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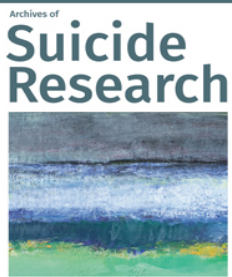
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# Implementing a Suicide Audit in Montreal: Taking Suicide Review Further to Make Concrete Recommendations for Suicide Prevention

Alain Lesage , Gabrielle Fortin, Fabienne Ligier, Ian Van Haaster, Claude Doyon, Charlie Brouillard, Diane Daneau, and Jessica Rassy 

## ABSTRACT

**Objective:** A suicide audit was pilot implemented in order to generate recommendations on how to improve suicide prevention.

**Methods:** Thirty-nine consecutive suicides that occurred in Montreal, Canada from January to October 2016 were audited. A retrospective analysis of their life trajectory and service utilization was conducted using the psychological autopsy method, which included interviewing suicide-bereaved survivors and examining health and social services records and the coroner's investigation file. A psychosocial and service utilization profile was drawn for each decedent. A multidisciplinary panel reviewed each case summary to identify gaps in terms of individual intervention, provincial public health and social services, and regional programs.

**Results:** Five main suicide prevention recommendations were made to prevent similar suicides: (1) deploy mobile crisis intervention teams (short-term, high-intensity, home-based treatment) in hospital emergency departments; (2) train primary and specialized mental health care professionals to screen for and manage substance use disorders; and (3) implement public awareness campaigns to encourage help seeking for depression and substance use disorders; (4) access for all, regardless of age, to an effective psychosis treatment program; and (5) provide universal access to a general practitioner, especially for men.


**Conclusions:** The suicide audit procedure was implemented effectively and targeted recommendations were generated to prevent similar suicides. However, resistance from medical and hospital quality boards arose during the process, though these could be allayed if regional and provincial authorities actively endorsed the multidisciplinary and multi stakeholders suicide audit process.

## HIGHLIGHTS

- A bottom-up approach to generate recommendations for suicide prevention.
- Implementation was challenging with resistance to our interdisciplinary approach.
- The audit needs the support of the regional health department to lift barriers.

## KEYWORDS

Healthcare utilization; mental health services; substance use disorders; suicide; quality of care

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A psychiatrist who cannot show that he or she has been involved in audit is going to be in difficulties. (Oakley, 2011)

## INTRODUCTION

Suicide remains a major public health care concern and novel methods are needed to better understand and implement prevention strategies that will decrease the suicide rate. Prevention measures are required on the National, state/provincial, local, and individual levels, these measures should be varied and integrated across the across the multiple sectors of society (WHO).

Presently, in the province of Quebec (QC), Canada, all suicides are reviewed separately and concurrently by different bodies. Health care in Canada is the responsibility of provincial and territorial governments while the federal government sets national standards and ensures financial support. There are shortcomings in the present suicide review processes in Quebec in their capacity to provide recommendations for the prevention of suicide that result from systematic and comprehensive data collection as well as an inclusive or multidisciplinary reviews. Each body reviews suicide cases in a different manner and there is little collaboration between the different bodies thereby limiting the scope of the findings and recommendations for the prevention of suicide.

Present provincial (QC) suicide reviews occur at three levels: (1) the Quebec Coroner's Office investigates all violent and deaths and publishes a public report to determine or confirm the circumstances and cause of death. In only about 5% of cases, the Coroner's Report includes recommendations (Bureau du Coroner, 2016) that vary in scope. (2) At the regional health and social services level, the local authority mandates a committee (medical mortality committee) to review suicides of users of the local services. This medical committee is composed of physicians and psychiatrists, all members of the local Directorate of Professional Services. (3) Finally, there is a hospital-based critical incident review process which includes the review of suicides of inpatient health-care users. Under the Local Quality Directorate, professionals, mostly administrative staff, not necessarily clinicians, examine the incidents of suicide of the inpatient health-care users.

An integrated systematic and inclusive approach in the review process is needed to fill in the gaps of the present processes. Also, information from bereaved family and friends is rarely collected by the existing panels and post-suicide intervention issues or further prevention is not part of the existing reviews. The present approaches are not inclusive, incidents of suicide may be missed depending on the specific conditions. The outcomes and concerted efforts are not shared, recommendations may remain confidential and independent of each other.

Against this background, a Hospital Quality Administrator, also an Accreditation Canada surveyor, in one of Montréal's regional health and social services catchment areas sought to take suicide reviews further and apply a systematic method to all cases in order to generate comprehensive recommendations for suicide prevention. The Clinical audit method was pilot thus implemented to review all suicides that occurred in the east-end Montreal catchment area.

Clinical audits of suicide propose to ameliorate the present shortcomings and provide a systematic examination of suicides. Audits are a component of Quality improvement and provide a portrait of the clinical issues as well as practices and areas that may require improvement. An audit will yield recommendations; suggestions for change are based upon a comparison with established guidelines and standards (Oakley, 2011). The Canadian Psychiatric Association position paper on Quality Review in Psychiatry (Reiss, Jarman, & Vasudev, 2018) has stated that over the last 20 years, quality improvement has shifted from focusing on error and the individual care provider, to focusing on the system, health care in a multidisciplinary setting, human factor engineering and improved design. Among other recommendations, organizations are encouraged to develop a clear process by which clinical care is reviewed from a perspective of quality of care.

Previously, a suicide audit has been conducted successfully in the Province of New Brunswick by one of the main authors (AL). All cases of suicide that occurred during a 14-month period between 2002 and 2003 within the Province of New Brunswick (Lesage et al., 2008) were audited. The New Brunswick Suicide Audit was conducted in collaboration with the Coroner's Office and the Ministry of Health which provided mental health staff that subsequently received training to conduct psychological autopsies. A psychological autopsy is an established research tool used to gain insight into the psychological state of individual at the time of death through semi-structured interviews with the close relatives and friends (Cavanagh, Carson, Sharpe, & Lawrie, 2003). The New Brunswick Audit produced targeted recommendations including integrated public promotion, professional development campaigns and the need for program coordination (Lesage et al., 2008; Séguin et al., 2006) as well as clinical observations of the prevalence of mood disorder, substance abuse and their comorbidity.

On the National level, the Canadian Armed Forces (CAF) undertakes a medical-professional-technical (MPTSR) yearly review of all suicides of its personnel since 2010 (Sareen et al., 2018). The MPTSR is a quality review team and is composed of a GP and a mental health specialist who examine all records and conduct interviews with relatives and colleagues. The CAF modeled their review process based on a Suicide Audit in New Brunswick (NB).

On the West coast of Canada, the Fraser Health Authority's Patients Safety Learning System in British Columbia administered the NCISH questionnaire (UK National Confidential Inquiry into Suicide and Homicide by People with Mental Illness) in 2017 to physicians of suicide decedents who used mental health and substance use services (Fisher, Anwar, & Libbiter, 2017). The NCISH questionnaire collects detailed data on psychiatric history, service utilization and physician views on avenues for prevention. In the United Kingdom, the NCISH has been used since 1996 to review the suicides of all mental healthcare patients (Appleby, 2017; Appleby et al., 1999). As a result of 20 years of research, the NCISH provides a toolkit highlighting 10 keys elements of quality and safety (HQIP, University of Manchester). It has been shown that health regions having implemented the NCISH annual recommendations were more likely to witness a decrease in suicide rates (While et al., 2012). To our knowledge, the Fraser Healthy Authority has not repeated the review using the NCISH.

In the present study, the clinical audit was applied to all cases of suicide that occurred from January 1, 2016 until October 2016 in the East Montreal Local Health

Authority catchment area. The NCISH questionnaire was added to obtain information from physicians having been in contact with the deceased. This paper presents the methods used and the results obtained in this audit. Results are compared with those of the New Brunswick audit and the list of recommendations for suicide prevention is described in detail. Finally, the implementation challenges encountered are discussed, including the discontinuation of the audit by the regional medical and quality assessment management.

## METHODS

The audit was conducted in the East-End Montreal Integrated University Health and Social Services Center (EEM IUHSSC) catchment area. It was a retrospective study of all the suicides from January to October 2016 that occurred in the area or that involved one of its residents (39 cases) based on the identification and classification of the records of the Quebec Coroner's Office (QCO).

### *Data Collection*

The data were collected from January 2018 to May 2019. The QCO allowed researchers access to its investigation files, which contained pharmacological and medical records and toxicology and police reports of the suicide. The QCO mailed letters to suicide bereaved survivors (SBS) on record to solicit their participation in the study. If the SBS did not reply to decline, then our team contacted them by phone to explain the audit process more in depth, solicit their participation and obtain their verbal consent. Interviews were conducted with one or two SBS for 25 cases (total of 29 SBS interviewed). The SBS were partners, parents, children and siblings. For six cases, the SBS refused to participate. For the remaining cases, the SBS could not be reached owing to obsolete contact information. Interviews with SBS were semi-structured and co-conducted by two seasoned clinicians from among a psychologist, a nurse, a psychiatrist and a social worker. The life trajectory of the decedent was explored with a focus on their final year (Seguin et al., 2007). For example, we explored family, emotional, academic and professional life as well as major life events. In order to complete information from the medical files, we also addressed known social and medical problems and the use of social and health services. In cases where the decedent had limited contact with health and social services, structured questionnaires (SCID I and II) were used as a guide to identify undiagnosed mental illness. Interviews lasted approximately three hours and were recorded but not transcribed. The physical and mental well-being of the SBS was assessed via mental health screening tools and the interviewers' clinical judgment. All SBS participants were deemed apt to participate. However, in one case, the SBS's suicide risk after the interview required further assessment and an urgent referral was made to an outpatient care program. The services needs and utilization of the SBS interviewed have been discussed at length by Ligier et al. (2020). An NCISH questionnaire was completed by SBS and sent to the identified physician who cared for the decedent in the last year of their life.

## Data Analysis

All available data on the suicide were summarized in a vignette averaging six pages, including those where no SBS were interviewed. The multidisciplinary panel reviewed the vignette and made recommendations to prevent suicide in similar cases. An audit is a quality improvement tool used to compare current practices against a standard which corresponds to evidence-based good practices based on the experience of the panel and generally supported in the literature. A complete list of the references for all recommendations (including those not in the text) is presented in a [Supplementary file](#) to the manuscript. In our case, these are the interventions that would have been required according to our needs assessment. The unmet needs assessment methodology was developed by the MRC Social Psychiatry unit at the Institute of Psychiatry in London, UK (Brewin et al., 1988). By definition, if an individual is suffering owing to a mental disorder for which an effective and acceptable form or model of care exists, either as treatment or prevention, the individual is in need of that intervention. A need was unmet if a needed intervention was not provided. In the end, the recommendations were hypotheses based on systematic data collection and the clinical judgment of a multidisciplinary team of clinicians. Published standards and good practices in relation to the various recommendations were generally referred to. Standardized needs assessment tools, which were grids based on the work of Brewin, were used to classify recommendations, document health and social service utilization, and identify unmet service needs (Brewin et al., 1988; Lesage et al., 1996).

The panel was composed of 10 individuals, including clinicians (physicians, psychiatrists, psychologists and nurses), health and social service managers, a provincial representative of a non-governmental suicide prevention organization (NGO), and a retired judge who represented SBS. Only the first 14 consecutive cases were analyzed as planned by the 10-person panel. The remaining cases were analyzed, instead, by a subset of the panel, a smaller group of clinician researchers (AL, FL, IVH) and postgraduate students (JR, CB). This was due to the erosion of professional and administrative support for the project, which was perceived to be redundant. The original aim was to include all suicides of the year 2016, the audit project ended when we reached the October cases. Also, concerns arose regarding the audit process, despite the measures taken to ensure confidentiality. These included rendering the vignettes entirely anonymous and requiring panel members who were not clinicians or health and social service practitioners to sign a confidentiality agreement similar to that of the professional staff. The Ethics Board of the EEM IUHSSC granted approval for results to be disseminated eventually in scientific journals.

## RESULTS

We audited 39 consecutive suicides that occurred in 2016 in east-end Montreal over a 10-month period. Their sociodemographic and psychopathological profile is presented in [Table 1](#). The majority were heterosexual ( $n = 35$ ), male ( $n = 27$ ), Canadian born ( $n = 29$ ), single, divorced or separated ( $n = 26$ ), and living alone ( $n = 19$ ). Mean age was 52 years ( $SD = 17$ ). One third ( $n = 13$ ) were employed. About half ( $n = 19$ ) had a known prior suicide attempt. The main method of suicide was by hanging ( $n = 21$ ). It is

**TABLE 1.** Sociodemographic profile, substance use disorders and personality disorders of suicide cases ( $n = 39$ ).

Variables	% of cases ( $n$ )
Sex	
Male	69 (27)
Age, in years	
<24	0 (0)
25–44	36 (14)
45–64	38 (15)
≥65	26 (10)
Place of birth	
Canada	74 (29)
Other	26 (10)
Sexual orientation	
Heterosexual	90 (35)
Homosexual	8 (3)
Marital status	
Single	28 (11)
In a relationship	15 (6)
Married or civil union	13 (5)
Divorced or separated	38 (15)
Widowed	5 (2)
Housing situation	
Living alone	49 (19)
Living with partner or family	28 (11)
Living with roommate	15 (6)
Hospitalized	5 (2)
Employment situation	
Student	3 (1)
Unemployed	33 (13)
On sick leave	13 (5)
Retired	18 (7)
Employed (part-time or full-time)	33 (13)
Substance use disorder and pathological gambling	
Alcohol	31 (12)
Cannabis	15 (6)
Cocaine	13 (5)
Pathological gambling	5 (2)
Subst. use disorder or path. gambling	54 (21)
Personality disorder	
Any cluster B personality disorder	28 (11)
Personality disorder not otherwise specified	21 (8)
Any personality disorder	51 (20)
Depression	62 (24)

noteworthy that more than half ( $n = 21$ ) of the audit population suffered from a substance use disorder ( $n = 20$ ) or pathological gambling. The most prevalent substance used was alcohol ( $n = 12$ ). About half the cases ( $n = 20$ ) presented a personality disorder, cluster B disorders being the most common ( $n = 11$ ). According to our analysis, nearly two thirds suffered from depression ( $n = 24$ ). Comorbid personality disorder and depression was identified in 15 cases.

It was not possible to obtain the medical files for one case who was not treated in the public health and social services system. Table 2 presents a summary of the health and social services received. In the month before suicide, the majority of the cases ( $n = 24$ ) had been in contact with health and social services. In decreasing order of prevalence, 37% ( $n = 14$ ) received specialized mental health services, 18% ( $n = 7$ ) front-line social services, 18% ( $n = 7$ ) specialized medical services, and 13% ( $n = 5$ ) front-line

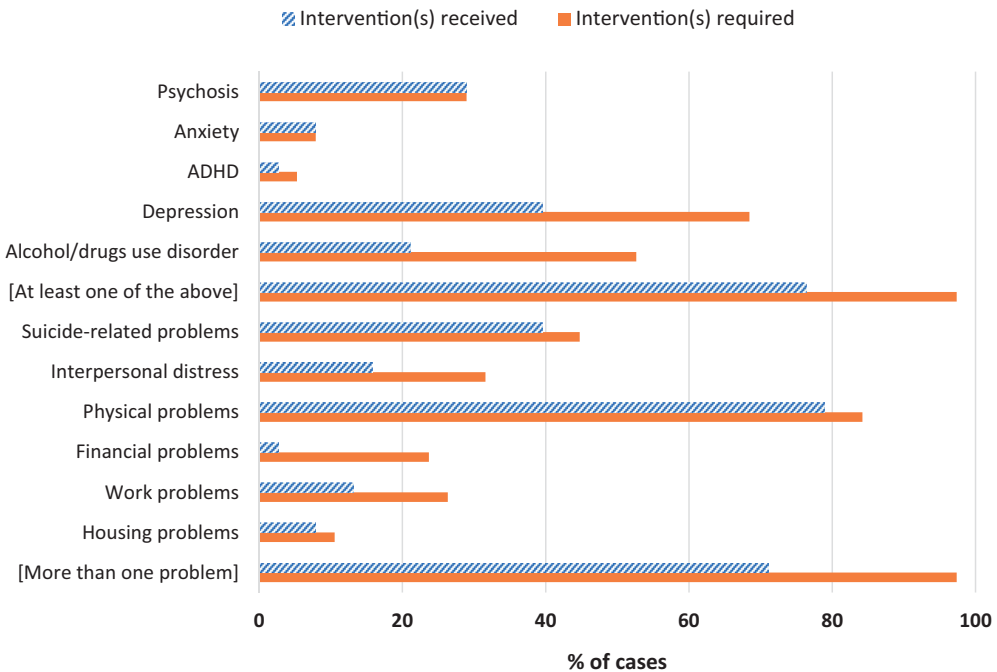


**TABLE 2.** Summary of services received in last month, last year, and lifetime ( $n = 38$ , one missing case).

Services	Last month		Last year (excluding last month)		Lifetime (excluding last year)		Lifetime	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Front-line medical services (general practitioners)	5	13	15	39	38	100	38	100
Front-line social services (social workers, nurses, youth protection and police)	7	18	8	21	12	32	18	47
Specialized mental health services (psychiatrists, psychologists, psychiatric emergency and hospitalization, day hospital, mobile intervention teams and crisis centers)	14	37	19	50	26	68	29	76
Specialized addiction services (counsellors and detox centers)	1	3	1	3	4	11	5	13
Specialized medical services (except mental health and addiction)	7	18	17	45	14	37	26	68
Volunteer or nonprofit services (hotlines and support lines, clergy and support groups)	1	3	3	8	7	18	8	21
At least one of the above	24	63	33	87	38	100	38	100

medical services. In the year prior to suicide excluding the last month, 87% ( $n = 33$ ) had received health or social services. In decreasing order of prevalence, 50% ( $n = 19$ ) received specialized mental health services, 45% ( $n = 17$ ) specialized medical services, and 39% ( $n = 15$ ) front-line medical services. Over their lifetime, 76% ( $n = 29$ ) had consulted specialized mental health services. Only five cases (13%) used specialized addiction services and eight cases (21%) used volunteer or nonprofit services. It needs to be pointed out that utilization of the latter services might have been underestimated under our data collection method. For example, SBS might have known that decedents attended AA meetings, which were also sometimes documented in the medical files, but not that they had called a suicide hotline.

Figure 1 illustrates the percentage of cases that received and required services in the last year. For each medical or social reason, the panel evaluated on a binary scale its presence or absence in each case. For example, physical problems refer to any active physical medical problem and financial problems mean significant debt or poverty. Using the same tools as the New Brunswick suicide audit, bipolarity was included under depression, and neurocognitive disorder under psychosis. Interpersonal distress encompassed interventions for personality disorders as well as relational problems. Whereas 53% of the cases ( $n = 20$ ) had a substance use disorder that required intervention, only 21% ( $n = 8$ ) received such intervention. Depression affected 68% of the cases ( $n = 26$ ) but only 39% received help ( $n = 15$ ). About one quarter of the cases had financial problems ( $n = 9$ ) but only one case received support from social services or community organizations for this reason. Needs regarding physical problems (all types combined), psychosis and anxiety, respectively, were noted in 84%, 29% and 8% of the cases. Physical needs seemed to be met better than mental health needs. The majority of cases ( $n = 22$ ) presented both depression and physical problems. One third of the analyzed cases ( $n = 13$ ) appeared to suffer from comorbid depression and substance use disorder. While personality disorders affected about half the cases ( $n = 20$ ), 12 required intervention for that condition.



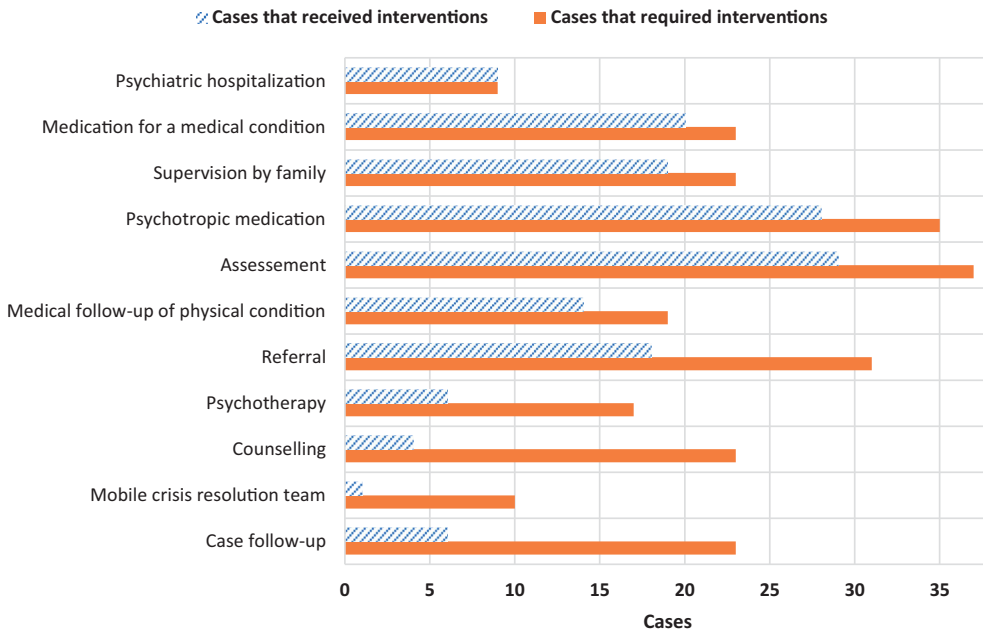
**FIGURE 1.** Problems for which interventions were required and received by suicide cases in last year of life ( $n = 38$ , one missing case).

Figure 2 shows the number of cases that received interventions compared with the number that required interventions, by intervention type. The difference between the two was the unmet need for potentially effective interventions. Supervision by family generally refers to active participation of the family in the safety net for suicide risk, monitoring, sheltering, contacting services and working in collaboration with services.

Case-follow to diligent follow-up initiated by professionals; a more intensive clinical case management to ensure tighter suicide risk safety net, monitoring, engaging, treating, outreaching, coordinating with other services. In decreasing order, the largest gaps involved the mobile crisis intervention team (one case received out of 10 that required), counseling, and case follow-up. However, needs for supervision by family, psychiatric hospitalization and medication for physical and mental conditions were generally met.

The audit process culminated in 43 recommendations to remedy these gaps in the aim of preventing future suicides. Some cases led to more than one recommendation. In only two cases was no gap found. The main recommendations were classified and summarized in [Supplementary Table 3](#). For 10 cases, intervention by a mobile crisis intervention team from hospital emergency departments was recommended. This short-term, high-intensity, home-based treatment can serve to monitor suicide risk, treatment adherence, and coordination of primary care efforts, and to ensure communication with family and employers (Boisvert, Bouffard, & Paquet, 2016; Murphy, Irving, Adams, & Waqar, 2015).

For six cases, access to an effective psychosis treatment program, regardless of age, was recommended. Such a program should include: (a) optimal medication; (b) therapeutic connection and pro-active follow-up; (c) rehabilitation at work and/or school;



**FIGURE 2.** Number of suicide cases that received interventions vs. number that required interventions in last year of life, by intervention type ( $n = 38$ , one missing case).

and (d) psychoeducation with families (Addington, Anderson, Kelly, Lesage, & Summerville, 2017). Universal access to a general practitioner might have helped in four cases, three of which were men.

The need for further training of front-line and specialized mental healthcare professionals in substance use disorders was identified in eight cases. The aim of such training is to improve assessment, consultation and referral to specialized addiction services in primary care settings, to facilitate systematic screening, and to better integrate the treatment of comorbid substance use and other mental disorders. For eight cases, it was recommended that the Quebec Health Ministry implement public awareness campaigns regarding depression and substance use disorders in order to encourage the adult population to seek help for these treatable conditions.

## DISCUSSION

Our audit of 39 suicide cases resulted in several distinct recommendations being made to remedy three main service gaps: (1) deploy mobile crisis intervention teams ( $n = 10$ ); (2) train professionals in primary and specialized mental health care on substance use disorders screening and management ( $n = 8$ ); and (3) implement public awareness campaigns regarding depression and substance use disorders ( $n = 8$ ). These recommendations acknowledge how substance use disorders heighten suicide risk for several reasons such as impulsivity, associated social and interpersonal problems and uneven management by health care professionals. For two of the 39 cases, the coroner's report contained recommendations. Both cases occurred in a hospital setting. In the first, the coroner requested that the hospital investigate the event to prevent its recurrence.

In the second, our recommendation was the same as the coroner's. We determined that 11 of the 43 recommendations made in the context of our study were similar to those made by the coroner in previous suicide cases (Bureau du Coroner, *n.d.*). It is our view that Audit method provided more recommendations than the Coroner reports due to our exhaustive data collection process, which allowed us to identify problems at different levels.

The representativeness and reliability of the data that we collected can be validated against linked health administrative database in Canada. The Quebec Integrated Chronic Disease Surveillance System (QICDSS) is one such database that combines databases on outpatient medical and emergency services and hospitalizations. It covers 98% of the Quebec population insured under the Régie de l'assurance maladie du Québec (RAMQ), the province's public healthcare system. We compared the health services utilization of our small audit population to the QICDSS data on suicide decedents ( $n=10,180$  from 2003 to 2012) (Vasiliadis et al., 2018). In the last year of life before suicide, the use of health services was comparable to populational data, except that the use of emergency and ambulatory services without hospitalization was less common in our audit.

Our results are also similar to those of the New Brunswick suicide audit. A similar prevalence of personality disorders was observed. Indeed, half of the suicides in that study were affected with these and one quarter suffered specifically from a cluster B type personality disorder (Seguin et al., 2007). Our results showed a high rate of substance use disorder (53%), as was the case in the New Brunswick audit population (59%), and a similar mental health and addiction services utilization profile in the year prior to death. Consequently, both audits generated recommendations for greater integration of specialized mental health and addiction services. In half of the cases, the recommendations were for raising the level of public awareness and for training professionals in order to improve their capacity to treat, detect and make referrals for substance use disorder and mental illness. In the UK, the NCISH, too, has recommended the use of mobile crisis intervention teams to prevent suicide. These 24-h crisis teams respond promptly to mental health crises in the community to avoid hospital admission when possible. Of the nine key NCISH suicide prevention recommendations evaluated, the deployment of these teams was associated with the largest reduction in the suicide rate (While et al., 2012).

Implementing the suicide audit within the healthcare system was challenging. Our interdisciplinary approach met with resistance for the simple reason that, unlike the established processes currently in place, it involves a larger number and diversity of stakeholders, including SBS and NGOs. Moreover, in the course of the project, there were changes to the regional medical and quality assessment management, and support was lost because the exercise was perceived as redundant. In addition, legal concerns were probably the reason that only one physician agreed to complete the NCISH questionnaire regarding their patient's suicide. Though none of the clinicians and social service practitioners on the panel were directly involved in any of the cases audited, some cases were similar to cases they had been involved in and this made it hard for them to comment on these. To overcome these implementation barriers, the audit needs to be embedded in the regional health and social service authority's quality department and supported by the Quebec Health Ministry. The QCO is interested in the audit and

in exploring the possibility of applying the approach in a Quebec-wide pilot study in collaboration with the Quebec Health Ministry and suicide prevention NGOs. The regional health and social service authority must necessarily be involved in this endeavor because the QCO does not have the resources to investigate suicide cases as exhaustively as the audit requires.

Audits are a component of the quality improvement culture supported by the Royal College of Psychiatrists, the Canadian Psychiatric Association, and the Canadian Medical Protective Association (Canadian Medical Protective Association, 2009; Oakley, 2011; Reiss et al., 2018), which aims to identify system flaws, make recommendations to remedy these, and avoid a culture of blame, while ensuring complete anonymity for all stakeholders. In this regard, absolutely no confidentiality issues arose over the course of the audit process or with the distribution of our preliminary results to local, regional and provincial health services and to the QCO.

In terms of limitations, the audit process needs to be validated to ensure that it is transferable given that it has never been applied and tested without the participation of its designer (author AL). The hypotheses formulated regarding required interventions based on the systematic needs assessment tools used may vary according to the judgment and experience of the raters. However, the standards of care were made more explicit by building a “jurisprudence” made up of the references supporting the recommendations. These references and anonymized case narratives could be used to train a new team. Information from SBS could have been biased by their memory of events that occurred two years earlier and by their attitude toward suicide (Milner, Sveticic, & De Leo, 2013). Information from medical files, however, corroborated the data from SBS. Studies have shown that diagnoses established through the psychological autopsy method did not differ significantly from those found in medical records (Renaud et al., 2014). Implementing the audit method proved challenging, so much so that at one point we had to forge ahead with a smaller panel that nevertheless remained multidisciplinary and was a subset of the initial panel. The other aspects of the methodology remained unchanged and recommendations made by the larger panel helped shape the recommendations made by the smaller one. Our method focused on gaps in Quebec social and healthcare services, including those provided by suicide prevention centers, and considered the perspective of SBS. Consequently, recommendations concerning other areas of suicide prevention, such as education, religious communities and the workplace, may be under-represented. Although details of this audit process were provided to allow better understanding and comparison with other contexts, this approach might not be generalizable outside of a public healthcare system. Finally, the audit was a pilot project, as such, we did not integrate it within the context of other suicide prevention quality improvement implementation efforts. However, this will be considered in the next phases of this project.

In terms of resources, in a catchment area of 350,000 inhabitants, one clinician would be required to lead the audit on a full-time basis and administrative support and multidisciplinary panel member participation would be required on a part-time basis. A cost-benefit modeling of suicide prevention strategies estimated the cost of a suicide in Canada at \$500,000 (Vasiliadis, Lesage, Latimer, & Seguin, 2015). It may be assumed, then, that preventing just one suicide per year would translate into a positive return on investment for the audit process. To formally quantify the impact of the audit on

suicide rates, a stepped-wedge trial could be considered (Hemming, Haines, Chilton, Girling, & Lilford, 2015; Woertman et al., 2013).

## CONCLUSION

Our suicide audit process can be construed as a bottom-up approach to generating recommendations for suicide prevention. It was possible to pilot implement the suicide audit method with all the suicides that occurred in a Montreal administrative area over a given period of time. The audit generated recommendations that involve approaches not currently being used. The recommendations were also more numerous and substantive than those made by the coroner thanks to the extensive data collection undertaken and the multidisciplinary perspective sought. While the spirit of an inclusive audit approach was supported by several medical and psychiatric authorities, support for the project eroded along the way. This highlights the fact that such a multidisciplinary audit approach involving non-clinicians including SBS needs to be supported by regional and provincial authorities in order to be carried out fully and properly and in order to allay both legal concerns and fears of being singled out for blame.

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## DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

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## DATA AVAILABILITY STATEMENT

Please contact the corresponding author for access to the anonymized narratives and standardized needs assessment score sheets. Coroner and medical files are confidential and cannot be accessed.

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