk assessment and management seems sensible.

*Limitations of the review*

Rapid reviews by their nature allow for a quick overview of available literature to be assimilated within a brief set timeframe on a limited number of databases. As a consequence, they cannot claim to be extensive. In this review, the date range was limited to ten years and it is acknowledged that there may be useful evidence outside of the date range.

Despite the inclusion of relevant terms, there were no specific risk factors or reduction approaches were identified for people with a learning disability, for example the use of behaviour support plans on risk reduction drawn from this rapid review. This may be because the evidence is predominantly focussed on adult mental health acute and secure settings. This might be a clear gap in the available research literature. Similarly, there was no specific body of evidence located using this search strategy for older adults so no particular recommendations can be made about that population.

**Implications for research and practice**

The currently available evidence suggests that monitoring of and checking the environment regularly is important along with closer engagement and observation of patients to an agreed protocol by informed nursing staff. Standardisation and training, including updates for staff who will be carrying out observations to endure policies are understood as well as individual patient risk formulations as also important.

There is evidence that increased engagement at two high risk time points are effective: when a patient is admitted, introduce observations early and engage with them and when reducing observational levels from special observations, invest in engagement activities then. Presumably this helps patients feel more supported, more able to engage in treatment and safer.

It was disappointing that the research evidence is focused on locking wards, observation levels and care planning specifically for going on leave from the ward. There is a gap in research investigating 'engagement activities' eliciting exactly what they are and determining how they might be effective. Other methods of managing the environment such as zonal nursing is under-researched. There is a need for new innovative ways for managing risk of suicide in hospitals that bring together meaningful engagement and maintaining safety.

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All authors have met the four criteria for authorship:

•Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND

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