Suicide Prevention Strategies

Provincial Injury Prevention Program

Effective Suicide Prevention Approaches and Evaluation of National Strategies

Summary Report

July 2018

Alberta Health Services
Provincial Injury Prevention Program

Table of Contents

July 2018

This report has been prepared by the Provincial Injury Prevention Program.

Contact

For more information, please contact:

Deb Payne
Manager
Provincial Injury Prevention Program
Deb.Payne@albertahealthservices.ca

Executive Summary

Introduction

Suicide is a significant and preventable public health issue (WHO, 2014). In Canada, approximately 4,000 people die by suicide each year. In 2016, Alberta experienced a significant decrease (37%) in suicide rates, after a 17% increase between 2014 and 2015 (Alberta Injury Surveillance Dashboard, 2018).

Alberta Health Services (AHS), the provincial health authority responsible for planning and delivering health supports and services for Albertans, plays a key leadership role in provincial initiatives that address suicide prevention.

Purpose

As part of the Suicide Prevention Implementation Working Group, which falls under the Suicide Prevention Steering Committee, this report is intended to support and guide the implementation of the Injury Prevention Action Plan (2018-2023) and the Injury Prevention Operational Plan 2018.

AHS can learn from national strategies and use suicide prevention evidence to lead suicide prevention work. The following sections are included in this report:

- a summary of national suicide prevention strategy evaluations
- an overview of the evidence
- recommendations for the governing body to action

Background: National Strategies for Suicide Prevention

Comprehensive suicide prevention strategies are considered best practices and are encouraged by the World Health Organization (WHO), with a goal of reducing the rate of suicide by 10% by 2020 (WHO, 2013). Consequently, a number of countries either currently have or have had a national suicide prevention strategy (WHO, 2014); however, there is limited evaluation of the national strategies. In support of the WHO's call to develop comprehensive national suicide prevention strategies, an evaluative study of national suicide prevention programs initiated between 1980-2000 in 21 OECD countries by Matsubayashi & Ueda (2011) showed that national suicide prevention strategies are effective at reducing the suicide rate.
A jurisdictional scan identified 6 national strategy evaluation reports, 2 detailed progress reports with data and 1 provincial evaluation report.

Although data was a challenge across national strategies, the evaluations identify high-level outcomes and activities associated with outcomes. Other limitations of the evaluation reports included data quality, attribution and outcome monitoring.

Conclusions & Recommendations

Based on the evaluation reports and evidence presented in the full report, there are seven areas of improvement to consider to support the implementation of the Injury Prevention Action Plan and the Injury Prevention Operational Plan. Additional considerations including: media campaigns, training, surveillance, evaluation, research, collaboration and strengthened commitment and governance would be beneficial.

The seven recommendations for improvement:

1. Include a WSPD media campaign pilot in the Operational Plan.
2. Include the exploration of 'AHS Tips for Addressing Suicide in Media' in the Injury Prevention Operational Plan.
3. Ensure surveillance and evaluation are priorities in the Injury Prevention Operational Plan.
4. Ensure research is included as a key focus activity in the Injury Prevention Operational Plan, with measureable objectives and activities set out.
5. Ensure collaboration and stakeholder engagement are key focus areas in the Injury Prevention Operational Plan and ensure this commitment is also reflected in the membership of the governance structure for suicide prevention.
6. Revise the governance structure and function for suicide prevention, to support effective oversight and implementation of the Injury Prevention Action Plan.
7. Ensure suicide prevention is an explicit priority across various AHS publicly available documents.

Finally, many of the evaluation reports identify that suicide prevention cannot happen on its own as there is a cultural component to it, however with the integration of the evidence and learnings from the national strategies, AHS can significantly contribute to the prevention of suicide in Alberta.

Introduction

Suicide is a significant and preventable public health issue (WHO, 2014). In Canada, approximately 4,000 people die by suicide each year, averaging out to 10 people who die by suicide each day (Health Canada, 2017). Alberta's age standardized mortality rate for suicide (12.0) is higher than the national average (10.9) (Parachute, 2015). (Health Canada, 2016). In 2016, Alberta experienced a significant decrease (37%) in suicide rates, compared to a 17% increase between 2014 and 2015 (Alberta Injury Surveillance Dashboard, 2018).

Table 1. Alberta All ages Suicide Mortality and Suicide Attempt Emergency and Hospitalization Data

Regions	Mortality (all methods) 2016		Emergency and Urgent Care Visits (all methods) 2016		Hospitalizations (all methods) 2016	
	Count (# of deaths)	Age-Standardized Rate (per 100 000)	Count (# of visits)	Age-Standardized Rate (per 100 000)	Count (# visits/ stays)	Age-Standardized Rate (per 100 000)
Alberta	402	10	6812	161	2287	55
Calgary Zone	120	8	1901	191	590	38
Central Zone	53	11	917	193	341	73
Edmonton Zone	126	9	2328	173	644	48
North Zone	65	15	1113	218	456	92
South Zone	38	14	553	186	256	88

(Alberta Injury Surveillance Dashboard, 2018).

In 2010, the total annual cost (including direct and indirect costs) of all suicide and self-harm injuries in Alberta was an estimated $4.47 million (Parachute, 2015).

Alberta Health Services (AHS), the provincial health authority responsible for planning and delivering health supports and services for Albertans, plays a key leadership role in provincial initiatives that address suicide prevention. The AHS Provincial Steering Committee on Suicide Prevention (the Steering Committee) was formed in early 2010 to support collaboration among key internal stakeholders and to facilitate the coordination and integration of AHS suicide prevention activities. The Steering Committee is

responsible for directing suicide prevention work, and leads the Injury Prevention Operational Plan 2018-2021. The Injury Prevention Coordinating Committee provides strategic oversight and leads the Injury Prevention Action Plan 2018-2023. This updates the former Suicide Prevention Action Plan 2015-2018.

The *AHS Literature Review: Suicide Prevention Strategies* (2014) was released internally to support the development of the Action Plan. This literature review examined high-level strategies developed for suicide prevention, in particular looking at components of national strategies. The 2014 AHS Literature Review identified and summarized the characteristics of nine countries with comprehensive national strategies (Australia, England, Finland, Ireland, New Zealand, Northern Ireland, Norway, Scotland and the United States) (AHS, 2014), which helped informed action planning in 2015.

Common characteristics of suicide prevention strategies reviewed included (see Appendix A for overview):

- Situational analysis
- Strategic directions, goals and objectives
- Interventions (USI model)
- Implementation plan
- Evaluation plan
- Knowledge development, translation and transfer

Purpose

As part of the Suicide Prevention Implementation Working Group, which falls under the Suicide Prevention Steering Committee, this report is intended to support and guide the implementation of the Injury Prevention Action Plan (2018-2023) and the Injury Prevention Operational Plan 2018.

This summary report will build on the AHS *Literature Review: Suicide Prevention Strategies* (2014) and the evidence referenced in the former Suicide Prevention Action Plan 2015-2018 in order to fully capture the lessons learned from large-scale strategies and updated evidence. As a provincial body, AHS can learn from national strategies and use suicide prevention evidence to lead suicide prevention work. The following sections are included in this report:

- an overview of the evidence,
- a summary of national suicide prevention strategy evaluations, and
- recommendations for the governing body to action.

Background: National Strategies for Suicide Prevention

The importance of national suicide prevention strategies was expressed in 1996 by the United Nations (UN). The UN published guidelines to assist and encourage countries to develop national strategies aimed at reducing suicide morbidity and mortality (National suicide prevention strategies, 2000). Today, the World Health Organization (WHO) promotes the adoption of comprehensive national suicide prevention strategies in order to reduce the global rate and burden of suicide (WHO, 2014). The WHO identifies national suicide prevention objectives, key elements and proposed strategic actions to facilitate the development, implementation and evaluation of national suicide prevention strategies (WHO, 2014).

In support of the WHO's call to develop comprehensive national suicide prevention strategies, an evaluation study of national suicide prevention programs initiated between 1980-2000 in 21 OECD countries by Matsubayashi & Ueda (2011) showed that national suicide prevention strategies are effective at reducing the suicide rate. More specifically, the results demonstrated that since the initiation of national strategies, the number of suicides decreased by 140 per year on average, compared to countries without national strategies. The data demonstrated that national suicide prevention strategies were most effective at preventing suicides in elderly (65 and up) and younger (24 and under) populations; however, there was no significant impact in preventing suicides in working-age adults (25-64) (Matsubayashi & Ueda, 2011).

Comprehensive suicide prevention strategies are considered best practices and are encouraged by the WHO, with a goal of reducing the rate of suicide by 10% by 2020 (WHO, 2013). Consequently, a number of countries either currently have or have had a national suicide prevention strategy (WHO, 2014); however, there is limited evaluation of the national strategies. Matsubayashi and Ueda (2011) suggest that an ideal evaluation would include tracking all national strategies and examining their nation-specific impact on suicide rates. However, the relative impact of different strategies on national suicide rates is important for planning but difficult to estimate (Mann et al., 2005).

Canada

At this time, Canada lacks a national suicide prevention strategy (Eggerston, 2016; Eggerston, 2015), even though the WHO identifies Canada as having one (WHO, 2014). In 2012, the federal government legislated the requirement for the development of a national suicide prevention strategy. Currently in place is *The Federal Framework for Suicide Prevention* (Health Canada, 2016), and the *Joint Suicide Prevention*

Strategy Canadian Armed Forces and Veterans Affairs Canada, which was launched in December 2017. However, there is no funding attached to *Federal Framework for Suicide Prevention* nor is there coordinated oversight of suicide prevention initiatives (Eggerston, 2017). Furthermore, the federal framework does not contain the components of a comprehensive suicide prevention strategy (WHO, 2014). Consequently, some provinces have developed their own strategies and there is strong advocacy for the federal government to adopt a national strategy (Eggerston, 2015, 2016, 2017).

In Alberta, the *A Call to Action: The Alberta Suicide Prevention Strategy* (2005-15), was a ten-year strategy developed by the former Alberta Mental Health Board (AMHB) in response to the identified need for a province-wide suicide prevention strategy. The document outlined eight strategic goals for addressing suicide in Alberta; unfortunately, these high level strategies were never fully translated into a tangible implementation plan and only minimal resources were attached. The document is no longer an active strategy. See Appendix B for an overview of National and Provincial Suicide Documents.

Scan of National Strategies

A jurisdictional scan identified 6 national strategy evaluation reports, 2 detailed progress reports with data and 1 provincial evaluation report. There was an overlap of seven countries that were reviewed in the 2014 *AHS Literature Review*: Australia, England, Finland, Ireland, Northern Ireland, Norway and Scotland. Although the United States has an Implementation Assessment report (Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, 2017), suicide trends, specifically suicide methods (e.g., firearms), vary significantly from Canada and therefore are not considered comparable. While there is no evaluation report for the New Zealand national strategy, there is an evaluation for the targeted youth and Aboriginal strategies.

The national strategy evaluation reports included research articles and external evaluator reports. The research articles were shorter in length (mean= 4.4 pages) compared to the externally reviewed evaluations (mean= 182 pages); therefore, more information was presented in the external evaluation with greater description and detail (e.g., more programmatic description and qualitative information). The majority of evaluation reports did not discuss strategy outcomes; however some did report on suicide rates (Sweden, England and Ireland) and Finland indicated the percent change overtime.

The majority of national suicide prevention strategies have research and evaluation, as well as surveillance and data quality, built into their strategies. A limited number of strategies have rigorous outcome and program effectiveness evaluations completed to determine if the strategy achieved the aims set out. Some countries have progress reports describing qualitative processes and program metrics (e.g., number of community programs), specific program evaluations (e.g., Scotland evaluated implementation of training programs) or specific approach evaluations (e.g., Australia and U.S have had research conducted on firearms restriction impacts).

Evaluations identified this issue:

> *Internal data limitations include incomplete data, the relatively short timeframe of the Evaluation and the absence of quantifiable outcome measures. External factors relate to the significant challenges involved in evaluating suicide prevention programs which are well recognised in the sector including the fact that suicide is a statistically rare event, attribution is difficult and issues related to the quality and timeliness of suicide data. (AHA, 2014).*

Although data remains a challenge across national strategies, the evaluations identify high-level outcomes and activities associated with these outcomes. Other limitations of the evaluation reports included data quality, attribution and outcome monitoring.

Since the release of the WHO guidelines for comprehensive national suicide prevention strategies in *Preventing suicide: A global imperative* (WHO, 2014), national suicide prevention strategies share common evidence-informed activities, including: surveillance, means restriction, media, access to services, training and education, treatment, crisis intervention, postvention, awareness, stigma reduction and oversight and coordination (Anderson & Jenkins, 2005; Beautrais, 2005; WHO, 2014). Consequently, the national strategies that have been evaluated align with the WHO guidelines (Table 2), in addition to comprising the components identified in the *AHS Suicide Prevention Literature Review* (2014).

Table 2. Overview of Components of National Strategies for Suicide Prevention

WHO Guidelines	Australia	Norway	Finland	Scotland	Sweden	Northern Ireland	England	Ireland (Republic of)	Québec
Surveillance & improved data quality	+	+	+	+	+	+	+	+	+
Means restrictions	+	-*	-*	+	+	+	+	+	+
Engage the media	+	+	+	+	-	+	+	+	+
Access to services	+	+	+	+	+	+	+	+	+

Training & education	+	+	+	+	+	+	+	+	+
Improved quality of care	+	+	+	+	+	+	+	+	+
Crisis intervention	+	+	+	+	+	+	+	+	+
Postvention	+	-	+	+	+	+	+	+	+
Awareness	+	+	+	+	+	+	+	+	+
Oversight & coordination	+	+	+	+	+	+	+	+	+
Engage key stakeholders	+	+	+	+	-^	+	+	+	+
Change attitudes & beliefs	+	+	+	+	+	+	+	+	+
Conduct evaluation & research	+	+	+	+	+	+	+	+	+

*Evaluation reports identify the component is missing, however the other reports identify as present.
^Evaluation report identifies that strategy did not mention this area, however area was mentioned in report.

Results & Outcomes

As noted above, national suicide prevention strategies are effective at reducing suicide rates in OECD countries (Matsubayashi & Ueda, 2011). However, evaluation reports did note the challenge in attributing the changes in population trends to the activities within the strategies. Some evaluations also noted economic recessions during the timeframe of the national suicide prevention strategy, which tend to see an increase in suicides (Beskow, Kerkhof, Kokkola, & Uutela,1999; Fountoulakis et al., 2016; Platt et al., 2006), demonstrating the multifactorial influences of suicide.

For comparable data sets, WHO Global Observatory, see Table 3. Notable reductions occurred in Finland, Scotland and Québec. The data for the majority of countries demonstrate reduced suicide rates since the initiation of national strategies (Table 4).

Table 3. Age-standardized suicide rates (per 100 000 population)

Country	2000			2005			2010			2015		
	F	*M*	*Both*	*F*	*M*	*Both*	*F*	*M*	*Both*	*F*	*M*	*Both*
Australia	5.2	20.0	12.5	4.9	16.8	10.8	5.1	16.6	10.8	5.6	15.3	10.4
Finland	10.4	33.2	21.7	9.0	25.4	17.0	7.8	25.3	16.5	7.2	21.4	14.2
Norway	5.8	18.8	12.2	7.1	14.5	10.8	6.2	14.1	10.2	5.7	12.9	9.3
Sweden	7.4	17.1	12.2	8.2	17.2	12.6	6.7	16.9	11.8	7.6	17.8	12.7
Ireland	4.3	19.5	11.9	4.3	17.0	10.7	4.8	17.0	10.9	4.2	18.0	11.1
UK* **England, Northern Ireland & Scotland**	3.6	12.5	8.0	3.4	10.9	7.1	3.1	10.6	6.8	3.2	11.7	7.4
Canada* **Québec**	5.1	17.4	11.2	5.5	16.6	11.0	5.8	16.1	10.9	5.6	15.3	10.4

*WHO, Global Observatory reports at the national level. Please see Table 4 for regional/ provincial level data.

Table 4. Overview of National, Provincial, Regional Strategies' Outcomes & Results

Country & Strategy	High-Level Outcomes	Results: Age-*Standardized Suicide Rate (per 100 000)*	
		Baseline	Current
Australia **National Suicide Prevention Program (NSPP)[£]** **1999-ongoing**	-Improved access to support for people at risk of suicide (e.g., Better Access Program) -Improved skills (gatekeeper training) -Improved knowledge, attitudes and help-seeking (media campaign) -Improved media reporting of suicide	14.6 (1997) M: 23.3 F: 6.2	11.8 (2016) M: 17.9 F: 5.9
Finland **National Suicide Prevention Project** **1986-1996**	-Improved knowledge, attitudes (reduced stigma) and skills at multiple levels (training) -Improved research -Improved health service coordination	24.6 (1985) M: 40.4 F: 9.8	16.3 (2015*)
Northern Ireland **Protect Life: A Shared Vision The Northern Ireland Suicide Prevention Strategy & Action Plan** **2006-2011**	-Improved awareness of suicide (e.g., public information media campaigns) -Improved skills at multiple levels (training) -Improved research and knowledge -Improved media reporting of suicide	17 (2006) M: 29.2 F: 6.4	18.1 (2016) M: 27.3 F: 9.2
Norway **The National Plan for Suicide Prevention** **1994-1998**	-Improved research -Improved awareness of suicide -Improving knowledge and skills at multiple levels (training) -Improved health service coordination, including follow-up	12.2 (1994) M:17.7 F: 6.9	12.0 (2016)
Scotland **Choose Life: A National Strategy and Action Plan to Prevent Suicide in Scotland** **2002-2008**	-Improved awareness of suicide (e.g., public information media campaigns) -Improved knowledge and skills at multiple levels (training) -Improved reporting of suicide in the media -Improved research	18.0 (2002) M: 27.5 F: 8.5	13.0 (2016) M: 18.9 F: 7.2
Sweden **The Swedish National Programme for Suicide Prevention** **1995, 2008, 2015**	-Improved research -Improved knowledge and skills at multiple levels (training) -Reduced alcohol availability -Improved health service coordination, including follow-up	18.2* (2008) M:19.2 F: 6.7	11.7* (2015) M: 17.7 F: 6.7
Québec **La Stratégie québécoise d'action face au suicide. S'entraider pour la vie** **1998- 2002**	-Improved awareness of suicide (e.g., public information media campaigns) -Improved knowledge and skills at multiple levels (training) -Improved reporting of suicide in the media -Improved research	19.2 (1998)	13.4 (2014)

Implementation Themes

Based on the evaluation reports, a number of themes emerged which support a better understanding of how these national strategies, with similar activities and high-level outcomes, implemented and managed the strategies. These themes include successes and lessons learned across the countries:

- Sustainable Infrastructure
- Research Priorities
- Partnership & Collaboration
    - Cross-Government
    - Community & Professional

The national government health department/ministry was the lead agency accountable for overseeing and for the outcomes for all countries. Although the health department/ministry was ultimately accountable, the roles and responsibilities for implementation varied. In some cases, implementation bodies were created (e.g., National Implementation Support Team within the Scottish Executive, National Project Team within the Finnish Government, etc.).

From the governance structure and implementation approach of the strategies, two distinct categories of strategies emerged:

- Research-oriented – Sweden, Norway and Finland
- Community-oriented – Australia, Northern Ireland, Scotland and Québec

Although the strategies share the same components (Table 2), the research-oriented strategies emphasized research activities and professional development, whereas the community-oriented strategies emphasized community partnerships and community leadership. Community-oriented strategies also invested in campaigns geared towards the general public and funded community organizations to deliver programs and services.

Sustainable Infrastructure

Across both categories of strategies, the creation of sustainable infrastructure supported the implementation of the strategy and facilitated the delivery of suicide prevention activities in the longer-term. Examples include:

- Creation of research and/or community networks (All);
- Creation of entities or associations or departments to support the work (Australia, Finland, Northern Ireland, Scotland and Québec);
- Creation of suicide prevention centres (Québec);
- Creation of research centres (Norway).

Evaluation reports suggest that sustainable infrastructure can improve role clarity across partners, programs and governance structures. Sustainable infrastructure contributed to a reduction in the intensity of oversight required by the implementation body, allowing for more flexibility and responsiveness. For example, the various types of infrastructure listed above were able to function relatively independently; the centres and networks were responsible for activity and financial reporting and for operating in alignment with the strategy.

Other countries/provinces established non-governmental entities that were responsible for moving specific strategic objectives forward. For example, Québec, Scotland and Northern Ireland have non-governmental organizations/associations that lead aspect of their respective strategies.

Regardless of the sustainable infrastructure in place, evaluation reports identified funding as a challenge, whereas funding challenges were perpetuated by lack of sustainable infrastructure, including at the community level. In some cases, sustainable infrastructure at the community level facilitated the procurement of additional investments, outside of dedicated government funding.

Research Priorities

Establishing research priorities early is important for the success of the strategy as well as for engagement and growth of the research community and promotion of suicide as a field of study. This is important across both research-oriented and community-oriented strategies, however setting research priorities was more defined and cited as a success in research-oriented strategies, whereas national research priorities were noted as a lesson learned in community-oriented strategies.

All countries addressed and set research priorities. This increased the availability and accessibility of evidence and data, as well as supported knowledge translation and

dissemination. Consequently, a research focus promoted and integrated the study of suicide across disciplines (e.g., medicine, psychology, social work) and in particular, in the area of public health. Research helped to inform a comprehensive population health approach to suicide prevention, which benefitted both researchers and the public. Involving the research community early in the strategies helped to facilitate the implementation of evidence-informed programs and services, as well as support evaluation.

Finland and Norway initiated their respective strategies with a phase of research in advance of implementation, bringing together experts at the local, national and international level. This garnered interest and willingness among individuals and organizations to share data and supported the development of an action plan.

Based on the evaluation reports, research networks and infrastructures can enhance:

- surveillance, data quality and local impact assessment, including self-harm and suicide attempt information,
- systematic use of evidence to inform planning and evaluation,
- capacity building and sharing local and national knowledge, which increases the level of expertise in the country,
- performance management and monitoring,
- diversity and spectrum of research themes and projects,
- sustainability of research projects, beyond the scope of strategies, and
- evaluation of national suicide prevention strategy.

Although prioritizing research can improve monitoring, surveillance and evaluation, the majority of evaluation reports identified that evaluation of the strategy was a challenge regardless (see section above). This is in part because the surveillance and monitoring system/program did not have evaluation of the strategy as the goal. All evaluations emphasized the need for more rigorous evaluation data, especially with respect to identifying effectiveness of specific interventions. With multi-pronged interventions, it is challenging to determine what elements or programs were effective (Zalsman et al., 2016).

Partnership & Collaboration

As the governance structures and category of strategies varied, there were also varying levels of cross-governmental and inter-sectoral collaboration and many lessons articulated in the evaluation reports. A comprehensive national suicide prevention strategy requires complex action across multiple fields. All evaluation reports identified

the need for cross-governmental support to facilitate the implementation of strategy, particularly for activities that affect non-health governed areas.

Cross-government

Across many of the evaluation reports, cross-governmental support was noted as a barrier and reported as a lesson learned. While there were some successful partnerships, overall the need for strengthened cross-governmental support was reinforced by all. Based on the evaluation reports, to facilitate cross-governmental support and ensure collaboration, it is suggested to identify suicide prevention both in planning (e.g., business plans) and other strategy documents (e.g., Alcohol Action Plan, Scotland) as a governmental goal or commitment, as well as a responsibility for other departments or ministries.

These actions enhance accountability across and within departments and ministries, which promotes actions from other areas. Achieving buy-in and support across government was noted in all evaluation reports as a challenge. In a few evaluation reports, it was suggested to leverage existing policies, such as mental health or social policies to ensure suicide prevention is a priority and to promote shared goals. This not only mandates cross-governmental action, it enhances the prominence of suicide prevention at a national level and increases momentum of the strategy.

Multiple evaluation reports also identified the need to engage the ministry or department of education early in the development of the curricular and extra-curricular initiatives. More specifically, partnering with other government ministries or departments facilitates access to their stakeholders. For example, Québec partnered with the ministry of education and one of their funded organizations, the Fédération des cégeps, to achieve the integration of suicide prevention programs in all cégeps (general or vocational colleges that serve as a bridge between secondary school and university or the workforce) in the province.

This level of integration and accountability across government was also reflected at the local level, insofar as incorporating suicide prevention into local planning and strategy documents increased accountability and ‘mainstreaming’ of suicide prevention.

Community & Professional

Both categories of strategies, community-oriented and research-oriented, also identify ways for community partners to deliver programs and services, as well as make changes to their practices; therefore, it is important to get their buy-in initially. Community and professional engagement and collaboration enables local-responsiveness and community-driven action, which was identified in some reports as a

determinant of successful implementation. Generally, community partners were better connected with other local stakeholders; therefore, community-driven action supported inter-sectoral collaboration.

It was also noted in many evaluation reports that community collaboration was dependent on community capacity and resourcing. Some communities were disadvantaged and required more support from implementation bodies. Community networks were identified as a promising practice to support communities with limited capacity.

Recognizing and accommodating regional diversity is an important factor when implementing any strategy at a national level. Variability in local populations and environments can impact equitable access and availability of suicide prevention programs and services. All strategies used a USI approach and addressed risk groups; however, this did not always capture nuances at the local level. Evaluation reports identified that local high-risk groups were not necessarily captured in the national strategy. Australia took a different approach whereby funding allocation for the strategy was based on state/territory suicide rates. Furthermore, Australia held local stakeholder consultations to inform priority setting.

Partnering with communities to encourage them to take ownership and coordinate actions locally allowed for diverse community needs to be addressed and assisted in removing duplication. Furthermore, it was suggested that the implementation bodies work closely with all community partners during planning to ensure action plans supported local adaptation and flexibility, as strict programs did not fit all communities. Although the community-based strategies did allow for flexibility and leadership at the local level, the need for greater community engagement, collaboration and local responsiveness was identified as a lesson learned. Coordination at the local/regional level can:

- enhance program delivery,
- attract additional funding,
- promote cross-sectoral partnerships at the local level (e.g., police forces),
- promote health equity, and
- reduce duplication of services.

As noted in the research priority section, engaging the research community earlier also contributed to success. This is also the case for working with specific health professionals. Although the department/ministry of health lead the strategies, this did not ensure access to all health-related disciplines or professionals. It was suggested to

partner early with professional groups, especially when changes to education, practice and service delivery are expected outcomes. This is also facilitated by working with department/ministry partners that oversee the professional bodies. All of the strategies did require practice change at the health professional level, integrating evidence-informed practices and interventions.

The Evidence

In 2016, Zalsman et al. conducted a 10-year systematic review on suicide prevention strategies – an update on the evidence since the Mann et al. (2005) systematic review. The systematic review looks at *strategies* or *approaches* (e.g., means restriction, treatment modalities, media) to prevent suicide; it does not look at comprehensive national *strategies*. Eight categories of approaches to suicide prevention with varying degrees of evidence to support them emerged: means restriction, treatment intervention, community and family intervention (including school-based), follow-up and chain-of-care, education and awareness, media, telephone or internet-based interventions, screening and combined prevention interventions (Turecki, 2016; Zalsman et al., 2016). These categories align with the WHO components of a comprehensive national strategy, and thus provide insight on the effectiveness of specific interventions as opposed to the implementation of a coordinated multi-pronged national scale strategy. A comprehensive national strategy includes each of the eight categories.

Table 5 below presents a high-level overview of the evidence in alignment with the scope of the Steering Committee; specifically, what areas the Steering Committee could direct AHS action, namely in the universal tier. The two categories that the Steering Committee can have a direct impact in are: *education and awareness* and *media*. As a governing body within AHS, the Steering Committee can also have an indirect effect on the six other categories, for example by providing advice and consulting with other areas in AHS, the Alberta government and regional municipalities to adopt evidence-informed approaches to suicide prevention and integrating suicide prevention in various policy, program, clinical and planning documents.

Table 5. High-level summary of evidence (Zalsman, 2016)

Evidence-Informed Strategies/ Approaches	Evidence
Direct Impact by AHS Provincial Steering Committee - Universal	
Education & Awareness	*School-based* -Programs that emphasized mental health literacy, suicide risk awareness and skills training demonstrated significant effects on suicide attempts and ideation. -Programs improved knowledge and attitudes toward suicidal behavior, but no effect on actual suicide. -Programs focusing on awareness had inconsistent outcomes on suicidal behavior. *Primary care physicians* -Education programs have demonstrated increase in antidepressant use and decrease in suicide rates. -In multicomponent interventions difficult to distinguish effect of physician education. -Since 2005, no new RCTs on effect of physician education. *Gatekeeper* -Systematic review demonstrated positive effects on knowledge, skills and attitudes of trainees. -No RCTs has demonstrated that gatekeeper training alone affects suicide rates.
Media	*Public Awareness Campaigns* -General public awareness campaigns demonstrated a significant increase in calls to helplines, but no effect on suicidal behavior. -A targeted awareness campaign demonstrated significant effects on suicidal ideation and plans on a specific population of gay men. *Media Reporting* -Media blackout or better reporting quality have been associated with decreased suicidal behavior. -Media depiction of suicide has a bi-directional relationship on suicidal behavior: -Protective for the general population, when emphasizing coping. -Detrimental in risk groups, i.e., people who have attempted suicide. -Effectiveness of media guidelines varies. Media participation in the development of guidelines supports successful implementation.
Indirect Impact by AHS Provincial Steering Committee - Selective and Indicated (e.g., advocacy and policy position and healthcare related avenues)	
Means Restrictions	-Restricting access to lethal means is associated with decrease in suicide and substitution with other means appears to be limited. *Pharmacological -- Universal* -Smaller analgesic packaging demonstrated decrease in suicides. -Withdrawing particularly toxic analgesics from market demonstrated decrease in suicides. -Reducing prescriptions and sales of barbiturates and reducing concentration of caffeine pills decreased suicide incidence. *Pharmacological – High-Risk* -Antidepressant pharmacotherapy for adults with depression is associated with reduced suicide risk, initiation does not lead to exacerbation of suicide risk. -In people over 75 with depression, antidepressants demonstrate a beneficial effect on suicide attempts and suicide. -In children and adolescents, antidepressants, such as SSRIs can be prescribed – although risk of increased suicidal thoughts with antidepressants, there is an absence

	of suicide risk associated with pharmacotherapy and a risk of suicide for untreated depression. -Specific pharmacotherapy options presented, e.g., SSRIs, Lithium, Clozapine, etc… *Pesticides* -Restrictions on the availability of pesticides contribute to reduced suicides in countries where this mean is prevalent. -Withdrawing more toxic pesticides, restricting access to pesticides and measures that reduce the absorption of pesticides can contributed to decrease in suicides. *Hanging* -Very limited evidence, exception being in psychiatric hospital inpatient units. *Firearms* -Mixed results on firearm control legislation/ firearm availability restrictions on suicide-related outcomes. -Results also varied by risk groups.
Community & Family care	*Community-based intervention* -Mixed results for various community-based and family-based interventions on various outcomes, e.g., depressive symptoms, suicide ideation, suicide attempts and ideation. -Community mental health services did not improve outcomes compared to standard care, however it increased acceptance of treatment, with possibility of reduced hospital admission and suicide death. -Multi-systemic therapy approach that addresses improving parenting skills, community, school and peer support, and engagement in pro-social activities was associated with a reduction of suicidal attempts when compared with hospitalization in adolescents. *Family-based intervention* -Decrease in suicidal ideation and suicide risk factors and increase in protective factors in suicidal adolescents compared to routine care. -Reduced suicide attempts and psychiatric hospitalizations (at 3 month follow-up) in suicidal adolescents with a brief family-based crisis intervention.
Screening & combined intervention	*Screening* -Evidence was insufficient to determine effect of screening in primary care populations on risk of suicide. -Screening in primary care settings and in schools was found to be effective and safe in enhancing treatment referrals and service use in high-risk adolescents. *Combined Interventions* -Data suggests that specific risk groups would benefit from tailored preventive approaches.
Telephone or internet-based interventions	-Relatively low level of evidence for telephone and internet-based interventions, mainly focus on secondary outcomes e.g., acceptability of services, identification of people at risk and referral to help services.
Treatment Intervention	*Group Therapy* -Mixed results, examining impact on self-harm. *CBT, Cognitive Psychotherapy, Dialectical Behavioral Therapy* -Reduced suicidal ideation and behavior in adolescents and women with borderline personality disorder. *Pharmacological* -Lithium: Reducing risk of suicidal behaviour in people with mood disorders. -Anticonvulsant mood stabilizers: decrease risk of suicide attempts in people with mood disorders. -Clozapine: anti-suicide effects in people with schizophrenia.

	-Antidepressants: Initiation not associated with increased risk of suicide; continuation of use is associated with reduced risk of suicide; mixed results for people with bipolar disorder. *Psychosocial* -No clear effectiveness in reducing suicides.
Follow-up & Chain-of-care	-Mixed results, some studies showed that structured follow-up decreased number of repeated suicides and suicide attempts for people who attempted suicide. -Decrease in suicidal ideation with collaborative care and involvement of primary care services compared to standard care, in addition to tailored programs for depressed patients and suicidal elderly. -Reduced suicidal behaviour in areas where mental health services are available, especially with combined resources. -No significant association between physician density and suicide rates.

Direct Impact

The categories that the Steering Committee can directly impact all fall under the universal tier, which encompasses population health promotion interventions. The evidence suggests three types of education and awareness programs have a positive effect on preventing suicide: school-based programs, education of primary care physicians and gatekeeper training. Although the majority of the evidence did not demonstrate effects on suicide, the programs improved proximal outcomes, such as knowledge, skills and attitudes.

Furthermore, the evidence identifies two mechanisms by which the media can have an impact on preventing suicide: public awareness campaigns and media reporting. Public awareness campaigns can affect proximal outcomes such as calling a helpline and reducing suicide ideation. Media reporting of suicide is associated with decreased suicides; however, there is also mixed evidence.

For both education and media, the evidence suggests these areas are promising practices that could potentially have longer-tem effects on suicide through the proximal outcomes; however, more rigorous evaluations and studies are required (Zalsman et al. 2016).

Suicide Prevention Training

Training was identified across all strategies. As noted above, some countries conducted separate program evaluations on the implementation of their training programs. This section will examine three countries' independent evaluations of the training programs. These training programs included suicide prevention courses such as Mental Health First Aid, SafeTalk, ASIST, STORM and QPR. Table 6 below identifies which country offered which types of training.

Table 6. Summary of Suicide Prevention Training Courses implemented within 3 National Strategies.

Training Program	Scotland	Ireland (Island-Wide)	New Zealand
Mental Health First Aid		x	
SafeTalk	x	x	
ASIST	x	x	x
STORM	x		
QPR Suite of Options			x

SafeTalk, ASIST and STORM were evaluated individually in terms of outcomes in Scotland, as well as together in terms of the impact of the Scottish national training strategy; SafeTalk and ASIST were evaluated on their own in Ireland; and the QPR Suite of Options was evaluated and compared with ASIST in New Zealand.

Outcomes

Overall, all of the training programs evaluated were well received in terms of outcome measures, showing positive changes in participant knowledge, attitudes and abilities. These trainings were also perceived to have a positive impact on awareness of suicide as a public health concern and in the reduction of stigma, both in the wider community as well as organizational practice. There was little evidence supporting a change in the frequency of interventions post-training; however, it would appear that the interventions that did occur were often more effective after training. Those who had not used their skills to intervene with someone at risk of suicide cited a lack of opportunity to do so as the main reason.

Other positive impacts found to have included more organizational openness in teams in terms of discussing suicide, a reduction in anxiety of individuals working with those at risk of suicide, staff being better able to cope when suicide does occur and having a common language being established between agencies, improving inter-agency working. All the QPR programs were well received and matched ASIST in terms of trainee ratings of program suitability, effectiveness and outcomes.

Barriers

Some barriers to implementation included the length of the training and cost of training, particularly with ASIST. There was some difficulty in recruiting and retaining trainers, again because of the length and cost of the ASIST training for trainers. It was also found to be difficult to engage general practitioners in particular in mental health intervention training.

Facilitators of Success

Having an established target within the health authority helped with the willingness of managers to release their staff for suicide intervention training as well as create a high profile for suicide prevention within the organization. A range of courses available to suit the needs and interests of different participants was deemed to be valuable and cost-effective.

The QPR Suite of Options was identified as preferable to ASIST due to its flexibility (online or in-person), adaptability to local context and cost-effectiveness. It was noted that the online QPR programs were not sufficient in a standalone capacity and it was recommended that the online modules be accompanied by small group work or follow-up sessions.

In an island-wide evaluation of ASIST, the implementation of the training was compared between Northern Ireland and the Republic of Ireland. The Republic of Ireland had a much more coordinated approach to the implementation of its training program and this was deemed to contribute to its greater success when compared to Northern Ireland. In particular, there was a centralized coordinating body along with the establishment of local coordinators to organize training workshops and take responsibility for the logistics from the trainers. This was considered an important factor in supporting trainers emotionally and practically, leading to increased efficiencies and better retention of trainers.

Media Campaigns

Media campaigns are designed to educate the public about warning signs and risk factors, raise awareness and reduce stigmatizing attitudes and encourage vulnerable individuals to seek help.

Influence on Knowledge, Attitudes, and Behaviour

In a systematic review, Torok et al. (2017) found that some studies uncovered evidence in support of campaign exposure leading to improved knowledge and awareness of suicide. Campaigns that have focused on improving knowledge have shown more promise than those aimed to change attitudes (Pirkis et al., 2017). When campaigns are delivered on their own, they are most often linked with an increase in suicide literacy (Torok et al., 2017). However, this increase in literacy does not appear to either be sustained after a campaign ends, nor does it appear to relate to behaviour change.

Most studies considering whether campaign materials can improve attitudes towards suicide have found evidence supporting this. However, studies have mixed results on

whether mass media campaigns can influence health seeking behaviours, with some suggesting that campaigns make no difference on behaviours (Pirkis et al., 2017). Campaigns on their own may be more likely to influence beliefs and attitudes rather than behaviours (Torok et al., 2017).

Mass Media Campaigns as Part of Multi-Component Strategy

Mass media campaigns are deemed to be most effective in reducing suicidal behaviour when delivered as part of a multi-component suicide prevention strategy (Torok et al., 2017) or when complemented by appropriate selective and indicated interventions (Pirkis et al., 2017). However, there should be particular care to ensure that the help services advertised in a mass media campaign are accessible and equipped to handle a possible increase in demand (Pirkis et al., 2017).

All of the multi-level campaigns reviewed by Torok et al. (2017) reported positive effects on suicide deaths or attempts, recognizing that the mass media campaigns may not have been evaluated separately from the other components.

Success Factors

As reported by Torok et al. (2017), successful outcomes were most often found to be linked with the level of exposure, the level of repeat exposure and the level of community engagement. Findings suggest that campaigns are more impactful when they actively engage the target population rather than merely relying on passive media platforms. Torok et al. (2017) found that all of the multilevel campaigns and one standalone campaign that reported positive effects had actively engaged with the population. Creating community buy-in is an important factor in reducing stigmatic attitudes and influencing behaviour change.

In-Direct Impact

The six categories that the Steering Committee can indirectly impact cross all tiers of the USI model: universal, selective and indicated. Five of these approaches are treatment modalities (community and family care, screening and combined intervention, telephone or internet-based interventions, treatment intervention and follow-up and chain-of-care). Generally speaking, the indicated tier is considered out-of-scope for the Steering Committee, however the Steering Committee could provide advice and recommendations. Means restrictions crosses universal and selective tiers and has strong evidence supporting its effectiveness at reducing suicide. Each of these approaches requires situational research to optimally tailor the interventions to target population.

Conclusion & Recommendations

Based on the evaluation reports and evidence presented, there are six areas of improvement to support the implementation and evaluation of the Injury Prevention Action and Injury Prevention Operational Plans and the structure and function of the governing body: media campaigns and guidelines, training, surveillance and evaluation, research, collaboration and strengthened commitment and governance.

Media Campaign & Guidelines

Media campaigns and guidelines are effective approaches to include in comprehensive strategies. Moving forward, the updated Operational Plan should include a media campaign associated with World Suicide Prevention Day (WSPD). This would leverage previous work completed and enhance the reach and impact of AHS WSPD promotion activities. Furthermore, aligning with WSPD would increase community buy-in to promote success and ensure communities are responsive to any increased demands for help.

In addition to media campaigns, media guidelines can be effective tools when reporting on suicide. There is opportunity to develop AHS media guidelines/tips for talking about suicide. As other areas in AHS are addressing suicide (e.g., HR Employee Wellness, Healthy Living, etc.), it may be beneficial to promote a consistent approach to talking about suicide; this would support other AHS areas and the public.

Training

Training is identified as a promising practice across both the evidence and the national strategies. The training-specific evaluation reports provide additional information to support the implementation and coordination of training on a large scale. Training across two levels, internal AHS staff and external community should be included in the Injury Prevention Operational Plan with particular emphasis on the scope and level of training for AHS and for the community. Important learnings to carry over include:

- effective coordination and monitoring of training programs,
- support and opportunities for group de-brief post-training,
- community-based programming,
- engagement of trainers, trainees and community members,
- opportunities for further learning/ refreshers, and
- Continuous Quality Improvement (CQI) and evaluation of training programs.

The Injury Prevention Operational Plan should also reference the *AHS SPEAKS Training Program Framework*, which is currently in development.

Surveillance & Evaluation

Suicide surveillance and evaluation were emphasized in the national strategies, aligning with the WHO guidelines. Although surveillance was not specifically identified in recent evidence, the need for further evaluation of interventions, including population-level universal interventions, was recommended (Zalsman et al., 2016), thereby requiring national data surveillance. Surveillance should be maintained as a priority in the Injury Prevention Operational Plan.

Evaluation is referenced across a number of initiatives. An evaluation framework should be developed for the Injury Prevention Action Plan and the Injury Prevention Operational Plan to facilitate in evaluation of project work. As the evaluation reports identified outcome data and rigorous evaluation as a challenge, a concerted effort is needed to ensure evaluation and data surveillance is integrated into all suicide prevention activities in order to determine the effectiveness of interventions, processes and the Injury Prevention Action Plan and Injury Prevention Operational Plan itself.

Research

The importance of suicide research and the suicide research community was emphasized in the evaluation reports, as well as implied in the evidence. Gathering and applying suicide prevention knowledge/evidence is a key focus area in the current Action Plan; specifically, linkages with academia and Strategic Clinical Networks (SCNs) are identified.

In addition to partnering with researchers and SCNs to advise and share their research and exploring areas of study to promote innovative suicide prevention interventions, enhancing the focus on research, including research as a key focus area (e.g., internal evidence reviews and knowledge translation) and brokering to other AHS program areas could strengthen the Injury Prevention Action and the Injury Prevention Operational Plan, as well as support the evaluation and addition of new activities. Furthermore, there is opportunity to conduct applied research based on current or future projects (e.g., training plan and media campaign). The current Steering Committee has an abundance of practice and clinical expertise; however, including research scientists in a meaningful way could facilitate buy-in and uptake of suicide prevention interventions and promote professional development and learning in the area of suicide prevention.

Collaboration: Community Capacity & Cross-Department

Collaboration, both internally and externally, is a significant factor of success and lesson learned based on the evaluation reports. The evaluation reports suggest that collaboration from the outset, with community stakeholders and other departments, influences successful implementation. Community capacity is bi-directional; the Injury Prevention Action and Injury Prevention Operational Plan need to consider the needs and strengths of communities to engage them in suicide prevention initiatives.

The Injury Prevention Action and Injury Prevention Operational Plan can carry these key focus areas and activities forward, broadening and strengthening stakeholder buy-in and engagement. This could include diversifying membership of the governing body, as well as the working groups and task groups, to ensure community partners and relevant program areas in AHS are involved in fostering a collective impact in suicide prevention. Partnership and collaboration cultivate a sense of accountability and commitment; this is especially important when implementing initiatives in diverse communities. Community and cross-department collaboration need to be considered in the implementation of the Injury Prevention Action and Injury Prevention Operational Plan and in the structure and function of the governing body to truly ensure a comprehensive approach to suicide prevention.

Strengthened Commitment and Governance

Currently, the Steering Committee is responsible for leading the Injury Prevention Operational Plan, directing suicide prevention activities across AHS. Many areas across AHS are responsible for programs and services that directly or indirectly influence suicide prevention at the zone and provincial level. However, the different suicide prevention priorities across program areas and zones are not specifically coordinated nor are they consistently in alignment. Moreover, as the Injury Prevention Action Plan is has been updated, there is opportunity to refresh the governance structure and strengthen both the AHS and Government of Alberta commitment to suicide prevention through partnership and collaboration.

AHS is well-positioned to lead a suicide prevention strategy; however, partnership with Alberta Health and other ministries is highly recommended. The governance structure needs to be such that there is accountability for the strategic direction at a higher level and an implementation body that is accountable for program and service delivery. In particular, as the AHS approach to suicide prevention is more in line with the community-oriented strategies (with research as a priority), there is need for the implementation body to have membership and linkages with communities. Role clarity is

critical to the success of a strategy; this is important in defining the structure and function of the groups, as well as for setting directions and defining partnerships. The evaluation reports suggest that suicide prevention should be identified as a priority in multiple high level and publicly available documents to ensure cross-government accountability, or cross-departmental accountability in the case of AHS.

Based on these conclusions, the following recommendations are suggested as next steps. Further description of these recommendations can be found in Appendix C.

Recommendation 1: Include a WSPD media campaign pilot in the Operational Plan.

Recommendation 2: Include the exploration of 'AHS Tips for Addressing Suicide in Media' in the Operational Plan.

Recommendation 3: Ensure surveillance and evaluation are priorities in Operational Plan.

Recommendation 4: Ensure research is included as a key focus activity in the Operational Plan, with measureable objectives and activities set out.

Recommendation 5: Ensure collaboration and stakeholder engagement are key focus areas in the Operational Plan and ensure this commitment is also reflected in the membership of the governance structure for suicide prevention.

Recommendation 6: Revise the governance structure and function for suicide prevention, to support effective oversight and implementation of the Injury Prevention Action Plan.

Recommendation 7: Ensure suicide prevention is an explicit priority across various AHS publicly available documents.

References

Alberta Health Services, Safe Healthy Environments. (2017). Dashboard of suicide related-injuries for all methods by province and zone and all sexes April 28, 2018. Alberta Injury Surveillance Dashboard (suicide related-injuries). Retrieved from: https://tableau.albertahealthservices.ca/#/views/AlbertaInjurySurveillanceDashboardDraft/Sui cide-RelatedInjuries?:iid=1

Alberta Health Services. (2016). AHS provincial steering committee on suicide prevention action plan (2015-2018). For internal AHS distribution only.

Alberta Health Services. (2016). Inventory of AHS suicide prevention programs, activities, resources and initiatives. For internal AHS distribution only.

Alberta Health Services. (2014). Literature review: Suicide prevention strategies. For internal AHS distribution only.

Australian Bureau of Statistics. (2016). Catalogue 3303.0 Cause of Death Australia. Retrieved from: www.abs.gov.au/ (Accessed March 6, 2018).

Australian Healthcare Associates. (2014). Evaluation of suicide prevention activities, final report. Retrieved from: /www.health.gov.au

Appleby, L., Hunt, I. M., & Kapur, N. (2017). New policy and evidence on suicide prevention. *The Lancet Psychiatry*. https://doi.org/10.1016/S2215-0366(17)30238-9

Australian Health Review. (2006). *Australian Health Review August Mental Health – Commentary Aust Health Rev Health Rev*, *30*(30), 156–5788.

Baran, A., & Kropiwnicki, P. (2015). Advantages and pitfalls of the Swedish National Program for Suicide Prevention 2008. *Psychiatria I Psychologia Kliniczna*. https://doi.org/10.15557/PiPK.2015.0026

Beautrais, A. L. (2005). Editorial National Strategies for the reduction and prevention of suicide. *Crisis*, *26*(l). https://doi.org/10.1027/0227-5910.26.1.1

Belton, K., Pike, I., Heatley, J., Cloutier, E., & Skinner, R. (2015). The cost of injury in Canada. Retrieved from http://www.parachutecanada.org/downloads/research/Cost_of_Injury-2015.pdf

Beskow, J., Kerkhof, A., Kokkola, A., & Uutela, A. (1999). Suicide prevention in Finland 1986-1996: External evaluation by an international peer group. *Psychiatia Fennica, 30*, 31-46.

Eggertson, L. (2015). Canada lacks national suicide prevention strategy. *The Lancet*. https://doi.org/10.1016/S0140-6736(15)61147-3

Eggerston, L. & Patrick, K. (2016). Canada needs a national suicide prevention strategy. Editorial. Canadian Medical Association Journal.

Fountoulakis, K. N., Chatzikosta, I., Pastiadis, K., Zanis, P., Kawohl, W., Kerkhof, A. J.

F. M., … Bech, P. (2016). Relationship of suicide rates with climate and economic variables in Europe during 2000-2012. *Annals of General Psychiatry*, *15*, 19. https://doi.org/10.1186/s12991-016-0106-2

Hakanen, J. & Upanne, M. (1996). Evaluation strategy for Findland's suicide prevention project. *Crisis, 4 (17)*, 167-174.

Gjertsen, F. (2007). Suicide statistics in Norway, the Nordia and Baltic Countries. Norwegian Institute of Public Health. Retrieved from: www.med.uio.no/klinmed/forskning

Government of Canada (2017). Suicide in Canada. Retrieved from: https://www.canada.ca/en/public-health/services/suicide-prevention/suicide-canada.html

Government of Manitoba. (2014). Suicide prevention: guidelines for public awareness and education activities. Retrieved on February 13, 2018, from https://suicideprevention.ca/wp-content/uploads/2014/05/Suicide-Prevention-Guidelines-for-PA-Ed-Activities-FINAL-PDF1.pdf

Government of United Kingdom (Her Majesty Government). (2017). Preventing suicide in England: Third progress report of the cross-government outcomes strategy to save lives. Department of Health, London. Retrieved from www.dh.gov.uk/

Government of United Kingdom (Her Majesty Government) (2015). Preventing suicide in England: Two years on Second annual report on the cross-government outcomes strategy to save lives. Department of Health, London. Retrieved from www.gov.uk/dh

Government of United Kingdom (Her Majesty Government). (2012). Preventing suicide in England: A cross-government outcomes strategy to save lives. Department of Health, London. Retrieved from www.dh.gov.uk/

Hirji MM, Wilson MG, Yacoub K, Bhuiya A. Rapid Synthesis: Identifying Suicide-prevention Interventions. Hamilton, Canada: McMaster Health Forum, 30 June 2014.

Kāhui Tautoko Consulting LTD. (2014). Kia Piki Te Ora Suicide Prevention Programme Evaluation Final Report.Retrieved from: www.health.govt.nz/publication

Kerkhof, A. J. (1999). Editorial The Finnish national suicide prevention program evaluated. *Crisis, 2*(20), 50, 63.

Lesage, A., Turecki, G., & Daniels, S. (2017). PHAC and a national suicide prevention strategy. *CMAJ*. https://doi.org/10.1503/cmaj.732474

Matsubayashi, T., & Ueda, M. (2011). The effect of national suicide prevention programs on suicide rates in 21 OECD nations. *Social Science and Medicine, 73,* 1395-1400. https://doi.org/10.1016/j.socscimed.2011.08.022

Moore Stephens. (2012). Evaluation of the implementation of the NI Protect Life prevention strategy and action plan 2006-2011. Department of Health, Social Services and Public Safety. Retrieved from: www.mindbank.info

National Centre for Suicide Research and Prevention. (2017). Number of suicide deaths. Norwegian Institute of Public Health & Statistics Norway. Retrieved from: www.med.uio.no/klinmed

National Centre for Suicide Research and Prevention of Mental ill-health. (2017). Suicide statistics. Retrieved from: ki.se/en/nasp/suicide-statistics (Accessed on March 6, 2018)

National Records of Scotland. (2016). Probable suicides: Deaths which are the result of intentional self-harm or events of undetermined intent. Retrieved from: www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-bytheme/vital-events/deaths/suicides (Accessed on March 6, 2018)

National Suicide Prevention Strategies. (2000). Retrieved from: http://www.yourlifecounts.org/sites/default/files/united_nations_national_suicide_prevention_strategies.pdf

Northern Ireland Statistics and Research Agency. (2016). Suicide deaths. Retrieved from: www.nisra.gov.uk/publications/suicide-statistics (Accessed on March 6, 2018)

Office for National Statistics. (2016). Suicides in the United Kingdom, 2015 registrations. Office for National Statistics. Retrieved from: www.ons.gov.uk/.../2015registrations (Accessed on March 6, 2018)

Organization for Economic Cooperation and Development. (2018). Suicide rates (indicator). Retrieved from: https://data.oecd.org/healthstat/suicide-rates.htm (Accessed on 26 February 2018)

Platt, S., Mclean, J., Mccollam, A., Blamey, A., Mackenzie, M., Mcdaid, D., … Woodhouse, A. (2006). Main findings Evaluation of the first phase of Choose Life: the national strategy and action plan to prevent suicide in Scotland. cottish Government Scoial Research, Edinburgh. Retrieved from http://www.gov.scot/Resource/

Platt, S., Mclean, J., Mccollam, A., Blamey, A., Mackenzie, M., Mcdaid, D., … Woodhouse, A. (2006). Evaluation of the first phase of Choose Life: The national strategy and action plan to prevent suicide in Scotland. Scottish Executive Social Research, Edinburgh. Retrieved from: http://www.gov.scot/Publications

Robinson, J., McGorry, P., Harris, G. M., Pirkis, J., Burgess, P., Hickie, I., & Headey, A. (2006). Australia's national suicide prevention strategy. *Australian Health Review, 30*(3), 271-276.

Russell, P., Clare Lardner, A., Lucy Johnston, C., & Johnston Research Dawn Griesbach, L. (2010). Evaluation of Phase 2 (2006-08) of the Choose Life Strategy and Action Plan. Scottish Government Scoial Research, Edinburgh. Retrieved from: http://www.gov.scot/Publications

Samaritans. (2017). Suicide statistics report 2017. Retrieved from: www.samaritans.org

Scottish Public Health Observatory. (2016). Suicide: Key points. Retrieved from: www.scotpho.org.uk/health-wellbeing-and-disease/ suicide/key-points (Accessed on March 6, 2018)

Scottish Executive. (2002). Choose Life: A national strategey and action plan to prevent suicide in Scotland. Retrieved from: www.sehd.scot.nhs.uk/publications/

Socialstyrelsen. (2016). Statistik om dödsorsaker 2016. Retrieved from: /www.socialstyrelsen.se (Accessed March 6, 2018)

Suicide Prevention Australia. (2015). Transforming suicide prevention research: A national action plan. Sydney. Retrieved from: www.suicidepreventionaust.org

Turecki, G. (2016). Preventing suicide: where are we? *The Lancet Psychiatry*. https://doi.org/10.1016/S2215-0366(16)30068-2

united_nations_national_suicide_prevention_strategies 2000. (n.d.).

World Health Organization. (2017). Preventing suicide: a resource for media professionals, update 2017. Geneva: World Health Organization; (WHO/MSD/MER/17.5). Licence: CC BY-NC-SA 3.0 IGO.

World Health Organization. (2017). Suicide mortality rate. Global Health Observatory. Retrieved from: http://apps.who.int/gho/data/node.sdg.3-4-viz-2?lang=en (Accessed on 26 February 2018)

World Health Organization. (2014). Preventing suicide: A global imperative. Retrieved from http://www.who.int/mental_health/suicide-prevention/world_report_2014/en

Zalsman, G., Hawton, K., Wasserman, D., van Heeringen, K., Arensman, E., Sarchiapone, M., … Zohar, J. (2016). Suicide prevention strategies revisited: 10-year systematic review. *The Lancet Psychiatry*. https://doi.org/10.1016/S2215-0366(16)30030-X

Appendix A
Summary of the Components of Suicide Prevention Strategies as per 2014 AHS Literature Review

Components of Suicide Prevention Strategies AHS Suicide Prevention Literature Review (2014)	
Situational analysis	• Strategies should be informed by, and demonstrate, a clear understanding of suicide in the jurisdiction for which it is developed, including relevant risk and protective factors and patterns of suicide (e.g., by region and sociodemographic characteristics; Bertolote, 2004; Silverman, 2001; WHO, 2012; Yip and Law, 2010). • Situational analyses should be ongoing and strategies should include provisions for strengthening surveillance and monitoring capacity as necessary (Ramsay, 2004; WHO, 2012).
Strategic directions, goals and objectives	• Strategies should include a clear statement of the overall purpose of the strategy, along with measurable goals and objectives that are aligned with the prevention paradigm adopted and are responsive to what is known about suicide in the region (Bertolote, 2004; Covington and Hogan, 2012; Silverman, 2001; WHO, 2012).
Interventions	• Interventions should be evidence-based and aligned with the strategy's prevention paradigm and overall purpose, goals and objectives (WHO, 2012; Yip and Law, 2010). • Interventions should be delivered across a continuum of three overlapping levels or tiers: • Universal, aimed at all individuals in a given population irrespective of degree of risk for suicidal behaviours (e.g., mental health promotion; reducing access to the means of suicide; and encouraging responsible reporting of suicide by the media); • Selective, targeting groups at higher risk for suicide (e.g., improving the ability of primary care physicians to screen for and treat depression; 'gatekeeper' training (to enhance the ability of those with contact with individuals at risk for suicide, such as teachers or first responders, to recognize and respond to risk); improving access to appropriate mental health services; ensuring protocols are in place for health and mental health care providers to respond to individuals presenting with risk factors for suicide; and improving collaborative and seamless delivery of care); and • Indicated, involving highly individualized, specialized interventions targeting those at the highest risk of suicide, and individuals with mental disorders associated with suicide in particular (e.g., psychiatric and psychotherapeutic treatment; bereavement support; Cutcliffe and Stevenson, 2008; Goldsmith, Pellmar, Kleinman and Bunney, 2002; Pitman and Caine, 2012; Rutz and Wasserman, 2004; Yip and Law, 2010).
Implementation plan	• Consideration should be given to how the strategy and its components will be implemented nationally or provincially as well as regionally and in communities. • Implementation processes should be built into the strategy, and may include designation of responsibility for implementation at various levels and processes for translating the goals and objective of the strategy into concrete action.

Evaluation plan	• Developing a systematic, comprehensive monitoring and evaluation plan during the early stages of strategy formulation can help ensure adequate resources (e.g., funding, expertise) are in place and that interventions are designed in such a way that their processes and outcomes are measurable (Commonwealth of Australia, 2008b; Goldsmith et al., 2002; Leitner, Barr and Hobby, 2008; WHO, 2012; Yip and Law, 2010). • Multiple outcome measures should be used to gauge the success of the strategy (e.g., changes in suicide rates, help-seeking behaviour, social isolation, mental health literacy, service modes or practices).
Knowledge development, translation and transfer	• Recommended knowledge development, translation and transfer activities include increasing research and evaluation; ensuring adequate surveillance and monitoring systems are in place that allow for the collection of a wide range of suicide-related data; and developing or supporting systems for disseminating information about suicide and effective interventions (D'Orio and Garlow, 2004; Powell, Barber, Hedegaard, Hempstead, Hull-Jilly and Shen et al., 2006; Pringle, Colpe, Heinssen, Schoenbaum, Sherrill and Claassen et al., 2013; Robinson, McGorry, Harris, Pirkis, Burgess and Hickie et al., 2006; WHO, 2012).

Appendix B
Summary of National Strategies

Country & Lead	Strategy & Timeframe	Evaluation Documents	Post-Strategy/ Next Steps	High-Level Outcomes	Results: Age-*Standardized Suicide Rate (per 100 000)*		
					Baseline	Final Year/ Evaluation	Current
Australia **Australian Government, Department of Health and Ageing**	National Suicide Prevention Program (NSPP)[£] 1999-ongoing	External – *Evaluation of Suicide Prevention Activities* (2014) Research/ Commentary – *Australia's National Suicide Prevention Strategy: The Next Chapter* (2006)	*National Suicide Prevention Strategy* 2015 *Transforming Suicide Prevention Research: A National Action Plan* (2015)	-Improved access to support for people at risk of suicide (e.g., Better Access Program) -Improved skills (gatekeeper training) -Improved knowledge, attitudes and help-seeking (media campaign) -Improved media reporting of suicide	14.6 (1997) M: 23.3 F: 6.2	12.0 (2014) M: 18.4 F: 5.9	11.8 (2016) M: 17.9 F: 5.9
Finland **Finnish Government**	National Suicide Prevention Project 1986-1996	Research/ Commentary – *The Finnish National Suicide Prevention Program Evaluated* (1999) Research – *Evaluation Strategy for Finland's Suicide Prevention Project* (1996) External/ Research/ Government – *Suicide Prevention in Finland 1986-1996: External Evaluation by an International Peer Group* (1999)	Integrated in mental health promotion – National Institute for Health and Welfare	-Improved knowledge, attitudes (reduced stigma) and skills at multiple levels (training) -Improved research -Improved health service coordination	24.6 (1985) M: 40.4 F: 9.8	22.5 (2000) M:43 F: 10.9	16.3 (2015, WHO)

Northern Ireland **Northern Ireland Department of Health, Social Services and Public Safety**	Protect Life: A Shared Vision Northern Ireland Protect Life Suicide Prevention Strategy and Action Plan 2006-2011	External – *Evaluation of the Implementation of the NI Protect Life Suicide Prevention Strategy and Action Plan* (2012)	*Protect Life: A Shared Vision Northern Ireland Protect Life Suicide Prevention Strategy and Action Plan* 2012-2014 (refreshed 2012) *Protect Life 2: A Strategy for Suicide Prevention in the North of Ireland* (2016) – consultations ongoing	-Improved awareness of suicide (e.g., public information media campaigns) -Improved skills at multiple levels (training) -Improved research and knowledge -Improved media reporting of suicide	17 (2006) M: 29.2 F: 6.4	16 (2011) M: 27.2 F: 8.9	18.1 (2016) M: 27.3 F: 9.2
Norway **Norwegian Board of Health**	The National Plan for Suicide Prevention 1994-1998	Research/ Commentary – *National Plan for Suicide Prevention 1994-1995: Evaluation Findings* (2000) Research/ Commentary – *National Plan for Suicide Prevention: Follow-up Project 2000-2002* (2001)	The National Plan for Suicide Prevention (2014-17) – Norwegian Board of Health	-Improved research Improved awareness of suicide -Improving knowledge and skills at multiple levels (training) -Improved health service coordination, including follow-up	12.2 (1994) M:17.7 F: 6.9	12.4 (1998) M:18.2 F: 6.7	12.0 (2016)

Scotland **Scottish Executive/ Scottish Government (name change in 2007)**	Choose Life: A National Strategy and Action Plan to Prevent Suicide in Scotland 2002-2008	*Evaluation of the First Phase of Choose Life: The National Strategy and Action Plan to Prevent Suicide in Scotland* (2006) Research Findings – *Evaluation of the First Phase of Choose Life: The National Strategy and Action Plan to Prevent Suicide in Scotland* (2006) *Evaluation of Phase 2 (2006-2008) of the Choose Life Strategy and Action Plan* (2010)	*Suicide Prevention Strategy 2013-2016*	-Improved awareness of suicide (e.g., public information media campaigns) -Improved knowledge and skills at multiple levels (training) -Improved reporting of suicide in the media -Improved research	18.0 (2002) M: 27.5 F: 8.5	16.4 (2008) M: 25.0 F: 7.8	13.0 (2016) M: 18.9 F: 7.2
Sweden **Swedish Government**	The Swedish National Programme for Suicide Prevention 2008, 2015 *(Original 1995)*	Research/ Commentary – *Advantages and Pitfalls of the Swedish National Program for Suicide Prevention 2008* (2015)	National Action Programme for Suicide Prevention (2015) – Public Health Agency of Sweden	-Improved research -Improved knowledge and skills at multiple levels (training) -Reduced alcohol availability -Improved health service coordination, including follow-up	18.2* (2008) M:19.2 F: 6.7	N/A	11.7* (2015) M: 17.7 F: 6.7

Québec **Gouvernment de Québec, Ministère de la santé et des services sociaux**	La Stratégie québécoise d'action face au suicide. S'entraider pour la vie 1998- 2002	Evaluation by government: *Évaluation de l'implantation de la Stratégie québecoise d'action face au suicide* (2004) *Research:* L'évaluation de l'implantation de la Stratégie québécoise d'action face au suicide: Quelques résultats préliminaires, Québec, ministère de la Santé et des Services sociaux (Potvin, 2002).	La Stratégie québécoise d'action face au suicide. S'entraider pour la vie. Plan d'action 2003-2008.	-Improved awareness of suicide (e.g., public information media campaigns) -Improved knowledge and skills at multiple levels (training) -Improved reporting of suicide in the media -Improved research	19.2 (1998)	18.0 (2002)	13.4 (2014)

Appendix C
Recommendations

Recommendation 1: Include a WSPD media campaign pilot in the Operational Plan.

This could be tasked to the Suicide Prevention Implementation Working Group to develop and implement, based on evidence and Alberta trends. Based on budget, the Suicide Prevention Implementation Working Group can plan and implement a campaign. A less resource-intensive option would be to model the 'Keep Him Here' campaign or internal AHS campaigns, such as National Non-Smoking Week, where a social media kit is shared in advance of WSPD. The Suicide Prevention Implementation Working Group would work closely with AHS Communications to plan and implement.

Recommendation 2: Include the exploration of 'AHS Tips for Addressing Suicide in Media' in the Operational Plan.

The WHO (WHO, 2017), Canadian Psychiatry Association (2011) and national strategies all have guidelines for media reporting. Having tips for addressing suicide in the media for AHS staff would promote a consistent approach and ensure all media referencing suicide would link to helpful resources. Manitoba has developed *Suicide Prevention: Guidelines for Public Awareness and Education Activities* (Manitoba, 2014), which could help inform an AHS-specific set of tips. This activity could be tasked to the Suicide Prevention Implementation Working Group, and would require partnership AHS Communications to develop and implement.

Recommendation 3: Ensure surveillance and evaluation are priorities in the Operational Plan.

As the Injury Surveillance Dashboard is complete, surveillance priorities can focus on analyzing and reporting on the data. This can be a role for the Suicide Prevention Implementation Working Group; therefore, the Injury Surveillance Dashboard no longer needs to be a task group as Suicide Prevention Implementation Working Group leads can liaise with the injury surveillance dashboard lead as necessary. Evaluation needs to be integrated across all suicide prevention activities, including the Injury Prevention Action Plan itself. The development and execution of Evaluation Plans for initiatives can be supported by a research & evaluation lead/coordinator to ensure evaluation occurs in a coordinated and timely fashion and without duplication. Consequently, an evaluation plan for the next iteration of the Injury Prevention Action Plan will also need to be developed.

Recommendation 4: Ensure research is included as a key focus activity in the Operational Plan, with measureable objectives and activities set out.

Research needs to be integrated across all areas of the Injury Prevention Action Plan to ensure it is evidence-informed. Therefore, as per recommendation #4, it would be valuable to have a research & evaluation lead/coordinator for all the activities to ensure research happens in a coordinated and timely fashion and without duplication. This could include conducting applied research based on current or future projects (e.g., training plan and media campaign).

Recommendation 5: Ensure collaboration and stakeholder engagement are key focus areas in the Operational Plan and ensure this commitment is also reflected in the membership of the governance structure for suicide prevention.

This includes assessing and understanding community needs and strengths as well as leveraging other program areas' ongoing work in related to suicide prevention. It is up to the Steering Committee to champion suicide prevention and ensure it is a priority in AHS and integrated across program areas. Additionally, there is opportunity to do the same with the Government of Alberta through partnership and collaboration, in particular as it relates to moving forward on the Valuing Mental Health Report (e.g., Youth Suicide Prevention Plan).

Recommendation 6: Revise the governance structure and function for suicide prevention, to support effective oversight and implementation of the Injury Prevention Action Plan.

Ensure a high-level governing body responsible for strategic direction and oversight, and an implementation body that actions and implements the direction are in place. Membership will need to be re-assessed based on roles in the organization. The governing body will likely include directors and possibly managers, where the implementation body could include managers and staff representatives. As most national strategies have a strong population mental health focus, it is important to ensure representation from PPIH and AMH is equitable. Additional consideration for membership and function of the governing body include representation across AHS departments, as well as from government, community, and research and academia/ SCNs. There should also be opportunity for presentations and engagement with diverse stakeholders.

Recommendation 7: Ensure suicide prevention is an explicit priority across various AHS publicly available documents.

Currently, suicide prevention is not articulated in the *AHS Health Plan and Business Plan 2017-2020*, nor is it articulated in the *Alberta Health Business Plan 2017-2020*. Additionally, the previous iteration of the Suicide Prevention Action Plan was only available internally; therefore, suicide prevention is not explicitly articulated in AHS supported documentation. As suicide crosses many program areas and departments, it is important for improved coordination across AHS and enhanced accountability through explicitly articulating suicide prevention as a priority.

Finally, many of the evaluation reports identify that suicide prevention cannot happen on its own as there is a cultural component to it, however with the integration of the evidence and learnings from the national strategies, AHS can significantly contribute to the prevention of suicide in Alberta.