Provincial Suicide Mortality Review

Risk Factors Associated with Co-Occurring Mental Health and Substance Use Disorders (CODI)

Lead Investigators:
- Winnipeg Regional Health Authority Co-Occurring Disorders Initiative (CODI) and Suicide Prevention Initiative

Partners:
- Manitoba Health & Healthy Living
- Addictions Foundation of Manitoba

Research Sponsorship

• Lead Investigator: Dr. Randy Goossen
• Research Team
  – Dr. Tracey Peter
  – Susan Chipperfield
  – Marion Cooper
  – Dr. Diana Clarke
  – Beverly Pageau
  – Barry Fogg
  – Annette Alix
  – Liping Zhang

Research Team

Perspectives of Sponsors

This data is provincial in nature as per the requirement of MB Health.

This data reflects only the perspectives of the partners who led this research endeavor.

Purpose

• Generate local evidence – based profile of persons who died by suicide, including known risk factors
• Identify any local service system issues that may have contributed to the suicide risk
• Increase the ability to identify high risk individuals "before the fact"

Research Question

What are the known factors that contribute to suicide deaths among adults in Manitoba?
Background

- Spring 2001 CODI Initiative – partnership between WRHA, AFM and MB Health
- Dr. Minkoff and Dr. Cline (Expert CODI Consultants) recommended that a system wide suicide mortality review be completed to support better risk assessment and coordinated response planning

Highlights From Literature Review

- In the State of New Mexico a review of patients involved in mental health services showed that 70% of patient deaths caused by suicide involved individuals with co-occurring MH and SU issues (Minkoff and Cline, 2002)
- Research done in New Brunswick found that 55% of the 102 suicide deaths reviewed involved individuals with co-occurring MH and SU disorders (Research Project on Death by Suicide in New Brunswick, 2005)

Highlights From Literature Review

- The risk of suicide is significantly higher compared to the general population of the same age and gender for individuals who abuse alcohol (Rossow, 2000)
- The lifetime risk for suicide in the alcohol dependent population is 7% (Inskip et al., 1998)

Highlights From Literature Review

- A recent meta-analysis found that 87.3% of 3275 suicide victims had been diagnosed with a mental disorder prior to their death (Arsenault-Lapierre, Kim, & Turecki, 2004)

Definitions

Suicide is defined as deaths that result from a self-inflicted injury.

The Language of Suicide

“The terms “committed suicide” or “completed suicide” have been used to describe these tragedies. The term commit presents a particular problem since it is also used for criminal offences such as homicide and assault. Suicide is not a criminal act. Death by suicide, died by suicide or suicide more accurately describe the reality and respect the needs of those left behind” (AMHB, 2007)

Definitions

Aboriginal

The term Aboriginal is commonly used to refer to the Indigenous populations of Canada. In Canada, “Aboriginal” includes First Nations, Inuit, and Metis.

In this research project Aboriginal status was assigned based on a clear identification of ethnic origin in the file or other factors such as postal code associated with First Nations Community and visual identifiers.
Data Sources

- Office the Chief Medical Examiner-Department of Justice
- Adults whose cause of death was suicide during 2002 and 2004 in Manitoba

Data Collection

- 257 files reviewed by auditors
- 5 auditors whose professional backgrounds included social work, psychology, nursing and addictions
- Auditors reviewed each file to complete the survey tool

Survey Tool

- Gender
- Age
- Ethnic Origin
- Relationship Status
- Living situation
- Income source
- Employment status
- Health status
- Precipitating event
- Means of death
- Medical conditions
- Diagnostic impression
- Risk factors
- Interventions
- Services involved
- Death preventable

Diagnostic Impression

- Auditors reviewed all files to gather information that would provide evidence to determine a diagnostic impression for those files where there was no clear psychiatric or addiction diagnosis recorded.
- Diagnostic impressions were based on multiple factors including risk factors, behaviours described, medications prescribed and services involved.
- Based on information gathered, suicide victims were assigned to one of four diagnostic impression categories (SU Disorder, No Disorder, MH Disorder or COD)

Strength of Data

- CME Office data source provides a better representation of suicides as compared to other data sources (e.g. Vital Statistics)

Limitations of Data

- Small sample size
- Missing data and lack of detail in many case files
- Correlation between the lack of detail and northern/rural location of individual who died by suicide
- Determination of “illness status” (ie. MH, COD, Substance Use Disorder, neither) was based on single auditor therefore without inter-rater reliability
Limitations of Data

- Ethnic origin data not consistently collected
- No information on the socio-economic demographics therefore unable to collect
- Information available in files varied but overall there was strong information on the suicide event but weak information about individual

Note About Interpretation

In light of these limitations data needs to be considered cautiously.

This data should be used as a beginning point for further study and planning rather than as a definitive conclusion.

Overview of Data Analysis

- Provincial Profile
  - crude rates
  - descriptive profiles
    - bi-variate analysis using chi-square ($X^2$) significance testing
- Winnipeg Region Profile
  - crude rates
  - community areas (paired)
  - paired community area snapshots

Provincial Profile

RHA Crude Suicide Rates 2002 & 2004

[Table with RHA data and map showing rates across different regions]
Gender by Region

Age by Region

Ethnic Origin by Region

Means of Death by Region

Known Services Used in Past Year by Region

Diagnostic Impression by Region
Gender by Diagnostic Impression

- None (N=51)
- COD MH & SU (N=45)
- MH Only (N=96)
- SU Only (N=44)

<table>
<thead>
<tr>
<th>Gender</th>
<th>None</th>
<th>COD MH &amp; SU</th>
<th>MH Only</th>
<th>SU Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14%</td>
<td>33%</td>
<td>25%</td>
<td>18%</td>
</tr>
<tr>
<td>Female</td>
<td>86%</td>
<td>67%</td>
<td>75%</td>
<td>82%</td>
</tr>
</tbody>
</table>

Age by Diagnostic Impression

- None (N=51)
- COD MH & SU (N=45)
- MH Only (N=97)
- SU Only (N=44)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>None</th>
<th>COD MH &amp; SU</th>
<th>MH Only</th>
<th>SU Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24</td>
<td>14%</td>
<td>34%</td>
<td>31%</td>
<td>14%</td>
</tr>
<tr>
<td>25-44</td>
<td>28%</td>
<td>22%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>45+</td>
<td>58%</td>
<td>34%</td>
<td>38%</td>
<td>54%</td>
</tr>
</tbody>
</table>

- \( \chi^2 = 6.2; p = 0.103 \)
- \( \chi^2 = 18.12; p = 0.006 \)

Age Controlling for Gender by Mental Health Only

- Female (N=33)
- Male (N=63)

<table>
<thead>
<tr>
<th>Gender</th>
<th>SU Only</th>
<th>MH Only</th>
<th>COD MH &amp; SU</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>34%</td>
<td>27%</td>
<td>34%</td>
<td>34%</td>
</tr>
<tr>
<td>Male</td>
<td>66%</td>
<td>73%</td>
<td>66%</td>
<td>66%</td>
</tr>
</tbody>
</table>

- Females over the age of 45 years were more likely to have MH only diagnostic impression (68%) \( (\chi^2=8.46, p=0.037) \)

Ethnic Origin by Diagnostic Impression

- None (N=27)
- COD MH & SU (N=37)
- MH Only (N=34)
- SU Only (N=24)

<table>
<thead>
<tr>
<th>Ethnic Origin</th>
<th>None</th>
<th>COD MH &amp; SU</th>
<th>MH Only</th>
<th>SU Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboriginal</td>
<td>48%</td>
<td>26%</td>
<td>27%</td>
<td>18%</td>
</tr>
<tr>
<td>Non-Aboriginal</td>
<td>52%</td>
<td>74%</td>
<td>73%</td>
<td>82%</td>
</tr>
</tbody>
</table>

- \( \chi^2 = 38.5; p = 0.0001 \)

Marital Status by Diagnostic Impression

- None (N=26)
- COD MH & SU (N=35)
- MH Only (N=30)
- SU Only (N=23)

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>None</th>
<th>COD MH &amp; SU</th>
<th>MH Only</th>
<th>SU Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married/CLP</td>
<td>13%</td>
<td>12%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>Single</td>
<td>58%</td>
<td>58%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Widowed/Separated/Divorced</td>
<td>29%</td>
<td>30%</td>
<td>28%</td>
<td>27%</td>
</tr>
</tbody>
</table>

- \( \chi^2 = 14; p = 0.03 \)

Means of Death by Diagnostic Impression

- None (N=51)
- COD MH & SU (N=45)
- MH Only (N=97)
- SU Only (N=43)

<table>
<thead>
<tr>
<th>Means of Death</th>
<th>None</th>
<th>COD MH &amp; SU</th>
<th>MH Only</th>
<th>SU Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanging</td>
<td>13%</td>
<td>5%</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>Other</td>
<td>87%</td>
<td>95%</td>
<td>86%</td>
<td>87%</td>
</tr>
</tbody>
</table>

- \( \chi^2 = 42.1; p = 0.0001 \)
- Cells counts too small to report
### Known Services Used in Past Year by Diagnostic Impression

<table>
<thead>
<tr>
<th>Diagnostic Impression</th>
<th>SU Only (N=42)</th>
<th>MH Only (N=90)</th>
<th>COD MH &amp; SI (N=57)</th>
<th>None (N=58)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.5%</td>
<td>18.2%</td>
<td>18.5%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>22.2%</td>
<td>18.2%</td>
<td>18.5%</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>41.2%</td>
<td>41.2%</td>
<td>41.2%</td>
<td>46.3%</td>
</tr>
</tbody>
</table>

* Cells counts too small to report

\[ \chi^2 = 44.1, p = 0.0001 \]

### Intervention vs. Risk by Disorder*

- Two or more risks occurred in the COD group (47.7%) (\(\chi^2=98.686, p=.000\)) but the MH only group is more likely to receive some type of intervention (76.8%) (\(\chi^2=64.56, p=.000\))

* The 'No disorder' category was excluded due to small cell counts

### Winnipeg Region Profile

### Crude Rate 2002 & 2004

<table>
<thead>
<tr>
<th>Community Area</th>
<th>Crude Rate for 2002 (per 100,000)</th>
<th>Crude Rate for 2004 (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown / Point Douglas</td>
<td>21.5</td>
<td>14.3</td>
</tr>
<tr>
<td>Inkster / Seven Oaks</td>
<td>15.2</td>
<td>11.4</td>
</tr>
<tr>
<td>St. James / Assiniboine South</td>
<td>11.2</td>
<td>13.1</td>
</tr>
<tr>
<td>Fort Garry / River Heights</td>
<td>6.7</td>
<td>7.3</td>
</tr>
<tr>
<td>St. Vital / St. Boniface</td>
<td>13.8</td>
<td>10.8</td>
</tr>
<tr>
<td>River East / Transcona</td>
<td>17.5</td>
<td>12.2</td>
</tr>
</tbody>
</table>

**Overall Total**: 100,000

Based On 2001 Census Data

### Winnipeg Community Area Profile by Diagnostic Impression*

<table>
<thead>
<tr>
<th>Diagnostic Impression</th>
<th>River East / Transcona (N=30)</th>
<th>St. Vital / St. Boniface (N=22)</th>
<th>Fort Garry / River Heights (N=21)</th>
<th>St. James / Assiniboine South (N=14)</th>
<th>Downtown / Point Douglas (N=39)</th>
<th>Overall Total (N=144)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>58%</td>
<td>67%</td>
<td>64%</td>
<td>43%</td>
<td>64%</td>
<td>64%</td>
</tr>
<tr>
<td></td>
<td>22%</td>
<td>13%</td>
<td>16%</td>
<td>31%</td>
<td>19%</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td>4%</td>
<td>11%</td>
<td>21%</td>
<td>36%</td>
<td>36%</td>
</tr>
</tbody>
</table>

* Cells counts too small to report

### Gender by Community Area

<table>
<thead>
<tr>
<th>Community Area</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown / Point Douglas (N=39)</td>
<td>44%</td>
<td>56%</td>
</tr>
<tr>
<td>St. James / Assiniboine South (N=14)</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td>St. Vital / St. Boniface (N=22)</td>
<td>43%</td>
<td>57%</td>
</tr>
</tbody>
</table>
**Winnipeg Community Area Profile by Ethnic Origin**

**Based On 2001 Census Data**

**Point Douglas /Downtown Profile**
- **Gender** – 67% of those who died by suicide were male
- **Age** – 72% of those who died by suicide were under the age of 45 years
- **Ethnic origins** – 73% of those who died by suicide were non-aboriginal
- **Diagnosis** – 44% of those who died by suicide had a COD followed by MH only at 23% and SU only 23%
- **Means** – 63% died by hanging followed by drugs and alcohol use at 26%
- **Service use** – 66% had at least one type of service in the past year, while 34% had no service in the past year

**Inkster/Seven Oaks Profile**
- **Gender** – 65% of those who died by suicide were male
- **Age** – 53% of those who died by suicide were over the age of 45 years
- **Ethnic origins** – 76% of those who died by suicide were non-aboriginal
- **Diagnosis** – 41% of those who died by suicide had a COD only at 29% and No Disorder 23%
- **Means** – 50% died by hanging followed by drugs and alcohol use at 31%
- **Service use** – 68% had at least one type of service in the past year, while 31% had no service in the past year
<table>
<thead>
<tr>
<th><strong>St.James/Assiniboine Profile</strong></th>
<th><strong>Fort Garry/River Heights Profile</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong> – 57% of those who died by suicide were male</td>
<td><strong>Gender</strong> – 67% of those who died by suicide were male</td>
</tr>
<tr>
<td><strong>Age</strong> – 50% of those who died by suicide were over the age of 45 years</td>
<td><strong>Age</strong> – 62% of those who died by suicide were over the age of 45 years</td>
</tr>
<tr>
<td><strong>Ethnic origins</strong> – 100% of those who died by suicide were non-aboriginal</td>
<td><strong>Ethnic origins</strong> – 93% of those who died by suicide were non-aboriginal</td>
</tr>
<tr>
<td><strong>Diagnostic Impression</strong> – 50% of those who died by suicide had a MH only</td>
<td><strong>Diagnostic Impression</strong> – 57% of those who died by suicide had a MH only followed by COD only at 33%</td>
</tr>
<tr>
<td><strong>Means</strong> – 50% died by drugs and alcohol</td>
<td><strong>Means</strong> – 57% died by other means followed by drugs and alcohol use at 29%</td>
</tr>
<tr>
<td><strong>Service use</strong> – 64% had at least one type of service in the past year, while 36% had no service in the past year</td>
<td><strong>Service use</strong> – 79% had at least one type of service in the past year, while 21% had no service in the past year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>St.Vital/St.Boniface Profile</strong></th>
<th><strong>River East/Transcona Profile</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong> – 64% of those who died by suicide were male</td>
<td><strong>Gender</strong> – 63% of those who died by suicide were male</td>
</tr>
<tr>
<td><strong>Age</strong> – 57% of those who died by suicide were over the age of 45 years</td>
<td><strong>Age</strong> – 53% of those who died by suicide were over the age of 45 years</td>
</tr>
<tr>
<td><strong>Ethnic origins</strong> – 89% of those who died by suicide were non-aboriginal</td>
<td><strong>Ethnic origins</strong> – 92% of those who died by suicide were non-aboriginal</td>
</tr>
<tr>
<td><strong>Diagnostic Impression</strong> – 57% of those who died by suicide had a MH only followed by No Disorder at 22%</td>
<td><strong>Diagnostic Impression</strong> – 50% of those who died by suicide had a MH only followed by COD only at 27% and No Disorder 17%</td>
</tr>
<tr>
<td><strong>Means</strong> – 39% died by other means followed by hanging at 35% and drugs &amp; alcohol 22%</td>
<td><strong>Means</strong> – 43% died by other means followed by hanging at 33% and drugs &amp; alcohol 17%</td>
</tr>
<tr>
<td><strong>Service use</strong> – 55% had at least one type of service in the past year, while 45% had no service in the past year</td>
<td><strong>Service use</strong> – 61% had one type of service in the past year, while 39% had no service in the past year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Emerging Themes</strong></th>
<th><strong>Emerging Themes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Information available in files varied but overall there was strong information on the suicide event but weak information about individual</td>
<td>• In general, the further north a suicide occurs in Manitoba, the less likely that information is available in the CME file</td>
</tr>
<tr>
<td>• Information on file is adequate for it’s purpose of determining cause of death</td>
<td>• Ethnic origin data is not consistently collected</td>
</tr>
<tr>
<td></td>
<td>• No routine information is recorded on the socio-economic demographics therefore unable to collect for research</td>
</tr>
</tbody>
</table>
Areas for Future Considerations
- Explore ongoing role for mental health to provide clinical expertise to assist CME office in suicide reviews
- Consider incident review process for suicides within Mental Health and Addictions Services
- Improve data collection policies and practices on suicide and suicide attempts

Future Considerations
- Utilize research findings to improve risk assessments
- Use this study to facilitate planning with communities around suicide prevention and develop targeted strategies for at risk populations

Future Research Ideas
- Link CME data with Health Care and Addiction Utilization Data including federal data for Aboriginal people for future study of suicide and suicide attempts
- Further examination into suicide mortality in Manitoba by gathering more detailed information following a suicide from family, primary providers to allow for more definitive conclusions

Future Research
- Exploration of risk factors within communities where suicide rates are high to understand unique contributing risks / dynamic at play
- Exploration of treatment prevalence and help seeking behaviour to determine diagnostic impression and whether there are differences in service provider practice