August 2007

Research Project Comparing Suicide Mortality Cases and Suicide Attempts in New Brunswick between April 2002 and May 2003

Research Project Comparing Suicide Mortality Cases and Suicide Attempts
in New Brunswick between April 2002 and May 2003

Data for New Brunswick

Study of Suicide Cases and Suicide Attempts in New Brunswick between April 1, 2002, and May 31, 2003

Monique Séguin [1, 2, 3]
Alain Lesage [3]
Gustavo Turecki [2]
France Daigle [4]
Andrée Guy [4]

with the collaboration of
Marie-Nöelle Baylle
Roseanne Landry

1. **Université du Québec en Outaouais, Department of Psychology**
2. **McGill Group for Suicide Studies, Douglas Hospital, McGill University**
3. **Centre de recherche Fernand-Séguin, Hôpital Louis-H. Lafontaine, Université de Montréal**
4. **Department of Health and Wellness, Mental Health Services Division, Government of New Brunswick**

Table of Contents **Page**

Foreword

In keeping with the postvention strategy of New Brunswick's Suicide Prevention Program, a study was conducted to identify the personal and social circumstances that led a number of New Brunswickers to commit suicide and others to attempt suicide.

The study charted the development of psychosocial difficulties, the development of mental health problems, help-seeking behaviours, and consultations that marked the lives of the suicide victims.

Between April 1, 2002, and May 31, 2003, there were 109 deaths by suicide in New Brunswick. The research team examined 102 of those deaths, and the ensuing observations, findings, and recommendations were set out in a preliminary initial report submitted in early 2005.

While collecting data on those 102 cases, the research team also gathered information from 35 individuals having made a serious suicide attempt that required Emergency Department intervention during the years 2003-2004. Gaining access to these persons and recruiting this group were especially difficult. Owing to the small number of cases recruited, recommendations specific to the group of suicide attempters are limited. Also, for reasons associated with the small number of women, and in order to preserve confidentiality, we did not conduct differential analyses for the males and females.

We present the results and the overall recommendations for the two groups in this document.

Research Project Collaborators

We wish to thank all of the bereaved families and all of the participants and their loved ones who agreed to participate in this research project. They answered our questions with much generosity of spirit, courage, and patience in the hope that their stories might prevent other families from having to experience the death by suicide of a loved one. On behalf of those who committed suicide and for the benefit of all those struggling with suicidal behaviour, we must now make every effort to lessen the frequency of these personal, family, and societal tragedies.

We also wish to thank the persons who were suicidal and who made a suicide attempt for having taken part in this study. They answered our questions in the hope that their suffering would be understood and that their experience could help other persons. We thank them for their great generosity and hope that the path that lies ahead for them will be much happier.

Lastly, we would like to thank the Department of Health and Wellness, Mental Health Services Division, for their interest in the realization of this research project. Without their determination and constant work, it would never have been possible to carry out this project.

Coordinating Committee in New Brunswick

We wish to mention the full-fledged partnership between the Department of Public Safety, especially the Office of the Chief Coroner and the coroners team headed by Dianne Kelly, and the Department of Health and Wellness, particularly the Mental Health Services Division.

- Dianne Kelly, Chief Coroner
- Joan Murray, Coroner's Office
- Pat Dickinson, Coroner's Office
- Gina Girard, Researcher
- Jocelyne Daigle, Coordination Assistant
- Suzanne Cormier, Administrative Support
- France Daigle, Provincial Suicide Prevention Coordinator and Project Coordinator (components I and II)
- Andrée Guy, Director of Acute Services, Mental Health Services Division
- Margie McKendy, Mental Health Social Worker, Coordination Support
- Drs. Balram and Jason Liu, Provincial Epidemiology Service, Health and Wellness NB

Interviewers

The interviewers did outstanding work deserving of special mention. They displayed selflessness and compassion in agreeing to collaborate actively in this research project above and beyond their regular work as clinicians in community mental health centres.

- Ginette Vautour-Kerwin, Moncton
- France Daigle, Fredericton
- Annie Claveau, Moncton
- Marie Savoie Martin, Moncton
- Julie Belliveau, Moncton
- Lisa Lee, Fredericton
- Sylvie Matin, Grand Falls
- Carol Plourde, Campbellton
- Richard Ouellette, Edmundston
- Anne Marie Drapeau, Campbellton
- Gaetan Boudreau, Bathurst
- Ramona Gagnon, Acadian Peninsula
- Jeanne Mance Chiasson, Acadian Peninsula
- Margie Mckendy, Miramichi
- Greg Zed, Sussex
- Sylvia Richardson, St. Stephen
- Denis Leblanc, Elsipogtog

Persons contacted for recruitment

- Mado Pelletier, Grand Falls
- Nancy Jalbert, Edmundston
- Jacques Bard, Edmundston
- Nelson Parent, Campbellton
- Michael Levesque, Campbellton
- Debra Wafer, Campbellton
- Diane Morin, Bathurst
- Colette Robichaud, Bathurst
- Charline McLean, Miramichi
- Diane Cormier, Moncton
- Marthe Leger, Moncton
- James MacMillan, Moncton
- Lorene Johnson, Saint John
- Nancy Armstrong, St. Stephen
- Pamela Miller, Sussex
- Elizabeth Campbell, St. Stephen
- Marylin DeMerchant, Fredericton
- Gordon Skead, Fredericton
- Helen Jane Blanchard, Woodstock
- Robin Ward, Fredericton
- Dennis Foran, Fredericton

Members of Expert Panel on Services

- Alain Lesage
- Marie-Noëlle Bayle
- Andrée Guy
- Rosanne Landry
- France Daigle
- Monique Séguin

Members of Diagnostics and Life Trajectory Panel

- Nadia Chawky
- Mélanie Bouchard
- Marilou Parser
- Ariane Bonnet Vinet
- Gustavo Turecki
- Monique Séguin

Members of the McGill Group for Suicide Studies who directly or indirectly contributed to this research project

- Nadia Chawky
- Mélanie Bouchard
- Nancy Tremblay
- Sarah Jane Parent
- Marilou Parser
- Julie Lessard
- Ariane Bonnet Vinet
- Gustavo Turecki
- Monique Séguin

Key Messages

Backgrounder

The Department of Health and Wellness, in collaboration with Chief Coroner Dianne Kelly and researchers associated with the McGill Group for Suicide Studies and the Centre de recherche Fernand-Seguin, including Monique Séguin, Ph.D., Gustavo Turecki, MD, Ph.D., and Alain Lesage, MD, conducted a study of families bereaved by the suicide of a loved one and a group of persons having made a serious suicide attempt in the last six months. The purpose was to identify the personal and social circumstances that drove a number of New Brunswickers to suicide so as to propose strategies for improving the services offered to suicidal individuals and their families.

Observations regarding the suicide deaths and suicide attempts

Our study of 102 cases of death by suicide in the province of New Brunswick over a 14-month period and 35 cases involving persons who had made a serious suicide attempt revealed the following:

- In the large majority of cases, the suicide victims had a long trajectory of difficulties throughout their lives, consisting in an accumulation of persistent personal, family, relational, psychological, and social problems. The large majority of them had been in contact with specialized mental health and addiction services, and more than 50% of the suicide-deaths group and 70% of the suicide-attempts group were in contact with specialized health services during the last year.

- Two-thirds of the suicide victims had long-standing addiction problems, making addiction one of the most prevalent factors. Despite previous contacts with addiction services during their lifetime, only 10% of them were in touch with those services during the year preceding their suicide.

- We found a combination of difficulties among the suicide victims (lifetime difficulties), involving mood disorders (50%), dependency disorders (65%), and personality disorders (52%), while we found a slightly more severe combination among the persons who attempted suicide, involving mood disorders (51%), dependency disorders (51%), anxiety disorders (40%), and personality disorders (60%).

- We noted major difficulties in treating persons with multiple problems. This difficulty arises when a combination of problems such as depression, addiction, and a suicide issue is experienced by the same person. Clinical practices for such individuals should shift from fragmentary treatment of single problems in silo mode to coordinated, continuing treatment of multiple problems.

- In general, members of the public can clearly recognize signs of distress and suicidal behaviours. However, the next step, i.e., getting a friend or family member to appropriate services, has not yet become a natural reflex for the entire population.

SUMMARY OF RESULTS REGARDING PERSONS HAVING COMMITTED SUICIDE AND PERSONS HAVING ATTEMPTED SUICIDE IN NEW BRUNSWICK BETWEEN APRIL 2002 AND MAY 2003

Research context

Death by suicide is a major cause of mortality in New Brunswick, and it is more prevalent among adult males. With that in mind, it becomes important to be able to identify the factors that could contribute to suicide. The Department of Health and Wellness therefore conducted a study of suicide victims in collaboration with Chief Coroner Dianne Kelly and researchers associated with the McGill Group for Suicide Studies and the Centre de recherche Fernand-Seguin, including Monique Séguin, Ph.D., Gustavo Turecki, MD, Ph.D., and Alain Lesage, MD. The purpose was to identify the personal and social circumstances that led a number of New Brunswickers to commit suicide so as to propose strategies for improving the services offered to suicidal individuals and their families.

Our research methodology involved 1) charting the development of mental health problems, determining the sequence in which the initial difficulties appeared and tracking their evolution over time; 2) surveying the accumulation of psychosocial risk factors and developmental factors; 3) tracing the trajectory of help-seeking and use of health services; and 4) assessing the response to service needs.

What we learned about the persons who committed suicide

Of the 109 suicide deaths identified by the Coroner at the time of the study, the research team was able to investigate 102 suicide mortality cases that occurred over a 14-month period in the province of New Brunswick. The investigation enabled us to observe the following:

1. In the large majority of cases, the suicide victims had a long-standing trajectory of persistent difficulties in terms of personal development, consisting in an accumulation of personal, family, psychological, psychiatric, and social problems. Most of these persons had sought help from specialized mental health and addiction services at some point in their lives. The varying life trajectories of the deceased suggest that specific, targeted interventions at different points along those trajectories, including the final year of life, could have been undertaken more effectively. Our recommendations to the Government of New Brunswick reflect those different targets.

2. There were serious addiction problems among the suicide victims. More than 60% of the deceased had an addiction problem at the time of death, and nearly 70% of them had struggled with such problems during their lives, making addiction one of the most prevalent risk factors. These persons also presented other disorders, especially depression, and interpersonal and social problems. Despite earlier contacts with addiction services, only 10% of them were in touch with those services during the year preceding their suicide. We therefore underline recommendations for the coordination and continuity of specialized mental health and addiction services and broader accessibility to front- and second-line addiction treatment. In the longer term, we recommend the establishment of a comprehensive policy on addiction, including prevention, treatment, and reintegration, within a framework of hierarchization of care.

3. We note that nearly 70% of the suicide victims had an affective disorder, i.e.,depression, at the time of death. The treatment of depression is an important and indeed inescapable aspect of suicide

prevention. To enhance treatment efficacy and compliance and ensure better follow-up, treatments should undoubtedly be multidimensional to address the complexity of the problems.

4. As regards mental health and addiction services, we note a major stumbling block in the treatment of persons with multiple problems. All too often, specialized mental health and addiction services operate in silo mode. Clinical practices should shift the treatment focus from single problems to multiple problems, along with coordination and continuity between mental health and addiction programs. While in some cases mental health services did everything possible to aid the suicide victims, in many other cases they could have pressed for more services and improved collaboration between existing services. In this sense, the recommendations for case coordination and follow-up represent a key intervention for reducing the number of suicide deaths.

5. Lastly, it is interesting to note that, in general, members of the public can clearly recognize signs of distress and suicidal behaviours. However, the next essential step of getting a friend or family member to the appropriate services has not yet become a natural reflex for the entire population. We suggest that preventive measures seek to make family and friends, peers, social service practitioners, and the community more aware of the importance of getting a person presenting a suicidal problem, mental disorder, or addiction to seek help from health and social services and maintain that contact.

What we learned about the persons who attempted suicide

1. In the great majority of cases, the group of persons who committed suicide and the group of persons who attempted suicide had a long-standing trajectory of persistent difficulties in terms of personal development, reflected in an accumulation of personal, family, psychological, psychiatric, and social problems. Most of these persons had sought help from specialized mental health and addiction services at some point in their lives. The varying life trajectories of the deceased suggest that specific, targeted interventions at different points along those trajectories, including the final year of life, could have been undertaken more effectively. However, observations made on the basis of the results of the suicide-attempters group must be interpreted with caution, given the small number of participants. We cannot state that this convenience sample is representative of the entire population of persons having attempted suicide, whereas for the suicide group, we had the entire population, represented by the persons having committed suicide, resulting in a population-based study for which the weight of the results is all the more pertinent.

2. In comparing the two groups, we see that the persons who attempted suicide suffered more from mood disorders (80% currently and 51% lifetime) than the persons who committed suicide. Difficulties related to alcohol and drug abuse or dependency were present among the attempters, but to a much less significant extent (26% currently and 51% lifetime), and could also be explained by interview and social desirability bias. We also note a higher rate of anxiety disorders (37% currently, 40% lifetime) and personality disorders (60%) among this group.

3. In general, we note that the persons who attempted suicide sought help more than the persons who committed suicide. In the case of the attempters, we observe the same unmet needs for services as those observed among the suicide completers. More specifically, we note gaps in terms of: 1) an adequate assessment of the level of distress, real suicide risk, and extent of the emotional disorders, which should be followed by referral and an intervention plan appropriate to the severity of the assessment; 2) the provision of psychotherapy services, in association with psychiatric follow-up and

adequate medication; and 3) intensive follow-up with outreach. We must recognize the complexity of the clinical picture of persons presenting concomitant mental health disorders and psychosocial disorders and further recognize that this clinical picture presents challenges in terms of assessment. The difficulties have to do with obtaining an accurate assessment of the risks presented by the individual. In many cases, the assessment was not sufficiently exhaustive, hence the risk and the severity of the problems were underestimated. The suggested treatment was commensurate with the assessment and thus, in many cases, not adapted to the scope of the individual's difficulties.

We make the following recommendations to the Government of New Brunswick:
Governance axis: Develop and agree upon regional protocols for systematic coordination and management, involving all front- and second-line practitioners associated with a case file, for persons suffering from addiction and mental disorders, with or without a suicide problem. This would make it possible to proactively refer those persons to appropriate resources, encourage them to stay in treatment, coordinate that treatment, maintain a fixed point of responsibility, provide follow-up, and use an outreach approach if necessary. Achieving the objectives of this axis involves developing a provincial policy on addiction prevention and treatment, in connection with the policy on mental disorders, pursuant to the principles of hierarchization of care and areas of jurisdiction.
Intervention axis: Improve the availability, accessibility, and relevance of treatment services for addicts and persons with multiple problems of mental health, addiction, and suicidal behaviours.
Prevention axis: Implement preventive measures to better reach, identify, and intervene with persons at risk of suicide and persons with mental disorders and addictions, whatever their age group. Make family/friends, peers, and the community more aware of the importance of getting persons presenting suicide-related problems, mental disorders, or addictions to seek help from and maintain contact with health and social services.
Evaluative research axis: Maintain an evaluation protocol throughout the implementation process to account for modifications of the practices proposed herein.

Expected Positive Impacts

We believe that the implementation of these recommendations could alter certain life trajectories by promoting earlier, more adequate contact with professional services. A large proportion of the suicide victims (53%) sought out specialized professional mental health services during the year preceding their death. However, in the final month, those same individuals had apparently dropped their ties and contact with professional services, especially addiction services. Given that dropout, combined with insufficient follow-up and coordination between services, some of those individuals lost the support so critical to them in times of crisis. We believe that better coordination between services, more outreach activities, and the training of specialized mental health and addiction professionals in these new practices will make it possible to introduce services earlier on in the life trajectory of persons in distress, avoid the slippery slope to dropping out, and thus alter the outcome of certain life trajectories.

Putting measures in place to reduce addiction rates and increase access to treatment and reintegration services is all-important. The rate of addiction among suicide victims is very high and exceeds the rate generally attributed to addiction problems in studies of this type. Although alcoholism and drug addiction rates do not seem higher in New Brunswick than elsewhere in Canada (Tjepkema 2004), these problems nevertheless go undertreated in large part, even more so than mental disorders, such as depression, with which they are also associated. Still, access to front-line treatment services should be

increased, and a policy framework for addiction prevention and treatment and for the reintegration of addicts, taking the mental health policy framework into account, should be developed in the long term. It would also be important to carry out a public awareness campaign over several years to promote the detection and treatment or management of addictions, which could be a promising strategy with regard to suicide prevention.

This research project is one of the most important suicide prevention initiatives ever undertaken in New Brunswick. Think of all the bereaved families that so generously participated in this study. Think of all the clinicians who were moved by compassion to share in this study, above and beyond their regular professional duties. Think of all the persons who were mobilized by this study. We hope that, once mobilized with regard to suicide prevention activities, these individuals and their community will come up with the words, deeds, and attitudes necessary to identify vulnerable persons at risk of suicide and help them turn from that path. We also hope that the political authorities will call for social and political actions designed to increase the protective factors available to vulnerable individuals when they are faced with inevitable adversity. Lastly, we hope that the actions suggested by this study will be supported in the decades ahead. This project is also a considerable improvement over the last – and only –survey of this type, conducted in Finland more than ten years ago. It puts New Brunswick in the international forefront of suicide expertise and the continuing efforts to better understand and deal with this complex issue.

****

STUDY OF SUICIDE DEATHS AND ATTEMPTS IN NEW BRUNSWICK BETWEEN APRIL 2002 AND MAY 2003

Full Report

Statistics on Suicide in New Brunswick

The annual report of New Brunswick's Chief Coroner reports 94 deaths as a result of suicide in the 2001-2002 fiscal year, for an incidence of 12.4 per 100,000 population. Analysis of the data prompts the following observations: 1) Suicide is more prevalent among males (75.6%) than females (24.4%), and 2) suicide deaths occur especially within the population aged 30 to 60, although young people and the elderly are not spared.

Again according to 2000-2001 data from the Coroner's Report, suicide rates vary from one judicial district to another. For example, Campbellton posted the highest rate of suicide deaths at 29 per 100,000 population, followed by Bathurst at 25.4 and Edmundston at 21.8. During the 2002-2003 study period, the suicide rates were 20.38 per 100,000 population (44 suicides) for the northern part of the province (Edmundston, Campbellton, and Bathurst regional health authority areas) and 12.15 per 100,000 population (65 suicides) for the southern part (Moncton, Saint John, and Fredericton regional health authority areas).

The most recent data available from Statistics Canada (1999) put the national suicide rate at 13.4 per 100,000 population. Over the past 10 years, New Brunswick's suicide rate has consistently hovered around the national rate, a little higher at times, but more often slightly lower, with 100 suicide deaths a year on average. Among the four Atlantic provinces, New Brunswick recorded a slightly higher suicide rate per 100,000 population during the years 1993-1998 and matched Nova Scotia's rate for 1999.

Research Context and Rationale

In New Brunswick, apart from sociodemographic and epidemiological data on suicide deaths, there are no scientific data on suicide victims' life trajectories or use of services. Provincial health care administrators responsible for implementing suicide prevention measures cannot rely solely on study findings from outside the province. For the same reasons, they cannot say with certainty that the suicide prevention activities implemented are meeting their objectives or the goal of the provincial Suicide Prevention Program.

Each year, 100 persons on average commit suicide in New Brunswick, and roughly 800 are hospitalized after attempting suicide.[1] But the actual number of victims is much larger, comprising the families, friends, and peers who in fact must cope with the tragic event, rebuild their lives, and try to make some sense of the tragedy.

The initiative launched by this research project places New Brunswick in the role of an expert, for it is the only Canadian province to have systematically studied all suicide deaths that occurred in the space of one year. This expertise can be useful to clinicians in their daily practice, to administrators in planning health care services, and to researchers in the advancement of knowledge about suicide.

1. New Brunswick Department of Health and Community Services, *Vital Statistics: Internal Report, 1999.*

Research Problem

In recent years, a number of well-done and extremely interesting studies (Andrews & Lewinshon, 1992; Brent et al., 1988; Moscicki et al., 1988), particularly studies using the psychological autopsy method (Clark, 1992), have identified a series of risk factors or variables associated with suicidal behaviour. Despite the scientific progress of the past few decades, however, there is no broadly accepted theory explaining and accurately predicting suicide behaviour in the general population.

Several of these studies revealed an association between mental disorders and suicide. For example, researchers determined that major depression (Brent, 1998) or certain predispositions to impulsiveness (Horesh et al., 1997) and substance abuse (Murphy, 1992) are variables that are widely recognized to play an important role in death by suicide. More specifically, psychological autopsies have shown that 70% to 95% of suicide victims presented mental disorders at the time of their death (Beskow et al., 1990). The co-morbidity found is significant, i.e., 69%: the disorder most often identified is mood disorders (nearly 60%), followed by substance abuse (41%) and personality disorders (41%) (Lesage et al., 1994). Despite this evidence of the link between psychopathology and suicide, it should be noted that, while the majority of persons who committed suicide had mental health problems, all persons with mental health problems do not commit suicide. That finding makes the detection and assessment of suicidal persons more complex, especially since the effectiveness of prevention depends largely on interventions suggested by studies dealing with persons at risk of suicide.

Other studies focusing on depressed persons have shown that a history of suicide attempts in this population may be the most significant risk factor when it comes to death by suicide (Brent, 1998; Peruzzi & Bongar, 1999). Adults who have already attempted suicide and are depressed are eight times more likely to die by suicide in the first three and a half years following their release from a psychiatric hospital than are adolescents having attempted suicide (Safer, 1997).

According to Allen (2000), since previous suicide attempts are an important predictor, the study of persons having attempted suicide would make it possible, among other things, to gather pertinent information about their needs in terms of mental health services. More recently, certain researchers have taken an interest in the help-seeking trajectory of suicidal persons (Dulac, 1998; Daigle 1999). The results of a Santé Québec survey (1995) show that persons presenting high rates of psychological distress, particularly young men, consult health services the least, and in general, do so much less often than women.

Study Objectives

The goal is twofold: 1) First, to gather sufficient information about each of the four objectives (see below) and compare them in order to bring to light the similarities and respective characteristics of the different groups studied and obtain an overall picture of the circumstances surrounding the suicide deaths and certain suicide attempts in New Brunswick. This comparison will make it possible to observe more closely the phenomenon of gradation in the severity of risk situations and to assess the conditions characterizing the trajectory of care received. 2) Second, to present intervention measures in terms of the approaches that should be adopted by front-line services in order to reach and adequately support persons at risk of suicide.

The study consisted in tracking events and circumstances, i.e. the accumulation of difficulties that marked the lives of the suicidal persons (deceased and living), from various angles: 1) charting the development of mental health problems (determining the sequence in which the initial difficulties appeared and tracking their evolution over time); 2) surveying the accumulation of psychosocial risk factors and protective factors; 3) describing help-seeking behaviours and use of health services; and 4) evaluating how well practitioners, programs, and the health and social services system in New Brunswick responded to service needs.

General Information about this Study

The recruitment and data collection process occurred simultaneously for the two groups observed. We surveyed 109 suicide deaths and approached 35 living persons who had attempted suicide within the last three months prior to the recruitment date. Recruitment and data collection for the two groups took place over the same period, from April 2002 to May 2003, in the province of New Brunswick.

Regarding the 109 suicide deaths …

During the initial contact through the Coroner's Office, it was not possible to investigate seven of the deaths, for several reasons: there were overriding legal factors, it was not possible to find any respondent since the deceased had cut himself/herself off from society altogether, or the family questioned the relevance of the study. The seven cases that were not investigated were all suicide deaths involving adult males between the ages of 27 and 59.

Accordingly, 102 bereaved families agreed to allow our research team to investigate the factors that may have contributed to the events and gather information about the services the suicide victims had received.

Regarding the 35 suicide attempters …

The research team worked in conjunction with teams of New Brunswick health care professionals, enabling us to enter into contact with 35 persons who had attempted suicide in recent months. All of the persons approached agreed to participate in the study. In order to enable us to obtain as much information as possible about their history with the health system, they authorized us to consult their medical records.

Contact with bereaved families and families having a suicidal member

Following an initial contact with the families or with the suicide attempters, the research process was adapted to the individual experiences. The bereaved families were seen in order to investigate the suicide deaths, and the suicidal persons were seen in order to investigate the suicide attempts. Each of these persons was living with his or her own realities, and every effort was made to facilitate the interview and data collection process.

We used one of two investigative approaches, depending on the extent of involvement of the bereaved family in the study. Under the first approach, 54 bereaved families were interviewed to gather information on the lifelong course of the deceased's mental health up to suicide completion (our main measuring instruments were SCID I-II questionnaires and a life calendar). These interviews made it possible to ascertain the significant events along the suicide victim's

life trajectory and the help-seeking behaviours. Additionally, with the family's consent, the medical files were examined to back up the information gathered and determine what resources the deceased had used. Diagram 1A summarizes the manner in which the files were handled.

Under the second investigative approach used with bereaved families, we searched the files for information. Contact with the other 48 families, which did not wish to meet with us, was limited to various telephone conversations. In all cases, however, the families completed questionnaires concerning the socio-demographic characteristics of the deceased, and vignettes were compiled to summarize the information gathered on life history and use of services. Those vignettes were submitted to a panel of experts to validate the diagnoses found in the life histories, determine what interventions would have been needed and the options for setting up structures and services, and establish the extent of prevention of suicide completion. Note that most of our tables give numbers of persons in the case of the suicide deaths group, not percentages. There are 102 study subjects, meaning that actual numbers and percentages are virtually the same.

At the same time, work with professionals from different health settings enabled us to approach 35 living persons who had made one or more suicide attempts. The aim was to approach persons having attempted suicide during 2002-2003. The 35 persons – 26 men and 9 women – all agreed to participate. They completed the series of self-administered tools and the instruments used in the study. Diagram 1B shows that 100% of the persons recruited completed their participation. Note that an effort to match the sex, age, and geographic-region variables associated with the suicide victims was part of the participant profile sought.

Recruitment of Suicide Victims

During the study period, April 2002 to May 2003, the Chief Coroner reported 109 suicide deaths to us. The recruitment methods were developed in co-operation with New Brunswick's Chief Coroner. The Coroner's Office sent the families a letter explaining the study, and a professional from that office followed up by telephone after the families received the letter. The names and telephone numbers of the families that agreed to participate in the study were forwarded to the research team.

The research project coordinators, who worked closely with the Coroner's Office, called the families to explain the goal and objectives of the study and request their collaboration. In our experience, that initial telephone contact made it possible to provide support for individuals who expressed an immediate need for such help. The study was described to them in detail, and their collaboration was requested.

If the family agreed to participate in the study, we asked for the person who had known the suicide victim best or the person who was designated by the family. The interviewers then contacted that person to arrange an appointment for the research interviews. The interview program did not begin until three months after the death to give the bereaved sufficient time to begin the grieving process. No interviews were undertaken without the written consent of the bereaved respondents. Two or three interviews were conducted with each respondent, and there were up to five interviews in some cases. After each interview, the interviewers systematically did a telephone follow-up with the families and made arrangements for another appointment to complete the data collection process.

On average, in terms of the time required for recruitment, in-person interviews, telephone follow-ups to support the family, and preparation of the clinical vignette, we calculate that it took 30 hours to collect the data necessary to describe the life trajectory (clinical vignette) of each suicide victim.

Recruitment of Living Persons Having Attempted Suicide

Recruitment was done initially through emergency room nurses, psychiatry unit nurses, and Mental Health Centre professionals assigned to the Intake/Crisis program. These individuals identified from their list of clients those having attempted suicide over the course of the years 2002 and 2003. The suicide attempters were questioned and their medical records consulted.

The persons who agreed to participate in the study were asked to fill out self-administered questionnaires about the suicide attempt and any history of previous attempts (the Suicide Lethality Scale was used to evaluate the degree of lethality of the suicide gesture). The recruiters were responsible for obtaining written authorization from their volunteer clients for a member of the research team to contact them by telephone, providing they could be paired with a person in the suicide group.

In cases where a pairing between the persons having attempted suicide and the persons having committed suicide was possible, the participant was contacted by telephone and asked once again to consent to participate in this study. The call was made by a mental health professional trained in crisis intervention with suicidal persons. If the participant was still willing to take part, the date and location of the interview were agreed upon, at his or her convenience. The interview might be held at the participant's home or in a mental health centre. At the time of the first interview, the participant was asked to fill out a consent form relating to participation in the study. This form described the goal and objectives of the study as well as the benefits and risks incurred by participating in it, thus enabling the participant to give informed consent. Also, if applicable, the participant was asked to sign a second consent form authorizing the researchers to consult his/her health care records (medical, academic, legal, etc.).

Data Collection

On average, the participants in our two groups were seen twice, and each meeting lasted about three hours, depending on the participant's fortitude. Each interview was tape-recorded for a consistency check later on. During that time, the participant had to answer a series of semi-standardized questions. That three-hour clinical interview went surprisingly fast. The participants appreciated this, and since a conversational approach was used, the length of the interview seldom posed a problem. The questionnaires described below were administered to the participants.

Diagram 1

Flowchart 1A of suicide study files
Group 1

109 suicide deaths
April 2002 to May 2003

7 not investigated
(7 males)

102 suicide deaths investigated
85 males and 17 females

54 families seen Family interviews and file reviews	**48 families not seen** File reviews and telephone contacts with family

Socio-demographic questionnaires N=102	54 SCID I- II diagnoses, 48 diagnoses through medical file reviews	Life trajectory Entire file N= 79	Panel Record 1 n=102 Record 2 n=102 Record 3 n=102 Record 4 n=102 Record 5 n=102	Clinical vignettes n=102	Panel with recommendations n=102

Flowchart 1B of suicide study files
Group 2

35 living persons who had made at least one suicide attempt
April 2002 to May 2003

35 persons having made at least one suicide attempt were investigated
26 males and 9 females

35 persons were seen
Interviews and file reviews

Socio-demographic questionnaires n=35	35 SCID I- II diagnoses	Life trajectory Entire file N= 35	Panel Record 1 n=35 Record 2 n=35 Record 3 n=35 Record 4 n=35 Record 5 n=35	Clinical vignettes n=35	Panel with recommendations n=35

Interview to determine diagnosis
As part of this interview, the researchers administered SCID questionnaires. In the case of the group of persons who committed suicide, the questionnaires were administered to a relative who had known the deceased well. In the case of the other group, the interview was done directly with the person who had attempted suicide. The goal was to develop a post-mortem diagnosis for those who were deceased or a current diagnosis for those who were living, with a view to determining whether any psychopathology was present on Axis I (e.g., depression or addiction) or Axis II (e.g., personality disorders) (Brent et al., 1989; Lesage et al., 1994; Turecki et al., 2001).

Interview to chart life trajectory
As part of a semi-standardized interview, the participants described the life trajectory of the friend or family member for whom they were answering, in the case of the group of suicide victims, or their own trajectory, in the case of the group of persons who had attempted suicide, in order to document the points at which personal, family or social difficulties or other adverse events had appeared. They were then asked to describe the deceased's help-seeking and use of health services (Caspi et al., 1996; Bifulco, 1996) or, in the case of the suicide attempters, their own help-seeking and use of health services.

Review of user files
The user files were reviewed to systematically document the service requests and the responses given to the study participants.

Panel of Evaluators for Assessing Adequacy of Services Received
A panel composed of researchers, professionals, a representative of family/friends, and decision makers was set up to assess the adequacy of the services the deceased or the suicide attempter had received and the extent to which the suicide deaths or suicide gestures were foreseeable. The panel's analysis described the needs for *individual actions* that could be taken by family/friends or by health and social service practitioners. Actions *at the local level* referred to interventions deliverable by local front-line health care networks, specialized second-line service networks, and community organizations. Then, on the basis of the overall assessments made by the panel members, the actions required *at the provincial level* were described. The panel used information from the medical files and from the interviews with family and friends or public- and private-sector health and social service practitioners who may have been involved and with the suicide attempters. The frame of reference was taken from Kovess et al. (2001), based on experience with valid tools for evaluating individual mental health needs (Kovess et al., 2001). Five needs analysis records had to be created to account for the realities of the suicide victims and the suicide attempters and the levels of individual and systemic needs.

The researchers prepared a case history describing the person's mental health problems and entire life trajectory, then added all information obtained about the person's lifetime use of services, particularly mental health services, with strong emphasis on those received during the last year, for both groups. This section was presented in the form of a report describing not only the interventions but also available information on the impact of those interventions and the individual's satisfaction with them. That information was gathered through the accounts of family/friends and the attempters themselves, as well as from the files consulted.

On the basis of that information, the panel went through five steps reflected in the five needs analysis records.

I. Services received during the person's lifetime, in the last year, and in the last month. These included front-line medical and psychosocial services, specialized second-line mental health and addiction services, and non profit community organizations.

II. The person's medical and psychosocial problems during the last year and the interventions from front- and second-line services, family and friends, school, police or legal services, and non-profit community organizations.

III. The ideal scenario for the care the person should have received during the last year, details regarding his or her medical and psychosocial problems, and the interventions that ideally should have been made. This analysis record summarizes the needs.

IV. The interventions that should have been made but were not available locally, through programs, among the regional services or at the provincial level to support the individual interventions identified in the ideal scenario presented in analysis record III. Those unavailable services were categorized by types of needs, e.g., training, psychotherapy, medication, coordination, governance, and funding.

V. Lastly, the panel used all the information included in the preceding analysis records to determine whether the suicide was foreseeable, using a scale of 1 to 5 as follows:

1. *Totally unforeseeable suicide.* A person with no history of emotional problems who commits suicide after an unhappy love affair, without talking about it to anyone and without showing any signs of abnormal or unusual distress to anyone.
2. *Suicide for which there was no reasonable known way to counter the risk factor.* For instance, a person with a borderline personality disorder who had serious drug addiction and depression problems and who, despite the reasonable efforts of specialized psychiatric teams, was not able to find relief. The person was known by the team to present a medium-term risk of suicide.
3. *Suicide that could have been prevented with an increase in the measures already undertaken, the need for which, however, was somewhat difficult to anticipate.* For instance, a patient hospitalized in a psychiatric department or a young person in a youth centre with emotional difficulties and a certain level of suicide risk for whom treatment and monitoring measures had been undertaken, said measures being consistent with the suicide risk established but obviously inadequate, given the outcome. Or a person identified as being at risk in his/her community, having begun potentially effective therapy, with a suicide risk that was recognized but clearly underestimated, given the outcome.
4. *Suicide possibly preventable if measures had been taken given the possible risk.* The person presented more than one factor liable to contribute to suicide risk, and interventions may have been undertaken but only partially and not necessarily addressing all the pertinent factors where intervention would have worked.

5. Suicide that could *easily have been prevented* because there were potentially effective interventions that, if they had been adequately put in place, would definitely have modified the predisposing conditions. For instance, a person with a clear major depression for the first time, treated by a family physician who fails to recognize the person's depressive state and treats him/her with an inappropriate medication or a totally inadequate dosage.

The members of the research team then examined the panel's aggregate findings. The team was to establish, by means of transversal analyses, the actions that should be proposed at the provincial level, given the extent of the deficits noted in actions at the individual and local levels. Those are the recommendations that appear in the summaries of this report and are detailled further on.

*****

FINDINGS

SOCIO-DEMOGRAPHIC PROFILE

The following diagram shows the ages of the deceased suicide victims and the living suicide attempters included in this study.

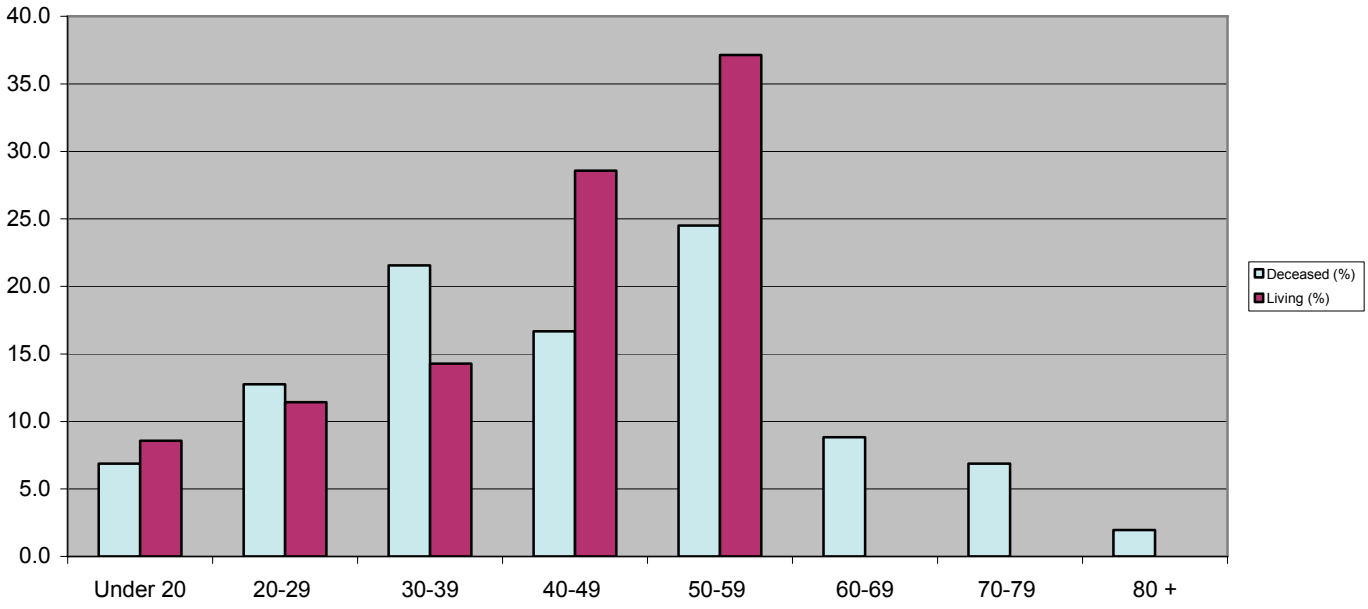


Diagram 2
Age distribution of study subjects

The sample of suicide victims comprised 85 males and 17 females, most of them Caucasian (95%). Most of the suicides (63%) occurred between the ages of 30 and 59. In addition, 41% of the deceased were part of a couple, 37% were separated, divorced or widowed, and 22% were single.

The suicide victims had a lower level of formal education than the suicide attempters. More specifically, 17% had a high school diploma or the equivalent, while 37% had not achieved that level. Only 10% had done postsecondary studies. The level of education for some of them (36%) is unknown, however. We do know that more than half of the subjects were unemployed at the time of death and that almost 19% were deemed disabled.

The sample of suicide attempters was composed entirely of Caucasians, with 26 men and 9 women. At the time of the interview, 80% of them were between the ages of 30 and 50, and the rest were under 30. In terms of marital status, 31% were single, 40% were married, 26% were separated or divorced, and only 3% were dating someone.

Academically speaking, 54% of the suicide attempters had quit school before graduating, 29% had obtained a college diploma, and 5% had gone to university. Two persons had obtained a bachelor's degree, and one person had a master's degree.

The occupations of the persons who had attempted suicide during the year in question can be divided into two main categories: persons on the labour market or in school (40% - 31% working and 9% students) and unemployed or retired persons (40% - 9% retired, 31% unemployed). A total of 20% were deemed disabled.

1. PSYCHOPATHOLOGICAL PROFILE

The most common suicide methods were hanging (39%), use of a firearm or sharp instrument (34%), and overdose by drugs or CO^2 (19%). Jumping and drowning accounted for 10% of the other deaths.

Among the suicide attempters, overdose was often combined with another method to self-inflict injuries: the use of a sharp instrument, hanging, or a car accident was observed in 83% of cases. In 17% of the cases, only one method was used, generally drug overdose. Among both groups, 40% used an overdose as a means of attempting suicide.

Mental health problems would seem to be a constant in the profile of both the suicide victims and the suicide attempters, as can be seen in Table 2. Indeed, 97% of the suicide victims presented a mental health disorder, and 75% suffered from two or more such disorders. The figures also show that, beyond the final six months (lifetime, as indicated in Table 2), mental disorders and addiction were equally present, indicating the persistence of those problems.

Fifty-five per cent (55%) of the suicide victims had both a dependence problem and another disorder; 56% of them had a mood disorder and a second disorder (drug addiction or personality disorder). Of the persons having only one identified disorder, 17% suffered from depression and 7% from an addiction (see Table 3).

Comparison of the two groups shows that more of the suicide attempters suffered from mood disorders (80% current, 51% lifetime) than did the suicide completers. Difficulties associated with alcohol and drug abuse or dependence were present, but to a less significant extent (26% current, 51% lifetime). There was also a higher rate of anxiety disorders (37% current, 40% lifetime) and personality disorders (60%).

Table 2
Number of persons with an Axis I or II disorder

	Deaths N=102		Living N=35	
	Last 6 months	Lifetime	Last 6 months	Lifetime
	No. of persons	No. of persons	No. of persons	No. of persons
Mood disorder	69	56	28	18
Abuse or dependence problem	61	68	9	18
Anxiety disorder	22	17	13	14
Psychosis and associated symptoms	7	6	2	3
Personality disorder	52	52	21	21
No disorder, Axis I and II	9	10	1	3
Single disorder, Axis I and II	18	18	10	5
Comorbidity (two or more), Axis I and II	75	74	24	27
At least one diagnosis, Axis I and II	97	92	34	32

As regards the different types of problems, the data collected show that abuse and dependence problems were very widespread among the deceased (61%), making these a major suicide-related risk factor. Indeed, this is one of the highest percentages we have encountered in this type of study. By decreasing order of prevalence, the most common of these problems were alcohol dependence, drug dependence, alcohol abuse, drug abuse, and also pathological gambling to a lesser extent (5%). In terms of lifetime prevalence, alcohol and drug dependence and alcohol abuse were the most prevalent.

With regard to other disorders existing at the time of suicide, almost 70% of the deceased and 80% of the suicide attempters had a mood disorder, with major depression coming first, followed by unspecified depression. When it comes to lifetime prevalence, major depression remained important, followed by dysthymia. Lastly, anxiety disorder was also diagnosed during the last 6 months in 18% of the suicide victims and 37% of the suicide attempters.

Personality disorders were diagnosed in 52% of the suicide victims and 60% of the suicide attempters. In this category, borderline and anti-social personality disorders, or unspecified personality disorders with strong borderline or anti-social features, stand out.

Table 3
Combination of Axis I and II disorders

Combinations of current difficulties	Deaths *(n=102)* n	Living *(n=35)* n
DEP, ANX, PSY, PER	1	1
DEP, SUB, ANX, PER	5	4
DEP, SUB, PSY, PER	1	
DEP, SUB, PER	25	3
DEP, ANX, PER	5	6
SUB, ANX, PER	1	
DEP, PER, PSY	1	
DEP, SUB, ANX	1	
PSY, PER		2
SUB, PSY	1	
ANX, PSY	1	
DEP, SUB	9	1
SUB, PER	6	
DEP, PER	7	3
DEP, ANX		2
DEP, PSY	1	
ANX, PER	2	1
SUB, ANX	2	
SUB	8	1
DEP	17	8
PSY	1	
PER		2
ANX	1	
NONE	6	1

Legend
DEP: mood disorder **SUB: substance dependence and abuse**
ANX: anxiety disorder **PSY: psychosis and other associated symptoms**
PER: personality disorder

We therefore find a combination of lifetime difficulties among the suicide victims, taking in mood disorders (50%), dependence (65%), and personality disorders (52%), while we find a slightly more severe combination of lifetime difficulties among the suicide attempters. That combination involves mood disorders (51%), dependence (51%), anxiety disorders (40%), and personality disorders (60%).

To summarize, we observe an accumulation of mental health, addiction, and personality disorder problems among the persons included in this study. Those problems were not recent but were rooted in the individuals' life trajectories. Interventions and treatment plans therefore cannot be based on actions that address single problems. Interventions must take account of the complexity and large number of problems, and the emphasis needs to shift to multiple interventions necessitating coordination, follow-up by the care team, and commitment to treatment on the part of the patient. Encouraging such commitment is another part of the care team's job.

II. PRECIPITATING EVENTS AND LIFE TRAJECTORIES

While we observe an accumulation of mental health problems in the suicide victims, the lifetime prevalence tells us that those problems were not recent. Data on precipitating events and life trajectories show how recent events reflect long-standing – often lifelong – personal, family, psychological, and social problems.

Our research identified the main events associated with death by suicide. For half of the individuals, an event related to a significant loss was often the last straw. Failed relationships, couples in difficulty, a variety of major losses, problems with school, work or money, and other traumatizing situations (e.g. assault, fear of serious illness) were among the events associated with suicide completion. Among the other types of events, loss of physical independence and real or potential loss of freedom (e.g. fear of imprisonment) appear among the final elements in the life of the deceased. For others, events associated with mental health problems predominated; they included a worsening depressive state, an episode of strong alcohol abuse, or an intensifying psychotic state. Those changes for the worse became precipitating factors for suicide.

Table 4
Main event associated with the suicide

N=102	Deceased	Living
Growing mental health/addiction problems	*49*	*24*
Break-ups	*13*	*4*
Couple in difficulty	*8*	*2*
Losses	*12*	*4*
School/work/financial problems	*9*	*1*
Other types of events	*10*	-
No event identified	1	-
TOTAL	102	35

Only rarely did none of these events occur in the deceased's final period of life. Indeed, we found only one exception.

Among the suicide attempters, we find a majority (68%) of persons whose difficulties, distress, and problems associated with a depressed mood gradually worsened.

Man in his 50s, married for more than 30 years, no longer working owing to disability following a work accident. He said that misfortune was raining down on him. For the last six months, he had been sinking deeper and deeper into depression, until the day came when he said he could no longer bear the pain, the feelings of being powerless and worthless. He tried to commit suicide after a period during which he drank a large amount of alcohol.

Man in his 30s, living with his spouse, on sick leave following another episode of major depression. A few months ago, he began to feel depressed once again and hatched plans of suicide. He chose a day when his wife would not be at home. He drove her to work one morning, and when he returned home, he carried out his plan.

Woman in her 50s, living alone, few friends, no job. Her last suicide attempt occurred in a context of depression exacerbated by feelings of abandonment and depression that had lasted several months.

These examples show the role played by the gradual worsening of mental health difficulties and discouragement associated with powerlessness and lack of hope. For other persons, the events are more clearly defined, but those events often come on top of other major problems that have already weakened the capacity to respond adequately to difficulties.

Life Trajectory

This study also enabled us to chart the life trajectories of the deceased. This approach, which uses a life calendar, uses 12 developmental spheres to trace the events that mark an individual's life: place of residence, parent-child relationship, emotional life and couple relationship, family life, episodes of personal difficulty, academic and professional life, social life, loss/separation/departure, other adversity factors, protective factors, help-seeking, and medication taking. We tried to determine whether these events might have been situational or permanent in the lives of the deceased and noted their duration, intensity, and frequency.

This particular analysis was based on events recalled by family and friends, writings, medical and psychosocial reports, diaries, and so on. After collecting those data, we analyzed each individual life trajectory. As a panel of experts, we rated each five-year block in terms of risk. We used a scale of 1 to 6 to identify the degree of risk in the individual's development based on the grid below.

Table 5
Risk assessment

Overall assessment	**Rating**	**Risks**	**Protection**
Low	**6**	Few difficulties	Protection present
	5	A few risk factors -Over short period of time -Affecting only one/two spheres	
Moderate	**4**	Several risk factors -Over short period of time -Affecting several spheres	Some protection

	3	Several risk factors -Over long period of time -Affecting several spheres	
Strong	**2**	Multiple risk factors/each sphere -Over long period of time -Involving almost all spheres	Little or no protection
	1	Multiple risk factors/each sphere -Over very long period of time -Involving all spheres	No protection

In the clinical opinion of experts, the compilation of all these factors in five-year blocks and the assigning of a specific risk rating for the severity of the problems paint a picture of the burden borne by the individual. The risk ratings form the curve of these trajectories, as shown in Figure I. The X-axis is the trajectory showing the person's age at the time of severe difficulties; the Y-axis plots the extent of the risk, with the minus sign (-) meaning a high risk and the plus sign (+) a low risk. This analysis gave rise to four profiles that reveal differences in terms of the average age at the time of suicide, the average number of suicide attempts, and mental health or addiction problems (Axis I) and personality disorders (Axis II) (see Table 6).

In trajectory I, which represents the experience of 15% of the deceased, life presented several adversity factors from the beginning, including neglect, mistreatment, major family conflict, or physical and sexual abuse, which accumulated as the individual grew older. The magnitude of high risk events in early childhood is associated with major family conflicts, difficulties at school, very early substance use, and so on. It is as though the individuals fell early on into a difficult trajectory that became increasingly hard to alter. Consequently, the accumulation of adversity factors lasted throughout their life. In trajectory I, we observe a larger number of suicide attempts and Axis I and II psychopathologies. Individuals on this life trajectory were the ones who committed suicide the earliest on average (at age 38). This trajectory illustrates the importance of early intervention in the lives of vulnerable and at-risk families and of acting on the early determinants of health.

Trajectory II, which represents the experience of 24% of the deceased, groups the individuals for whom life was difficult at the start but began improving in early adulthood. Apparently, that improvement came once they left the family environment and embarked upon independence and relative freedom. The risk factors decreased and the protective factors increased during that period. However, it seems that the onset of adversity events after that positive period coincided with an increase in family problems, marital discord, and parenting difficulties. We also see an accumulation of work-related conflicts of all kinds, problems associated with alcohol and drug use, and depressive states. Those events built up prior to suicide commission. It is as though those particular individuals had harboured a measure of vulnerability (especially in terms of personality) during all that time, and then personal, psychological, and psychiatric problems caught up with them in mid-life, triggering relational disintegration and multiple difficulties prior to suicide commission. Individuals characterized by trajectory II follow close behind trajectory I subjects in number of suicide attempts (SA) and present fairly high rates of Axis I and II psychopathologies.

Table 6
Distribution of psychopathologies and suicide attempts, by type of trajectory

TRAJECTORY	Average age	Average SA[2]	Average DX Axis I	Average DX Axis II
4	52	.03	1.4	.6
3	41	.6	2.5	.6
2	51	2	2.7	1.2
1	38	2.5	4	1.8

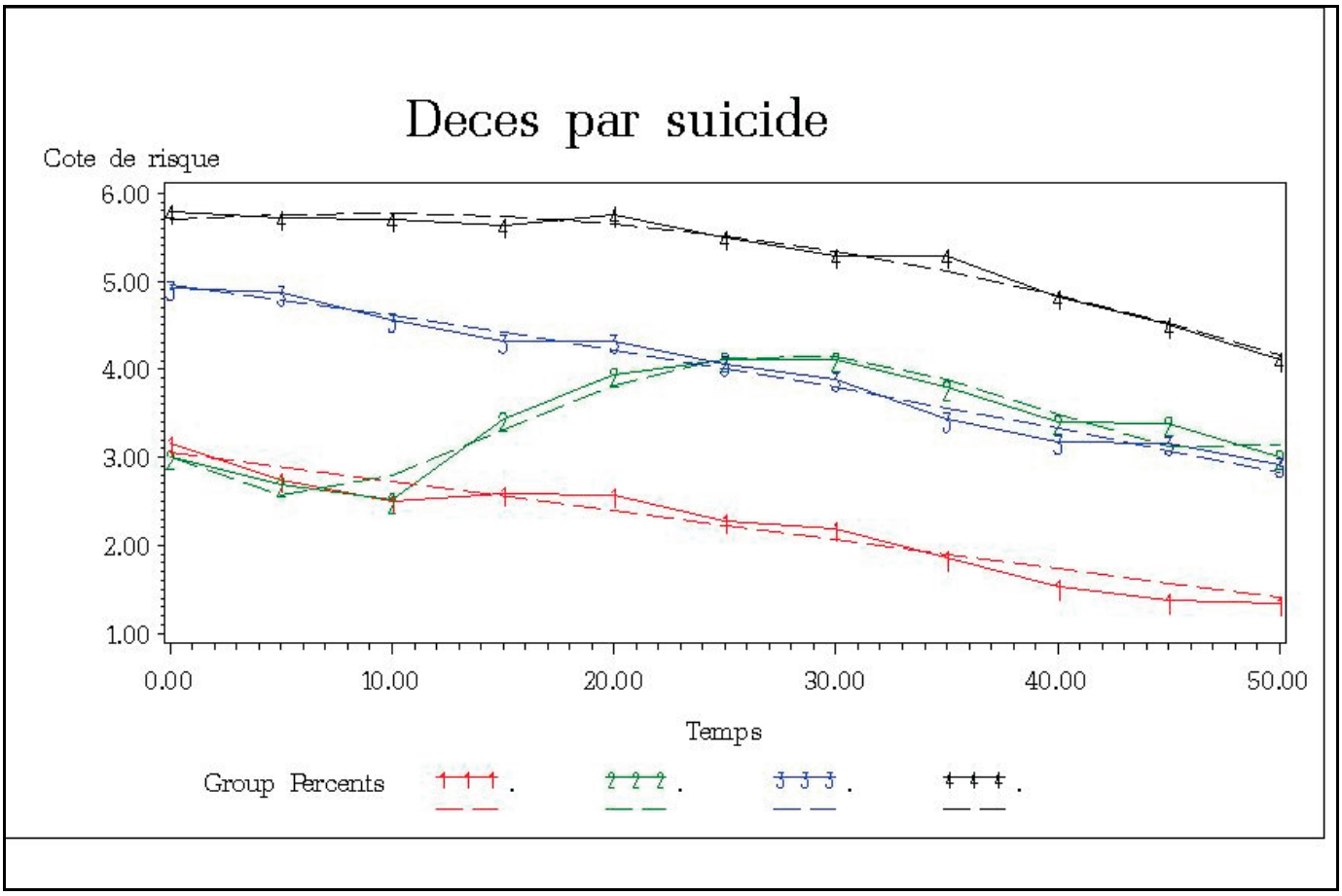
Trajectory III, representing the experience of 43% of the suicide victims, is characterized by a descending line. Life apparently began well and initially included few risk factors and numerous protective factors. Over the course of their development, adversity factors gradually emerged, and the living environment deteriorated, but without strong risk factors. These individuals present a larger number of clinical psychopathologies (Axis I), especially alcohol and drug addiction and affective disorders (depression). Those problems may have begun early in life and existed over many years at differing intensities. The individuals on this trajectory were characterized in particular by relational and emotional disintegration, compounded when the burden of problems caused by a long period of alcoholism and depression is factored in. As a rule, they made few suicide attempts in their life, and suicide often appears in association with separation, significant affective loss, and cascades of negative events. Social policies aimed at the reduction and early treatment of addiction and depression take on special importance in this trajectory.

The suicides in trajectory IV, which represents the experience of 17% of the deceased, are the hardest to understand since there are virtually no known risk or adversity factors. While there are numerous risk factors associated with the suicides in trajectories I, II or even III, these last suicides are the most difficult to foresee. We also note that the individuals in this trajectory committed suicide the latest in life, at age 52 on average. Those deaths often occurred at a time of major loss, frequently involving real or perceived public humiliation or loss.

Table 7
Distribution of trajectories according to the two groups

TRAJECTORY	Deceased Group %	Living Group - attempts %
4	17%	6%
3	43%	57%
2	24%	17%
1	15%	20%

Table 8
Trajectory of suicide victims



Deaths by Suicide

Risk score

Time

In short, these trajectories show first that there is no one single suicide victim profile and that previously diagnosed mental disorders do not usually occur in a vacuum but are manifested more particularly in individuals who have often experienced difficult personal, family, psychological, and social trajectories since childhood. Other trajectories deteriorate after a time of improvement, and still others may reflect a slow decline accompanied and compounded by mental disorders. Common to such disintegration are situations of drug or alcohol dependence, together with failed personal attempts to overcome the problems, which only increases loss of self-esteem and despair before the final cascade, in which all these factors meld and become unbearable for the vulnerable individual. All four of these typical trajectories draw on more distant events, prior to the final year, and more recent events, during the final year. Despite differences in the distribution of each trajectory between the two groups, especially with regard to the number of persons in trajectory IV, we see a similar distribution between the two groups.

These trajectories may provide a better understanding of the various suicide victim subgroups. It may become easier, furthermore, to attach specific risk factors to these trajectories in order to better evaluate and grasp the relative importance of the different risk factors at play in each of them. Each trajectory may call for specific measures that target different points in time, e.g. the implementation of measures that are delivered closer to the critical period and would make coordinated treatment of addiction and mental disorders more accessible. Other measures addressing these same problems could be implemented further downstream to target emerging addiction or depression problems responsive to effective interventions. Other measures could be taken even earlier to prevent the development of these types of behaviour and promote mental health by improving social support and resiliency in children and adolescents and by prevention campaigns to counter substance abuse and act on health determinants.

Table 9
Frequency of suicide attempts according to group

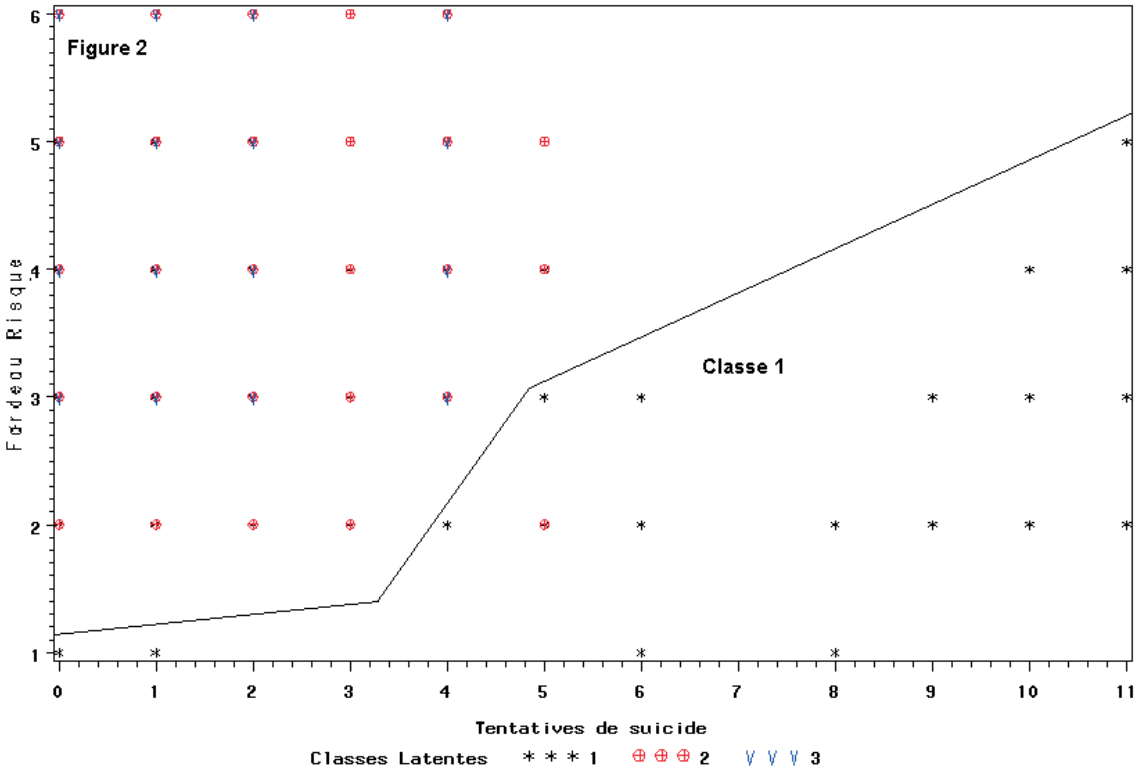
	Deceased *n=102*			**Living** *n=35*		
Suicide attempts	*Frequency*	*Mean*	*Total*	*Frequency*	*Mean*	*Total*
Number of suicide attempts						
0	47	0.46	102	0	0.00	35
1	22	0.22		11	0.31	
2	13	0.13		6	0.17	
3	7	0.07		7	0.20	
4	1	0.01		6	0.17	
5	2	0.02		2	0.06	
6	2	0.02		0	0.00	
7	0	0.00		0	0.00	
8	0	0.00		2	0.06	
9	1	0.01		0	0.00	
10	0	0.00		1	0.03	
11	1	0.01		0	0.00	
no data	6	0.06		0	0.00	

Mean
Exp. *(96 cases)**:*** 1.2 suicide attempts
Control *(35 cases)**:*** 3.01 suicide attempts

The persons having made one or more suicide attempts, similar to the suicide completers, are characterized by a long-standing trajectory of persistent difficulties in terms of personal development, consisting in an accumulation of personal, family, psychological, psychiatric, and social problems. Given the number of participants (n=35), the sample was too small to permit the same types of analyses. It is therefore impossible to situate them on a trajectory different from that of the suicide victims. However, previous suicide attempts (see Table 10) increase the

burden of risk significantly (1 being low and 6 being high), so the more suicide attempts the persons have made, the more they fit into the trajectories where the burden of risk is high.

Table 10
Total burden of risk according to increase in suicide attempts



Legend
1= burden of risk is low
6= burden of risk is high

Fardeau risque = burden of risk
Classe 1 = class 1
Tentatives de suicide = Suicide attempts
Classes latentes = Latent classes

The introduction of measures during the final year will entail analyzing the use of services and enlisting a panel of experts to determine the suitability of those measures in the last year and the predictability of suicide, taking into account all of the information gathered (mental disorders, life trajectories, events, and use of services lifelong and during the last year).

USE OF PUBLIC, PRIVATE, AND COMMUNITY SERVICES

During their lifetime, nearly all of the suicide completers and suicide attempters sought out specialized mental health and addiction services, as well as front-line medical services. Over half of them consulted front-line psychosocial services, while one-third sought help from volunteer services.

Use of services by suicide completers

What is most striking about the final year prior to suicide is the strong tendency to call on private or public specialized services, followed closely by front-line medical services. As for services received during the final month of life, private or public specialized services were used to a fair extent (34.3% of the individuals). Professionals working in mental health centres, i.e., psychologists, social workers, and nurses, were consulted most often during the final month prior to death (18%; final year, 26%), followed by psychiatric physicians (12%; final year, 32%) and Emergency services (8%; final year, 24%). However, addiction services were used less often, by only 3% of the deceased in the final month and 4% in the final year. Of note is the follow-up by front-line health and social services professionals, who were consulted by 18.6% of the persons during the final month, and front-line medical services, including general practitioners, consulted by 17.6% of them. Among front-line services, the suicide victims called on police services at the rate of 4% in the final month and 9% in the final year (17% over their lifetime). The suicide victims made far less use of volunteer or non profit services (8%). Among those particular services, Alcoholic Anonymous and clergy were consulted more often, while little use was made of hotlines (1% in the final month and 2% in the year prior to death).

Use of services by suicide attempters

The persons who attempted suicide also made significant use of the services available. General practitioners were the professional most often consulted among the front-line medical services. There is a reduction in front-line medical consultations between the last year and the last month, falling from 80% to 20%. As for health and social services and front-line responders, police officers came into play significantly during the last year, involving 57% of the suicide attempters. The suicide attempters called on police services at the rate of 45% over their lifetime and 18% in the last month. As for services received during the last month, specialized private or public services were used at a relatively high extent (43%). Mental health centre professionals were consulted, including psychologists (14% in the last year and 4% in the last month), private-practice pyschologists (9% in the last year and 4% in the last month), social workers and nurses (18%; last year, 26%), psychiatric physicians (20% in last year, 37% in the last month), and the Emergency Department (3% in the last year). Psychiatric hospitalizations were present among 8% of the attempters in the last year, and addiction services were least used, only 1% in the last month and 2% in the last year. No suicide prevention centre workers were consulted, either in the last month or the last year. Suicide prevention hotlines and crisis lines were used by 3% of the persons in the last year. As for AA (Alcoholics Anonymous) or NA (Narcotics Anonymous), 3% of the suicide attempters attended meetings.

Table 11

Summary table of services received – month, year, lifetime

		Deceased				Living			
		Month	***Year***	***Lifetime***	**Total**	***Month***	***Year***	***Lifetime***	**Total**
Front-line medical services	***Combinations***	3	5	8	16	2	2	2	6
	Acts	19	59	112	190	8	34	55	97
No. of persons who consulted at least one service		18	50	83	88	8	28	35	35
	%	***17.6***	***49.0***	***81.4***	**86.3**	***22.9***	***80.0***	***100.0***	**100.0**
Front-line responders and health and social service professionals	***Combinations***	5	12	8	25	2	8	9	19
	Acts	21	45	37	103	8	20	43	71
No. of persons who consulted at least one service		19	34	45	58	8	15	24	30
	%	***18.6***	***33.3***	***44.1***	**56.9**	***22.9***	***42.9***	***68.6***	**85.7**
Private or public specialized services	***Combinations***	18	31	51	100	16	19	26	61
	Acts	55	132	240	427	64	69	117	250
No. of persons who consulted at least one service		35	54	86	93	32	25	34	35
	%	***34.3***	***52.9***	***84.3***	**91.2**	***91.4***	***71.4***	***97.1***	**100.0**
Volunteer or non-profit services	***Combinations***	3	9	8	20	1	5	6	12
	Acts	6	18	39	63	2	9	16	27
No. of persons who consulted at least one service		8	16	28	35	2	7	12	14
	%	***7.8***	***15.7***	***27.7***	**34.3**	***5.7***	***20.0***	***34.3***	**40.0**

Services received and services required

Upon comparing the services the suicide victims received and the services they should have been offered in the opinion of a panel of experts, we come up with some disturbing results. We contrasted the observed situation with the ideal scenario. We also identified and analyzed the different problems, the therapeutic interventions received or required, and the different types of services: front-line, second-line, medical, psychosocial, specialized, community, family and friends, school, and the legal system.

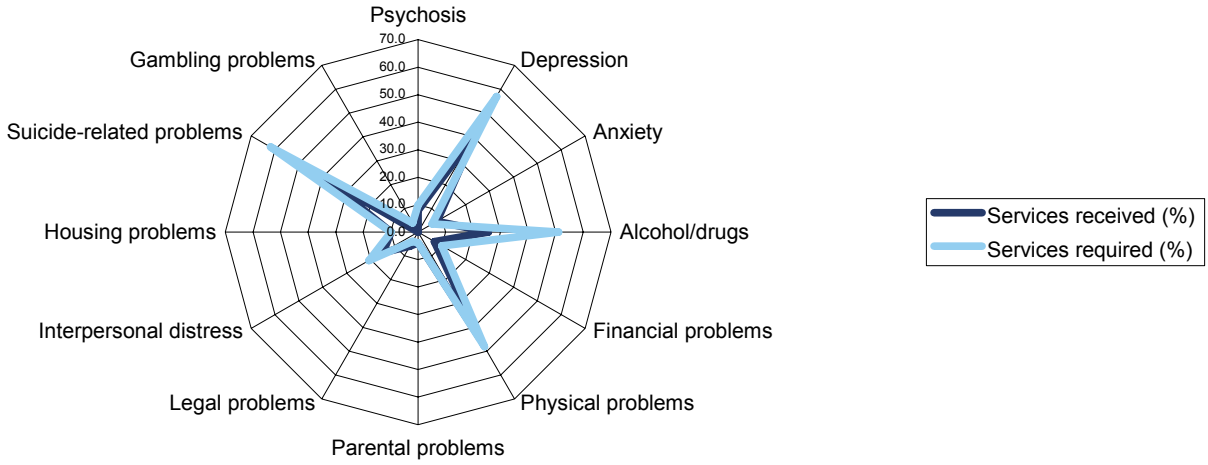


Diagram 3a
Summary of interventions received and required for Deceased group

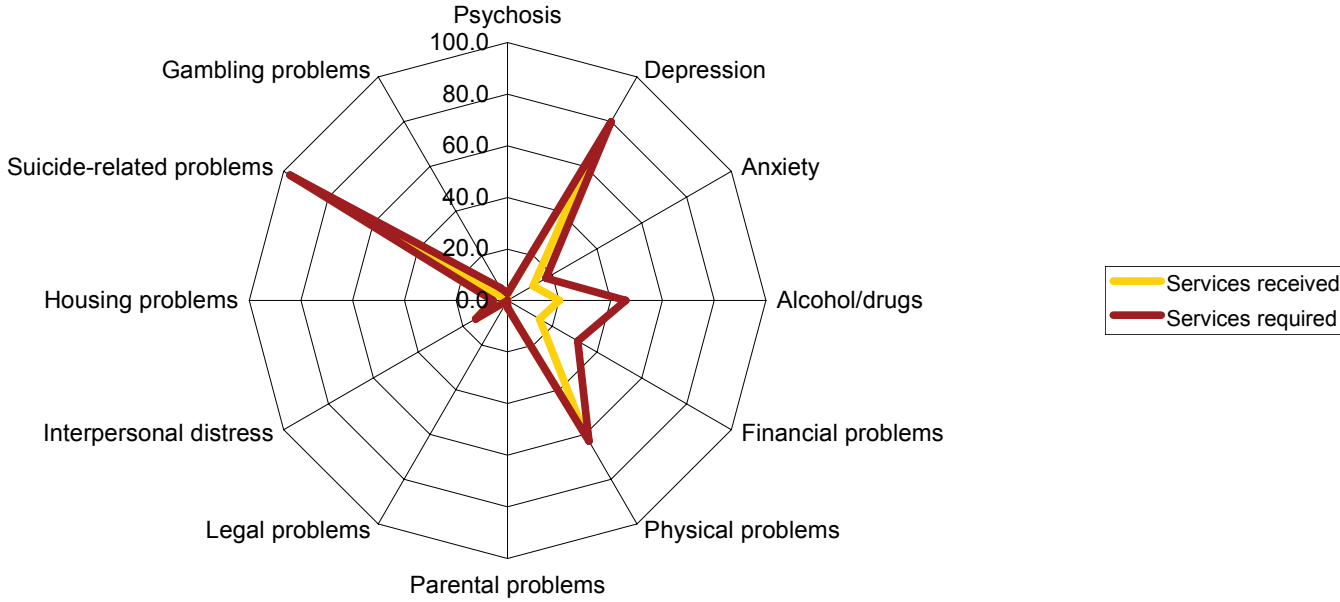


Diagram 3b
Summary of interventions received and required for Living group

As shown by Diagram 3a, among the persons who died by suicide, problems associated with treatment for alcohol or drug addiction account for the biggest discrepancies between services received and services required, followed closely by problems associated with treatment for

suicide-related problems and depression. For those having attempted suicide, the discrepancies relate to problems associated with treatment for alcohol or drug addiction, financial problems, and treatment for depression. More specifically, persons presenting these combined problems are the ones who receive adequate interventions least often and who should receive multidisciplinary management. Looking further at these deficiencies, we note that psychological problems are overrepresented by comparison with physical, legal, and other problems. Furthermore, when the individuals have multiple difficulties (especially those coping with two, three, or four different problems), multidisciplinary services are not provided in response, particularly in the case of persons with concurrent alcohol/drug, suicide-related, and financial problems. This is also the case for individuals with a dual problem, including a combination of alcohol/drug and psychosocial problems, and to a lesser extent, suicide-related and physical problems.

Interventions received and required

Looking more closely at Table 12, we note certain flaws in terms of the interventions received by the persons who died by suicide, in comparison with those that should have been offered. It is possible to identify deficiencies in terms of the interventions delivered in response to requests for help, assessment, and case follow-up: these deficiencies are major when it comes to referral between services and assessment. The psychiatric medications received were not necessarily adequate in certain cases, while others should have had medication. There were also major deficiencies in case management by the various services: case management would have required a more closely supervised environment for a given period of time (hospitalization, detox centre). Moreover, priority ought to have been placed on follow-up, with a specified key practitioner, recontact, and even a home outreach approach if necessary. We also note big deficiencies in terms of individual or group psychotherapeutic interventions for addictions and treatment of depression or anxiety disorders. However, the needs of individuals also presenting a problematic physical condition, requiring medical follow-up in half of the cases, were met more effectively.

For those having attempted suicide, the deficiencies relate to the provision of psychotherapy services, intensive follow-up, and psychiatric assessments. It is in those areas that the gap between the services received and the services required is the greatest. More persons would have benefited from psychotherapy. While psychiatric medication follow-up could have been better, a combination of therapeutic approaches, psychiatric medications, and psychotherapy would be clearly desirable in all of the cases. Deficiencies with regard to case management are major. What would have been required for a given period of time is a more closely supervised environment with intensive follow-up by a specified key practitioner, recontact, and even a home outreach approach if necessary. Note that there are also major gaps with regard to adequate case assessment.

Table 12
Summary of interventions (at least one)

	Deceased *n= 102*				**Living** *n= 35*			
	Received		Received		Received		Required	
	n	mean	n	mean	n	mean	n	mean
Residential setting / hospitalization / detox	38	*0.37*	70	*0.69*	28	*0,8*	30	*0.86*
Day activities	1	*0.01*	4	*0.04*	0	*0*	2	*0.06*
Psychiatric medication	51	*0.5*	65	*0.64*	27	*0.77*	31	*0.89*
Psychotherapy	19	*0.19*	48	*0.47*	19	*0.54*	31	*0.89*
Medical follow-up	35	*0.34*	44	*0.43*	23	*0.66*	25	*0.71*
Intensive follow-up	34	*0.33*	71	*0.7*	3	*0.09*	16	*0.46*
Assessment	50	*0.49*	86	*0.84*	18	*0.51*	31	*0.89*
Referral	27	*0.26*	69	*0.68*	26	*0.74*	30	*0.86*
Peer counselling	13	*0.13*	12	*0.12*	4	*0.11*	8	*0.23*
Crisis intervention	18	*0.18*	24	*0.24*	15	*0.43*	7	*0.2*
Other	9	*0.09*	10	*0.1*	7	*0.2*	6	*0.17*
Total	**295**	*2.89*	**503**	*4.93*	**170**	*4.86*	**217**	*6.2*

The types and levels of services necessary to deliver the required interventions identified earlier and their combinations are shown on ribbon diagram 4a. We note a big difference between services received and required in the areas of 1) assessment and psychiatric medication, 2) provision of an intake service such as hospitalization or a space in a detox centre or residential setting, 3) intensive follow-up with outreach, 4) referral to another service, and 5) provision of psychotherapies. Here, we note that what is needed is a combination of interventions and sectors, rather than intervention by one lone service sector. In the case of persons having attempted suicide, we note the same needs in terms of 1) adequate assessment of the level of distress and the real suicide risk, and assessment of emotional disorders, with appropriate referral depending on the severity of the assessment; 2) provision of psychotherapies, in association with psychiatric follow-up and adequate medication; and 3) intensive follow-up with outreach.

The response to the difficulties identified must include adequate, effective interventions, and these must be delivered by health services and social services. We attempted to project service requirements on the basis of the individual needs identified in the case analyses. Referring to each individual case, we also sought to identify systemic deficiencies in local and regional setups and single out those cases requiring provincial action. We further tried in our recommendations to focus on the cases at hand as much as possible instead of trying to resolve all the systemic problems.

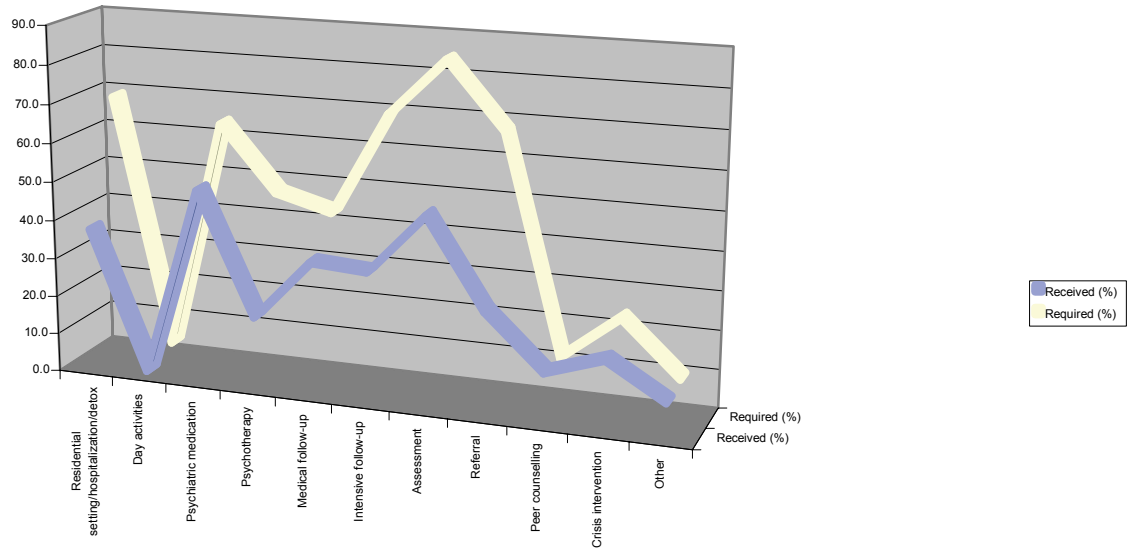


Diagram 4a: Gap between interventions received and required for Deceased group

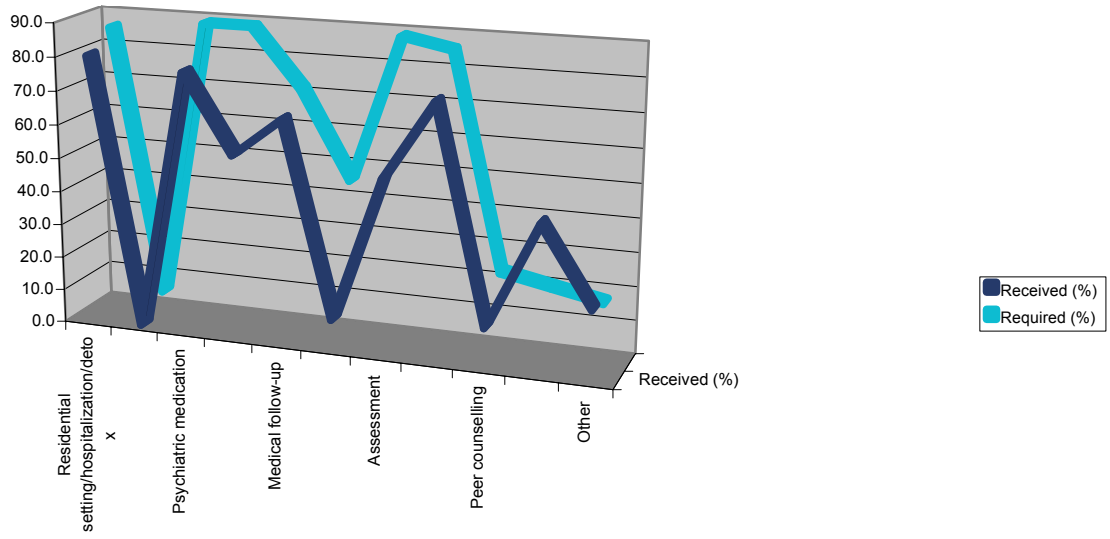


Diagram 4b: Gap between interventions received and required for Living group

Analysis of actions

Analysis of the actions and services offered in various sectors revealed the deficiencies in actions and operation at the local, regional, and provincial levels. Table 13 summarizes our findings for the two groups concerned. We first observe needs related to training, which must be offered to practitioners in particular and then to the public at large. The responsibility for this recommendation lies at the provincial level, but training must be delivered regionally or even locally to the different practitioners. The front-line practitioners' training needs include better identification, treatment, management, follow-up, and referral for depression, addiction, and suicidal behaviours. Training in best practices with clients presenting multiple problems would be appropriate for the second-line mental health and addiction workers. As for members of the general public, it seems that they are fairly good at recognizing the signs of distress but are not entirely comfortable proactively directing a suicidal person suffering from depression or addiction to social and health services. A promotional campaign targeting such behaviours could hold promise.

Among the other systemic needs shown in Table 13, one of the most striking, identified in 40% of the cases, has to do with coordination and continuity between specialized mental health and addiction services, at the local and regional levels. Such coordination is needed between specialized services, but also in suicide crisis or addiction situations, between front-line psychosocial and medical services, Emergency services, and police services. It must also exist for persons presenting complex problems, especially comorbid addiction and mental disorders. We note many difficulties with regard to coordination and follow-up among the different services. Those difficulties often arise through lack of control and failure to assign a fixed point of responsibility (a key practitioner) within care teams. The result is lack of continuity between services, lack of follow-up with patients and their families, and lack of coordination as regards the order in which services will be offered to patients. This absence of coordination translates into disengagement on the part of patients. At the same time, given the lack of an outreach policy, practitioners are not encouraged to follow through on cases in an effort to re-engage patients in their treatment. These needs for coordination and continuity led us to suggest, in more than 27% of the cases, at the provincial level, recommendations to remedy deficiencies in governance. These recommendations target policies aimed at the joint involvement of specialized mental health and addiction services, but also front-line psychosocial and medical services and legal services. They also advocate involving police services in establishing a series of regional and local protocols. This will ensure coordination, continuity, and the establishment of fixed points of responsibility through the presence of a key practitioner. The overall effect would be to make it possible to prioritize actions, treatments, referral, case follow-up, and outreach according to the needs of individuals presenting a combination of mental disorders, with or without a suicide-related problem. A proactive approach and coordination in cases involving complex clinical and social problems will in particular affect practices often carried out in silo mode between the different types of services and will have to be reinforced by practitioner training as indicated earlier.

Table 13

	Deceased n= 102		*Living n= 35*	
Needs	No. of recom-menda-tions	Object of intervention	No. of recom-menda-tions	Object of intervention
Training	49	-Depression -Suicide risk -Importance of seeking help	23	-Treatment of depression, refractory depression -Screening and suicide risk -Treatment of comorbid disorders -Comorbidity and suicide risk
Coordination/ Continuity of care	8 33	-Continuity of care -Coordination of cases with multiple problems	11	-Continuity of care, assessment and referral -Coordination of cases with multiple problems
Governance	7 6 14	-Proactive outreach services with intensive follow-up in the community -Gatekeepers/outreach services for addiction intervention and follow-up -Treatment protocol for multiple problems	10	-Outreach (search for clientele in the community) -Follow-up of persons with concomitant problems -Protocol on follow-up of persons with recurrent depressive disorders
Funding	6	-Detox -Psychotherapy	9	-Psychotherapy -Detox centre for young persons
Other	-		2	-Alcohol/drug screening in school environment
No recommendation (all necessary interventions had been put in place)	28		2	
Cases on which panel was unable to express an opinion	5		1	

One final comment concerns a limitation of our study, which points out basic needs but does not systematically examine systemic issues. We mentioned funding issues in six instances as the reason given for the lack of a program (e.g. intensive team follow-up program, or a day hospital program), but our approach does not enable us to evaluate what the major recommendations arising from the preceding findings would mean in the way of additional funding or restructuring of services, as part if the renewal of health and social services in New Brunswick.

It should also be noted that, in 28% of the cases, social and health services did all they could.

On the basis of all the information above, the research team calculated a level of predictability in relation to possible prevention for each of these cases, on a scale of 1 to 5. The predictability estimates show that close to 22% of the suicides would have been very hard to prevent (1 and 2), 63% of them had elements suggesting that they could have been prevented (3 and 4), and 12% of them could have been avoided (5).

The service deficiencies relate mainly to cases where the suicide involved multiple problems and for which the interventions should have provided for referrals to other services, more extensive assessment, intensive follow-up actions, and services in a residential setting, including hospitalization for psychiatric care or an addiction treatment centre.

In conclusion, we see a great deal of similarities between the two groups. Perhaps the greatest difference relates to alcohol and drug dependency problems. It is difficult to conclude that there is any clearly established difference between these two groups. The reason lies with the Deceased group, because the results are based on a population study, which made it possible to identify a potential understating of the substance dependency rate in earlier studies, using a psychological autopsy method (Séguin, Lesage, Guy et al., 2006). Also, in studies with a convenience sample, in this case concerning persons having made an earlier suicide attempt, it cannot be stated that the participants are representative of all persons having attempted suicide. Thus, we observe fewer substance abuse and dependency problems among the group of suicide attempters in comparison with the suicide completers. These differences can be explained by an interview bias associated with a social desirability bias.

Lastly, given the similarities between the two groups, in terms of psychopathology, life trajectories, and services received and required, we have made some common recommendations. Their aim is to ensure better screening and intervention for persons living with mental health and suicide-related problems.

****

Recommendations

The researchers make the recommendations below after a series of discussions with the panel members, who considered all of the findings presented in this report.

Governance axis: Develop and agree upon regional protocols for systematic coordination and management for all front- and second-line practitioners involved in the case files of persons suffering from addiction and mental disorder, with or without a suicide problem. It is then necessary to proactively refer those persons to appropriate resources, encourage them to stay in treatment, coordinate that treatment, maintain a fixed point of responsibility, provide follow-up, and use an outreach approach if necessary. Achieving the objectives of this axis involves developing a provincial policy for addiction prevention and treatment, in connection with the policy on mental disorders, pursuant to the principles of hierarchization of care and areas of jurisdiction.

Intervention axis: Improve the availability, accessibility, and relevance of treatment services for addicts and persons with multiple mental health, addiction, and suicidal behaviour problems. Adopt a better application of best practices for persons with concomitant difficulties or refractory depression.

Prevention axis: Implement preventive measures to better reach, identify, and intervene with persons at risk of suicide and persons with mental disorders and addictions, whatever their age group. Make family/friends, peers, and the community more aware of the importance of getting persons presenting suicide-related problems, mental disorders, and addictions to seek help from and maintain contact with health and social services.

Evaluative research axis: Maintain an evaluation protocol throughout the implementation process to account for modification of the practices proposed herein.

These recommendations can be broken down into a series of more specific recommendations and means, as shown in Appendix II. That presentation allows the Government of New Brunswick to subsequently designate the persons responsible and collaborators, along with time frames and the choice of indicators to measure implementation of the recommendations.

These recommendations are based on a series of findings emerging from our analysis of mental health problems and life trajectories, and the summary of services received and required. We call special attention to the following:

- **In support of the recommendations for coordination and continuity between mental health and addiction services**: we note that alcoholism or an addiction problem was identified in more than two-thirds of the cases, while depression was found in almost half of them. Despite earlier contacts with addiction services, there was a strong disengagement, meaning that only 10% of the individuals were in contact with those services in the year prior to their death. Interventions in terms of detox centres, counselling, and specific psychotherapies, often combined with treatment for depression, were identified among the unmet needs.

- **In support of our recommendations for provincial interdepartmental guidelines for service coordination and outreach**: in close to 10% of the cases, there was a police intervention in the final year, while in close to 20% of the cases, there was a police intervention at some point in the subject's life owing to specific addiction, depression, or suicide-related problems. These needs for coordination and continuity prompted us to suggest, at the provincial level, in more than 27% of the cases, recommendations intended to remedy governance deficiencies. These recommendations target policies aimed at the joint involvement of specialized mental health and addiction services, but also front-line psychosocial and medical services and legal and police services. This will permit the establishment of a series of regional and local protocols to ensure coordination, continuity, and the establishment of fixed points of responsibility through the presence of a key practitioner. It is also necessary to ensure the prioritization of actions, treatments, referral, case follow-up, and outreach if necessary, for persons affected by a combination of mental disorders with or without a suicide-related problem.

- **In support of the recommendations concerning the training of all practitioners to increase the capacity for identification, treatment, and follow-up of problems relating to depression, addiction, mental disorders, and suicide**: through better training, general practitioners working alone or together with second-line mental health or addiction services could put in place potentially more effective therapeutic programs for depression.

- **In support of prevention through early treatment of addiction and mental health problems**: we note that dependence problems were identified in more than two-thirds of the suicide deaths. While suicide calls for more concerted actions between specialized mental health and addiction services, as well as access to addiction services, the life trajectories in the cases studied show that dependence problems could have been addressed by these services earlier. Moreover, population surveys suggest that the majority of individuals suffering from some form of dependence receive no treatment at all. These observations prompt us to recommend increasing specialized addiction treatment services and front-line services and establishing a more comprehensive policy to develop prevention and early intervention by specifying the hierarchization of care and the necessary training for practitioners and the public at large.

*****

References

Brent, D.A., Johnson, B.A., Perper, J., Connolly, J., Bridge, J., Bartle, S., Rather, C. (1994). Personality disorder, personality traits, impulsive violence, and completed suicide in adolescents. *J Am Acad Child Adolesc Psychiatry*, *33*, 1080-6.

Kovess, V. et al. (2001). *Planification et évaluation des besoins en santé mentale*. Paris: Médecine-Sciences, Flammarion, pp. 22-25.

Lesage, A.D., Boyer, R., Grunberg, F., Vanier, C., Morissette, R., Menard-Buteau, C., Loyer, M. (1994). Suicide and mental disorders: A case-control study of young men. *American Journal of Psychiatry*, *151,* 1063-1068.

Proulx, F., Lesage, A.D., Grunberg, F. One hundred in-patient suicides. *British Journal of Psychiatry*, *171* (1997), p.247-250.

Séguin, M., Lesage, A., Guy, A., Daigle, F., Turecki, G. (2006). Study of suicide cases in New Brunswick from April 2002 to May 2003: The importance of better recognizing substance and mood disorder comorbidity. *Canadian Journal of Psychiatry*, *51*, 581-587.

Shaffer, D., Gould, M.S., Fisher, P., Trautman, P., Moreau, D., Kleinman, M., Flory, M. (1996). Psychiatric diagnosis in child and adolescent suicide. *Arch Gen Psychiatry, 53,* 339-48.

Spitzer, R.L., Williams, J.B., Gibbon, M., First, M.B. (1992). The structured clinical interview for DSM-III-R (SCID). I: History, rationale, and description. *Arch Gen Psychiatry, 49,* 624-9.

Thornicroft, G., Tansella, M., (eds). *The mental health matrix. A manual to improve services*. Cambridge, University Press, 1999, 314 p.

Turecki, G., Zhu, J., Tzenova, J., Lesage, A., Seguin, M., Tousignant, M., Vanier, C., et al. (2001). TPH and suicidal behavior: A study in suicide completers. *Molecular Psychiatry 6,* 98-102.