Alcohol and Opiate Fatalities

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Chief Medical Examiner
Palm Beach County Medical Examiner’s Office
Opiates

Phenantherenes

Morphine  Codeine  Dihydrocodeine

Hydrocodone  Hydromorphone  Oxycodone

Oxymorphone  Buprenorphine  Nalbuphine
Opiates-Heroin

Heroin

6-Monoacetylmorphine

Morphine

diacetylmorphine

Conjugates
Opiates

Phenylheptalamines
- Methadone
- Propoxyphene

Phenylpiperidines
- Fentanyl
- Meperidine
Opiates

Morphinans

Levorphanol

Butorphanol

Benzomorphan

Cyclohexanol

Pentazocine

Tramadol
Drug-Related Death

- Overdose or intoxication
- Medical derangement from chronic consumption
- Behavior modification and environment interaction
Drug-Related Death

- Overdose or intoxication
  - Too much drug taken
    - Single or multiple drugs
  - Too many drugs taken with similar pharmacological effects
    - Oxycodone + Carisoprodol + Alprazolam + Alcohol
    - None are in lethal concentration, but together act to stop breathing
Drug-Related Death

- Medical derangement from acute or chronic consumption
  - Alcohol produces hepatitis and cirrhosis
  - Life-threatening heart valve infection (endocarditis) from intravenous injection of drugs
  - Alcohol, opioids, and benzodiazepines cause CNS depression and cough suppression leading to aspiration pneumonia
  - Cocaine induced cardiomegaly, aortic dissection, ruptured berry aneurysm
Drug-Related Death

- Behavior modification and environmental interaction
  - Intoxication leads to:
    - Motor vehicle collision
    - Fall with head trauma
    - Drowning
    - Positional asphyxiation
Drug-Related Death

- Drug-related death does NOT necessarily mean drug overdose
- Alcohol is a drug and accounts for as many (if not more) drug-related deaths as illicit or prescription drug overdoses
Manner of Death

DEATH

Proximate cause is DISEASE

Proximate cause is INJURY or OVERDOSE

No evidence of purposefully destructive behavior

Evidence of purposefully destructive behavior

Unintentional

Intentional

NATURAL

ACCIDENT

SUICIDE

HOMICIDE
### Contributory Cause of Death

**Aortic dissection**

#### Part I: Immediate Cause

<table>
<thead>
<tr>
<th>Probable Manner of Death</th>
<th>Natural</th>
<th>Accident</th>
<th>Suicide</th>
<th>Homicide</th>
<th>Pending Investigation</th>
<th>Undetermined</th>
</tr>
</thead>
</table>

#### Part II: Underlying Cause

- **Cocaine use**
  - 43a. If surgery mentioned in Part I or II, enter reason for surgery
  - 43b. Date of surgery (Mo., Day, Yr.)

#### Additional Information

- 45a. If male, was he pregnant within the past year?
- 46a. Date of injury (Month, Day, Year)
- 47a. Time of injury (24 hr.)
- 48a. Injured at work?

#### Transportation Injury

<table>
<thead>
<tr>
<th>Status of Decedent</th>
<th>Driver/Operator</th>
<th>Passenger</th>
<th>Pedestrian</th>
<th>Other (Specify)</th>
</tr>
</thead>
</table>

**Decedent tore aorta after using cocaine**
ALCOHOL FATALITIES
Alcohol Fatalities

- Medical complications of alcoholism
  - Cirrhosis, pneumonia, cancer
- Alcohol and trauma
  - Fall with resulting subdural hematoma
  - Motor vehicle crashes
  - Drowning
- Alcohol and drug intoxication
- Alcohol intoxication
- Alcohol withdrawal
OPIATE/NARCOTIC FATALITIES
Scene
Scene Investigation

- Collect all drug paraphernalia and medications (including empty containers)
- Record the exact position of the body when found
- Look for foam or fluid in mouth or nose
- Examine the body for tattoos, stains on lips, hands
- Check body temperature, evidence of attempts to cool the overheated body
- Check tongue for bite marks
Prescription Drug Overdose

- Always inventory ALL medications
  - Record brand and generic name
  - Date of prescription
  - Number of pills dispensed and number remaining
  - Instructions on container
  - Are they appropriate for the medical history?
Scene

- 44-year-old woman and her 24-year-old daughter found dead in the AM by father
- Last seen alive the previous night
- Mother diagnosed by brain cancer, prescribed Oxycontin
- Daughter has habit of taking mother’s Oxycontin
Scene-what drugs are present?

- Cephalexin
- Fluoxetine (antidepressant)

But, at autopsy..
- Both mother and daughter had lethal concentrations of methadone and sublethal concentrations of oxycodone
- No fluoxetine present
Autopsy Findings in Opiate Overdoses

- Foam in airway
- Pulmonary edema
  - Heavy lungs
- Dilated bladder
  - Increased urethral and bladder tone producing urinary retention
- Complications of intravenous use
  - Endocarditis
  - Granulomatous pulmonary artery vasculitis
Pulmonary edema and foam
Florida 2007: Top drugs causing death

- Cocaine
- Methadone
- Benzodiazepines
  - Alprazolam, valium
- Oxycodone
- Alcohol
- Hydrocodone
- Heroin (and morphine)
Many deaths have several drugs contributing to death, thus the count of specific drugs listed is greater than the total number of drug deaths.
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Palm Beach County, FL

Who dies of drug overdoses?
In Florida, prescription drug deaths outweigh illicit drug deaths 3-to-1, and Palm Beach County is no exception. Here, the average fatal drug overdose victim is 41 years old, more likely to be male, and is often abusing the drugs he is prescribed.

Source: Palm Beach County Medical Examiner’s Office

Palm Beach Post, 2007
Palm Beach County 2004-2007

- Total Drug Deaths
- Alcohol and Opiate Deaths
- Deaths with Alcohol and Opiates

Year | Total Drug Deaths | Alcohol and Opiate Deaths | Deaths with Alcohol and Opiates
--- | ----------------- | -------------------------- | -----------------------------
2004 | 49               | 49                        | 49                           
2005 | 49               | 49                        | 49                           
2006 | 40               | 40                        | 40                           
2007 | 51               | 51                        | 51                           

Chart shows a decrease in total drug deaths from 2007 to 2006, with a slight increase in 2005 and 2006 compared to 2004.
Palm Beach County 2007

- Alcohol and Opiate Overdose
  - 51 cases
  - Mean age = 41.5 years
  - Mean alcohol blood conc. = 0.10 G/dL or 100 mg/dL
Palm Beach County 2007

- Most common opiates found
  - Oxycodone (21)
  - Methadone (16)
  - Morphine (14)
  - Hydrocodone (9)
Palm Beach County 2007

Alcohol and Opiate Deaths, n=51

- 39%: No other drugs
- 29%: 1 additional drug
- 22%: 2 additional drugs
- 10%: 3+ additional drugs
ANY QUESTIONS?