Manner of death and circumstances in fatal poisonings: Evidence from New Jersey

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In New Jersey....

- Unintentional poisonings have risen sharply in recent years
- While suicides by poisoning have remained basically flat

Figure 1. Poisoning deaths in New Jersey by intent, 1994-2003
Drug overdoses on the rise

- Increase in drug overdoses, mostly involving street drugs, or pharmaceuticals being used in an illicit manner.
- Fluctuations in purity of heroin can cause spikes from year to year…
- As can non-pharmaceutical fentanyl…

Non-pharmaceutical fentanyl

- Causing increase in deaths in 2006
- 90 deaths so far
- Almost all in South Jersey
- Usually either cocaine or heroin also found in the toxicology
- But not always…

Also….

- Debate over needle exchange
- Other local clusters of overdoses
- Results in big interest in number of drug overdoses
- Reporters get M.E. info from prosecutors
- Try to reconcile with death data…..
Definitions used in New Jersey

<table>
<thead>
<tr>
<th>Definitions</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow</td>
<td>588</td>
</tr>
<tr>
<td>Medium</td>
<td>623</td>
</tr>
<tr>
<td>Broad</td>
<td>751</td>
</tr>
</tbody>
</table>

In 2003:
- Narrow – 588
- Medium – 623
- Broad - 751

Preliminary death data 2004

<table>
<thead>
<tr>
<th>Definitions</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug overdose</td>
<td>468</td>
</tr>
<tr>
<td>Fatal Poisonings</td>
<td>502</td>
</tr>
<tr>
<td>Drug-induced death</td>
<td>677</td>
</tr>
</tbody>
</table>

- But this is preliminary – many pending cases not yet coded.

Medical Examiner data

- Available sooner, but not as accurate:
  - Includes cases that will not ultimately be coded as poisonings or drug-induced deaths
  - Does not include most deaths occurring at hospitals
Medical examiner data:
- Manner: Accident
- Mechanism: Poisoning
- 2004: 755
- 2005: 848
- 2006: 476 (many pending, year not over yet)

Objective of study
- Took medical examiner data on fatal poisonings from 2003
- Used New Jersey Violent Death Reporting System scheme to code circumstances
- To see whether circumstances differed by manner

Questions
- To what extent are unintentional poisonings similar to suicides?
- Can we identify a common prevention strategy for both types of poisoning deaths?
Data

- New Jersey occurrence and residence, 2003
- Medical Examiner involvement
- N=679
- Suicides = 107 (X60-X69)
- Unintentional = 537 (X40-X49)
- Undetermined = 35 (Y10-Y19)

Caveats

- Does not include all poisoning deaths
- Only those with M.E. – no hospital deaths
- Missing some which are pending at time study started, etc….
- But a decent sample of poisoning deaths…

Do circumstances vary by manner of death?

- Yes
- Unintentional poisonings do not look like suicides – in terms of demographics, substances used, and other characteristics…
Demographic Characteristics

- Unintentional versus Suicide:
  - More male (79% v. 57%)
  - Less white (70% v. 83%)
  - Somewhat younger

Big differences in substances used by manner

- "street drugs" –
  - @ 80% of unintentional, @ 20% of suicides
- Pharmaceutical –
  - 14% of unintentional, 57% of suicides

Leading drugs, by manner

<table>
<thead>
<tr>
<th>Drug</th>
<th>Unintentional</th>
<th>Suicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocaine</td>
<td>45.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Alcohol</td>
<td>38.2</td>
<td>32.7</td>
</tr>
<tr>
<td>Heroin</td>
<td>42.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Morphine</td>
<td>33.5</td>
<td>11.2</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>14.0</td>
<td>13.1</td>
</tr>
<tr>
<td>Methadone</td>
<td>11.4</td>
<td>4.7</td>
</tr>
<tr>
<td>Codeine</td>
<td>9.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Alprazolam</td>
<td>7.5</td>
<td>4.7</td>
</tr>
</tbody>
</table>
NVDRS Mental Health Circumstances

- Depressed mood
- Current or past treatment
- Diagnosis of mental illness
- Based on next of kin, other circumstantial evidence
- Probably underreported

NVDRS Substance Abuse circumstances

- Decedent had known problem with:
  - Alcohol
  - Other substances

Mental Health circumstances by manner of death

- Any mental health circumstance:
  - Undetermined – 71%
  - Suicide – 59%
  - Unintentional – 24%
  - (p<.01)
Substance Abuse circumstances by manner of death

- Unintentional – 90%
- Suicide – 25%

- Neither mental health nor substance abuse risk factors:
  - Unintentional – 6%, Suicide – 30%

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Selected other circumstances

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Unintentional</th>
<th>Suicide</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health</td>
<td>18.3</td>
<td>24.3</td>
<td>20.6</td>
</tr>
<tr>
<td>Recent Crisis</td>
<td>9.7</td>
<td>19.6</td>
<td>11.6</td>
</tr>
<tr>
<td>Intimate Partner</td>
<td>4.7</td>
<td>14.0</td>
<td>6.8</td>
</tr>
<tr>
<td>Prior attempt</td>
<td>2.3</td>
<td>20.6</td>
<td>5.2</td>
</tr>
<tr>
<td>Disclosed intent</td>
<td>0.6</td>
<td>13.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Other legal</td>
<td>1.1</td>
<td>9.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Other relationship</td>
<td>1.7</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Job Problem</td>
<td>1.3</td>
<td>2.9</td>
<td>1.9</td>
</tr>
</tbody>
</table>

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Circumstances by manner

- In general, presence of these circumstances is more common among suicides
- Physical health problem – fairly common to both manners – difference not significant
Decedents with physical health problems....

- More likely to be female (42% v. 22%)
- Median age @ 44, v. @ 39
- More likely to use Rx drugs (42% v. 18%)
- Physical health problem negatively correlated with substance abuse, positively correlated with mental health problems (p<.01)

Physical health problems and manner of death

- Demographic differences by manner not significant among those with physical health problem
- Differences by manner in mental health and substance abuse circumstances are lessened, although they remain significant

Figure 2. Mental health, substance abuse and physical health problems by manner
Physical health problems and manner

- Difference by manner in other circumstances, i.e. recent crisis, intimate partner problem, job problem, etc… also lessened
- Physical health problem decreases likelihood of these problems among suicides, increases likelihood among unintentionals – thus lessening difference by manner

Physical health problems and substance used

- For both manners, physical health problems negatively associated with street drugs
- In particular, associated with oxycodone use

Conclusion

- Characteristics of decedents and circumstances of death differ significantly in many ways by manner
- Major differences in demographic characteristics, mental health and substance abuse risk factors, and presence of other circumstances
Conclusions, cont.

- Physical health problems - one notable circumstance of death for both manners
- Fairly common in both suicides and unintentional
- Presence of physical health problems is associated with lessened differences by manner

Implications

- Certain kinds of physical health problems may be risk factor for both suicide and unintentional poisoning deaths
- Potential for common prevention strategy, but.....

Implications

- Overall population prevalence of physical health problems is quite high
- Not clear whether those with physical health problems are necessarily at high risk
- Need to understand more about specific nature of physical health problems, pattern of prior hospitalizations, etc.....to see if high risk group can be identified.