Suicide Prevention: A Review and Policy Recommendations

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INTRODUCTION

Suicide is a tragic and complex public health problem that impacts individuals, families and communities. Across the globe, almost 800,000 people die by suicide every year, or about 1 person every 40 seconds.[1] Suicide accounts for more deaths each year than war and homicide combined.[2] For each person that dies by suicide, 25 to 30 others engage in non-fatal suicidal behaviour and 7 to 10 others are left bereaved[3]—though this latter number is likely much higher.[4] Despite the widespread impact of suicide, we still need a better understanding of why some people take their own lives and the best way to help them. Part of the reason we still have so much to learn about suicide is the complex nature of suicide itself; but the larger problem is that governments and decision-makers do not prioritize suicide prevention.[5] This means that suicide does not get the same recognition and resources as other public health problems such as cancer, heart disease, diabetes and HIV.

As Canada's largest teaching hospital focused on mental health, including addictions, CAMH is committed to suicide prevention.* We regularly assess and care for patients experiencing suicidal thoughts in our Emergency Department; provide ongoing treatment to those with risk factors for suicide; and support people who are grieving a loss by suicide. CAMH researchers are investigating the root causes of suicide and are developing and evaluating innovative suicide prevention strategies. Along with numerous other experts in the field—including clinicians; researchers; people who have experienced suicidal thoughts, behaviours or attempts; family members; and communities—CAMH is contributing to the growing knowledge base on suicide prevention. We recognize, however, that there is much more for all of us to do. Most urgent for CAMH and the mental health community is the need to address the lack of resources that makes it difficult to meet the needs of everyone who is experiencing an acute suicidal crisis.

In this paper, we will take a look at what we do know about suicide. We will highlight suicide-related statistics for Canada, provide an overview of risk factors and warning signs, and discuss a range of suicide prevention strategies that are known to work or that show promise of future success. To conclude, we will offer five recommendations to governments and decision-makers on how to advance suicide prevention efforts in Canada.

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* At CAMH, our commitment to suicide prevention includes preventing suicide deaths and reducing suicidal thoughts, behaviours and attempts.

[1] WHO, 2014
[2] WHO, 2019
[3] PHAC, 2016a
[4] Young et al., 2012; Feigalman et al., 2018
[5] WHO, 2014

Suicide in Canada

About 4,000 Canadians die by suicide each year, an average of 11 suicides a day.[6] For every suicide death in Canada, there are 5 hospitalizations due to self-harm.[7] Suicide is the 9th leading cause of death in our country,[8] but is more prevalent among some groups:

- More than 75% of suicides involve men, but women attempt suicide 3 to 4 times more often.[9]
- More than half of suicides involve people aged 45 or older.[10]
- In 2018, suicide accounted for 21% of deaths among children aged 10 to 14, 29% among youth aged 15 to 19, and 24% among young adults aged 20-24.[11]
- After unintentional injuries, suicide is the second leading cause of death for people aged 15 to 24.[12]
- In 2018, suicide was the leading cause of death for children aged 10 to 14.[13]
- About 33% of lesbian, gay and bisexual youth have attempted suicide, compared to 7% of youth in general.[14]*
- The suicide attempt rate for transgender (trans) people ranges from about 32%–50%.[15]*
- The suicide rate for First Nations youth is about 6 times higher than for non-Indigenous youth.[16]
- Among Inuit youth, the suicide rate is about 24 times higher than for non-Indigenous youth.[17]

Each suicide is a tragedy that devastates families, friends and communities. That is why it is imperative that we better understand who is at risk of suicide and how suicide can be prevented.

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* These statistics are not specific to Canada

[6] Statistics Canada, 2020
[7] PHAC, 2016a
[8] Ibid.
[9] Navaneelan, 2017
[10] Statistics Canada, 2020
[11] Ibid.
[12] Ibid
[13] Ibid.
[14] Saewyc, 2009
[15] Virupaksha, Muralidhar & Ramakrishna, 2016
[16] Kumar & Tjepkema, 2019
[17] Ibid.

Who is at risk of suicide?

There is not one single risk factor for suicide. Suicide is typically the result of a complex interplay of individual, social and environmental risk factors moderated by protective factors such as positive social support and coping skills.[18] People with multiple risk factors are usually at the highest risk for suicide;[19] however, it is widely recognized that a prior suicide attempt is the strongest known risk factor for suicide.[20] A history of deliberate self-harm and/or suicidal thoughts is also a significant risk factor for suicide.[21]

In this section, we look at the most common risk factors for suicide, as well as the warning signs that may indicate an imminent suicidal crisis.

DEMOGRAPHICS

Some demographic groups are at a higher risk for suicide than other groups. Men die by suicide at higher rates than women, though women attempt suicide at higher rates than men.[22] Across the globe, young people age 15 to 29 account for the most suicide deaths, while seniors are 8 times more likely to die by suicide than any other age group.[23] Low socio-economic status (i.e., low income, unemployment, low education) is also associated with suicide.[24] Other socio-demographic groups that are at a higher risk for suicide include Indigenous Peoples; pregnant women; refugees and migrants; LGBTQ+ people; doctors; police; military members; prisoners; and those in high security hospitals.[25] In Canada, two populations that are particularly vulnerable to suicide are Indigenous Peoples and trans people.

Indigenous Peoples

The suicide rates among some Indigenous communities in Canada are higher than in the general population. Among First Nations, the suicide rate is 3 times higher than in the general population; the rate for Métis is 2 times higher and for Inuit it is 9 times higher.[26] However, suicide does not affect all Indigenous communities equally, and some communities have not experienced any suicides.[27] Cultural continuity, and particularly attainment of self-government, is strongly correlated with lower suicide rates in Indigenous communities.[28]

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[18] CAMH, 2018
[19] Ibid.
[20] WHO, 2018
[21] AAS, n.d.
[22] Bachmann 2018; Navaneelan, 2017
[23] As cited in Bachman, 2018
[24] Bachman, 2018; MHCC, 2018
[25] Bachman, 2018; MHCC, 2018; WHO, 2018
[26] Kumar & Tjepkema, 2019
[27] Ibid.
[28] Chandler & Lalonde, 2008

Social equity, safe and nurturing family environments, as well as mental wellness and healthy coping strategies, are also protective factors for Indigenous Peoples.[29]

There are many interconnected social, community and individual factors that contribute to the increased risk of suicide in some Indigenous communities. Government legislation and policies aimed at colonizing and assimilating Indigenous Peoples created severe and ongoing harm to communities at a systemic level. Historical losses and trauma (e.g., genocide, relocation, coerced settlement), residential schools, removal of children into care and medical treatments in southern institutions led to ongoing impacts through intergenerational trauma and social inequity (e.g., systemic racism, poverty, housing and food insecurity), which has contributed to elevated suicide rates in Indigenous communities.[30] Suicide risk in these communities is further compounded by mental illness (including substance use disorder), exposure to high rates of suicide, and high rates of childhood adversity and abuse.[31] About 25–50% of Indigenous people in Canada have experienced childhood sexual abuse, which is strongly co-related with suicide.[32] In some communities, sexual abuse has been passed on through generations as people harmed by abuse re-enact this trauma on others, contributing to the high rates of suicide in these communities.

Trans people

It is difficult to determine how many trans people die by suicide, because gender identity data is not included on death certificates, and trans people are frequently categorized according to the sex assigned to them at birth. There is some data, however, on suicide attempt rates for trans people. As noted previously, the suicide attempt rate for trans people across the globe ranges from about 32% to 50%.[33] Research from Ontario found that 77% of trans people have seriously considered suicide in their lifetime and 43% have attempted suicide.[34] Trans youth are at greatest risk for suicide within the wider trans community. While trans people can be impacted by some of the same suicide risk factors as the general population, there is also a clear link between transphobia and suicide.[35] Trans individuals who experience high levels of transphobia are more likely to consider suicide than those who experience lower levels, while those who experience transphobic physical or sexual violence are 7 times more likely to attempt suicide than those who do not.[36] There is also a clear link between medical transition status and suicidal behaviour. People who are planning or in the process of medically transitioning (e.g., hormone therapy and/or gender affirming surgery)

[29] Benedict, 2015; ITK, 2016

[30] Benedict, 2015; Crawford, 2016; ITK, 2016; Crawford & Hicks, 2018

[31] Chachamovich et al., 2015; Crawford, 2016; ITK, 2016; Crawford & Hicks, 2018; Zai et al., 2019

[32] Collin-Vézina, Dion & Trocmé, 2009

[33] Virupaksha, Muralidhar & Ramakrishna, 2016

[34] Bauer et al., 2013

[35] Lam & Abramovich, 2019

[36] Bauer et al., 2013

have a higher rate of suicide attempts than those who have already completed their medical transition or those who are not interested in medically transitioning.[37]

MENTAL ILLNESS

Mental illness, including substance use disorder, is one of the most common risk factors for suicide. Ninety per cent of suicide deaths are associated with mental illness.[38] People with substance use disorders, depression and psychosis are particularly at risk.[39] The suicide rate for people with schizophrenia spectrum disorders, for example, is over 20 times higher than the general population.[40] Risk also exists for people with bipolar disorder,[41] anxiety disorders, personality disorders, eating disorders, trauma-related disorders and organic mental disorders.[42] People with alcohol use disorder have a significantly increased risk for suicide,[43] and there is a direct link between problem gambling and suicide.[44] There is also an association between chronic cannabis use and suicidal behaviours, in both adults[45] and youth.[46]

While mental illness is present to some degree in the majority of people who die by suicide, the vast majority of people with mental illness do not die by suicide. For those with depression, there does appear to be a link between depression severity and the likelihood of attempting suicide.[47] However, the mechanisms by which mental illnesses lead to suicide in some people remain unclear. A small, recent research study did find a strong association between suicide, exhaustion, and desire to exert personal autonomy in people with mental illness who were struggling with control, self-blame and hopelessness related to their illness and treatment inefficacy.[48] This discovery points to a potential path for future investigation.

TRAUMA

Exposure to violence, abuse and other traumas is a common risk factor for suicide.[49] Childhood trauma, in particular, is associated with a twofold to threefold increase in suicide

[37] Ibid
[38] Henriksson et al., 1993; Cavanagh et al., 2003
[39] Bradvick, 2018
[40] Zaheer et al., 2020
[41] Simpson & Jamison, 1999
[42] Bradvik, 2018
[43] Darvishi et al., 2015
[44] Giovanni et al., 2016
[45] Borges, Bagge & Orozco, 2016
[46] Carvalho et al., 2019
[47] Bradvik, 2018
[48] Furqan et al., 2018
[49] WHO, 2018; MHCC, 2018

attempts in adults,[50] with those who have experienced physical, emotional or sexual abuse, or physical neglect, being most at risk.[51] Repetitive incidents of childhood abuse also increase suicide risk.[52] Youth who experience childhood trauma are more likely to attempt suicide than their peers, and are more likely to die by suicide before they turn 20.[53] Childhood sexual abuse puts youth at a significant risk of suicide.[54] Bullying, including cyberbullying, is also associated with an increased risk for suicide attempts in youth.[55] While theories exist regarding the link between childhood trauma and suicide,[56] the exact reasons why people exposed to childhood trauma are at an increased risk of suicide remain unknown.[57]

FAMILY HISTORY

People who have a family history of suicide are at an increased risk for suicide. The hereditary nature of suicidality is strongly supported by research and, while a definitive cause and effect has yet to be found to this transmission, it may actually be separate from the hereditary transmission of mental illness.[58] To date, research on the link between specific genes and suicidal behaviour has been inconclusive; experts believe that multiple genes are likely involved.[59] Broader genome-wide studies have provided evidence for a link between certain combinations of genes and suicidal behaviour, but more research is needed to confirm these findings and to identify additional genetic risk factors for suicide.[60] Experts also highlight that it will be important to understand how genetic risk factors interact with other factors (e.g., environment, personality traits) to increase the likelihood that an individual will engage in suicidal behaviour.[61]

PSYCHOSOCIAL FACTORS

Life stressors and the inability to cope with such stressors can increase a person's risk for suicide. Relationship problems, financial or employment problems, loss of housing, legal issues, physical health problems and a recent or impending life crisis can increase a person's suicide risk.[62]

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[50] Angelakis, Gillespie & Panagiotti, 2019
[51] Zatti et al., 2017
[52] Angelakis, Gillespie & Panagiotti, 2019
[53] Castellvi et al., 2017
[54] Ibid.
[55] Castellvi et al., 2017; MHCC, 2018
[56] Joiner, 2009
[57] Angelakis, Gillespie & Panagiotti, 2019
[58] Zai et al., 2012
[59] Ibid.
[60] Willour et al., 2012; Levey et al., 2019
[61] Zai et al., 2012
[62] WHO, 2018; CDC; 2018; AAS, n.d.

ACCESS TO LETHAL MEANS

Ready access to lethal means such as firearms or large doses of medications is a well-known risk factor for suicide.[63]

Identifying those at risk

It is widely accepted that risk factors are the best way to identify those who are at elevated risk for suicide. But even when these factors are present, it is still difficult to predict who will attempt suicide and when. This is because we do not know how risk factors work to increase the likelihood of suicide, or why individuals can respond differently to the presence of similar risk factors. Part of the challenge is that most research in the area focuses on the influence of a single risk factor, and very few studies look at the combined effect of multiple risk factors.[64] To improve our ability to estimate suicide risk, experts have suggested moving beyond research on individual risk factors to studies that use big data and machine learning to identify risk algorithms.[65]

WARNING SIGNS OF SUICIDE

Warning signs indicate that a person may be experiencing an acute suicidal crisis, particularly if they also have any risk factors for suicide. Common warning signs include talk of suicide and/or a suicide plan; intoxication or withdrawal from substances; psychological distress (e.g., hopelessness, psychological turmoil, decreased self-esteem); behavioural concerns (e.g., aggression, severe anxiety, agitation); and cognitive challenges (e.g., constricted thinking, where a person may be unable to see any alternatives to suicide).[66]

How can suicide be prevented?

Suicide is always a tragic result of many complex and interconnected risk factors, and requires prevention strategies that are multi-faceted and tailored to individuals and communities. Strategies not only need to focus on preventing suicide, but also on reducing suicidal thoughts and behaviours. The Mental Health Commission of Canada has highlighted the need to implement such comprehensive prevention strategies to reduce suicide risk in Canada.[67] There is also evidence and emerging evidence that demonstrates that there are suicide prevention strategies that can work.[68]

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[63] CAMH, 2018
[64] Franklin et al., 2016
[65] Ibid.
[66] CAMH, 2018
[67] MHCC, 2017
[68] Zalsman et al., 2016

In this section, we look at a variety of proven and promising suicide prevention strategies. It should be noted that suicide prevention strategies are strengthened when aligned with other strategies that focus on bolstering protective factors such as strong personal relationships and positive coping strategies.[69]

UNIVERSAL PREVENTION STRATEGIES

Universal suicide prevention strategies target an entire population, not just people with risk factors.[70] One of the most effective universal prevention strategies is restricting access to lethal means. Public health policies that control access to painkillers, restrict access to firearms and erect barriers in places where suicide by jumping is common are known to reduce the number of suicides in communities that implement them.[71] Suicide rates are also lower in communities where there is better access to mental health care.[72] Communities with restrictive alcohol policies tend to have lower suicide rates than those where alcohol is more readily available. While more research is needed in this area, it appears that alcohol restriction works by reducing both binge drinking (a warning sign for suicide) and chronic heavy drinking (a risk factor for suicide).[73]

Responsible media reporting is a universal suicide prevention strategy that some experts have estimated can prevent more than 1% of suicides.[74] Responsible media reporting aims to minimize glamorized accounts of suicide, which are associated with higher rates of suicide among vulnerable people, particularly youth and seniors.[75] Numerous countries have developed media reporting guidelines to support the responsible coverage of suicide. Many of these guidelines are based on recommendations from the World Health Organization.[76] They include an evidence-informed framework from the Canadian Psychiatric Association that recommends that media reports covering suicide use appropriate language, reduce the stigma of mental illness, and highlight alternatives to suicide.[77] Evidence suggests that media reporting guidelines can be effective in changing reporting behaviour and reducing suicide, but key to this effectiveness is media involvement in the development of the guidelines and an active dissemination strategy.[78] While responsible media reporting is

[69] WHO, 2014
[70] WHO, 2014
[71] Zalsman et al., 2016
[72] Rand Corporation, 2018; Zalsman et al., 2016
[73] Xuan et al., 2016
[74] as cited in Sinyor et al., 2018
[75] Sisak & Värnik, 2012; Sinyor et al., 2018
[76] WHO, 2008
[77] Sinyor et al., 2018
[78] Bohanna & Wang, 2012

clearly a promising prevention strategy, experts have indicated that more high-quality research is needed to confirm its effectiveness.[79]

Another universal suicide prevention strategy is public education and awareness campaigns that use mass media, such as billboards, to convey messages of hope for people who are suicidal, along with the contact information for suicide helplines.[80] Such campaigns can significantly increase calls to suicide helplines, though it is not clear if they actually prevent suicide.[81]

School-based education and awareness campaigns that address mental health literacy, suicide risk awareness and skills training can significantly reduce suicidal thoughts and behaviours in children and adolescents.[82]

SELECTIVE PREVENTION STRATEGIES

Selective prevention strategies specifically target groups of people who are at risk of suicide.[83] People with depression are one of these at-risk groups and a successful selective prevention strategy that targets these individuals is physician education. Educating physicians on how to recognize and treat depression increases the prescription of antidepressants to those in need and ultimately reduces the number of suicides among this at-risk group.[84]

Suicide screening is an important suicide prevention strategy that can identify who is at a high or acute risk of suicide, and can alert experts to the need for further assessment and treatment. Suicide screening programs implemented universally do not appear to reduce suicides in the general population. However, selective screening programs, in both schools and primary care settings, that target those with known risk factors for suicide can successfully identify those at high or acute risk and connect them to mental health treatment.[85] Selective suicide screening programs in primary care and other health care settings are particularly important given that three-quarters of people who die by suicide have had contact with their primary care provider in the year before their death (and about 45% have had contact within 1 month of their suicide).[86]

[79] Sinyor et al., 2018

[80] Oliver et al., 2010

[81] Zalsman et al., 2016

[82] Ibid.

[83] WHO, 2014

[84] Mann et al., 2005; Zalsman et al., 2016

[85] Zalsman et al., 2016

[86] Luoma, Martin & Pearson, 2002

A substantial number of people who die by suicide have also had contact with other health care providers in the year prior to their deaths.[87] The Zero Suicide model is a promising evidence-informed selective suicide prevention model that has been implemented in numerous ambulatory and inpatient health care facilities in the United States.[88] The core component of the model is training health care providers to systematically screen all patients who have any known risk factor(s) for suicide.[89] The Zero Suicide model also includes clinical assessment, a structured care protocol, evidence-informed treatment, support for care transitions and commitment from leadership.[90] Preliminary data suggest that this model can reduce a health care facility's suicide rate by 65%.[91]

"Gatekeeper" training is another well-recognized selective suicide prevention strategy that involves training professionals and/or community members who interact with at-risk populations to identify the warning signs of a suicide crisis and how best to respond. While it is not yet evident that gatekeeper training can directly prevent suicide, it does have potential to increase referrals to mental health treatment.[92] Telephone crisis services or "helplines" are another common selective suicide prevention strategy. Helplines may be able to prevent suicide by decreasing callers' immediate intention to harm themselves and reducing their psychological distress over a period of time,[93] but more research is needed to determine their effectiveness.[94]

INDICATED PREVENTION STRATEGIES

Indicated prevention strategies target individuals who have been identified as being at high risk for suicide.[95] One commonly used indicated prevention strategy is the suicide risk assessment. Suicide risk assessments are conducted by highly trained professionals and involve an extensive examination of risk factors and warning signs, as well as protective factors and collateral information.[96] A completed suicide risk assessment provides professionals with more detailed information about a person's suicide risk and helps them to develop an individual intervention plan. Suicide risk assessments can involve the use of evidence-informed tools such as the Columbia Suicide Severity Rating Scale (CSSRS)[97] and

[87] Luoma, Martin & Pearson, 2002; Ahmedani et al., 2014
[88] Hogan & Goldstein Grumet, 2016
[89] Ibid.
[90] Ibid.
[91] Ibid.
[92] Zalsman et al., 2016
[93] Gould et al., 2007
[94] Zalsman et al., 2016
[95] WHO, 2014
[96] CAMH, 2018
[97] Posner et al., 2011

the Suicide Assessment Five-Step Evaluation and Triage (SAFE-T).[98] While these assessment tools are used extensively across health care settings and are supported by the American Psychiatric Association,[99] they still only provide an estimation of risk, not a definitive determination.[100] Experts at CAMH have indicated that more research is needed to refine suicide risk assessments and ensure applicability across populations.[101]

Providing brief follow-up contact to people who have attempted suicide is an indicated suicide prevention strategy that shows some promise. Contacting individuals through postcards in the mail, or providing information and support through telephone or face-to-face contacts, have been shown to reduce suicides in low-income countries, but does not always reduce repeat suicide attempts.[102] Nevertheless, experts believe this is an important area for further research. Currently CAMH, in partnership with the Centre for Research on Suicide, Ethical Issues and End of Life Practices (CRISE) at the University of Quebec at Montreal, is leading an implementation study of brief follow-up in Nunavut to determine if this intervention will work for a group of high-risk individuals.

Medication is a common indicated suicide prevention strategy for people with mental illness at high risk of suicide. Clozapine is highly effective at reducing suicidal behaviours in people with schizophrenia, while lithium is effective for people with mood disorders and selective serotonin reuptake inhibitors (SSRIs) show positive results for people with depression.[103] There has been some concern about SSRIs and their potential association with increased suicide risk, particularly in children and youth. While SSRIs may cause an increase in suicidal thoughts in some people when they first start taking this medication, there is no indication that there is an increase in suicidal behaviours.[104] Experts note that the association between SSRIs and increased suicidal thoughts should be an important consideration for physicians treating those with depression; however, due to the increased risk of suicide in people with untreated depression, this should not prevent physicians from prescribing SSRIs, including to children and youth.[105] Finally, ketamine is a medication that shows promise for rapidly reducing suicidal thoughts in people with depression, but research is still in its early stages.[106]

One of the most effective indicated suicide prevention strategies for people with depression is electro-convulsive therapy (ECT). ECT can rapidly reduce suicidal thoughts in people with

[98] Armitage et al., 2016

[99] APA, 2003

[100] CAMH, 2018

[101] See, for example, Abramovich & Cleverley, 2018

[102] Fleishmann et al., 2008; Bertolote et al., 2010; Zalsman et al., 2016

[103] Zalsman et al., 2016

[104] Ibid.

[105] Ibid.

[106] Reinstatler & Youssef, 2015

depression, but given the significant risks and stigma associated with the procedure it is often seen as a last resort. Because it is so effective, however, some experts say that ECT should be offered earlier in the treatment process to patients with depression who are at high risk of suicide.[107]

A potential alternative to ECT is repetitive transcranial magnetic stimulation (rTMS), a less invasive and better tolerated brain stimulation technique. CAMH researchers recently found that rTMS was able to reduce suicidal thoughts in people with treatment-resistant depression.[108] While rTMS is not as effective as ECT at reducing suicidal thoughts, experts recommend that it be offered to patients as an alternative to ECT and that research continue in this area.[109]

Psychotherapy is another effective indicated suicide prevention strategy. In particular, cognitive behavioural therapy (CBT) can reduce suicidal thoughts and behaviours, particularly among people with schizophrenia, while dialectal behaviour therapy (DBT) can have the same impact on people with borderline personality disorder.[110] Adapting CBT and DBT for delivery by internet, telephone and text also shows some early promise for reducing suicidal thoughts.[111] Other therapies, such as group therapy and family-based therapy, show potential for reducing suicidal thoughts in adolescents.[112] CAMH, along with Toronto's SickKids hospital, is currently contributing to knowledge in this area by piloting a program that provides acutely suicidal adolescents with
6 weeks of individual and family-based psychotherapy after they have left the Emergency Department.

The role of social media in suicide prevention

Given the prevalence of social media in our lives, it is not surprising that there is a lot of discussion about whether, and how, social media should be used in suicide prevention. Social media shows significant potential for suicide prevention, from educating and informing the public, to replacing or supplementing treatment for those at risk of suicide, to providing discussion forums for people who have been suicidal or those impacted by suicide.[113] Social media has several advantages over traditional approaches to suicide prevention. Social media is able to reach difficult-to-engage people, provides an

[107] Kellner et al., 2005
[108] Weissman, et al., 2018
[109] Ibid.
[110] Zalsman et al., 2016
[111] Kreuze et al., 2017
[112] Zalsman et al., 2016
[113] Robinson et al., 2016

anonymous forum for giving and receiving support, and allows users to quickly identify a crisis and potentially to intervene.[114] While there are potential benefits of social media in suicide prevention, experts agree that more research is needed to determine how social media can be used safely in this manner.[115] Experts also highlight the need for collaboration between mental health professionals and social media organizations to develop guidelines for the responsible sharing of information on suicide (similar to traditional media guidelines).[116] Some advocates also identify the need for search optimization strategies to increase the visibility of helpful sites over harmful sites, while others are calling for the removal of pro-suicide sites and links from social media entirely.[117]

MULTI-LEVEL SUICIDE PREVENTION STRATEGIES

While universal, selective and indicated suicide prevention strategies can be implemented on their own, comprehensive and integrated strategies that target suicide at multiple levels are considered best practice.[118] Multi-level suicide prevention strategies can differ in composition and scope, but typically include common interventions such as restricting access to lethal means, public education and awareness campaigns, responsible media reporting, better detection of mental illness and better access to care, training for health care professionals, crisis intervention and post-suicide supports.[119] When multi-level strategies are implemented nationally, they can reduce suicide rates, particularly among seniors and youth.[120]

A community-based multi-level suicide prevention strategy that shows promise is the Nuremberg Alliance Against Depression (NAAD). This two-year intervention targets depression and suicide prevention through a public awareness campaign, media guidelines, training and support for primary care physicians, gatekeeper training, and supports for people with depression and their families (including post–suicide attempt). The intervention is associated with a 24% reduction in suicidal behaviours (completed and attempted suicides). NAAD has been adapted in more than 100 regions in Germany and elsewhere in Europe, and now typically includes interventions that reduce access to lethal means.[121]

[114] Ibid.
[115] Robinson et al., 2016; Sinyor et al., 2018
[116] Sinyor et al., 2018
[117] Robinson et al., 2016
[118] PHAC, 2016b; MHCC, 2017; WHO, 2018
[119] Matsubayahsi & Ueda, 2011
[120] Ibid.
[121] Hergerl et al., 2013

SUICIDE PREVENTION IN VULNERABLE POPULATIONS

Indigenous communities

There is very little evidence on the effectiveness of suicide prevention strategies in Indigenous communities.[122] Implementation and evaluation of these strategies is hindered by lack of funding, poor research infrastructure and collaboration challenges between researchers and Indigenous communities.[123] Despite limited evidence, experts know there is a need for culturally relevant as well as culturally adapted suicide prevention strategies for Indigenous communities. They also recommend that such strategies align with the First Nations Mental Wellness Continuum and focus on supporting people in achieving mental wellness through finding purpose, hope, belonging and meaning in their lives.[124]

Suicide prevention strategies in Indigenous communities are necessary at different levels. Localized strategies that recognize historical circumstances are needed, particularly in communities impacted by the widespread trauma of sexual abuse. Multi-level interventions that are led and owned by Indigenous communities are also needed.[125] For example, the National Inuit Suicide Prevention Strategy (NISPS) in Canada is a multi-level intervention informed and led by Inuit. The intervention focuses on 6 key priority areas: establishing social equity; creating cultural continuity; nurturing the health of Inuit children; ensuring access to a continuum of mental wellness services; healing unresolved trauma and grief; and mobilizing Inuit knowledge for reliance and suicide prevention.[126] NISPS is still in its early stages, but there is a plan in place to evaluate its impact in the Inuit community.[127]

Trans population

Suicide prevention strategies for the trans population are limited. The main strategy appears to be telephone crisis services such as the Trans Lifeline, which provides peer support to people in crisis, and the Trevor Project, which offers professional support to trans youth in crisis through talk, text and messaging. However, it is unclear if these helplines actually reduce suicides among trans individuals. Experts note that suicide prevention strategies for the trans population must address, or align with other strategies that look at, external factors that contribute to high suicide rates in this population. For example, increasing parental support for one's gender identity is associated with a 93% reduction in suicide attempts among trans youth,[128] and it is estimated that reducing experiences of transphobia

[122] Hatcher, Crawford & Coupe, 2017
[123] Ibid.
[124] Assembly of First Nations & Health Canada, 2015
[125] Hatcher, Crawford & Coupe, 2017
[126] ITK, 2016; Crawford, 2016
[127] Ibid.
[128] Travers et al., 2012

could prevent almost 9% of suicide attempts among trans Ontarians each year.[129] Therefore, strategies that aim to increase social support and inclusion and reduce transphobic violence and discrimination, as well as increase access to medical transition, have the potential to significantly reduce suicide risk among trans people and should be a part of any suicide prevention strategy for this population.[130]

In addition to trans-specific suicide prevention strategies, trans people likely benefit from broader evidence-informed universal, selective and indicated prevention strategies such as those highlighted in this paper. The challenge is that most health research does not include information on trans and gender expansive identities, making it difficult to accurately determine which strategies are most effective at preventing suicide in this vulnerable population.[131] To address this challenge, experts recommend that suicide prevention researchers become more trans inclusive in their work.[132]

What is next for suicide prevention?

The reasons that people die by suicide are complex. While we are able to identify several individual, social and environmental risk factors for suicide, as well as warning signs, we still do not fully understand why some people take their own lives. We also do not know how to prevent all suicides. There are various evidence-informed strategies that we know can prevent some suicides, but they are not necessarily being implemented. There are other promising suicide prevention strategies, but we need more research to confirm their effectiveness. It is also likely that different suicide prevention strategies will be needed for different populations. Further, given the complex nature of suicide, prevention strategies will need to address a broad range of social issues.

CAMH recognizes the significant advances that clinical experts and researchers have made in suicide prevention efforts to date. Their work has undoubtedly saved lives. But other lives have been lost and more will continue to be lost if we do not prioritize suicide prevention in Canada.

To escalate suicide prevention efforts, CAMH makes the following five recommendations to governments and decision-makers.

[129] Bauer et al., 2015

[130] Ibid.

[131] Abramovich & Cleverly, 2018

[132] Ibid.

RECOMMENDATION 1: RECOGNIZE SUICIDE AS A PUBLIC HEALTH PRIORITY

Given its widespread impact, suicide must be recognized as a public health priority. Suicide prevention must be given the same recognition and resources that are provided to other public health problems such as cancer, heart disease, diabetes and HIV. This will require government investments in evidence-informed suicide prevention strategies, including efforts to reduce suicidal ideation and behaviours. These suicide prevention strategies should include multi-level, multi-sectoral interventions that are coordinated across communities. Evaluation will be imperative. A national and/or provincial/territorial suicide prevention strategy may be one way to ensure a comprehensive and coordinated approach to suicide prevention. It would also ensure that suicide receives the recognition and investments needed to elevate its status as a public health priority.

RECOMMENDATION 2: SUPPORT SUICIDE PREVENTION STRATEGIES THAT WORK

Improve access to mental health care

Mental health care can prevent suicide at the population and individual levels. Given that 90% of suicides are associated with mental illness, this is a key area where immediate action is needed. Governments must invest in improving access to evidence-informed mental health care so that people can receive treatment and support before they become suicidal. This may include education for family physicians on how to recognize and treat depression and other common mental illnesses, but will also require efforts to reduce waiting lists for specialized mental health services and to ensure that these services are accessible in every community.

Resources are also needed to ensure that people with mental illness who are at risk of suicide have access to a full range of evidence-informed interventions, including medications, ECT and psychotherapies. Given the link between childhood trauma and suicide, these mental health interventions should be trauma-informed. Most urgently, rapid access to mental health care must be available for people who are at an acute risk of suicide or experiencing a suicidal crisis.

Implement evidence-informed strategies

There are suicide prevention strategies that we know work, and governments and decision-makers should make every effort to ensure that these strategies are implemented in their communities. One potential strategy is to restrict access to lethal means. For example, establishing policies that limit access to medications that people are known to overdose on, or erecting barriers in places that people are known to jump, are two approaches that could be implemented. Given the success of school-based suicide education and awareness campaigns, these interventions should also be considered for widespread implementation.

Suicide screening for at-risk populations in schools and primary care settings should be implemented, given the success of such programs in identifying those at high risk for suicide and connecting them with mental health care. Implementing systematic, comprehensive suicide screening and care strategies in health care settings (e.g., the Zero Suicide model) should also be considered.

RECOMMENDATION 3: INVEST IN SUICIDE RESEARCH

There is still much that we do not know when it comes to suicide prevention, and the best way to learn more is to invest in research. There are many potential areas for future research, but overall this research should strive to be collaborative and should integrate multiple disciplines, including epidemiology, psychology, and neurobiological and clinical research. Research that incorporates longitudinal designs and big data approaches is also recommended.[133]

Research suicide risk factors

More research is needed to better understand the risk factors for suicide. Knowing more about risk factors could lead to the development of specific risk profiles and prediction models. It could also contribute to the creation of more accurate screening and assessment tools as well as better, targeted interventions. Research on risk factors should include studies to determine causality. We need to better understand specifically how trauma and particularly childhood adversity increases the risk of suicide in some people. We also need to know why some people with mental illness have, and may act on, suicidal thoughts, while others do not. More research on the hereditary nature of suicide is crucial, in particular studies that look at the genetic components. It may also be worth investigating other potential risk factors for suicide. For example, some studies have connected suicide with brain inflammation and low levels of serotonin,[134] and preliminary research from CAMH has linked suicide to tobacco use[135] and food insecurity.[136]

Suicide is typically the result of multiple, intersecting individual, social and environmental risk factors. Research is needed to better understand how these risk factors interact to increase suicidality in some people. Studies using big data and machine learning could help by identifying suicide risk algorithms.[137] We also need to know how various risk factors may be exacerbated or moderated in different populations, such as in racialized or ethno-cultural groups, LGBTQ+ populations and Indigenous Peoples. Finally, there is early research from CAMH that people with schizophrenia who die by suicide differ markedly from people with

[133] MHCC, 2018
[134] Ibid.
[135] Lange et al., 2019
[136] Probst et al., under review
[137] Franklin et al., 2017

other mental illnesses who die by suicide.[138] Further investigation in this vein is needed to determine how risk factors may differ or even manifest differently within high-risk groups.

Research suicide prevention strategies

There are suicide prevention strategies that show promise. We need on-the-ground research to learn more about how these strategies work, for whom they work, and in what contexts. Strategies such as responsible media reporting, gatekeeper training and telephone crisis services are common, but we do not yet know the extent to which they can prevent suicide. Technology-based interventions and social media may provide new opportunities for suicide prevention, but may actually increase suicide risk for some people. Studies are needed to determine how to best harness the potential benefits of such strategies. Mental health interventions such as ketamine, rTMS and group and family therapy show significant potential for suicide prevention, and deserve further exploration. Multi-level interventions, such as the evidence-informed NAAD in Germany and across Europe, could be adapted for the Canadian context and piloted in communities across the country. Finally, most suicide prevention strategies focus on preventing the act of suicide, but suicidal thoughts and attempts are also extremely distressing; further research should look at strategies that target the broader components of suicide.

RECOMMENDATION 4: DEVELOP TARGETED SUICIDE PREVENTION STRATEGIES FOR DIFFERENT POPULATIONS

Research on broad-based suicide prevention strategies is necessary and important, but targeted strategies are also needed to meet the needs of different, high-risk populations. For example, people with mental illness who are experiencing an acute suicidal crisis are an extremely high-risk group that could benefit from Emergency Department interventions tailored specifically to their unique needs. Other high-risk groups that could benefit from targeted interventions include Indigenous communities and the trans population.

Indigenous communities

More community-based research on suicide prevention strategies for Indigenous communities is critically needed. Research should focus on both local-level and multi-level approaches, and should examine culturally relevant interventions developed by Indigenous communities as well as evidence-informed interventions adapted for Indigenous communities. These strategies should incorporate upstream prevention efforts that address intergenerational trauma, childhood adversity and the social determinants of health, and should be aligned with the First Nations Mental Wellness Continuum.[139] Any suicide prevention strategy for Indigenous communities must be collaborative, be driven by the

[138] Zaheer et al., 2018

[139] Assembly of First Nations & Health Canada, 2015

community and reflect Indigenous knowledge and experiences. Evaluation of Indigenous suicide prevention strategies should examine a broad array of outcomes that are measured over the long term.[140]

Trans population

Suicide prevention research is needed to address the extremely high rates of suicide in the trans population. Such strategies could include adapting evidence-informed interventions for this group, given that existing interventions often reflect binary notions of gender. Suicide prevention strategies for the trans population need to be developed in collaboration with transgender and gender expansive individuals and should include, or align with, other strategies that address transphobia, social inclusion and access to medical transition. It is imperative that researchers investigating broader suicide prevention strategies take a trans-inclusive approach to their research to ensure that the impacts of such interventions on the trans population are reflected
in their findings.

RECOMMENDATION 5: ADDRESS THE BROAD RANGE OF SUICIDE RISK FACTORS

Most suicide prevention strategies focus solely on preventing or intervening in an acute suicidal crisis, and/or providing treatment for mental illness. However, we know that there are a broad array of risk factors for suicide, and strategies to prevent and/or address these factors could bolster suicide prevention efforts. Suicide prevention strategies should include or align with upstream approaches that address childhood abuse, the social determinants of health, structural racism, colonialism, transphobia, etc. Including or aligning with approaches that build on protective factors would also be beneficial. These broader and more robust approaches to suicide prevention will require collaborations outside of the health care sector.

Every suicide is a tragedy. At CAMH we are committed to preventing suicide and ensuring that every life is worth living. We know that others share this dedication and that together our efforts will make an impact. But we need more support to get this done. CAMH believes that the five recommendations made in this paper will make a significant impact on suicide prevention efforts in Canada. We encourage governments and decision-makers to move quickly on behalf of the 4,000 Canadians who will die by suicide this year, and their families who will feel the impact forever.

[140] Hatcher, Crawford & Coupe, 2016

For more information on this paper, please contact:
Roslyn Shields, Senior Policy Analyst
(416) 535-8501 ext 32129
roslyn.shields@camh.ca

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