

Systematic Services Audit of Consecutive Suicides in New Brunswick: The Case for Coordinating Specialist Mental Health and Addiction Services

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Objective: To weight the potential of promotion, prevention, and treatment programs to help establish priorities in multipronged suicide prevention strategies.

Methods: Psychological autopsy methods served to collect information on consecutive suicides over 14 months in New Brunswick ($n = 102$). A panel of researchers, clinicians, provincial planners, and consumers reviewed the cases and applied a systematic needs assessment procedure to establish interventions and services received, unmet needs at the individual level, and programmatic and systemic shortcomings.

Results: More than two-thirds of the individuals suffered from a depressive disorder and a similar proportion from substance (essentially alcohol) abuse or dependence; one-half also presented a personality disorder. In the last year, more than one-half had been in contact with a mental health services specialist, but less than 5% had contact with addiction services, though one-third had previous contact in their lifetime. In one-third of the cases, service gaps called for greater coordination and integration of mental health specialists and addiction services within the health care system. In one-half of the cases, system needs were found to be unmet for public awareness efforts aimed at encouraging individuals to consult health and social services professionals, and in terms of training efforts geared to improving detection, treatment, and referral for mental illness, substance-related problems, and suicidal behaviour by primary medical, social, and specialist services.

Conclusion: This study supports multipronged suicide prevention strategies that should include integrated public promotion, professional development campaigns, and better program coordination. Authorities in New Brunswick have opted to favour the latter strategy component, whose development and application must be evaluated to determine its impact on suicide rates.

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Clinical Implications

- Psychiatric services should actively collaborate with addiction services in the case management of difficult comorbid cases.
- Assertive approach protocols should be in place for the case management of difficult-to-engage comorbid cases with suicidal behaviour seen at hospital emergency services.
- Primary medical, social, school, and police services should receive more support by specialist psychiatric and addiction services in detecting, treating, and referring individuals with mental and substance-related disorders.

Limitations

- The new components of the comprehensive needs assessment method were not tested for reliability by another set of raters.
- In the end, systematic needs assessments remain hypotheses to be tested.
- No control group was used.

Key Words: *suicide, public health, mental health services, mental disorders, substance-related disorders*

Both top-down and bottom-up information is required when assessing needs for care and services relative to mental health care systems. Clinical audit constitutes a bottom-up evaluative approach that can prove extremely useful in this regard.¹ When carried out nationwide, such audit informs on the performance of health care systems and can influence the development and course of national policies, including suicide prevention.² Its matrix model draws on the general health care evaluation model of Donabedian,³ which apportions investigative efforts at the individual-clinical, local-regional-programmatic, and systemic-provincial-state levels in relation to health outcomes.

The coroner's annual report represents an audit of a minimal data set, covering age, sex, location, means, and population rates. The UK National Confidential Inquiry into Suicide and Homicide collects data through a survey form sent to attending clinicians to ascertain, among other things, clinical variables and suicide preventability.⁴ However, the approach is overly narrow, as only about 25% of suicides in the United Kingdom and Australia^{4,5} have been shown to be committed by current mental health service users and less than 5% were inpatients.⁶ When data collection has been carried out for all cases, as was done by Burgess et al,⁵ the subsequent analyses by expert clinicians and clinical researchers that have underpinned individual, programmatic, and systemic recommendations have not been based on standardized needs assessment tools or procedures allowing systematic documentation, not only of clinical and psychosocial problems but also of interventions received, those interventions required and the services to provide these interventions. Moreover, the major stakeholders in suicide prevention policy and health services planning and management, namely, service planners, multidisciplinary team members, and consumers, have had no input in the design and conduct of these evaluations, thereby heightening the risk of recommendations not being implemented.^{7,8-9}

The opportunity to conduct a more systematic audit arose in 2000 in New Brunswick following a series of publicized suicides. The provincial government at the time, through its Department of Health in conjunction with the Department of Justice, commissioned a group of researchers to audit all cases of suicide that occurred in the province over 14 months and make recommendations about how services could be enhanced and prevention improved. On the strength of their 10 years of experience in health services research, needs assessment procedures, and psychological autopsy studies, the researchers developed a method for the systematic analysis of needs for care and services to identify unmet needs at the

clinical-individual, local-regional-programmatic, and systemic-provincial level of the health and social services, education, and justice systems in New Brunswick. The exercise was based on a thorough gathering of data relative to an individual's life trajectory, distal and recent events and circumstances, psychological and clinical profile, and service use.

Methods

From April 1, 2002, to May 31, 2003, the Chief Coroner of New Brunswick reported 109 suicide deaths. Seven were not examined within the framework of our study owing to overriding legal concerns expressed by the Chief Coroner, the family's doubts regarding the relevance of our research, or the absence of any informant or proxy in the case of one suicide who had severed all societal ties. In 55 of the 102 eligible cases, the family agreed to be interviewed and to take part in file reviews. In the other 47 cases, the family was not met face to face but merely contacted by telephone. For all 102 eligible cases, the investigative powers of the Chief Coroner allowed access to available files from general hospitals, the mental health services system, and the specialized addiction services system. All families interviewed face to face signed a consent form approved by the ethics committees of the 3 universities involved in the study. For the file reviews, we proceeded according to a mandate granted by the Chief Coroner and with the authorization of the 3 ethics review boards concerned.

For the 102 cases investigated, we examined social, demographic, clinical, and service-use data by means of a standardized chart review used in previous studies where we proved the items recorded to be reliable.¹⁰ Family interviews and case note reviews served to gather information systematically on life events, hardships, and psychological symptoms, through schedules developed in the course of our previous studies and this one based on third-party informants.¹¹⁻¹³ Diagnoses were assessed by a panel of clinicians. The approach showed excellent reliability in our previous studies and this study for both DSM-IV Axis I and Axis II disorders.^{10,14,15}

Long vignettes of 3 to 7 pages were produced for each case, describing the information gathered with the structured questionnaires on symptoms and disorders, childhood and adult life trajectory, events, circumstances, contexts, and service use. The clinical vignettes were submitted to a panel composed of a minimum of 5 auditors for each case, including a researcher with 20 years of experience in needs assessment procedures, a psychiatrist, a psychologist-researcher, a social worker who was also the coordinator of the New Brunswick suicide prevention program, a mental health nurse responsible for acute mental health services at the New Brunswick

Table 1 Summary of services received in last month, last year, and lifetime

| | Last month | Last year (excluding last month) | Lifetime (excluding last year) | Lifetime |
|---|--------------|--|--------------------------------------|--------------|
| Individuals who consulted at least one service | <i>n</i> (%) | <i>n</i> (%) | <i>n</i> (%) | <i>n</i> (%) |
| Front-line medical services (general practitioners and other doctors) | 18 (17.6) | 50 (49.0) | 83 (81.4) | 88 (86.3) |
| Front-line health and social service practitioners (nurses, social workers, youth centre or school professionals, police) | 19 (18.6) | 34 (33.3) | 45 (44.1) | 58 (56.9) |
| Private or public specialized services (psychiatrists, psychologists, nurses, social workers, crisis centre workers, addiction treatment centres, hospital emergency departments) | 35 (34.3) | 54 (52.9) | 86 (84.3) | 93 (91.2) |
| Volunteer or nonprofit services (for example, hotlines and support lines, clergy, Alcoholics Anonymous, Narcotics Anonymous) | 8 (7.8) | 16 (15.7) | 28 (27.7) | 35 (34.3) |
| At least one of the above | 52 (51.0) | 78 (76.5) | 97 (95.1) | 99 (97.1) |

Department of Health, and a service consumer member of a support organization for grieving suicide survivors. The panel went through 4 steps and completed 4 forms developed for the study:

Step 1: Recording of services used in the last month, last year, and lifetime, categorized into 4 levels of service delivery: front-line physicians, front-line health and social services, specialized services, and volunteer services (Table 1).

Step 2: Recording of individual interventions received in the last year (Table 2) in problem areas illustrated in Figure 1, and by level of service delivery further differentiated from those in Step 1: front-line practitioners (psychosocial, private, school, justice system) and specialists (mental health, addictions, hospital and emergency services).

Step 3: Recording of best scenario of individual interventions in problem areas and categories of service delivery that could have been provided in the last year according to panel consensus (Table 2).

Step 4: Recording of the different program- and system-level deficits to delivering the required individual interventions that emerged from each case in the areas indicated in Table 3.

Steps 2 to 4 represented a new methodology, even though Steps 2 and 3 were based on individual needs assessment procedures whose validity and reliability have been demonstrated.^{16,17}

Results

The annual report of the New Brunswick Chief Coroner indicated an incidence of 12.4 suicides per 100 000 inhabitants in the fiscal year of 2002 for a population of 751 257.¹⁸ The most recent data available from Statistics Canada put the national

suicide rate at 13.4/100 000 inhabitants. The suicide rate in New Brunswick over the past 10 years has hovered around the national rate, which translates to about 100 suicide deaths per year on average.

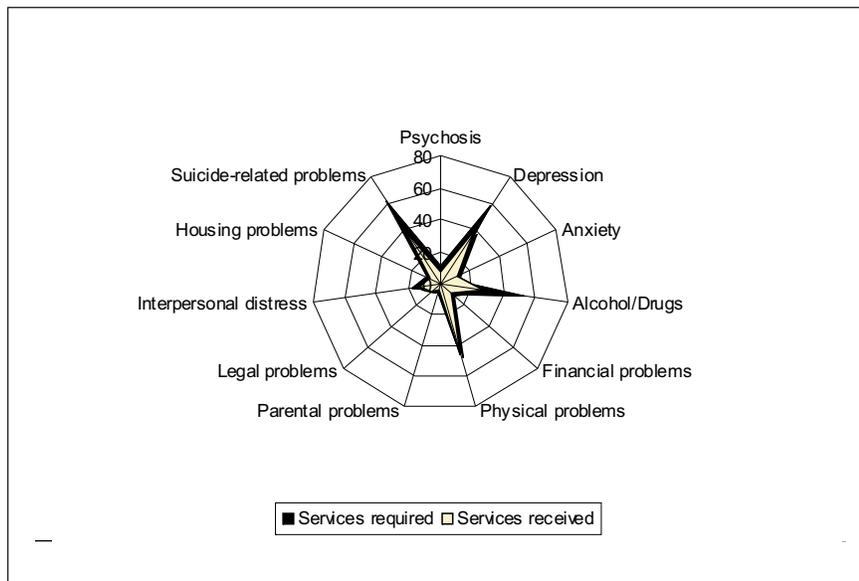
The 102 cases available for study comprised 85 males and 17 females, most were Caucasian (95%) and the rest were Aboriginal. Most of the suicides (63%) were aged 30 to 59 years at time of death, with 41% married or common law, 37% separated, divorced, or widowed, and 22% single. One-half of the subjects were not employed at time of death and nearly 23% were deemed disabled.

In Séguin et al¹⁵ the psychopathological profile of the suicide victims was marked by a constant: mental disorder. Indeed, 94% of the people who committed suicide presented a mental disorder in the last 6 months and 87% did so prior to that period. Mood disorders were the most common, affecting 66% of the deceased, followed closely by substance abuse or dependence (59%); one-half of the suicides presented with personality disorders. Comorbidity was the rule rather than the exception and the cooccurrence of mood disorder and substance-related disorder was noted in over 42% of the deceased.

In Canada, health and social services fall under provincial jurisdiction. However, under the Canada Health Act, to receive full transfer payments from the federal government for health care, provinces must conform to a series of conditions and criteria regarding universality of coverage, comprehensiveness of services, and portability of coverage for medically required care. In essence, each province operates a public managed care system for all its citizens. It is estimated that 70% of health care costs are publicly covered. Where mental health and addiction services are concerned, the

Table 2 Interventions received, compared with interventions required and percentage of deficit (n = 102)

| | Received, n | Required, n | Deficit, % |
|---|-------------|-------------|------------|
| Psychiatric medication | 51 | 65 | 22 |
| Assessment | 50 | 86 | 42 |
| Residential setting, hospital or detox centre | 38 | 70 | 46 |
| Medical follow-up of physical condition | 35 | 44 | 20 |
| Case follow-up | 34 | 71 | 52 |
| Referral | 27 | 69 | 61 |
| Psychotherapy | 19 | 48 | 60 |
| Crisis intervention | 18 | 24 | 25 |
| Peer counselling | 13 | 12 | none |
| Other | 9 | 10 | none |
| Day activities | 1 | 4 | 75 |

Figure 1 Summary of interventions received and required from services, by problem

system covers hospitalization, detox centres, and ambulatory and day care. It also lends support to nonprofit organizations such as Alcoholics Anonymous. However, it does not cover psychotherapy by private psychologists.¹⁹ Most provinces have shifted toward the regionalization of service governance,^{19,20} and New Brunswick has been at the forefront of this movement in the area of mental health services.²¹

Table 1 presents a summary of the services received by the suicide victims. What is most striking over the lifetime is that more than 85% of the deceased had at least one contact with mental health or specialized addiction services; in the last year prior to suicide, over one-half had contact. Addiction services were used by only 3% of the deceased in the last month and by only 4% in the last year; 15% consulted a substance abuse

counsellor and 26% were admitted to a detox centre in their lifetime. Professionals working in mental health centres (psychologists, social workers, or nurses) were the most often consulted specialists in the last month prior to death (18% of victims, compared with 26% in the last year), followed by psychiatrists (12%, compared with 32% in the last year) and emergency psychiatric services (8%, compared with 24% in the last year). General medical services were used by nearly 18% in the last month and by one-half in the last year. Front-line health care and social services professionals were consulted by 18.6% of the deceased in the last month and by one-third in the last year; 4% turned to police services in the last month and 9% in the last year (17% lifetime). Far less use was made of volunteer or nonprofit

| Needs | Responsibility | Recommendations out of 102 cases, <i>n</i> ^a | Object | Stakeholders |
|-----------------------|--|---|--|---|
| Promotion or training | Provincial Health Department; professional organizations | 49 | Importance for public, patients, and family to consult for depression; substance abuse; suicidal crisis; better detection; treatment; and referral by various lines of services | All (public, family, patients, primary and specialized health and psychosocial services, justice, and educational systems) |
| Crisis intervention | Provincial mental health directorate | 2 | Creating crisis intervention services | Psychosocial services |
| Treatment | Provincial and regional mental health and addiction services | 5 | Psychotherapy, crisis beds, psychogeriatric services | Psychosocial services, specialist mental health services, and specialized addiction services |
| Coordination | Regional specialized mental health services | 41 | Continuity and closer case follow-up; coordinated medical and substance abuse services for comorbid cases | Specialist addiction services, justice system, primary psychosocial services, general medical and general hospital services, hospital emergency rooms |
| Governance | Provincial Health Department; Justice Department | 27 | Development and implementation in each region of outreach protocols, with graded intensive case follow-up for individuals with substance abuse, mental health and behavioural problems seen in crisis, emergency situations in the specialized mental health or substance services, in front-line health, social services, or justice system | Specialized addiction and mental health services, justice, general medical and social services |

^aOf the 102 cases, 28 had no recommendations.

services, and suicide hotlines were rarely reported (only 1% in the last month and 2% in the last year).

Table 2 presents the information on interventions received and required in the last year, and the percent deficit between the 2, as gathered at Steps 2 and 3 of the needs assessment procedure. Needs were considerable, particularly for psychiatric medication, psychotherapy, and referral to and assessment by another level of services; needs for inpatient hospital or detox services at least once in the year were substantial as well.

Unmet needs (that is, the difference between services required and services received) were particularly pronounced not only for outpatient-based interventions, including psychotherapy, referral between levels of services, and closer follow-up, but also for inpatient or detox services. When organized by problem area, as illustrated in Figure 1, unmet needs were, as expected, greatest with respect to suicide-related problems, alcohol and drugs, and depression. Needs related to most other clinical and psychosocial problems, including psychosis, were generally met.

Table 3 gives the programmatic and systemic shortfalls identified from each case. Two distinct levels of unmet systemic and programmatic needs immediately stood out. Uppermost were immense unmet needs for promotion of integrated mental health, substance abuse, and suicidal behaviour problems both in terms of public awareness efforts aimed at encouraging individuals to consult health care services when they or a relative present with depression, substance-related problems, or suicidal behaviour, and in terms of training efforts geared to improving detection, treatment and referral by medical (primary and other), psychosocial, psychiatric, and addiction treatment services. Though members of the general public and family members were good in most cases at recognizing signs of distress, they were ill at ease directing an individual in crisis with depression or substance abuse to social and health care services. For general practitioners, training needs were identified for better identification and treatment of mental disorders, substance-related disorders, and behavioural problems, and how to refer patients to and share care with the specialized mental health, addiction, and crisis systems. We envisaged this promotion activity to fall under the systemic responsibility of the health department at the provincial rather than the regional level, and to consist of either launching public campaigns to encourage provincial and national suicide prevention, substance abuse, and mental health organizations to implement these promotional campaigns or collaborating with provincial professional organizations and universities to foster continuing medical education and professional development.

The second large set of unmet needs was with coordination at the programmatic level and with the provincial governance to ensure it, with respect to comorbidity cases under the care of specialized mental health or addiction services. Needs seldom regarded detection; it was how to assess risk properly and treat patients jointly. The deficits arose frequently from the failure to designate a fixed point of responsibility within either specialized mental health or addiction care teams, to assume responsibility for continuity of care between lines of services, and to be proactive instead of waiting for patients to be motivated. This went hand in hand with the patients' disengagement, owing to the absence of an outreach policy, which did not encourage practitioners to follow-up cases or to deploy efforts to reengage them in treatment. This programmatic issue under the responsibility of regional authorities was often associated with a provincial governance shortcoming. Only the provincial government could ensure changes in approach in all regions through training, development and implementation of outreach, and coordination protocols. This is particularly true within and between specialized mental health and addiction services, but also within and between the general medical, hospital emergency, and justice systems, for patients

with a comorbid profile of mental illness, substance abuse, and suicidal behaviour.

Discussion

The main finding of this systematic inquiry of all cases of suicide in a population over a 14-month period is that many more suicides could have been prevented than previously assessed, as more cases were in contact with specialized mental health or addiction services than formerly acknowledged. Further, this finding should help trace a clearer line of action and priorities for governments through 3 actionable recommendations: step up integrated promotion to raise the general public's awareness regarding treatment, engagement, and outreach for mental disorder, addiction, and suicidal behaviour; provide further training for primary-care providers in these same areas and in how to refer patients for evaluation and to shared care with specialized levels of care both in cases of common psychiatric and substance abuse problems and in more complex cases of comorbidity; and make changes to specialized, mental health, and addiction services to ensure better coordination, outreach, and further treatment, including specific psychotherapies for comorbid cases of depression, substance abuse, and suicidal behaviour. In line with earlier national suicide policies, these key recommendations call for a multipronged prevention strategy. However, the policies must weight the potential of each strategy through a bottom-up approach: the potential of the 2 promotion and training strategies could have impacted one-half of the suicide cases; the potential of the recommendations centred on specialist services for comorbid cases could have made a difference in one-third of the cases. Not all suicides were preventable because no recommendations could be made in nearly 30%. Overall, as suggested by Foster,²² it is necessary to dovetail mental health, addiction, and national suicide strategies at the systemic-provincial-state levels in order to prevent suicide.

The methods to achieve these results are complex and may be biased at various steps. We have discussed elsewhere in greater detail¹⁵ how the higher rate of substance abuse observed in this survey, compared with other surveys based on the psychological autopsy method, was neither an artifact nor something owing to higher rates of alcohol consumption. Instead, it can best be attributed to the fact that these other surveys were based on convenience samples of families that agreed to participate and on young people who committed suicide rather than the total population of suicide cases for a given year. A second measurement bias could stem from how interventions and services received were recorded. However, we demonstrated in previous studies the high reliability of our measure of interventions received. Moreover, thanks to the full investigative powers of the Chief Coroner, we had

unrestricted access to both mental health and addiction services files. Among other things, we were able to establish that detoxification centre use by people who committed suicide was much higher when lifetime rather than last year was considered. A third type of bias could be introduced relative to the judgment regarding required interventions. In previous studies, we showed that needs assessment procedures similar to the one developed for this study could be reliable when administered by experienced clinical auditors trained in the procedures. The program and systemic needs assessment and the overall recommendations based on the successive steps used in this study are the new untried elements, the validity of which can be ascertained here first at face value. To contain idiosyncratic judgment, our method, in line also with recommendations and best practices for turning research into actionable research, included in the research process not only researchers and clinicians but also mental health planners and consumers. Anecdotally, in the weeks preceding the report released in May 2005,²³ the New Brunswick Department of Health decided to merge the mental health and addiction services directorate and to start developing protocols along the lines we suggested. A fourth bias is related to the last-year assessment of unmet needs for care and services, which precludes identifying and weighting earlier promotion, prevention, and treatment interventions in childhood or adulthood. Inferring from both the 2 life trajectories of adversity emerging from this sample¹³ and the lifetime Axis I and Axis II disorders identified,¹⁵ we suggested that: prevention strategies for reducing childhood adversities and increasing resilience would be beneficial²⁴ given that these events and difficulties accumulate in suicide trajectories; and, as mental and substance-related disorders were not of recent onset, particularly where Axis I disorders such as substance abuse were concerned, our first large-scale strategy for increasing both public awareness and primary care capacity to detect, engage, treat, and outreach should apply to all ages.

Conclusions

Needs assessment procedures aimed at formulating intervention, service, and even system recommendations involve comprehensive data collection and clinical service judgments, which we sought to systematize. In the end, however, the needs assessed remain hypotheses to be tested: If implemented, will a given strategy produce intended benefits? There is evidence that systemic suicide prevention strategies based on greater treatment of and outreach for individuals with mental disorders help reduce suicide rates.²⁵ Whether the specific strategy favoured by the province of New Brunswick,

namely, better coordination between specialist mental health and addiction services, will impact suicide rates can be determined only through trial and evaluation.

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Résumé : La vérification systématique des services après des suicides consécutifs au Nouveau-Brunswick : en faveur de la coordination des services des spécialistes en santé mentale et en toxicomanie

Objectif : Estimer le potentiel de la promotion, de la prévention, et des programmes de traitement pour aider à établir les priorités des stratégies de prévention du suicide sur plusieurs fronts.

Méthodes : Les méthodes d'autopsie psychologique ont servi à recueillir de l'information sur des suicides consécutifs sur 14 mois, au Nouveau-Brunswick ($n = 102$). Un groupe de chercheurs, de cliniciens, de planificateurs provinciaux et de consommateurs a examiné les cas et appliqué une procédure systématique d'évaluation des besoins pour établir les interventions et services reçus, les besoins non comblés au niveau individuel, et les lacunes programmatiques et systémiques.

Résultats : Plus des deux tiers des personnes souffraient d'un trouble dépressif et une proportion semblable souffrait d'abus ou de dépendance de substances (essentiellement l'alcool). La moitié présentait aussi un trouble de la personnalité. Dans l'année précédente, plus de la moitié avait été en contact avec un spécialiste des services de santé mentale, mais moins de 5 % était en contact avec des services de toxicomanie, bien qu'un tiers ait eu des contacts antérieurs au cours de leur vie. Dans un tiers des cas, les écarts entre les services nécessitaient une meilleure coordination et intégration des spécialistes de la santé mentale et des services de toxicomanie au sein du système de santé. Dans la moitié des cas, le système ne répondait pas aux besoins en ce qui concerne les efforts de sensibilisation du public destinés à encourager les gens à consulter les professionnels de la santé et des services sociaux, ainsi que les activités de formation axées sur l'amélioration de la détection, du traitement, et de l'aiguillage de la maladie mentale, des problèmes liés aux substances, et du comportement suicidaire par les services médicaux primaires, sociaux et spécialisés.

Conclusion : Cette étude soutient les stratégies de prévention du suicide sur plusieurs fronts qui devraient inclure la promotion intégrée auprès du public, des campagnes de perfectionnement professionnel, et une meilleure coordination des programmes. Les autorités du Nouveau-Brunswick ont opté de privilégier ce dernier élément des stratégies, dont le développement et l'application doivent être évalués pour en déterminer l'effet sur les taux de suicide.