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REVIEW ARTICLE

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Implementing changes after patient suicides in mental health services: A systematic review

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Abstract

Suicides by mental health patients account for around a quarter of all suicides (Walby et al, 2018). Within services a range of approaches have been developed and implemented to reduce the risk of patient suicides. After every patient death by suicide, a review is carried out to identify recommendations which may assist in preventing future suicides. It is therefore important to identify the most effective methods for implementing these recommendations. The objective of this systematic review, completed in Northern Ireland, was to identify how recommendations from Serious Adverse Incident (SAI) reviews can be effectively implemented to contribute to reducing deaths by suicide within mental health services. Eleven electronic databases were searched for relevant work from 1 January 2005–30 November 2020. Quantitative, qualitative and mixed methods studies were included. A narrative synthesis was carried out of published and unpublished work on the effectiveness of implementing recommendations, after a death by suicide in mental health services. The review, which includes 41 published papers and reports, found that the literature is focused on producing recommendations to reduce future risk of suicide in mental health services. There is a lack of focus on the extent and effectiveness of the implementation of these. Recommendations have often not been tested or operationalised, limiting the translational value of these contributions. Leadership and culture are also identified as key drivers for change in mental health services. This review demonstrates that high quality research is being complete in this area, however, the majority of published research presents recommendations from reviews of mental health patient suicides. There is a lack of research focusing on implementing recommendations and evaluation of implementation, once recommendations have been made.

KEYWORDS

implementation, patient suicide, recommendations, suicide prevention

1 | INTRODUCTION

It is generally accepted that a key goal of mental health services is to prevent suicides (National Confidential Inquiry into Suicide and Homicide by People with Mental Illness (NCISH), 2016). Since the pioneering work of Henry Ford Behavioural Healthcare, which reduced patient suicides to zero over two consecutive years, the concept of *zero suicide* has been adopted by mental health service providers across many countries (Olson, 2016).

In the UK and most high-income countries, every patient suicide is considered a SAI and the relevant health and social care authorities carry out an investigation. These investigations produce detailed recommendations aimed to learn from the event and help prevent future patient suicides. Often the recommendations are produced, but little is known about the most effective way to implement changes or how best to evaluate the implementation process (Dale, 2011). This systematic review provided a thematic analysis of literature that related to recommendations arising from suicides of patients who had died whist in the care of mental health services or having been in contact with mental health services, within 12 months of their death. The decision to use the term 'patient' to describe those suicide deaths that have been included in this literature review was based on the National Confidential Inquiry into Suicide and Homicide by People with a Mental Illness, which collates data on those who die by suicide having been in contact with mental health services in the 12 months prior to their death. Over the period 2007–2017, there were 18,024 patient suicides in the UK, 28% of suicides in the population (NCISH, 2019). These were identified as patient suicides if the person was currently in the care of mental health services or had been in contact with mental health services in the 12 months prior to death. These suicides are then referred to as patient suicides throughout these annual reports and academic papers published from this longitudinal study. The systematic review examines the process of implementing recommendations following investigations into these mental health patient suicides.

What is known about this topic?

1. Services endeavour to learn from all patient deaths by suicide.
2. There were 18,024 patient suicides in the UK in 2007–2017, 28% of all general population suicides.
3. NHS England are currently reviewing 100,000 mental health patient deaths due to poor care.

What this paper adds.

1. Gaps have been identified in the evidence regarding the translation of recommendations into practice, in mental health care.
2. Incorporation of theories such as implementation science and human factors analysis by mental health services may help to close this gap.
3. The culture and leadership of organisations has an important part to play in preventing suicides.

2 | METHODOLOGY

This review protocol was based on PRISMA-P guidelines (Liberati et al., 2009; Moher et al., 2015). The research question focuses on the effectiveness of implementing recommendations after patient suicides in mental health services. The PICO (population, intervention, comparator and outcomes) framework was used to inform the design of the systematic review and develop concept groups from the research question (Khan et al., 2003). For this review, we referred to the definition of a systematic review included in the paper by Grant et. al., (2009).

2.1 | Search strategy and study selection

Eleven library databases provided search results as follows: PsycInfo – 22, Scopus – 413, Social Care online – 2,223, CINAHL Plus – 2,846, Cochrane Library – 150, PubMed – 2,740, Campbell Collaboration – 1, DoPHER – 13, Cochrane – 150, Theses – 3538 and Web of Science – 379. Search terms were developed using the PICO framework (see Table 1). Terms included: patient, client and service-user, inquiry, review, report, service audit, serious adverse incident review, serious adverse event, sentinel event, zero suicide, never event, morbidity and mortality meetings and suicide. A hand search was completed of relevant websites, reports and documents. An expert consultation was also completed by email. Lastly, the reference sections of eligible papers were searched to identify further, relevant research.

2.2 | Eligibility criteria

The focus of this review is the implementation of recommendations, therefore the criteria were designed to capture this content. Criteria

TABLE 1 Search Strategy

Person / Population	Patient, Client, Service user
Issue / Intervention	Suicide
Outcome	Inquiry, Review, Report, Service audit, Serious Adverse Incident Review, Serious Adverse Event Sentinel Event, Zero Suicide, Never Event Morbidity and Mortality meetings

included information on recommendations and/or implementation of recommendations following a death by suicide within health and social care settings and evaluation of the implementation. The search was restricted to literature published between 1 January 2005 and 30 November 2020. There were no language restrictions. Peer reviewed studies were included in addition to grey literature such as published policy documents, reports and reviews (see Table 2).

2.3 | Screening and selection

A three stage screening and selection process was completed. To reduce bias, 20% of titles, abstracts and full texts were independently reviewed by two authors. First the titles of 12,292 search results were screened by title. Following this 12,198 results were removed, leaving 94 abstracts for screening. A further 24 results were excluded and 70 full text papers were reviewed against the eligibility criteria which resulted in a selection of 41 papers to be included in the analysis. (Figure 1). Although language restrictions were not applied to the search, we did not find any relevant papers in languages other than English.

2.4 | Quality assessment

A quality assessment was completed using the Caldwell Framework (2011). This framework was used as it has combined both quantitative and qualitative appraisal questions (Bettany-Saltikov, 2012). Aspects of quality appraisal were also considered within the policy documents (see Table 3). The quality appraisal content has been included for reference. None of the selected literature was removed during the quality appraisal process.

3 | RESULTS

This section provides a critical discussion of the literature and a narrative account of thematic findings.

3.1 | Description of studies included in the review

The 41 studies/reports informing this review were produced between 1 January 2005 and 30 November 2020. A summary description of the studies included is shown in Table 4.

3.2 | Thematic synthesis of results

For qualitative synthesis, thematic analysis was used (Braun & Clarke, 2006; Clarke et al., 2015). Papers were firstly reviewed to identify codes and these were combined into 11 initial themes by reviewing all the data extracted in an iterative note taking, charting and mapping process. These 11 themes were then further synthesised to create four overarching themes of: Recommendations, Implementation, Evaluation of Implementation and Leadership and Culture. To ensure rigour, all three authors were involved in the synthesis process which is documented in an audit trail.

3.3 | Theme 1: recommendations

Recommendations featured as the most frequently recurring theme, present in 93% of the papers/reports (n = 38/41). A key focus in most papers/reports was to identify recommendations from patient deaths by suicide in order to improve patient safety, prevent reoccurrence of contributory issues to patient deaths and ultimately reduce patient suicide. The annual reports of the NCISH consistently present recommendations, although the language used to communicate these has varied over the years. The most recent reports have now refined this to 10 ways to improve safety (NCISH, 2018, 2019). The NCISH reports do not address implementation of recommendations or evaluation of implementation approaches. A limitation of this longitudinal study is that the data are collected from only one professional who has treated the patient neglecting perspectives from wider inter-disciplinary team members involved in the patient's care. Despite this the NCISH study is generally considered to provide robust data and the reports offer clear recommendations,

TABLE 2 Inclusion criteria

Inclusion criteria	Justification
Quantitative, qualitative or mixed methods studies. Published policy documents, reports and reviews.	These types of literature were all included as relevant literature may exist in all these domains due to the nature of the research topic.
Papers and reports which include information on recommendations, and the implementation of learning outcomes following a death by suicide within health care and evaluation of the implementation.	Literature including information on recommendations were included to give context to the area of implementation of learning outcomes. Literature relating to implementation of learning and evaluation of this implementation were included as these are relevant to the research question.
Literature published from 1 January 2005 – 30 November 2020.	This Time Frame was selected to align with the first report of the National Confidential Inquiry into Suicide and Homicide (NCISH), in the UK. The NCISH model for data capture is considered to be forefront of work in this field.
No language restrictions.	Literature published in all languages was sought to ensure a global context for the literature review.

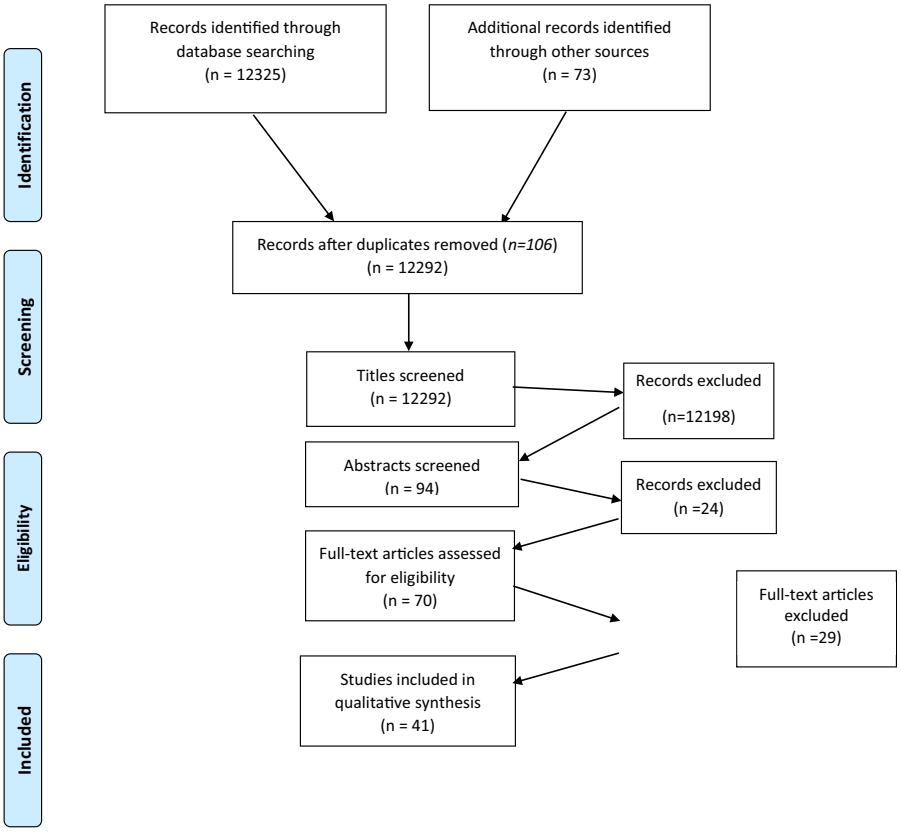

FIGURE 1 PRISMA Flow Diagram – Systematic Literature Review: Implementing changes after patient suicides in mental health services: a systematic review

with secondary data used to extend the research focus into implementation and evaluation (Kapur et al., 2016; While et al., 2012).

Across the range of literature, recommendations are not always clearly presented and the language varied markedly. Terms used to describe recommendations include: Clinical Implications (Links & Hoffman, 2005); Key Messages (NCISH, 2008); Future Prevention, (NCISH, 2006); Clinical messages (NCISH, 2015; 2016; 2017 and 2019).

Many recommendations were repeated over time (2005–2018) such as: removal of ligature points (Hogan et al., 2009; NCISH, 2017; Tishler & Reiss, 2009); reduction in absconding risk (NCISH, 2008; 2011; 2015; 2016; Bowers et al., 2010) and improvements to risk assessment (Huisman et al,. 2011; Links & Hoffman, 2005; Michaud et al., 2019; Tishler & Reiss, 2009; Watts et al., 2017; Wyder et al., 2020). This supports and confirms previous findings that recommendations often repeat existing policy or previous recommendations (Vrklevski et al., 2018). The quantity of literature that focuses on recommendations alone, alongside the frequently repeated content, suggests that implementation efforts are failing.

3.4 | Theme 2: implementation of recommendations

Implementation of recommendations featured in 29% of the papers included (n = 12/41). While recommendations are often shared regionally or nationally via standardised processes, it is then left to individual organisations, such as health and social care providers, to develop local implementation plans with little regional oversight (NCISH, 2018; Vrklevski et al., 2018). Most literature discussing implementation of recommendations, examined barriers and enablers. Barriers to implementation of recommendations included: recommendations being too ambitious; insufficient time and resources; unsupportive management and poor communication (Vrklevski et al., 2018). In the same study, semi-structured interviews with mental health service staff highlighted that recommendations were sometimes disconnected to the incident and therefore did not make sense to clinicians (Vrklevski et al., 2018). Clarity on dissemination and specific plans for implementation are repeatedly highlighted as critical to the effectiveness of implementation (Health & Social Care Board, 2016; Healthcare Improvement Scotland, 2015; NCISH, 2006; Vrklevski et al., 2018). However, evidence also suggests that more complex recommendations advising policy changes may take considerable time to implement (Vrklevski et al., 2018).

A number of studies highlighted enablers of implementation. Vrklevski et al., (2018) indicated that staff would respond more effectively to feedback disseminated whilst the actual incident was still fresh in their minds improving motivation to implement the recommendations (Vrklevski et al., 2018). They also stated that recommendations that were specific, understandable, practical, simple,

TABLE 3 Characteristics of literature meeting the criteria for the review. Peer reviewed papers

Author	Year	Country	Method	Sample	Contribution	Key Messages in relation to patient suicide
Bojanić, L., Hunt, I. M., Baird, A., Kapur, *N.*, Appleby, L., & Turnbull, P.	2020	UK	Mixed methods	Two groups of patients were examined based on the time of their death in relation to discharge: patients who died by suicide within 3 d post-discharge (3 d group) and those who died between the 4th and 7th day	i. Recommendations	17% of patient deaths in the UK are post-discharge. This paper highlights increased risk of the following: patients with personality disorders; patients who initiate their own discharge; increased risk of particular methods post discharge; supports NCISH recommendation of providing 3 day follow-up post discharge.
Bowers, L., Banda, T., & Nijman, H.	2010	UK	*N/A*	Systematic Literature Review including 98 empirical studies.	i. Recommendations	Recommendations for prevention of suicides include: • Engagement with patients' family problems. • Reduction in absconding. • Future research should take into account the heterogeneous subgroups of patients. • Intermittent observation for new admissions. • Repeated reassessment for longer stay patients.
Corry, C., Arensman, E., Williamson, ETROR ARENEEN WILLMSON	2016	Ireland	Mixed Methods Study	Data from 34 cases of mental health service-user suicides in Donegal, Ireland. 24 family interviews and contacts with General Practitioners involved in the care of the deceased.	i. Recommendations	Recommendations refer to opportunities to make a difference in terms of: • Increasing awareness • Improving assessment • The management of people at risk of suicidal behaviour in a mental health service setting. • Service improvement for people at risk of suicide • Supporting families in the aftermath of death by suicide of a family member.
Flynn, S., Nyathi, T., Tham, S. G., Williams, A., Windfuhr, K., Kapur, *N.*,& Shaw, J.	2017	UK	National Longitudinal Survey	113 in-patient deaths by suicide; Secondary analysis of NCISH Data.	i. Recommendations	SUI reports could be more consistent in content and quality
Huisman, A., Kerkhof, A. J., & Robben,P.B.	2011	Netherlands	Qualitative study	Sample of 505 suicide notifications was studied, as well as the evaluations of the suicides by the clinicians involved.	i. Recommendations	'Lessons learned' included: • Improving communication among clinicians. • Continuity of care. • Improving suicide risk assessment procedures. • More involvement of relatives in the treatment and the use or adjustment of treatment guidelines.
Hunt L., Windfuhr K., Swinson *N.*, et al.	2010UK	England and Wales	National Clinical Survey	10-year (1997–2006) sample of people who had died by suicide. 13,331 having been in contact with mental health services in the year prior to death.	i. Recommendations	Paper recommends measures that may prevent absconding and subsequent suicide among in-patients as: • Tighter control of ward exits. • Intensive observation of patients in the early days of admission. • Improving the ward environment to provide a supportive and less intimidating experience.

(Continues)

TABLE 3 (Continued)

Author	Year	Country	Method	Sample	Contribution	Key Messages in relation to patient suicide
Ibrahim, S., Hunt, I. M., Shaw., et al.	2016	UK	Before and after analysis	From a database of 19,248 suicides. 16 service changes in total were examined.	i. Implementation ii. Evaluation of implementation	Implementation of all recommendations was associated with a significant decrease in the suicide rate.
Janofsky, J. S.	2009	USA	Failure Modes and Effects Analysis	Analysis complete in one unit in one hospital.	i. Recommendations ii. Implementation. iv. Leadership and culture.	This paper recommends use of FMEA within every psychiatric inpatient treatment team as it offers the tools to map out processes, to discover potential critical errors and to find best-practice improvements for their own institution's psychiatric observation practices. This study also suggests the use of consistent terms to describe observation practices across services and sharing detailed process improvement data across institutions.
Jayaram, G.	2014	USA	Literature review	N/A	i. Recommendations	The review identified factors that have been reported in the literature to have an impact on suicidal behaviour on inpatient units, and showed how those factors were addressed.
Links, P. S., & Hoffman, B.	2005	Canada	Literature review	N/A	i. Recommendations	This study makes several program and policy recommendations including: • Regularly updating clinical assessment skills. • Using guidelines for assessment of patients following a suicide attempt. • Assessing the risk of suicide 24 to 48 hr before discharge from hospital. • Incorporating education about reducing access to means into routine psychiatric care.
Michaud, L; Stiefel, F; Moreau, D; Dorogi, Y; Morier-Genoud, A; Bourquin, C	2019	Switzerland	Inductive thematic content analysis	Analysis of 94 suicides within a psychiatric department	i. Recommendations	Identified 4 healthcare related factors with recommendations made for each. 1. Patient evaluation; 2. Patient management; 3. Clinician training and 4. Involvement of relevant non-clinical partners. Also identified the impact of a culture of blame on investigating and learning from patient suicide deaths.
Mills, P. D., King, L. A., Watts, B.V., et al.	2013	USA	Qualitative analysis	471 Root Cause Analysis reports from December 1999 to December 2011.	i. Recommendations	Recommendations made in relation to environmental improvements for improved patient safety and suicide prevention.
Mokkenstorm, J., Franx, G., Gilissen, R., Kerkhof, A., & Smit, J. H.	2018	Netherlands	Observational study	24 large mental health institutions that reported 10 or more suicides in 2011 and 2012 participated.	ii. Implementation iii. Evaluation	The effectiveness of implementation of 10 suicide prevention guidelines. Improvement was noted on four out of ten domains: 1. The development of an organizational suicide prevention policy; 2. Monitoring and trend-analysis of suicides numbers; 3. Evaluations after suicide; and 4. Clinician training.

(Continues)

TABLE 3 (Continued)

Author	Year	Country	Method	Sample	Contribution	Key Messages in relation to patient suicide
Riblet, *N*, Shiner, B, Mills P., et al.	2017	USA	Thematic review.	96 RCA reports of suicide occurring within 3 months of hospitalization.	i. Recommendations	• 47 root causes were attributed to problems with patient's engagement in care • The root causes fell into three main groups: management of known risk of suicide, decision making to monitor suicide risk and patient engagement. • Communication a key issue emerging from the RCA reports
Tishler, C. L., & Reiss, *N*. S.	2009	USA	Literature review	*N*/A	i. Recommendations	• Recommendations are provided in each of these domains: environmental recommendations; patient care recommendations; staff training recommendations; hospital policy recommendations.
Vrklevski, L P; Mc Kechnie, L; O'Connor, *N*.	2018	Australia	Mixed methods	27 SAE review reports 15 Interviews with staff involved in in SAE reviews.	ii. Implementation iii. Evaluating implementation	• Appropriateness of RCA for suicide is considered (questioned) • Low clinician engagement in recommendations • Lack of evidence that implementation leads to safer patient care. • Recommendations frequently repeat existing policy or previous recommendations.
Watts, B. V., Young-Xu, Y., Mills, P. D., et al.	2012	USA	Mixed methods study	RCAs conducted between January1, 1999 and March 31, 2011	i. Recommendations ii. Implementation iii. Evaluation of implementation.	Environmental recommendation were developed from an analysis of RCA reports and the Mental Health Environment of Care Checklist (MEHOCC), was developed. The implementation of this was evaluated and it was found that the MHEOCC was associated with an 87% reduction in the likelihood of having a suicide occur in a quarter.
While, D., Bickley, H., Roscoe, A., et al.	2012	UK	Observational, before and after study using data from NCISH.	Data was collected on suicides between 1997 and 2006	i. Recommendations iii. Evaluation of implementation.	Selected recommendations from previous NCISH annual reports were reviewed for implementation and their impact on a reduction in 89 mental health services. From 2004 onwards, services that had implemented 7–9 recommendations had a significantly lower suicide rate than those implementing fewer. Key factors are highlighted that were found to contribute to this reduction.
Wyder, M., Ray, M. K., Roennfeldt, H., Daly, M., & Crompton, D.	2020	Australia	Systematic Review	14 peer reviewed papers included. 9 focussed on hospital/ psychiatric inpatient units. 5 focussed on community	i. Recommendations	Vulnerabilities identified throughout the patient journey: 1. Point of entry; 2. Transitioning between teams; 3. Point of exit; 4. Information gathering; 5. Inadequate / incomplete assessment; 6. Lack of family involvement; 7. Information flow; 8. Enhancing policy/guidelines/ documents and 9. Training. Additional themes: policies and protocols not always followed; treatment not in line with current guidelines; access to means and observation and lack of specialist services in the community.

(Continues)

TABLE 3 (Continued)

Characteristics of literature meeting the criteria for the review. Reports and Policy Documents.

Author	Year	Country	Method	Sample	Contribution	Key Messages
Avoidable Deaths Report	2006	UK	National Longitudinal Survey	6,367 cases of suicide by current or recent mental health patients, occurring between April 2000 and December2004.	i. Recommendations ii. Implementation	This report contains findings and recommendations for future suicide prevention including: • Absconding from in-patient wards. • Transition from in-patient ward to the community. • Use of CPA and management of risk. • Responding when a care plan breaks down. • Attitudes to prevention. • Observation on in-patient wards. • Ward environment. • Dual Diagnosis • Suicide in older people
Lessons for Mental Health Care in Scotland.	2008	Scotland	National Longitudinal Survey	Deaths by suicide for the period January 2000 to December 2005.	i. Recommendations	'Key messages' for services makes recommendations in the areas of: • Suicide rates. • Prevention by mental health services. • Alcohol and drugs. • In-patient care. • Community care.
Incident Reports and Root Cause Analyses 2002–2008: What They Reveal about Suicide. New York State Office of Mental Health.	2009	USA	*N/A*	122 Reports. 2002–2008.	i. Recommendations	Recommendations relate to: • Suicide risk assessments including a checklist. • Developing a psychiatric transfer form. • Improvements to assessment processes and paperwork.. • Environmental issues. • Monitoring and supervision of patients. • Discharge planning • Treatment issues. • Access for all team members to relevant information. • Better communication with other providers. • Provision of staff training.
Suicide and Homicide in Northern Ireland. National Confidential Inquiry into Suicide and Homicide by People with a Mental Illness.	2011	Northern Ireland	National Longitudinal Survey	1,865 suicides occurred in Northern Ireland in this period 2000–2008	i. Recommendations	'Recommendations' are made for the following: • Suicide in mental health patients. • Suicide in young people. • Alcohol and drug misuse. • In-patient suicide. • Post-discharge care. • Missed contact. • Risk recognition.

(Continues)

TABLE 3 (Continued)

Characteristics of literature meeting the criteria for the review. Reports and Policy Documents.

Author	Year	Country	Method	Sample	Contribution	Key Messages
The National Confidential Inquiry into Suicide and Homicide by People with a Mental Illness. Annual Report.	2012	UK	National Longitudinal Survey		i. Recommendations	'Key messages for service' suggest: • Improvements in patient safety across all countries, especially among in-patients should be maintained. • Safer prescribing of psychotropic drugs remains important. • Services should now focus on safety in crisis resolution/home treatment. • Safety in mental health services could be improved by addressing co-morbid use of alcohol, especially in Scotland and Northern Ireland. • Suicide prevention in N. Ireland faces difficulties due to rising rates, increased suicides by hanging, and a strong association with alcohol.
New York State Office of Mental Health. Getting to the Goal: Suicide as a Never Event in New York State.	2013	USA	Report	*N/A*	i. Recommendations ii. Implementation iv. Leadership and Culture.	Recommendation from report include: • Relying on data and scientific evidence to drive improvements in care. • Creating a culture of safety.
Patient Suicide the Impact of Service Changes. A UK wide study.	2013	UK	National Longitudinal Survey	Data from National Longitudinal Study on patient suicides from 1997–2011.	i. Recommendations iii. Evaluation of implementation	This report highlights the impact of recommendations from previous NCISH reports on suicide prevention. Trusts that implemented more than 10 recommendations or service changes had lower suicide rates than those that implemented 10 or fewer.
The National Confidential Inquiry into Suicide and Homicide by People with a Mental Illness. Annual Report.	2013	UK	National Longitudinal Survey	Data on suicides from 2001–2011	i. Recommendations ii. Implementation	'Recommendations for services' to include: • Maintain services for dual diagnosis patients. • Address the economic difficulties of patients. • Improve safety in crisis resolution/home treatment (CR/HT). • Be vigilant about the suicide risk from opiates. • Continue the successful safety focus on wards. • Strengthen specialist services and risk. • Management for patients who are misusing alcohol or drugs. • Use CTOs more effectively. • Ensure that all in-patients are included in reviews • Introduce or maintain assertive outreach services.

(Continues)

TABLE 3 (Continued)

Characteristics of literature meeting the criteria for the review. Reports and Policy Documents.

Author	Year	Country	Method	Sample	Contribution	Key Messages
Thematic Review of Mental Health Serious Adverse Incident Reports Relating to Patient Suicides with Recommendations and Implementation plan.	2014	Northern Ireland	Thematic Analysis	Review of 100 Serious Adverse Incident (SAI) reports, related to suicide in mental health services in Northern Ireland.	i. Recommendations	Themes identified were related to: • Communication and Record Keeping. • Risk assessment and management • Policy adherence • Liaison with families • Training issues • Care planning.
The National Confidential Inquiry into Suicide and Homicide by People with a Mental Illness: Annual Report.	2014	UK	National Longitudinal Survey	18,017 suicides in the UK from January 2002 to December 2012.	i. Recommendations	The report offers recommendations on: • Suicide after discharge from hospital. • Suicide by hanging. • Suicide by patients under crisis resolution/ home treatment team. • Patient suicides.
The Right Time the Right Place: An Expert Examination of the Application of Health and Social Care Governance Arrangements for Ensuring the Quality of Care Provision in Northern Ireland.	2014	Northern Ireland	*N/A*	*N/A*	i. Recommendations iv. Leadership and culture.	Recommendations relevant to patient suicide include: • Coming together for world class care. • Strengthening commissioning • Better regulation • Making incident reports really count • A beacon of excellence in patient safety • System wide data and goals • Moving to the forefront of new technology • A much stronger patient voice.
National confidential inquiry into suicide and homicide by people with a mental illness, Annual report	2015	UK	National Longitudinal Survey	1876 suicides in 2013 plus total patient suicide data 2003–2013	i. Recommendations	'Clinical Messages' offer recommendations on: • Suicide in male patients • Pressures on acute care • Suicide by opiate overdose • Working with families
Learning from adverse events through reporting and review: a national framework for Scotland.	2015	Scotland	*N/A*	*N/A*	i. Recommendations ii. Implementation iii. Evaluation of implementation iv. Leadership and culture.	Policy document including policy and procedures on sharing learning from serious adverse events to support changes in practice and quality improvement. Policy describes policy and procedure for all four themes of identifying recommendations; implementation of these; evaluation of changes and the role of leadership.

(Continues)

TABLE 3 (Continued)

Characteristics of literature meeting the criteria for the review. Reports and Policy Documents.

Author	Year	Country	Method	Sample	Contribution	Key Messages
Healthy Services and Safer Patients. Links Between Patient Suicide and Features of Mental Health Service Providers.	2015	UK	Data from a National Longitudinal Survey. Observational Study.	13,960 suicides for individuals who died between 2004 and 2012.	i. Recommendations iii. Evaluation of implementation iv. Leadership and culture.	Key messages for services include recommendations: 1. The health of mental health provider organisations may impact patient safety. 2. Patient complaints and staff turnover may be markers of patient suicide risk; high or rising rates for these factors should act as a safety alert to services and commissioners. 3. The link between non-medical staff turnover and patient suicide could be causal; suicides may be more likely when there is a lack of continuity in care. 4. Services are often unsure whether to attach significance to a rise in suicide in a single year. An accompanying rise in safety incidents overall should raise concerns. 5. Higher rates of complaints and safety incidents may be taken as evidence of an open reporting culture; our findings suggest they may also reflect real safety concerns.
Inpatient suicide under observation. National confidential inquiry into suicide and homicide by people with a mental illness.	2015	UK	Data from a National Longitudinal Survey. Mixed methods study.	124 in-patient suicides under observation 2006–2012.	i. Recommendations	Key Messages for Services include recommendations on: • The current observation approach • The observation as an acute intervention and component of a care plan and risk management plan. • Balance of observation and active engagement • Observation as an acute intervention • Suicide under observation (intermittent or constant)Serious breaches of protocol
National confidential inquiry into suicide and homicide by people with mental illness. Annual report and 20 year review.	2016	UK	National Longitudinal Survey	18,172 suicides by patients in the UK in 2004–2014.	i. Recommendations	'Clinical messages' offer recommendations on: • Acute care • Alcohol and drug misuse • Restricting suicide methods • New groups at risk • Self-harm • Avoidable deaths • Key elements of safer care in mental health and the wider healthcare system.

(Continues)

TABLE 3 (Continued)

Characteristics of literature meeting the criteria for the review. Reports and Policy Documents.

Author	Year	Country	Method	Sample	Contribution	Key Messages
Procedure for the reporting and follow up of serious adverse incidents. Northern Ireland Health and Social Care Board.	2016	Northern Ireland	*N/A*	*N/A*	i. Recommendations ii. Implementation	Offers recommendations: • communication • dissemination of learning from SAIs • SAI process is scrutinised. • Regional policy and implementation process is detailed.
National confidential inquiry into suicide and homicide by people with mental illness.	2017	UK	National Longitudinal Survey	1538 individuals who died by suicide or are convicted of homicide, in the UK in 2015. Plus data from previous 10 years 2005–2015.	i. Recommendations	'Clinical Messages' give recommendations on: • In-patient care • Post-discharge care • Diagnostic groups • Reducing suicide by opiate overdose • Alcohol and drug misuse
Safer Care for Patients with Personality Disorder.	2018	UK	Mixed methods	154 patients with PD who died by suicide and 41 convicted of homicide.	i. Recommendations ii. Implementation	• Findings indicated a number of failings in PD specific service provision • Recommendations are made to improve consistency, clarity and bespoke service provision for this group.
Scotland's Suicide Prevention Plan - Every Life Matters	2018	UK	Report	*N/A*	i. Recommendations iv. Leadership and Culture	Leadership – Leaders at a national, regional and local level have a key role to play in creating a culture that ensures that learning is taken from every death by suicide, in order to help prevent future suicides. Learning from deaths by suicide – action point 10: develop appropriate reviews into all deaths by suicide and ensure that the lessons from reviews are shared and acted on. There must be review and learning from every death by suicide, translating into action at national and local levels. We will ensure that reviews into deaths from suicide are implemented into a learning approach and involve multiple agencies where necessary.
The National Confidential Inquiry into Suicide and Safety in Mental Health. Annual Report.	2018	UK	National Longitudinal Survey	17,931 Patients who died by suicide National Survey.	i. Recommendations	• 'Clinical messages' make reference to '10 ways to improve safety' Call for renewed emphasis on (1) improving the physical safety of wards, with the removal of potential ligature points (2) care plans at the time of agreed leave (3) development of nursing observation as a skilled intervention • Follow up within 2–3 days after hospital discharge; safe prescribing of opiates and psychotropic drugs; reducing alcohol and drug misuse • Also, female in-patient needs, needs of under 20s and students self-harm management and comorbid substance misuse.

(Continues)

TABLE 3 (Continued)

Characteristics of literature meeting the criteria for the review. Reports and Policy Documents.						
Author	**Year**	**Country**	**Method**	**Sample**	**Contribution**	**Key Messages**
The National Confidential Inquiry into Suicide and Safety in Mental Health. Annual Report.	2019	UK	National Longitudinal Survey	18,024 suicides by patients in the UK in 2007–2017 (excluding data in Northern Ireland in 2017), 28% of all general population suicides.	i. Recommendations	'Clinical messages' make reference to '10 ways to improve safety' Emphasis on (1) In-patient and post-discharge care remain times of high risk for suicide. (2) Alcohol and drugs as common antecedents of suicide. (3) Measures that services can take to reduce risks associated with particular methods of suicide. (4) Patients aged 75 and over. (5) Female patients aged under 25. (6) Homeless patients. (7) Patients with anxiety disorders and (8) Internet risks.

TABLE 4 Description of included literature

	n
Format of studies	
Peer reviewed studies	13
Direct Reports from NCISH	8
Themed reports using data from NCISH	7
Other Reports and policy documents	8
Peer reviewed literature reviews	5
Geographical area	
UK	25
USA and Canada	9
Rest of Europe	5
Australia	2
Types of Studies	
Reports and policy documents	22
Systematic Literature Reviews	5
Qualitative study	4
Qualitative Content Review Study	1
National Consecutive Case Series Study	2
Observational Study	2
Mixed Methods study	4
Themes and Sub-themes evident in literature	
Recommendations	38
Recommendations	
Clinical messages	
Key messages	
Implementation	12
Implementation plan	
Suggestions for implementation	
Dissemination of learning	
Evaluation of implementation	8
Evaluation of implementation	
Improvement in care	
Reduction in suicides	
Leadership and Culture	6
Leadership	
Culture	

achievable, concrete and able to be applied to clinical situations, were more likely to be implemented. Three reports emphasised that recommendations should be implemented in a timely manner and should have clear timescales for completion, (HSCNI, 2016; Healthcare Improvement Scotland, 2015; Vrklevski et al., 2018). Two further papers included more specific detail on how recommendations were implemented, such as developing checklists to improve standards (Janofsky, 2009; Watts et al., 2012). Finally, two studies, pointed to system wide change, implemented across the patient care pathway as a key strategy to reduce suicide rates (Kapur et al., 2013; 2016).

3.5 | Theme 3: evaluation of implementation

The theme of *evaluation of implementation* featured in 20% of the papers included in the review (*n* = 8/41), four of these relied on data from the NCISH (Kapur et al., 2013; 2016; NCISH, 2015; While et al., 2012). Consequently, only four of 41 papers (10%) set out to evaluate effectiveness of implementation not connected to NCISH data (Healthcare Improvement Scotland, 2015; Vrklevski et al., 2018; Watts et al., 2012).

The NCISH data showed that key NCISH recommendations were associated with a reduction in suicide rates; introducing 24-hr crisis teams; policies for patients with dual diagnosis; and reviewing care after a suicide has occurred (NCISH, 2015; 2016; While et al., 2012). Two of these studies also found that recommendations which were implemented in key areas, such as ward safety, improved community services, staff training, implementation of policy and guidance and assertive outreach teams, were associated with lower suicide rates (Kapur et al., 2016; While et al., 2012).

NCISH, (2015) also found that larger reductions in suicide rates were found in organisations with lower staff turnover and higher levels of reported safety incidents (NCISH, 2015). Three studies, found that services that had implemented between seven and nine of the NCISH recommendations, had significantly lower suicide rates than those who had implemented fewer than seven (Kapur et al., 2013, NCISH, 2015 and While et al., 2012). As an observational study this presents difficulties establishing cause and effect and limitations noted by the authors include variation in the consistency of data (NCISH, 2015). A comparative study in the USA examined suicide rates before and after the introduction of an environmental safety checklist in all Veteran's Health Administration Hospitals with a mental health unit (Watts et al., 2012) This study reported a decrease in the inpatient mental health suicide rate by 14% each quarter suggesting that check-list based modification of physical environmental safety alone can reduce the risks.

Mokkenstorm et al., (2018) reviewed the implementation of 10 suicide prevention guidelines across 24 large mental health institutions and found improvement following the implementation of four of these: the development of an organisational suicide prevention policy; monitoring and trend-analysis of suicides numbers; evaluations after suicide and clinician training (Mokkenstorm et al., 2018).

Health Improvement Scotland suggested that evaluation should determine whether the implementation of recommendations has led to sustainable improvements in care (Healthcare Improvement Scotland, 2015). Implementation of recommendations may be happening in practice, but there is a lack of robust research evidence on the features of successful implementation. This makes it difficult to recommend effective methods of implementation. Further robust evaluations of effectiveness are required.

3.6 | Theme 4: leadership and culture

The theme of *leadership and culture* was noted in 15% of the selected papers (*n* = 6/41). The organisational culture surrounding investigative reviews of inpatient deaths by suicide often includes terms such as: culture of blame, fear and inevitability. Many papers focus on the need to change this language in order to encourage a more just, open, transparent, informed and learning culture (Battaglia et al., 2013; Donaldson et al., 2014; Healthcare Improvement Scotland, 2015; NCISH, 2006; 2015; Scotland's Suicide Prevention Plan, 2018). This recommended culture is one where organisations benefit from experience, identify and mitigate future adverse events, learn from previous events and share key learning points. This cultural shift requires trend analyses and appropriate action plans, to promote a positive safety culture (Healthcare Improvement Scotland, 2015).

Professional and policy leaders hold the responsibility to ensure an appropriate balance between identifying blame and recognising the complexities of clinical risk management. If mental health staff are encouraged to move away from the culture of inevitability and blame around suicides, those outside the clinical arena also need to be encouraged to adopt candour and increase openness and transparency, (NCISH, 2006). According to the New York State *Zero Suicide* pioneers, leadership must start by confronting pessimism regarding the possibility of dramatically reducing or eliminating suicide in mental health service settings. When leadership do this and provide tangible supports in a safe and blame-free environment, dramatic reductions in suicide deaths can be achieved (Battaglia et al., 2013). Several organisations have now adopted the Zero Suicide approach and successfully reduced suicide (Olson, 2016). Some parallels have also been drawn between healthcare and other industries such as aviation and mining, using human factors research to explain and understand adverse incidents (Gaba, 2011; NCISH, 2015; Rogers, 2011; Shaw & Calder, 2008). While this research draws on tools that are transferable across these industries, Janofsky (2009), cautions that there are nuances in suicide prevention in mental healthcare that need to be considered such as lack of synchronicity between the goals of the service user and the service provider (Janofsky, 2009). For example, the service user wants to die and the interventions offered are designed to change that perspective and set out a new agenda. It is vital that this contrast in agendas is considered when looking to other industries for safety innovations.

4 | DISCUSSION

Reviewing the significant body of evidence on patient deaths by suicide has produced important recommendations aimed at reducing the risk of suicides in mental health services (as recognised in theme 1: (recommendations). A geographical bias was indicated, towards the UK, based on an over-reliance on primary and secondary data from NCISH studies. This may place limitations on the current evidence base for implementation of change. In addition to this, where reductions in suicide rates follow the implementation of recommendations, it is difficult to tease apart cause and effect relationships, from external factors such as decreasing suicide rates overall (NCISH, 2013).

This review has identified a notable lack of research focusing on implementation of recommendations to reduce suicides in mental

health services (theme 2 Implementation). Our analysis suggests that the evidence has barely progressed since previous findings highlighted an abundance of literature on incidence and reasons for suicide, but little information on the implementation of recommendations into practice (Dale, 2011). Overall, the review has highlighted that the plethora of literature continues to repeat key recommendations, suggesting ineffective implementation. More work is therefore needed to explore how this learning is communicated, accepted and translated into practice. While there are standardised review and dissemination processes for recommendations there is commonly little structure to their methods of communication and a lack of evaluation of effectiveness (theme 3 Implementation evaluation). The findings raise concerns about whether these recommendations are in fact contributing to safer services, supporting earlier commentators (Donaldson et al., 2014).

Finally, the broader ethos surrounding the reduction of suicide rates within mental health services requires change, in order to facilitate evaluation of implementation; leading authors suggest that this in turn, requires a change in culture and leadership towards recognition and acceptance that suicide deaths are not an inevitable part of mental health care (theme 4: leadership and culture).

4.1 | Implications for policy and practice

This systematic review has identified five key implications for policy and practice.

4.1.1 | COMMUNICATION

The theme of implementation of recommendations highlighted that communication needs to appropriately target the audience for which the recommendation is intended. This will help to ensure that any service improvements can make a positive impact in both the area in which the incident occurred and at the wider organisational level. This is based on evidence indicating that practical, sensible and achievable recommendations are more likely to be implemented (Vrklevski et al., 2018). Investigative processes should therefore ensure that each review following a patient suicide produces both recommendations for frontline services and recommendations that relate to wider systemic or strategic policies and procedures. Both types of recommendations should be presented in a way that will support or indicate the proposed methods of implementation. Additionally, recommendations should be communicated while the incident is fresh and staff are more motivated to ensure the recommendation gets translated to practice (Health & Social Care Board, 2016; Healthcare Improvement Scotland, 2015; Vrklevski et al., 2018).

To clarify meaning and purpose, and support clinicians to alter their practice, communication should specify the context in which recommendations have been made. The language used in communicating recommendations and the format that this communication takes, is also vital to ensure that recommendations make sense, are fully understood and are achievable.

4.1.2 | Organisation of systems

Thematic findings on implementation and evaluation support the development of standardised processes for implementation of recommendations from patient deaths by suicide (Healthcare Improvement Scotland, 2015; Scotland's Suicide Prevention Plan, 2018; NCISH, 2018; Vrklevski et al., 2018). Processes should include clear timescales for implementation and for evaluation of implementation (Health & Social Care Board, 2016; Healthcare Improvement Scotland, 2015). The theme of Leadership and Culture highlighted that organisations committing to a robust culture of safety and learning, including implementation of recommendations and evaluation of these, can offer key direction for policy and practice and the potential to reduce patient suicides.

4.1.3 | Incorporation of theories such as implementation science and human factors analysis

The theme of leadership and culture suggests that patient safety in mental health services should look to other industries which have successfully implemented an effective safety culture. The nuances of mental health care, specifically of suicidal patients pose unique challenges and these also need to be considered (Janofsky, 2009).

4.1.4 | Culture and leadership in implementation of recommendations

This systematic review recommends a move away from the culture of inevitability and blame, to be addressed through leadership and organisational culture. To support organisations to change their cultural view towards suicide deaths, organisational leaders with experience in reducing the number of patient deaths by suicide, could work to support leaders in other organisations to reduce suicides deaths among the people that they serve (Battaglia et al., 2013).

4.1.5 | Further investment in improved methodologies for evaluation of implementation

Finally, the evidence contributing to the theme of evaluation of implementation in this review supports previous findings which reveal a lack of robust, causal evidence that implementation of recommendations results in safer patient care (Vrklevski et al., 2018). Further research to explore effectiveness of change is vital to discover whether implementation of recommendations has been effective in reducing patient suicide rates (NCISH 2015; Watts et al., 2012;

While et al., 2012). Ideally the data used to assess effectiveness of implementation should be independent of the data generating the recommendations to be implemented. More balance is needed to increase the evidence on optimum systems of implementation and evaluation of this implementation effort. Implementation science is the study of factors that influence the process of successfully implementing research findings, in a policy-driven and sustainable manner and may be ideally suited to this area (Damschroder et al., 2009).

5 | LIMITATIONS

While the systematic review includes a broad range of grey literature, policy documents and reviews from government and other relevant organisations only a title search was complete at the first stage of review. This may have omitted relevant literature, however, due to the volume of results, abstract reviews could not be complete on all results of the searches. Only 20% of the search results were scanned by more than one author to reduce bias in the selection process. However of the 20% of titles, abstracts and full texts that were scanned by two authors, agreement rates between authors were high. Differences in initial decisions were resolved through discussion. It is important to note that recommendations discussed in the literature are the product of the investigative review process following a patient suicide, therefore the quality of recommendations is subject to the extent and depth of the investigative processes. This is perhaps more a limitation of studying the implementation of review recommendations, rather than a limitation of the review process itself. It may also be the case that interventions to reduce suicides in mental health services could represent implementation of recommendations without explicitly stating this aim, therefore the review does not provide a summary of all relevant evidence on how to reduce patient suicides. Rather it queries the relevance and appropriateness of reviewing the events surrounding patient deaths by suicide, without ensuring efficient implementation of the evidence produced. The review also highlights inconsistencies in language used to describe the investigative process after patient suicides. Terms such as Serious Untoward Incident (SUI) and Serious Event Audit (SEA) and Root Cause Analysis (RCA), were discovered after the initial searches were complete and were therefore not included in the original search terms. While these terms were not included in the original database search, the hand searching process and key author contacts made, provided supplementary robust methods of identifying relevant literature. A consolidation or international standardisation of terminology would be useful to improve shared understanding within the field.

6 | CONCLUSION

This body of evidence on patient suicides raises concerns about the effective translation of research into practice. While it highlights positive findings and results when recommendations are implemented to prevent suicide such as the design and implementation of checklists, the introduction of 24-hr crisis teams and dual diagnosis services, it also shows disparity between the volume of research findings on recommendations to prevent future inpatient suicides and the proportion of recommendations fully implemented and evaluated (Vrklevski et al., 2018). The current focus appears to lie on the production of recommendations from reviews with a lack of emphasis on the implementation and evaluation of these. This therefore raises the question of the purpose and focus of completing reviews following patient deaths by suicide. Future work should focus on effective implementation of learning from patient deaths by suicide, in order to maximise the value of the investigative process and to achieve the ultimate goal of saving more lives.

CONFLICT OF INTEREST

No Conflict of interest have been identified in this research project for all authors.

DATA AVAILABILITY STATEMENT

Data available on request from the authors. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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