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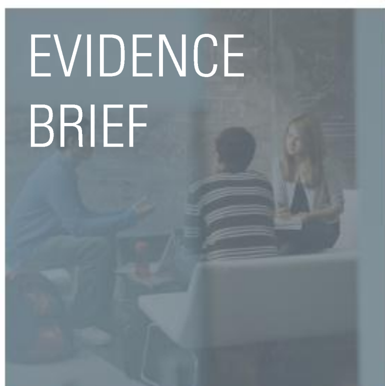

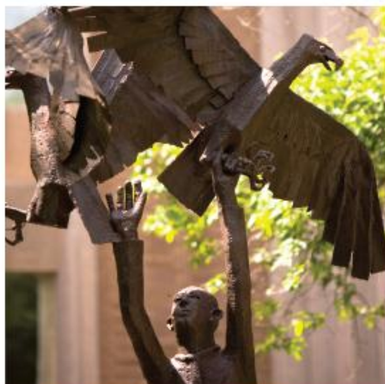

EVIDENCE >> INSIGHT >> ACTION

Evidence Brief:
Preventing Suicide in Canada

9 November 2012

McMaster Health Forum

For concerned citizens and influential thinkers and doers, the McMaster Health Forum strives to be a leading hub for improving health outcomes through collective problem solving. Operating at the regional/provincial level and at national levels, the Forum harnesses information, convenes stakeholders, and prepares action-oriented leaders to meet pressing health issues creatively. The Forum acts as an agent of change by empowering stakeholders to set agendas, take well-considered actions, and communicate the rationale for actions effectively.

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KEY MESSAGES

What's the problem?

- There is a significant burden of death by suicide in Canada, which is driven by a complex set of interrelated factors.
  - Suicide is the second leading cause of death for those aged 10 to 19, and in 2009 was the ninth leading cause of death overall in Canada. While population-level rates of death by suicide have remained stable or slightly declined in the last decade, death by suicide and suicide-related behaviours continue to disproportionately affect certain groups, with higher rates found among those with mental illness and addictions (a major mental disorder is present in 90% of deaths by suicide and suicide attempts), people who are socio-economically disadvantaged, First Nations, Inuit and Métis populations, and men and boys.
  - Suicide prevention is challenging given that programs and services need to address a complex interplay of factors at the individual, interpersonal, community and societal levels in ways that are appropriate for different age, gender and cultural groups.
  - There is a lack of a coordinated, multidisciplinary, inter-sectoral approach to suicide prevention that has long-term sustainable funding and a coordinated governance model across federal, provincial and territorial governments that fits the unique Canadian constitutional context.

What do we know (from systematic reviews) about three viable elements to address the problem?

- Element 1 – Develop and implement suicide-prevention strategies in ways that build on strengths, resilience and protective factors
  - We found several systematic reviews about public-engagement strategies as one component of establishing stakeholder-driven processes, and about supporting the use of research evidence as part of a coordinated knowledge translation initiative to support the implementation of suicide-prevention strategies. While none of the reviews identified benefits directly related to these strategies, they did outline details about their key components and stakeholders' view about and experiences with them.
- Element 2 – Foster integration and coordination of new and ongoing efforts to prevent suicide within and across sectors and jurisdictions
  - Several high-quality systematic reviews found benefits for key components of this element, including: 1) 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; 2) multidisciplinary teams (e.g., on-site mental health workers and community mental health teams); and 3) financial and resource mechanisms to support integrated care within the health system and between health and social care systems.
- Element 3 – Provide education and training in suicide prevention
  - We found several systematic reviews outlining benefits related to: training for the provision of culturally appropriate programs and services (e.g., educational interventions aimed at improving cross-cultural communication); interventions aimed at supporting the implementation of practice guidelines (e.g., distribution of educational materials, audit and feedback, educational outreach visits, and local opinion leaders); and mass media campaigns aimed at changing health behaviours (although none of the reviews evaluated campaigns specifically related to suicide prevention or mental health).

What implementation considerations need to be kept in mind?

- Potential barriers to suicide prevention in Canada can be identified at the level of individuals (e.g., lack of willingness to engage in stakeholder-driven processes), providers (e.g., giving priority to medical care at the expense of prevention work), organizations (e.g., lack of interest in making long-term sustainable financial commitments), and systems (e.g., lack of interest or willingness to contribute to the development of a shared governance model). Efforts to address these barriers need to be aware of potential windows of opportunity (e.g., increased interest from the Canadian federal government in efforts to support suicide prevention) and learn from other jurisdictions that have successfully developed suicide-prevention strategies (e.g., provinces and territories in Canada and/or other countries, such as the recent revised national suicide-prevention strategy in the United States).

REPORT

Suicide has consistently been among the top five to 10 causes of death in North America, but it has not received comparable levels of attention as other public health problems that account for far fewer deaths annually.(1) Death by suicide in Canada has been referred to as a "hidden epidemic" due to the magnitude of the problem, the social stigma associated with it, and the lack of coordinated action across the country towards prevention.(2)

Canada contributed significantly to the adoption of the United Nations (UN) guidelines for implementing national suicide-prevention strategies in 1996.(3) Since the UN guidelines were developed, many countries have adopted or renewed national suicide-prevention strategies (e.g., Australia, England, Finland, New Zealand, Norway, Scotland, Sweden and the United States).(4) Similarly, several Canadian provincial and territorial governments have adopted or renewed suicide-prevention strategies.(4) The Canadian federal government created the Mental Health Commission of Canada, which developed a mental health strategy for Canada that includes recommendations related to suicide prevention.(5) However, Canada lacks a coordinated effort to support the implementation of these strategies and the creation of suicide-prevention strategies where none currently exist

Taking action to prevent suicide is challenging as it requires careful consideration of a broad array of interdependent factors that contribute to suicide attempts and death by suicide. Efforts to address these factors will need to foster inter-sectoral collaborations, draw on multidisciplinary approaches, and ensure continuous monitoring and evaluation.(3;6)

This evidence brief and the stakeholder dialogue it was prepared to inform were designed to support the actions of those involved with addressing these challenges. The evidence brief reviews the research evidence about key features of the problem, which include developing a clear picture of the magnitude of the problem, identifying those most affected by suicide-related behaviours, and understanding the complex array of both risk and protective factors to inform policy and programmatic responses to gaps in programs and services as well as at the system level. Second, this brief discusses three elements of a comprehensive approach to address the problem. Finally, this brief concludes with a discussion of the implementation considerations

Box 1: Background to the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three options for addressing the problem, and key implementation considerations. Whenever possible, the evidence brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and appraise research studies and to synthesize data from the included studies. The evidence brief does not contain recommendations.

The preparation of the evidence brief involved five steps:

1) convening a Steering Committee comprised of representatives from Health Canada, the Mental Health Commission of Canada, the National Collaborating Centre for Aboriginal Health, the Qaujigiartiit Health Research Centre, McMaster University and the McMaster Health Forum;
2) developing and refining the terms of reference for an evidence brief, particularly the framing of the problem and three viable elements of a comprehensive approach for addressing it, in consultation with the Steering Committee and a number of key informants, and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, options and implementation considerations;
4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
5) finalizing the evidence brief based on the input of several merit reviewers.

The three elements for addressing the problem were not designed to be mutually exclusive. They could be pursued simultaneously or in a sequenced way, and each element could be given greater or lesser attention relative to the others.

The evidence brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary and the video interviews with dialogue participants.

related to moving forward with one or more of the elements. Within this scope, the evidence brief is focused only on the best available evidence and does not contain recommendations, which would have required the authors of the brief to make judgements based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

There are many terms used in the literature about suicide, which may create some conceptual ambiguity and may constitute an obstacle to effective communication among researchers, policymakers, civil society actors and other stakeholders.(7) In this evidence brief, we draw on the work of Silvermann and colleagues who developed a nomenclature of key concepts based on the presence or absence of suicidal intent, and the presence or absence of injury.(8) The key terms and concepts they define include:

- *suicide-related ideation*: thinking about, weighing the options of, or planning for suicide;(8)
- *suicide-related communication*: "any interpersonal act of imparting, conveying, or transmitting thoughts, wishes, desires, or intent for which there is evidence (either explicit or implicit) that the act of communication is not itself a self-inflicted behavior or self-injurious;"(8)
- *suicide-related behaviour:* "a self-inflicted, potentially injurious behavior for which there is evidence (either explicit or implicit) either that: a) the person wished to use the appearance of intending to kill himself/herself in order to attain some other end; or (b) the person intended at some undetermined or some known degree to kill himself/herself;"(8) and
- *suicide* as "a self-inflicted death with evidence (either explicit or implicit) of intent to die."(8)

In addition, Silverman et al. also state that "suicide-related behaviors can result in no injuries, injuries, or death. Suicide-related behaviors comprise self-harm, self-inflicted unintentional death, undetermined suicide-related behaviors, self-inflicted death with undetermined intent, suicide attempt, and suicide."(8)

Box 2: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms, and costs of elements of a comprehensive approach to addressing the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use "PROGRESS," which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:

- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in "precarious work" arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

The evidence brief strives to address all Canadians, but (where possible) it also gives particular attention to:

- people with mental health and addiction problems

Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them.

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003;10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

Suicide-prevention strategies can integrate three interrelated sets of activities: prevention, treatment and maintenance.(9) *Prevention* refers to a wide range of measures to reduce the likelihood of suicide and other suicide-related behaviours within the community.(10) Prevention efforts can vary in scope and could be universal (i.e., targeting the general public or whole populations that have not been identified on the basis of individual risks), selective (i.e., targeting individuals or population subgroups whose risks of suicide-related behaviours are higher than average), and indicated (i.e., targeting high-risk individuals who have been identified as having minimal but detectable signs or symptoms of suicide-related behaviours).(9) Prevention can also be defined in the context of levels, such as primary (i.e., reducing the number of new cases of suicide or suicide attempt), secondary (i.e., decreasing the likelihood of a suicide attempt in high-risk individuals) and tertiary (i.e., diminishing the consequences of suicide attempts).(11) These efforts can also encompass a broad range of strategies including postvention (support families and communities after a suicide attempt or suicide

in order to cope with the event, reach closure, and reduce the impact of suicide-related behaviours)(10) and strength-based approaches that focus on celebrating assets and building capacity and resiliency to promote positive outcomes and reduce negative outcomes. *Treatment* refers to interventions targeting individuals who are currently suffering from a diagnosable disorder and are intended to cure a mental health disorder or reduce the symptoms or effects of the disorder.(9) Finally, *maintenance* refers to supportive, educational and/or pharmacological interventions that are provided on a long-term basis to individuals who have a diagnosable and long-term mental health disorder.(12)

Specific suicide-prevention interventions can be grouped according to those related to *treatment* (i.e., interventions targeting individuals who are currently suffering from a diagnosable disorder, and that are intended to cure a mental health disorder or reduce the symptoms or effects of the disorder),(9) and *maintenance* (i.e., supportive, educational and/or pharmacological interventions that are provided on a long-term basis to individuals who have a diagnosable and long-term mental health disorder).(12)

Suicide-related behaviours *with no or undetermined intent* were deemed too broad to be addressed within the scope of this evidence brief. However, it is important to acknowledge that the risk of suicide among individuals who self-harm "may be hundreds of times higher than in the general population"(13). Similarly, *assisted suicide* (i.e. an attempt to take one's own life with the intentional assistance of another person) also constitutes an important issue that needs to be further explored, but it was deemed out of the scope of this evidence brief.

The following key features of the health policy, population health and system context in Canada were also taken into account in the preparation of this evidence brief:

- delivery of healthcare is primarily the responsibility of provincial and territorial governments and financing is shared between the federal, provincial and territorial governments. The federal government also delivers healthcare services to specific groups who are often considered as high-risk groups for suicide (e.g. First Nations, Inuit and Métis populations, military and veterans, and inmates in federal prisons)(14)
- Canada's provincial and territorial health systems are distinguished by a long standing private delivery/public payment agreement between government on the one hand and hospitals and physicians on the other;
- provincial and territorial agreements with physicians have historically meant that most healthcare is delivered by physicians working in private practice with first-dollar (i.e., no deductibles or cost sharing), public (typically fee-for-service) payment;
- other healthcare providers (such as nurses and psychologists), and teams led by other healthcare providers, have historically not been eligible for public payment (or at least not on terms that make independent practices viable on a large scale), although in recent years salaried primary healthcare providers have increasingly been integrated into team-based approaches (e.g., in community mental health centres);
- responsibility for public health in Canada is shared between federal and provincial/territorial governments. Activities at the federal level are coordinated through a central agency (Public Health Agency of Canada), and are focused on promoting health, preventing and controlling chronic diseases, injury and infectious diseases, preparing responses to public health emergencies, and supporting intergovernmental collaboration. The delivery and coordination of public health programs and services is done in collaboration with other parts of the federal health portfolio, with provincial, territorial and municipal governments, as well as with non-governmental and civil society organizations; and
- in 2010, Accreditation Canada included suicide prevention as a Required Organizational Practice, to ensure that healthcare organizations assess and monitor clients for risk of suicide and address their immediate safety needs.(15)

THE PROBLEM

The significant burden of death by suicide in Canada requires an approach to prevention that addresses: the complex interplay of factors that contribute to death by suicide and suicide-related behaviours; limitations in current programs and services; current system arrangements that limit efforts for preventing suicide; and fragmented action on suicide prevention in Canada.

Box 3: Mobilizing research evidence about the problem

The available research evidence about the problem was sought from a range of published and "grey" research literature sources. Published literature that provided a comparative dimension to an understanding of the problem was sought using three health services research "hedges" in MedLine, namely those for appropriateness, processes and outcomes of care (which increase the chances of us identifying administrative database studies and community surveys). Published literature that provided insights into alternative ways of framing the problem was sought using a fourth hedge in MedLine, namely the one for qualitative research. Grey literature was sought by reviewing the websites of a number of Canadian and international organizations, such as the Canadian Association for Suicide Prevention, the Canadian Institute for Health Information, Health Canada, Mental Health Commission of Canada, the Public Health Agency of Canada, the International Association for Suicide Prevention and the World Health Organization.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Canada), and that took equity considerations into account.

Suicide is a significant problem in Canada

Suicide was the second leading cause of death for those aged 10 to 19 (16) and 15 to 34 (preceded only by accidents),(17) and was the ninth leading cause of death overall in Canada, in 2009.(18) In 2009, the age-standardized rate of death by suicide was 10.7 per 100,000 people (19), which represents a total of approximately 3,890 deaths from suicide that year and is equivalent to more than 10 people committing suicide each day. Rates of death by suicide vary across provinces and territories, ranging from 8.5 per 100,000 in Ontario to 57.1 per 100,000 in Nunavut.(20)

In 2011, Canada's rate of death by suicide ranked 19th out of 34 OECD countries.(21) Based on 2007 data, the Canadian rate for deaths by suicide of 11.0 per 100,000 people (19) was somewhat lower than the 2007 global average rate of 16.7 per 100,000 people.(19;22)

Trends over time

According to the World Health Organization (WHO), rates of death by suicide have increased by 60 per cent worldwide in the last 45 years.(22) In Canada, overall rates (i.e., not age-standardized) of death by suicide have shown a gradual increase since the mid-1950s (when the rate was 7.1 per 100,000 citizens), coming to a peak in 1980 (15.1 per 100,000 citizens) before stabilizing and declining somewhat towards 2009 (11.5 per 100,000 citizens), which reflects the worldwide trend found by WHO.(23;24) Rates among Canadian adolescent males (age 15-19) and boys (age 10-14) have decreased slightly,(16) but death by suicide continues to disproportionately affect certain groups (e.g., those with mental illness and First Nations, Inuit and Métis populations).

Over the past decade, the most common method of suicide in Canada has been hanging (44%) followed by poisoning (25%) and firearms (16%).(17) Among youth and adolescents (boys and girls aged 10-19), the most common method of suicide is suffocation.(25) However, patterns in the use of suicide methods have changed over time. An interrupted-time series analysis examining suicide methods in Quebec between 1987 and 2000 revealed that suicide by firearm was replaced by hanging as the most common method among males, which may be associated to the tightening of regulations regarding safe storage of firearms in Canada.(26)

First Nations, Inuit and Métis populations

The high rates of death by suicide in some First Nations, Inuit and Métis communities have been a source of major concern in Canada. As Kirmayer et al. (2007) outline, while rates of death by suicide have declined overall in Canada, the rates among some Aboriginal communities have increased.(27) Nevertheless, among

First Nations populations, the overall rate of death by suicide is approximately double that of the overall rate in Canada.(27) Among Inuit peoples living in Inuit Nunangat (i.e., regions inhabited by Inuit), the rate of death by suicide is exceptionally high with 74.9 suicides per 100,000 people, which is seven times the Canadian national suicide age-standardized rate of 10.7 per 100,000.(19) While not reporting rates of death by suicide, an analysis of data from the Aboriginal Peoples Survey conducted in 2006 revealed that 13.3% of the total population of 20-to-59-year-old Métis reported lifetime suicidal ideation, and 46.2% of those reported a suicide attempt.(28) In interpreting these numbers, it is important to note that there are important variations in rates of death by suicide across communities, bands and Nations as well as between age groups (e.g., in youth versus adults).(27;29) For example, some communities have reported no recent deaths from suicide, whereas others report very high rates.(30)

Rates of death by suicide are also particularly high among Aboriginal youth. For example, rates of death by suicide are 4.3 times higher for First Nations youth 10-19 years old than for non-First Nations youth.(31;32) In addition, rates among male youth living in Inuit Nunangat are among the highest in the world with Inuit males 1-19 years of age being 25 times more likely to die of intentional injuries as compared to the national average for males in the same age group (105.3 per 100,000 vs. 4.2 per 100,000).(20;33)

Death by suicide among Aboriginal women is also significantly higher than the national rate. Inuit females 1-19 years of age are 22 times more likely to die from suicide as compared to the national average for females in the same age group (43.6 per 100,000 vs. 2.0 per 100,000).(33) Also, more Métis women have reported higher suicidal ideation (14.9%) as compared to Métis men (11.5%).(28)

Sex, gender and sexual orientation

Approximately three to four times more men die from suicide than women. In 2009, the rate of death by suicide for Canadian men was 17.9 per 100,000 as compared to 5.3 for women.(19) Among age groups for men, those over the age of 80 have the highest suicide rate in Canada. In 2009, the suicide rate for Canadian men between 85-89 was 30.6 per 100,000, compared to the average suicide rate for Canadian men of 17.9.(19) However, a recent descriptive study using Statistics Canada data revealed that rates of death by suicide in Canada are increasing among female children and adolescents and decreasing among male children and adolescents (from 1980 to 2008).(34) While rates of death by suicide are lower among women across all age groups, they make three-to-four times more suicide attempts than men and are hospitalized for attempted suicide at 1.5 times the rate of men.(18)

Members of the lesbian, gay, bisexual and transgender (LGBT) community as well as people with gender-questioning identities are also particularly at risk for engaging in suicide-related behaviours.(35;36) A recent systematic review (37) revealed that suicide attempts were twice as high in LGBT communities compared to the general population, and another recent review found that sexual minority youth (i.e. youth who endorse same-sex attraction, same-sex behaviour, or a gay/lesbian identity) had 2.3 times higher risk for suicide-related behaviours and depressive symptoms as compared with heterosexual youth.(38) In addition, the review by King et al. (2008) found risks for depression and anxiety disorders to be 1.5 times higher and rates of alcohol and other substance dependence to over 1.5 times higher in lesbian, gay and bisexual people.(37)

Mental health and addictions

Suicide-related behaviours are almost always associated with mental health and addiction problems.(39) According to Rihmer: “More than 90% of suicide victims and attempters have at least one current axis I (mainly untreated) major mental disorder, most frequently major depressive episode (MDE) (56–87%), substance use disorders (26–55%) and schizophrenia (6–13%).”(40) Suicide is also one of the most common causes of death (along with cancer and cardiovascular disease) for people with schizophrenia.(41) Furthermore, a recent Canadian study revealed that alcohol use disorders (AUD) are not only associated with suicidal ideation, suicide attempts, and death by suicide, but also that AUD-related suicides are characterized by higher levels of aggressiveness.(42)

It is also important to note that people exposed to traumatic experiences, abuse and neglect are at greater risk for mental health problems and suicide-related behaviours. Indeed, a recent meta-analysis revealed moderate to strong evidence for an association between child maltreatment and suicide attempts in later life.(43) Also related to this is the impact of bullying on suicidal ideation and/or behaviours. Two recent systematic reviews both highlight bullying as a as a major public health problem with international prevalence estimates ranging from nine to 54%, and these reviews found consistent evidence that bullying behaviour and cyberbullying is associated with an increased risk of suicidal ideation and/or behaviours in youth.(44;45) These reviews further highlight that bullies and victims of bullying are more likely to suffer from one or more problems related to mental health (e.g., low self-esteem, loneliness, isolation, depression, anxiety and violent behaviours), and that bullying is associated with future psychiatric symptoms.

Socio-economically deprived regions

Findings from a systematic review examining the association between death by suicide and the socio-economic characteristics of geographical areas reveal mixed-results that in general appear to demonstrate an inverse association (i.e., lower socioeconomic areas tend to have higher suicide rates).(46) A recent analysis by the Canadian Institute of Health Information found that "neighbourhood income is a strong predictor of self-injury" and that the rates of hospitalization for self-injury were two times higher in the least affluent neighbourhoods than in the most affluent ones.(47) These findings appear consistent with other studies that observed that rates of death by suicide among children and adolescents are higher in socio-economically deprived regions, including some Aboriginal communities. These findings have been taken to suggest that the impact of the social determinants of health "on the identities, resilience and well-being of young people in these communities may hold the key to future reductions in suicide."(48)

Suicide-related behaviours are driven by a complex interplay of factors that need to be addressed by programs and services

Suicide-related behaviours are often the result of a complex interplay of factors at the individual, interpersonal, community and societal levels that can be prevented by promoting protective factors.(49) A conceptual distinction is commonly made between *risk factors* that can lead to or are associated with suicide-related behaviours, and *protective factors* that can reduce the likelihood of these behaviours and enhance strength, resilience and support. In Table 1 below, we draw from the conceptual work of the U.S. National Suicide Prevention Strategy released in 2001 (50) and from recent literature to provide a list of common risk and protective factors. We have grouped the risk factors into three categories (biopsychosocial, environmental and sociocultural risk factors), but with the recognition that many of the factors in each grouping are inter-related.

The identification of risk and protective factors is crucial in suicide-prevention efforts as it helps to identify high-risk groups and the nature and type of the interventions required.(6) As Table 1 outlines, comprehensive suicide-prevention efforts are likely to require interventions at the individual, interpersonal, community and societal levels. The experiences of Aboriginal communities is particularly revealing on this matter. Indeed, much of the literature supports the theory that suicide-related behaviours among Aboriginal peoples are the result of "the mass trauma experienced as a result of colonization".(51) In Canada, the Indian Residential School System spurred a cycle of trauma by removing children from families and communities, isolating them from their cultural roots. As several studies have outlined, some survivors have "reported a legacy of alcohol and drug abuse problems, feelings of hopelessness, dependency, isolation, low self-esteem, suicide behaviours, prostitution, gambling, homelessness, sexual abuse, and violence. For women survivors, this exposure coupled with other forms of systemic and structural discrimination had placed them at even greater risk for such negative outcomes."(51) Thus, the roots of suicide-related behaviours can be deeply grounded in long-lasting legacies of trauma, deprivation and marginalization. Comprehensive suicide-prevention efforts can therefore not solely focus on trauma-informed health interventions as they also need to address 'upstream' factors (e.g., social determinants of health) and governance (e.g., addressing power imbalances and supporting community control).

Given the array of factors that need to be addressed, an important limitation of efforts for preventing suicide in Canada is the lack of comprehensive, age and gender specific, and culturally appropriate community-based mental health programs and services, which has resulted in many seeking care in hospitals without adequate follow-up. For example, in 2008-2009, more than 10 000 people were admitted to hospital multiple times in a single year for mental health care and/or self-injury.(47;52) Another limitation is the lack of participatory models for the development of programs and services where communities develop, adapt and/or tailor suicide-prevention interventions to ensure they are culturally appropriate.(30) This contributes to further polarizing psychiatric and traditional healing practices, limiting the availability of the latter through community programs and services.(53)

Table 1: Risk and protective factors for suicide-related behaviours (adapted from the 2001 U.S. National Suicide Prevention Strategy)*

Risk factors			**Protective**
Biopsychosocial	**Environmental**	**Sociocultural**	
Sex, gender and sexual orientation (35;37) Mental disorders (particularly mood disorders, schizophrenia, anxiety disorders and certain personality disorders)(1;6;50) Low levels of serotonergic neurotransmission (1) Alcohol and other substance use disorders (50) Impulsive and/or aggressive tendencies (50) History of trauma and abuse (50) Some major physical illnesses, functional impairment or having a terminal condition (1;50) Previous suicide attempt (50) Family history of suicide (50)	Job or financial loss (1;50) Negative life transition and stressful events (6) Relative poverty (46) Relational or social loss (50) Easy access to lethal means (6;50) Local clusters of suicide that have a contagious influence (30;50;54) Poor family environment and low level of parental monitoring (55)	Lack of social support and sense of isolation (1;6;50) Stigma associated with help-seeking behaviour (6;50) Barriers or lack of access to healthcare and/or mental health and substance abuse treatment (6;50) Certain cultural and religious beliefs (for instance, the belief that suicide is a noble resolution of a personal dilemma) (6;50) Exposure to and influence of others who have died by suicide (including through the media) (6;50)	Effective clinical care for mental, physical and substance use disorders (50) Easy access to a variety of clinical interventions and support for help-seeking (6;50) Restricted access to highly lethal means of suicide (6;50) Strong connections to family and community support (6;50) Support through ongoing medical and mental health care relationships (50) Skills in problem solving, conflict resolution and nonviolent handling of disputes (6;50) Cultural and religious beliefs that discourage suicide and support self-preservation (6;50) Cultural continuity (e.g., activities towards preserving and rehabilitating culture through different means such as self-government, land claims, education, health services delivery, cultural facilities, and police and fire services) (56)

*The factors listed in each column are not rank ordered in a specific way

Current system arrangements limit efforts to prevent suicide in Canada

A variety of features about the delivery, financial and governance arrangements may also limit the ability to efficiently support efforts to prevent suicide in Canada.

Delivery arrangements

An important gap in delivery arrangements is the lack of a coordinated and formal inter-sectoral approach to suicide prevention both within health sectors (e.g., primary care, acute care, chronic care, public health and

community-based services) and between health and non-health sectors (e.g., education, labour, criminal justice, religion and the media), which is the type of approach recommended by the WHO as most effective in preventing suicide.(57) For instance, a lack of integration between community-based and hospital services may contribute to relapses for people living with mental illness.(52) In addition, a lack of multidisciplinary care and support teams makes it difficult to effectively address the larger spectrum of factors (e.g., housing and employment) that contribute to death by suicide and suicide attempts, and that may not be addressed by a strictly healthcare-focused approach. Adopting broader mental health reforms has shown promising results with one recent study finding significant reductions in deaths by suicide among users of mental health services in the United Kingdom that had implemented a greater number of mental health reform recommendations in their practice.(58)

A lack of well-defined care pathways, packages of care and continuity of care (including follow-up support for patients after they are discharged or for when discharge is against medical advice) can lead to high readmission rates.(57) For example, the 30-day readmission rate for patients with mental illness in Canada is 11.4%, which serves as a proxy measure for the coordination and continuity of mental health services.(52) The highest readmission rates among Canadian provinces are in British Columbia (12.9%) and Nova Scotia (12.2%) and the lowest in Manitoba (9.6%) and Alberta (9.9%).(47)

Another gap in existing delivery arrangements relates to the limited access to primary care and specialized mental health service providers for people living in rural and remote areas. The services that do exist are often not linked to specialists and/or case managers who can coordinate and facilitate access to needed care and supports.(59) In addition, services accessed in an urban centre by someone living in a rural or remote community, can later result in a lack of communication between the care received in the urban centre and the providers available when the patient returns to their home community, which can undermine continuity of care.

Financial arrangements

Financial arrangements also contribute to a lack of comprehensive and sustainable suicide-prevention efforts in Canada. Resource allocation is often time-limited and/or reactionary (e.g., in response to crises) with few resources allocated to primary and secondary prevention or health promotion activities in ways that are sustainable in the long-term. Resources are often allocated to short-term pilot programs with no commitment to sustain those that are promising and innovative.(59) Furthermore, funding for suicide-prevention programs and services is typically not allocated in ways that facilitate service coordination between sectors.

Another gap in financial arrangements is the inconsistent funding available to support suicide-prevention strategies across Canada. Referring to the suicide-prevention strategies in New Brunswick and British Columbia, Richard Ramsay concluded that both provinces had written excellent strategies, but noted a critical difference: "New Brunswick had dollars and infrastructure to support it, whereas BC did not and just ended up with a fine document to circulate."(57)

Governance arrangements

Current governance arrangements also contribute to the challenge of preventing suicide in Canada. For instance, policy and programmatic decision-making authority related to suicide prevention is fragmented within provinces (e.g., between sectors, regions and providers) as well as between the federal, provincial and territorial governments. In addition, there has been a longstanding debate about whether national efforts for suicide prevention should be handled by a specific sector (e.g., mental health) or more broadly across sectors given the complex set of factors that contribute to death by suicide.(57) While not unique to suicide-prevention efforts, these "jurisdictional quagmires" (57) have limited the ability to form a national vision for suicide prevention similar to those of other countries that have built upon the United Nations guidelines for implementing national suicide-prevention strategies.(23)

A limited national stewardship role is a recurring theme in Canada for issues with any significant degree of overlap in jurisdictional authority, as is the case with suicide prevention.(4;60) Support for coordination at this

level may stem from the notion that the federal government is uniquely positioned to mobilize institutions, policies and resources to develop and implement a federal suicide-prevention strategy in areas for which the federal government has jurisdictional authority, such as: limiting access to lethal means through gun control legislation; incorporating effective suicide-prevention activities in the delivery of healthcare services to First Nations, Inuit and Métis populations, offenders, military and veterans; prioritizing a coordinated research agenda on suicide prevention through the Canadian Institutes of Health Research and other federal research-funding agencies;(57;60) and support a national network focused on suicide prevention and mental health promotion activities among Aboriginal, First Nations, Inuit and Métis populations (particularly for youth and in rural and remote communities).(30) A national organization could be uniquely positioned to mobilize resources to support the development and implementation of existing provincial and territorial suicide-prevention strategies, while recognizing that actual implementation is a provincial and territorial role (just as healthcare delivery is a provincial and territorial role that the federal government and national organizations support in a variety of ways).

The absence of a cohesive national vision and the jurisdictional fragmentation may also create impediments to cooperation, mutual learning, and pooling of resources across provinces and territories, as well as between sectors. At the provincial and territorial level, this is apparent in the wide variations in terms of how far along provinces and territories are in the development and implementation of their respective suicide-prevention strategies. For instance, some provinces and territories have implemented strategies and have a suicide-prevention coordinator while others have no strategy and may rely on volunteers or community members when a full-time coordinator is not available. Between sectors this is perhaps most apparent with respect to mental health and addictions where there is much common ground (although also important differences) and therefore many opportunities exist for supporting cooperation, mutual learning and pooling of resources (e.g., as suggested in the recent mental health strategy for Canada).(5) Thus, there appears to be a need for a collaborative approach that creates synergy and pools resources within the suicide-prevention community.

Action on suicide prevention is fragmented in Canada

The lack of coordinated action on suicide prevention at the national level in Canada may contribute to the fragmentation of suicide-prevention efforts in Canada. Better coordination of such efforts could help mobilize needed policies and services to support the implementation of provincial and territorial strategies, as well as create and implement strategies where none exist.(4;57;60;61) Despite this, several Canadian provinces, territories and organizations/ coalitions have moved forward with the development of suicide-prevention strategies or frameworks (profiled in Table 2). In addition to the strategies and frameworks profiled in Table 2, there have been several initiatives in recent years that have provided clear signals that there may be interest in greater efforts at the federal level to support action at the provincial, territorial and local level. Examples of these signals include:

- the introduction of three private bills since 2010 in the House of Commons, advocating for the development of a national strategy (Bills C-593 and C-297) or framework (Bill C-300) for suicide prevention;(62-64)
- the development and implementation of the National Aboriginal Youth Suicide Prevention Strategy, a $65 million evidence-informed initiative created in partnership with Health Canada, Inuit Tapiriit Kanatami, the National Inuit Youth Council, and the Assembly of First Nations that aims to support collaboration with provincial/territorial governments, Aboriginal organizations and communities to address high suicide rates among Aboriginal youth;(65;66)
- a think tank hosted by the Canadian Association for Suicide Prevention, the Mental Health Commission of Canada, and the Canadian Institutes of Health Research, which was a stepping-stone towards the launch of the National Collaborative on Suicide Prevention to support capacity building, promote knowledge translation, and inform local, provincial/territorial and federal policy developments;(67)
- the release of the Mental Health Commission of Canada's mental health strategy for Canada,(5) which will advance suicide prevention among the mentally ill insofar as it improves prevention, treatment and support for those who are mentally ill;(57)
- a national suicide-prevention strategy that was developed by the Canadian Association for Suicide

Prevention which was first adopted in 2004 and revised in 2009, and the purpose of which is to provide a "policy agenda, a national task list, a tool for identifying promising and best practices, and a roadmap to an integrated solution;"(4) and

- the recent announcement of an investment in CIHR's Aboriginal research initiative, "Pathways to Health Equity for Aboriginal Peoples", within which suicide is a priority area.(68)

Table 2: Profile of existing suicide-prevention strategies in Canada

Canadian jurisdiction	**Strategy title**	**Year published**	**Key goals/objective/priorities**	**Implementation progress†**
National	An Act Respecting a Federal Framework for Suicide Prevention	2011	Establish a federal framework for suicide prevention that recognizes suicide as a public health issue and designates an appropriate body within the federal government to assume responsibility for: • providing guidelines for improving public knowledge; • disseminating information; • releasing existing statistics to the public; • promoting collaboration and knowledge exchange; • defining best practices for preventing suicides; and • promoting research and evidence-based practices.	Not applicable – The bill is currently in the Senate review stage
	The CASP Blueprint for a Canadian National Suicide Prevention Strategy	2004 and 2009	The core goals include: • promoting awareness and understanding of suicide-related behaviours and suicide prevention; • developing suicide prevention, interventions and postvention strategies; • promoting knowledge development and transfer; and • increasing funding and support for activities connected to this strategy.	No publicly available monitoring or evaluation reports about this strategy were identified
British Columbia	Strengthening the Safety Net: A Report on the Suicide Prevention, Intervention and Postvention Initiative for BC	2009	Priorities and development opportunities include providing: • school-based programs to promote mental health and prevent substance abuse; • gatekeeper training; • culturally appropriate services; • health professional education; • coordinated services between the mental health, healthcare, school/postsecondary, and community building systems; and • postvention services and programs.	No publicly available monitoring or evaluation reports about this strategy were identified
Alberta	A Call to Action: The Alberta Suicide Prevention Strategy	2005	The strategy includes the following goals: • securing funding for strategy implementation; • enhancing mental health; • improving interventions and treatments for at-risk populations; • improving interventions and support for those affected by suicide; • reducing access to lethal means of suicide; • increasing research on suicide, suicidal behaviour and suicide prevention; • improving surveillance systems for suicide and suicidal behaviour; and • increasing evaluation and quality-improvement efforts.	No publicly available monitoring or evaluation reports about this strategy were identified
Saskatchewan	No strategy available	-	Not applicable	Not applicable
Manitoba	Reclaiming Hope: Manitoba's Youth Suicide Prevention Strategy	2008	The framework outlines the following priorities: • assessment and planning; • promoting mental health; • promoting awareness and understanding; • prevention, intervention and postvention; and • data surveillance, research and evaluation.	Signs Of Suicide (SOS), a school-based prevention program incorporating curricula to raise awareness of suicide and related issues and a brief screening tool for depression and other risk

				factors associated with suicidal behaviour, is being implemented (69)
Ontario	No strategy available (although seven regional strategies are available)	-	Not applicable	Not applicable
Quebec	Help for Life	1998	The main strategy includes several core objectives: • providing essential services and putting an end to isolation of caseworkers; • increasing professional skills; • intervening with at-risk groups; • supporting promotion/prevention programs among young people; • reducing access to means of suicide; • counteracting the trivialization and sensationalization of suicide; and • intensifying and diversifying research.	An evaluation in 2004 revealed that the provincial strategy offered a clear signal for greater intersectoral actions and supported innovative efforts (e.g., evaluating interventions for at risk clients). However, the evaluation also found variations in the degree of implementation across and within regions, a lack of stable funding and problems with continuity of care.(70)
New Brunswick	Connecting to Life: Provincial Suicide Prevention Program	2007	The core components of this program are: • community action and building community capacity through public awareness; • continuous education and a progressive understanding of suicide resulting in effective prevention; and • interagency collaboration to support stakeholders to work together	No publicly available monitoring or evaluation reports about this strategy were identified
Nova Scotia	Nova Scotia Strategic Framework to Address Suicide	2006	Strategic goals include: • supporting leadership, infrastructure, and partnerships; • promoting awareness and understanding; • providing appropriate prevention, intervention and postvention; and • ensuring knowledge development and transfer.	No publicly available monitoring or evaluation reports about this strategy were identified
Prince Edward Island	No strategy available	-	Not applicable	Not applicable
Newfoundland and Labrador	No strategy available	-	Not applicable	Not applicable
Yukon	No strategy available	-	Not applicable	Not applicable
Northwest Territories	No strategy available	-	Not applicable	Not applicable
Nunavut	Nunavut Suicide Prevention Strategy Nunavut Suicide Prevention Strategy Action Plan (September 1, 2011 - March 31, 2014)	2010 2011	The core components of the strategy include providing the full range of mental health services and supports, using evidence-based interventions, and engaging in community development activities. This includes eight commitments: • ensuring a focused and active approach by the Government of Nunavut; • strengthening the continuum of mental health services; • equipping youth to cope with adverse events and negative emotions; • providing regular suicide intervention training; • supporting ongoing research; • communicating and sharing information with the public; • fostering opportunities for healthy development in early childhood; and • supporting community development activities.	The Government of Nunavut provided $100,000 in funding to the Embrace Life council, hired 14 staff to provide mental health first aid training, and created two full-time positions (including suicide-prevention specialist)(71)

† The information provided in this column is based on what we were able to locate through publicly available information.

A large body of synthesized research evidence about suicide-prevention interventions has also been accumulated that can be drawn upon to inform the operationalization of these strategies and frameworks. For example, several overviews of systematic reviews have been conducted about a broad range of suicide-prevention strategies.(9;72;73) We have assembled all of the systematic reviews contained from these three overviews in Appendix 1 and supplemented it with additional reviews that we identified through targeted searches of several databases (our detailed search strategy is outlined in Appendix 1). The systematic reviews cover topics related to the full spectrum of suicide-prevention efforts that Scott and Guo (2012) outline in their overview of reviews (see Table 3).

Table 3: Suicide-prevention interventions (table adapted from Scott and Guo 2012)(9)

Intervention category†		**Interventions**
Prevention	Universal	• Media reporting restrictions • Means access restrictions • National suicide-prevention programs
	Selective	• Suicide-prevention centres • Community-based suicide-prevention programs • School-based suicide-prevention programs • Workplace-based suicide-prevention programs • Prison-based suicide-prevention programs • Programs for veterans and military personnel • Drug misuse programs
	Indicated	• Training and peer education • Providing assistance to general practitioners • Telephone-based suicide-prevention services • Assistance to family/friends of high-risk individuals • Postvention
Treatment	Case identification	• Ongoing contact • Crisis cards (which are often used for people with mental illness and which list information to support others in providing help during a crisis) • Inpatient shelter • Compliance/adherence management
	Standard treatment for known disorders	• Cognitive behavioural therapies • Psychosocial interventions • Psychotherapy • Intensive care plus outreach • Home-based therapy • General hospital admission • Inpatient-based therapies • Outpatient-based therapies • Neurosurgery • Pharmaceutical interventions • Electroconvulsive therapy
Maintenance	Compliance with long-term treatment	• Ongoing contact • Crisis cards • Inpatient shelter • Home-based therapy • Compliance management • Motivational interviewing
	After care	• Long-term therapy • Service restructuring and case management

† See page 8 for an overview of prevention, treatment and maintenance as part of three interrelated sets of suicide-prevention activities.

Most of the systematic reviews identified address interventions in the treatment and maintenance domains rather than prevention. We don't provide an in-depth analysis of the key findings here given that this has been covered in detail by each of the existing overviews of systematic reviews. However, the key findings from the most recent (and comprehensive) overview of systematic reviews indicated that based on the available synthesized research evidence, there are some preventive interventions that appear promising, which include the following interventions (as summarized by Scott and Guo 2012):

- school-based suicide-prevention programs: Beneficial effects on intermediate outcomes such as suicidal tendencies and risk factors for suicide were observed for behavioural change and coping strategies in the general school population, and for skills training and social support among at-risk students; however, the effect of these interventions on suicide rates is not known;
- multifaceted prevention programs (e.g., those based on risk factor identification and educational and organizational changes);
- restriction of access to lethal means (e.g. firearms, physical barriers and pharmacological agents);
- pharmacological treatments (e.g., several reviews found benefits for the administration of lithium to patients with mood disorders and one review found that two pharmacological treatments provided significant benefits, which included lithium for depression and flupenthixol with personality disorders); and
- psychosocial treatments (e.g., problem-solving therapy, provision of a card for emergency contact and cognitive behavioural therapy).

Additional equity-related observations about the problem

An important element of the problem that requires further discussion is how it may disproportionately affect certain groups. Although several groups can be affected by suicide-related behaviours, we have focused our attention in this evidence brief on the experiences of people with mental health and substance use disorders.

As mentioned above, mental health and substance use disorders are important risk factors for suicide-related behaviours.(40) However, providing equitable and timely access to appropriate mental health and addiction services have been a challenge in Canada. Moreover, in 2006, the report of the Standing Senate Committee on Social Affairs, Science and Technology concluded that: "people living with mental illness and addiction have faced, and continue to face, stigma and many forms of discrimination that compound the effects of their illnesses. [This] systematic discrimination is one explanation for the fact that mental illness, in general, is not often treated with the same degree of seriousness as physical illness."(61) This resonates with the work of the Mental Health Commission of Canada, which highlighted the importance of combating the stigma associated with mental health and addiction to ensure equity of access and treatment: "Ultimately, addressing stigma and discrimination is an issue of equity."(74)

A recent report by the Canadian Institute of Health Information (CIHI) also shed light on mental health services for people with suicide-related behaviours in Canada. Based on data from 2009-2010, CIHI examined three performance indicators (self-injury hospitalization rates, 30-day readmission rates and repeat hospitalizations) for the mental health system.(47) The analysis revealed that approximately 17,482 overnight hospitalizations occurred in 2009-2010 (approximately 45 persons a day) as a result of suicide attempts or self-injuries among Canadians age 15 and older. Furthermore, 70% of those patients who were hospitalized had a mental health-related diagnosis (e.g., 23% mood disorders, 12% substance-related disorders and 11% anxiety disorders). However, this report states that the actual rates of self-injury may be as much as 50% higher than indicated by hospitalization rates since people may not seek medical care or, if they do, it may not result in hospitalization. Thus, self-injury hospitalization rates constitute only a partial indicator of the extent to which community-based services may be accessible and effective in minimizing self-injuries. The two other performance indicators reveal other possible gaps in the performance of mental health services. First, the 30-day readmission rate for patients with mental illness in Canada is 11.4%, which serves as a proxy measure for the coordination and continuity of mental health services. Second, 11% of

people who seek inpatient care for mental health illnesses are repeatedly hospitalized within a year, a proxy measure for the appropriateness of services. These indicators reveal that many mental health patients who are hospitalized for self-injuries and suicide attempts are readmitted shortly after discharge, leading some to conclude that mental health services in Canada are currently inadequate.(52)

The problem of access to mental health and addiction services for people with suicide-related behaviours has also been highlighted in two Canadian studies. The first study explored help-seeking and perceived need for mental health care among individuals with suicide-related behaviours.(75) After analyzing data from the Canadian Community Health Survey conducted in 2002, the authors concluded that “a significant proportion of individuals with suicidal behaviours did not receive care and did not perceive a need for care.”(75) The second study conducted psychological autopsies of 102 consecutive suicides over a 14-month period in New Brunswick from 2002-2003.(76) This study revealed that 94% of the deceased presented with a mental health disorder in the last six months and 87% did so before that period. In addition, 85% of the deceased had at least one contact with mental health or specialized addiction services during their lifetime, and more than 50% of those in the year prior to the suicide. The study also identified several problems including a lack of coordination and integration of programs and services for healthcare services, mental health and substance-related problems, as well as a lack of continuity of care for people with suicide-related behaviours.

A recent systematic review examined people's attitudes towards and satisfaction with clinical services following self-inflicted injuries (regardless of the degree of suicidal intent).(77) The authors observed that “in spite of differences in country and healthcare systems, many participants' reactions to and perceptions of their management were negative.”(77) The review revealed that patients’ negative experiences were associated with a perceived lack of involvement in management decisions as well as inappropriate staff behaviour (e.g., lack of sympathy) and lack of knowledge. For instance, hospitalized patients complained that staff in emergency departments were focusing solely on their physical problems and consequently neglected their mental health. Another recurring theme uncovered in this review was the problems associated with access to after-care for people with suicide-related behaviours.

THREE ELEMENTS OF A COMPREHENSIVE APPROACH TO ADDRESSING THE PROBLEM

Many elements could be selected as a starting point for deliberations about an approach for preventing suicide in Canada. To promote discussion about the pros and cons of potentially viable elements, we have selected three that could contribute to a larger, more comprehensive approach to preventing suicide. The three elements were developed and refined through consultation with the Steering Committee and key informants that we interviewed during the development of this evidence brief. The elements are:

1) develop and implement suicide-prevention strategies in ways that build on strengths, resilience and protective factors;
2) foster integration and coordination of new and ongoing efforts to prevent suicide within and across sectors and jurisdictions; and
3) provide education and training in suicide prevention.

The elements could be pursued simultaneously or sequentially, or components could be drawn from each element to create a new (fourth) element. They are presented separately to foster deliberations about their respective components, the relative importance or priority of each, their interconnectedness and potential of or need for sequencing, and their feasibility.

The principal focus in this section is on what is known about these elements based on findings from systematic reviews. We present the findings from systematic reviews along with an appraisal of whether their methodological quality (using the AMSTAR tool)(78) is high (scores of 8 or higher out of a possible 11), medium (scores of 4-7) or low (scores less than 4) (see the appendix for more details about the quality appraisal process). We also highlight whether they were conducted recently, which we define as the search being conducted within the last five years. In the next section the focus turns to the barriers to adopting and implementing these options and to possible implementation strategies to address the barriers.

Element 1 – Develop and implement suicide-prevention strategies in ways that build on strengths, resilience and protective factors

This element involves supporting the development of suicide-prevention strategies based on available systematic reviews and other inputs, as well as supporting existing suicide-prevention strategies by community actors in ways

Box 4: Mobilizing research evidence about elements of a comprehensive approach to addressing the problem

The available research evidence about elements of a comprehensive approach to addressing the problem was sought primarily from Health Systems Evidence (www.healthsystemsevidence.org), which is a continuously updated database containing more than 2,000 systematic reviews of delivery, financial and governance arrangements within health systems. The reviews were identified by first searching the database for reviews containing suicid* in the title and/or abstract. Additional reviews were identified by searching the database for reviews addressing features of the elements that were not identified through the keyword search. In order to identify evidence about costs and/or cost-effectiveness, the NHS Economic Evaluation Database (available through the Cochrane Library) was also searched using a similar approach.

The authors' conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were "empty" reviews), while others concluded that there was substantial uncertainty about the element based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned, or an element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular element may want to search for a more detailed description of the element or for additional research evidence about the element.

that build on strengths, resilience and protective factors. The sub-elements might include:

- establishing a stakeholder-driven process to develop comprehensive and culturally appropriate suicide-prevention strategies where none exist;
- establishing a coordinated knowledge-translation strategy to raise awareness of and support for the implementation of existing suicide-prevention strategies by health and non-health actors; and
- securing and protecting funding to ensure the stability and sustainability for national and/or provincial suicide-prevention strategies.

A summary of the key findings from the synthesized research evidence is provided in Table 4. For those who want to know more about the systematic reviews contained in Table 4 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 2.

We identified several systematic reviews related to establishing a stakeholder-driven process and a coordinated knowledge-translation strategy, but none about securing and protecting funding to ensure the stability and sustainability of suicide-prevention strategies. None of the reviews about the first two sub-elements identified benefits, but several outlined details about the key components of each sub-element and information about stakeholders' view about and experiences with them.

Table 4: Summary of key findings from systematic reviews relevant to Element 1 – Develop and implement suicide-prevention strategies in ways that build on strengths, resilience and protective factors

Category of finding	Summary of key findings
Benefits	• None of the identified reviews provided information about benefits of the sub-elements
Potential harms	• None of the identified reviews provided information about potential harms of the sub-elements
Costs and/or cost-effectiveness in relation to the status quo	• None of the identified reviews provided information about costs of the sub-elements and no economics evaluations were identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified ▪ **Securing and protecting funding to ensure the stability and sustainability for national and/or provincial suicide-prevention strategies** • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review o Not applicable (no 'empty' reviews were found) • No clear message from studies included in a systematic review o **Establishing a stakeholder-driven process to develop comprehensive and culturally appropriate suicide-prevention strategies where none exist** ▪ *Public engagement:* Two medium-quality systematic reviews assessed public engagement for the planning and development of healthcare services (79) and the development of healthcare policy and program delivery.(80) Both provide insights about key elements of the intervention and stakeholders' views and experiences (see below) but little information about the impact of public engagement towards informing policy. o **Establishing a coordinated knowledge-translation strategy to raise awareness of and support for the implementation of existing suicide-prevention strategies by health and non-health actors** ▪ *Supporting the use of research evidence:* Several systematic reviews, including one recent, high-quality review, have evaluated strategies and interventions for encouraging the use of research evidence (mostly systematic reviews) by health policymakers and managers, and each have found insufficient evidence to draw conclusions about the effectiveness of interventions that have been designed for this purpose.(81-84) However, a recent but low-quality review found some evidence to suggest that tailored targeted messages combined with access to registries of research evidence may increase the use of research evidence in policymaking.(82) The same review also found a lack of evidence to support the effectiveness of knowledge brokers.
Key components of the element if it was tried elsewhere	• **Establishing a stakeholder-driven process to develop comprehensive and culturally appropriate suicide-prevention strategies where none exist** o *Public engagement:* A recent medium-quality review found that successful implementation of public engagement in healthcare policy development and program delivery is shaped by a range of contextual variables with organizational commitment and issue characteristics playing the most important roles.(80) In addition, group debate has been found to

	contribute to participants' perceived satisfaction with public engagement processes and improved subjective outcomes of the event. Lastly, the review also suggests that partnerships are fundamental in promoting the effectiveness of public-engagement strategies, and that institutionalizing such partnerships are critical for supporting sustainable change.(80) • **Establishing a coordinated knowledge-translation strategy to raise awareness of and support for the implementation of existing suicide-prevention strategies by health and non-health actors** o *Supporting the use of research evidence:* A recent but low-quality review found that providing training in the appraisal of research and its use may increase participants' skills in critical appraisal and possibly their perceptions about using it (but not their use of it).(82)
Stakeholders' views and experience	• **Establishing a stakeholder-driven process to develop comprehensive and culturally appropriate suicide-prevention strategies where none exist** o *Public engagement:* Findings from a recent medium-quality review indicate that participants in well-designed interactive public engagement processes are more likely to report high levels of satisfaction with respect to the clear communication of objectives, materials provided to inform the discussions, and the logistics and management of the deliberations.(80) Topic-specific learning was also reported by participants after deliberation. Another medium-quality but older review found that project administrators' views support the idea that involving patients in the planning and development of healthcare has contributed to changes in services.(79) • **Establishing a coordinated knowledge-translation strategy to raise awareness of and support for the implementation of existing suicide-prevention strategies by health and non-health actors** o *Supporting the use of research evidence:* Several systematic reviews have investigated the barriers and facilitators for policymakers' and stakeholders' use of research evidence.(85-88) The most commonly cited factors that increase their use of research evidence are facilitating interactions between the users and producers of research evidence and ensuring timely access to research evidence.

Element 2 –Foster integration and coordination of new and ongoing efforts to prevent suicide within and across sectors and jurisdictions

This element involves facilitating coordination and integration between different areas of the healthcare sector, between strategies orchestrated between health and non-health sectors (horizontal actions) as well as between levels of governance (vertical actions) contributing to suicide prevention.(89;90) The sub-elements might include:

- supporting integration within the healthcare sector, which could include the following:
  - developing well-defined care pathways, packages of care and continuity of care;
  - establishing multidisciplinary teams to support recovery and wellness;
  - supporting continuity of care in ways that bridge traditional, cultural, and mainstream approaches;
- efforts towards creating and sustaining inter-sectoral efforts, which could include the following:
  - establishing a governance structure (e.g., ministerial linkages, cabinet committees, specific units with coordination responsibilities) to ensure integration in policy and programmatic decision-making within federal, provincial and territorial governments, and across these levels of governments;
  - establishing multi-stakeholder arrangements to guide priority setting and resource allocation decisions in ways that facilitate coordinated services between sectors;
  - developing a coordinated and intensified strategy to engage people with lived experience, the public and relevant stakeholders in policy and organizational decisions (or monitoring) regarding suicide prevention;
  - establishing a national network of policymakers, stakeholders and community members supporting suicide prevention and mental health promotion activities among First Nations, Inuit and Métis populations;
  - establishing funding mechanisms that support inter-sectoral actions (e.g., joint budgets); and
  - establishing monitoring and evaluation mechanisms to support the government's and non-state sector's roles in the suicide-prevention strategy.

A summary of the key findings from the synthesized research evidence is provided in Table 5. For those who want to know more about the systematic reviews contained in Table 5 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 3.

We found systematic reviews outlining benefits for three of the sub-elements. Several high-quality reviews outlined benefits for interventions that could contribute to developing well-defined care pathways and packages of care, and establishing continuity of care, which included discharge planning and follow-up,(91;92) crisis interventions,(93;94) integrated care pathways (95) and assertive community treatment.(96) While only one of these reviews (91) outlined findings specifically related to suicide prevention, most had a mental health focus. Two high-quality reviews also found benefits for establishing multidisciplinary teams, including the use of on-site mental health workers and professionals (97) and community mental health teams.(98) Lastly, one medium-quality review found benefits for using financial and resource mechanisms to support integrated care within the health system and between health and social care systems.(99)

Table 5: Summary of key findings from systematic reviews relevant to Option 2 – Foster integration and coordination of new and ongoing efforts to prevent suicide within and across sectors and jurisdictions

Category of finding	Summary of key findings
Benefits	• **Developing well-defined care pathways, packages of care and continuity of care** o *Discharge planning and follow-up:* One recent high-quality systematic review assessed the effectiveness of interventions for pediatric patients with suicide-related emergency department (ED) visits and found: reduced risk of subsequent suicide with a brief emergency department intervention combined with post-discharge contact; reduced suicide-related hospitalizations when interim psychiatric care was provided in follow-up to an ED visit; increased rates of treatment completion when ED psychiatric evaluation was

	followed by outpatient sessions with a parent; and adherence with service referrals were improved when community home nursing was provided post-discharge.(91) Another recent review of medium-quality also found benefits for discharge planning strategies from inpatient to outpatient mental healthcare for reducing readmission to hospital and improving adherence to care plans.(92) o *Crisis interventions:* Two high-quality reviews (one recent and one older) assessed crisis interventions, which are defined by Borschmann et al. (2012) as "an immediate response to acute distress by one or more individuals to the acute distress experienced by another individual, which is designed to ensure safety and recovery and last no longer than one month".(93) The recent review (93) focused specifically on adults with borderline personality disorder and found no eligible studies, whereas the older review had a broader scope (people with serious mental illness experiencing an acute episode) and found that crisis interventions avoided repeat hospital admissions, improved the mental state of service users (as compared to standard care), and reduced the stigma of hospitalization.(94) o *Integrated care pathways/models*: A recent high-quality review found evidence to suggest that integrated mental health and substance abuse care programs in either primary or speciality care settings are effective.(95) However, an older high-quality review assessed the effects of shared-care health service interventions for the management of chronic diseases across the primary-speciality interface and found mixed results.(100) o *Assertive Community Treatment (ACT)*: An older high-quality review of ACT for people with severe mental disorders found that those receiving ACT were more likely to remain in contact with services, less likely to be admitted to hospital, and spent less time in hospital as compared to those receiving standard care or hospital-based rehabilitation services.(96) However, no differences were found for outcomes related to mental state or social functioning. • **Establishing multidisciplinary teams to support recovery and wellness** o *Mental health workers/on-site mental health professionals:* A recent high-quality review found that on-site mental health workers improved the quality of care (e.g., number of consultations, prescribing practices and costs and referrals to other services) delivered by primary care providers.(97) Two medium-quality reviews on the same topic found similar but inconsistent results for the same types of outcomes.(101;102) o *Collaborative/multidisciplinary teams:* Several reviews assessed the effects of collaborative care and multidisciplinary care teams. The only high-quality review assessed the effectiveness of community mental health teams and found that it is effective (as compared to non-team standard care) in promoting acceptance of treatment, and may be effective at avoiding death by suicide and reducing hospital admissions.(98) Other reviews found that collaborative care models had a beneficial effect on several outcomes including improvements in depressive symptoms, prescribing practices, adherence to treatments, quality of life and satisfaction with care.(103-105) • **Establishing funding mechanisms that support inter-sectoral actions (e.g., joint budgets)** o *Integrated financial and resource mechanisms:* A medium-quality review of financial and resource mechanisms to support integrated care within healthcare and between health and social care found some evidence for improvements in carer burden, carer and patient satisfaction, functional independence and process measures such as hospital admission and delayed discharges.(99)
Potential harms	• None of the identified reviews provided information about potential harms of the sub-elements •
Costs and/or cost-effectiveness in relation to the status quo	• **Developing well-defined care pathways, packages of care and continuity of care** o *Assertive Community Treatment (ACT)*: An older high-quality review found that ACT reduced the cost of hospital care, but did not have a clear advantage over standard care when the full range of costs was accounted for.(96) o *Compulsory community treatment:* A high-quality recent review of compulsory community treatment for people with severe mental illness found no reliable evidence to assess cost-effectiveness.(106) • **Establishing multidisciplinary teams to support recovery and wellness** o *Collaborative/multidisciplinary teams*: An older medium-quality review found that while collaborative care and case management resulted in improved depressive outcomes for patients, the costs were greater.(107) • **Establishing funding mechanisms that support inter-sectoral actions (e.g., joint budgets)** o *Integrated financial and resource mechanisms* A review of integrated financial and resource mechanisms to support integrated care within healthcare and between health and social care found weak evidence that they could achieve cost savings.(99)
Uncertainty regarding	• Uncertainty because no systematic reviews were identified

benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	o **Supporting continuity of care in ways that bridge traditional, cultural and mainstream approaches** o **Establishing monitoring and evaluation mechanisms to support the government's and non-state sector's roles in the suicide-prevention strategy** • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review o **Developing well-defined care pathways, packages of care and continuity of care** ▪ *Physical health monitoring:* A recent medium-quality review found no studies evaluating the effects of this intervention on morbidity, mortality and quality of life in people with serious mental illness.(108) • No clear message from studies included in a systematic review o **Developing well-defined care pathways, packages of care and continuity of care** ▪ *Compulsory community treatment*: A high-quality recent review found that there was no significant difference in service use, social functioning or quality of life compared with standard care.(106) o **Establishing a governance structure (e.g., ministerial linkages, cabinet committees, specific units with coordination responsibilities) to ensure integration in policy and programmatic decision-making within federal, provincial and territorial governments, and across these levels of governments** ▪ *Interagency collaboration*: A recent medium-quality review of the effectiveness of interagency collaboration between local health and local government agencies found no reliable evidence that such collaboration leads to improvement in health outcomes.(109) o **Establishing multi-stakeholder arrangements to guide priority setting and resource allocation decisions in ways that facilitate coordinated services between sectors** ▪ *Organizational partnerships:* One recent medium-quality review found insufficient evidence that organizational partnerships improved public health outcomes in England from 1997-2008.(110) o **Developing a coordinated and intensified strategy to engage people with lived experience, the public and relevant stakeholders in policy and organizational decisions (or monitoring) regarding suicide prevention** ▪ *Consumer involvement in policy and planning*: An older high-quality review (111) found that there is little evidence on the effects of consumer involvement in healthcare decisions at the population-level, but an older medium-quality review noted that there is evidence to support the notion that patient involvement has contributed to changes in the provision of services in a range of different settings.(79) o **Establishing a national network of policymakers, stakeholders and community members supporting suicide prevention and mental health promotion activities among First Nations, Inuit and Métis** ▪ *Cultural competence training:* An older medium-quality review assessed the effectiveness of interventions to improve cultural competence in healthcare systems, but was unable to determine the effectiveness of any of the interventions prioritized in the review (programs to recruit and retain staff who reflect the cultural diversity of the community served; use of interpreter services for bilingual providers for clients with limited English proficiency; cultural competency training for healthcare providers; use of linguistically and culturally appropriate health education materials; and culturally-specific healthcare settings).(112) o **Establishing funding mechanisms that support inter-sectoral actions (e.g., joint budgets)** ▪ *Integrated financial and resource mechanisms:* A review of financial and resource mechanisms to support integrated care within healthcare and between health and social care found limited evidence about their impact on health outcomes.(99)
Key elements of the policy option if it was tried elsewhere	• **Developing well-defined care pathways, packages of care and continuity of care** o *Integrated care pathways/models:* A recent medium-quality review of integrated care pathways found that they were most effective when a patient's progress was predictable. For bringing about behavioural change, integrated pathways were most effective where deficiencies in services had been identified and when interprofessional working was well established.(113) • **Establishing multidisciplinary teams to support recovery and wellness** o *Collaborative/multidisciplinary teams:* Two low-quality reviews provided findings about the features of teams that are more likely to lead to positive outcomes, namely clinicians working in the same setting, a location that is familiar and non-stigmatizing for the patient, and greater professional diversity on the team (e.g., inclusion of social workers).(114;115) • **Establishing a governance structure (e.g., ministerial linkages, cabinet committees, specific units with coordination responsibilities) to ensure integration in policy and**

	programmatic decision-making within federal, provincial and territorial governments, and across these levels of governments ○ *Large system transformation:* A recent low-quality review of current practice for large system transformation (i.e., systematic initiatives to create coordinated change in healthcare across organizations with shared priorities) identified several key elements for this type of approach, which include: top-down leadership with commitment to change as well as engagement of personnel at all levels of the system; measurement and reporting on progress towards short- and long-term goals; consideration of historical context to avoid pitfall and increase buy-in from stakeholders; and engagement of providers, patients and families in the change process.(116)
Stakeholders' views and experience	• **Developing a coordinated and intensified strategy to engage people with lived experience, the public and relevant stakeholders in policy and organizational decisions (or monitoring) regarding suicide prevention** ○ *Consumer involvement in the delivery of services:* An older medium-quality review found that clients of mental health services had greater satisfaction when other service users were involved as employees. In addition, providers who had been trained by users had more positive attitudes towards clients.(117)

Element 3 – Provide education and training in suicide prevention

This element involves ensuring that providers receive the training they need to identify those at risk and deliver appropriate care and support. It could also involve efforts to raise awareness about suicide and to educate the public about suicide-prevention strategies. The sub-elements might include:

- supporting increased training opportunities for front-line providers to help with identifying those at risk;
- providing training for the provision of culturally appropriate suicide-prevention programs and services;
- supporting the implementation of practice guidelines for suicide prevention; and
- launching media campaigns (for the public and relevant stakeholders) to raise awareness about suicide and to inform/educate about suicide-prevention strategies.

A summary of the key findings from the synthesized research evidence is provided in Table 6. For those who want to know more about the systematic reviews contained in Table 6 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 4.

We found several systematic reviews outlining benefits for all but one of the four sub-elements (supporting increased training opportunities for front-line providers to help with identifying those at risk). For the second sub-element (training for the provision of culturally appropriate programs and services), two medium-quality reviews (118;119) found improvements in the quality of health services for racial/ethnic minorities using educational interventions aimed at improving cross-cultural communication. Next, we found several high-quality systematic reviews outlining the beneficial impacts of interventions aimed at supporting the implementation of practice guidelines, including educational outreach visits,(120) distribution of educational materials,(121) audit and feedback,(122) local opinion leaders (123) and multifaceted interventions (combining two or more of these interventions).(123;124) In addition, a recent overview of systematic reviews found that financial incentives were generally ineffective at improving compliance with guidelines.(125) None of the interventions for supporting practice guideline implementation were focused on suicide prevention. Lastly, for mass media campaigns, a recent overview of systematic reviews found that mass media campaigns had small to moderate effects in changing health behaviours.(126) In addition, two high-quality (127;128) and one low-quality review (129) found benefits for mass media campaigns, although none of them evaluated campaigns related to suicide prevention or mental health.

Table 6: Summary of key findings from systematic reviews relevant to Element 3 – Provide education and training in suicide prevention

Category of finding	Summary of key findings
Benefits	• **Providing training for the provision of culturally appropriate suicide-prevention programs and services** o *Cultural competency training:* Two medium-quality reviews focused on interventions to improve healthcare services for racial/ethnic minorities found benefits for educational interventions for providers. The most recent review (119) reported significant benefits for training healthcare personnel, and the older review found evidence supporting the use of multifaceted interventions aimed at providers of racial/ethnic minority patients in terms of the quality of care provided.(118) • **Supporting the implementation of practice guidelines for suicide prevention** o *Implementation of guidelines:* We identified systematic reviews that found benefits for several strategies to support the implementation of practice guidelines, but none were focused specifically on suicide prevention. Interventions for which we found benefits included: ▪ distribution of educational materials (supported by a high-quality review);(121) ▪ educational outreach visits (supported by a high-quality review);(120) ▪ audit and feedback (supported by a high-quality review);(122) ▪ local opinion leaders (supported by a high-quality review);(123) ▪ financial incentives for supporting appropriate consultation or visit rates, processes of care, referrals and admissions, but not for improving compliance with guidelines (supported by an overview of systematic reviews);(125) ▪ multifaceted interventions such as combining local opinion leaders and audit and feedback (supported by a high- and a medium-quality review)(123;124)

	• **Launching media campaigns (for the public and relevant stakeholders) to raise awareness about suicide and to inform/educate about suicide-prevention strategies** o *Mass media:* An overview of systematic reviews and three systematic reviews found benefits for media campaigns, but none evaluated campaigns related to suicide prevention. ▪ The overview of systematic reviews investigated behavioural change interventions for reducing unhealthy behaviours found that mass media campaigns had small to moderate effects in changing health behaviours. ▪ A high-quality but older review found that all of the studies apart from one concluded that planned mass media campaigns and unplanned mass media coverage can have a positive influence on the utilization of health services.(127) o *Mass media:* All of the studies in another older high-quality review concluded that mass media interventions were effective in the promotion of voluntary counselling and testing for HIV. o *Mass media:* A recent but low-quality review of mass media interventions to improve public recognition of stroke symptoms, emergency response and early treatment found that campaigns aimed at the public have raised awareness, but have little impact on behaviour.(129)
Potential harms	• **Launching media campaigns (for the public and relevant stakeholders) to raise awareness about suicide and to inform/educate about suicide-prevention strategies** o *Mass media:* A recent review found that the vast majority of the studies support the idea that media coverage of suicidal behaviours and actual suicidality are associated, with most outlining the association related to how irresponsible media reports can provoke suicidal behaviours. There was less research about how media can have a protective effect (e.g., through newspaper blackout or by changing the quality and content of media reporting).(130)
Costs and/or cost-effectiveness in relation to the status quo	• **Launching media campaigns (for the public and relevant stakeholders) to raise awareness about suicide and to inform/educate about suicide-prevention strategies** o *Online and social media:* While there was no significant difference between online and sophisticated print interventions, the former has the advantage of lower cost combined with the ability to reach a broader audience.(131)
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified o Not applicable (reviews were found for each option element) • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review o Not applicable (no 'empty' reviews were found) • No clear message from studies included in a systematic review o **Supporting increased training opportunities for front-line providers to help with identifying those at-risk** ▪ *Education:* A recent low-quality review found a lack of conclusive evidence for the effectiveness of a specific educational method to teach general practitioner trainees psychiatric diagnostic skills.(132) o **Providing training for the provision of culturally appropriate suicide-prevention programs and services** ▪ *Cultural competency training:* A recent high-quality review found limited evidence for a positive relationship between the provision of cultural competency training for providers and improved patient outcomes.(133) o **Supporting the implementation of practice guidelines for suicide prevention** ▪ *Educational meetings:* One older medium-quality review of organizational strategies to improve the management of depression (134) and another evaluating guideline dissemination and implementation strategies in general (124) found educational meetings to be generally ineffective. However, one older medium-quality review of interprofessional education for improving care for patients with mental health problems found that educational meetings were generally effective. ▪ *Financial incentives:* A recent overview of systematic reviews found that financial incentives were generally ineffective at improving compliance with guidelines.(125) o **Launching media campaigns (for the public and relevant stakeholders) to raise awareness about suicide and to inform/educate about suicide-prevention strategies** ▪ *Online and social media:* A recent medium-quality review assessed the use of online interventions and social marketing health behaviour campaigns and found that their overall impact was small (yet still statistically significant). However, comparisons of online interventions versus sophisticated print interventions found no significant differences in impact.(131)
Key elements of the policy option if it was tried elsewhere	• No key elements were identified
Stakeholders' views and experience	• No reviews provided information about stakeholders' views and experiences

Additional equity-related observations about the three elements

Very few of the systematic reviews we identified either focused on suicide or included studies that addressed suicide prevention. However, many reviews that addressed components of the second and third elements focused on people with mental health or substance use disorders (although none of the reviews included in the first element addressed this priority population). As outlined in the sub-section about the second element, several of the included systematic reviews evaluated interventions focused on providing care for people with mental health disorders. The interventions for which benefits were identified included discharge planning from inpatient to outpatient mental healthcare;(92) crisis interventions for adults with borderline personality disorder and people with serious mental illness; (93;94) integrated mental health and substance abuse care programs; (95) Assertive Community Treatment for people with severe mental disorders;(96) mental health workers/on-site mental health professionals;(97) and community mental health teams.(98) For the third element, several reviews focused on providing education to about appropriate care to people with mental health issues (e.g., providing general practitioners with psychiatric diagnostic skills and supporting the implementation care guidelines related to mental health through education or organizational interventions). Unfortunately, the results from these reviews were mixed and clear conclusions about their benefits could not be drawn.(132;134;135)

IMPLEMENTATION CONSIDERATIONS

Potential barriers to preventing suicide in Canada can be identified at the level of individuals (e.g., lack of willingness to engage in stakeholder-driven processes), providers (e.g., giving priority to medical care at the expense of prevention), organizations (e.g., lack of interest in making long-term sustainable financial commitments), and systems (e.g., lack of interest or willingness to contribute to the development of a shared governance model). A detailed list of potential barriers to implementing the three elements is provided in Table 7. We found few empirical studies that helped to identify or establish the importance of these barriers, so we have listed those that were identified in a range of sources (not just empirical studies) and we have not rank ordered them in any way.

Table 7: Potential barriers to implementing the options

Levels	Element 1 – Develop and implement suicide-prevention strategies in ways that build on strengths, resilience and protective factors	Element 2 – Foster integration and coordination of new and ongoing efforts to prevent suicide within and across sectors and jurisdictions	Element 3 – Provide education and training in suicide prevention
Patient/Individual	Individuals may feel disempowered, unsafe or unwilling to engage in a stakeholder-driven process about suicide prevention depending on the nature of the consultation/ engagement process and/or due to the stigma associated with suicide-related behaviours. (136;137) For example, if a community is in crisis (e.g., with a suicide cluster) and individuals feel unsafe or burned out, it may be difficult for that community to mobilize and engage.	Individuals and/or families with 'lived experience' with suicide may feel disempowered or unsafe to participate in processes designed to engage them in policy and organizational decisions (or monitoring) regarding suicide	Individuals and/or families with 'lived experience' with suicide may feel disempowered, unsafe or unwilling (e.g., due to the stigma associated with suicide) to be meaningfully engaged in advocacy campaigns, and could be 're-traumatized' if they are engaged Individuals and/or families may be hard to reach given the wide array of advocacy campaigns for many different diseases that are competing for attention
Provider	None identified	Some providers may give priority to medical care at the expense of prevention work (136) Some providers' norms and attitudes may be challenged by integrated and inter-sectoral approaches to care (e.g., due to a lack of training in this type of approach for many providers), making it difficult to build consensus on an optimal approach (138) Providers may not receive adequate compensation to engage in prevention work	Providers may be unwilling to participate in strategies to support the implementation of practice guidelines that may challenge their professional attitudes or behaviours (138), or personal or religious beliefs around suicide Some providers may lack the skills required to interpret and appropriately apply research evidence and/or recommendations from practice guidelines(139)
Organization	Organizations working in the health, mental health and/or community care sector may be unwilling or uninterested in making long-term sustainable financial commitments towards suicide-prevention efforts due to budget uncertainty that many may face for their existing programs and services	Organizations with no long-term funding may be unable to make commitments to an inter-sectoral strategy (139) Organizations in the health, mental health and/or community care sectors may have competing priorities both within and between organizations, which may preclude them from supporting true inter-	Organizations with frequent staff turnover may not see value in investing heavily in education and training, especially those with limited resources

		sectoral action (136;138) Organizations may lack leadership as well as governance and planning structures and processes that are supportive of inter-sectoral action (136;138)	
System	Federal, provincial and territorial governments may be unwilling or uninterested in making long-term sustainable financial commitments towards dedicated suicide-prevention efforts	Federal, provincial and territorial governments may be unwilling or uninterested (e.g., due to a lack of clear direction at the policy level across the range of sectors involved) in developing a governance structure that supports integrated or shared decision-making across different sectors	Governments and stakeholders may face difficulties in developing a shared vision for public education and mass media campaigns and tailoring those messages to local contexts

Efforts to address these barriers need to be aware of potential windows of opportunity that could facilitate or trigger change. For instance, the recent launch of the National Collaborative on Suicide Prevention could support linkage and exchange, and could therefore help bridge the gaps of a fragmented suicide-prevention community in Canada.(67) In addition, the introduction of Bill C-300 in the House of Common suggests a willingness on the part of the federal government to develop a federal framework for suicide prevention in areas where it is best positioned to make a significant contribution. This bill, which recently passed its first reading in the Senate, stipulates that the federal government must consult other stakeholders (i.e., non-governmental organizations, provincial and territorial governments, and relevant federal departments) in order to share information and align the federal framework with existing suicide-prevention efforts. In addition, the federal entity that will assume responsibility for the framework will have to report to the public regarding its progress and activities within its first four years and every two years afterwards.(63) From the mental health sector, one possible window of opportunity is to leverage the momentum from the recent release of the Mental Health Strategy for Canada to build synergies for moving forward with efforts for suicide prevention.

It is also possible to draw lessons from other jurisdictions in Canada and abroad that faced similar barriers in successfully developing and implementing suicide-prevention strategies. One recurring theme is the challenge of developing integrated and inter-sectoral actions built on a common understanding of the problem, but also on a shared vision, leadership and accountability from a wide range of organizations. In the United States, a vast stakeholder-engagement process led by a national partnership of more than 200 representatives from the public sector and private sector (e.g., senior executives of leading for-profit and non-profit organizations, philanthropic organizations, researchers, practitioners, and people with lived experiences) has played a key role in championing suicide prevention as a national priority and catalyzing efforts that led to the most recent national suicide-prevention strategy.(49) It may also be relevant to draw inspiration from recent efforts exploring the use of governance mechanisms (e.g., ministerial linkages, joint budgeting, delegating financing, public engagement) to support whole-of-government approaches that could overcome such barriers.(140)

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APPENDICES

The following tables provide detailed information about the systematic reviews identified for each option. Each row in a table corresponds to a particular systematic review and the reviews are organized by the sub-elements (first column). The focus of the review is described in the second column. Key findings from the review that relate to the option are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

The last three columns convey information about the utility of the review in terms of local applicability, applicability concerning prioritized groups, and issue applicability. The third-from-last column notes the proportion of studies that were conducted in Canada, while the second-from-last column comments on the proportion of studies included in the review that deal explicitly with one of the prioritized groups. The last column indicates the review's issue applicability in terms of the proportion of studies focused on suicide prevention.

All of the information provided in the appendix tables was taken into account by the evidence brief's authors in compiling Tables 1-3 in the main text of the brief.

Appendix 1 – Systematic reviews evaluating suicide preventive interventions

We identified systematic reviews addressing suicide-prevention interventions by searching: 1) Health Systems Evidence using the term suicid*; 2) Health-Evidence.ca using the category for suicide under the focus of the review; and 3) Database of Abstracts of Reviews of Effects using the term suicid*. We also hand searched the reference lists of three overviews of systematic reviews.(9;72;73) Lastly we updated the searches of the most recent overviews (conducted in 2011) in Medline by searching for suicide* and prevent* and limiting it to those published since 2011 and filtered using the search hedge to optimize the retrieval of systematic reviews.

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
Prevention							
Universal • Media reporting restrictions	**Durkee T et al. (2011)** Review of the evidence on the internet and suicidality, and the different pathways by which suicidal risks and prevention efforts are facilitated through the internet. (141)	Specific internet pathways increased risk for suicidal behaviours, particularly in adolescents and young people. Several studies found significant correlations between pathological internet use and suicidal ideation and non-suicidal self-injury. Pro-suicide websites and online suicide pacts were observed as high-risk factors for facilitating suicidal behaviours, particularly among isolated and susceptible individuals. Paradoxically, the internet can also be an effective tool for suicide prevention, especially for socially-isolated and vulnerable individuals who might otherwise be unreachable.	Not reported	1/9 (AMSTAR rating from the McMaster Health Forum)	Not reported	Not reported	Not reported (although the focus of the study is on suicide)
	Sisask M & Varnik A (2012) Review of the research performed on the roles of media in suicide prevention, in order to determine the effects of media reporting on suicidal behaviours on actual suicidality (completed suicides, attempted suicides, or suicidal ideation).(130)	Most studies support the idea that media reporting and suicidality are associated, although there is a risk of reporting bias. In general, there was more research available on the ways in which irresponsible media reporting can provoke suicidal behaviours (the "Werther effect") and there was less research on the protective effective of the media (the "Papageno effect"). Strong	Not reported	4/10(AMSTAR rating from the McMaster Health Forum)	1/56	0/56	56/56

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		modelling effect of media coverage on suicide is based on age and gender.					
Universal • Means access restrictions	**Mann JJ et al. (2005)** Review of the effectiveness of specific suicide-preventive interventions. Interventions evaluated in the study can broadly be categorized as: awareness and education (of primary care physicians, gatekeepers and the public), screening, treatment interventions (including pharmacotherapy and psychotherapy), lethal means restriction, and media.(142)	The evidence indicated that both education of physicians in depression recognition and treatment, and restricting access to lethal means were able to reduce suicide rates. Gatekeeper education also showed promise in having an impact on suicide rates. Other methods, such as public education, screening programs, and media education, require more evidence of efficacy. Many universal or targeted educational interventions are multifaceted, so more research may be required to determine which components produce the desired outcomes.	2005	4/10(AMSTAR rating from the McMaster Health Forum)	3/93	20/93	Not reported
	Breton JJ et al. (2002) Review of evaluated suicide programs for Canadian youth ages 10 to 24 years, and examination of the way new trends in the field of program evaluation may help guide efforts in suicide program evaluation. Suicide programs evaluated include both prevention strategies (general education on suicide, means restriction, mental health promotion) and intervention strategies (training of gatekeepers, screening, treatment of suicidal youth). Settings included schools, suicide-prevention centres and hospitals.(143)	Six of the nine school programs led to improvements in knowledge on suicide, while one led to improvements in attitudes about suicide, and three to improvements in skills required to intervene in the suicidal process. None of the programs showed an effect on suicidal ideation or suicide attempts. One of the three suicide-prevention centre programs led to reduction in suicidal urgency, while another of the three led to reduction in suicidal ideation. The study of gun control on overall suicide rates showed inconclusive results.	1996	4/9(AMSTAR rating from the McMaster Health Forum)	15/15	12/15	15/15
	Gunnell D, Frankel S (1994) Systematic review to examine the evidence on available interventions and	While no single intervention has been found to reduce suicide, the greatest potential seems to arise from limiting the	Not reported	3/9(AMSTAR rating from the McMaster	Not reported	Not reported	Not reported (although the focus of the

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	points of access (in the primary health care, secondary health care and public health domains) to the population at risk of suicide.(144)	availability of methods for committing suicide (e.g. the introduction of the catalytic converter to reduce lethality of car exhausts and thus suicide using this method). General practitioner education programs, the effectiveness of lithium and maintenance antidepressants, and limits on the quantity of medicines available over the counter or on prescription should all be evaluated. The review offers little support for the aspiration that the posited targets can be achieved on the basis of current knowledge and current policy.		Health Forum)			study is on suicide)
	Leitner M et al. (2008) Review commissioned by the (then) Scottish Executive Health Department in 2005 to provide a comprehensive overview of the known effectiveness of interventions aimed at preventing suicide, suicidal behaviour and suicidal ideation, both in key risk groups and in the general population.(145)	The most prominent focus of the literature to date has been on pharmaceutical interventions. However, the results of such studies provide few indicators of consistent positive impact. There is evidence from a number of studies that the use of lithium in bipolar disorder may reduce attempted and completed suicide. There is currently little evidence of any effective pharmaceutical intervention for self-harm. Some high quality studies indicate the treatment of depression with fluvoxamine and sertraline may reduce suicidal ideation. There is also evidence that restrictions in the access to means, and service provision via specialist centres with highly trained personnel, can reduce rates of completed suicide. Finally, use of individualized and intensive cognitive and behavioural therapies has shown promise in reducing attempted suicide and self-	2006	9/10(AMSTAR rating from the McMaster Health Forum)	7/235	Not yet available	235/235

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		harm, the most promising methods being cognitive behavioural therapy (CBT) and dialectical behavioural therapy (DBT). There is little evidence on the effectiveness of other non-pharmaceutical interventions for suicidal ideation.					
	Sarchiapone M et al. (2011) Review of the empirical and clinical literature on the effectiveness of controlling the access to means of suicide (such as firearms, toxic gas, and pesticides).(146)	In many countries, restrictions of access to common means of suicide has led to reduced overall suicide rates. Decline in prescription of barbiturates and tricyclic antidepressants (TCAs), and limitation of drugs pack size for paracetamol and salicylate, has reduced suicides by overdose. Meanwhile, increased prescription of selective serotonin reuptake inhibitors (SSRIs) appear to have lowered suicide rates. Thus, restriction to means of suicide may be effective where the method is popular, highly lethal, widely available, and/or not easily substituted by other similar methods.	Not reported	0/9 (AMSTAR rating from the McMaster Health Forum)	Not reported	Not reported	Not reported (although the focus of the review is on suicide)
	Zamorski MA (2011) Review of the literature on suicide risk in military organizations (in order to determine if military personnel are at increased risk for suicide); and review of the evidence on preventive interventions in different civilian settings.(147)	In general, suicide rates in currently serving military personnel are below rates seen in the general population (of the same age and sex distribution). It is highly probable that the same broad range of risk factors, protective factors and triggers for suicidal behaviour identified in the general population also applies to military populations. Special opportunities for suicide prevention in military organizations include: education and awareness campaigns; screening and assessment; restriction of access to lethal	Not reported	1/9(AMSTAR rating from the McMaster Health Forum)	Not reported	Not reported	Not reported

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		means; media engagement; organizational interventions to mitigate work stress or strain; interventions to overcome barriers to care; and risk factors modification, among others.					
Universal • National suicide prevention programs	No reviews identified						
Selective • Suicide prevention centres	**Breton JJ et al. (2002)** Review of evaluated suicide programs for Canadian youth ages 10 to 24 years, and examination of the way new trends in the field of program evaluation may help guide efforts in suicide program evaluation. Suicide programs evaluated include both prevention strategies (general education on suicide, means restriction, mental health promotion) and intervention strategies (training of gatekeepers, screening, treatment of suicidal youth). Settings included schools, suicide-prevention centres and hospitals.(143)	Six of the nine school programs led to improvements in knowledge on suicide, while one led to improvements in attitudes about suicide, and three to improvements in skills required to intervene in the suicidal process. None of the programs showed an effect on suicidal ideation or suicide attempts. One of the three suicide-prevention centre programs led to reduction in suicidal urgency, while another of the three led to reduction in suicidal ideation. The study of gun control on overall suicide rates showed inconclusive results.	1996	4/9(AMSTAR rating from the McMaster Health Forum)	15/15	12/15	15/15
Selective • Community-based suicide-prevention programs	**Dieterich M et al. (2010)** Review of the effectiveness of Intensive Case Management (ICM), a community-based package of care involving a team of providers that offer long-term care to people with severe mental illnesses. ICM (caseload < 20) is compared to non-ICM (same package of care but caseload > 20) and also to standard community care (where the support needs are less clearly defined).(148)	ICM compared to standard care: ICM was shown to reduce hospitalization, increase retention in care and improve social functioning; however, its effects on mental state and quality of life are unclear. There is a suggestion that ICM reduced the risk of death and suicide. ICM compared to non-ICM: differences between ICM and the less formal non-ICM approach are not clear, although	2009	7/11 (AMSTAR rating from Program in Policy Decision-making)	1/38	38/38	16/38

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		ICM may lead to comparatively greater retention in care. Further reviews comparing non-ICM with standard care should be undertaken. Valid overall conclusions were difficult to make as the healthcare and social support systems of the study countries were quite different.					
	Oyama H et al. (2008) Review of the effectiveness of community-based depression screening (CDS) with follow-up on the completed suicide risk for older adults aged 65 and over. Community-level interventions included health education workshops and group activities providing social and recreational activities and exercising.(149)	The implementation of universal prevention programs involving CDS and health education is associated with reduced risk of completed suicide among older adults. However, there were very few studies included in the review to demonstrate an association between CDS and reduced risk, suggesting gender difference in the effectiveness of the intervention.	2007	4/11 (AMSTAR rating from Program in Policy Decision-making)	0/5	0/5	5/5
	Malone D et al. (2007) Review of the effectiveness of Community Mental Health Team (CMHT) treatment for people with serious mental illness, compared to standard non-team management. CMHT consisted of a multidisciplinary, community-based team, while standard care consisted of non-team community care, outpatient care, and admission to hospital or day hospital.(98)	CMHT is not inferior to non-team standard care in any important respects, but is superior in promoting greater acceptance of treatment. CMHT may also be superior in reducing hospital admission and deaths by suicide. Evidence to support CMHTs over hospital-based management, however, is scanty.	2006	11/11 (AMSTAR rating from McMaster Health Forum)	Not reported	3/3	Not reported
	Simmonds S et al. (2001) Review of the effectiveness of	CMHT is a cost-effective method of delivering care to people with severe	1997	4/10 (AMSTAR rating from	1/5	5/5	5/5

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	community mental health team (CMHT) management in severe mental illness, compared to standard approaches. CMHT is defined as a community-based multidisciplinary team that provides a full range of interventions to adults ages 18 to 65 with severe mental illness, while standard care is defined as usual care not provided by a community team (which in most circumstances is hospital-based outpatient care).(150)	mental illnesses. It is superior to standard care in promoting greater acceptance of treatment, and may reduce both hospital admission as well as deaths by suicide.		Program in Policy Decision-making)			
	Dumesnil H, Verger P (2009) Review of the effectiveness of education campaigns targeted at the general public to improve awareness of suicidal crises and depression. Public awareness campaigns were divided into four main categories: short media campaigns, gatekeeper training, long national programs, and long local or community programs.(151)	The evidence suggests the public awareness programs contributed to a modest improvement in public knowledge of and attitudes towards depression or suicide, although most program evaluations did not assess the durability of the attitude changes. No study clearly showed that the awareness campaigns helped to increase care-seeking or decrease suicidal behaviour.	2007	3/9(AMSTAR rating from the McMaster Health Forum)	2/15	15/15	6/15
Selective • School-based suicide-prevention programs	**Schachter HM et al. (2008)** Review of the effectiveness and harms of school-based interventions, directed at students 18 years of age or younger, to prevent or eliminate stigmatization on the basis of mental health. Interventions identified include education-only (e.g. activities, events and materials), contact-only (e.g. participants having direct contact with a mental health professional or someone experiencing mental health difficulties), or education-and-contact interventions	Limitations within the evidence base prevents drawing conclusions about the value of school-based interventions to prevent or eliminate mental health stigmatization. However, suggestive evidence within and beyond the evidence base promotes development of a curriculum that fosters development of empathy and orientation towards social inclusion and inclusiveness.	2007	4/9(AMSTAR rating from the McMaster Health Forum)	8/40	40/40	1/40

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	(containing at least one component of each type).(152)						
	Ploeg J et al. (1999) Review of the effectiveness of school-based curriculum suicide-prevention programs for adolescents. Interventions include suicide education and training in general coping skills. Interventions were provided by schoolteachers, school counsellors or social workers, mental health specialists, or school nurses.(153)	The review suggests there is currently insufficient evidence to support a school-based curriculum suicide-prevention program for adolescents. The studies included in the review provide both significant and non-significant findings for similar outcomes, and both beneficial and harmful effects for the participants.	1998	7/9(AMSTAR rating from the McMaster Health Forum)	0/9	9/9	9/9
	Wells J et al. (2003) Review of the effectiveness of universal approaches to mental health promotion in schools. Interventions evaluated in the studies included those that took a whole school approach, those that extended beyond the classroom to all or part of the school, and those that took a classroom approach.(154)	There was positive evidence of effectiveness for programs that adopted a whole-school approach, that were implemented continuously for more than one year, and that were aimed at promoting mental health rather than preventing mental illness. This suggests that universal school mental health promotion programs can be effective, and that long-term interventions promoting positive mental health are likely to be more successful than brief classroom-based mental illness prevention programs.	1999	4/9(AMSTAR rating from the McMaster Health Forum)	0/17	17/17	4/17
	Cusimano MD, Sameem M (2011) Review of the effectiveness of middle and high school-based suicide-prevention curricula for adolescents. Interventions evaluated in the studies were of varying durations, and included video discussion lessons, three-phase interventions, participatory classes, curriculum vignette program, and the	Despite evidence supporting the role of school-based programs (to prevent suicide among adolescents) in improving knowledge, attitudes and help-seeking behaviours, there is currently no evidence linking such prevention programs to reduced suicide rates.	2009	6/10(AMSTAR rating from the McMaster Health Forum)	0/8	8/8	8/8

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	Signs of Suicide (SOS) Suicide Prevention Program.(155)						
	Pena JB, Caine ED (2006) Review of the effectiveness of screening as an approach for adolescent suicide prevention. Interventions evaluated in the studies mostly took place in the high school setting, with a few taking place in hospital settings or residential treatment facilities. Interventions consisted mainly of questionnaires to evaluate suicide risk.(156)	Only two studies reported reductions in suicide attempts in youth after using a program with either a screening protocol or screening instrument. However, neither study offers any conclusive evidence about the effectiveness of screening in reducing suicide or suicide attempts. Youth suicide screening programs are thus promising for improving identification of students in need of treatment and help.	2006	3/9(AMSTAR rating from the McMaster Health Forum)	Not reported	0/17	17/17
	Breton JJ et al. (2002) Review of evaluated suicide programs for Canadian youth ages 10 to 24 years, and examination of the way new trends in the field of program evaluation may help guide efforts in suicide program evaluation. Suicide programs evaluated include both prevention strategies (general education on suicide, means restriction, mental health promotion) and intervention strategies (training of gatekeepers, screening;, treatment of suicidal youth). Settings included schools, suicide-prevention centres and hospitals.(143)	Six of the nine school programs led to improvements in knowledge on suicide, while one led to improvements in attitudes about suicide, and three to improvements in skills required to intervene in the suicidal process. None of the programs showed an effect on suicidal ideation or suicide attempts. One of the three suicide-prevention centre programs led to reduction in suicidal urgency, while another of the three led to reduction in suicidal ideation. The study of gun control on overall suicide rates showed inconclusive results.	1996	4/9(AMSTAR rating from the McMaster Health Forum)	15/15	12/15	15/15
	Guo B & Harstall C (2002) Review (in response to request from Alberta Mental Health Board) to assess the evidence on the efficacy and effectiveness of current suicide-prevention programs for children and	The studies included in this review all evaluated school-based suicide-prevention programs. Based on findings from methodologically weak studies and inconsistent conclusions, there is insufficient evidence to either support or	2001	4/10(AMSTAR rating from the McMaster Health Forum)	0/12	0/12	11/12

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	youth.(157)	not to support curriculum-based suicide-prevention programs in schools. All primary studies reviewed, except for one, did not report or failed to report any harmful effects from suicide-prevention programs. The generalizability of the results from these studies to the Alberta setting is in question, as no Canadian studies on the effectiveness of suicide prevention in children and youth have been published since 1991.					
Selective • Workplace-based prevention programs	No reviews identified						
Selective • Prison-based prevention programs	No reviews identified						
Selective • Programs for veterans and military personnel	**Zamorski MA (2011)** Review of the literature on suicide risk in military organizations (in order to determine if military personnel are at increased risk for suicide), and review of the evidence on preventive interventions in different civilian settings.(147)	In general, suicide rates in currently serving military personnel are below rates seen in the general population (of the same age and sex distribution). It is highly probable that the same broad range of risk factors, protective factors and triggers for suicidal behaviour identified in the general population also applies to military populations. Special opportunities for suicide prevention in military organizations include: education and awareness campaigns; screening and assessment; restriction of access to lethal means; media engagement; organizational interventions to mitigate work stress or strain; interventions to overcome barriers to care; and risk factors modification,	Not reported	1/9(AMSTAR rating from the McMaster Health Forum)	Not reported	Not reported	Not reported

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		among others.					
Selective • Drug misuse programs	No reviews identified						
Indicated • Training and peer education	**Isaac M et al. (2009)** Review of the effectiveness of training gatekeepers for suicide prevention. Gatekeepers are defined as people who have primary contact with those at risk of suicide, and who can identify them by recognizing suicidal risk factors. Gatekeepers are classified as designated (e.g. those who work in medicine, social work, nursing and psychology) or emergent (e.g. community members – clergy, police, teachers, counsellors – without formal training to intervene with someone at risk of suicide, but who are recognized by such at-risk individuals as potential gatekeepers).(158)	Gatekeeper training is a promising strategy to combat suicide, as it has been shown to positively affect the skills, attitudes and knowledge of those who undertake the training. Nevertheless, evidence is limited for the effects of gatekeeper training on suicide rates and ideation of at-risk individuals.	Not reported	2/9 (AMSTAR rating from Program in Policy Decision-making)	1/13	2/13 (Aboriginal population)	13/13
	Dumesnil H, Verger P (2009) Review of the effectiveness of education campaigns targeted at the general public to improve awareness of suicidal crises and depression. Public awareness campaigns were divided into four main categories: short media campaigns, gatekeeper training, long national programs, and long local or community programs.(151)	The evidence suggests the public awareness programs contributed to a modest improvement in public knowledge of and attitudes towards depression or suicide, although most program evaluations did not assess the durability of the attitude changes. No study clearly showed that the awareness campaigns helped to increase care seeking or decrease suicidal behaviour.	2007	3/9(AMSTAR rating from the McMaster Health Forum)	2/15	0/15	6/15
	Mann JJ et al. (2005) Review of the effectiveness of specific suicide-preventive interventions.	The evidence indicated that both education of physicians in depression recognition and treatment, and restricting	2005	4/10(AMSTAR rating from the McMaster	3/93	20/93	Not reported

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	Interventions evaluated in the study can broadly be categorized as: awareness and education (of primary care physicians, gatekeepers and the public), screening, treatment interventions (including pharmacotherapy and psychotherapy), lethal means restriction, and media.(142)	access to lethal means were able to reduce suicide rates. Gatekeeper education also showed promise in impacting suicide rates. Other methods, such as public education, screening programs and media education, require more evidence of efficacy. Many universal or targeted educational interventions are multifaceted, so more research may be required to determine which components produce the desired outcomes.		Health Forum)			
	Breton JJ et al. (2002) Review of evaluated suicide programs for Canadian youth ages 10 to 24 years, and examination of the way new trends in the field of program evaluation may help guide efforts in suicide program evaluation. Suicide programs evaluated include both prevention strategies (general education on suicide, means restriction, mental health promotion) and intervention strategies (training of gatekeepers, screening, treatment of suicidal youth). Settings included schools, suicide-prevention centres and hospitals.(143)	Six of the nine school programs led to improvements in knowledge on suicide, while one led to improvements in attitudes about suicide, and three to improvements in skills required to intervene in the suicidal process. None of the programs showed an effect on suicidal ideation or suicide attempts. One of the three suicide-prevention centre programs led to reduction in suicidal urgency, while another of the three led to reduction in suicidal ideation. The study of gun control on overall suicide rates showed inconclusive results.	1996	4/9(AMSTAR rating from the McMaster Health Forum)	15/15	12/15	15/15
	Talseth A-G & Gilje FL (2010) To provide an inclusive understanding of nurses' responses to suicide and suicidal patients, in order to guide research that can in turn benefit nursing practice and guide nurses to care for suicidal patients in ways that facilitate suicide prevention and recovery.(159)	Four key concepts emerged: 1) Nurses' critical reflections on self, suicide and suicidal patients embedded in philosophical and relational perspectives; 2) Nurses' attitudinal response to suicide and suicidal patients; 3) Nurses' complex knowledge	2009	4/9(AMSTAR rating from the McMaster Health Forum)	3/26	0/26	26/26

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		and professional role responsibilities caring for suicidal patients; and 4) Nurses' desire for emotional and educational support services or resources in caring for suicidal patients					
Indicated • Providing assistance to general practitioners	**Hider P (1998)** Review to assess the literature describing the epidemiology and main risk factors for suicidal behaviour among young people, with a review of the evidence for the recognition, management and prevention of adolescent suicidal behaviour by primary care physicians.(160)	The number and rate of suicides among youth have increased over the past two decades, with the highest rates among males aged 20-24 years. Risk factors include high rates of psychiatric illness or mental disorders. There is a strong association between risk factors and suicidal behaviour among youth of low socio-economic status and poor educational background, those with previous suicide attempts or persistent suicidal ideation, or family backgrounds and environments with dysfunctional or difficult circumstances. Interventions that are population-based try to prevent development of suicidal behaviour in individuals, while targeted interventions try to prevent suicidal behaviour in youth at high risk of suicide.	Not reported	3/11(AMSTAR rating from the McMaster Health Forum)	3/300	Not yet available	300/300
Indicated • Telephone-based suicide-prevention services	**Daigle MS et al. (2011)** Review of tertiary preventive interventions aiming to prevent repetition of suicidal behaviours and suicide attempts.(161)	Only two pharmacological treatments proved significantly superior to a placebo. Eight out of 16 psychological treatments proved superior to treatment as usual. Cognitive-behavioural therapy and psychoanalytically oriented therapy are promising interventions. Two visit or phone contact approaches and one intensive outreach program proved	2010	1/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	35/35

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		effective over treatment as usual.					
Indicated • Assistance to family/friends of high-risk individuals	**Burrus B et al. (2012)** Review of the effectiveness of person-to-person parent- and caregiver-targeted interventions on risk and protective behaviours and health outcomes. Interventions contained three common elements: education component, discussion component, and opportunity for caregiver to practice new skills.(162)	There is sufficient evidence to indicate that person-to-person interventions delivered to parents and caregivers, and aimed at modifying adolescent risk and protective behaviours, are effective at reducing adolescent risk behaviours and yielding improvements in adolescent health.	2007	4/11 (AMSTAR rating from the McMaster Health Forum)	0/12	Not yet available	1/12
Indicated • Postvention	**Szumilas M, Kutcher S (2011) and Szumilas M, Kutcher S (2010)*** Review of the effectiveness of post-suicide intervention programs (postvention programs), defined as prevention strategies that target individuals recently bereaved by the death of a loved one. Interventions evaluated in the studies include school-based interventions (e.g. counselling for those bereaved, debriefing for whole school populations and crisis response training for school personnel), family-based interventions (e.g. support group, outreach, or education), and community-based interventions (e.g. suicide reporting guidelines, support services, media, and education).(163;164)* *Both reviews contain largely overlapping content, so are summarized together.	The available studies did not provide sufficient evidence for the protective effect of any postvention program on number of suicide deaths or suicide attempts. Few positive effects of school-based postvention programs were found, while one study reported negative effects of suicide postvention. However, strategies that show promise include gatekeeper training to improve knowledge of crisis intervention (with positive effects on depression and suicide rates), provision of outreach at the time of suicide to family member survivors (with positive results on use of services to assist in the grieving process), and bereavement support group interventions (with positive short-term reductions in emotional distress). Support group interventions may have different impacts depending on gender and severity of distress. There is insufficient evidence for the use of media reporting guidelines for suicide and suicide attempt, although the evidence shows promise for their ability	2009	3/10(AMSTAR rating from the McMaster Health Forum)	1/16 (some not reported)	Not yet available	16/16

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		to reduce suicides and suicide attempts.					
	Wittouck C et al. (2010) Review of the short-term (i.e., immediately after the intervention) and long-term (i.e., follow-up) effects of both preventive and treatment interventions for complicated grief (CG) (later renamed Prolonged Grief Disorder) in bereaved adults. CG is defined as a combination of separation distress and cognitive, emotional and behavioural symptoms that can develop after the death of a significant other. Symptoms must last at least six months and cause significant impairment in social, occupational and other important areas of functioning. Preventive interventions included counselling, group therapy and writing therapy. Treatment interventions included various forms of psychological therapy.(165)	Results from the preventive grief intervention studies provide inconsistent support for their effectiveness. Specifically, there was a lack of significant effect of preventive interventions on CG immediately after the intervention, which evolves to a fairly negative (but non-significant) effect at follow-up. Treatment interventions appear to be effective in both short-term and long-term alleviation of CG symptoms. In contrast to preventive interventions, the positive effects of treatment interventions increases significantly over time.	2007	5/11(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	3/14
	Dyregrov K (2011) Review exploring what is known about perceived needs for help on the part of suicide bereaved in different parts of the world.(166)	The bereaved in the studies agreed about a common need for peer and social support, and that professional help must be adapted to and offered with respect for individual needs. In societies in which the stigma of suicide has diminished, the bereaved experience similar needs for help; however, in societies in which there are taboos and sanctions connected to suicide, it is difficult to discuss their need for help. More culturally sensitive	Not reported	0/10(AMSTAR rating from the McMaster Health Forum)	0/5	Not yet available	5/5

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		research is needed to clarify how each community understands suicide and reacts to families who have lost someone to suicide.					
Treatment							
Screening (case identification)	**Oyama H et al. (2008)** Review of the effectiveness of community-based depression screening (CDS) with follow-up on the completed suicide risk for adults aged 65 and over. Community-level interventions included health education workshops and group activities providing social and recreational activities and exercising.(149)	The implementation of universal prevention programs involving CDS and health education is associated with reduced risk of completed suicide among older adults. However, there were very few studies included in the review to demonstrate an association between CDS and reduced risk, suggesting gender difference in the effectiveness of the intervention.	2007	4/11 (AMSTAR rating from Program in Policy Decision-making)	0/5	0/5	5/5
	Pena JB, Caine ED (2006) Review of the effectiveness of screening as an approach for adolescent suicide prevention. Interventions evaluated in the studies mostly took place in the high school setting, with a few taking place in hospital settings or residential treatment facilities. Interventions consisted mainly of questionnaires to evaluate suicide risk.(156)	Only two studies reported reductions in suicide attempts in youth after using a program with either a screening protocol or screening instrument. However, neither study offers any conclusive evidence about the effectiveness of screening in reducing suicide or suicide attempts. Youth suicide screening programs are thus promising for improving identification of students in need of treatment and help.	2006	3/9(AMSTAR rating from the McMaster Health Forum)	Not reported	0/17	17/17
	Mann JJ et al. (2005) Review of the effectiveness of specific suicide-preventive interventions. Interventions evaluated in the study can broadly be categorized as awareness and education (of primary care physicians, gatekeepers and the public), screening, treatment interventions (including	The evidence indicated that both education of physicians in depression recognition and treatment, and restricting access to lethal means were able to reduce suicide rates. Gatekeeper education also showed promise in having an impact on suicide rates. Other methods, such as public education, screening programs,	2005	4/10(AMSTAR rating from the McMaster Health Forum)	3/93	20/93	Not reported

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	pharmacotherapy and psychotherapy), lethal means restriction, and media.(142)	and media education, require more evidence of efficacy. Many universal or targeted educational interventions are multifaceted, so more research may be required to determine which components produce the desired outcomes.					
	Williams SB et al. (2009) Review to assess the health effects of routine primary care screening for major depressive disorder among children and adolescents aged 7 to 18 years.(167)	No data was found describing health outcomes among screened and unscreened populations. However, the (small and methodologically limited) literature on diagnostic screening test accuracy indicates several screening instruments have performed well among adolescents. Other literature indicates that selective serotonin reuptake inhibitors, psychotherapy and combined treatment are effective in increasing response rates and reducing depressive symptoms. Treating depressed youth with selective serotonin reuptake inhibitors may be associated with a small increased risk of suicidality, and should only be considered if judicious clinical monitoring is possible.	2006	7/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	9/27
	Lapierre S et al. (2011) Review of interventions aimed at suicidal elderly persons, with the goal of identifying successful strategies and areas needing further exploration.(168)	Most reviews focused on reduction of risk factors through depression screening and treatment, and decreasing isolation. Programs were mostly efficient for women when gender was taken into account. Empirical evaluation of programs for at-risk elderly adults was positive, with most studies showing reduction in suicide ideation and suicide rate. Strategies should aim to improve resilience, positive aging, the engagement of family and community gatekeepers,	2009	2/9(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	11/11

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		and the use of telecommunications to reach vulnerable elderly adults, and evaluate effects of means restriction and physician education on elderly suicide.					
	Zamorski MA (2011) Review of the literature on suicide risk in military organizations (in order to determine if military personnel are at increased risk for suicide); and review of the evidence on preventive interventions in different civilian settings.(147)	In general, suicide rates in currently serving military personnel are below rates seen in the general population (of the same age and sex distribution). It is highly probable that the same broad range of risk factors, protective factors and triggers for suicidal behaviour identified in the general population also applies to military populations. Special opportunities for suicide prevention in military organizations include: education and awareness campaigns; screening and assessment; restriction of access to lethal means; media engagement; organizational interventions to mitigate work stress or strain; interventions to overcome barriers to care; and risk factors modification, among others.	Not reported	1/9(AMSTAR rating from the McMaster Health Forum)	Not reported	Not reported	Not reported
Pharmaceutical interventions	**Wethington HR et al. (2008)** Review of the effectiveness of interventions commonly used to reduce psychological harm among children and adolescents exposed to traumatic events. Interventions evaluated in the studies include individual cognitive-behavioural therapy, group cognitive behavioural therapy, play therapy, art therapy, psychodynamic therapy, pharmacologic therapy for symptomatic children and adolescents, and psychological debriefing regardless of	There is strong evidence to support the role of individual and group cognitive-behavioural therapy in reducing psychological harm in symptomatic children and adolescents exposed to trauma. There is insufficient evidence, however, to determine the effectiveness of play therapy, art therapy, pharmacologic therapy, psychodynamic therapy, and psychological debriefing in reducing psychological harm in this population.	2007	5/11(AMSTAR rating from the McMaster Health Forum)	0/30	Not yet available	0/30

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	symptoms.(169)						
	Hawton KKE et al. (2009) Review to identify and synthesize findings from all randomized controlled trials that have examined the effectiveness of treatments of patients who have deliberately harmed themselves (including self-poisoning and self-injury). Interventions include psychosocial or psychopharmacological treatment (versus standard or less intensive types of aftercare).(170)	There remains considerable uncertainty about which forms of psychosocial and physical treatments of self-harm patients are most effective, with inclusion of insufficient numbers of patients in trials being the main limiting factor. Results of small single trials that have been associated with significant reductions in repetition of deliberate self-harm should be interpreted with caution. Meanwhile, there is a need for larger trials of treatments associated with reduced rates of repetition of deliberate self-harm.	1999	10/11(AMSTAR rating from the McMaster Health Forum)	1/23	Not yet available	0/23 (all focused on self-harm, not on completed suicides; however, review was meant to inform strategies to prevent complete suicides)
	Tondo L et al. (2001) Review to compare suicide rates with vs. without long-term lithium treatment in major affective disorders.(171)	Suicide risk was consistently lower during long-term treatment of major affective illnesses with lithium in all studies in the meta-analysis, including a few involving treatment-randomization. In a total of 5,647 patients (33,473 patient-years of risk) from 22 studies, suicide was 82% less frequent during lithium treatment (0.159 vs. 0.875 deaths/100 patient-years).	2000	7/11(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	22/22
	Baldessarini RJ et al. (2003) Review to update and extend analyses of lithium treatments on suicides and attempts. The review considered the effects of lithium on selected subgroups as well.(172)	The findings indicate major reductions of suicidal risks (attempts > suicides) with lithium maintenance therapy in unipolar, bipolar II, and bipolar I disorder, to overall levels close to general population rates. These major benefits in syndromes mainly involving depression encourage evaluation of other treatments aimed at reducing mortality in the depressive and mixed phases of bipolar disorder and	2002	1/11(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	34/34

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		unipolar major depression.					
	Leitner M et al. (2008) Review commissioned by the (then) Scottish Executive Health Department in 2005 to provide a comprehensive overview of the known effectiveness of interventions aimed at preventing suicide, suicidal behaviour and suicidal ideation, both in key risk groups and in the general population.(145)	The most prominent focus of the literature to date has been on pharmaceutical interventions. However, the results of such studies provide few indicators of consistent positive impact. There is evidence from a number of studies that the use of lithium in bipolar disorder may reduce attempted and completed suicide. There is currently little evidence of any effective pharmaceutical intervention for self-harm. Some high quality studies indicate the treatment of depression with fluvoxamine and sertraline may reduce suicidal ideation. There is also evidence that restrictions in the access to means, and service provision via specialist centres with highly trained personnel, can reduce rates of completed suicide. Finally, use of individualized and intensive cognitive and behavioural therapies has shown promise in reducing attempted suicide and self-harm, the most promising methods being cognitive behavioural therapy (CBT) and dialectical behavioural therapy (DBT). There is little evidence on the effectiveness of other non-pharmaceutical interventions for suicidal ideation.	2006	9/10(AMSTAR rating from the McMaster Health Forum)	7/235	Not yet available	235/235
	Daigle MS et al. (2011) Review of tertiary preventive interventions aiming to prevent repetition of suicidal behaviours and suicide attempts.(161)	Only two pharmacological treatments proved significantly superior to a placebo. Eight out of 16 psychological treatments proved superior to treatment as usual. Cognitive-behavioural therapy and psychoanalytically oriented therapy are	2010	1/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	35/35

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		promising interventions. Two visit or phone contact approaches and one intensive outreach program proved effective over treatment as usual.					
Electroconvulsive therapy	No reviews identified						
Neurosurgery	No reviews identified						
Intensive care plus outreach	**Newton AS et al. (2010)** Review of the effectiveness of emergency department (ED)-based, post-ED, and ED transition interventions for pediatric patients with suicide-related ED visits. ED-based interventions included: an enhanced discharge plan to improve treatment adherence with outpatient therapy. Post-ED interventions included: cognitive-behavioural therapy, interpersonal skills training and problem solving, and community-based outreach with referral planning. ED transition interventions included: referral with telephone/home-based support contacts for the patient, psychiatric support until longer-term care was in place, and outpatient treatment sessions for the patient and parent.(91)	The one and only study on ED-based intervention showed the intervention was effective in increasing treatment adherence. One of the six studies on post-ED interventions found increased adherence with service referral in patients who received community nurse home visits compared to simple placement referral at discharge. All three ED transition intervention studies reported reduced risk of subsequent suicide, reduced suicide-related hospitalizations and increased likelihood of treatment completion. Thus, transition interventions are most promising for reducing suicide-related outcomes.	2009	9/11 (AMSTAR rating from Program in Policy Decision-making)	1/10	Not yet available	10/10
General hospital admission	**Hall K (2002)** Review of the effectiveness of day care, outpatient care and community care for suicidal patients.(173)	There was insubstantial evidence to indicate day hospital care was superior to outpatient care in terms of psychiatric symptoms, and no evidence to suggest they were better or worse than outpatient treatment in clinical or social outcomes, or cost.	Not reported	7/9 (AMSTAR rating from Program in Policy Decision-making)	0/6	Not yet available	6/6

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		Most studies on community interventions (such as nurse home visits) or inpatient and community interventions reported no statistically significant reduction in repetition of suicidal behaviour compared to standard care (provided with outpatient appointments) at one-year follow-up.					
Cognitive behavioural therapies	**Newton AS et al. (2010)** Review of the effectiveness of emergency department (ED)-based, post-ED, and ED transition interventions for pediatric patients with suicide-related ED visits. ED-based interventions included an enhanced discharge plan to improve treatment adherence with outpatient therapy. Post-ED interventions included cognitive-behavioural therapy, interpersonal skills training and problem solving, and community-based outreach with referral planning. ED transition interventions included referral with telephone/home-based support contacts for the patient, psychiatric support until longer-term care was in place, and outpatient treatment sessions for the patient and parent.(91)	The one and only study on ED-based intervention showed the intervention was effective in increasing treatment adherence. One of the six studies on post-ED interventions found increased adherence with service referral in patients who received community nurse home visits compared to simple placement referral at discharge. All three ED transition intervention studies reported reduced risk of subsequent suicide, reduced suicide-related hospitalizations and increased likelihood of treatment completion. Thus, transition interventions are most promising for reducing suicide-related outcomes.	2009	9/11 (AMSTAR rating from Program in Policy Decision-making)	1/10	Not yet available	10/10
	Wethington HR et al. (2008) Review of the effectiveness of interventions commonly used to reduce psychological harm among children and adolescents exposed to traumatic	There is strong evidence to support the role of individual and group cognitive-behavioural therapy in reducing psychological harm in symptomatic children and adolescents exposed to	2007	5/11(AMSTAR rating from the McMaster Health Forum)	0/30	Not yet available	0/30

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	events. Interventions evaluated in the studies include individual cognitive-behavioural therapy, group cognitive behavioural therapy, play therapy, art therapy, psychodynamic therapy, pharmacologic therapy for symptomatic children and adolescents, and psychological debriefing regardless of symptoms.(169)	trauma. There is insufficient evidence, however, to determine the effectiveness of play therapy, art therapy, pharmacologic therapy, psychodynamic therapy, and psychological debriefing in reducing psychological harm in this population.					
	Tarrier N et al. (2008) Review of the effectiveness of cognitive behavioural therapies (CBTs) in reducing suicide behaviour.(174)	The results indicate an overall highly significant effect for CBT on reduction of suicide behaviour. In particular, subgroup analyses show a significant treatment effect for adult samples (but not adolescent), individual treatments (but not group), and for CBT compared to minimal treatment or treatment as usual (but not when compared to another active treatment). Despite the results supporting the use of CBT in reducing suicidal ideation and behaviours, there is evidence of publication bias, which tempers the optimism in the findings.	2006	6/11(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	25/28
	van der Sande R (1997) Review of randomized controlled trials of interventions for suicide attempters. Interventions included psychiatric management of poor compliance of suicide attempters with aftercare, guaranteed inpatient shelter to suicide attempters, psychosocial crisis intervention;, and cognitive behavioural treatment.(175)	There were considerable differences in study design and therapeutic protocols amongst studies included, thus making a single pooled analysis difficult. A pooled analysis of studies on psychiatric management of poor compliance showed no significant effect on repetition of suicide attempts. Studies of psychosocial crisis intervention and studies of guaranteed inpatient shelter in cases of emergency showed no significant reduction in repeated suicide attempts.	1995	3/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	15/15

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		Pooled results from four studies on cognitive behavioural therapies, however, showed a significant preventive effect on repeated suicide attempts. Thus, only the cognitive behavioural approach seems to have a beneficial effect, though due to methodological variability, the results may be too optimistic and additional research is required to establish the merits of this intervention.					
	Leitner M et al. (2008) Review commissioned by the (then) Scottish Executive Health Department in 2005 to provide a comprehensive overview of the known effectiveness of interventions aimed at preventing suicide, suicidal behaviour and suicidal ideation, both in key risk groups and in the general population.(145)	The most prominent focus of the literature to date has been on pharmaceutical interventions. However, the results of such studies provide few indicators of consistent positive impact. There is evidence from a number of studies that the use of lithium in bipolar disorder may reduce attempted and completed suicide. There is currently little evidence of any effective pharmaceutical intervention for self-harm. Some high quality studies indicate the treatment of depression with fluvoxamine and sertraline may reduce suicidal ideation. There is also evidence that restrictions in the access to means, and service provision via specialist centres with highly trained personnel, can reduce rates of completed suicide. Finally, use of individualized and intensive cognitive and behavioural therapies has shown promise in reducing attempted suicide and self-harm, the most promising methods being cognitive behavioural therapy (CBT) and dialectical behavioural therapy (DBT). There is little evidence on the	2006	9/10(AMSTAR rating from the McMaster Health Forum)	7/235	Not yet available	235/235

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		effectiveness of other non-pharmaceutical interventions for suicidal ideation.					
	Daigle MS et al. (2011) Review of tertiary preventive interventions aiming to prevent repetition of suicidal behaviours and suicide attempts.(161)	Only two pharmacological treatments proved significantly superior to a placebo. Eight out of 16 psychological treatments proved superior to treatment as usual. Cognitive-behavioural therapy and psychoanalytically oriented therapy are promising interventions. Two visit or phone contact approaches and one intensive outreach program proved effective over treatment as usual.	2010	1/10 (AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	35/35
	Robinson J et al. (2011) Review of interventions for adolescents and young adults who have presented to a clinical setting with behaviours (such as previous suicide attempt, suicidal ideation, and deliberate self-harm).(176)	Only one study found a difference between the treatment group (individual cognitive behavioural therapy) and control group (treatment as usual). All other studies found no differences between treatment and control groups. The evidence regarding effective interventions for adolescents and young adults with suicide attempts, deliberate self-harm, and suicidal ideation is thus extremely limited.	2010	9/11(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	15/15
Inpatient-based therapies	**Hall K (2002)** Review of the effectiveness of day care, outpatient care and community care for suicidal patients.(173)	There was insubstantial evidence to indicate day hospital care was superior to outpatient care in terms of psychiatric symptoms, and no evidence to suggest they were better or worse than outpatient treatment in clinical or social outcomes, or cost. Most studies on community interventions (such as nurse home visits) or inpatient and community interventions reported no	Not reported	7/9 (AMSTAR rating from Program in Policy Decision-making)	0/6	Not yet available	6/6

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		statistically significant reduction in repetition of suicidal behaviour compared to standard care (provided with outpatient appointments) at one-year follow-up.					
Outpatient-based therapies	**Hall K (2002)** Review of the effectiveness of day care, outpatient care and community care for suicidal patients.(173)	There was insubstantial evidence to indicate day hospital care was superior to outpatient care in terms of psychiatric symptoms, and no evidence to suggest they were better or worse than outpatient treatment in clinical or social outcomes, or cost. Most studies on community interventions (such as nurse home visits) or inpatient and community interventions reported no statistically significant reduction in repetition of suicidal behaviour compared to standard care (provided with outpatient appointments) at one-year follow-up.	Not reported	7/9 (AMSTAR rating from Program in Policy Decision-making)	0/6	Not yet available	6/6
Home-based therapy	**Shepperd S et al. (2009)** Review of the effectiveness, acceptability and cost of mental health services that provide an alternative to inpatient care for children and young people (ages 5 to 18 years) with serious mental health conditions requiring specialist services. The alternative mental health services evaluated include four models of care: multi-systemic therapy (MST) at home (in which therapists provide therapy to the child and the family in their home); intensive home treatment (provision of therapy to	MST was shown to improve some behaviours in children. Intensive home treatment did not lead to greater improvements in children who received this service compared to those who did not. Intensive home-based crisis intervention delivered small improvements to children who received this service. Specialist outpatient services did not lead to any improvements for children who received this service compared to those who did not. The evidence in the review provides little guidance for the development of these	2007	9/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	1/7

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	the child in their home); intensive home-based crisis intervention (focusing on the child and family, and teaching skills in relationship-building, reframing of problems, anger management, communication and cognitive-behavioural therapy); and specialist outpatient services (by a range of health care professionals in clinics).(177)	types of services.					
Psychosocial interventions	**Pharoah F et al. (2010)** Review of the effectiveness of family-based psychosocial interventions in community settings for people with schizophrenia or schizophrenia-like conditions, compared with standard care.(178)	Family intervention may reduce hospitalization and relapse rates, although treatment effects of trials may be overestimated due to poor methodological quality. The review did not find data to suggest that family intervention either prevents or promotes suicide.	2008	11/11 (AMSTAR rating from Program in Policy Decision-making)	1/42	42/42	2/42
	Crawford MJ et al. (2007) Review of the effectiveness of additional psychosocial interventions following an episode of self-harm in reducing the likelihood of subsequent suicide. Psychosocial interventions evaluated in the studies involve individual psychotherapy such as cognitive-behavioural therapy, interpersonal psychotherapy and dialectical behaviour therapy.(179)	There is insufficient evidence that psychosocial interventions following an episode of self-harm have marked effects on the likelihood of subsequent suicide.	2005	7/11(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	18/18
	Penalba V et al. (2009) Review of the effectiveness of psychosocial interventions for the prevention of psychological disorders in law enforcement officers.	There is currently evidence only from small and low-quality trials with minimal data suggesting police officers benefit from psychosocial interventions in terms of physical symptoms and psychological	2008	11/11(AMSTAR rating from the McMaster Health Forum)	1/10	Not yet available	0/10

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	Psychosocial interventions evaluated in the studies include stress management programs versus psycho-educational interventions, mental imaging training at home, counselling group sessions, circuit weight training, visuo-motor behaviour rehearsal, social skills training versus problem-solving skills training, and aerobic program (including theory) versus theory on exercise program.(180)	symptoms (e.g. anxiety, depression, sleep problems, anger, PTSD, marital issues and distress). No data on adverse effects were available.					
	Corcoran J et al. (2011) Review of the effectiveness of psychosocial interventions for adolescents ages 10 to 18 presenting with suicidal thoughts or behaviour. Most interventions evaluated in the studies fall in the realm of cognitive-behavioural therapy, family-oriented therapy, group therapy, and community education, among others.(181)	Intervention group participants were less likely to have suicidal and self-harm events compared to control group participants at post-test. However, when studies assessed outcome at a later period than immediately after the intervention (i.e. at follow-up), intervention group participants were slightly more likely to have suicidal and self-harm events than control group participants. Intervention group participants were slightly less likely to report suicidal ideation than control group participants at both post-test and follow-up.	2010	7/11 (AMSTAR rating from the McMaster Health Forum)	0/18	Not yet available	18/18
	Hawton KKE et al. (2009) Review to identify and synthesize findings from all randomized controlled trials that have examined the effectiveness of treatments of patients who have deliberately harmed themselves (including self-poisoning and self-injury). Interventions include psychosocial or psychopharmacological treatment (versus standard or less intensive types of aftercare).(170)	There remains considerable uncertainty about which forms of psychosocial and physical treatments of self-harm patients are most effective, with inclusion of insufficient numbers of patients in trials being the main limiting factor. Results of small single trials that have been associated with significant reductions in repetition of deliberate self-harm should be interpreted with caution. Meanwhile, there is a need for larger trials of	1999	10/11(AMSTAR rating from the McMaster Health Forum)	1/23	Not yet available	0/23 (all focused on self-harm, not on completed suicides; however, review was meant to inform strategies to

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
		treatments associated with reduced rates of repetition of deliberate self-harm.					prevent complete suicides)
Psychotherapy	**Wethington HR et al. (2008)** Review of the effectiveness of interventions commonly used to reduce psychological harm among children and adolescents exposed to traumatic events. Interventions evaluated in the studies include individual cognitive-behavioural therapy, group cognitive behavioural therapy, play therapy, art therapy, psychodynamic therapy, pharmacologic therapy for symptomatic children and adolescents, and psychological debriefing regardless of symptoms.(169)	There is strong evidence to support the role of individual and group cognitive-behavioural therapy in reducing psychological harm in symptomatic children and adolescents exposed to trauma. There is insufficient evidence, however, to determine the effectiveness of play therapy, art therapy, pharmacologic therapy, psychodynamic therapy, and psychological debriefing in reducing psychological harm in this population.	2007	5/11(AMSTAR rating from the McMaster Health Forum)	0/30	Not yet available	0/30
	Shepperd S et al. (2009) Review of the effectiveness, acceptability and cost of mental health services that provide an alternative to inpatient care for children and young people (ages 5 to 18 years) with serious mental health conditions requiring specialist services. The alternative mental health services evaluated include four models of care: multi-systemic therapy (MST) at home (in which therapists provide therapy to the child and the family in their home); intensive home treatment (provision of therapy to the child in their home); intensive home-based crisis intervention (focusing on the child and family, and teaching skills in relationship-building, reframing of problems, anger	MST was shown to improve some behaviours in children. Intensive home treatment did not lead to greater improvements in children who received this service compared to those who did not. Intensive home-based crisis intervention delivered small improvements to children who received this service. Specialist outpatient services did not lead to any improvements for children who received this service compared to those who did not. The evidence in the review provides little guidance for the development of these types of services.	2007	9/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	1/7

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
	management, communication and cognitive-behavioural therapy); and specialist outpatient services (by a range of health care professionals in clinics).(177)						
Maintenance							
Compliance • Ongoing contact	No reviews identified						
Compliance • Crisis cards	No reviews identified						
Compliance • Inpatient shelter	**van der Sande R (1997)** Review of randomized controlled trials of interventions for suicide attempters. Interventions included: psychiatric management of poor compliance of suicide attempters with aftercare; guaranteed inpatient shelter to suicide attempters; psychosocial crisis intervention; and cognitive behavioural treatment.(175)	There were considerable differences in study design and therapeutic protocols amongst studies included, thus making a single pooled analysis difficult. A pooled analysis of studies on psychiatric management of poor compliance showed no significant effect on repetition of suicide attempts. Studies of psychosocial crisis intervention and studies of guaranteed inpatient shelter in cases of emergency showed no significant reduction in repeated suicide attempts. Pooled results from four studies on cognitive behavioural therapies, however, showed a significant preventive effect on repeated suicide attempts. Thus, only the cognitive behavioural approach seems to have a beneficial effect, though due to methodological variability, the results may be too optimistic and additional research is required to establish the merits of this intervention.	1995	3/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	15/15
Compliance with long-term treatment • Home-based	No reviews identified						

Intervention	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide
therapy							
Compliance with long-term therapy • Compliance management	**van der Sande R (1997)** Review of randomized controlled trials of interventions for suicide attempters. Interventions included: psychiatric management of poor compliance of suicide attempters with aftercare; guaranteed inpatient shelter to suicide attempters; psychosocial crisis intervention; and cognitive behavioural treatment.(175)	There were considerable differences in study design and therapeutic protocols amongst studies included, thus making a single pooled analysis difficult. A pooled analysis of studies on psychiatric management of poor compliance showed no significant effect on repetition of suicide attempts. Studies of psychosocial crisis intervention and studies of guaranteed inpatient shelter in cases of emergency showed no significant reduction in repeated suicide attempts. Pooled results from four studies on cognitive behavioural therapies, however, showed a significant preventive effect on repeated suicide attempts. Thus, only the cognitive behavioural approach seems to have a beneficial effect, though due to methodological variability, the results may be too optimistic and additional research is required to establish the merits of this intervention.	1995	3/10(AMSTAR rating from the McMaster Health Forum)	Not reported	Not yet available	15/15
After care • Long-term therapy	No reviews identified						
After care • Service restructuring and case management	No reviews identified						

Appendix 2: Systematic reviews relevant to Element 1 - Develop and implement suicide-prevention strategies in ways that build on strengths, resilience and protective factors

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
Establishing a stakeholder-driven process to develop comprehensive and culturally appropriate suicide-prevention strategies where none exist	To examine the effects of involving patients in the planning and development of healthcare.(79)	A review of more than 300 papers on involving patients in the planning and development of healthcare found that few studies described the effects of involving patients in the planning and development of healthcare. Case studies reporting on project administrators' views about the impacts of patient engagement support the view that involving patients has contributed to changes to services. The effects of patient involvement on accessibility and acceptability of services or impact on the satisfaction, health or quality of life of patients has not been examined.	2000	5/9 (AMSTAR rating from Program in Policy Decision-making)	2/40	0/40	0/40
	To determine the current state of knowledge on effective strategies for interactive public engagement in developing healthcare policy and program delivery at a provincial/regional level.(80)	Interactive public engagement – that is, informed discussion among citizens that is designed to contribute to decision-making – can be implemented successfully in a variety of situations. The degree to which these processes are likely to be successfully implemented is shaped by a range of contextual variables. Organizational commitment and issue characteristics seem to play more important roles than other contextual variables. Public engagement mechanisms should be adapted to the wider context of policy	2009	6/9 (AMSTAR rating from Program in Policy Decision-making)	7/12	0/12	0/12

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		development around the issue, including the type of topic, the group(s) to be engaged, the history of the issue and the perceived power dynamics. The skills required to conduct interactive processes can be learned in a supportive organizational environment. Participants in well-designed interactive public engagement processes tend to report high levels of satisfaction with the communication of objectives, adequacy of the information materials provided to inform discussions, and the logistics and management of the deliberation. Increased levels of topic-specific learning are also commonly reported. Interactive public engagement methods can influence participant views but are less likely to change more dominant views (top rankings, highest priorities). Group debate is an important contributor to perceived satisfaction with the process and the subjective outcomes of the event. Process satisfaction does not necessarily correspond with the perceived impact of participation on policy decision-making. Partnerships play a central role in promoting the effectiveness of community-based public engagement strategies. The institutionalization of these partnerships beyond their active phase is critical to					

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		enabling sustainable change.					
Establishing a coordinated knowledge-translation strategy to raise awareness of and support for the implementation of existing suicide-prevention strategies by health and non-health actors	Interventions encouraging the use of systematic reviews by health policymakers and managers.(83)	There is insufficient evidence to draw conclusions about the effectiveness of interventions that encourage health policymakers and managers to use systematic reviews in decision-making.	2010	9/10 (AMSTAR rating from Program in Policy Decision-making)	3/3	0/3	2/3
	To identify and evaluate potential strategies for increasing the impact of systematic reviews on policy.(81)	Facilitators for the use of systematic reviews included involving policymakers in the review process, making reviews relevant to local settings and contexts, collaboration between researchers and policymakers and disseminating results from systematic reviews in user-friendly formats	2011	5/9 (AMSTAR rating from Program in Policy Decision-making)	7/13	0/13	0/13
	Increasing the use of research in population health policy and programs.(82)	There is little evidence about which strategies increase the use of evidence in population health policy and programs. There is some evidence that tailored targeted messages combined with access to registries of research evidence may increase the use of research evidence in policy development. None of the included studies provided evidence that interaction between researchers and policymakers has an impact on the use of research evidence. Training in the appraisal of research and its use appears to increase participants' skills in critical appraisal and possibly their perceptions about the value of research (but not their use).	2011	3/9 (AMSTAR rating from Program in Policy Decision-making)			

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		One study evaluated the impact of using knowledge brokers, but did not find evidence to support their effectiveness.					
	The use of research evidence in public health decision-making processes.(88)	Barriers to the use of research evidence included: decision-makers' perceptions of research evidence; the gulf between researchers and decision-makers; the culture of decision-making; competing influences on decision-making; and practical constraints. Mechanisms of overcoming barriers to research use were suggested in many studies, but were largely untested. They include research targeted at the needs of decision makers, research clearly highlighting key messages, and capacity building. Minimal evidence on the role of research evidence in decision-making to reduce inequalities was identified.	2010	7/10 (AMSTAR rating from Program in Policy Decision-making)	7/18	Not reported	Not reported
	Identifying the factors that influence the use of research evidence by ways to improve the usefulness of systematic reviews for healthcare managers and policymakers.(86;87)	Interactions between researchers and healthcare policymakers and timing/timeliness appear to increase the prospects for research use among policymakers. Interviews with healthcare managers and policymakers suggest that they would benefit from having information that is relevant for decisions highlighted for them (e.g. contextual factors that affect a review's local applicability and information about the benefits, harms/risks and costs of interventions) and having reviews presented in a way	2008	No rating tool available for this type of document	Not yet available	Not yet available	Not yet available

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		that allows for rapid scanning for relevance and then graded entry (such as one page of take-home messages, a three-page executive summary and a 25-page report). Managers and policy-makers have mixed views about the helpfulness of recommendations. An analysis of websites found that contextual factors were rarely highlighted, recommendations were often provided and graded entry formats were rarely used.					
	To summarize the evidence from interview studies of facilitators of, and barriers to, the use of research evidence by health policymakers.(85)	The most commonly reported facilitators for research use were personal contact, timely relevance, and the inclusion of summaries with policy recommendations. The most commonly reported barriers were absence of personal contact, lack of timeliness or relevance of research, mutual mistrust, and power and budget struggles.	2000	No rating tool available for this type of document	Not yet available	Not yet available	Not yet available
	Review and synthesis of the evidence base for knowledge transfer and exchange.(84)	The review found inadequate evidence base for doing "evidence-based" KTE for health policy decision-making.	2005	No rating tool available for this type of document	Not yet available	Not yet available	Not yet available
Securing and protecting funding to ensure the stability and sustainability for national and/or provincial suicide-	No reviews identified						

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
prevention strategies							

Appendix 3: Systematic reviews relevant to Element 2 – Foster integration and coordination of new and ongoing efforts to prevent suicide within and across sectors and jurisdictions

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
Developing well-defined care pathways, packages of care and continuity of care	**Smith SM et al. (2009)** Review of the effectiveness of shared-care health service interventions designed to improve the management of chronic disease across the primary-specialty care interface. Shared care across the primary-specialty interface is defined as the joint participation of primary care physicians and specialty care physicians in the planned delivery of care, informed by enhanced information exchange, over and above routine discharge and referral notices.(100)	The majority of studies included examined complex multifaceted interventions and were of relatively short duration. Shared care had a clear effect on improving prescribing, but the pattern of results was mixed for all other outcomes. Overall, there were no consistent improvements in outcomes such as physical, mental health or psychosocial outcomes. There is a need for improvement in design and quality of studies examining such interventions.	2006	8/11 (AMSTAR rating from www.rxforchange.ca)	0/20	8/20	0/20
	Tosh G et al. (2011) Review of the effectiveness of physical health monitoring as a means of reducing morbidity, mortality and reduction in quality of life in people with serious mental illness.(108)	No randomized trials that assessed the effectiveness of physical health monitoring in people with serious mental illness were identified. Guidance and practice are therefore based on expert consensus, clinical experience and good intentions rather than high quality evidence.	2009	5/5 (AMSTAR rating from Program in Policy Decision-making)	0/0	0/0	0/0
	Newton AS et al. (2010) Review of the effectiveness of interventions for pediatric patients with suicide-related emergency department (ED) visits.(91)	Seven RCTs and three quasi-experimental studies were included, which were grouped according to intervention delivery: ED-based delivery, post-discharge delivery, and ED transition interventions. One of the six studies on post-discharge delivery interventions found increased adherence with service referral in patients who	2009	9/10 (AMSTAR rating from Program in Policy Decision-making)	1/10	0/10	10/10

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		received community nurse home visits compared to simple placement referral at discharge. The 3 studies on ED transition interventions reported: reduced risk of subsequent suicide following brief ED intervention and post-discharge contact; reduced suicide-related hospitalizations when ED visits were followed up with interim, psychiatric care; and increased likelihood of treatment completion when psychiatric evaluation in the ED was followed by attendance of outpatient sessions with a parent.					
	Allen D et al. (2009) Review of the effectiveness of successful integrated care pathways (ICPs) in children and adults over the full range of health settings, focusing on the circumstances and populations in which they were most effective.(113)	ICPs were most effective in context where the patient's progress was predictable, and where pathways were more variable, however, their value was less clear. They were most effective in bringing about behavioural changes where deficiencies in services were identified, and where interprofessional working was well established, however, their value was less certain. Some changes in professional behaviour did not benefit patients.	2008	7/10 (AMSTAR rating from Program in Policy Decision-making)	0/9	Not reported	0/9
	Steffen S et al. (2009) Review of the effectiveness of discharge planning interventions in mental health care from inpatient to out-patient treatment on improving patient outcome, ensuring community tenure, and saving costs.(92)	The discharge planning strategies evaluated in the included studies varied widely; most were limited to preparation of discharge during inpatient treatment. Discharge planning was effective in reducing readmission to hospital and improving adherence to aftercare among people with mental health disorders. Findings from this review cautiously	2008	5/11 (AMSTAR rating from Program in Policy Decision-making)	1/12	12/12	0/12

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		support implementation of discharge planning interventions in mental health care.					
	Murphy S et al. (2012) Review of the effectiveness of crisis intervention models for those with serious mental illness experiencing an acute episode, compared with 'standard care'.(94)	Crisis care (where support is provided during crisis for service users in the home or community setting) was found to provide a package of support that was worthwhile, acceptable, and less expensive than standard care. Crisis care also avoided repeat hospital admissions, improved the mental state of service users more than standard care, was more acceptable and satisfactory and reduced burden on service users and their families and carers, and reduced the stigma of hospitalization. More evaluative studies are needed on crisis interventions, due to the poor methodology of included studies.	2006	9/11 (AMSTAR rating from Program in Policy Decision-making)	2/8	8/8	0/8
	Kisely SR et al. (2010) Review of the clinical and cost effectiveness of compulsory community treatment for people with severe mental illness.(106)	Based on current evidence, community treatment orders may not be an effective alternative to standard care. It appears compulsory community treatment results in no significant difference in service use, social functioning or quality of life compared with standard care. There is currently no evidence of cost effectiveness. Good quality randomized controlled studies are needed to determine whether the effects are due to the intensity of treatment or the compulsory nature of the compulsory community treatment intervention.	2008	10/10 (AMSTAR rating from Program in Policy Decision-making)	Not reported	2/2	Not reported
	Borschmann R et al. (2012)	A comprehensive search of the literature	2011	8/9 (AMSTAR	0/2	2/2	1/2

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	Review of the effectiveness of crisis interventions for adults with borderline personality disorder (BPD) in any setting. Crisis intervention was defined as "an immediate response by one or more individuals to the acute distress experienced by another individual, which is designed to ensure safety and recovery and lasts no longer than one month".(93)	found two ongoing RCTs, whose results were not included in the review due to the ongoing nature of the study. Thus there currently is no RCT-based evidence for the management of acute crises in people with BPD and therefore no conclusions could be reached about the effectiveness of any single crisis intervention. High-quality, large-scale, adequately powered RCTs in this area are urgently needed.		rating from Program in Policy Decision-making)			
	Butler M et al. (2008) To describe models of integrated care used in the United States; assess how integration of mental health services into primary care settings or primary health care into specialty outpatient settings impacts patient outcomes; and describe barriers to sustainable programs, use of health information technology (IT), and reimbursement structures of integrated care programs within the United States.(95)	Most integrated care programs in either primary care or specialty care settings are effective, although there is no discernible effect of integration level, processes of care, or combination on patient outcomes for mental health services in primary care settings. Organizational and financial barriers persist for the successful implementation of sustainable integrated care programs. Health IT remains a mostly undocumented but promising tool. No evidence exist as to which reimbursement system may most effectively support integrated care.	2007	9/10 (AMSTAR rating from Program in Policy Decision-making)	0/33	31/33	1/33
	Marshall M & Lockwood A (2010) Review of the effectiveness of Assertive Community Treatment (ACT) as an alternative to (i) standard community care, (ii) traditional hospital-based rehabilitation, and (iii) case management. ACT is defined as a team-based approach aimed at keeping ill people in contact with services, reducing hospital admissions, and	ACT versus standard community care: Those receiving ACT were more likely to remain in contact with services, less likely to be admitted to hospital and spent less time in hospital than those under standard care. Significant and robust differences were found between ACT and standard community care on (i) accommodation status, (ii) employment, and (iii) patient satisfaction. No	1997	8/10 (AMSTAR rating from Program in Policy Decision-making)	2/20	20/20	20/20

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	improving outcomes – especially social functioning and quality of life.(96)	differences were reported on mental state or social functioning. ACT reduced cost of hospital care, but did not have a clear advance over standard care when other costs were taken into account. ACT versus hospital-based rehabilitation services: Those receiving ACT were no more likely to remain in contact with services than those receiving hospital-based rehabilitation. However, they were significantly less likely to be admitted to hospital and spent less time in hospital than those under hospital-based rehabilitation. There was insufficient data on costs to permit comparison. ACT versus case management: There were no data on numbers remaining in contact with psychiatric services or numbers admitted to hospital. Those allocated to ACT spent fewer days in hospital than those given case management. There was insufficient data to permit robust comparisons of clinical or social outcome. The cost of hospital care was consistently less for those allocated to ACT, but ACT did not have a clear advantage over case management when other costs were taken into account.					
Establishing multidisciplinary teams to support recovery and	**Harkness EF & Bower PJ (2009)** Review of the effects of on-site mental health workers (MHWs) delivering psychological therapy and psychosocial interventions in primary care on the	There was evidence from the studies included in the review that MHWs caused significant reductions in PCP consultations, psychotropic prescribing, prescribing costs, and rates of mental	2007	8/11 (AMSTAR rating from www.rxforchange.ca)	0/42	42/42	0/42

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
wellness	clinical behaviour of primary care providers (PCPs).(97)	health referral for the patients they were seeing. However, the changes are modest in magnitude, inconsistent, do not generalize to the wider patient population, and their clinical or economic significance is unclear.					
	Cape J et al. (2010) Review of the effectiveness of consultation-liaison services, involving mental health professionals working to advise and support primary care professionals in the management of depression.(102)	Evidence concerning consultation-liaison for depression in primary care remains limited, although the existing studies suggest there was no significant effect of consultation-liaison on antidepressant use or depression outcomes in the short or long term.	2008	7/11 (AMSTAR rating from Program in Policy Decision-making)	0/5	5/5	0/5
	Thota AB et al. (2012) Review of the effectiveness of collaborative care models in improving the management of depressive disorders.(105)	The results of the meta-analysis suggest robust evidence of effectiveness of collaborative care in improving depression symptoms, adherence to treatment, response to treatment; remission of symptoms, recovery from symptoms, quality of life/functional status, and satisfaction with care for patients diagnosed with depression. Thus, they are effective in achieving clinically meaningful improvements in depression outcomes, and public health benefits in a wide range of populations, settings, and organizations. Collaborative care interventions provide a supportive network of professionals and peers for patients with depression, especially at the primary level.	2009	5/11 (AMSTAR rating from Program in Policy Decision-making)	Not reported	32/32	Not reported
	Evans S et al. (2012) Review of the effectiveness of disciplinary composition of community	Team composition was rarely well justified with regard to effectiveness, despite some evidence that greater	2011	3/9 (AMSTAR rating from Program in Policy Decision-	Not reported	55/55	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	mental health teams (CMHTs), and national survey of mental health providers in England and Wales to explore determinants of the social care component of CMHTs.(115)	professional diversity (i.e. inclusion of social workers) was associated with higher effectiveness. There continues to be a shortage of psychiatrists, psychologist and occupational therapists, whereas the numbers of nurses employed far exceeds their target numbers. Where financial resources were a determining factor of team composition, total staffing numbers appeared to be slightly higher. There was non-significant trend towards higher staff numbers in more integrated trusts that did not cite financial resources as a driver of team composition.		making)			
	Huang C-Q et al. (2009) Review of the effective components and the feasibility of collaborative care interventions (CCIs) in the treatment of depression in older patients.(104)	Collaborative care interventions were more effective than usual care in improving depression symptoms in older patients. Antidepressant medication is a definitely effective component of CCIs, but communication between primary care providers and mental health providers seems not to be an effective component of CCIs. The effect of psychotherapy in CCIs should be further explored.	2007	7/11 (AMSTAR rating from Program in Policy Decision-making)	0/3	3/3	Not reported
	Malone D et al. (2010) Review of the effectiveness of community mental health team (CMHT) treatment for those with serious mental illness compared with standard non-team management.(98)	CMHT management is not inferior to non-team standard care in any important respects, and is superior in promoting greater acceptance of treatment. It may also be superior in reducing hospital admissions and avoiding death by suicide. The evidence for CMHT based care is insubstantial considering the massive impact the drive toward	2006	11/11 (AMSTAR rating from McMaster Health Forum)	0/3	3/3	3/3

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		community care has on patients, carers and clinicians and the community at large.					
	Gilbody S et al. (2006b) Review to quantify the short-term and longer-term effectiveness of collaborative care (i.e. structured care involving a greater role of nonmedical specialists to augment primary care) compared with standard primary care, in patients with depression.	Collaborative care is more effective than standard care in improving depression outcomes in the short and longer terms. Effect size was directly related to medication compliance and the professional background and method of supervision of case managers.	2006	3/11 (AMSTAR rating from Program in Policy Decision-making)	0/37	37/37	0/37
	Gilbody S et al. (2006a) Review of the cost-effectiveness of proposed enhancement strategies to improve the quality and outcome of care for depression in primary care settings.(107)	A near-uniform finding was that interventions based upon collaborative care/case management resulted in improved outcomes, but were also associated with greater costs. When considering primary care depression treatment costs alone, ICER estimates ranged from $13 to $24 per additional depression-free day. Educational interventions alone were associated with increased cost and no clinical benefit.	2005	4/10 (AMSTAR rating from Program in Policy Decision-making)	Not reported	11/11	0/11
	Craven MA & Bland R (2006) Review to identify better practices in collaborative mental health care in the primary care setting. (114)	Collaborative practice is likely to be most developed when clinicians are co-located and most effective when the location is familiar and non-stigmatizing for patients. Enhanced collaboration paired with treatment guidelines or protocols offers important benefits over either intervention alone in major depression. There was no clear relation between collaborative efforts and increased medication adherence or clinical outcomes. Collaboration alone has not	2005	3/9 (AMSTAR rating from Program in Policy Decision-making)	1/39	39/39	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		been shown to produce skill transfer in primary care provider (PCP) knowledge or behaviours in the treatment of depression. Enhanced patient education was part of many studies with good outcomes, and education was generally provided by someone other than the PCP. Consumer choice about treatment modality may be important in treatment engagement in collaborative care.					
	Bower P & Sibbald B (2000) Review of the effectiveness of on-site mental health professionals on general practitioners' management of mental health.(101)	The effect of on-site mental health professionals on consultation rates was inconsistent. Referral to a mental health professional reduced the likelihood of a patient receiving a prescription for psychotropics or being referred to secondary care, although the effects were not consistent. An on-site mental health professional did not alter prescribing and referral behaviour towards patients in the wider practice population.	1998	7/11 (AMSTAR rating from www.rxforchange.ca)	Not reported	40/40	0/40
Supporting continuity of care in ways that bridge traditional, cultural, and mainstream approaches	No reviews identified						
Establishing a governance structure (e.g., ministerial linkages, cabinet committees,	**Hayes S et al. (2011)** Review of the effectiveness of interagency collaboration between local health and local government agencies on health outcomes.(109)	Collaboration between local health and local government is commonly considered best practice. However, the review did not identify any reliable evidence that inter-agency collaboration, compared to standard services, leads to	N/A	9/9 (AMSTAR rating from Program in Policy Decision-making)	0/11	6/11	1/11

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
specific units with coordination responsibilities) to ensure integration in policy and programmatic decision-making within federal, provincial and territorial governments, and across these levels of governments		health improvement. Methodological flaws in primary studies and incomplete implementation of initiatives have prevented the development of a strong evidence base – addressing these flaws could provide better understanding of what might work and why.					
	Best A et al. (2010) Realist review and synthesis on current practice regarding large system transformation, with a focus on the role of government and how a government agency (or Ministry) can facilitate, support and create contextual factors and mechanisms that are critical for success and sustainability of large system transformation efforts. Large system transformations refer to systematic initiatives to create coordinated change in healthcare across organizations working toward shared priorities within specified boundaries.(116)	Evidence statement 1: large system transformation in health care systems requires both top-down leadership that is passionately committed to change, as well as distributed leadership and engagement of personnel at all levels of the system. Evidence statement 2: Measurement and reporting on progress toward short and long-term goals is critical for achieving effective and sustainable large system transformation. Evidence statement 3: Consideration and acknowledgement of historical context will help avoid unnecessary pitfalls, and increase buy-in and support from system stakeholders. Evidence statement 4: Large system transformation in healthcare systems relies on significant physician engagement in the change process. Evidence statement 5: Large system transformation that aims to increase patient-centredness requires significant engagement of patients and families in	2010	3/9 (AMSTAR rating from Program in Policy Decision-making)	Not reported	Not reported	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		the change process.					
Establishing multi-stakeholder arrangements to guide priority setting and resource allocation decisions in ways that facilitate coordinated services between sectors	**Smith KE et al. (2009)** Review of the impact of organizational partnerships on public health outcomes (health improvement and/or a reduction in health inequalities) in England between 1997 and 2008.(110)	The review suggests that there is not yet any clear evidence of the effects of public health partnerships on health outcomes. More appropriately designed and timed studies are required to establish whether, and how, partnerships are effective.	2008	6/9 (AMSTAR rating from Program in Policy Decision-making)	0/15	0/15	0/15
Developing a coordinated and intensified strategy to engage people with lived experience, the public and relevant stakeholders in policy and organizational decisions (or monitoring) regarding suicide prevention	**Nilsen ES et al. (2010)** Review of the effectiveness of consumer involvement in developing healthcare policy and research, clinical practice guidelines, and patient information material; and comparison of different methods of involvement in such.(111)	There is generally little evidence from randomized controlled trials on the effects of consumer involvement in healthcare decisions at the population level. There is moderate quality evidence that involving consumers in the development of patient information material results in material that is more relevant, readable and understandable in patients without affecting their anxiety. There is low quality evidence that using consumer interviewers instead of staff interviewers in satisfaction surveys can have small influence on survey results. There is low quality evidence that an informed consent document developed with consumer input may have little if any impact on understanding compared to a consent document developed by trial investigators only. There is low quality evidence that telephone discussions and	2005	9/11 (AMSTAR rating from www.rxforchange.ca)	0/6	2/6	0/6

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		face-to-face group meetings engage consumers better than mailed surveys in order to set priorities for community health goals.					
	Crawford MJ et al. (2002) Review of the effectiveness of involving patients in the planning and development of health care.(79)	Papers often described changes to services that were attributed to involving patients, including attempts to make services more accessible and producing information leaflets for patients. Evidence supports the notion that involving patients has contributed to changes in the provision of services across a range of different settings. An evidence base for the effects on use of services, quality of care, satisfaction or health of patients does not exist.	2000	5/9 (AMSTAR rating from Program in Policy Decision-making)	2/40	12/40	0/40
	Simpson EL & House AO (2002) Review of the effectiveness of involving users in the delivery and evaluation of mental health services.(117)	Involving users as employees of mental health services led to clients having greater satisfaction with personal circumstances, and less hospitalization. Providers of services who had been trained by users had more positive attitudes toward users. Clients reported being less satisfied with services when interviewed by users. Thus, users can be involved as employees, trainers or researchers without detrimental effects. Involving users with severe mental disorders in the delivery and evaluation of services is feasible.	2001	6/10 (AMSTAR rating from Program in Policy Decision-making)	1/12	12/12	0/12
	Swainston K & Summerbell C (2007) Review of the effectiveness of community engagement approaches and methods for health promotion	There is some evidence to support the use of community coalitions in the planning and design of an intervention, as they appear to contribute to effective	Not reported	9/10 (AMSTAR rating from McMaster Health Forum)	4/21	1/21	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	interventions. The two primary research questions were: (1) What community development and engagement approaches and methods are effective for the planning (including priority setting and resource allocation), design, delivery or governance of health promotion interventions? (2) What are the barriers to using community engagement and development approaches and methods for primary health promotion interventions and interventions that have successfully overcome these barriers?(182)	promotion of health and safety. There is also evidence to suggest that peer educators may be effective at delivering health promotion related to vaccination and safe sexual practices; however, other studies suggest peer educators are ineffective in preventing injury among high-risk adolescents. With regards to neighbourhood and community committees, there is inconsistent evidence on its effectiveness in promoting positive behaviour change. Evidence from two studies support the use of a school health promotion council, which appears to be effective in promoting safe sexual practices. Other interventions such as peer leadership groups, community champions, and community workshops were also deemed to be effective. Six of 21 primary studies provided evidence for determining the barriers to using community engagement approaches, although no data describing interventions to overcome barrier or information pertaining to what doesn't work was provided.					
Establishing a national network of policymakers,	**Anderson LM et al. (2003)** Review of the effectiveness of interventions to improve cultural competence in healthcare systems.	The review was unable to determine the effectiveness of any of the interventions, due either to too few comparative studies or due to the fact that studies did not	2001	6/9 (AMSTAR rating from Program in Policy Decision-making)	0/6	0/6	0/6

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
stakeholders and community members supporting suicide prevention and mental health promotion activities among First Nations, Inuit and Metis	These interventions include programs to recruit and retain staff who reflect the cultural diversity of the community served, use of interpreter services for bilingual providers for clients with limited English proficiency, cultural competency training for healthcare providers, use of linguistically and culturally appropriate health education materials, and culturally-specific healthcare settings.(112)	examine the outcome measures evaluated for the review (client satisfaction, improvements in health status, and inappropriate racial or ethnic differences in use of health services or in received and recommended treatment).					
Establishing funding mechanisms that support inter-sectoral actions (e.g., joint budgets)	**Weatherly H et al. (2010)** Review assessing the international literature on financial and resource mechanisms to integrate care (i) within healthcare, and (ii) across health and social care. Integrated resource mechanisms (IRMs) were defined and assessed from an economic perspective.(99)	Few studies evaluated the effectiveness of IRMs on health outcomes, and those that did provided a mixed picture. Most studies that assessed health impact found no effect, although improvements in carer burden, carer and patient satisfaction, and functional independence were reported. There was some evidence of improvements in process measures such as hospital admissions and delayed discharges. There was weak evidence that IRMs could achieve cost savings.	Not reported	5/10 (AMSTAR rating from Program in Policy Decision-making)	Not reported in detail (description states - include Canada)	5/79	0/79
Establishing monitoring and evaluation mechanisms to support the government's and non-state sector's roles in the suicide-prevention strategy	No reviews identified						

Appendix 4: Systematic reviews relevant to Element 3 – Provide education and training suicide prevention

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
Supporting increased training opportunities for front-line providers to help with identifying those at-risk	Effectiveness of specific educational methods to teach GP trainees psychiatric diagnostic skills (132)	No conclusive evidence was found for the effectiveness of a specific educational method. There was some evidence to suggest that combining education methods seemed promising, but an optimal mix of specific mix could not be determined because a wide variety of educational methods, different educators (e.g., psychiatrists, nurses and fellow GPs) were employed.	2008	2/9 (AMSTAR rating from Program in Policy Decision-making)	3/27	27/27	1/27
Providing training for the provision of culturally appropriate suicide-prevention programs and services	Effects of cultural competency training on patient-centred outcomes (133)	The review found limited research showing a positive relationship between cultural competency training and improved patient outcomes. None of the research evidence identified was deemed to be of high quality	2010	8/10 (AMSTAR rating from Program in Policy Decision-making)	Not reported	2/7	0/7
	Effect of interventions to improve health care services for ethnic minorities (119)	Four of the included studies evaluated interventions to improve cross cultural communication and reduce communication barriers. Two of the studies evaluated educational interventions and reported significant benefits with educational interventions aimed at training healthcare personnel. Two of these four studies (one of which was focused on improving care of depressive patients) evaluated complex interventions and an educational program and reported significant benefits.	2009	4/9 (AMSTAR rating from Program in Policy Decision-making)	0/19	2/19	0/19
	Interventions targeted at health care providers to improve health care quality	Two of the 27 studies included in the review assessed educational interventions	2003	5/11 (AMSTAR rating from	0/27	3/27	0/27

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	or reduce disparities in care for racial/ethnic minorities (118)	of which one was focused on adult general prevention and one in prevention of injuries in children. Both studies found improvements in provider counselling behaviours and the review concluded that overall, there is fair evidence to support the use of provider education aimed at providers of racial/ethnic minority patients. The review found that overall, there is fair evidence supporting the use of multifaceted interventions aimed at providers of racial/ethnic minority patients for improving the quality of care provided.		www.rxforchange.ca)			
Supporting the implementation of practice guidelines for suicide prevention	Organizational and educational strategies to improve the management of depression (134)	Multifaceted interventions had mixed effects for appropriate care outcomes. Educational meetings were found to be generally ineffective for appropriate care. Insufficient evidence was found for reminders (computerized decision support vs. reminders) on appropriate care.	2003	6/11 (AMSTAR rating from www.rxforchange.ca)	Not reported in detail - Description states: USA	26/26	1/26
	Whether different factors influence the effectiveness of educational outreach visits (EOVs) and whether adding another intervention to EOVs such as the use of patient-mediated interventions or using manuals or computerized reminders to prompt clinicians to perform clinical actions alters their effectiveness (120)	Multifaceted interventions that included educational outreach and distribution of educational materials and/or other intervention compared to a control group, compared to audit and feedback and compared to educational materials were all found to be generally effective for improving appropriate care. Educational outreach interventions used alone compared to a control group, and	2007	8/11 (AMSTAR rating from www.rxforchange.ca)	1/69	0/69	0/69

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		compared to educational materials were found to be generally effective. There was insufficient evidence for comparisons of multifaceted vs. educational meetings, educational outreach visits vs. continuity of care, and multifaceted vs. reminders.					
	Effects of different types of educational materials (manuals, bulletins, guidelines, quick reference guides, newsletters, consensus statements), distribution audiences (targeted or general audiences), format (colourful vs. black and white) and frequency of distribution (121)	Distribution of educational materials was found to be generally effective for appropriate care outcomes. There was insufficient evidence found comparing the effectiveness of educational meetings with distribution of educational materials for appropriate care outcomes.	2006	8/11 (AMSTAR rating from www.rxforchange.ca)	7/23	2/23	0/23
	Effects of providing interprofessional education to different health professionals in order to improve care for patients with mental health problems (135)	Educational meetings were found to be generally effective for appropriate care.	1998	4/11 (AMSTAR rating from www.rxforchange.ca)	0/19	19/19	0/19
	Guideline dissemination and implementation strategies (124)	Single interventions compared with no intervention: Reminders, audit and feedback (n=6), patient-mediated, and the distribution of educational materials were found to be effective for improving appropriate care with medium effect sizes. Time series data were reported for the distribution of educational materials, and half of the studies showed an immediate effect or effect over time. Insufficient evidence exists for educational meetings, professional -	1998	7/11 (AMSTAR rating from www.rxforchange.ca)	15/235	Not yet available	

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		other interventions (interviewing physicians about outpatient referrals, and a rapid rule-out protocol), continuity of care, and revision of professional roles - pharmacy. Single interventions compared with another intervention - Insufficient evidence exists on three comparisons: physicians responding to reminders compared with reminders, educational materials compared with reminders, and reminders compared with patient-mediated interventions. Multifaceted interventions compared with no intervention were found to be effective for improving appropriate care with medium effect sizes. Time series data show that these interventions also have immediate effects, most of which are sustained over time. Multifaceted interventions compared with intervention controls were found to be effective for improving appropriate care with small effect sizes.					
	Effects of audit and feedback on professional practice and healthcare outcomes (122)	In all comparison - audit and feedback alone compared to no other interventions, audit and feedback with educational meetings compared to no intervention, audit and feedback as part of a multifaceted intervention compared to no intervention and audit and feedback combined with complementary interventions compared to audit and feedback alone, and audit and feedback	2010	8/11 (AMSTAR rating from www.rxforchange.ca)	11/140	1/140	0/140

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		compared to other interventions - audit and feedback was found to be generally effective.					
	Effects of local opinion leaders on professional practice and healthcare outcomes (123)	Local opinion leaders alone and local opinion leaders with audit and feedback were found to be generally effective for improving appropriate care behaviour (based on 40 and five RCT comparisons respectively). Multifaceted interventions that included the use of opinion leaders in addition to one or more interventions had mixed results for improving appropriate care behaviour (based on 10 RCT comparisons).	2009	10/10 (AMSTAR rating from Program in Policy Decision-making)	6/18	0/18	0/18
	Effectiveness of financial incentives in changing healthcare professional behaviours and patient outcomes (125)	Payment for working for a specified time period was generally ineffective, improving 3/11 outcomes from one study reported in one review. Payment for: each service, episode or visit; providing care for a patient or specific population; and providing a pre-specified level or providing a change in activity or quality of care were all generally effective. Mixed and other systems were of mixed effectiveness. Assessing the effect of financial incentives overall across categories of outcomes, they were: of mixed effectiveness on consultation or visit rates; generally effective in improving processes of care; generally effective in	2010	No rating tool available for this type of document (overview of systematic reviews)	n/a (included systematic reviews as the unit of analysis)	n/a (included systematic reviews as the unit of analysis)	n/a (included systematic reviews as the unit of analysis)

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
		improving referrals and admissions; generally ineffective in improving compliance with guidelines outcomes; and generally effective in improving prescribing costs outcomes.					
Launching media campaigns (for the public and relevant stakeholders) to raise awareness about suicide and to inform/educate about suicide-prevention strategies	Effects of mass media on the utilization of health services (127)	All of the studies (which were of variable quality) apart from one concluded that planned mass media campaigns and unplanned mass media coverage can have a positive influence on the utilization of health services.	1999	8/11 (AMSTAR rating from www.rxforchange.ca)	0/20	0/20	0/20
	Effect of mass media interventions and the most effective form of mass media intervention at a general population level or in specific target populations, in relation to changes in HIV testing (128)	Mass media campaigns designed to raise awareness of HIV/AIDS have shown immediate and significant effects in the promotion of voluntary counselling and testing for HIV. No long-term effects were seen on mass media interventions for promotion of HIV testing. There was no significant impact of detecting seropositive status after mass media intervention for promoting HIV testing. These results were mainly based on multiple media interventions for the general public. Only one study was based on televised interventions and one study targeted blood transfusion recipients. The review was unable to compare the type of mass media interventions, characteristics of messages, or to assess cost effectiveness due to a lack of relevant studies.	2004	11/11 (AMSTAR rating from the Ontario HIV Treatment Network)	1/35	0/35	0/35

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	Behavioural change interventions to reduce unhealthy behaviours or promote healthy behaviours. Six different health-related behaviours were included in the review: healthy eating, physical exercise, smoking, alcohol misuse, sexual risk taking (in young people) and illicit drug use (126)	Interventions that were most effective across a range of health behaviours included physician advice or individual counselling, and workplace- and school-based activities. Mass media campaigns and legislative interventions also showed small to moderate effects in changing health behaviours.	2008	No rating tool available for this type of document (overview of systematic reviews)	n/a (included systematic reviews as the unit of analysis)	n/a (included systematic reviews as the unit of analysis)	n/a (included systematic reviews as the unit of analysis)
	Mass media interventions designed to improve public recognition of stroke symptoms, emergency response and early treatment (129)	Campaigns aimed at the public may raise awareness of symptoms/signs of stroke, but have limited impact on behaviour. Campaigns aimed at both public and professionals may have more impact on professionals than the public. Campaigns aimed only at the public reported significant increase in awareness of symptoms/signs, but little impact on awareness of need for emergency response. One campaign targeted at public and professionals did not reduce time to presentation at hospital to within two hours, but increased and sustained thrombolysis rates suggesting that it had a primary impact on professionals and improved the way that services for stroke were organised.	2010	3/9 (AMSTAR rating from Program in Policy Decision-making)	2/10	0/10	0/10
	Sisask M & Varnik A (2012) Review of the research performed on the roles of media in suicide prevention, in order to determine the effects of media reporting on suicidal behaviours on actual suicidality	Most studies support the idea that media reporting and suicidality are associated, although there is a risk of reporting bias. In general, there was more research available on the ways in which irresponsible media reporting can	Not reported	Not yet available	1/56	Not yet available	56/56

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focused on suicide prevention
	(completed suicides, attempted suicides, or suicidal ideation).(130)	provoke suicidal behaviours (the "Werther effect") and there was less research on the protective effect of the media (the "Papageno effect"). Strong modelling effect of media coverage on suicide is based on age and gender.					
	Online interventions for social marketing health behaviour change campaigns (131)	The overall impact of online interventions across all studies was small but statistically significant. The largest impact for online interventions was found when compared with waitlists and placebos, followed by comparison with lower-tech online interventions. No significant difference was found when compared with sophisticated print interventions. However, online interventions offer a small effect with the advantage of lower costs and larger reach. Shorter interventions generally achieved larger impacts and greater adherence.	2009	6/11 (AMSTAR rating from Program in Policy Decision-making)	Not reported	0/29	0/29