

**INTOXICATION DEATHS ASSOCIATED WITH
DRUGS OF ABUSE OR ALCOHOL
BALTIMORE, MARYLAND**

QUARTERLY REPORT: FIRST QUARTER, 2008



A report from the
Office of Epidemiology and Planning
Baltimore City Health Department

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HIGHLIGHTS

- During the first quarter of 2008, there were 43 recorded intoxication deaths associated with drugs of abuse or alcohol among Baltimore City residents and 49 deaths resulting from intoxications that occurred in Baltimore City. These numbers are similar to those for the first quarter of 2007.
- As in 2007, heroin remains the substance most commonly associated with fatal intoxications. Compared to 2007, the fraction of intoxication deaths associated with drugs of abuse decreased slightly in the first quarter of 2008, while the fractions associated with alcohol increased.
- As in 2007, victims of fatal intoxications were predominantly male, African American and middle aged.

GOAL

To characterize intoxication deaths associated with substance use in Baltimore in the first quarter of 2008.

METHODOLOGY

The methodology used was identical to that used in our previous reports (http://baltimorehealth.org/info/2008_01_24.IntoxicationDeaths.pdf). Briefly, we used records from the Maryland Office of the Chief Medical Examiner (OCME). Intoxication deaths were deaths where the OCME-determined cause of death included the word “intoxication” and the manner of death was categorized by the OCME as accidental or undetermined.

Intoxication deaths were classified according to the substance(s) associated with the death. An intoxication death was considered to be associated with a given *drug of abuse* if either of two criteria were met: (1) the drug was mentioned in the OCME-determined cause of death, or (2) the OCME-determined cause of death used non-specific terms such as “drug intoxication” or “narcotic intoxication” and the toxicological analysis indicated the presence of the drug. Drugs of abuse considered in this analysis include opioids (heroin, methadone, fentanyl, etc.), cocaine, benzodiazepines, and amphetamines among others. For a complete list, please refer to our previous report.

Alcohol-associated intoxication deaths were defined as deaths where “alcohol” or “ethanol” was mentioned in the OCME-determined cause of death.

Substance-specific categories were not mutually exclusive: a death identified as associated with a given substance could have been associated with other substances as well.

As in our previous report, we present results both for deaths among Baltimore City residents and for deaths resulting from intoxications that occurred in Baltimore regardless of residence.

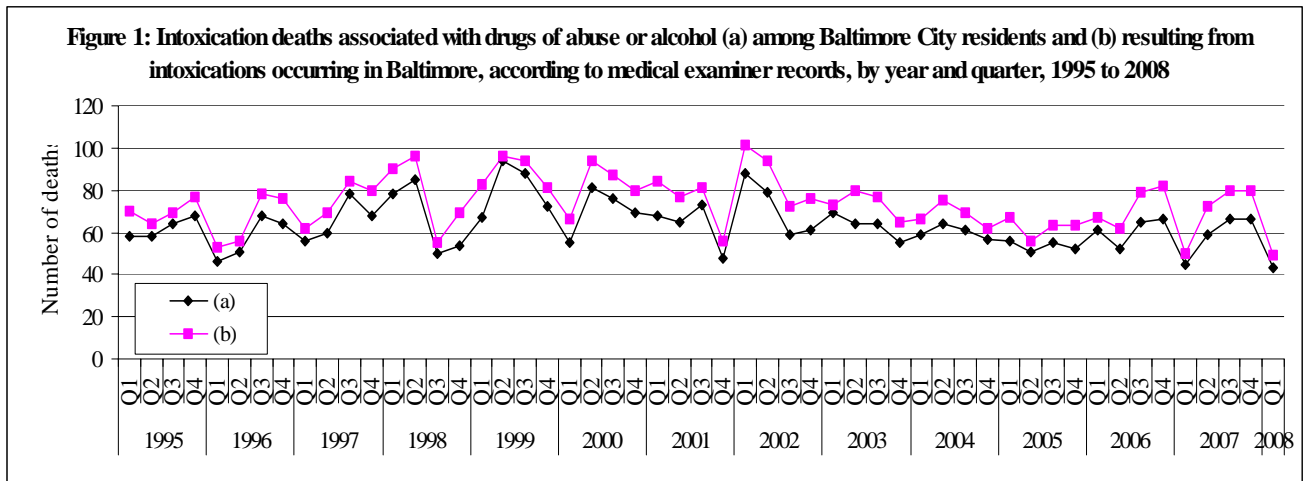
Data presented here were obtained from the OCME on July 1, 2008. We present data for deaths that occurred between January 1, 2008 and March 31, 2008 and compare trends in that quarter to those in previous years. While the quasi-totality of deaths occurring in the first quarter of 2008 will have been recorded by the OCME by July 1, 2008, it is possible that a few deaths may be recorded subsequent to that date. Those deaths will be included in future quarterly reports based on updated data obtained from the OCME.

Further details about our methodology can be found at http://baltimorehealth.org/info/2008_01_24.IntoxicationDeaths.pdf.

RESULTS

❖ *Deaths associated with drugs of abuse or alcohol*

As of July 1, 2008, there were 43 recorded intoxication deaths associated with drugs of abuse or alcohol among Baltimore City residents in the first quarter of 2008. This represented two fewer deaths compared to the same quarter in 2007. There were 49 recorded deaths resulting from intoxications occurring in Baltimore regardless of residence, one fewer than in the first quarter of 2007. Figure 1 displays deaths among residents and resulting from intoxications in Baltimore by quarter from 1995 through the first quarter of 2008.



While the number of deaths recorded for the first quarter of 2008 is smaller than in previous years, this may not be predictive of the year as a whole. Indeed, first quarter deaths in past years represented varying proportions of total calendar year deaths (Table 1).

Table 1: Number of intoxication deaths associated with drugs of abuse or alcohol among Baltimore City residents according to medical examiner records, by quarter, 1995-2008

| | Deaths among Baltimore residents | | | | | | Deaths resulting from intoxications in Baltimore | | | | | |
|-----------|----------------------------------|------|------|------|--------------|-------------------------|--|----|----|----|--------------|-------------------------|
| | Q1 | Q2 | Q3 | Q4 | Yearly total | Q1 as % of yearly total | Q1 | Q2 | Q3 | Q4 | Yearly total | Q1 as % of yearly total |
| 1995 | 58 | 58 | 64 | 68 | 248 | 23% | 70 | 64 | 69 | 77 | 280 | 25% |
| 1996 | 46 | 51 | 68 | 64 | 229 | 20% | 53 | 56 | 78 | 76 | 263 | 20% |
| 1997 | 56 | 60 | 78 | 68 | 262 | 21% | 62 | 69 | 84 | 80 | 295 | 21% |
| 1998 | 78 | 85 | 50 | 54 | 267 | 29% | 90 | 96 | 55 | 69 | 310 | 29% |
| 1999 | 67 | 94 | 88 | 72 | 321 | 21% | 83 | 96 | 94 | 81 | 354 | 23% |
| 2000 | 55 | 81 | 76 | 69 | 281 | 20% | 66 | 94 | 87 | 80 | 327 | 20% |
| 2001 | 68 | 65 | 73 | 48 | 254 | 27% | 84 | 77 | 81 | 56 | 298 | 28% |
| 2002 | 88 | 79 | 59 | 61 | 287 | 31% | 101 | 94 | 72 | 76 | 343 | 29% |
| 2003 | 69 | 64 | 64 | 55 | 252 | 27% | 73 | 80 | 77 | 65 | 295 | 25% |
| 2004 | 59 | 64 | 61 | 57 | 241 | 24% | 66 | 75 | 69 | 62 | 272 | 24% |
| 2005 | 56 | 51 | 55 | 52 | 214 | 26% | 67 | 56 | 63 | 63 | 249 | 27% |
| 2006 | 61 | 52 | 65 | 66 | 244 | 25% | 67 | 62 | 79 | 82 | 290 | 23% |
| 2007 | 45 | 59 | 66 | 66 | 235 | 19% | 50 | 72 | 80 | 80 | 282 | 18% |
| 2008 | 43 | -- | -- | -- | -- | -- | 49 | -- | -- | -- | - | -- |
| Ave 95-07 | 62.0 | 66.4 | 66.7 | 61.5 | 256.5 | 24% | 70 | 64 | 69 | 77 | 280 | 20% |

❖ *Substances associated with drug of abuse- and alcohol-associated intoxication deaths*

As in previous years, the quasi-totality of intoxication deaths involved at least one drug of abuse, with heroin being the most common drug of abuse. Deaths associated with multiple substances remained prevalent.

Compared to the whole of 2007, the percentage of intoxication deaths associated with alcohol increased substantially, while the percentage associated with drugs of abuse decreased slightly (Table 2). Among resident deaths, the decrease in drugs of abuse-associated deaths resulted largely from a drop in methadone-associated deaths (from 31% to 23%). Among deaths resulting from intoxications in Baltimore, there was a decrease in heroin-associated deaths (from 66% to 59%). In both groups, the fraction of deaths associated with cocaine also decreased slightly. In contrast, the proportion of deaths associated with codeine, oxycodone or hydrocodone, while still low, increased by 50% or more in the two groups compared to last year.

No buprenorphine-associated deaths were observed for the first quarter of 2008.

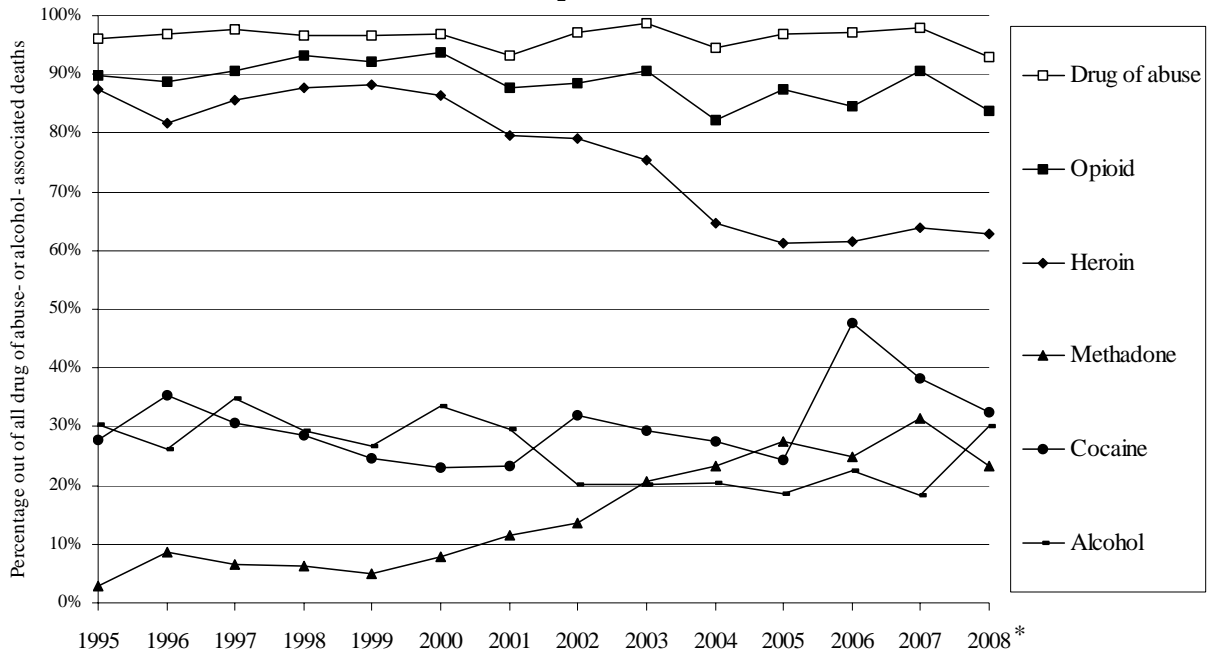
Table 2: Number and percentage of intoxication deaths associated with drugs of abuse or alcohol according to medical examiner records, by substance(s) involved, 2007 and first quarter 2008

| Intoxication death involves ¹ | Baltimore resident deaths | | | | Deaths resulting from intoxications in Baltimore | | | |
|--|---------------------------|------|---------|------|--|------|---------|------|
| | 2007 | | Q1 2008 | | 2007 | | Q1 2008 | |
| | N | % | N | % | N | % | N | % |
| Alcohol or at least one drug of abuse | 235 | 100% | 43 | 100% | 281 | 100% | 49 | 100% |
| At least one drug of abuse | 230 | 98% | 40 | 93% | 271 | 96% | 46 | 94% |
| Opioids | 213 | 91% | 36 | 84% | 253 | 90% | 42 | 86% |
| Opioids and cocaine | 74 | 31% | 10 | 23% | 89 | 32% | 13 | 27% |
| Opioids and alcohol | 36 | 15% | 10 | 23% | 43 | 15% | 12 | 24% |
| Opioids without other drugs of abuse and alcohol | 112 | 48% | 19 | 44% | 130 | 46% | 19 | 39% |
| Heroin | 150 | 64% | 27 | 63% | 185 | 66% | 29 | 59% |
| Heroin and cocaine | 58 | 25% | 8 | 19% | 72 | 26% | 9 | 18% |
| Heroin and alcohol | 27 | 11% | 6 | 14% | 34 | 12% | 7 | 14% |
| Heroin without other drugs of abuse and alcohol | 59 | 25% | 12 | 28% | 71 | 25% | 12 | 24% |
| Methadone | 74 | 31% | 10 | 23% | 85 | 30% | 15 | 31% |
| Methadone and heroin | 20 | 9% | 2 | 5% | 25 | 9% | 3 | 6% |
| Methadone and cocaine | 17 | 7% | 2 | 5% | 21 | 7% | 5 | 10% |
| Methadone and alcohol | 7 | 3% | 4 | 9% | 8 | 3% | 5 | 10% |
| Methadone without other drugs of abuse and alcohol | 35 | 15% | 3 | 7% | 38 | 14% | 3 | 6% |
| Fentanyl | 3 | 1% | 0 | 0% | 3 | 1% | 0 | 0% |
| Codeine, Oxycodone or Hydrocodone | 9 | 4% | 3 | 7% | 10 | 4% | 3 | 6% |
| Cocaine | 90 | 38% | 14 | 33% | 106 | 38% | 17 | 35% |
| Cocaine and alcohol | 11 | 5% | 3 | 7% | 13 | 5% | 3 | 6% |
| Cocaine without other drugs of abuse and alcohol | 15 | 6% | 4 | 9% | 16 | 6% | 4 | 8% |
| Benzodiazepines | 5 | 2% | 0 | 0% | 7 | 2% | 1 | 2% |
| Alcohol | 43 | 18% | 13 | 30% | 55 | 20% | 15 | 31% |
| Alcohol without other drugs of abuse | 5 | 2% | 3 | 7% | 10 | 4% | 3 | 6% |

¹ Substance-specific categories are not mutually exclusive as a death may involve more than one substance.

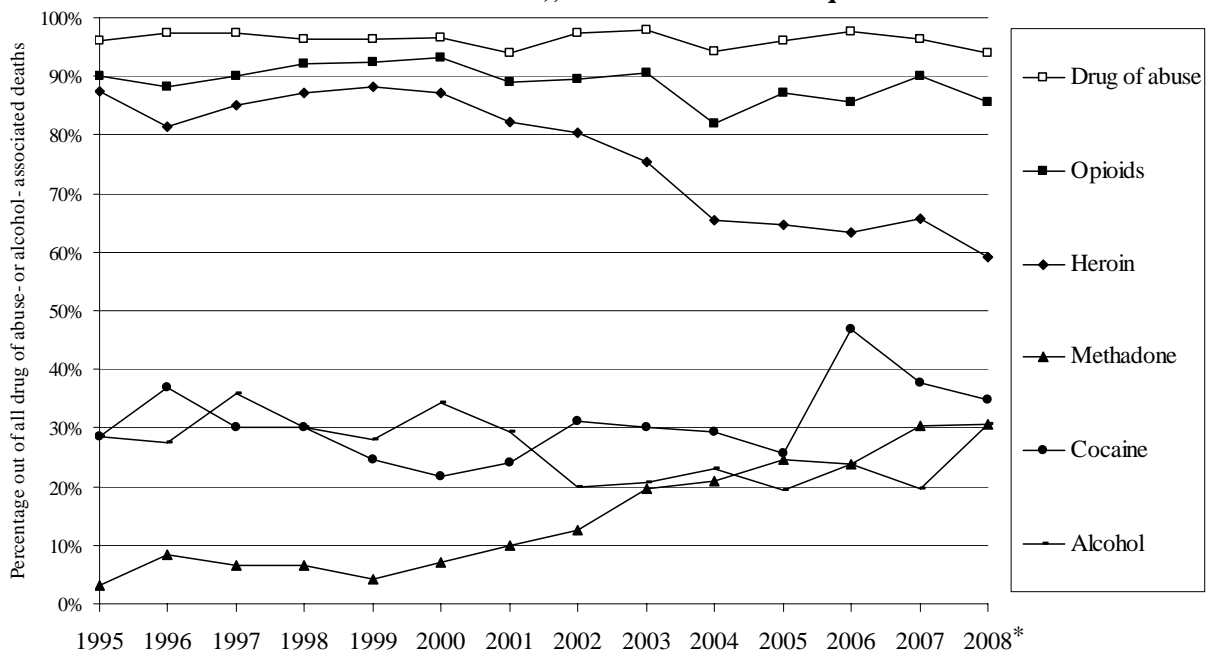
Figure 2 and Figure 3 presents the percentage of deaths associated with specified substances for each year from 1995 to 2007 and for the first quarter of 2008, among resident deaths (Figure 2) and among deaths resulting from intoxications in Baltimore (Figure 3).

Figure 2: Percent of drug of abuse- or alcohol-associated intoxication deaths among residents associated with specified substances (according to medical examiner records), 1995-2007 and first quarter 2008



* 2008 data is only for the first quarter of that year

Figure 3: Percent of drug of abuse- or alcohol-associated intoxication deaths associated with specified substances among deaths resulting from intoxications in Baltimore (according to medical examiner records), 1995-2007 and first quarter 2008



* 2008 data is only for the first quarter of that year

❖ *Demographic characteristics of victims*

In the first quarter of 2008, victims of fatal drug of abuse- or alcohol-associated intoxications were predominantly male, African American and were on average in their mid-forties (Table 3). Compared to victims from 2007 as a whole, 2008 victims were slightly less likely to be male and African American and slightly younger.

Table 3: Sex, race, and age victims of fatal intoxications associated with drugs of abuse or alcohol according to medical examiner records, 2007 and first quarter 2008

| | | Sex | | Race | | | Age | | | |
|--|---------|-----------|-------------|--------------------------|------------|------------|------|------|------|------|
| | | Male % | Female % | African American % | White % | Other % | Mean | Sd | Min | Max |
| Resident deaths | 2007 | 66.9 | 33.1 | 66.5 | 33.5 | 0 | 45.7 | 8.7 | 18.3 | 76.7 |
| | Q1 2008 | 76.7 | 23.3 | 74.4 | 25.6 | 0 | 46.6 | 11.3 | 19.7 | 69.6 |
| Deaths resulting from intoxications in Baltimore | 2007 | 71.3 | 28.7 | 61 | 39 | 0 | 44.9 | 9.3 | 17.8 | 76.7 |
| | Q1 2008 | 75.5 | 24.5 | 65.3 | 32.7 | 2 | 45.7 | 11.2 | 19.7 | 69.6 |

¹ Substance-specific categories are not mutually exclusive.

CONCLUSIONS

The number intoxication deaths associated with drugs of abuse or alcohol in the first quarter of 2008 was similar to that in the first quarter of 2007. Additional quarters of data are necessary before conclusions can be drawn about 2008 trends.