

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

QUARTERLY REPORT: FIRST QUARTER, 2009



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

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HIGHLIGHTS

- The decline in intoxication deaths associated with drugs of abuse or alcohol observed in 2008 continued during the 1st quarter of 2009. In the 1st quarter of 2009:
 - There were 24 recorded intoxication deaths associated with drugs of abuse or alcohol among Baltimore City residents—44% less than what occurred in the 1st quarter of 2008 (43), and 37% less than what occurred in the 4th quarter of 2008 (38).
 - There were 35 deaths resulting from intoxications that occurred in Baltimore City regardless of residence—27% less than what occurred in the 1st quarter of 2008 (48), and 15% less than what occurred in the 4th quarter of 2008 (41).
- As in previous quarters, heroin remained the substance most commonly associated with fatal intoxications in the 1st quarter of 2009. It was associated with 50% of intoxication deaths among residents and 60% of deaths resulting from intoxications that occurred in Baltimore regardless of residence.
- As in previous quarters, victims of fatal intoxications in the 1st quarter of 2009 were predominantly male and middle aged.

GOAL

To characterize intoxication deaths associated with substance use in Baltimore in the first quarter of 2009.

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). The OCME reviews all deaths in Maryland caused by violence, suicide, or injury; sudden deaths in apparently healthy individuals; and deaths that are suspicious or unusual. The OCME determines cause of death based on information from the death scene, police records, medical records, autopsy results, and toxicological results. 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.

Based on recommendations from the OCME, we classified an intoxication death as being 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 (eg. heroin, methadone, fentanyl), 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, regardless of what was in the toxicological

results. 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.

Data presented here were obtained from the OCME on August 4, 2009. We present data for deaths that occurred between January 1, 2009 and March 31, 2009 and compare trends in that quarter to those in previous years. While the quasi-totality of deaths occurring in the first quarter of 2009 will have been recorded by the OCME by August 4, 2009, 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.

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.

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

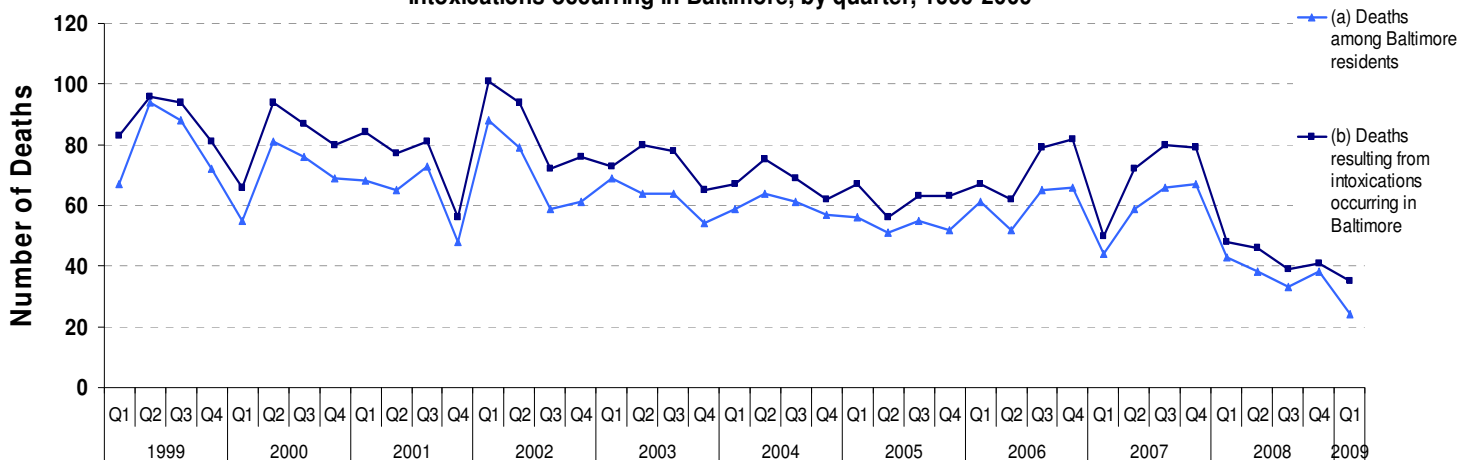
RESULTS

❖ *Deaths associated with drugs of abuse or alcohol*

As of August 4, 2009, there were 24 recorded intoxication deaths associated with drugs of abuse or alcohol among Baltimore City residents in the first quarter of 2009. This represented 19 (44%) fewer deaths compared to the 1st quarter in 2008, and 14 (37%) fewer deaths compared to the 4th quarter of 2008. There were 35 recorded deaths resulting from intoxications occurring in Baltimore regardless of residence, which is 13 (27%) fewer than in the 1st quarter of 2008, and 6 (15%) fewer than in the 4th quarter of 2008. *Figure 1* shows deaths among residents (a) and deaths resulting from intoxications that occurred in Baltimore (b) by quarter from 1999 through the 1st quarter of 2009.

Figure 1:

Number of drug of abuse- or alcohol-associated deaths a) among Baltimore residents and b) resulting from intoxications occurring in Baltimore, by quarter, 1999-2009*



While the number of deaths recorded for the 1st quarter of 2009 is much less 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 according to medical examiner records, by quarter, 1995-2009

	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	78	65	296	25%
2004	59	64	61	57	241	24%	67	75	69	62	273	25%
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	236	19%	50	72	80	79	281	18%
2008	43	38	33	38	152	28%	48	46	39	41	176	28%
2009	24	--	--	--	--	--	35	--	--	--	--	--
Ave 95-08	58.2	64.4	64.3	59.9	249.1	24%	67.7	74.1	73.4	70.5	288.2	24%

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

In the 1st quarter of 2009, all recorded drug-of-abuse- or alcohol-associated intoxications deaths involved a drug of abuse, with heroin being the most common (Table 2). As in previous quarters, deaths associated with multiple substances remained prevalent. However, compared to the 1st quarter of 2008, there was a marked decrease in the percentage of heroin-associated deaths among residents that did not involve other drugs of abuse or alcohol (from 28% to 13%). Conversely, there was a marked increase in the percentage of methadone-associated deaths among residents that did not involve other drugs of abuse or alcohol (from 7% to 17%).

Compared to the the 1st quarter of 2008, the percentage of intoxication deaths associated with methadone among residents in the 1st quarter of 2009 increased substantially, from 23% to 42% (Table 2). There was also a slight increase in the percentage of deaths involving cocaine among residents (from 33% to 38%). The percentage of deaths associated with heroin among residents decreased markedly (from 63% to 50%), as did the percentage associated with alcohol (from 30% to 17%).

Among deaths resulting from intoxications occurring in Baltimore, there was a decrease in the percentage of alcohol-associated deaths compared to the 1st quarter of 2008 (from 29% to 20%), as well as slight decreases in the percentage of cocaine-associated deaths (from 35% to 29%) and methadone-associated deaths (from 31% to 26%).

As in the 1st quarter of 2008, no buprenorphine-associated deaths were observed for the 1st quarter of 2009.

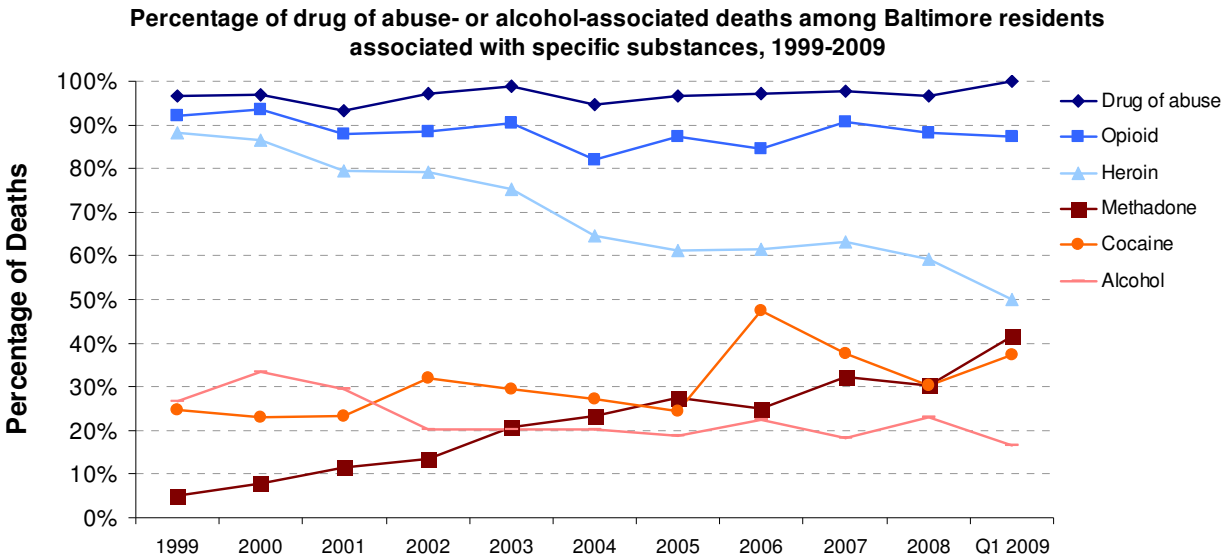
Table 2: Number and percentage of intoxication deaths associated with drugs of abuse or alcohol according to medical examiner records, by substance(s) involved, 1st quarters of 2008 and 2009

Intoxication death involves: ¹	Baltimore City resident deaths				Deaths resulting from intoxications in Baltimore City			
	Q1 2008		Q1 2009		Q1 2008		Q1 2009	
	#	%	#	%	#	%	#	%
Alcohol or at least one drug of abuse	43	100%	24	100%	48	100%	35	100%
At least one drug of abuse	40	93%	24	100%	45	94%	35	100%
Opioids	36	84%	21	88%	41	85%	30	86%
Opioids and cocaine	10	23%	7	29%	13	27%	7	20%
Opioids and alcohol	10	23%	4	17%	11	23%	6	17%
Opioids without other drugs of abuse or alcohol	19	44%	9	38%	19	40%	15	43%
Heroin	27	63%	12	50%	28	58%	21	60%
Heroin and cocaine	8	19%	6	25%	9	19%	7	20%
Heroin and alcohol	6	14%	3	13%	6	13%	5	14%
Heroin without other drugs of abuse or alcohol	12	28%	3	13%	12	25%	8	23%
Methadone	10	23%	10	42%	15	31%	9	26%
Methadone and heroin	2	5%	2	8%	3	6%	3	9%
Methadone and cocaine	2	5%	2	8%	5	10%	1	3%
Methadone and alcohol	4	9%	2	8%	5	10%	2	6%
Methadone without other drugs of abuse or alcohol	3	7%	4	17%	3	6%	3	9%
Buprenorphine ²	0	0%	0	0%	0	0%	0	0%
Fentanyl	0	0%	2	8%	0	0%	2	6%
Codeine, Oxycodone or Hydrocodone	3	7%	2	8%	3	6%	3	9%
Cocaine	14	33%	9	38%	17	35%	10	29%
Cocaine and alcohol	3	7%	0	0%	3	6%	0	0%
Cocaine without other drugs of abuse or alcohol	4	9%	2	8%	4	8%	3	9%
Benzodiazepines	0	0%	2	8%	1	2%	4	11%
Alcohol	13	30%	4	17%	14	29%	7	20%
Alcohol without other drugs of abuse	3	7%	0	0%	3	6%	0	0%

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

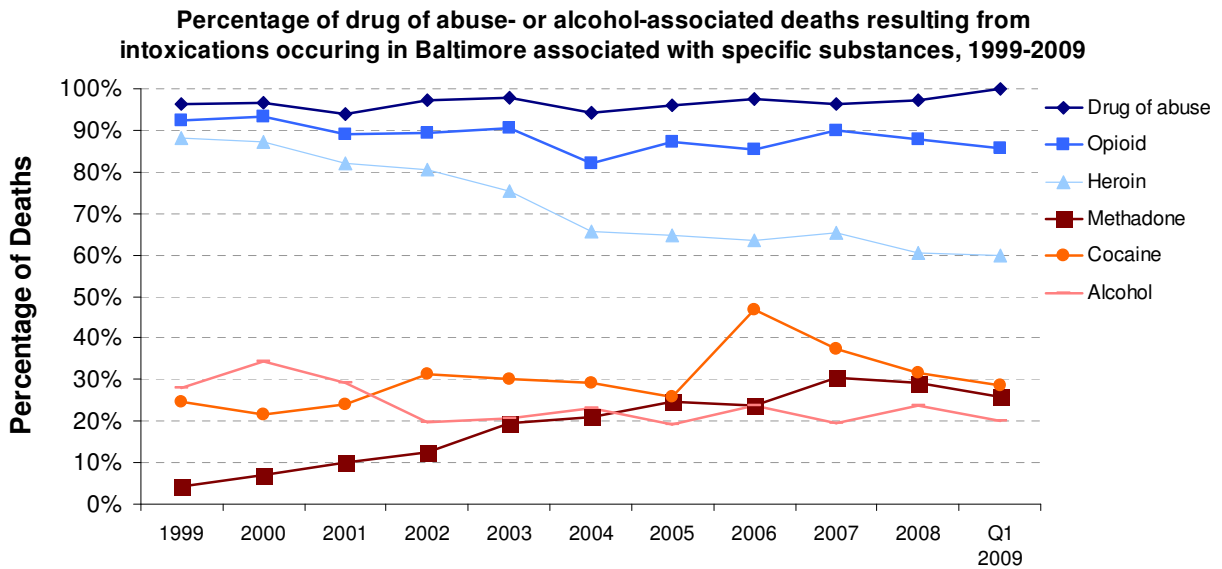
Figure 2 and Figure 3 show the percentage of deaths associated with specified substances for each year from 1999 through the 1st quarter of 2009 among resident deaths (Figure 2), and among deaths resulting from intoxications occurring in Baltimore (Figure 3).

Figure 2:



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

Figure 3:



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

❖ *Demographic characteristics of victims*

As in previous years, victims of fatal drug of abuse- or alcohol-associated intoxications in the 1st quarter of 2009 were predominantly male and were on average in their mid-forties (Table 3). Among residents in the 1st quarter of 2009, victims of fatal intoxications were predominantly African-American, consistent with previous years. There was, however, a decrease in the percentage of male deaths among Baltimore residents in the 1st quarter of 2009 compared to 2008 (from 67% to 58%). For fatal intoxications occurring in Baltimore regardless of residence in the 1st quarter of 2009, the percentage of White victims was slightly higher than that for African-American victims, the result of an 11% shift compared to 2008 (from 40% to 51%).

Table 3: Sex, race, and age of victims of fatal intoxications associated with drugs of abuse or alcohol, 2008 and Q1 2009

	Baltimore City resident deaths		Deaths resulting from intoxications in Baltimore City	
	2008	Q1 2009	2008	Q1 2009
	%	%	%	%
Sex				
% Male	67.1%	58.3%	68.8%	68.6%
Race				
% African American	63.8%	66.7%	59.1%	48.6%
% White	36.2%	33.3%	40.3%	51.4%
Age				
Mean (SD)	45.5 (11.3)	44.2 (9.1)	44.8 (11)	41.7 (9.7)
Min-Max	1.9-74.2	26.3-67.3	1.9-74.2	22.8-67.3

CONCLUSIONS

The number intoxication deaths associated with drugs of abuse or alcohol in the 1st quarter of 2009 was much less than that for the 1st quarter of 2008. The 1st quarter 2009 number was also less than that for the 4th quarter of 2008. Though the steep declines in fatal intoxications observed in 2008 appear to be continuing, additional quarters of data are necessary before conclusions can be drawn about 2009 trends.