CPSP
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

Medically serious self-harm in youth requiring ICU admission

PROTOCOLS

Principal investigator

Daphne Korczak, MD, MSc, FRCPC (peds), FRCPC (psych), Director, Children's Integrated Mood and Body (CLIMB) Depression Program, Psychiatrist, The Hospital for Sick Children, Assistant Professor, University of Toronto, 555 University Avenue, Rm 1145 Burton Wing, Toronto, ON M5G 1X8; tel.: 416-813-7531; fax: 416-813-5326; daphne.korczak@sickkids.ca

Co-investigators

Cornelius Ani, MBBS, MSc, DCH, MRCP (Paediatrics), MRCPsych, FHEA, MD(Res), Imperial College London
Claude Cyr, MD, FRCPC, Université de Sherbrooke
James Irvine, MD, MSc, CCFP, FCFP, FRCPC, Medical Health Officer, Mamawetan Churchill River Health Region, Keewatin Yatthé Health Region & Athabasca Health Authority, Saskatchewan
Ari Joffee, MD, FRCPC, University of Alberta
Rachel Mitchell, MD, FRCPC, University of Toronto
Robin Skinner, MSP, Public Health Agency of Canada
Antonia Stang, MD, FRCPC, Alberta Children's Hospital
Sam Wong, MD, FRCPC, Stollery Children's Hospital, University of Alberta

Background

Suicide is the second leading cause of death among Canadian adolescents, representing a quarter of all deaths among adolescents aged 15 to 19 years in 2011.[1] A past history of suicide attempts and self-harm are the best known predictors of future suicide attempts.[2] The incidence of suicide attempts peaks in adolescence. As such, while suicide attempts and self-harm behaviour are unfortunately common, death by suicide is comparatively rare. It is estimated that for every completed suicide there are as many as 20 suicide attempts.[3] Youth who make near fatal suicide attempts – such as those requiring intensive care unit (ICU) level care – may closely approximate those who die by suicide. Understanding the differences between youth who attempt suicide and those who die by suicide is important for suicide prevention interventions. Despite the unique and important knowledge that may be gained from understanding near-fatal suicide attempts, research in this area is absent.

Canadian statistics from 2011 reported 198 deaths by suicide among adolescents 15 to 19 years of age, representing a rate of 9 suicide-related deaths per 100,000 in this age group.[4] First Nations, Métis, and Inuit adolescents are at particular risk of suicide, with 5 to 11 times greater rates of suicide among these populations than Canadian youth in general.[5] Although suicide among pre-pubertal children is rare, suicidal thoughts and attempts do occur.[6] Recent data estimates that 29 children from 10 to 14 years of age

died by suicide in 2011 in Canada, representing a suicide rate of 1.5 per 100,000 in this population.

The primary methods of suicide for children and adolescents in Canada were hanging and suffocation.[7] Studies examining trends among children and adolescents have reported increasing suicide rates among females between 1980 and 2008[8], and both boys and girls have experienced an increase in the medical severity of their emergency department (ED) presentations for suicide-related behaviours since 2004.[9] A recent report from the Canadian Institute for Health Information (CIHI) indicates an increasing trend in hospitalizations for intentional self-harm among 10 to17 year olds since 2009/10, particularly among females. Of hospitalizations for self-harm in 2013/14, poisoning was the primary method reported by 88% of females and 82% of males (N=2,140).[10] Males are more likely to die from suicide, in part due to the differences in lethality of means. However, females are three to four times more likely to make a suicide attempt.[11, 12]

While there is literature on youth who die by suicide and literature on youth who self-harm without significant risk of death, data regarding the frequency and nature of near-fatal suicide attempts among children are absent. These data are important to: identify target groups at highest need for preventive intervention; and determine the health care costs and patient outcomes for affected children to inform resource allocation and service delivery decision making. By quantifying the impact and severity of self-harm behaviour requiring ICU level care, this study will provide data to support advocacy for children at high risk of death from self-harm and support the need for a national strategy for suicide prevention among youth.

Methods

Clinically active paediatricians, paediatric subspecialists (intensivists), and child psychiatrist members of the CPSP will be surveyed regarding self-harm necessitating ICU admission. Respondents that identify a case will be asked to complete a detailed questionnaire for each case.

Case definition

Report any new patient less than 18 years of age (up to the 18th birthday) meeting **BOTH** of the following criteria:

1. A confirmed or suspected self-harm or suicide attempt (any form of self-poisoning or self-injury regardless of the degree of intent to die)

   AND

2. Admitted to an intensive care unit at any time during a hospital admission (for any duration)

Exclusion criteria: Accidental poisoning (e.g., intoxication) or injury

Objectives

Primary objective

To describe the patterns of presentation, clinical features, and associated medical needs of children presenting to hospital with self-harm requiring ICU care

Secondary objectives

1) To examine underlying mental health problems, duration of mental health symptoms, and health care utilization prior to ICU admission
2) To examine seasonal and geographical differences in presentation in Canada
3) To describe post-discharge treatment planned for these children, including regional differences in management
4) To determine a conservative prevalence rate of serious self-harm requiring ICU care, among Canadian children
5) To compare Canadian data with international epidemiological surveys

Duration

January 2017 to December 2018

Expected number of cases

There were approximately 2,700 hospitalizations for intentional self-harm among youth aged 10 to19 years in Canada during 2010/11 (the most current data that are available for detailed analysis at the Public Health Agency of Canada). Further analysis of these cases is represented in Table 1.

Table 1. Hospitalizations associated with self-inflicted injury, 2010/11, males and females combined, by age group

			OUTCOME			
Age Group	**Total Admits**	%	**Discharge Home**	**Transferred**	**Died**	**Other**
10–14 years*	461	17	354 (76%)	88 (19%)	3 (1%)	16 (4%)
15–19 years†	2262	83	1689 (75%)	420 (18%)	14 (1%)	139 (6%)
TOTAL	**2723**	100				

* 59% were discharged within 48 hours
† 56% were discharged within 48 hours

Based on numbers above (excluding all cases that were released within 48 hours, and counting patients who were either transferred or died as potentially being admitted to the ICU), it is estimated that the maximum number of cases may reach 500 per year; however, a more conservative estimate is 350 cases per year.

Ethical approval

Research Ethics Board, Hospital for Sick Children, Toronto, Ontario
Health Canada and the Public Health Agency of Canada's Research Board

PROTOCOLS

PROTOCOLS

Analysis and publication

Results will be reported using descriptive statistics in peer-reviewed journals (e.g., *Journal of the American Academy of Child and Adolescent Psychiatry, Paediatrics & Child Health*), presented to the Canadian Academy of Child and Adolescent Psychiatry and the Canadian Paediatric Society, and published in the annual *CPSP Results.*

References

1. Statistics Canada. Leading causes of death, total population, by age group and sex, 2011, Canada. http://www5.statcan.gc.ca/cansim/a05 (accessed April 7, 2015)

2. Beautrais AL. Further Suicidal Behavior Among Medically Serious Suicide Attempters. Suicide Life Threat Behav 2004 Spring;34(1):1–11

3. World Health Organization. Suicide Prevention (SUPRE). www.who.int/mental_health/prevention/suicide/suicideprevent/en (accessed September 25, 2014)

4. Statistics Canada. Deaths and mortality rate, by selected grouped causes, age group and sex, Canada, 2011. http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/hlth66d-eng.htm (accessed April 7, 2015)

5. Fraser Region Aboriginal Youth Suicide Prevention Collaborative. December 2012. https://www.fraserhealth.ca/media/AH_suicide-prevention.pdf (accessed April 8, 2015)

6. Soole R, Kõlves K, De Leo D. Suicide in Children: A Systematic Review. Arch Suicide Res. 2015;19(3):285-304. doi: 10.1080/13811118.2014.996694

7. Statistics Canada. Deaths, by cause, Chapter XX: External causes of morbidity and mortality (V01 to Y89), age group and sex, Canada, 2011. http://www5.statcan.gc.ca/cansim/a47 (accessed April 7, 2015)

8. Skinner R, McFaull S. Suicide among children and adolescents in Canada: trends and sex differences, 1980–2008. CMAJ 2012; 184(9)

9. Rhodes AE, Lu H, Skinner R. Time trends in medically serious suicide-related behaviours in boys and girls. Can J Psychiatry 2014 Oct;59(10):556-60

10. Canadian Institute for Health Information. Intentional Self-harm Among Youth in Canada. http://www.cihi.ca/web/resource/en/info_child_harm_EN.pdf (accessed April 7, 2015)

11. Rhodes AE, Boyle MH, Bridge JA, Sinyor M, Links PS, Tonmyr L, Skinner R, Bethell JM, Carlisle C, Goodday S, Hottes TS, Newton A, Bennett K, Sundar P, Cheung AH, Szatmari P. Antecedents and sex/gender differences in youth suicidal behavior. World J Psychiatry 2014 Dec 22; 4(4): 120–132. doi: 10.5498/wjp.v4.i4.120

12. Langlois S, Morrison P. Suicide deaths and suicide attempts. Health Reports 2002;13(2):9-21