

INSPQ

INSTITUT NATIONAL
DE SANTÉ PUBLIQUE
DU QUÉBEC



Monitoring of suicidal ideation and suicide attempts during COVID-19 from the Emergency Management Information System

November 2021

AUTHORS

Pascale Levesque
Bureau d'information et d'études en santé des populations
Institut national de santé publique du Québec

Cécile Bardon
Department of Psychology, Université du Québec à Montréal
Associate Director, Centre for Research and Intervention on suicide, Ethical Issues and End-of-Life Practices

Geneviève Gariépy
Public Health Agency of Canada
Centre de recherche de l'Institut universitaire en santé mentale de Montréal

UNDER THE COORDINATION OF

Éric Pelletier
Bureau d'information et d'études en santé des populations

REVIEWERS

We would like to thank Thomas G. Poder and Jérôme Gaudreault for reading this report and for their insightful comments.

Thomas G. Poder
Department of Health Management, Evaluation and Policy, School of Public Health, Université de Montréal
Centre de recherche de l'Institut universitaire en santé mentale de Montréal

Jérôme Gaudreault
Association québécoise de prévention du suicide

LAYOUT

Isabelle Gagnon
Bureau d'information et d'études en santé des populations

ACKNOWLEDGMENT

The translation of this publication was made possible with funding from the Public Health Agency of Canada.

The unabridged version of this document is available as a PDF on the Institut national de santé publique du Québec website at <http://www.inspq.qc.ca>.

Reproductions for private study or research purposes are authorized by virtue of Section 29 of the Copyright Act. Any other use must be authorized by the Government of Quebec, which holds the exclusive intellectual property rights for this document. Authorization may be obtained by submitting a request to the central clearing house of the Service de la gestion des droits d'auteur des Publications du Québec using the online form available at <http://www.droitauteur.gouv.qc.ca/autorisation.php>, or by emailing a request to droit.auteur@cspq.gouv.qc.ca.

*The French version is entitled *Vigie des idéations suicidaires et des tentatives de suicide en période de COVID-19 à partir du Système d'information de gestion des urgences* and is also available on the web site of the Institut national de santé publique du Québec at: <http://www.inspq.qc.ca/publications/3182>*

Information contained in the report may be cited as long as the source is acknowledged.

Legal deposit – 1st quarter 2022
Bibliothèque et Archives nationales du Québec
ISBN: 978-2-550-90722-0 (French PDF)
ISBN: 978-2-550-91523-2 (PDF)

© Gouvernement of Quebec (2022)

Table of Contents

Table of Contents	I
List of figures	II
List of Acronyms and Abbreviations	III
Highlights	1
1 Background	1
2 Methodology	2
2.1 Data sources	2
2.2 Analysis	3
3 Results	3
3.1 Changes in emergency department visits for suicidal behaviour.....	3
3.2 Characteristics of emergency department visits due to suicidal behaviour	7
3.2.1 Distribution by age and sex.....	7
3.2.2 Severity of emergency department visits due to suicidal behaviour	8
3.2.3 Distribution of emergency department visits for suicidal behaviours by discharge disposition	8
4 Discussion	10
4.1 Pre-pandemic trend in emergency department visits for suicidal behaviour.....	10
4.2 Impact of year 1 of the COVID-19 pandemic on emergency department visits due to suicidal behaviour	10
4.3 Characteristics of people visiting the emergency department for suicidal behaviours	10
4.3.1 Distribution by age and sex.....	10
4.3.2 Severity of emergency department visits due to suicidal behaviour	11
4.4 Strengths and limitations of the SIGDU for suicidal behaviour monitoring.....	11
5 Conclusion	11
References	13
Appendix A Monthly rate of emergency department visits for suicide attempts, 2014 to 2019	15
Appendix B Monthly rate of emergency department visits for suicidal ideation, 2014 to 2019	16
Appendix C Prioritization levels according to the CTAS	17

List of figures

Figure 1	Annual rate of emergency department visits for suicide attempts, men and women, all of Quebec, 2014 to 2020.....	4
Figure 2	Annual rate of emergency department visits for suicidal ideation, men and women, all of Quebec, 2014 to 2020.....	5
Figure 3	Monthly rate of emergency department visits for all reasons combined, all of Quebec, January 2019 to August 2021	5
Figure 4	Monthly rate of emergency department visits due to suicide attempts, all of Quebec, January 2019 to August 2021	6
Figure 5	Monthly rate of emergency department visits due to suicidal ideation, all of Quebec, January 2019 to April 2021	6
Figure 6	Annual rate of emergency department visits for suicide attempts, men and women by age, all of Quebec, 2019 to 2020.....	7
Figure 7	Annual rate of emergency department visits for suicidal ideation, men and women by age, all of Quebec, 2019 to 2020.....	8

List of Acronyms and Abbreviations

CTAS	Canadian Triage and Acuity Scale for Emergency Departments
INSPQ	Institut national de santé publique du Québec
MSSS	Ministère de la Santé et des Services sociaux
SIGDU	Emergency Management Information System

Highlights

This report contributes to characterizing the potential impact of COVID-19 on suicidal behaviours in Quebec and on emergency department (ED) visits due to suicide attempts and suicidal ideation for the pre-pandemic (2014–2019) and the pandemic (2020–2021) periods. This initiative was undertaken by the INSPQ as part of its monitoring activities.

- ▶ In the years leading up to the pandemic, a gradual decrease in the annual rate of ED visits for suicide attempts in Quebec was observed, from 65/100,000 people in 2014 to 50/100,000 people in 2019.
- ▶ Since the beginning of the COVID-19 crisis, the annual rate of ED visits due to suicide attempts appears to have decreased slightly more than the trend observed since 2016.
- ▶ The upward trend in the annual rate of ED visits for suicidal ideation observed in the five years preceding the pandemic was interrupted during the pandemic. This rate decreased from 415/100,000 people in 2019 to 348/100,000 people in 2020. This is a 16% decrease.
- ▶ There was a significant drop in the monthly rate of ED visits due to suicidal behaviours during the early months of the pandemic (March to May 2020) as significant health measures were put in place (lockdowns, social distancing) and overall ED visits decreased.

Characteristics of emergency department visits due to suicidal behaviours during the pandemic

- ▶ Both before and during the pandemic, girls aged 15 to 19 are the most common group to visit EDs for suicidal behaviours (ideation and attempts).
- ▶ Although ED visits for suicide attempts and suicidal ideation are higher among women than among men, the gap between the two groups narrows as age increases. This distribution is observed in both 2019 and 2020, with no apparent changes associated with the COVID-19 pandemic.
- ▶ The pandemic does not appear to have had an effect on ED practices and timeliness.

Course of action

As the pandemic is ongoing and may impact ED visits due to suicide attempts and suicidal ideation, it would be useful to:

- ▶ conduct a study to determine if those who avoided the ED were able to receive the necessary care from other resources, a family member, or a loved one;
- ▶ maintain sustained monitoring and surveillance of ED visits for suicidal behaviours in Quebec and changes in deaths by suicide.

1 Background

Because of the COVID-19 pandemic, many researchers and practitioners are concerned that lockdowns, social isolation, and economic hardship will lead to an increase in the distress experienced by Quebec citizens and potentially in rates of suicides, suicide attempts or suicidal ideation (1–3). The potential impacts of the COVID-19 pandemic on suicidal behaviours depend on prevention and health promotion efforts, the availability of mental health care and services, the population's sense of hope and caring, and the effects of the crisis on social and economic processes (3,4).

Since the early 2000s, the annual suicide rate in Quebec has steadily declined (3). With the mental health impacts of the pandemic come important challenges for ensuring that this rate continues to decline. It is essential to detect changes in suicidal behaviours as early as possible and to act quickly if increases are observed and additional suicide prevention services need to be deployed.

As part of its surveillance activities, the INSPQ prepares an annual portrait of the suicide rate in Quebec (5). This report provides an ongoing assessment of suicides and suicide attempts in the Quebec population and directs preventive actions as needed. It is based on data from the death database and the digital database of the office of the chief coroner of Quebec. Because suicides are traumatic events requiring extensive investigation by coroners, integration of these data may take several months. Given these circumstances, the databases used for surveillance do not allow for analysis of potential short-term variations in different suicidal behaviours or the short-term impact of major events such as the COVID-19 pandemic on these behaviours.

In order to provide an accurate and responsive picture of the situation and thus support public health decisions based on the most recent data possible, a suicidal behaviour monitoring mechanism was established in the spring of 2021. The monitoring is used to detect health threats early and to implement effective interventions to counter these threats. It often requires the use of real-time databases and access to sensitive information.

In order to monitor suicidal behaviour, the INSPQ received authorization from the Ministère de la Santé et des Services sociaux (MSSS) to access the Emergency Management Information System (SIGDU, for *Système d'information de gestion des urgences*), which allows real-time characterization of variations in ED visits in Quebec, including those for suicide attempts and suicidal ideation.

The following objectives were pursued as part of this monitoring:

- ▶ analyzing annual trends in ED visits for suicide attempts and suicidal ideation for the pre-pandemic (2014–2019) and the pandemic (2020) periods;
- ▶ detecting the potential impact of COVID-19 on ED visits for suicide attempts and suicidal ideation using monthly temporal analyses for the pre-pandemic (2019) and the pandemic (2020–2021) periods;

- ▶ characterizing ED visits due to suicidal behaviours by sex and age before (2019) and during the pandemic (2020);
- ▶ estimating the severity of ED visits due to suicidal behaviours before (2019) and during the pandemic (2020).

2 Methodology

2.1 Data sources

Case numbers for this study are based on the SIGDU. This system collects elements that provide data on the health and social environment with respect to the health status of users who receive services in Quebec EDs, as well as information identifying specific moments in the care episode (start date of the episode, date of triage, etc.) (6).

Data from the SIGDU are provided by the Quebec Infocentre de santé publique¹ (Infocentre) and are updated daily. As part of this project, data from the Infocentre were extracted in early September 2021, covering an observation window from January 2014 (the first year available in the SIGDU) through August 2021.

ED visits attributable to suicide attempt or suicidal ideation were identified in the SIGDU under the “reason for visit” variable². For the purposes of this study, all suicide attempts and suicidal ideation will be included in *suicidal behaviours*. Although the SIGDU conceptual framework does not present specific definitions for the different suicidal behaviours, the INSPQ supports the World Health Organization’s definition of suicide as an act of deliberately killing oneself (7). The term “suicide attempt” refers to any act of self-induced intoxication, self-mutilation or self-harm, with or without intent to die (7). Suicidal ideation (or suicidal thoughts) refers to thoughts (cognitions) or intentions to take one’s life (8). It should be noted that self-mutilation is a specific reason for visit in the SIGDU that was not considered in the analysis of suicidal behaviour.

¹ For more information on the Quebec Infocentre de santé publique, visit <https://www.inspq.qc.ca/analyses-de-l-etat-de-sante-de-la-population/obtenir-de-l-information-sur-la-sante-de-la-population>

² Cadre normatif pour le système d’information de gestion des urgences, Chapter 3, Section 3.3, Subsection 3.3.1, Element 017. Ministère de la Santé et des Services sociaux. Direction générale des services de santé et médecine universitaire.

Annual ED visit rates were calculated on an annual basis for 2014 through 2020 and on a monthly basis for 2019, 2020 and 2021. Population estimates for 2014 through 2021 were used to calculate these rates. They are produced by the MSSS and the Direction des statistiques sociodémographiques, Institut de la statistique du Québec (ISQ).

In order to situate the events related to the pandemic and the health measures adopted, the timeline of the COVID-19 pandemic in Quebec produced by the INSPQ was used³. This regularly updated timeline provides a quick and synthetic representation of all events and measures related to COVID-19 in chronological order.

2.2 Analysis

The effects of the pandemic on monthly rates of ED visits were measured using STL (a seasonal-trend decomposition procedure based on Loess) time series statistical analyses (9,10). The aim is to identify the occurrence of breaks in trends for ED visits due to suicidal behaviours during the pandemic period. Specifically, these analyses test for months in which the rate of ED visits due to suicidal behaviours shows significantly different trends on either side of the break date. The year 2019 is considered a reference for comparison of monthly rates of ED visits due to suicidal behaviours before and during the pandemic. The year 2019 provides a recent snapshot of ED visits. Preliminary analyses (see Appendix A) have shown that monthly variations for 2019 are relatively similar to previous years and that ED visits for suicidal behaviours during this period can be used to adequately represent the pre-pandemic situation.

Descriptive analyses were also performed to compare monthly changes in ED visits for suicidal behaviours with changes in ED visits for all reasons combined (suicidal behaviours and other reasons for ED visits).

3 Results

3.1 Changes in emergency department visits for suicidal behaviour

Annual change (2014 to 2020)

There was a gradual decrease in the annual rate for ED visits for suicide attempts in Quebec between 2014 and 2019 (Figure 1), from 69/100,000 people to 56/100,000 people for women and from 61/100,000 people to 45/100,000 people for men. During that period, the rate consistently remained higher for women than for men.

For 2020, which was marked by the onset of the COVID-19 crisis, the annual rate of ED visits due to suicide attempts (45/100,000 people) decreased by 10% compared to 2019 (50/100,000 people). This decrease is greater than that observed since 2016.

In contrast to the downward trend in the annual rate of ED visits for suicide attempts, the annual rate of visits to Quebec EDs for suicidal ideation increased between 2015 and 2019 (Figure 2). For 2015, the annual rate for men was 365/100,000 people, and that for women was 358/100,000 people. In 2019, this rate climbed to 422/100,000 for men and 408/100,000 for women. For the entire observation period, the annual rate of ED visits for suicidal ideation was higher for men than for women.

The upward trend in the annual rate of ED visits for suicidal ideation observed in the 5 years preceding the pandemic was interrupted during the first year of the COVID-19 pandemic. The rate decreased from 415/100,000 people in 2019 to 348/100,000 people in 2020. This represents a 16% decrease.

Monthly change (2019 to 2021)

Figure 3 shows a decrease in the monthly rate of ED visits (all reasons combined) as governments implemented measures in response to the COVID-19 pandemic (March 2020)³. Rates then trend upwards until August 2020 and then downwards until March 2021 before returning to their pre-pandemic levels between March and August 2021.

³ <https://www.inspq.qc.ca/covid-19/donnees/ligne-du-temps>, website updated daily. Consulted on September 23, 2021.

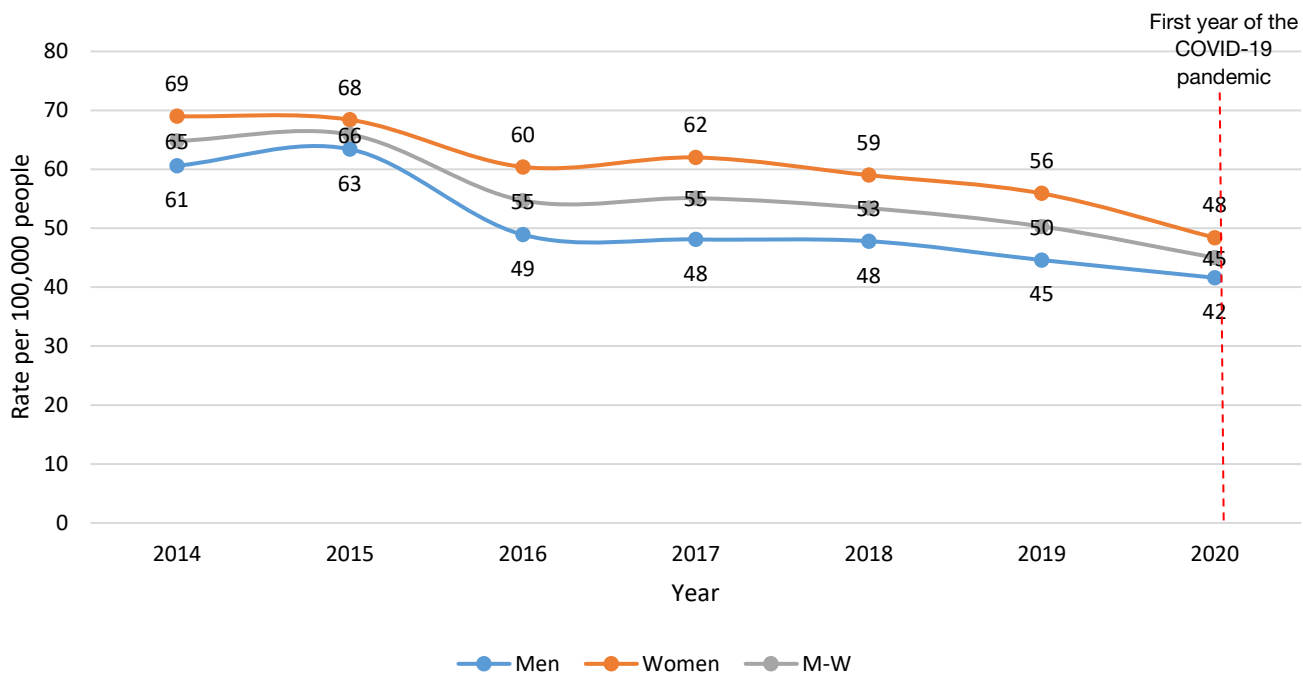
For ED visits due to suicide attempts, statistical analyses indicate that the numbers of monthly breaks detected in 2019 and 2020 are similar (two breaks in 2019 and 2020). This result suggests that monthly changes in the rate of ED visits due to suicide attempts do not differ between 2019 and 2020.

Regarding the rate of ED visits for suicidal ideation, the statistical analyses indicate more frequent significant breaks in 2020–2021 than in 2019. Although these analyses do not necessarily establish a concrete causal link to the various measures adopted during the pandemic, these breaks indicate that there have been events since the beginning of 2020 that created more variability in the changes in monthly rates of ED visits for suicidal ideation than in 2019.

Visual analysis of figures 4 and 5 indicate that there was a significant drop in the monthly rate of ED visits due to suicidal behaviours during the early months of the pandemic (March to May 2020) as significant health measures were put in place (lockdowns, social distancing) and overall ED visits decreased (Figure 3). In May 2020, there is a gradual resumption of ED visits due to suicidal behaviour, coinciding with a relaxation of the public health measures put in place.

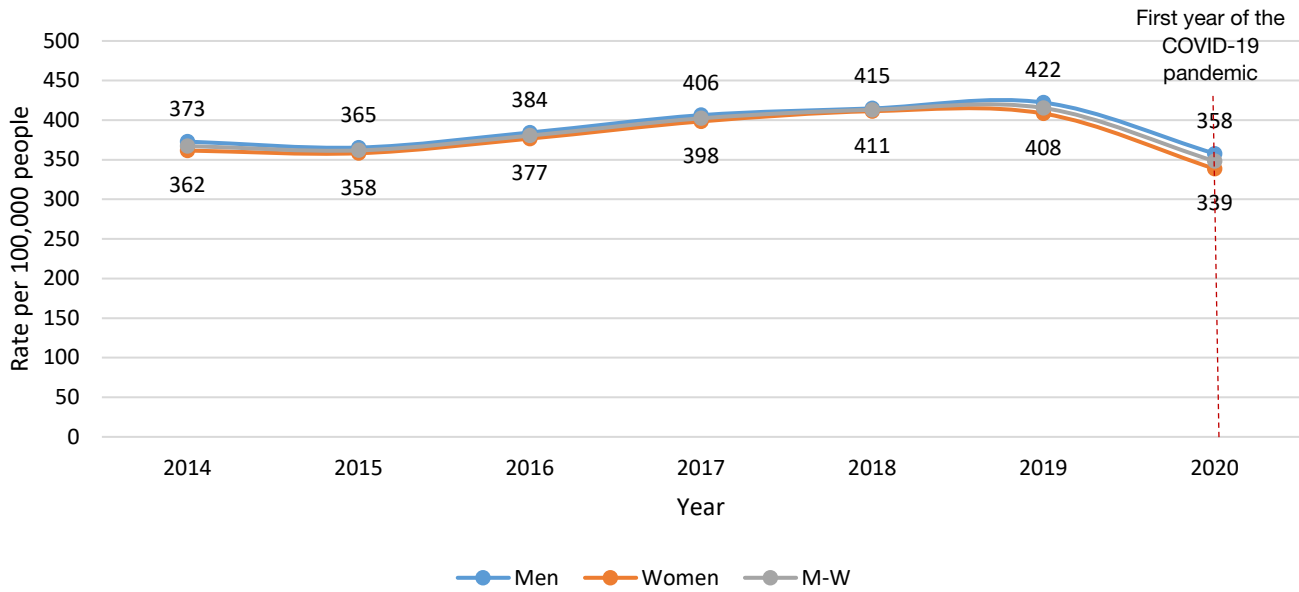
From December 2020 to January 2021, a second dip is observed in monthly rates of ED visits for suicide attempts and suicidal ideation (figures 4 and 5). During this period, several health regions were upgraded to a higher alert level and additional restrictions are put in place. The numbers then gradually return to pre-pandemic levels.

Figure 1 Annual rate of emergency department visits for suicide attempts, men and women, all of Quebec, 2014 to 2020



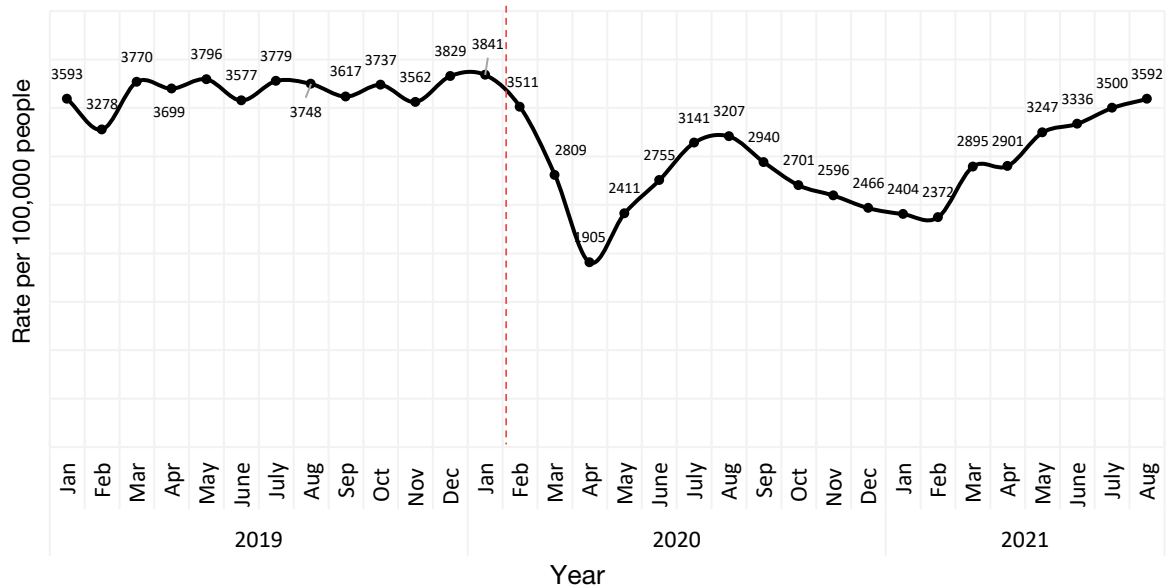
Sources: MSSS, SIGDU, 2014–2020/MSSS, demographic estimates and projections based on the 2016 census.

Figure 2 Annual rate of emergency department visits for suicidal ideation, men and women, all of Quebec, 2014 to 2020*



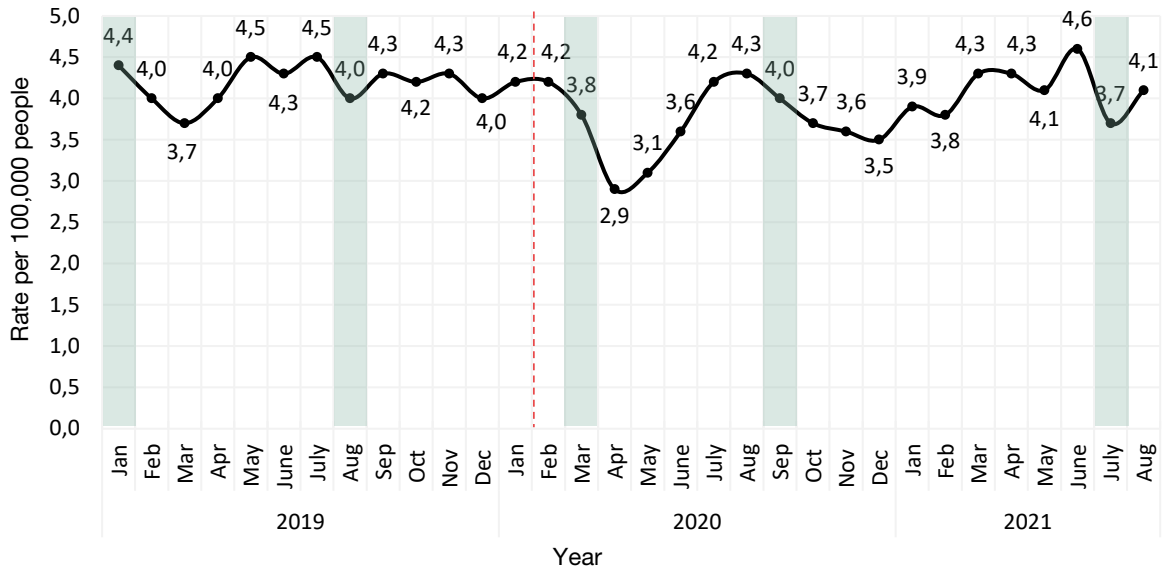
* The M-W data labels are not shown on the graph due to the small space between the curves.
Sources: MSSS, SIGDU, 2014–2020/MSSS, demographic estimates and projections based on the 2016 census.

Figure 3 Monthly rate of emergency department visits for all reasons combined, all of Quebec, January 2019 to August 2021



--- Month in which the first cases of COVID-19 were detected in Quebec
Sources: MSSS, SIGDU, 2019–2021/MSSS, demographic estimates and projections based on the 2016 census.

Figure 4 Monthly rate of emergency department visits due to suicide attempts, all of Quebec, January 2019 to August 2021*

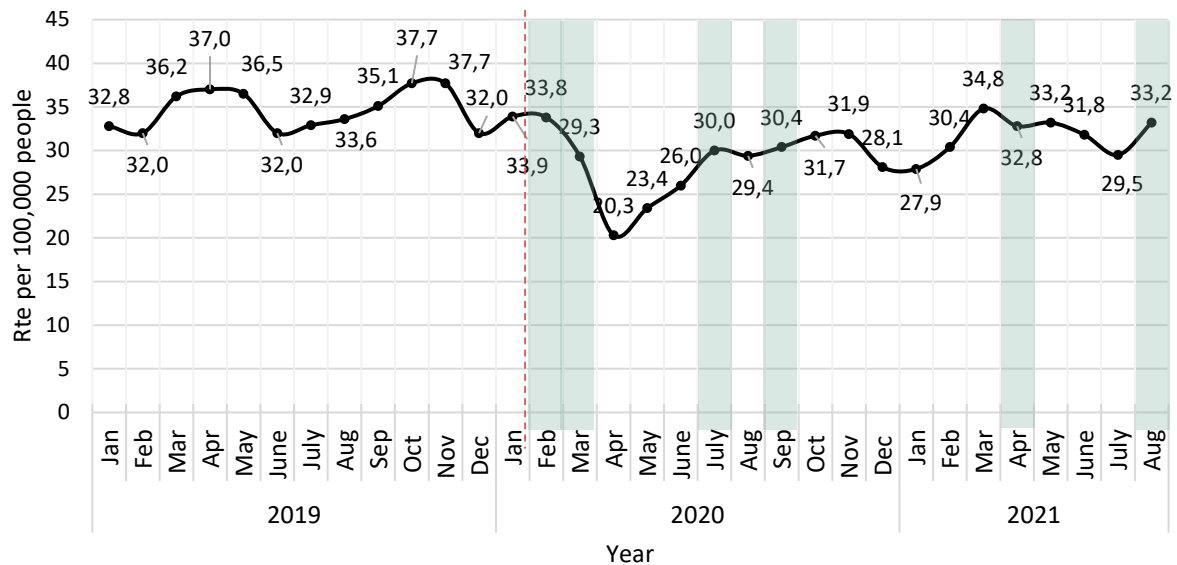


* Months in green indicate that the analyses detected a statistically significant break in time.

--- Month in which the first cases of COVID-19 were detected in Quebec

Sources: MSSS, SIGDU, 2019–2021/MSSS, demographic estimates and projections based on the 2016 census.

Figure 5 Monthly rate of emergency department visits due to suicidal ideation, all of Quebec, January 2019 to April 2021*



* Months in green indicate that the analyses detected a statistically significant break in time.

--- Month in which the first cases of COVID-19 were detected in Quebec

Sources: MSSS, SIGDU, 2019–2021/MSSS, demographic estimates and projections based on the 2016 census.

3.2 Characteristics of emergency department visits due to suicidal behaviour

In 2019, mental health and psychosocial disorders (n = 151,251) accounted for approximately 5% of all ED visits in Quebec (n = 3,729,948). Of the underlying reasons for these visits, 23% were suicidal ideation and 3% were suicide attempts.

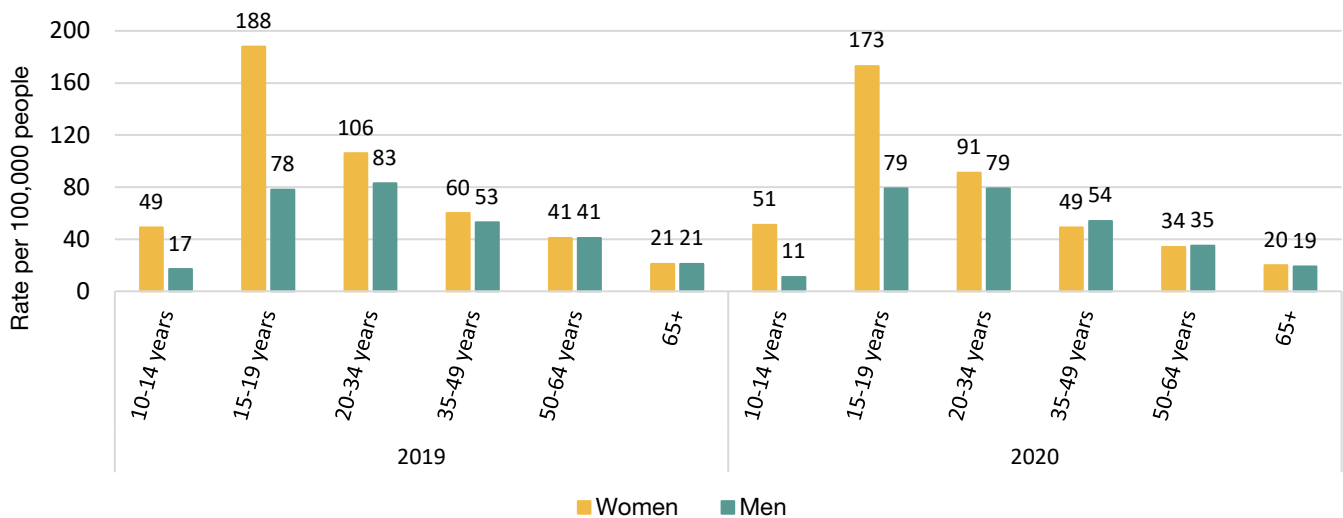
The results are similar for 2020. Mental health and psychosocial disorders (n = 129,727) accounted for approximately 5% of all ED visits in Quebec (n = 2,925,845). Of the underlying reasons for these visits, 23% were suicidal ideation and 3% were suicide attempts.

3.2.1 DISTRIBUTION BY AGE AND SEX

Figures 6 and 7 present the annual rate of visits to Quebec EDs for suicidal behaviours among men and women by different age groups for 2019 and 2020. These figures also indicate whether the COVID-19 pandemic period is associated with changes in the distribution of suicidal behaviours by age and sex. Notably, adolescent girls aged 15 to 19 have the highest annual rate of visits for both suicide attempts (173/100,000 people in 2020) and suicidal ideation (1,128/100,000 people in 2020).

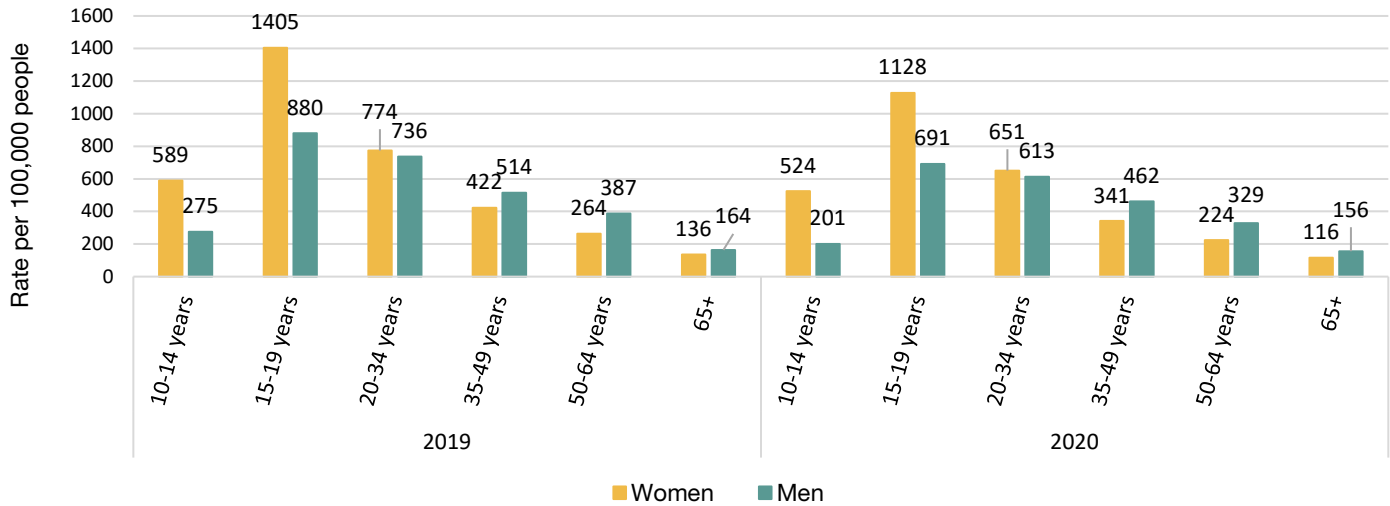
The annual rate of ED visits for suicide attempts decreases with age for both men and women (2019 and 2020). Sex differences narrow over time and, by age 50, annual rates of ED visits for suicide attempts for men and women are similar. For suicidal ideation, men 35 years and older have higher annual rates of ED visits than women.

Figure 6 Annual rate of emergency department visits for suicide attempts, men and women by age, all of Quebec, 2019 to 2020



Sources: MSSS, SIGDU, 2019–2020/MSSS, demographic estimates and projections based on the 2016 census.

Figure 7 Annual rate of emergency department visits for suicidal ideation, men and women by age, all of Quebec, 2019 to 2020



Sources: MSSS, SIGDU, 2019–2020/MSSS, demographic estimates and projections based on the 2016 census.

3.2.2 SEVERITY OF EMERGENCY DEPARTMENT VISITS DUE TO SUICIDAL BEHAVIOUR

For ED visits due to suicidal behaviour, the proportion of individuals with life-threatening conditions (Level 2, see Appendix B) is much higher than that observed for all ED visits (Table 1). In 2020, this proportion is 68% for ED visits for suicide attempts and 43% for suicidal ideation, compared with 11% for ED visits for all reasons combined.

Comparisons between 2019 and 2020 indicate that the pandemic did not change the distribution for severity of ED visits for both overall visits and visits for suicidal behaviours.

3.2.3 DISTRIBUTION OF EMERGENCY DEPARTMENT VISITS FOR SUICIDAL BEHAVIOURS BY DISCHARGE DISPOSITION

At the end of the emergency care episode, the user's health status may require a transfer to a hospital. For all ED visits, 13% of users were transferred in 2020 (Table 2). Among people in the ED due to suicidal behaviour, this proportion is much higher. It is 26% for people in the ED due to a suicide attempt and 21% for those presenting because of suicidal ideation.

Results for 2019 indicate that the pandemic is not associated with a change in distribution for discharge disposition, both for overall ED visits and for those due to suicidal behaviour.

Table 1 Proportion (%) of emergency department visits by care prioritization level, all of Quebec, 2019 and 2020

Prioritization levels according to the CTAS*	Reason for visit											
	All reasons combined				Suicide attempts				Suicidal ideation			
	2019		2020		2019		2020		2019		2020	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Level 1 – Resuscitation	31,928	(1)	27,340	(1)	89	(2)	85	(2)	69	(0)	55	(0)
Level 2 – Emergent	405,212	(11)	324,471	(11)	2875	(67)	2,593	(68)	14,769	(42)	12,751	(43)
Level 3 – Urgent	1,264,782	(34)	1,031,155	(35)	914	(21)	840	(22)	15,532	(44)	13,039	(44)
Level 4 – Less urgent	1,403,434	(38)	1,079,380	(37)	365	(9)	301	(8)	3951	(11)	3,289	(11)
Level 5 – Non-urgent	617,620	(17)	458,044	(16)	21	(1)	24	(1)	914	(3)	593	(2)
Total	3,722,976^a	(100)	2,920,391^b	(100)	4,264	(100)	3,843^c	(100)	35,235	(100)	29,727	(100)

* CTAS: Canadian Triage and Acuity Scale for Emergency Departments.

^a 6972 missing data.

^b 5454 missing data.

^c 1 missing datum.

Sources: MSSS, SIGDU, 2019 to 2020.

Table 2 Proportion (%) of emergency department visits by discharge disposition, all of Quebec, 2019 and 2020

Discharge disposition	Reason for visit											
	All reasons combined				Suicide attempts				Suicidal ideation			
	2019		2020		2019		2020		2019		2020	
	N	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Return home	2,623,290	(70)	2,051,306	(70)	2,435	(57)	2,129	(55)	22,966	(65)	18,909	(64)
Transfer to hospital	437,452	(12)	379,130	(13)	1,118	(26)	1,013	(26)	7,234	(20)	6,414	(21)
Other*	669,206	(18)	495,408	(17)	711	(17)	702	(18)	5,035	(15)	4,404	(15)
Total	3,729,948	(100)	2,925,843^a	(100)	4,264	(100)	3,844	(100)	35,235	(100)	29,727	(100)

* Including non-hospital transfers, deaths, pre-intake departures, referrals and references.

^a 2 missing data.

Sources: MSSS, SIGDU, 2019 to 2020.

4 Discussion

4.1 Pre-pandemic trend in emergency department visits for suicidal behaviour

While ED visits due to suicide attempts were decreasing, those due to suicidal ideation increased during the reference period (2014–2019). There are probably multiple reasons for this difference between the two trends. The increase in ED visits for suicidal ideation may reflect an increased awareness of the importance of seeking help among those in crisis, which may also translate into a decrease in suicide attempts. In this context, suicide prevention interventions in Quebec EDs must be maintained, and even strengthened, as they specifically target people with suicidal behaviour and offer direct care from healthcare workers.

4.2 Impact of year 1 of the COVID-19 pandemic on emergency department visits due to suicidal behaviour

The results of the monitoring suggest that ED visits related to suicidal behaviours decreased in Quebec during the first year of the COVID-19 pandemic. Similar results have been observed in EDs in other countries (10–12). Two hypotheses could explain this phenomenon. There may have been a real reduction in suicidal ideation and suicide attempts. However, it is also possible that suicidal ideation and suicide attempts remained unchanged, but that the various fears related to the pandemic and the health measures in place discouraged people from visiting EDs (7). Given that ED visits for all causes combined also declined and that studies indicate that the burden of mental disorders is increasing as a result of the pandemic, the second hypothesis seems more likely (10). The annual update of the portrait of suicide in Quebec may help to better understand the effects of the pandemic on certain suicidal behaviours when the data for the 2020–2021 period from the deaths database become available.

The data from this study do not indicate whether people with suicidal behaviours were able to find support and help outside of Quebec EDs. However, the media report more calls for help to suicide prevention

centres during the COVID-19 pandemic (16,17). MSSS also reports more calls to the 1-866 APPELLE hotline.

The results of this report indicate that the monthly rate of ED visits for suicidal behaviours rose rapidly after the periods of health restrictions associated with the different waves of COVID-19, more rapidly than for all ED visits. In this context, it appears that access to emergency services for suicidal crises remained a need throughout the pandemic (March 2020 to August 2021).

4.3 Characteristics of people visiting the emergency department for suicidal behaviours

4.3.1 DISTRIBUTION BY AGE AND SEX

Analyses based on the SIGDU indicate that girls aged 15 to 19 years are the age group with the highest number of ED visits for suicidal behaviour (ideation and attempts). They are also the group with the highest annual hospitalization rate for suicide attempts (15). Several hypotheses can explain this over-representation. This group may experience more crises requiring care in Quebec EDs, or it may be that girls' distress and suicidal behaviours are more easily perceived by their loved ones and healthcare workers. This group may also be more supported by their loved ones and taken to the ED more quickly when these crises occur (19–21).

Although ED visits for suicide attempts are more frequent among women than men, it is important to note that as age increases the gap between the two groups narrows and men become equally at risk for visiting EDs for suicide attempts. This distribution is observed in both 2019 and 2020, with no apparent changes associated with the COVID-19 pandemic.

Emergency department visits for suicidal ideation appear to follow a slightly different trend. Overall, these visits are more frequent among men than among women. However, among adolescents specifically, young women are more likely to make an ED visit than young men. After the age of 35, more men than women visit the ED for suicidal ideation. This trend is similar in 2019 and 2020, with no apparent changes associated with COVID-19.

4.3.2 SEVERITY OF EMERGENCY DEPARTMENT VISITS DUE TO SUICIDAL BEHAVIOUR

Triage in the ED shows that the health status of people with suicidal behaviours often requires rapid care. Nearly 70% of individuals presenting to the ED for suicide attempts and 42% of those presenting for suicidal ideation are triaged at level 1 or 2, indicating that the integrity of their health status is threatened and rapid intervention is required.

The data indicate no change in patient prioritization or discharge disposition between 2019 and 2020, suggesting that the pattern of ED visits for suicidal behaviours did not significantly change with the COVID-19 pandemic.

4.4 Strengths and limitations of the SIGDU for suicidal behaviour monitoring

There are significant advantages to using the SIGDU for monitoring. First, it allows us to deepen our knowledge of suicidal behaviours (particularly suicidal ideation) and complements the databases already used by the INSPQ for suicide surveillance in Quebec⁴.

Second, use of the SIGDU provides real-time information about demand in EDs for care due to suicidal behaviours and allows for tracking of sudden variations that may occur over time.

Third, the SIGDU provides a means of examining the use of health services for the entire population. Studies based on population data are important evidence for public health decision makers. They can be used to assess the magnitude of a health problem, identify groups at risk, and assess the effectiveness of public health policies and interventions.

Some limitations of the SIGDU should also be mentioned. Individuals who present to the ED as a result of suicidal ideation or suicide attempt represent only a small proportion of people who engage in suicidal behaviours. The 2008 Québec Population Health Survey (QPHS) reveals, among other things, that only half of people who report having had suicidal

ideation say they consulted a health professional about it.

Another limitation is the coding of suicidal behaviours in the SIGDU. Unlike other trauma or very specific health problems, suicidal behaviours and, more specifically, suicidal ideation are sometimes difficult to identify in the system. In these circumstances, cases with these issues may have been coded under a mental health reason such as depression or anxiety. In addition, as mentioned above, cases of self-mutilation were not considered, although they are included in the definition adopted by the INSPQ for suicidal behaviour.

Finally, for this study, only 2019 was considered as a pre-pandemic comparison period. Although the monthly rates of ED visits due to suicidal behaviours in 2019 resemble the rates observed between 2014 and 2018 (see Appendix B), additional analyses considering the entire pre-pandemic period could be performed.

5 Conclusion

Quebec's EDs are an important access point for receiving health services during a suicide crisis. In fact, in 2019, 4,264 people visited because of a suicide attempt, and 35,235 visited because of suicidal ideation.

The COVID-19 pandemic appears to have had a deterrent effect on ED visits during certain periods of 2020–2021. During these times, did the people who use this health access during suicidal crises receive the care they needed elsewhere to get through their crisis? In order to answer this question, an appropriate next step may be to survey call centres and community organizations working on suicide prevention. So far, several studies indicate that the number of suicides has not increased nor reduced during the pandemic (18). Interventions focusing on mental health and suicide prevention implemented by government authorities, such as tip sheets for healthy coping with the events surrounding the COVID-19 pandemic or the development of action plans to prevent domestic violence during lockdowns, may have helped people in vulnerable situations. Studies also indicate that, in some contexts, there was a strengthening of the family and community bonds during the pandemic, which may

⁴ MED-ÉCHO (MSSS) for hospitalizations due to a suicide attempt Deaths database and computerized database of the office of the chief coroner of Quebec for deaths by suicide.

have helped support people with suicidal behaviour. In addition, suicide prevention workers report that crisis centres were in high demand during the pandemic and helped to support the population during difficult times (16,17).

Although many alternatives to EDs help support the Quebec population during suicidal crises, it is necessary to maintain this access for those who need mental health support. It is important for the public to know that infection prevention and control measures are in place in these settings to ensure safety, that mental health services are available despite the pandemic, and that people should not hesitate to go to an ED when they are in distress.

It is quite possible that the impacts of COVID-19 on suicidal behaviours and use of services will manifest several months after the most critical period of the pandemic has ended. From this perspective, it would be desirable to maintain sustained surveillance and monitoring of trends in deaths by suicide and ED visits for suicide attempts or suicidal ideation in Quebec over the next few years in order to understand the long-term consequences of the pandemic and implement more reactive support measures (7,11)

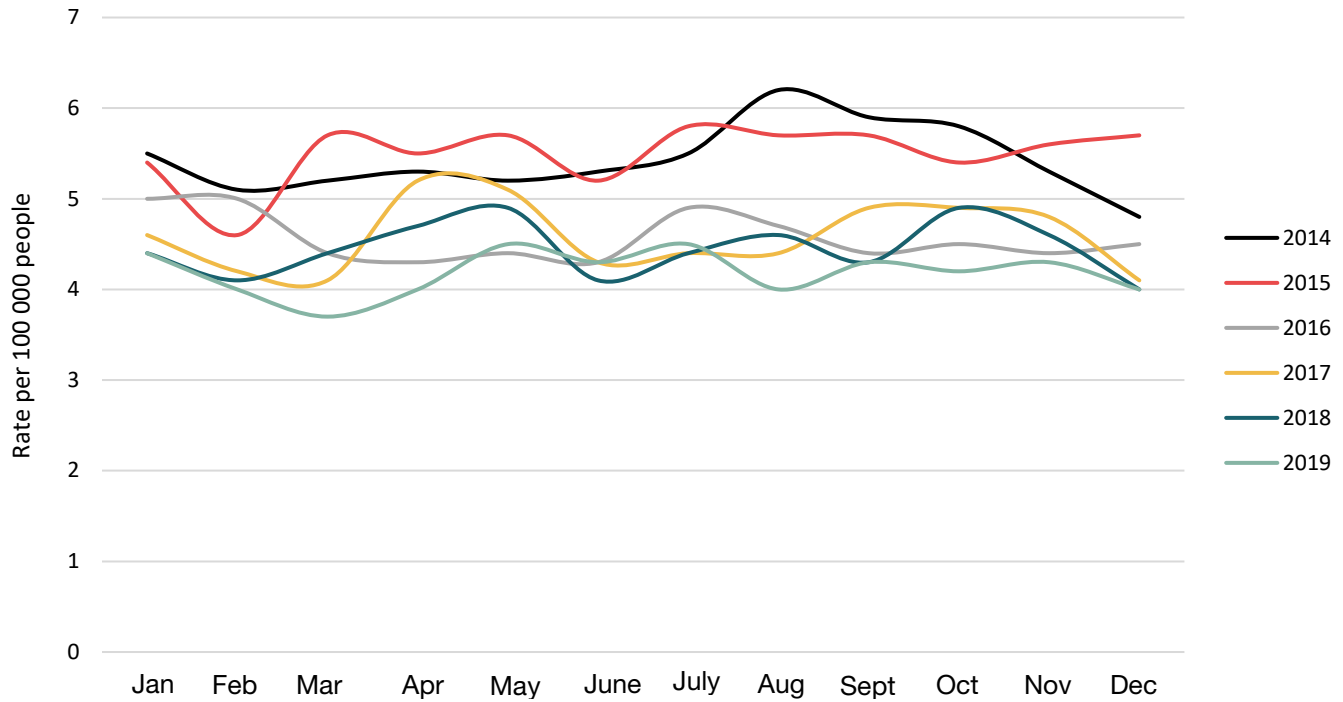
References

1. World Health Organization. Mental health and COVID-19. [Online] 2020. Available at: <https://www.who.int/teams/mental-health-and-substance-use/mental-health-and-covid-19>
2. Levesque, P.; Roberge, M-C. Synthèse des connaissances sur l'impact d'une crise sanitaire ou économique sur les comportements suicidaires, Bureau d'information et d'études en santé des populations, Institut national de santé publique du Québec. 2020;17.
3. Brooks, SK; Webster, RK; Smith, LE; Woodland, L; Wessely, S; Greenberg, N; et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*. 2020 March 14;395(10227):912–20.
4. Van Bavel, JJ; Baicker, K; Boggio, PS; Capraro, V; Cichocka, A; Cikara, M; et al. Using social and behavioural science to support COVID-19 pandemic response. *Nat Hum Behav*. 2020;4(5):460–471.
5. Levesque, P; Pelletier, É; Perron, P-A. Le suicide au Québec : 1981 à 2017—Mise à jour 2020. Bureau d'information et d'études en santé des populations, Institut national de santé publique du Québec; 2020 p. 25.
6. MSSS. Cadre normatif pour le système d'information de gestion des urgences (SIGDU). Direction générale des services de santé et médecine universitaire; 2021 Apr, p. 157.
7. Preventing suicide: a global imperative. Geneva: World Health Organization; p. 93.
8. [Online] INSPQ. Rapport québécois sur la violence et la santé; [cited 12 Oct. 2021]. Available at: <https://www.inspq.qc.ca/rapport-quebecois-sur-la-violence-et-la-sante/la-violence-auto-infligee-le-suicide-et-les-tentatives-de-suicide/definitions>
9. Cleveland, RB; Cleveland, WS; McRae, JE; Terpenning, I. STL: A Seasonal-Trend Decomposition Procedure Based on Loess. *J Offic Stat*. 1990;6(1):3–73.
10. Haynes, K; Fearnhead, P; Eckley, IA. A computationally efficient nonparametric approach for changepoint detection. *Stat Comput*. 2017;27(5):1293–1305.
11. Carrasco, JP; Herraiz, B; Sanchez, LO; Luengo, A; Fusalba, OR; Aguilar, EJ. COVID-19 lockdown influence in the psychiatric emergencies: Drastic reduction and increase in severe mental disorders. *Rev Psiquiatr Salud Ment*. 2021;14(2):117–8.
12. Ougrin, D. Debate: Emergency mental health presentations of young people during the COVID-19 lockdown. *Child Adolesc Ment Health*. 2020 Sept;25(3):171–2.
13. Di Lorenzo, R; Frattini, N; Dragone, D; Farina, R; Luisi, F; Ferrari, S; et al. Psychiatric Emergencies During the Covid-19 Pandemic: A 6-Month Observational Study. *Neuropsychiatr Dis Treat*. 2021 June 3;17:1763–78.
14. Hawton, K; Casey, D; Bale, E; Brand, F; Ness, J; Waters, K; et al. Self-harm during the early period of the COVID-19 pandemic in England: Comparative trend analysis of hospital presentations. *J Affect Disord*. 2021;282:991–995.
15. Chen, S; Jones, PB; Underwood, BR; Moore, A; Bullmore, ET; Banerjee, S; et al. The early impact of COVID-19 on mental health and community physical health services and their patients' mortality in Cambridgeshire and Peterborough, UK. *J Psychiatr Res*. 2020 Dec;131:244–54.
16. Paré, Isabelle. 20 % plus d'appels à l'aide dans les centres de prévention du suicide. *Le Devoir*. October 2020;

17. Belisle, Alexie André. Hausse de l'anxiété dans la population, selon les centres de crise de l'Est-du-Québec. Radio-Canada June 8, 2020;
18. Pascale Levesque, Brian Mishara, Paul-André Perron. Le suicide au Québec : 1981 à 2018—Mise à jour 2021. Québec, Bureau d'information et d'études en santé des populations. Institut national de santé publique du Québec; p. 51.
19. Kerr, DCR; Preuss, LJ; King, CA. Suicidal adolescents' social support from family and peers: gender-specific associations with psychopathology. *J. Abnorm Child Psychol.* 2006 Feb 1;34(1):99–110.
20. Vaux, A. Variations in social support associated with gender, ethnicity, and age. *J Soc Issues.* 1985;41(1):89–110.
21. Pikó, B. Social support and health in adolescence: A factor analytical study. *Br J Health Psychol.* 1998;3(4):333–44.
22. Plemmons, G; Hall, M; Doupnik, S; Gay, J; Brown, C; Browning, W; et al. Hospitalization for Suicide Ideation or Attempt: 2008–2015. :12.
23. Ting, SA; Sullivan, AF; Boudreaux, ED; Miller, I; Camargo, CA. Trends in US Emergency Department Visits for Attempted Suicide and Self-inflicted Injury, 1993–2008. *Gen Hosp Psychiatry.* 2012 Sep;34(5):557–65.
24. Pirkis, J; John, A; Shin, S; DelPozo-Banos, M; Arya, V; Analuisa-Aguilar, P; et al. Suicide trends in the early months of the COVID-19 pandemic: an interrupted time-series analysis of preliminary data from 21 countries. *Lancet Psychiatry.* 2021 Jul 1;8(7):579–88.
25. Niederkrotenthaler, T; Gunnell, D; Arensman, E; Pirkis, J; Appleby, L; Hawton, K; et al. Suicide Research, Prevention, and COVID-19. *Crisis.* Sep 1, 2020;41(5):321–30.

Appendix A Monthly rate of emergency department visits for suicide attempts, 2014 to 2019

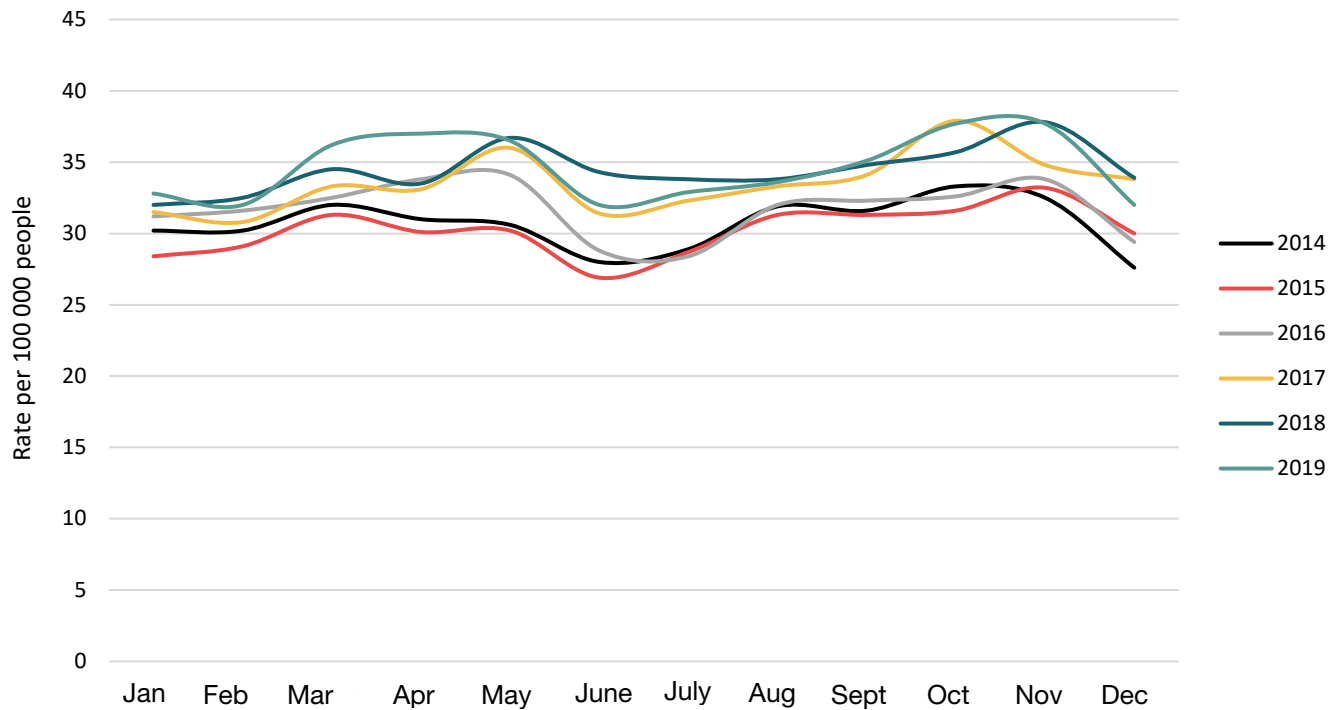
Monthly rate of emergency department visits for suicide attempts, 2014 to 2019



Sources: MSSS, SIGDU, 2014–2021/MSSS, demographic estimates and projections based on the 2016 census.

Appendix B Monthly rate of emergency department visits for suicidal ideation, 2014 to 2019

Monthly rate of emergency department visits for suicidal ideation, 2014 to 2019



Sources: MSSS, SIGDU, 2014–2021/MSSS, demographic estimates and projections based on the 2016 census.

Appendix C Prioritization levels according to the CTAS*

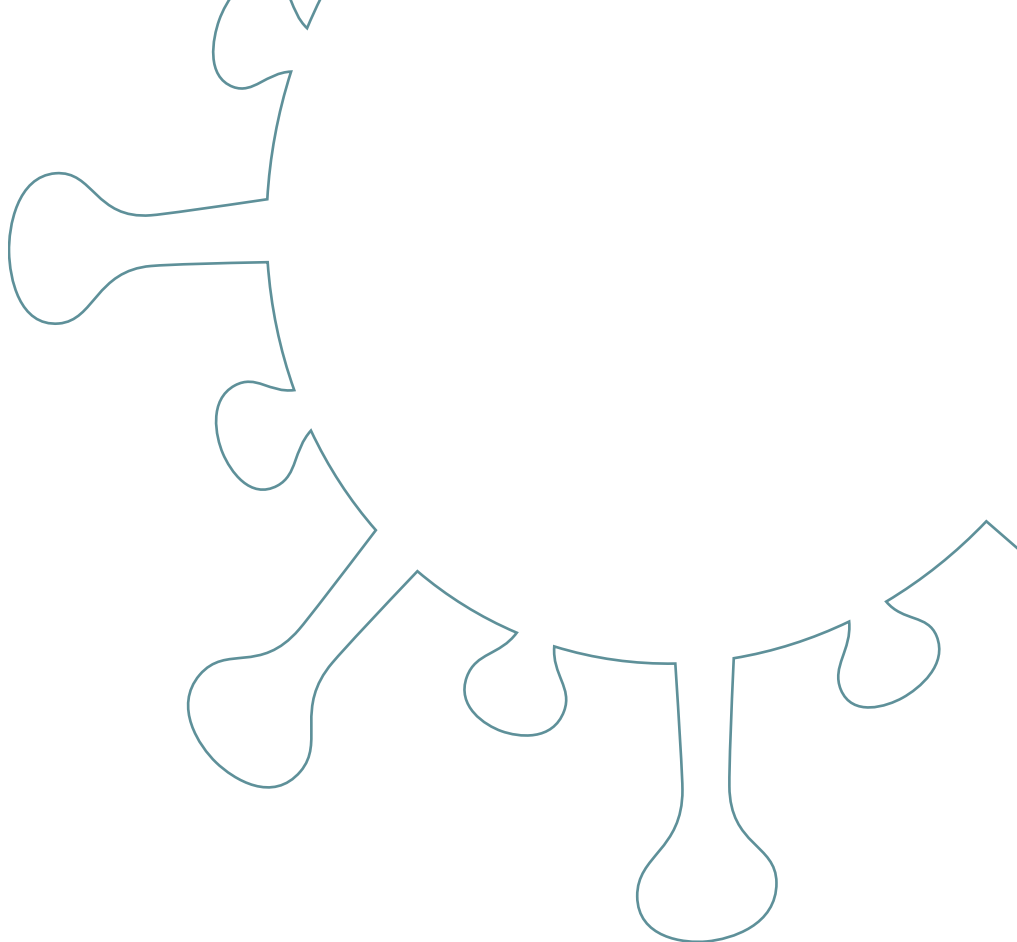
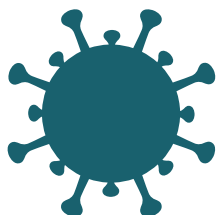
Prioritization levels according to the CTAS*	
Level 1 – Resuscitation	The patient's condition is imminently life threatening.
Level 2 – Emergent	The patient's condition is potentially life threatening.
Level 3 – Urgent	The patient's condition is related to an acute and severe illness that may be life threatening.
Level 4 – Less urgent	The patient's condition is related to an acute, non-severe illness that is not life threatening.
Level 5 – Non-urgent	The patient's condition is similar to a minor or chronic illness that is not at risk of deterioration.

* CTAS: Canadian Triage and Acuity Scale for Emergency Departments

The level of severity of emergency department (ED) visits due to suicidal behaviours was estimated using the variable of triage priority and type of discharge disposition. People entering the ED are assessed using the Canadian Triage and Acuity Scale (CTAS) for emergency departments. The purpose of this scale is to prioritize care for patients based on the urgency of their condition and to intervene in a timely manner. The triage scale has five levels, the first being the most urgent and requiring resuscitation, while the fifth is non-urgent and has no risk of health deterioration. Assignment of triage level is based on the usual presentation of a particular clinical problem but is not entirely determined by the patient's symptoms.

The professional's experience and intuition (does the patient look sick?) as well as other indicators of severity (vital signs, pain scale, associated symptoms) can also contribute to the decision. The discharge disposition variable indicates whether the health status of the user in the ED requires hospitalization. While not an injury severity variable, this variable indicates that the user requires more care than is provided in the ED or enhanced health status surveillance.

Centre d'expertise
et de référence



www.inpsq.qc.ca

*Institut national
de santé publique*

Québec

