Suicide care pathways

Evidence check

20 June 2022

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Suicide care pathways

Evidence check questions

Q1. What care pathways have been used to support individuals who present to mental health services with suicidal behaviour?

Q2. What is the evidence for different elements of suicide care pathways as reported in the literature, specifically in terms of:

a) early identification and engagement
b) management
c) follow up?

Overview

Suicide care pathways

- The evidence on suicide care pathways is generally descriptive and there are limited studies evaluating the effectiveness of different suicide care pathways.
- Descriptive studies of suicide care pathways generally include the following components: risk formulation to guide response, safety and / or risk assessment, interventions, counselling on and reducing access to methods of suicide, developing a safety plan, follow up and ongoing risk monitoring, and transition of care / referral.
- The Zero Suicide Framework has been evaluated and shown to reduce the risk for a repeated suicide and extended time to re-presentation. Care pathways within a Suicide Crisis Assessment Nurse service was also evaluated and found the majority of referrals continued management in primary care. service was also evaluated and found the majority of referrals continued management in primary care.

Early identification and engagement

- Peer reviewed literature: overall, the data on the accuracy of screening tools is limited. Multiple systematic reviews found that no tools demonstrate both high sensitivity and specificity, or performed well enough to be used routinely. While no short-term benefits were found,

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there were also no serious adverse effects of screening.

- Guidance: both the Zero Suicide Institute (a United States non-profit organisation that provides guidance to improve care for suicide internationally) and the National Institute for Health and Care Excellence (NICE) guidelines on self-harm recommend comprehensive screening and the completion of a full risk assessment. The Zero Suicide Institute recommends using an assessment tool, even though the evidence is lacking. Whereas NICE recommends a comprehensive risk assessment of needs and risks, but does not recommend the use of risk assessment tools.

Management

- Planning and intervention: management generally includes safety planning, crisis support planning and long and short-term interventions such as help seeking and behavioural therapies.
- Peer reviewed literature: in adults, there is evidence for psychological therapy inclusive of cognitive behavioural therapy approaches, mentalisation-based therapy, emotion-regulation psychotherapy and standard dialectical behaviour therapy.
- Dialectical behaviour therapy: in children, there are lower rates of self-harm repetition for dialectical behaviour therapy. This is when compared to treatment-as-usual, enhanced usual care, or alternative psychotherapy. However there may be no evidence that points to a difference between individual cognitive behavioural therapy-based psychotherapy and treatment-as-usual.
- Guidance: recommendations from the Zero Suicide Institute include cognitive behavioural therapy for suicidal prevention, dialectical behaviour therapy, and collaborative assessment and management.

Follow up

- Structured follow up may include assessment of current suicide risk, review and revision of the safety plan along with agreement on a plan and next steps.
- Peer reviewed literature: active contact and follow-up type interventions were effective in preventing a repeat suicide within 12 months.
- Guidance: proactive and personal support in follow-up care and care transitions is recommended.

Summary

Q1. Suicide care pathways

- The search found 15 pathways or frameworks described in peer reviewed and grey literature. The evidence on suicide care pathways is generally descriptive.

Peer reviewed literature

- The Zero Suicide Framework is cited in multiple publications and is based on seven elements: lead, train, identify, engage, treat, transition and improve. An observational study that looked at the efficacy of the pathway suggests placement on the suicide prevention pathway reduced risk for a repeated suicide attempt within 7 days, 14 days, 30 days and 90 days and extended time to re-presentation.[1]
- A primary care nurse-led pathway provides patients with their support safety care plan and supportive hand-outs, which include information on relaxation and mindfulness exercises, sleep

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hygiene, distress tolerance and distraction techniques. This was evaluated and results showed that the majority of referrals continued their management in primary care.[2]

- Frameworks that respond to suicide risk generally include determining whether the risk is imminent or not, such as through the use of different categories and responding accordingly.[3, 4]
- Pathways specific to the paediatric population generally include initial screening followed by a brief suicide safety assessment to determine if a full suicide risk assessment is warranted. Others include an intake, treatment and discharge process.[5-7]
- An Australian pathway, the Gold Coast Mental Health and Specialist Services also developed a clinical suicide prevention pathway which includes screening and engagement, assessment, risk formulation, brief interventions, follow up and transition of care.[1, 8]

Grey literature

- Numerous colleges, non-government organisations and health services have guidance and local pathways for suicide prevention. These can be categorised in terms of acuity and patient groups. Most of these options include safety and / or risk assessment, risk formulation to guide response, interventions, counselling on and reducing access to methods of suicide, developing a safety plan, follow up and ongoing risk monitoring, and transition of care / referral.
- The UK National Collaborating Centre for Mental Health guidance outlines priorities for the implementation of short-term physical and psychological management, and secondary prevention of self-harm in primary and secondary care. These include staff training, activated charcoal, triage, treatment, assessment of needs, assessment of risk and psychological, psychosocial and pharmacological interventions.[9]
- A NICE suicide prevention pathway incorporates raising awareness, reducing access to methods of suicide and supporting people bereaved by suicide and prevention.[10]
- The Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of adult deliberate self-harm include recommendations for psychosocial assessment to reduce deliberate self-harm repetition, improved staff knowledge, improved access to aftercare, risk assessments and cognitive behavioural therapy.[11]
- The Black Dog Institute guidance on an evidence-based approach to suicide prevention includes a coordinated approach, psychological and pharmacotherapy treatments, capacity building, training for frontline staff and gatekeepers.[12]
- The Children's Hospital of Philadelphia's clinical pathway for children and adolescents at risk of suicide, and the Montana Department of Public Health and Human Services pathway for older people categorise their pathways in the following way. They are for people with low acuity, intermediate acuity and high acuity, with care plan considerations based on this risk.[13]
- The REACH Pathway from Alberta Health Services in Canada is used to support health professionals:
    - R – Recognise warning signs and risk factors
    - E – Engage in conversations and listen with empathy
    - A – Ask about suicidal thoughts and feelings
    - C – Connect to supports and resources
    - H – Heal by taking care of mental health.[14]
- The Zero Suicide in Texas (ZEST) initiative suicide safe care pathway includes developing a safety plan, counselling on access to lethal means, referral to community, ongoing risk monitoring, considering referral to peer support, provision of collaborative assessment and management, frequent contact and follow up.[15]

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- The SafeSide framework includes four areas: connect, assess, respond, and extend. Its components include risk screen, risk assessment, safety plan, treatment plan, incident report for suicide attempt, electronic medical record (EMR) suicide risk alert, and to update assessment, plan and treatment goals as needed and at least every 90 days.[16]
- An evidence brief from McMaster University suggests key components in preventing suicide include interventions (discharge planning and follow-up, crisis interventions, integrated care pathways and assertive community treatment), multidisciplinary teams and financial and resource mechanisms.[17]
- A COVID-19 suicide risk clinical pathway provides guidance for screening adult medical patients for suicide risk via telehealth and over the phone. A three-tiered evaluation of risk (from low to imminent) is used to define management/referral next steps.[18]

Q2. Evidence for different elements of suicide care pathways

- Only systematic reviews were included in the evidence check for the different elements of suicide care pathways, specifically in terms of: early identification and engagement, management and follow up. The evidence for adults and adolescents is generally reported separately.

Q2a. Early identification and engagement

Peer reviewed literature

- A systematic review on self-harm risk tools used in an emergency department setting for self-harm/suicidal ideation reported that among 15 tools assessed, only two – the Implicit Associations Test and the Violence and Suicide Assessment Form – were found to successfully predict self-harm.[19]
- However, a systematic review in primary care reported no short-term benefits (within two weeks) nor serious adverse effects of screening were found. The data around the accuracy of screening tools is limited for both adults and adolescents.[20]
- Risk scales that are used to manage self-harm patients vary in predictive accuracy (sensitivity ranged from 6-97% in included reviews). Systematic reviews found limitations to using risk scales in clinical practice, with no scale platforms performing well enough to be used routinely.[20-24]
- A further systematic review found none of the suicide risk assessment instruments met the pre-determined benchmarks (80% sensitivity and 50% specificity) for the suicide outcome.[22]
- Four risk factors emerged from one meta-analysis to predict suicide following self-harm. These were previous episodes of self-harm, suicidal intent, physical health problems, and male gender.[25]
- Results for specific screening tools from systematic reviews include:
  - Short Term Assessment of Risk and Treatability (START) ratings demonstrated high internal consistency, interrater reliability and convergent validity. It is a strong predictor of aggression and self-harm but not self-neglect or victimisation, and there is no evidence it predicts suicidality.[23]
  - SAD PERSONS Scale had a sensitivity for suicide attempts of 15% and specificity of 97%, and the Manchester Self-Harm Rule had a sensitivity of 97% and a specificity of 20%. ReACT had a similar low specificity, as did the Sodersjukhuset Self Harm Rule. For the outcome of suicide, the Beck Hopelessness Scale had a sensitivity of 89% and specificity of 42%.[22]

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- In children and adolescents:
  - Patient Health Questionnaire for Adolescents and Beck Depression Inventory outperformed two other screening tools (Centre for Epidemiologic Studies Depression Scale and Clinical Interview Schedule–Revised questionnaire).[26]
  - A systematic review of tools used in emergency departments (EDs) found that the home, education, activities/peers, drugs/alcohol, suicidality, emotions/behavior, discharge resources (HEADS-ED) and Columbia-Suicide Severity Rating Scale (C-SSRS) are reliable screening tools and that the two-item Risk of Suicide Questionnaire (RSQ) had moderate reliability, however none of the suicide risk tools demonstrated both high sensitivity and specificity.[26-28]

Grey literature

- The Zero Suicide Institute and NICE have guidance on screening and assessment for suicide.
- The Zero Suicide Institute recommends:
  - Comprehensive screening in multiple settings such as primary care, urgent care, specialty clinics, mental health and crisis care settings
  - Completing a full risk assessment, including risk formulation if a patient screens positive for suicide risk
  - Use of an assessment tool such as the Columbia-Suicide Severity Rating Scale (C-SSRS) to help reduce the burden on the provider, to facilitate follow-up and improve documentation of risk
  - Systematic use of assessment tool (C-SSRS) has been shown to improve detection and been associated with a decrease in suicidal ideation and behaviours
  - Conduct a risk assessment using risk formulation, develop a collaborative safety plan, and use evidence-based treatments in the least restrictive setting.[29]
- NICE guidelines on self-harm recommend primary care to consider referring to community mental health services for assessment if the person presents with a history of self-harm and a risk of repetition. In these settings, an integrated and comprehensive assessment of needs and risks is recommended. When assessing the risk of repetition of self-harm or risk of suicide, identify and agree with the person who self-harms as to what specific risks are for them. Risk assessment tools are not be used to predict future suicide or repetition of self-harm or to determine who should be offered treatment.[10]

Q2b. Management

Peer reviewed literature

- Between 2010 and October 2021, there have been approximately 30 systematic reviews on management. Overall, components of management include safety planning, crisis support planning, and long and short-term interventions such as help seeking and behavioural therapies.
- A systematic review on the impact of suicide prevention programs including the ZERO Suicide initiative found improvements to the delivery of suicide prevention programs included regular training for mental health clinicians, protecting mental health professionals during suicide prevention training, cultural competence, and further research.[30]
- Two 2021 systematic reviews on safety planning found these interventions were associated with improvements in suicidal ideation and behaviour, decreases in depression and homelessness, reductions in hospitalisations and improvements in treatment attendance.[31, 32]

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- A 2020 systematic review of common intervention approaches including social outreach, cognitive and behavioural approaches, pharmacotherapy and other found overall intervention effects are small, and no intervention significantly or consistently was stronger than any other.[33]
- A 2020 review of prevention interventions found that for completed suicides, interventions for patients admitted to a psychiatric ward in a general hospital show the highest effect on prevention, followed by community-level interventions. For attempted suicides, outpatient mental health setting interventions showed the highest effect.[34]
- A 2021 Cochrane Review found there may be beneficial effects for psychological therapy at longer follow-up time points and based on cognitive behavioural therapy approaches, , for mentalisation-based therapy, and for emotion-regulation psychotherapy during the post-intervention assessment for suicide ideation. There may also be some evidence that supports the effectiveness of standard dialectical behaviour therapy in reducing the frequency of self-harm repetition. There was no clear evidence of effect for case management, information and support, remote contact interventions (e.g. postcards and telephone-based psychotherapy), provision of information and support, and other multimodal interventions.[35, 36] However, an earlier review found some of these interventions promising.[37]
- A further systematic review on cognitive behavioural therapy found it reduces suicide attempts, suicidal ideation, and hopelessness when compared with treatment-as-usual. Limited evidence suggests that dialectical behaviour therapy reduces suicidal ideation compared with wait-list control or crisis planning.[38]
- A 2017 Cochrane Review found intensive case management compared with standard care can slightly reduce the number of days in hospital per month, however it may make little or no difference in reducing death by suicide.[39]
- A systematic review on psychotherapy found reduced suicide attempts in high-risk adults but not adolescents. No harms of treatment were identified in adult trials.[20] Another review found brief psychological interventions to be effective in reducing suicide and suicide attempts.[40]
- In attempted suicides, interventions delivered in outpatient mental health settings showed a large effect, compared to a moderate effect for psychiatric ward admission, whereas community-level and emergency room-based interventions had small effects on attempted suicides.[34]
- The use of advance care planning and advanced decisions when a patient presents with suicidal behaviour remains a challenge for clinicians. This is due to tension between factors such as patient autonomy, appropriateness of advance decisions of suicidal behaviours, uncertainty about legislations, rapid decision making and the importance of seeking support.[41]
- A systematic review on patient experiences following self-harm or suicidal ideation identified three main themes: the construction and negotiation of the patient identity; the nature and quality of treatment received; and the perceived impact of treatment experiences on future self-harm, disclosure, and help-seeking.[42]
- A systematic review found redesign of ED environments to accommodate psychiatric patient management helped to reduce security and restraint use, and decrease the length of stay.[27]
- A systematic review found the following six themes of management in the ED: identify the suicide risk, communicate with the patient, assess for life-threats and ensure safety, risk assessment, reduce the risk of suicide and extend care beyond the ED visit.[43]
- Reduced subsequent suicide attempts were associated with brief interventions which included brief contact (phone calls, postcards and letters), care coordination, safety planning, and other therapeutic interventions.[44] In another review, there were non-significant positive effects from brief interventions.[45]

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- Two systematic reviews on transition of care found interventions such as telephone contacts, letters, green cards, postcards, structured visits, and community outreach programs were efficacious in linking patients to outpatient services, reducing feelings of social isolation and helping patients in navigating the available community resources. Themes necessary for transition included safety, independence and supported autonomy, self-efficacy, transition to outpatient supports, social support, peer support, self-care, normalisation and the opportunity to engage in reintegration activities.[43, 44]
- The Collaborative Assessment and Management of Suicidality (CAMS) intervention resulted in significantly lower suicidal ideation and general distress and higher treatment acceptability compared to alternate interventions.[45]
- In children and adolescents:
    - Overall, there is a lower rate of self-harm repetition for dialectical behaviour therapy when compared to treatment-as-usual, enhanced usual care, or alternative psychotherapy, but there may be no evidence of a difference for individual cognitive behavioural therapy-based psychotherapy and treatment-as-usual.
    - A Cochrane Review in 2021 found a lower rate of self-harm repetition for dialectical behaviour therapy for adolescents (DBT-A) compared to treatment-as-usual, enhanced usual care, or alternative psychotherapy. The review suggests there may be no evidence of a difference in repetition of self-harm at post-intervention for individual CBT-based psychotherapy compared with treatment-as-usual. It is uncertain whether mentalised based therapy for adolescents (MBT-A) reduces repetition of self-harm compared to treatment-as-usual.[36, 49 36, 46]
    - A pathway for management in a psychiatric inpatient unit recommended safety plans, evidence-based psychotherapeutic interventions specific to suicidality, psychoeducation, medication management and patient and caregiver skill building.[6]
- Digital interventions have been shown to reduce suicidal ideation and behaviours.[47, 48] Mobile technology has been shown to demonstrate some positive impacts for individuals at elevated risk of suicide or self-harm, but has not been able to demonstrate the ability to significantly reduce suicidal ideation.[47-49] Mobile technology has been shown to demonstrate some positive impacts for individuals at elevated risk of suicide or self-harm, but has not been able to demonstrate the ability to significantly reduce suicidal ideation.[49]

Grey literature

- The Zero Suicide Institute recommends:
    - Cognitive behavioural therapy for suicidal prevention, dialectical behaviour therapy, and collaborative assessment and management of suicidality are more effective than treatment as usual.
    - Treatment and support of persons with suicide risk be carried out in the least restrictive setting appropriate for the individual and their risk e.g. stepped care pathway.
    - Facilitate engagement with treatment e.g. through caring letters and other follow-up interventions.[29]
- NICE guidelines on self-harm state that treatment and management components include detection, recognition and referral in primary care; assessment; pharmacological treatments; psychological treatments; harm reduction; risk and recovery; partnerships with other sectors; and training. An integrated care and risk management plan is recommended to be developed in conjunction with the person who self-harms and their family, carers or significant others.[10]

Q2c. Follow up

Peer reviewed literature

- Three systematic reviews were found in the peer reviewed literature. Overall, follow-up type interventions were effective in preventing a repeat suicide.
- Active contact and follow-up interventions reduce the risk of a repeat suicide attempt within six months in patients admitted to an ED with suicidal injury.[50, 51]
- Findings from a systematic review suggest active contact and follow-up type interventions were effective in preventing a repeat suicide within 12 months.[50]
- The emergency room follow-up team did not reduce risk of ED return compared to treatment-as-usual.[27]
- Structured follow up may include assessment of current suicide risk, review and revision of the safety plan and agreement on a plan and next steps.[8]

Grey literature

- The Zero Suicide Institute recommends follow-up and supportive contacts are provided by:
  - Emphasising proactive and personal support in follow-up care and care transitions
  - Following-up ‘caring contacts’ with high-risk individuals, such as postcards or letters expressing support, phone calls and in-person visits have been shown to reduce suicide mortality.[29]

Background

In NSW, more than 850 people die from suicide each year and a further 25,000 people make an attempt. The NSW Mental Health Commission 2018-2023 Strategic Framework for Suicide Prevention includes five priority actions and guiding principles.[52]

According to the World Health Organization, more than 700,000 people die due to suicide every year.[53] Suicide prevention interventions require a coordinated and collaborative approach across all levels of government and from the community. Early identification, assessment, management and follow-up are key to effective interventions. Suicide care pathways may be used to improve service access and quality, as well as reduce mortality and suicidal behaviours. Suicide care pathways provide these interventions in a coordinated way.

Factors identified as needed to enhance suicide prevention by improving health services access and engagement include:

- Prioritisation of suicide across all levels of care
- Effective identification and assessment strategies
- Comprehensive surveillance systems and outcome tracking
- Large registries linking risk across systems and providers
- Enhanced electronic medical records with real-time notification of risk
- Care coordination within and between providers, departments, and systems
- Effective interventions using existing and alternative approaches to care
- Informed care pathways
- Stepped care treatment approaches
- Treatment engagement.[54]

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Methods (Appendix 1)

PubMed, Google and Google Scholar were searched on 19 October 2021.

Evidence checks follow a rapid review methodology to present evidence on a discrete topic or question. They are not intended to be an exhaustive systematic review. The simplified methodology includes defining the question (using a scoping document), literature search, results screening against inclusion criteria, simplified data extraction tables or evidence overview, and narrative synthesis. Key to the evidence checks is being transparent in the methods used to undertake the review. No formal quality appraisal is completed.

Limitations

In order to manage the volume of evidence for question 2 and timelines required to complete the evidence check, the search was limited to systematic reviews, and search terms restricted to interventions at health services. Adding the terms relevant to health services reduced the sensitivity of the search, so this may not represent a complete list of papers. Google Scholar searches and review by content experts were used to identify additional papers. This is a rapid evidence check that has not been developed and/or reviewed with the involvement of people with a lived experience of mental health issues. There was a lack of evidence on older and younger people. Terminology was taken directly from the included publications. We acknowledge that in some cases the same terms can be used broadly and as a specific intervention (such as collaborative assessment). The evidence check excluded studies relating to self-harm without suicidal intent, however in some studies this was not always clear, and definitions varied between studies.

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Results

Table 1: Question 1 – Suicide care pathways

Source	Summary
Peer reviewed sources	

National Pathways for Suicide Prevention and Health Services Research
 	
Ahmedani, et al. September 2014[54]
	• Literature review and expert panel summary of the evidence
	• Several studies describing deliberate changes in health system models to enhance care of suicidal individuals
	• Chronic disease care models have improved treatment access, adherence, and continuity for mental health conditions
	• Collaborative care, as one approach to chronic care management, has been applied to depression, resulting in reduced frequency and intensity of suicidal ideation
	• Similarly, mandated coordinated care in the United Kingdom (UK) resulted in a decrease in suicide attempts
	• Interventions that target suicide behaviour directly are considered to be essential
	• The following factors are identified as needed to enhance suicide prevention by improving health services access and engagement:
	  ○ Prioritisation of suicide across all levels of care
	  ○ Effective identification and assessment strategies
	  ○ Comprehensive surveillance systems and outcome tracking
	  ○ Large registries linking risk across systems and providers
	  ○ Enhanced electronic medical records with real-time notification of risk
	  ○ Care coordination within and between providers, departments, and systems
	  ○ Effective interventions using existing and alternative approaches to care
	  ○ Informed care pathways
	  ○ Stepped care treatment approaches
	  ○ Treatment engagement

Efficacy of the Zero Suicide framework in reducing recurrent suicide attempts: cross-sectional and time-to-recurrent-event analyses Stapelberg, et al. November 2020[1]	• Observational cross-sectional design (n=604 persons and 737 suicide attempts) and a subsequent historical cohort design to assess the effectiveness of the Zero Suicide Framework in reducing repeated suicide attempts after an index attempt in a large public mental health service in Australia. • The Zero Suicide Framework is based on seven elements: lead, train, identify, engage, treat, transition, and improve. The Gold Coast Mental Health and Specialist Service also developed a clinical suicide prevention pathway which consisted of screening and engagement; assessment; risk formulation; brief interventions; follow up; and transition of care. • Findings suggest placement on the suicide prevention pathway reduced risk for a repeated suicide attempt within 7 days, 14 days, 30 days and 90 days, and extended time to re-presentation. A diagnosis of personality, previous suicide attempt, and Indigenous status increased the hazard for representation, whereas older age decreased it. The effect of the pathway

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Source	Summary
	was similar across all groups, reducing the risk of re-presentation to about 65% of that seen in those not placed on the pathway.
Suicide Risk Screening in Paediatric Hospitals: Clinical Pathways to Address a Global Health Crisis Brahmbhatt, et al. January 2019[5]	• Standardised workflows for suicide risk screening in paediatric hospitals using validated tools can help with timely and appropriate intervention. • The pathway outlines a three-tiered screening process utilising the 'Ask Suicide-Screening Questions' for initial screening, followed by a brief suicide safety assessment to determine if a full suicide risk assessment is warranted. • Text document describing pathway to be used with flow diagrams. • Suicide risk screening pathways modelled on various existing physical illness care pathways. • Designed to be flexible and open to be customised and updated over time.
Development of a Clinical Pathway for the Assessment and Management of Suicidality on a Paediatric Psychiatric Inpatient Unit Boafo, et al. September 2020[6]	• Article describing the steps taken by a mental health inpatient multidisciplinary team to develop a clinical pathway for the assessment and management of suicidality in a paediatric psychiatric inpatient unit. • The clinical pathway development resulted in six steps from admission to discharge: intake process; inclusion/exclusion criteria; data integration and treatment formulation; interventions; determination of readiness for discharge, and the discharge process.

Implementing a systems approach to suicide prevention in a mental health service using the Zero Suicide Framework
 	
Turner, et al. March 2021[8]
	• Provides a description of the Zero Suicide Framework implementation process within a large health service in Australia (Gold Coast Mental Health and Specialist Services), including outcomes and learnings from the process, and a toolkit of resources.
	• This approach provides an overarching framework for leadership, cultural change, change management, evaluation, and innovation, while allowing for the implementation of clinical interventions most suited for individual services.
	• The 'Identify, Engagement, Treat' – suicide prevention pathway was shaped by five principles:
	  ○ Guide all staff across services and would be considered 'business as usual'
	  ○ Implemented within existing clinical teams with no additional resources
	  ○ Avoidance, where possible, of any increase in mandatory clinical documentation
	  ○ Support for engagement and standardisation through a clinical pathway, but avoidance of a 'tick box' approach
	  ○ Enhancement and refinement of processes to build existing skills rather than replacing already embedded approaches.
	• The Suicide Prevention Pathway is outlined in Figure 1 (see below). Findings suggest:

<table>
<tr><th>Source</th><th>Summary</th></tr>
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- Screening to identify consumers at risk of suicide is an important component; however, it was also recognised that a screening tool should not be used to determine access to interventions or to predict risk. The UK Mental Health Triage Scale was selected and endorsed at a state level and embedded in the Electronic Medical Record.
- Assessments were enhanced by introducing the Chronological Assessment of Suicide Events (CASE) approach
- Risk formulation is not used for predictive purposes or to determine acceptability for treatment, but rather enables broader understanding of the issues to support care planning.
- Brief interventions included safety planning, counselling on restricting access to lethal means, crisis numbers, brief patient and carer information, and rapid follow up.
- Structured follow up included mood check and assessment of current suicidality; review and revision of the safety plan; communication with carers, families and health professionals; identification of other agencies; and an agreement on a plan and next appointment and identification of any barriers to treatment.

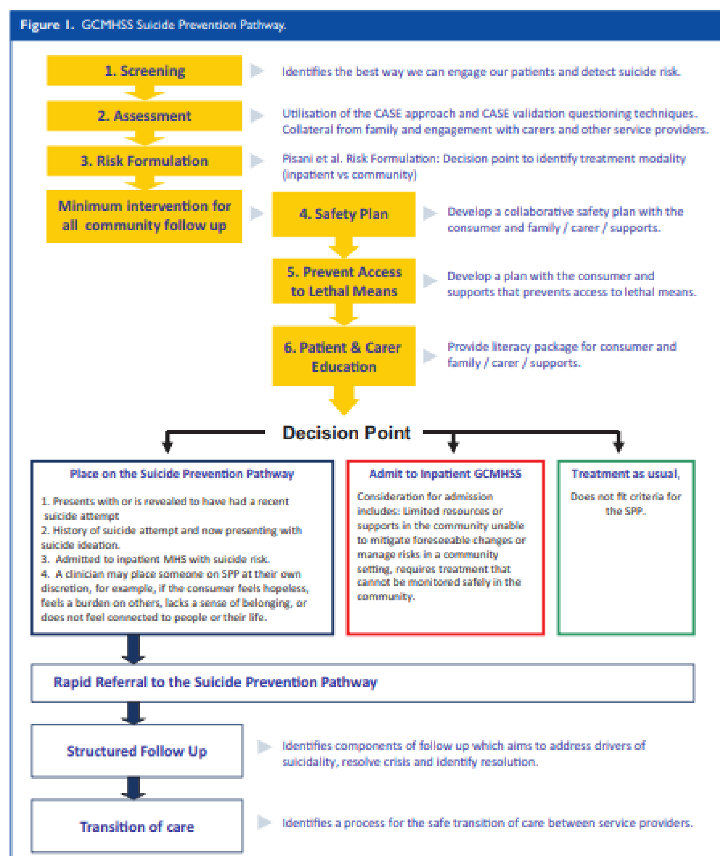

Figure 1
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<tr><td>Care Pathways in a Suicide Crisis Assessment</td><td>

- A cross-sectional observational design with retrospective file review to evaluate care pathways in a Suicide Crisis Assessment Nurse (SCAN) service.

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Source	Summary
Nurse (SCAN) service Raymond, et al. February 2020[2]	• The SCAN service is a novel nurse-led service provided for patients expressing suicidal ideation at the primary care level. The SCAN intervention generally takes two to three hours, and the patient is provided with a copy of their support safety care plan and supportive hand-outs. This includes information on relaxation and mindfulness exercises, sleep hygiene, distress tolerance and distraction techniques. • Findings suggest the majority of referrals to the SCAN service continue management in primary care after referral and assessment.

Suicide Evaluation in the Pediatric Emergency Setting
 	
Ambrose, et al. July 2018[7]
	• Narrative review on suicide evaluation in paediatric emergency settings.
	• Findings suggest:
	  o Screening all patients, regardless of presenting complaints, for suicide risk may lead to better identification of – and more timely intervention for – high-risk groups. Despite no consistent recommendations for universal screening, validated tools for emergency settings include the 'Ask Suicide Screening Questions' and the 'Risk of Suicide Questionnaire'.
	  o Evaluating risk factors has become homogenous; in assessing current risk, it is important to consider how each risk factor may affect the short-, intermediate- and/or long-term risk of suicide.
	• Recommendations and future directions:
	  o Increasing the availability of mental health screening in the emergency department and other nonpsychiatric settings.

Clinical pathways for suicidality in emergency settings: a public health priority Wilhelm, et al. 2017[55]	• A review article identifying seven care pathways • Of the seven pathways identified, six included a flow diagram to facilitate interpretation and expedite use, something that increases the usefulness of the pathways for busy clinicians. • Most of the pathways were developed and implemented within the UK for young people in local health areas as a response to the NICE guidelines.

Responding to Adolescents at Risk of Suicide: Implications of the Ideation-to-Action Framework
 	
Jameson, March 2020[3]
	• The 'Ideation-to-Action Framework' suggests divorcing risk of ideation from risk of attempt can help make sense of the unpredictable nature of suicide attempts. Rather than attempting to distinguish between high risk and low risk based on traditional predictors, the Framework suggests determining whether risk is imminent or not and responding accordingly:
	  o Individuals who express imminent risk (e.g., voice immediate intent and/or the inability to keep themselves safe in the immediate future) should be provided with a more intensive level of care immediately, up to and including hospitalisation in crisis stabilisation units.
	  o Individuals who express non-imminent suicide risk (e.g., endorse ideation but no immediate intent to act) may not require hospitalisation, but still should be taken seriously regardless of the number of risk factors present.
	• Two available brief interventions that are particularly responsive to the dynamic nature of suicide attempt risk are:
	  o Working with families to reduce the at-risk individual's access to lethal means of suicide

Source	Summary
	○ Mitigating risk during acute crises is the safety planning intervention.
PROTECT: Relational safety based suicide prevention training frameworks Kar Ray, et al. June 2020[56]	• A position paper on PROTECT, a training model for suicide risk assessment and management. The position paper was informed by scientific literature and contemporary practice from two initiatives: 333 – a recovery orientated model of inpatient/community crisis care; and PROMISE – a program to reduce coercion in care by enhancing the patient experience. • PROTECT operationalises relational safety, and has four frameworks: ○ AWARE (anxiety, weighting, agenda, resources): a framework for reflection and the ongoing development of professionals. ○ DESPAIR (diagnosis, entrapment, suicidality, past attempts, agitation, intent, and risk response): a framework for assessment – a time-efficient and pragmatic cross check. ○ ASPIRE (acceptance, safety planning, person-centred care, interventions menu, review cycle, enhance resilience): a framework for management – to co-create a safe and empowering recovery journey. ○ NOTES (narrative description, options appraisal, therapeutic interventions, escalation plan and shared with): a framework documenting risk formulation, which meaningfully enhances safety by transforming clinical records into a therapeutic tool.
A Pilot Investigation of the Operationalized Predicaments of Suicide (OPS) Framework Pridmore, et al. August 2021[4]	• The Operationalized Predicaments of Suicide is a four-category framework designed to assist in the classification of suicide: ○ Category A (Cat A) distinguishes situations in which mental illness is likely a key trigger. ○ Category B (Cat B) identifies situations in which social or environmental factors are likely to be a key trigger. ○ Category C combined (Cat C) distinguishes situations when both mental illness and social or environmental are the key factors. ○ Category U unclassifiable (Cat U) identifies situations when none of the above triggers is evident, or the information is insufficient or contradictory. • A quality assurance exercise was conducted with 18 psychiatrists to pilot the Framework and 1) apply the classification to coronial reports 2) explore inter-rater consistency of ratings and 3) obtain qualitative comments. • Findings suggest: ○ In 89.8% of cases the raters were able to make a decision regarding the drivers which led to the suicides. ○ In the qualitative section, respondents supported the face validity and it was considered useful.
Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of adult deliberate self-harm	• Guidance for the organisation and delivery of clinical services, and the clinical management of patients who deliberately self-harm. This is based on scientific evidence supplemented by expert clinical consensus and expressed as recommendations. • Findings suggest: ○ Suicide and deliberate self-harm should be considered a key clinical outcome for hospital-treated deliberate self-harm. Other adverse outcomes should include non-suicidal mortality, mental

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Source	Summary
Carter, et al. 2016[11]	health morbidity, impaired quality of life and impairment of functioning in physical, psychological and social domains. o Psychosocial assessment by a trained mental health professional may have a positive effect on deliberate self-harm repetition rates. o The number of patients leaving before assessment might be reduced by short waiting times and close monitoring of patients inside the emergency department. o Active attempts at engagement and active attempts at follow up through phone contact, GPs, treating mental health team or police may be necessary to retrieve absconding patients. o Staff knowledge about deliberate self-harm can be increased, along with empathy. o Improved access to aftercare and enhanced provision of deliberate self-harm to patients, carers and the public are warranted. o Risk assessments have not been demonstrated to reduce repetition of deliberate self-harm. Scales, tools and other methods of stratification are not warranted to determine the need for clinical services or follow up. o Cognitive behaviour therapy may be useful in reducing repetition of deliberate self-harm, along with assertive outreach when combined with psychological therapy.
Grey literature	
Suicide prevention overview NICE, 2021[10]	• The NICE pathway for suicide prevention outlines setting up partnerships in community, and residential custodial and detention settings. It explains how the partnerships should develop a strategy and plan to: o Raise awareness o Reduce access to methods of suicide o Support people bereaved or affected by suicide o Prevent suicide clusters o Reduce the potential harmful effect of media reporting.
An evidence-based systems approach to suicide prevention: guidance on planning, commissioning and monitoring Black Dog Institute, 2017[12]	• A publication from the Black Dog Institute provides guidance to reduce suicide rates and attempts, based on strategies found in high quality research. The guidance is to provide Primary Health Networks with information to help commission and evaluate suicide prevention services. • The guidance includes nine evidence-based strategies: o Aftercare and crisis care (a co-ordinated approach to improving the care of people after a suicide attempt) o Psychological and pharmacotherapy treatments o General practice capacity building and support (primary care clinician education is one of the most promising interventions for reducing suicide) o Frontline staff and gatekeeper training (focus on increasing mental health literacy and teaching skills to assess, manage, and provide resources for at-risk individuals) o School programs

Source	Summary
	○ Community campaigns (developed in conjunction with other strategies) ○ Media guidelines ○ Means restriction (restricting access to the measures of suicide is considered one of the most effective suicide prevention strategies).
Suicide prevention strategy 2016-2018 Gold Coast Health, 2016[57]	• Key actions include reviewing recommendations on evidence-based interventions: ○ Appropriate and continuing care for people once they leave ED and for people in the community ○ 24/7 call out emergency teams experienced in suicide prevention ○ Crisis-call lines and chat services for emergency callers ○ Assertive outreach for those in ED and discharge including e-health ○ High quality treatment e.g., cognitive behaviour therapy and dialectical behaviour therapy for mental health (including online treatments).
Self-harm: the short-term physical and psychological management and secondary prevention of self-harm in primary and secondary care. National Clinical Practice Guideline Number 16 National Collaborating Centre for Mental Health (UK), 2004[9]	• This guideline has been developed to advise on the short-term physical and psychological management and secondary prevention of self-harm in primary and secondary care. • Key priorities for implementation: ○ Respect, understanding and choice ○ Staff training (e.g., clinical, and non-clinical staff who have contact with people who self-harm) ○ Activated charcoal (e.g., immediately available to staff at all times, including ambulance and emergency department services) ○ Triage (e.g., preliminary psychosocial assessment following an act of self-harm, consideration for introducing the Australian Mental Health Triage Scale, and use of environments that are safe, supportive and minimise distress) ○ Treatment (e.g., treatment for physical consequences of self-harm and staff should provide full information about treatment options) ○ Assessment of needs (e.g., assessment of needs should include a comprehensive and include evaluation of the social, psychological, and motivational factors specific to the act of self-harm, current suicidal intent and hopelessness and a full mental health and social needs assessment) ○ Assessment of risk (e.g., assessment should include identification of the main clinical and demographic features known to be associated with risk, or further self-harm or suicide and key psychological characteristics) ○ Psychological, psychosocial, and pharmacological interventions (e.g., referrals for treatment and help based on comprehensive psychiatric, psychological and social assessments).

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<table>
<tr><th>Source</th><th>Summary</th></tr>
<tr><td>Outpatient Speciality Care Clinical Pathway for Children and Adolescents at Risk for Suicide

Children's Hospital of Philadelphia, June 2019[13]</td><td>

- The Children's Hospital of Philadelphia has a published outpatient speciality care clinical pathway for children and adolescents at risk of suicide.
- Patients with possible suicide risk are screened for suicide risk (e.g. using the CHOP-2 or Columbia Suicide Severity Rating Scale Screener) and outcomes are either 'Negative Suicide Screen' or 'Positive Suicide Screen'. For patients who are 'Positive Suicide Screen', a suicide risk assessment is completed to assess chronic and current risk and protective factors.
- Following the assessment, if a patient is considered 'Negative Suicide Risk' a risk formulation is completed, and the patient continues to engage in a treatment plan on the primary presenting problem. Alternatively, a patient can be considered either 'low acuity', 'intermediate acuity' or 'high acuity' (see below Figure 2).
- Risk formulation, integration of risk and protective factors and red flags completed for each level of acuity
- Immediate and long-term care plan considerations for all levels of acuity, and evaluation at an emergency department or local psychiatric crisis centre for high acuity.

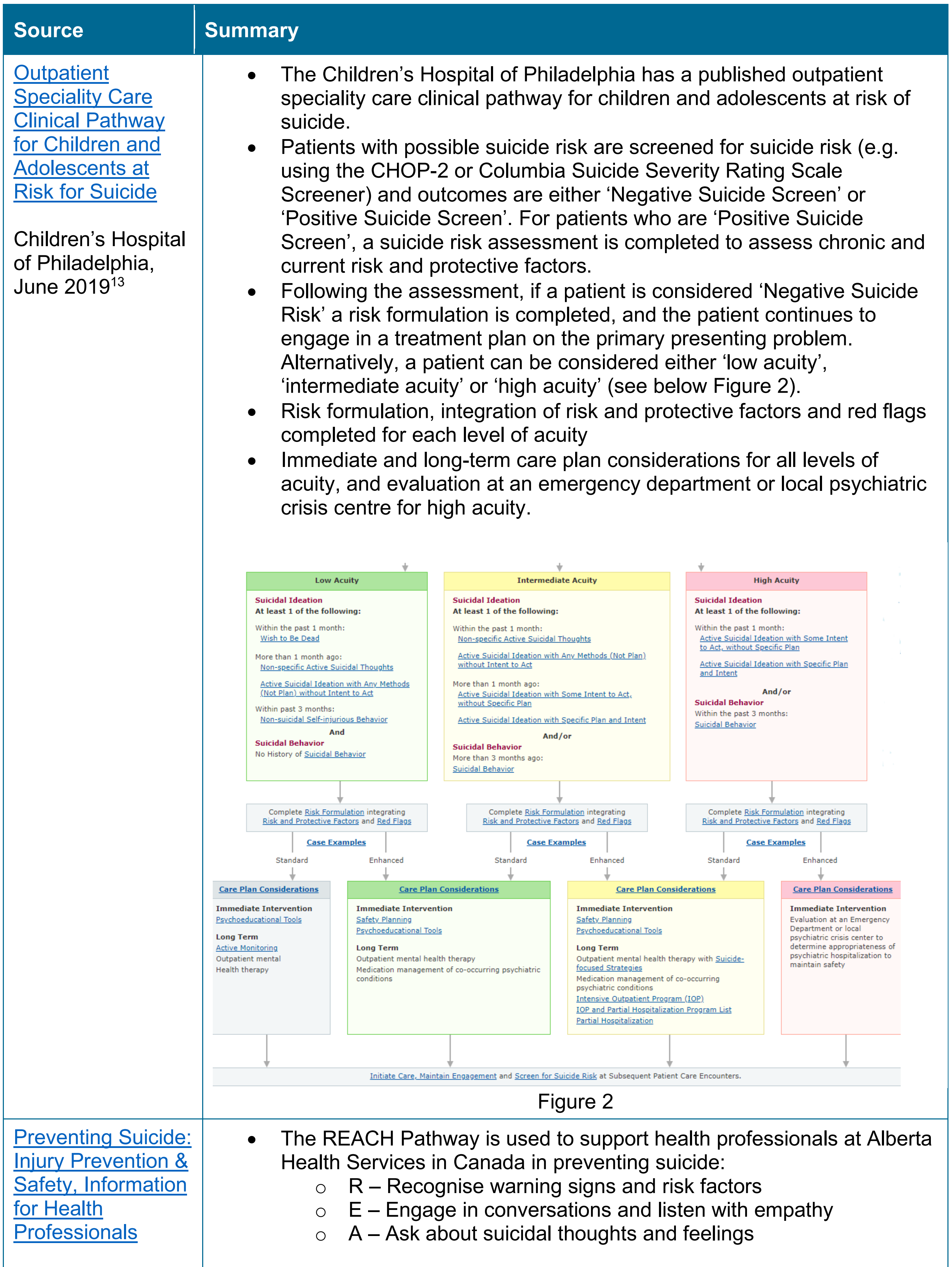

Figure 2
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<tr><td>Preventing Suicide: Injury Prevention & Safety, Information for Health Professionals</td><td>

- The REACH Pathway is used to support health professionals at Alberta Health Services in Canada in preventing suicide:
  - R – Recognise warning signs and risk factors
  - E – Engage in conversations and listen with empathy
  - A – Ask about suicidal thoughts and feelings

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Source	Summary
Alberta Health Services, 2021[14]	◦ C – Connect to supports and resources. Explore their strengths and protective factors ◦ H – Heal ourselves by taking care of our own mental health.
Preventing Suicide in Canada McMaster University, 2012[17]	• An evidence brief from McMaster University suggests a need to foster integration and coordination of new and ongoing efforts to prevent suicide within and across jurisdictions. Key components include: ◦ Interventions (discharge planning and follow-up, crisis interventions, integrated care pathways and assertive community treatment) that could contribute to developing well-defined care pathways and packages of care and establishing continuity of care ◦ Multidisciplinary teams (e.g., on-site mental health workers and community mental health teams) ◦ Financial and resource mechanisms to support integrated care within the health system and between health and social care systems.
Addressing suicide in the older population Montana Department of Public Health and Human Services, 2021[58]	• The clinical pathway for patients at risk of suicide from the Montana Department of Public Health and Human Services suggests: ◦ All patients seen by a primary care provider are screened for depression, and if positive on the Patient Health Questionnaire (PHQ) question 1, 2 and/or 9, and then screened for suicide risk using the C-SSRS with SAFE-T Protocol. ◦ If patients are considered 'negative', they can engage and/or continue in treatment on primary presenting symptoms and problems. If 'positive', the level of risk is considered 'low acuity', 'medium acuity' or 'high acuity'. ◦ Risk formulations that integrate risk and protective factors is completed for all levels of risk. For 'high acuity' this also includes psychiatric evaluation and placement considerations. ◦ Immediate and long-term care considerations occur for low and moderate acuity levels, and immediate interventions for high acuity.

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Figure 3
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<tr><td>COVID-19 Adult Clinical Pathway

National Institute of Mental Health, 2021[18]</td><td>

The COVID-19 suicide risk clinical pathway provides guidance for screening adult medical patients for suicide risk via telehealth and over the phone using the ‘Ask Suicide-Screening Questions’ (ASQ) and effectively managing patients who screen positive.
Findings include:

To screen patients 10 years and over and create appropriate workflows that consider local resources and realities.
Conduct the ‘Ask Suicide-Screening Questions’ (ASQ). Screening results can be interpreted as ‘Negative Screen’ or ‘Positive Screen’ (either acute or non-acute):

If the patient is considered at acute risk of suicide, the patient has an emergent full-safety evaluation.
If the patient is considered at non-acute risk of suicide, the patient requires a brief suicide safety plan

Conduct a brief suicide safety assessment (BSSA) to determine whether a full suicide safety assessment and measures are required in the emergency department. A trained mental health provider conducts the evaluation, using standardised questionnaires as a guide, and determines the level of risk (imminent, high, low) to decide the next steps.
Conduct a full suicide safety assessment when there is an acute positive screen from the ASQ or high or imminent risk from the BSSA. The full assessment is completed by a licensed mental health provider and can determine interventions to keep the

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patient safe such as direct observation, level of safety precautions or need for hospitalisation in an inpatient psychiatric setting.

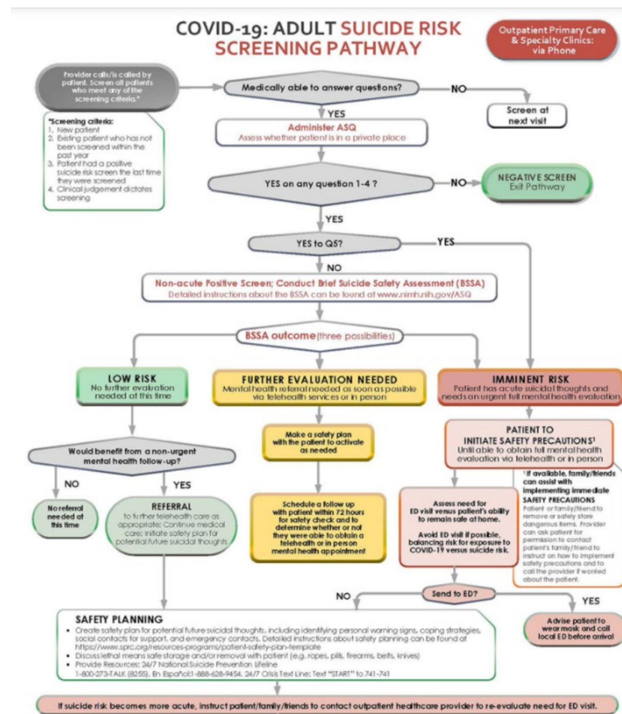

Figure 4

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[ZEST toolkit for suicide safe care centers]

Zero Suicide in Texas, 2021[15]

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- The Suicide Safe Care Pathway is intended to describe best practices for individuals at risk for suicide who will be monitored or treated in a community setting.
- Elements of the pathway include:
    - Entering the Suicide Safe Care Pathway (e.g. ensure a clear indication in the electronic health record the individual is on the pathway and review list daily)
    - Safety plan developed
    - Counselling on access to lethal means
    - Referral to community
    - On-going monitoring of risk (e.g., continue to assess risk using the C-SSRS at every contact and review safety plans)
    - Consider referral to peer support
    - Consider provision of collaborative assessment and management of suicidality and brief interventions focused on reducing suicidality
    - Contact frequently (e.g. should be seen face to face or phone contact a minimum of every three days)
    - Existing the suicide safe care pathway (e.g. following two consecutive C-SSR assessments at low risk and have attended at least three appointments with a community provider)
    - Caring follow-up contacts (e.g. establish contact for a period of time)

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Source	Summary
	○ Referral to LMHA (e.g., warm transfer to the intake provider to complete eligibility assessment, person-centred care planning, and initial service authorisation) ○ Referral to psychiatric assessment (e.g., should be scheduled within seven days of entering the pathway) ○ Consider referrals for best practice services and supports ○ Continued to be engaged in care pathway (see Figure 5). Figure 5
[Regional Suicide Prevention Care Pathway] South Eastern Health and Social Care Trust, 2021[59]	• The South Eastern Health and Social Care Trust in Ireland has the Regional Suicide Prevention Care Pathway. The pathway has been developed as part of a suite of work under the Towards Zero Suicide initiative. The pathway was co-produced in partnership with service users, lived experience volunteers, staff and key stakeholders.
[SafeSide Framework and Hillside Family of Agencies Workflow]	• Framework covering four areas: connect, assess, respond and extend. • Components include risk screen, risk assessment, safety plan, treatment plan, IR for suicide attempt, EMR suicide risk alert, and to update assessment, plan and treatment goals as needed and at least every 90 days (see Figure 6).

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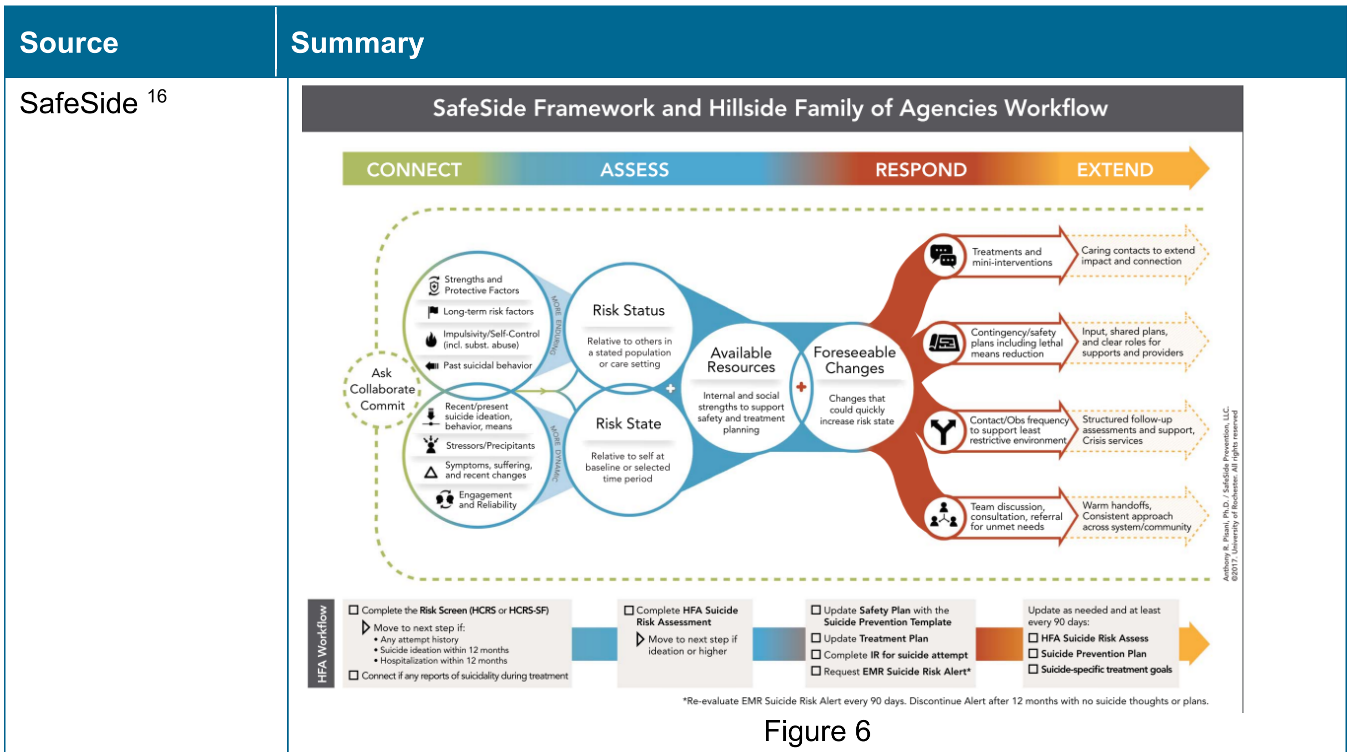
Source	Summary
SafeSide [16]	 Figure 6

Table 2: Question 2(a) – Early identification and engagement

Source	Summary
Peer reviewed sources	
A systematic review of psychometric assessment of self-harm risk in the emergency department Randall, et al. November 2011[19]	• Systematic review on self-harm risk assessment measures in emergency departments (n=12). • Numerous tools were used to assess future self-harm risk: Beck Hopelessness Scale; Beck Suicide Intent Scale; Beck Scale for Suicidal Ideation; Optional Thinking Test; Brief Psychiatric Rating Scale; Symptom Checklist-90 Revised; Self Harm Rule; Violence and Suicide Assessment Form; Modified Sad Persons Scale; Severity of Psychiatric Illness System; Beck Depression Inventory; Beck Anxiety Scale; High Risk Construct Scale; Self injury Implicit Associations Test and the Hamilton Depression Rating Scale. • Follow-up varied from three weeks to four years (median was six months). • Findings suggest only the Implicit Associations Test and the Violence and Suicide Assessment Form were found to successfully predict self-harm in emergency department settings.
What are the barriers, facilitators and interventions targeting help-seeking behaviours for common mental	• Systematic review (n=90) on the principal barriers, facilitators and interventions targeting help-seeking for common mental health problems in adolescents aged 10–19 years. • Results:

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Source	Summary
health problems in adolescents? A systematic review Aguirre Velasco, et al. June 2020[60]	◦ Stigma and negative beliefs (including family beliefs) towards mental health services and professionals were the most cited barriers. ◦ Other barriers included: mental health literacy; autonomy; availability and structural factors e.g. cost, transportation, waiting times; higher levels of psychological distress, suicidal ideation, and depressive symptoms. Facilitators included: previous positive experience with health services and mental health literacy, engagement with community, trusting and committed relationships with relevant adults. ◦ Interventions types include: psychoeducation, use of multimedia and online tools, peer training and outreach initiatives.

Patient perspectives of helpful risk management practices within mental health services. A mixed studies systematic review of primary research
 	
Deering, et al. June 2019[61]
	• Systematic review of mixed primary research studies (n=12) to detect beneficial risk management methods identified by mental health patients.
	• Findings suggest:
	  • Interpersonal relationships with clinicians and communication that keeps patients involved and informed of management processes were found to be central to beneficial risk management practices. In addition, patients having agency and autonomy to influence their participation was also important.
	  • Beneficial interpersonal relationships and connectivity in the form of patients' wider community of support were found to be influential in aiding risk management.

A Systematic Review of Instruments to Identify Mental Health and Substance Use Problems Among Children in the Emergency Department Newton, et al. May 2017[28]	• Systematic review (n=14) of screening and diagnostic tools for mental health problems in children and adolescents in emergency departments. • Results: ◦ The HEADS-ED is a reliable instrument when used by multiple ED clinicians for general screening. The tool has been shown to predict paediatric patients in need of full psychiatric assessment and admission to hospital (82% of paediatric mental health patients requiring admission and 87% of patients who do not need admission). ◦ C-SSRS is a reliable suicide risk screening tool that can predict: ED revisits for suicide attempts by adolescents who seek emergency mental health care and ED revisits for mental health care by adolescents who report suicidal ideation during index ED visit. ◦ Two-item RSQ had moderate reliability for suicide risk assessment. ◦ None of the suicide risk tools (ASQ, RSQ, SQS, TQS) demonstrate both high sensitivity and specificity. The ASQ and RSQ provide strong evidence to rule out risk. An adolescent with a positive response to at least one of the four ASQ items has an almost threefold higher risk for suicide. ◦ Paediatric patients who answer yes to at least one of the two items on the DSM-IV instrument are at eightfold greater risk of

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Source	Summary
	having an alcohol use disorder. It detects 88% of patients with a disorder and 90% of patients who do not have a disorder. • Where mental health resources are not available in the ED, mental health screening is important for discharge planning and referral to mental health services. • Recommendation that ED clinicians use 1) the HEADS-ED to rule in ED admission among paediatric patients with visits for mental health care 2) the ASQ to rule out suicide risk among paediatric patients with any visit type and 3) the DSM-IV two-item instrument to rule in/rule out alcohol use disorders among paediatric patients currently using alcohol. • Three screening tools above require minimal to no training for clinicians before use.

Screening for and treatment of suicide risk relevant to primary care: a systematic review for the U.S. Preventive Services Task Force
 	
O'Connor, et al. May 2013[20]
	• Systematic review (n=56) on efficacy and safety of screening and treatment in suicide risk in primary care.
	• Results:
	  o No clear short-term (within two weeks) benefit of screening.
	  o No identified serious adverse effects of screening.
	  o Psychotherapy reduced suicide attempts in high-risk adults but not adolescents.
	  o Most studies on enhanced usual care reported no difference in suicide attempts between four and 24 months.
	  o No harms of treatment were identified in adult trials. Possibility of harm cannot be ruled out in treatment of currently or recently suicidal adolescents.
	  o One trial of lithium treatment reported 13% of lithium recipients withdrew due to adverse effects compared with 2% of placebo group. Statistical significance not reported.
	• Conclusions:
	  o Screening – data on the accuracy of screening tools limited for both adults and adolescents. Minimal data is available on whether screening increased or decreased suicidality or other distress.
	  o Treatment in adults – insufficient evidence to determine the reduction in risk for suicide deaths, but psychotherapy reduced attempts by an average of 32%. Psychotherapy also showed small benefits on depression. Enhanced usual care had limited effect on suicide deaths, attempts, or other outcomes. No studies on lithium use in patients were identified through screening for suicidality.
	  o Treatment in adolescents – psychotherapy did not reduce risk for suicide attempts in adolescents and showed small benefits on depression.

Short-Term Assessment of Risk and Treatability (START): systematic review and meta-analysis	• Systematic review and meta-analysis of the psychometric properties of the Short Term Assessment of Risk and Treatability (START) and predictive efficacy. • Results: o START ratings demonstrated high internal consistency, interrater reliability, and convergent validity with other risk measures.

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Source	Summary
O'Shea, et al. September 2014[23]	◦ The START can be scored reliably and is a strong predictor of aggression and self-harm but not self-neglect or victimisation. ◦ No evidence that the START predicts suicidality.
Which are the most useful scales for predicting repeat self-harm? A systematic review evaluating risk scales using measures of diagnostic accuracy Quinlivan, et al. February 2016[21]	• Systematic review (n=8) on diagnostic accuracy of risk scales following self-harm. • Risk scales are widely used to manage self-harm patients, but they vary in predictive accuracy. • No scale performs well enough to be used routinely and there are limitations to the use of risk scales in clinical practice. • Scales should not be used in isolation to determine management or to predict risk of future self-harm. • Results: ◦ Sensitivity of scales ranged from 6-97%. ◦ Positive predictive value ranged from 5-84%. ◦ Repeated Episodes of Self-Harm Scale were developed on inpatient sample and unlikely to be transferrable to emergency department services. ◦ Scales may be influenced by the setting or cultural context e.g. the Barrett Impulsivity Scale uses American terminology. ◦ No scale performed well across all indices. ◦ The scales which had the highest global diagnostic odds ratios were the Repeated Episodes of Self-Harm scale at the highest threshold (16.34) and the Manchester Self-Harm Rule (10.77). ◦ Highly sensitive tests may be preferred to capture repeat self-harm episodes e.g. Manchester Self-Harm Rule or ReACT Self-Harm Rule.Highly sensitive tests used for screening or 'ruling out' as false negatives are low. ◦ However, Manchester and ReACT have poor specificity and positive predictive values, so high false positives are possible. ◦ Scales high in specificity e.g. Repeated Episodes of Self-Harm scale, may be useful at later stage of assessment and to 'rule in' patients (low false positives). • Conclusion: No scale performs well enough to be used routinely.
Instruments for the assessment of suicide risk: A systematic review evaluating the certainty of the evidence Runeson, et al. July 2017[22]	• Systematic review (n=21) evaluating 15 suicide risk assessment instruments. Meta-analyses carried out on five instruments. • For the outcome suicide attempt SAD PERSONS Scale had a sensitivity of 15% (95% CI 8–24) and specificity of 97% (96–98). The Manchester Self-Harm Rule (MSHR) had a sensitivity of 97% (97–97) and a specificity of 20% (20–21). ReACT, which is a modification of MSHR, had a similar low specificity, as did the Sodersjukhuset Self Harm Rule. For the outcome suicide, the Beck Hopelessness Scale had a sensitivity of 89% (78–95) and specificity of 42% (40–43). • None of the instruments reached the predetermined benchmarks (80% sensitivity and 50% specificity) for the suicide outcome; the same was the case for the suicide attempt outcome. • Conclusion: None of the evaluated studies met requirements for sufficient diagnostic accuracy.

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Source	Summary
Predicting suicidal behaviours using clinical instruments: systematic review and meta-analysis of positive predictive values for risk scales Carter, et al. Jun 2017[24]	• Systematic review (n=70) on predictive instruments and meta-analyses to produced positive predictive value (PPV) estimates for suicidal behaviours. • For all scales combined, the pooled PPVs were suicide 5.5% (95% CI 3.9–7.9%), self-harm 26.3% (95% CI 21.8–31.3%) and self-harm plus suicide 35.9% (95% CI 25.8–47.4%). • No predictive instrument analysed was sufficiently accurate to determine allocation to intervention. • Conclusion: No individual predictive instrument or pooled subgroups of instruments were able to classify patients as being at high risk of suicidal behaviour with a level of accuracy suitable to be used to allocate treatment.
Predicting suicide following self-harm: systematic review of risk factors and risk scales Chan, et al. Oct 2016[25]	• Systematic review and meta-analysis (n=19) on prospective studies of risk factors and risk assessment scales to predict suicide following self-harm. • Four risk factors emerged from the meta-analysis: previous episodes of self-harm, suicidal intent, physical health problems, and male gender. • There was insufficient evidence for other factors including alcohol misuse, psychiatric history and unemployment. • Included studies evaluated only three risk scales: Beck Hopelessness Scale, Suicide Intent Scale and Scale for Suicide Ideation. • The scales reviewed had low positive predictive values with significant numbers of false positives. • Positive predictive values ranged from 1.3% to 16.7%. • Conclusion: No scales have sufficient evidence to support their use.
Grey literature	

Evidence base
 	
Zero Suicide Institute[29]
	• Recommendation: Systematic screening & assessment
	  o Comprehensive screening in multiple settings e.g., primary care, urgent care, specialty clinics, mental health.
	  o If a patient screens positive for suicide risk, then a full risk assessment, including risk formulation, should be completed.
	  o Use of an assessment tool e.g., Columbia-Suicide Severity Rating Scale (C-SSRS) can help to reduce burden on provider, facilitate follow-up and improve documentation of risk.
	  o Systematic use of assessment tool (C-SSRS) has been shown to improve detection of, and been associated with, decreased suicidal ideation and behaviours.
	  o Conduct a risk assessment using risk formulation, develop a collaborative safety plan, and use evidence-based treatments in the least restrictive setting.
	• Recommendation: Develop a pathway to care
	  o Screening
	  o Same-day access to behavioural health professionals
	  o Requirements and protocols for safety planning, crisis support planning, and lethal means reduction
	  o Channels for communication
	  o Referral process to suicide-specific treatment
	  o Criteria and protocols for end of suicide care management plan

Source	Summary
	◦ Training for staff ◦ Regular team meetings and clinical case consultations ◦ Regular review by management. • Recommendation: Engage a safety plan ◦ Recognition of warning signs ◦ Internal coping strategies ◦ Social situations for distraction ◦ People to ask for help ◦ Professionals or agencies to contact during crisis ◦ Maintaining a safe environment • Recommendation: Establish specific protocols and effective policies to reduce access to lethal means.

Table 3: Question 2(b) – Management

Source	Summary
Peer reviewed sources	
Psychosocial interventions for self-harm in adults Witt, et al. 2021[35]	• Updated Cochrane Review to assess the role of psychosocial interventions in the treatment of self-harm in adults. • The review included all randomised controlled trials (RCTs) comparing interventions of specific psychosocial treatments versus the following treatments: treatment-as-usual (TAU), routine psychiatric care, enhanced usual care (EUC), active comparator, or a combination of these. This regarding the treatment of adults with a recent episode of self harm (within six months of entry) that resulted in presentation to hospital or clinical services, and based on published data up to July 2020. • Findings suggest there may be beneficial effects for psychological therapy based on cognitive behavioural therapy approaches at longer follow-up time points, for mentalisation-based therapy and emotion-regulation psychotherapy at the post-intervention assessment. There may also be some evidence of effectiveness of standard dialectical behaviour therapy on frequency of self-harm repetition. • There was no clear evidence of effect for case management, information and support, , provision of information and support, remote contact interventions (e.g. emergency cards, postcards, telephone-based psychotherapy) and other multimodal interventions.
Intensive case management for severe mental illness Dieterich, et al. 2017[39]	• Updated Cochrane Review to assess the effects of intensive case management (ICM) for severe mental illness. • The review included all randomised clinical trials focusing on people with severe mental illness, aged 18 to 65 years and treated in the community care setting, where ICM is compared to non-ICM or standard care published up to April 2015. • Findings suggest intensive case management compared with standard care can slightly reduce the number of days in hospital per month and may make little or no difference in reducing death by suicide. • Findings suggest intensive case management probably makes little or no difference in the average number of days in hospital per month when

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Source	Summary
	compared with non-intensive case management, and it may make little to no difference in reducing death by suicide.

Management of patients with an advance decision and suicidal behaviour: a systematic review
 	
Nowland, et al. 2019[41]
	• Systematic review of 15 articles published between April 2016 and July 2018 on the treatment and clinical management of patients presenting to hospital with an advance decision to refuse treatment following suicidal behaviour without a chronic or terminal illness.
	• Five themes were identified:
	  o Tension between patient autonomy and protecting a vulnerable person
	  o Appropriateness of advance decisions for suicidal behaviour
	  o Uncertainty about the application of legislation
	  o The length of time needed to consider all the evidence versus rapid decision-making for treatment
	  o Importance of seeking support and sharing decision making.

Development of a Clinical Pathway for the Assessment and Management of Suicidality on a Paediatric Psychiatric Inpatient Unit
 	
Boafo, et al. September 2020[6]
	• The clinical pathway for the assessment and management of suicidality includes specific interventions:
	  o Recommended safety plans e.g., Stanley and Brown Safety Plan Intervention.
	  o Should use evidence-based, psychotherapeutic interventions specific to suicidality with goal of reducing risk for future suicide-related thoughts and behaviours.
	  o Psychoeducation should be provided to patient and caregiver, including information about suicide risk, non-suicidal self-injury, medications, and diagnoses.
	  o Medication management should be provided.
	  o Patient and caregiver/parent skill building e.g., emotion regulation, distress tolerance, mindfulness, cognitive behaviour skills, problem solving and communication, healthy lifestyles and resilience skills including sleep hygiene and occupational balance.
	  o School-related interventions to facilitate school re-entry, including safety planning in the school setting.

Meta-Analysis of Caregiver-Directed Psychosocial Interventions for Schizophrenia
 	
Ashcroft, et al. October 2018[62]
	• Meta-analysis comparing schizophrenia caregiver-directed psychosocial interventions (CDPIs) with treatment-as-usual (TAU) on outcomes including hospitalisation, relapse, non-compliance, and 'other' (including suicide).
	• CDPIs aim to:
	  o Construct an alliance between the caregiver and the person with schizophrenia
	  o Reduce adverse family atmosphere
	  o Enhance capacity of caregivers
	  o Reduced anger and guilt
	  o Maintain reasonable expectations
	  o Encourage appropriate limits
	  o Attain desirable change in caregiver behaviour and belief systems.
	
	• Results:

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Source	Summary
	○ CDPI is associated with significantly lower relative risks of relapse, hospitalisation and non-compliance compared to TAU. ○ CDPI had better but non-significant outcomes for risk of suicide.
Hospital management of self-harm patients and risk of repetition: systematic review and meta-analysis Carroll, et al. October 2014[63]	• Systematic review (n=64) on clinical management of self-harm patients and risk of repeat self-harm and suicide. • Results: ○ Neither admission to a hospital bed nor psychosocial assessment was associated with reduced risk of non-fatal repeat self-harm. ○ Limited evidence of impact of on risk of suicide in following year; some evidence suggesting admission to hospital reduced risk in the year following self-harm. ○ Little evidence of effectiveness of aftercare in reducing repeat self-harm or suicide.
Treatments for the Prevention and Management of Suicide: A Systematic Review D'Anci, et al. September 2019[38]	• Systematic review assessing the benefits and harms of nonpharmacologic and pharmacologic interventions to prevent suicide and reduce suicide behaviours in at-risk adults. • Findings suggest: ○ Cognitive behavioural therapy (CBT) reduced suicide attempts, suicidal ideation and hopelessness compared with treatment-as-usual. ○ Limited evidence suggests that dialectical behaviour therapy (DBT) reduces suicidal ideation compared with wait-list control or crisis planning. ○ The evidence for pharmacologic treatments suggests that ketamine reduces suicidal ideation with minimal adverse events compared with placebo or Midazolam. Lithium reduces rates of suicide among patients with unipolar or bipolar mood disorders when compared with placebo. However, no differences were observed between lithium and other medications in reducing suicide.
Interventions for suicide and self-injury: A meta-analysis of randomized controlled trials across nearly 50 years of research Fox, et al. December 2020[33]	• Meta-analysis (n=591) on treatments to reduce self-injurious thoughts and behaviours (SITBs). • Common SITB intervention approaches include: ○ Social outreach and large-scale crisis intervention ○ Psychodynamic therapy ○ Prefrontal lobotomy ○ Electroconvulsive therapy ○ Gatekeeper training, peer support and institution programs ○ Pharmacotherapy ○ Acute psychiatric hospitalisation ○ Checking-in programs ○ Cognitive and behavioural approaches ○ Means safety and restriction ○ Multi-level eclectic approaches • Results: ○ Overall intervention effects were small across all SITB outcomes ○ Intervention efficacy has not improved across five decades

Source	Summary
	○ All interventions produced small effects, no intervention significantly or consistently stronger than any other ○ Small intervention effects were generally maintained at follow-up ○ Intervention effects consistently small regardless of sample and study characteristics
Interventions for self-harm in children and adolescents Hawton, et al. December 2015[46]	• Cochrane Review (n=11) on psychosocial and pharmacological interventions for self-harm in children and adolescents. • Results: ○ None of the included trials evaluated pharmacological interventions. ○ No benefits of individual CBT-based psychotherapy found for repetition of self-harm, treatment adherence, depression, or suicidal ideation. ○ Mentalisation therapy was associated with fewer adolescents scoring above the cut-off for repetition of self-harm. ○ Dialectical Behaviour Therapy for Adolescents (DBT-A) was not associated with a reduction in repeat self-harm when compared to treatment-as-usual or enhanced usual care. ○ No significant treatment effects for group-based therapy on repetition of self-harm. ○ No significant differences between following treatments and treatment-as-usual in reduction repeat self-harm: compliance enhancement; CBT-based psychotherapy; home-based family intervention; provision of emergency card.
Interventions for self-harm in children and adolescents Witt, et al. March 2021[36]	• Updated Cochrane Review (see above) (n=17) on role of interventions for self-harm in children and adolescents. • Results: ○ None of the included trials evaluated pharmacological interventions. ○ Lower rate of self-harm repetition for DBT-A compared to treatment-as-usual, enhanced usual care, or alternative psychotherapy. ○ May be no evidence of a difference for individual CBT-based psychotherapy and treatment-as-usual for repetition of self-harm and post-intervention. ○ Uncertain whether mentalised based therapy for adolescents (MBT-A) reduces repetition of self-harm compared to treatment-as-usual. ○ Probably no evidence of a difference between family therapy and treatment-as-usual or enhanced usual care on repetition of self-harm. ○ No evidence of a difference for compliance enhancement approaches on repetition of SH by the six-month follow-up assessment, for group-based psychotherapy at the six- or 12-month follow-up assessments, for a remote contact intervention (emergency cards) at the 12-month assessment, or for therapeutic assessment at the 12- or 24-month follow-up assessments. • Conclusion: Only uncertain evidence on psychosocial interventions in children and adolescents who self-harm.

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Source	Summary

Differences in the Effectiveness of Psychosocial Interventions for Suicidal Ideation and Behaviour in Women and Men: A Systematic Review of Randomised Controlled Trials
 	
Krysinska, et al. January 2017[37]
	• Systematic review (n=27) to explore outcomes of preventative programs and psychological treatments for suicidal ideation and behaviour in gender sub-groups.
	• Promising interventions included:
	  ○ Brief contact interventions using series of postcards
	  ○ OPAC (Outreach, Problem Solving, Adherence, Continuity) program
	  ○ Youth-nominated support team Version 1 for hospitalised adolescents
	  ○ Empowerment-focused psychoeducational group intervention
	  ○ Dialectical behaviour therapy
	  ○ Emotion regulation group therapy
	  ○ Manual assisted cognitive treatment
	  ○ Introspective suicide prevention program in schools
	  ○ Postcard intervention for hospital-treated patients after suicide attempt.

Patients' Experiences of Emergency Hospital Care Following Self-Harm: Systematic Review and Thematic Synthesis of Qualitative Research
 	
MacDonald, et al. February 2020[42]
	• Systematic review (n=26) on patient experiences of treatment following self-harm.
	• Three overarching meta-themes emerged from the review synthesis: (a) the construction and negotiation of the patient identity (b) the nature and quality of treatment received and (c) the perceived impact of treatment experiences on future self-harm, disclosure, and help-seeking.
	• Results:
	  ○ Majority of patients reported feeling precluded from assuming patient identity.
	  ○ For some, ascription of patient identity was negatively associated with a loss of control.
	  ○ Participants were concerned with being wrongly classified by clinicians e.g., suicide attempt when presenting with non-suicidal self-harm or an underlying mental health condition.
	  ○ Concealment may be used as a strategy for managing transitions through the care pathway e.g., to avoid admission or fast-track discharge.
	  ○ Participants often cited a lack of control at the point of admission, and feelings of trepidation and fear, shame, and embarrassment. Feelings may be exacerbated by transitioning between multiple wards.
	  ○ Discharge was often reported as sudden, confusing, and disorienting; associated with feelings of abandonment, loneliness, and hopelessness.

A systematic review of management strategies for children's mental health care in the emergency department: update on	• Systematic review (n=7) on specialised resources and services for mental health care for children. • Results: ○ Suggested benefits to elimination of screening laboratory tests to medically clear mental health patients, use of a specialised tool to predict admission to inpatient psychiatry, and specialised care models to reduce length of stay, security man-hours, and restraint orders.

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Source	Summary
evidence and recommendations for clinical practice and research Newton, et al. June 2017[27]	○ Screening tool HEADS-ED predicted admission to inpatient psychiatry with good accuracy (sensitivity 82%, specificity 87%). ○ Redesign of ED environment to accommodate psychiatric patient management reduced security and restraint use, and decreased length of stay. ○ Use of a child guidance model was associated with costs savings per patient. ○ Emergency room follow-up team did not reduce risk of ED return compared to treatment-as-usual.
ED recommendations for suicide prevention in adults: The ICAR(2)E mnemonic and a systematic review of the literature Wilson, et al. March 2020[64]	• Systematic review on mnemonic ICAR^{2}E (Identify suicide risk; Communicate; Assess for life threats and ensure safety; Risk assessment (of suicide); Reduce the risk (of suicide); and Extend care beyond the ED). • Six themes were identified: ○ I: Identify suicide risk in the emergency department – screen patients for suicidal ideation and consider other high-risk complaints suggestive of suicide. ○ C: Communicate (with the patient) – be aware of hesitancy in discussing mental health, create a safe and comfortable environment for patients. ○ A: Assess for (medical) life-threats and ensure (environmental) safety – comprehensive history and physical exam, with additional laboratory testing; safe environment and observation as appropriate. ○ R: Risk assessment (of suicide) – patients identified as at risk for suicide should be assessed, considering both risk factors and protective factors. Standardised screening tools are helpful but should not be used in isolation. ○ R: Reduce the risk (of suicide) – establish a safety plan with patients being discharge, provide lethal means counselling and medication as indicated, and admit patients who are likely to attempt suicide, not engaged or cooperative, or not suitable for outpatient management. Discharge planning processes should address high-risk condition such as substance use disorders or underlying psychiatric conditions. ○ E: Extend care beyond the ED visit – follow-up contacts or 'caring contacts' results in fewer suicide attempts and fewer deaths by suicide.
Instruments to assess suicide risk: a systematic review Andreotti, et al. 2020[65]	• Systematic review included 206 articles and 20 instruments • The two most common were the Beck Scale for Suicide Ideation (BSI) and The Columbia – Suicide Severity Rating Scale (C-SSRS) • Both instruments present breaches in their structure and there is not yet a single instrument considered to be the gold standard.
Suicide and Self-Harm Risk Assessment: A Systematic Review	• Systematic review included 31 articles • The SAD PERSONS Scale was the most used tool. It outperformed the Beck Scale for Suicide Ideation in predicting hospital admissions and

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Source	Summary
of Prospective Research Saab, et al. 2021[66]	stay following suicide and self-harm, yet it failed to predict repeat suicide and self-harm and was not recommended for routine use. • There is insufficient evidence to support the use of any one tool.
An exploration into suicide prevention initiatives for mental health nurses: A systematic literature review Dabkowski, et al. 2021[30]	• Systematic review (n=14) on the impact of suicide prevention programs, particularly the ZERO Suicide (ZS) initiative. • Improvements to the delivery of suicide prevention programs included regular training for mental health clinicians, protecting mental health professionals during suicide prevention training, cultural competence, and further research. • Conclusion: Further long-term research is required to evaluate the implementation and efficacy of suicide prevention programs.
Suicide prevention using self-guided digital interventions: a systematic review and meta-analysis of randomised controlled trials Torok, et al. 2020[47]	• Systematic review and meta-analysis (n=16) on whether direct (targeting suicidality) and indirect (targeting depression) digital interventions are effective in reducing suicidal ideation and behaviours. • Overall post-intervention effect for suicidal ideation was small but significant immediately following the active intervention phase. • Direct interventions significantly reduced suicidal ideation at post-intervention, but indirect interventions failed to reach significance. • Improvements in suicidal ideation were most evident in studies directly targeting suicide, whereas indirect interventions targeting depression do not reduce suicidal ideation.
Suicide during transition of care: a review of targeted interventions Chaudhary, et al. Jun 2020[43]	• Systematic review (n=40) on interventions providing care during high-risk period of transition of care. • Patients are at a high suicide risk during the transition of care from medical care facilities to the community setting, especially during the first three months. • The interventions included telephone contacts, letters, green cards, postcards, structured visits, and community outreach programs. • The outcomes of interest were suicidal ideations and attempts, deliberate self-harm and deliberate self-poisoning, and utilisation of outpatient services. • There was conflicting evidence for the reviewed interventions. • Out of 17 studies assessing suicidal attempts and DSP, nine studies had an improvement in suicidal attempts and DSP. Only four studies out of nine suggested an improvement in suicidal ideations. However, the evidence was minimal for DSH with only three studies suggesting a favourable response. • Conclusion: The reviewed interventions were efficacious in linking patients to outpatient services, reducing feelings of social isolation and helping patients in navigating the available community resources.
Transition experiences following psychiatric hospitalization: a	• Systematic review (n=27) on the transition experiences of patients as they transition back into the community after an inpatient stay for mental illness. • Themes necessary for transition included safety, independence and supported autonomy, self-efficacy, transition to outpatient supports,

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Source	Summary
systematic review of the literature Mutschler, et al. Nov 2019[44]	social support, peer support, self-care, normalisation (engagement in responsibilities and meaningful activity) and the opportunity to engage in reintegration activities. • Barriers preventing integration including poverty, interpersonal difficulties and stigma. • Once external stressors and social support needs were met, a number of normalising activities were pursued.
The effectiveness of the safety planning intervention for adults experiencing suicide-related distress: a systematic review Ferguson, et al. Apr 2021[31]	• Systematic review (n=26) on the effectiveness of the safety planning intervention for adults experiencing suicide-related distress. • Primary measures included: suicidality, suicide-related outcomes and treatment outcomes. • Safety planning intervention was associated with improvements in suicidal ideation and behaviour, decreases in depression and homelessness, and reductions in hospitalisations and improvements in treatment attendance. • Conclusion: Safety planning intervention is a feasible and acceptable intervention for general adult and veteran populations experiencing suicide-related distress.

Effectiveness of suicide prevention interventions: A systematic review and meta-analysis
 	
Hofstra, et al. Apr 2020[34]
	• Systematic review and meta-analysis (n=16) on the effect size of suicide prevention interventions and possible synergistic effects of multilevel interventions.
	• Interventions were labelled as multi-level if they had elements that were performed in different healthcare settings or domains and by different providers.
	• Results:
	  o There was a large statistically significant effect for suicide prevention interventions on completed suicides.
	  o There was a moderate statistically significant effect for suicide prevention interventions on attempted suicides.
	  o For completed suicides, interventions for patients admitted to a psychiatric ward in a general hospital show the highest effect, followed by community-level interventions.
	    ▪ Emergency room setting interventions had a small, non-significant effect.
	    ▪ Outpatient speciality mental health setting interventions had a worse outcome than control, but the effect was not significant.
	  o For attempted suicides, outpatient mental health setting interventions showed the highest effect (large), followed by interventions for patients admitted to a psychiatric ward (moderate). There were small effects for community level interventions and emergency room setting interventions.
	  o For completed suicides, non-multilevel interventions had a small and non-significant effect. Multi-level interventions had a large, significant effect.
	  o For attempted suicides, non-multilevel interventions had a moderate and significant effect. Multi-level interventions had a large, significant effect.

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Source	Summary
	◦ Meta-analysis showed a significant effect of the number of levels in the suicide prevention intervention on effect size; more levels showed a larger effect. • Conclusion: Suicide prevention interventions are effective in preventing completed and attempted suicides.
Association of suicide prevention interventions with subsequent suicide attempts, linkage to follow-up care, and depression symptoms for acute care settings a systematic review and meta-analysis Doupnik, et al. Oct 2020[67]	• Systematic review and meta-analysis (n=14) on association of brief acute care suicide prevention interventions with reduced subsequent suicide attempts and increased chances of linkage to follow-up care. • Three primary outcomes were examined: subsequent suicide attempts, linkage to follow-up care and depression symptoms at follow-up. • Brief interventions included brief contact (phone calls, postcards and letters), care coordination, safety planning and other therapeutic interventions. • Results: ◦ Included interventions had a similar effect in reducing subsequent suicide attempts. ◦ The pooled effect size of included interventions was toward an increase in linkage to follow-up mental health care. ◦ The pooled effect size of included interventions on depression symptoms at follow-up was not significant. The intervention groups had non-significantly lower depression scores (fewer depression symptoms) at follow-up compared with the control groups at follow-up. • Conclusion: Brief suicide prevention interventions were associated with reduced subsequent suicide attempts and increased linkage to follow-up, but not with reduced depression symptoms.
Effectiveness of brief psychological interventions for suicidal presentations: a systematic review McCabe, et al. May 2018[40]	• Systematic review (n=4) on the effectiveness of brief psychological interventions in addressing suicidal thoughts and behaviour in healthcare settings (patients who attended ED). • Three studies were conducted with adults, and one with adolescents. • Main outcomes: suicide, suicide attempts, suicidal ideation, depression and hospitalisation. • Interventions: early therapeutic engagement, information provision, safety planning and follow-up contact for at least 12 months. • Results: ◦ Completion of the intervention ranged from 60.8% to 93% across studies. ◦ Loss to follow-up ranged from 6% to 20% across studies. ◦ Interventions were effective in reducing suicide, suicide attempts and depression. ◦ Two studies found no effect for suicidal ideation. ◦ One trial was effective in reducing suicide over 18 months. ◦ Two studies reported a reduction in repeat suicide attempts. ◦ One study found a significant effect of reducing depression; another did not. • Conclusion: Brief psychological interventions appear to be effective in reducing suicide and suicide attempts.
Mobile health technology	• Systematic review (n=7) on effectiveness of available mobile health technology tools in reducing suicide-specific outcomes.

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Source	Summary

interventions for suicide prevention: systematic review
 	
Melia, et al. Jan 2020[49]
	• Results:
	  ○ Two studies described a statistically significant positive effect of the mobile app intervention on one or more suicide outcomes.
	  ○ Self-reported self-harm behaviour was reduced.
	  ○ Moderate reductions for all self-injurious thoughts and behaviours except suicidal ideation.
	  ○ All studies reported significant efficacy of the app interventions on secondary outcomes (symptoms of depression or anxiety).
	• Conclusion: Results demonstrated some positive impacts for individuals at elevated risk of suicide or self-harm, including reductions in depression, psychological distress and self-harm and increases in coping self-efficacy. None of the apps evaluated demonstrated the ability to significantly decrease suicidal ideation compared with a control condition.

Letters, green cards, telephone calls and postcards: systematic and meta-analytic review of brief contact interventions for reducing self-harm, suicide attempts and suicide
 	
Milner, et al. Mar 2015[68]
	• Systematic review and meta-analysis (n=14) of randomised controlled trials using brief contact interventions (telephone contacts, emergency or crisis cards and postcard or letter contacts) for reducing self-harm, suicide attempt and suicide.
	• Outcomes included self-poisoning, self-harming behaviours, and attempted suicide.
	• Results:
	  ○ For any subsequent episode of self-harm or suicide attempt, there was a non-significant reduction for intervention compared with control.
	  ○ Number of repetitions per person significantly reduced in intervention compared with control.
	  ○ No significant reduction in odds of suicide in intervention compared with control.
	  ○ Postcard interventions significantly favoured a reduction in event rates among the intervention group.
	  ○ One study showed positive effects of a telephone intervention.
	• Conclusion: There was a non-significant positive effect on repeated self-harm, suicide attempt and suicide and a significant effect on the number of episodes of repeated self-harm or suicide attempts per person. Based on limited evidence, brief contact interventions cannot yet be recommended for widespread clinical implementation.

Safety planning-type interventions for suicide prevention: meta-analysis
 	
Nuij, et al. Aug 2021[32]
	• Meta-analysis (n=6) on the effectiveness of safety planning-type interventions in reducing suicidal behaviour and ideation.
	• Results:
	  ○ The incidence of suicidal behaviour ranged from 0 to 18.3% in intervention conditions and 5.3 to 26.7% in control conditions.
	  ○ Risk of suicidal behaviour was significantly reduced by 43% in the intervention condition.
	  ○ Mean effect size of the three studies examining effects on suicide ideation was non-significant.
	• Conclusion: Results support the use of safety planning-type interventions to help prevent suicidal behaviour. There was no evidence for an effect on suicidal ideation.

Source	Summary
The effectiveness of the Collaborative Assessment and Management of Suicidality (CAMS) compared to alternative treatment conditions: A meta-analysis Swift, et al. Oct 2021[45]	• Meta-analysis (n=9) on the efficacy of the Collaborative Assessment and Management of Suicidality (CAMS) intervention against other commonly used interventions for the treatment of suicide ideation and other suicide-related variables. • Results: o CAMS resulted in significantly lower suicidal ideation and general distress, significantly higher treatment acceptability and significantly higher hope/lower hopelessness compared to alternative interventions. o No significant differences for suicide attempts, self-harm, other suicide-related correlates or cost effectiveness. o Effect sizes favouring CAMS were significantly smaller in active duty military/veteran samples and in male participants. • Conclusion: Existing research supports CAMS as a *Well Supported* intervention for suicidal ideation per Center for Disease Control and Prevention criteria.
Effectiveness of online and mobile telephone applications ('apps') for the self-management of suicidal ideation and self-harm: a systematic review and meta-analysis Witt, et al. Aug 2017[48]	• Systematic review and meta-analysis (n=14) on the effectiveness of digital interventions for self-management of suicidal ideation or self-harm. • Results: o Five randomised controlled trials reported interventions that were associated with a significant reduction in suicidal ideation scores. o Post-intervention, four studies reported a reduction in the proportion of participants self-reporting suicidal ideation. One study suggested no evidence of a treatment effect for these interventions at final follow-up. o At post-intervention, there was no indication of a treatment effect for interventions on either self-reported frequency of self-cutting or non-suicidal self-injury in three randomised controlled trials. o There was also no indication of a treatment effect for this intervention on frequency of self-reported self-cutting or non-suicidal self-injury at the final follow-up assessment (at one month) in one trial. o No evidence of a reduction in the proportion of participants who attempted suicide and/or engaged in self-harm over a 24-month follow-up period in this study. o No evidence of a reduction in the proportion of participants self-reporting a suicide attempt was noted by the post-intervention assessment. • Conclusion: Overall, digital interventions were associated with reductions for suicidal ideation scores at post-intervention. There was no evidence of a treatment effect for self-harm or attempted suicide.
Grey literature	
Evidence base Zero Suicide Institute[29]	• Recommendation: Use effective, evidence-based care o Cognitive behavioural therapy for suicidal prevention (CBT-SP), dialectical behaviour therapy (DBT), and collaborative assessment

Source	Summary
	and management of suicidality are more effective than treatment-as-usual. o Treatment and support of persons with suicide risk should be carried out in the least restrictive setting appropriate for the individual and their risk e.g., stepped care pathway. o Facilitate engagement with treatment e.g., through caring letters and other follow-up interventions.
Self-harm: longer term management National Institute for Heath and Care Excellence (NICE), 2012[10]	• Guideline on the longer-term management of both single and recurrent episodes of self-harm for people aged eight years and over. • Treatment and management components include detection, recognition and referral in primary care; assessment; pharmacological treatments; psychological treatments; harm reduction; risk and recovery; partnerships with other sectors and training. • Findings suggest the following risk factors should be considered when assessing risk of repeated self-harm or suicide: previous self-harm and depressive symptoms. Previous self-harm before an index episode is the most robust factor predicting both repetition and suicide following self-harm. No risk scale can be recommended for use in isolation to distinguish people at risk; there are major limitations when making a recommendation for use of a scale alone to predict whether a person who has a history of self-harm will go on to die by suicide. Health professionals should differentiate between long-term and more immediate risks. • Recommendations: o Primary care to consider referring to community mental health services for assessment if the person presents with a history of self-harm and a risk of repetition; services should work cooperatively and routinely share up-to-date care and risk management plans; and primary health professionals should monitor the physical health consequences of self-harm. o Psychosocial assessment in community mental health services and other specialist mental health settings, including an integrated and comprehensive assessment of needs and risks. o Risk assessments should take into account method and frequency of current and past self-harm, current and past suicidal intent, depressive symptoms, psychiatric illness, personal and social context, specific risk and protective factors, coping strategies, significant relationships that may either be supportive or represent a threat and immediate and longer-term risks. o Do not use risk assessment tools and scales to predict future suicide or repetition of self-harm, or who should or should not be offered treatment. o Develop an integrated care and risk management plan in conjunction with the person who self-harms and their family, carers or significant others. o Discuss, agree and document the aims of longer-term treatment in the care plan with the person who self-harms, and review the plan. Care plans should be multidisciplinary. o Risk management plans should be identifiable as part of the care plan and address long-term and immediate risks identified in the risk assessment, address specific factors, include a crisis plan outlining

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Source	Summary
	self-management strategies and be consistent with long-term treatment strategy. ○ Provide the person who self-harms with relevant written and verbal information about the dangers and long-term outcomes associated with self-harm, available interventions and treatment.

Table 4: Question 2(c) – Follow up

Source	Summary
Peer reviewed sources	
Active contact and follow-up interventions to prevent repeat suicide attempts during high-risk periods among patients admitted to emergency departments for suicidal behaviour: a systematic review and meta-analysis Inagaki, et al. January 2019[51]	• Systematic review of randomised controlled trials of emergency-department (EDs) initiated interventions for suicidal patients admitted to EDs. A total of 28 trials were included across 34 publications. • The trials were classified into four categories by intervention type: active contact and follow-up interventions, psychotherapy, pharmacotherapy, and miscellaneous interventions. • Results suggest that active contact and follow-up interventions can reduce the risk of a repeat suicide attempt within six months in patients admitted to an ED with suicidal injury. Active contact and follow-up interventions are recommended for suicidal patients admitted to an ED to prevent repeat suicide attempts during the highest-risk period of six months.
Interventions to prevent repeat suicidal behaviour in patients admitted to an emergency department for a suicide attempt: a meta-analysis Inagaki, et al. April 2015[50]	• Systematic review of 24 studies to examine the effect of interventions to prevent repeat suicidal behaviour in patients admitted to the emergency department for a suicide attempt. • Studies were classified into four groups: active contact and follow-up, psychotherapy, pharmacotherapy, and miscellaneous. • Findings suggest active contact and follow-up type interventions were effective in preventing a repeat suicide within 12 months.
Grey literature	
Evidence base Zero Suicide Institute[29]	• Recommendation: Provide follow-up and supportive contacts ○ Emphasise proactive and personal support in follow-up care and care transitions. ○ Follow-up 'caring contacts' with high-risk individuals – such as postcards or letters expressing support, phone calls, and in-person visits –have been shown to reduce suicide mortality.

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Appendix

PubMed, Google and Google Scholar were searched on 19 October 2021. Additional relevant articles were found during the peer review process and these were included if the inclusion / exclusion criteria were met. To cross check for further relevant papers, the search terms were edited to include the terms 'intervention' and 'instrument' (as these were commonly used terms in the papers identified during peer review), and a PubMed search (search 3) was run on 24 Jan 2022. Additional papers were screened and included in the tables where relevant.

PubMed search terms

Search 1. ((Suicide[MeSH Terms]) OR (suicid*[Title/Abstract])) AND ((((Pathway*[Title])) OR (Framework*[Title])) OR (Flowchart*[Title])) AND ((english[Filter]) AND (2011:2021[pdat]))

= 295 hits on 19 October 2021

Search 2. (((Suicide[MeSH Terms]) OR (suicid*[Title/Abstract])) AND (assessment*[Title/Abstract] OR management[Title/Abstract] OR treatment*[Title/Abstract]OR follow up[Title/Abstract]) AND ((meta-analysis[Filter] OR systematicreview[Filter] OR "systematic review"[title] OR "meta analysis"[title]) AND (english[Filter])) AND (2011:2021[pdat])) AND (Health Services[MeSH Terms] OR "health service*"[Title/Abstract] OR "psychiatric care"[Title/Abstract])

= 137 hits on 19 October 2021

Search 3

((((Suicide[MeSH Terms]) OR (suicid*[Title/Abstract])) AND (assessment*[Title/Abstract] OR instrument*[title/abstract] OR management[Title/Abstract] OR treatment*[Title/Abstract] OR intervention*[title/abstract] OR follow up[Title/Abstract]) AND ((meta-analysis[Filter] OR systematicreview[Filter] OR "systematic review"[title] OR "meta analysis"[title]) AND (english[Filter])) AND (2011:2021[pdat])) AND (Health Services[MeSH Terms] OR "health service*"[Title/Abstract] OR "psychiatric care"[Title/Abstract]))

NOT search 2

= 36 hits on 24 Jan 2022

Cochrane library: *suicide 2011 to present*

= 65 Cochrane reviews on 8 October 2021

Google and Twitter search terms

Suicide OR Mental Health AND Pathway OR framework OR assessment OR management OR follow up

Inclusion and exclusion criteria

Question 1

Inclusion	Exclusion
PICO: • Meets the following (**PICO**) criteria:	Studies not meeting PICO criteria Studies about:

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Inclusion	Exclusion
◦ Population: People presenting to mental health services with suicidal behaviour / self-harm with suicidal intent (adults and young people) ◦ **I**ntervention: Suicide care pathways including the components of care ◦ **C**omparison: none, usual care or alternative interventions ◦ **O**utcome: All patient outcomes Study type: • Is empirical research, evaluation, or a systematic review and/or meta-analysis of literature assessing a pathway Publication year: • Published in the last 10 years (2011-present) Language: • English language	• Clinical decision tools (such as screening and assessment tools to identify frailty) Study types: • Study protocols, editorials, commentaries, essays, letters, conference abstracts • Case studies (of individual patients) or case presentations • Narrative reviews • No abstract

Question 2

Inclusion	Exclusion
PICO: • Meets the following (**PICO**) criteria: ◦ **P**opulation: People presenting to health services with suicidal behaviour / self-harm with suicidal intent ◦ **I**ntervention: **Early identification** and engagement, management [assessment, risk formulation, brief intervention (lethal means reduction, patient/family/carer education, safety planning, rapid 24-48 hour follow up), **treatment for suicidality**, modifying suicide risk factors, and recovery-oriented holistic supports, and **follow up** ransition of care processes, follow up following discharge, use of 'warm' handovers	Studies not meeting PICO criteria Studies about: • Pharmaceutical treatment alone/comparison of different pharmaceuticals Study types: • All study types other than systematic reviews and meta-analysis

Inclusion	Exclusion
○ **C**omparison: none, usual care or alternative interventions ○ **O**utcome: All patient outcomes Study type: • Systematic review and/or meta-analysis Publication year: • Published in the last 10 years (2011-present) Language: • English language	

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