

Mental health patient safety

A rapid literature review

April 2019

Mental health patient safety: Summary

Patient safety is firmly established as a fundamental principle and espoused goal of healthcare systems internationally. Until recently however, mental health has been largely overlooked in the application of wide-ranging and integrated patient safety approaches.

Currently in NSW, the Ministry of Health and Clinical Excellence Commission are leading work to address this and galvanise efforts to improve safety and quality in mental health services.

The review is based on searches of PubMed, the Cochrane Library of Systematic Reviews, the National Institute for Health Research and key organisations involved in safety internationally.

This document summarises the findings of a rapid literature review that sought to synthesise the current state of evidence about mental health patient safety

It is structured in three main sections:

1. Evidence about the type of safety incidents that occur in mental health settings
2. Evidence about underlying factors and risks that contribute to safety incidents
3. Evidence about interventions that seek to improve safety in mental health settings (Figure 1).

Types of safety incidents

There are three main categories of safety incidents in the literature: incidents where potentially preventable harm occurred (e.g. deteriorating patients, falls and accidents, suicide); incidents where healthcare causes iatrogenic harm to patients (e.g. medication error, seclusion and restraint); and incidents that resulted in harm to staff (e.g. direct and vicarious trauma and burnout).

Underlying and contributing factors

The literature identifies a wide range of factors that pose or modify the risk of safety incidents in mental health care settings. These factors can be clustered into broad groups spanning organisational, leadership, staffing, physical environment, attitudinal and knowledge issues.

What works? Interventions approaches and tools to improve patient safety

There is a wide range of interventions, approaches and tools described in the literature – spanning a continuum from small-single site quality improvement projects to large scale system-wide initiatives. Overall, the evidence base about what works to improve safety in mental health is weak – methodologically sophisticated research is lacking.

There are however a few interventions for which there is some supportive evidence. These include the Safewards approach that addresses conflict and containment in inpatient settings which is a model developed in London's Maudsley Hospital and adopted in a range of jurisdiction internationally, including Victoria and Queensland.

There is also some evidence of impact from targeted policy initiatives, such as suicide prevention in the UK (White et al, 2012); and a number of studies that suggest trauma-informed care is associated with a reduction in safety incidents.

Several agencies are applying the Institute for Healthcare Improvement principles in mental health care settings. There is weak evidence (primarily self-reported) regarding the impact of these types of quality improvement approaches.

Overall, the evidence base is dominated by survey data, small scale observational studies and small case studies. A Cochrane review into non-pharmacological approaches to violence and aggression was published in 2006 – and highlighted the complete lack of controlled studies into seclusion and restraint, de-escalation, changed observation patterns or staffing ratios – a situation which has not changed in the intervening 13 years.

Care is needed in applying the evidence base to practice – while many patient safety risk factors that exist in medical settings are relevant in mental health settings, there are issues in mental health that are unique. Use

of seclusion and restraint, self-harming behaviour and suicide, absconding, emotional harm, and reduced capacity for self-advocacy are particularly prominent issues for mental health patients.

Bringing together insights from both communities will see quality and safety actively embedded within mental health research and practice; and further development of the academic discipline of quality and safety –extended by encapsulating knowledge and expertise from the mental health community.

Figure 1: Schematic of the mental health patient safety literature



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Introduction

Almost 20 years ago, the release of two seminal reports *To Err is Human* in the US (Institute of Medicine, 2000) and *An Organisation with a Memory* (NHS England, 2000) in the UK, catalysed a step change in healthcare policy and delivery. These reports leveraged empirical studies that described the pervasiveness of patient safety incidents and their consequences in terms of outcomes, patient experience and costs (Leape et al, 1994; Brennan et al, 1994; Wilson et al; 1995). More importantly, they galvanised action and changed the healthcare safety landscape. In 2004, the World Health Organization launched its World Alliance for Patient Safety, establishing safety in the international health policy arena. Since then, safety in healthcare has been established as a key component of quality and features prominently in policy, management, clinical and patient priorities.

While the imperative to deliver safe care is clear, for some specialties and patient groups progress has been slow. This is particularly the case for mental health where patient safety risk factors that exist in medical settings often apply, but with significant added complexity arising from issues that are specific to patient and staff safety in mental healthcare settings.

This document describes the findings of a rapid literature review that sought to locate, collate and summarise recently published evidence about the characteristics and consequences of patient safety issues in

mental health, as an input into the NSW Mental Health Patient Safety Program which is being developed by the Clinical Excellence Commission and NSW Ministry of Health.

About this report

The report presents a brief summary of findings, details about search methods and an overview of the grey literature. It then presents results in four sections:

- Safety incidents
- Underlying and contributing factors
- What works? Interventions, tools and approaches to improve safety in mental health
- Emerging areas of interest

Within each of these topics, key articles and reports are tabulated. More detailed bibliographic information is provided in a separate document.

What is patient safety?

The World Health Organization defines patient safety as the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum

(<https://www.who.int/patientsafety/en/>).

Methods

Searching the peer reviewed literature

A dual approach was used with an initial search of the Cochrane Library of Systematic Reviews, the National Institute for Health Research database and PubMed in March 2019 focusing on generic terms and a more targeted search in April 2019 (Table 1).

Searching the grey literature

A targeted approach to the grey literature focused on organisations that are active in mental health and safety domains in Australia, Canada, New Zealand the US and the UK.

Synthesising the results

Following retrieval of articles and data extraction into evidence tables, thematic analysis identified broad focus areas and constituent themes featured in the literature. The main focus areas were:

Identifying the types of safety incidents that occur in mental health settings –

reveals the breadth of issues that require attention and informs the development of measures to meaningfully assess care and evaluate improvement efforts.

Identifying factors that have been shown to shape and contribute to safety in mental health

informs selection of levers for change and design of improvement efforts and implementation

Identifying interventions that have been shown to work to improve safety in mental health –

informs development of evidence-based change programs and policy in NSW.

This report is structured using those focus areas and presents a summary of the evidence. Key publications are featured in summary tables and more detailed bibliographic information is provided in a separate document.

Table 1: Search strings used to assess the peer reviewed literature

	Search string	Records found
1.	“mental health” AND “patient safety” [Ti/Ab]	249
2.	Selected	72
3.	Aggression OR assault OR “psychological safety” OR “safe sedation” OR “diagnostic error” OR “deteriorating mental state” AND [patient safety AND mental health] [Ti/Ab] last 5 years	149
4.	Selected	49
5.	Leadership AND “patient safety culture” AND mental health	1
6.	Trauma informed care AND safety	22
7.	Included in full reference set for the report	123

Scanning the grey literature

The grey literature provides a wealth of information about programs and policies focused on patient safety; and those focused on mental health care. However, information about approaches focused on the intersection

between patient safety and mental health is more limited. A targeted approach to the grey literature searched the websites of organisations internationally that are active in mental health and safety domains (Table 2).

Table 2: Key programs and initiatives regarding mental health safety –from the grey literature

Organisation	Programs and reports
World Health Organization	<p>World Alliance for Patient Safety Strategic view of patient safety; produces conceptual frameworks of patient safety research and practice.</p> <p>WHO guidelines: Management of physical health conditions in adults with severe mental disorders</p> <p>The guidelines provide evidence-based advice for this patient group in seven key areas: tobacco cessation; weight management; substance use disorders; cardiovascular disease and cardiovascular risk; Diabetes mellitus; HIV/AIDS; other infectious diseases (e.g. tuberculosis, hepatitis B and C).</p>
Organization for Economic Cooperation & Development	<p>The OECD is undertaking a project to establish how performance in mental health (including safety) should be defined, measured, and improved. A report of international performance benchmarking and best-practice policies, is due for release in 2019.</p>
The King's Fund	<p><i>Quality Improvement in Mental Health</i> (Ross and Naylor, 2017). Based on 20 interviews and a half day seminar attended by 'approximately 90 senior leaders', this report features case studies in three organisations (two in England and one in Singapore). Its key findings are:</p> <ul style="list-style-type: none"> • There are no fundamental differences between mental health and other areas of healthcare in terms of quality improvement approaches • Building an organisation-wide commitment to quality improvement requires courageous leadership, a sustained focus, and efforts to promote transparency, evaluation and shared learning • Co-production and service user involvement in mental health can be harnessed as a powerful asset in quality improvement work • Leaders play key roles in: building board-level commitment to quality improvement; engaging directly and regularly with staff; empowering frontline teams to develop solutions; building appropriate infrastructure, sustaining and embedding quality improvement in organisational culture.
Canadian Patient Safety Institute	<p>CPSI provides learning modules on patient safety in mental health using a systems thinking perspective. Focuses on suicide and self-harm; violence and aggressive behaviour; restraint use and seclusion; absconding.</p> <p><i>Patient Safety in Mental Health</i> (Bricknell et al, 2009) - a comprehensive literature review that:</p> <ul style="list-style-type: none"> • Identifies a need for national leadership and advocacy for patient safety and a framework or strategy which considers the unique concerns related to mental health (including standardisation of patient safety terminology and nomenclature, practices, reporting mechanisms, and policies)

	<ul style="list-style-type: none"> • highlights the importance of a culture of safety embedded within all levels of an organisation – including inclusion of staff and patients in the examination of patient safety incidents • Suggests that effective communication, service integration, and inter-professional collaboration, especially during transitions of care is required • Advocates for the use of empirically-validated and consistently accepted tools and training and education programs to develop and implement evidence-based patient safety interventions
Healthcare Improvement Scotland	<p><i>Scottish Patient Safety Program : safety principles in mental health</i></p> <p>A program with the espoused aim <i>people are and feel safe</i>. The program aims to cultivate learning among those delivering and in receipt of care, using that knowledge to improve safety. It features collaboration and innovation among staff, service users and carers; and improvement science principles. It identifies four safety principles in mental health safety: communication; leadership and culture; least restrictive practices; physical health.</p>
Health Quality and Safety Commission New Zealand	<p><i>Evidence review to inform development of the mental health and addiction quality improvement programme 'Learning from adverse events and consumer experience' project (2019)</i>. In the few mental health studies available, most staff felt that incident reporting had a positive effect on safety, not only by leading to changes in care but by changing staff attitudes and knowledge. There has been significant progress to develop systems, processes and tools suitable and applicable to the mental health sector. Serious Incident Review London Protocol is noted as the preferred option in the sector.</p>
Agency for Healthcare Research and Quality, USA	<p><i>Strategies To De-escalate Aggressive Behaviour in Psychiatric Patients (2016)</i> The available evidence about relevant strategies is very limited. Only risk assessment decreased subsequent aggression or reduced use of seclusion and restraint (low strength of evidence). Evidence for de-escalating aggressive behaviour is even more limited.</p>
Institute of Mental Health in Singapore	<p>A 2,000-bed acute tertiary psychiatric hospital. Featured in the King's Fund Report <i>Quality Improvement in Mental Health</i>. Website features medication safety animation.</p>
Department of Health, Australia	<p><i>National safety priorities in mental health: a national plan for reducing harm (2005)</i> outlined four priority areas: Reducing suicide and deliberate self-harm in mental health and related health care settings; Reducing use of, and where possible eliminating, restraint and seclusion; Reducing adverse drug events in mental health services; and Safe transport of people experiencing mental disorders.</p>
Australian Commission on Quality and Safety in Health Care	<p><i>National Safety and Quality Health Service (NSQHS) Standards, 2nd ed, (2017)</i> includes standards relating to clinical governance; partnering with consumers; medication safety; comprehensive care; communicating for safety, recognising and responding to acute deterioration.</p> <p><i>Recognising Signs of Deterioration in a Person's Mental State</i>. A set of 28 signs, arranged into five indicators provide an overarching framework for monitoring deterioration in a person's mental state: Reported change; Distress; Loss of touch with reality or consequences of behaviours; Loss of function; Elevated risk to self, others or property.</p>

<https://apps.who.int/iris/bitstream/handle/10665/275718/9789241550383-eng.pdf?ua=1>

Safety incidents

A wide range of safety incidents occur in mental health (Marcus et al, 2018; Mills et al, 2018; Bricknell et al, 2009). Some of the incident types – falls and accidents, medication errors – occur in both physical and mental healthcare, while others – such as suicide and self-harm, seclusion and restraint - are unique to mental health. Many occur in inpatient settings (Marcus et al, 2018) while others occur in primary care (Carson-Stevens et al, 2016)

There are three main categories of safety incidents in the literature: incidents where potentially preventable harm occurred; incidents where healthcare caused iatrogenic harm to patients; and incidents that resulted in harm to staff.

Potentially preventable harm

Safety incidents that reflect 'an error of omission' or failure to prevent harm include:

- Situations where deterioration in a patient's physical or mental wellbeing is not recognised nor acted upon in a timely way (Porter et al 2018; Carson-Stevens, 2016; Jeffs et al, 2012)
- Suicide and self-harm (Marcus et al, 2018; Berg et al, 2017; Bricknell et al, 2009)
- Violence and aggression – physical verbal and sexual (Marcus et al, 2018; Bricknell et al, 2009; Giarelli et al, 2018 Ridenour et al 2015; Baby et al, 2016; McGarry, 2019)¹
- Compromised psychological safety (Usher, 2016; Dos Santos-Mesquita, 2016; Berg et al, 2017; Stenhouse et al, 2013; Berzins et al, 2018)
- Communication errors particularly in care transitions and handover (Carson-Stevens et al, 2016; Bricknell et al, 2006)

- Absconding (Marcus et al, 2018; Bricknell et al, 2009)
- Falls and other accidents (Marcus et al, 2018; Bricknell et al, 2009)
- A lack of cultural safety, particularly for Aboriginal patients (McGough et al, 2018)

Iatrogenic harm

Incidents that reflect 'an error of commission' – where there are unintended consequences of treatment or actions include:

- Seclusion and restraint –(Allan et al 2017; Bricknell et al, 2009)
- Medication errors and adverse drug events - up to 61% mental health inpatients experience a medication error (Alsheiri et al, 2017). There is evidence of underreporting of medication errors in Clinical Incident Management Systems (Morrison et al, 2018)
- Diagnostic errors (Bricknell et al, 2009) - particularly in justice systems where it has been estimated that in 10 - 15% of all inmates may be incorrectly classified in terms of diagnosis (Martin et al, 2016)

Staff harm –

Incidents where the health and wellbeing of members of the workforce is affected include

- Work-related distress - A Victorian study found that 14-17% of mainstream and forensic nurses met the diagnostic criteria for post-traumatic stress disorder, and 36% scored above the threshold for psychiatric caseness (Lee et al, 2015)
- Physical health is affected by exposure to violence (Renwick et al, 2019)

¹ Incidents related to aggression and violence threatening the safety and well-being of patients and staff – they are

particularly difficult to manage in cases where patients are drug affected (Usher et al, 2017).

Table 3: Key articles summarised (for full set of included articles, see separate file)

Reference	Methods	Key findings
<p>Alshehri et al, 2017</p> <p>Frequency and Nature of Medication Errors and Adverse Drug Events in Mental Health Hospitals: a Systematic Review.</p>	<p>Systematic review</p> <p>Included 20 studies Variability in study setting and data collection methods limited direct comparisons between studies</p>	<p>The rate of medication errors ranged from 10.6 to 17.5 per 1000 patient-days (n=2) and of adverse drug events (ADEs) from 10.0 to 42.0 per 1000 patient-days (n=2) with 13.0-17.3% of ADEs found to be preventable. ADEs were rated as clinically significant (66.0-71.0%), serious (28.0-31.0%), or life threatening (1.4-2.0%). MEs and ADEs were frequently associated with psychotropics.</p>
<p>Marcus et al, 2018</p> <p>Defining Patient Safety Events in Inpatient Psychiatry.</p>	<p>Conceptualisation of patient safety in inpatient psychiatry as framed by an application of the Institute of Medicine patient safety framework.</p>	<p>Patient safety events in inpatient psychiatry are broadly categorized as adverse events and medical errors. Adverse events are composed of adverse drug events and nondrug adverse events, including self-harm or injury to self, assault, sexual contact, patient falls, and other injuries. Medical errors include medication errors and nonmedication errors, such as elopement and contraband.</p>
<p>Berg et al, 2017</p> <p>Suicidal patients' experiences regarding their safety during psychiatric inpatient care: a systematic review of qualitative studies.</p>	<p>Systematic review of qualitative studies</p> <p>Included 20 studies</p>	<p>The review adopts a wider perspective of patient safety than solely in technical and physical terms. For the suicidal patient safety is highly dependent on perceptions of psychological safety and the fulfilment of their needs. Unmet needs for connection, protection and control left patients feeling unsafe and increased their suicidal behaviour.</p>
<p>Bricknell et al, 2009</p> <p>Patient Safety in mental health</p>	<p>Systematic review of peer reviewed and grey literature</p> <p>Review was complemented by 19 key informant interviews;and deliberations from a roundtable event that included 72 patient safety and mental health care professionals.</p>	<p>A comprehensive review of patient safety in mental health (Bricknell et al, 2009) identified on eight key types of patient safety incidents:</p> <ul style="list-style-type: none"> • violence and aggression • patient victimisation (and psychological safety) • suicide and self-harm • seclusion and restraint • falls and other patient accidents • absconding and missing patients • adverse medication events • adverse diagnostic events.

Underlying and contributing factors to safety incidents

The literature identifies issues that pose or modify risks of safety incidents in mental health settings - spanning organisational, leadership, staffing, physical environment, attitudinal and knowledge factors.

Organisational factors

- Multiple studies identify the importance of culture (Oliviera et al, 2018; Heckemann et al, 2019; True et al, 2017) and climate (Robinson et al, 2018; Haines et al, 2017; Zaheer et al, 2018) in patient safety
- Rules and norms both explicit (hospital protocol) and implicit (ward practice) influence seclusion and restraint management (Goulet and Larue, 2018)
- Poor communication and information transfer is identified as a factor in drug administration errors (Keers et al, 2018)
- Care processes including monitoring and managing risk and psychological assessments have been associated with rates of post-hospitalisation suicides (Riblett et al, 2017)
- In a multi-centre study, open vs. locked door policy was not associated with aggressive behaviour. Restraint or seclusion was less likely in hospitals with an open door policy. Other restrictive interventions used to control aggression were significantly reduced in open settings. (Schneeberger et al, 2017)
- A survey of 106 inpatient units in Australia found evidence-based medication safety practices only partially implemented (Gadzhanova et al, 2018)

Leadership factors

- Perceptions of senior leadership and teamwork were significantly associated with overall perceptions of patient safety (True et al, 2017; Zaheer et al, 2018)
- Leadership support at one level (supervisory / line manager) can substitute for the absence of leadership support for safety at another level (senior manager) (Zaheer et al, 2018)

Staffing factors

- Poor staff wellbeing is correlated with worse patient safety (Hall et al, 2016)
- Staffing levels and skill mix have been associated with medicine administration errors (Keers et al, 2018)
- Suicide in patients under observation in England and Wales was associated with less experienced staff or staff unfamiliar with the patient (Flynn et al, 2017)
- One study found staff turnover and incident reporting were related to suicide rates, but staff sickness and patient satisfaction were not (Kapur et al 2016)

Physical environment

- Perceptions of safety among staff are increased by ward brightness, higher number of patient beds, lower staff to patient ratios, less dayroom space and more urban views. (Haines et al, 2017)
- A European cross sectional survey found that consideration of the physical environment was predictive of high team efficacy (Heckemann et al, 2019)

Attitudinal factors

- There are mixed feelings (Wilson et al, 2017; Kinner et al 2017; Muir-Cochrane et al, 2018) held by nurses' regarding the elimination of seclusion and restraint
- Variation in staff willingness to share power and responsibility with patients (Vandwalle et al, 2018) and patient-centredness (True et al, 2017; Berzins et al, 2018) influence perceptions of safety
- Cohesion between patients and an open group environment have a positive influence on psychological safety (Robinson et al, 2018)

Knowledge factors

- Nurses using manual restraint in Australian EDs noted a lack of training and education (Chapman et al, 2016)
- Staff training was associated with a lower suicide rate after the introduction of policy changes (Kapur et al, 2016)

Table 4: Key articles summarised (for full set of included articles, see separate file)

Reference	Methods	Key findings
Hall et al, 2016 Healthcare Staff Wellbeing, Burnout, and Patient Safety: A Systematic Review.	Systematic review Included 46 studies	16 out of 27 studies that measured wellbeing found a significant correlation between poor wellbeing and worse patient safety (one study found a significant association in the opposite direction). 21 out of the 30 studies that measured burnout found a significant association between burnout and patient safety.
Robinson et al, 2018 Perceptions of Social Climate and Aggressive Behaviour in Forensic Services: A Systematic Review.	Systematic review Included 7 studies	Factors which were found to have an association with aggression included patients' perceptions of safety, the level of cohesion between patients, the atmosphere of the environment, and an open group climate.
Zaheer et al 2018 Importance of safety climate, teamwork climate and demographics: understanding nurses, allied health professionals and clerical staff perceptions of patient safety.	Cross-sectional survey data were collected from nurses, allied health professionals and unit clerks working on intensive care, general medicine, mental health or emergency department (n-257). Hierarchical linear regression model with dependent variable perception of patient safety; independent variable blocks – ward type; demographics; leadership and teamwork; interactions. The regression model accounted for 44% of the variance in overall perceptions of patient safety.	Perceptions of senior leadership and teamwork were significantly associated with overall perceptions of patient safety. Results suggest that leadership support at one level (supervisory / line manager) can substitute for the absence of leadership support for safety at another level (senior manager).
Vandewalle et al, 2018 Patient safety on psychiatric wards: A cross-sectional, multilevel study of factors influencing nurses' willingness to share power and responsibility with patients.	Descriptive study based on a patient participation culture tool for inpatient psychiatric wards which was completed by 705 nurses employed in 173 psychiatric wards within 37 hospitals in Belgium. Multilevel modelling was used to analyse the self-reported data.	The extent of acceptance of nurses sharing power and responsibility with patients in areas concerning patient safety is influenced by nurses' sex, age, perceived competence, perceived support, and type of ward.
Haines et al 2017 Factors impacting perceived safety among staff working on mental health wards.	Cross-sectional design was employed across 101 forensic and non-forensic mental health wards, over seven National Health Service trusts nationally. Measures included an online staff survey, Ward Features Checklist and recorded incident data.	Perceptions of staff safety were increased by ward brightness, higher number of patient beds, lower staff to patient ratios, less dayroom space and more urban views, and presence of aggression in the workplace.

What works? - Interventions, approaches and tools

A range of interventions is described in the literature –from small-single site quality improvement efforts to large scale system-wide initiatives. Overall, the evidence base on what works to improve safety in mental health is weak – there is a lack of methodologically sophisticated research and only a handful of rigorous evaluations.

One intervention which has been evaluated in a number of jurisdictions is the Safewards model. Safewards comprises a set of 10 interventions designed to address conflict (e.g., aggression and self-harm) and containment (e.g., use of restrictive interventions) events in a forensic setting, and also addresses wider organisational culture. Developed by teams in King's College and the Maudsley Hospital in London, the model has been adopted in multiple hospitals in England (Bowers et al, 2015) in Denmark (Stensgaard et al, 2018), Victoria (Maguire et al, 2018; Fletcher et al, 2018), and Queensland (Higgins et al 2016); where it has been associated with reduced rates of seclusion and fewer conflict events.

There is some pre-post implementation evidence of impact in targeted policy initiatives, such as suicide prevention in the UK (White et al, 2012).

There are some studies that suggest trauma-informed care is associated with a reduction in safety incidents (Borckardt et al, 2011; Azeem et al, 2011; Barton et al, 2009).

There is weak evidence (primarily self-reported) regarding the impact of quality improvement approaches in mental health (Ross and Naylor, 2017).

For many interventions, there is little in the way of robust evidence. Muralidharan and Fenton in a Cochrane review published more than a decade ago found no controlled studies to support approaches to non-pharmacological containment strategies (seclusion and restraint, altered observation levels, locked wards, changed staff-patient

ratios, de-escalation techniques or behavioural contracts). Similarly a systematic review about training in de-escalation techniques found no evidence of impact on assaults, injuries, containment or organisational outcomes (Price et al, 2015).

Other interventions for which there is insufficient evidence to draw conclusions:

- Predictive models, risk stratification or flags on electronic medical records (Sands et al, 2017; Paterson et al 2019) or potential for aggression in ED patients (Winokur et al, 2018)
- Decision-support tools (Sands et al, 2017; Boudreaux et al, 2018; Suchting et al 2018; Watts et al, 2017)
- Fallsafe program (Healey, 2014)
- Team-based approaches that build mutual trust, flexibility, and role definition in de-escalation and restraint teams Snorrason and Biering, 2018)
- Specialist support through behavioural emergency response teams (Zicko et al, 2017)
- Training in mindfulness (Hallman et al, 2014)

For some interventions, there is evidence of no impact

- protected engagement time did not lead to any changes in adverse events (Smith et al 2018); an enhanced education model using simulation did not lead to changes in staff attitudes (Wong et al 2015)

There are some areas of promise:

- Shared leadership– in acute healthcare teams may improve performance outcomes – although data are limited limited on mental health (Aufegger et al 2019)
- Clinical supervision of healthcare professionals (Snowdon et al, 2017)

- The perceived importance of safety culture and climate in improving patient safety and its impact on patient outcomes has led to the use of patient safety

climate surveys.* A systematic review of climate assessment tools concluded that theoretical and methodological challenges limit their use (Ansalem et al, 2018).

[* Scotland <https://ihub.scot/media/1286/20170721-climate-tool-review-v08.pdf> \

Table 5: Key articles summarised (for full set of included articles, see separate file)

Reference	Methods	Key findings
Fletcher et al, 2018 Outcomes of the Victorian Safewards trial in 13 wards: Impact on seclusion rates and fidelity measurement.	A before-and-after design, with a comparison group matched for service type. Thirteen wards opted into a 12-week trial to implement Safewards and 1-year follow up. The comparison group was all other wards (n = 31) with seclusion facilities in the jurisdiction, matched to service type.	Adherence to Safewards was measured via fidelity checklists at four time points: twice during the trial, post-trial, and at 1-year follow up. Seclusion rates were reduced by 36% in Safewards trial wards by the 12-month follow-up period (incidence rate ratios (IRR) = 0.64,) but in the comparison wards seclusion rates did not differ from baseline to post-trial (IRR = 1.17) or to follow-up period (IRR = 1.35). Fidelity analysis revealed a trajectory of increased use of Safewards interventions after the trial phase to follow up.
White et al 2012 Implementation of mental health service recommendations in England and Wales and suicide rates, 1997-2006: a cross-sectional and before-and-after observational study.	A descriptive, cross-sectional, and before-and-after analysis of national suicide data in England and Wales. The study compared suicide rates for services implementing most of the recommendations with those implementing fewer recommendations and examined rates before and after implementation. We stratified results for level of socioeconomic deprivation and size of service provider	Implementation of recommendations was associated with lower suicide rates in both cross-sectional and before-and-after analyses. The provision of 24 h crisis care was associated with the biggest fall in suicide rates: from 11.44 per 10 000 patient contacts per year before to 9.32 after. Local policies on patients with dual diagnosis and multidisciplinary review after suicide were also associated with falling rates. Services that did not implement recommendations had little reduction in suicide. The biggest falls in suicide seemed to be in services with the most deprived catchment areas and the most patients.
Muralidharan and Fenton, 2006	Cochrane systematic review	People with severe mental illness can experience violent and

Reference	Methods	Key findings
Containment strategies for people with serious mental illness	No studies found that focused on non-pharmacological approaches (such as physical restraint, changed observation levels, locked wards, alter staff-patient ratios, de-escalation techniques or behavioural contracts)	aggressive episodes which can threaten both their safety and that of their carers. Sought to include trials comparing different non-pharmaceutical containment strategies for people with severe mental illness to measure their effects but found none. The widespread use of these strategies is subsequently not supported by evidence from randomised trials,
Ross and Naylor, 2017 Quality improvement in mental health	Three case studies based on 20 interviews and a half-day seminar attended by approximately 90 senior leaders in mental health.. No independent evaluation of outcome data	Building commitment to quality improvement requires courageous leadership, a sustained focus, and efforts to promote transparency, evaluation and shared learning. A strong emphasis on co-production and service user involvement is a powerful asset in quality improvement work.
Snowdon et al, 2017 Does clinical supervision of healthcare professionals improve effectiveness of care and patient experience? A systematic review.	Systematic review Includes 17 studies	Clinical supervision of health professionals is associated with effectiveness of care. The review found significant improvement in the process of care associated with enhanced patient health outcomes. While few studies found a direct effect on patient health outcomes, when provided to mental health professionals clinical supervision may be associated with a reduction in psychological symptoms of patients diagnosed with a mental illness. There was no association found between clinical supervision and the patient experience.
Aufegger et al 2019 Can shared leadership enhance clinical team management? A systematic review.	Systematic review Included 11 studies – mixed methods	Evidence to date suggests that shared leadership may be of benefit to improve performance outcomes in acute healthcare team settings.

Reference	Methods	Key findings
<p>Ansalem et al 2018</p> <p>Assessing safety climate in acute hospital settings: a systematic review of the adequacy of the psychometric properties of survey measurement tools</p>	<p>Systematic review</p> <p>Five questionnaire tools, designed for general evaluation of safety climate in acute hospital settings, were included</p>	<p>There is considerable ambiguity around concepts of safety culture and climate, safety climate dimensions and the methodological rigour associated with the design of measures. Standard reporting of the psychometric properties of developed questionnaires was variable, although there has been recent improvement. Evidence of the theoretical underpinnings of climate tools was limited, and a lack of clarity in the relationship between safety culture and patient outcome measures still exists.</p>
<p>Borckardt et al, 2011</p> <p>Systematic investigation of initiatives to reduce seclusion and restraint in a state psychiatric hospital.</p>	<p>Randomized, controlled study, with each of five inpatient units randomly assigned to implement an intervention component at different stages. PROC Mixed (version 9.2 in SAS) was used to determine impact of intervention on seclusion and restraint rates over a 3.5-year period.</p>	<p>Trauma-informed care interventions included staff training, policy and language change, environmental changes, and client involvement in treatment planning. At completion of study, seclusion and restraint had reduced by 82.3%. Unlike other interventions, changes to the physical environment were associated with reductions in seclusion and restraint rates, independent of when introduced.</p>

Moving forward

Published study protocols provide information about research that is currently underway. Additional insights about developments in the field are provided by Delphi processes

conducted with researchers and experts internationally (Dewa et al, 2018; Mascherek and Schwappach, 2016)

Table 6: Key articles summarised (for full set of included articles, see separate file)

Reference	Methods	Key findings
<p>Dewa et al 2018</p> <p>Identifying research priorities for patient safety in mental health: an international expert Delphi study.</p>	<p>Semistructured interviews were conducted with the experts to ascertain their views on research priorities in patient safety in mental health. A three-round online Delphi study was used to ascertain consensus on 117 research priority statements.</p> <p>Academic and service user experts from the USA, UK, Switzerland, Netherlands, Ireland, Denmark, Finland, Germany, Sweden, Australia, New Zealand and Singapore were included.</p>	<p>Seventy-nine statements achieved consensus (>70%). Three out of the top six research priorities were patient driven; experts agreed that understanding the patient perspective on safety planning, on self-harm and on medication was important. Highest consensus research priorities:</p> <ul style="list-style-type: none"> ▪ Patient contributions to their own safety ▪ The patient perspective on medication safety ▪ Perspectives on safety culture in patients who self-harm ▪ Good self-driven individualised safety planning ▪ Safety plans and safety improvement ▪ Factors in allowing reduction in restrictive practice including restraint and seclusion
<p>Mascherek and Schwappach , 2016</p> <p>Patient safety priorities in mental healthcare in Switzerland: a modified Delphi study.</p>	<p>Modified Delphi</p> <p>In the first round, 11 out of 24 invited experts participated. In the second round, 14 out of 24 participated.</p>	<p>Nine topics were defined along the treatment pathway: diagnostic errors, non-drug treatment errors, medication errors, errors related to coercive measures, errors related to aggression management against self and others, errors in treatment of suicidal patients, communication errors, errors at interfaces of care and structural errors. Structural errors and diagnostics were given highest priority. From the topics identified, some are overlapping with important aspects of patient safety in medical care; however, some core aspects are unique.</p>
<p>D’Lima et al, 2016</p>	<p>Protocol for systematic review</p>	<p>Initial inclusion and exclusion criteria have been developed and will be</p>

Reference	Methods	Key findings
<p>A systematic review of patient safety in mental health: a protocol based on the inpatient setting.</p>	<p>To conduct this systematic review, a thorough search across multiple databases will be undertaken, based upon four search facets ("mental health", "patient safety", "research" and "inpatient setting"). The search strategy has been developed based upon the Canadian review accompanied with input from the National Reporting and Learning System (NRLS) taxonomy of patient safety incidents and the Diagnostic and Statistical Manual of Mental Disorders (fifth edition)</p>	<p>refined iteratively throughout the process. Quality assessment and data extraction of included articles will be conducted by at least two researchers. A data extraction form will be developed, piloted and iterated as necessary in accordance with the research question. Extracted information will be analysed thematically.</p>
<p>Manning, J.C., et al (2018)</p> <p>Children and Young People-Mental Health Safety Assessment Tool study: Protocol for the development and psychometric evaluation of an assessment tool to identify immediate risk of self-harm and suicide in children and young people (10-19 years) in acute paediatric hospital settings.</p>	<p>The aim of this study is to develop and test the psychometric properties of an assessment tool that identifies immediate risk of self-harm and suicide in children and young people (10-19 years) in acute paediatric hospital settings.</p>	<p>Development phase: A scoping review of the literature to identify and extract items from previously published suicide and self-harm risk assessment scales. Using a modified electronic Delphi approach, these items will then be rated according to their relevance for assessment of immediate suicide or self-harm risk by expert professionals. Inclusion of items will be determined by 65%-70% consensus between raters. Subsequently, a panel of expert members will convene to determine the face validity, appropriate phrasing, item order and response format for the finalised items. Psychometric testing phase: The finalised items will be tested for validity and reliability through a multicentre, psychometric evaluation. Psychometric testing will be undertaken to determine the following: internal consistency, inter-rater reliability, convergent, divergent validity and concurrent validity.</p>

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