

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

QUARTERLY REPORT: THIRD QUARTER, 2008



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

February 10, 2009

GOAL

To monitor intoxication deaths associated with substance use in Baltimore.

HIGHLIGHTS

- During the third quarter of 2008, the Maryland Office of the Chief Medical Examiner recorded 33 intoxication deaths associated with drugs of abuse or alcohol among Baltimore City residents and 39 deaths resulting from drug of abuse- or alcohol-associated intoxications that occurred in Baltimore City regardless of residence. This represents a 50% decrease compared to the third quarter of 2007.
- Overall, intoxication deaths associated with drugs of abuse or alcohol were 34% lower during the first three quarters of 2008 than in the same period in 2007. From January to September 2008, there were 113 deaths among residents, compared to 170 in the same period in 2007; and there were 134 deaths resulting from intoxications occurring in Baltimore, compared to 202 in 2007.
- While intoxication deaths associated with drugs of abuse decreased by 34% comparing the first three quarters of 2008 to the same period in 2007, deaths associated with alcohol only decreased by 6%. Among drug of abuse-associated deaths occurring in Baltimore, deaths associated with heroin decreased 39%, deaths associated with cocaine 42%, and deaths associated with methadone 38%.

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.

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.

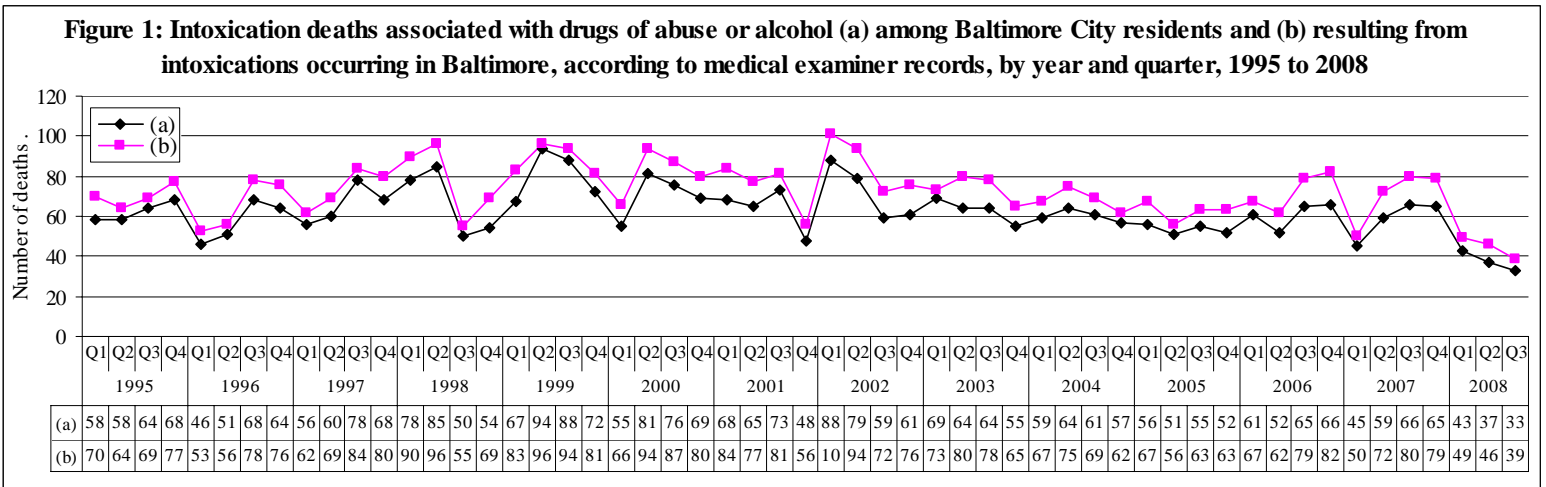
Data presented here were obtained from the OCME on January 14, 2009. We present data for deaths that occurred between January 1, 2008 and September 30, 2008 and compare trends in that period to the same period in previous years. While the quasi-totality of deaths occurring in the first three quarters of 2008 will have been recorded by the OCME by January 14, 2009, it is possible that a few deaths that occurred in that period 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*

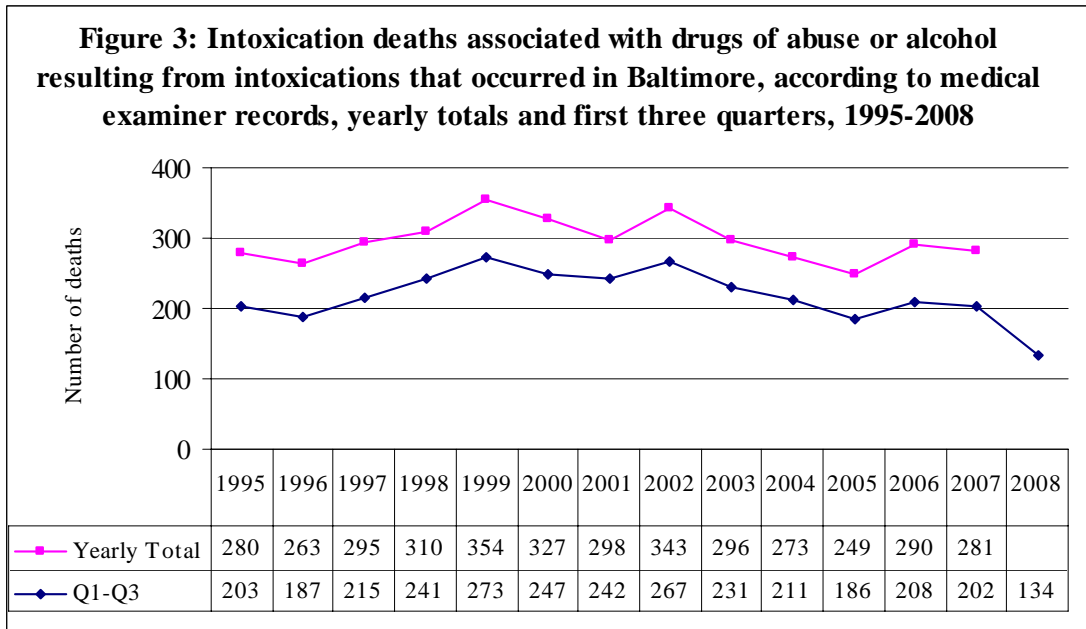
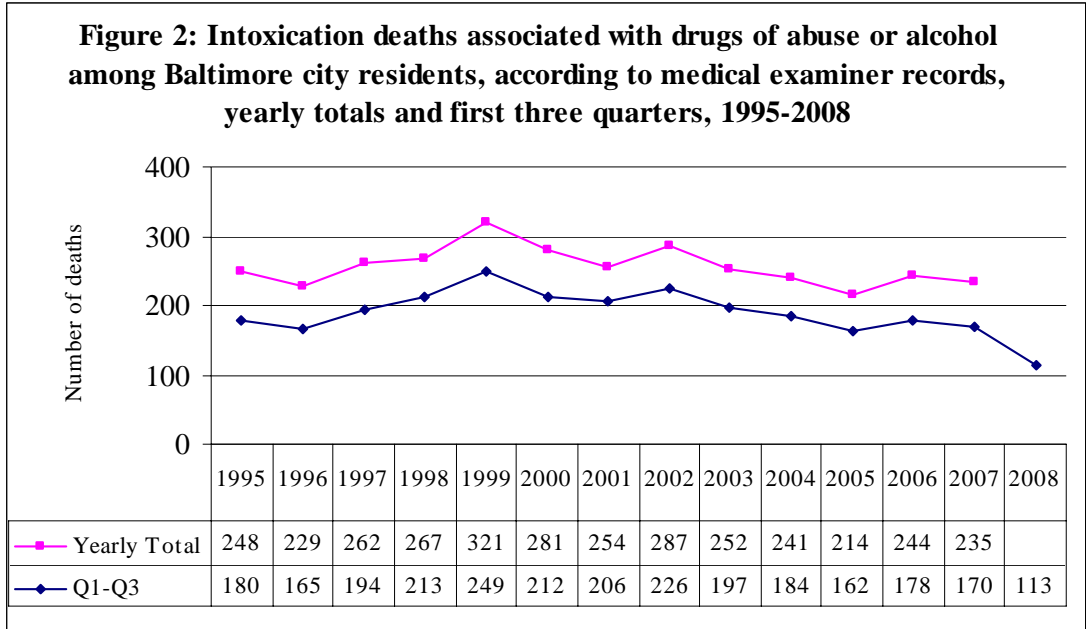
Figure 1 displays deaths among residents and resulting from intoxications in Baltimore by quarter from 1995 through the third quarter of 2008.



As of January 14, 2008, 33 intoxication deaths associated with drugs of abuse or alcohol had been recorded among Baltimore City residents during the third quarter of 2008. This represented four fewer deaths compared to the second quarter of 2008 and 33 fewer deaths compared to the third quarter of 2007. Considering deaths resulting from intoxications occurring in Baltimore regardless of residence, the OCME recorded 39 such deaths for the second quarter of 2008. This is seven fewer than in the second quarter of 2008 and 41 fewer than the third quarter of 2007.

Overall, between January 1st 2008 and September 30th 2008, the OCME recorded 113 drug of abuse- or alcohol-associated deaths among residents and 134 deaths resulting

from drug of abuse- or alcohol-associated intoxications occurring in Baltimore City regardless of residence (Figures 2 and 3). This represents a 57 death (34%) drop in resident deaths compared to the same period in 2007 and a 68 death (34%) drop in deaths resulting from Baltimore intoxications.



❖ *Substances associated with drug of abuse- and alcohol-associated intoxication deaths*
 As in previous years, the quasi-totality of intoxication deaths during the first three quarters of 2008 involved at least one drug of abuse, with heroin being the most common drug of abuse associated with these deaths (Table 1). Deaths associated with multiple substances remained prevalent.

Table 1: Number and percentage of intoxication deaths associated with drugs of abuse or alcohol according to medical examiner records, by substance(s) involved, comparing the first three quarters of 2007 to the first three quarters of 2008

Intoxication death involves: ¹	Baltimore resident deaths				Deaths resulting from intoxications in Baltimore			
	Q1-Q3 2007		Q1-Q3 2008		Q1-Q3 2007		Q1-Q3 2008	
	#	%	#	%	#	%	#	%
Alcohol or at least one drug of abuse	170	100%	113	100%	202	100%	134	100%
At least one drug of abuse	166	98%	108	96%	195	97%	129	96%
Opioids	153	90%	97	86%	182	90%	115	86%
Opioids and cocaine	54	32%	25	22%	65	32%	31	23%
Opioids and alcohol	26	15%	22	19%	28	14%	26	19%
Opioids without other drugs of abuse or alcohol	79	46%	57	50%	93	46%	64	48%
Heroin	110	65%	71	63%	136	67%	83	62%
Heroin and cocaine	39	23%	21	19%	49	24%	25	19%
Heroin and alcohol	20	12%	15	13%	23	11%	17	13%
Heroin without other drugs of abuse or alcohol	45	26%	30	27%	54	27%	35	26%
Methadone	52	31%	30	27%	60	30%	37	28%
Methadone and heroin	15	9%	8	7%	20	10%	10	7%
Methadone and cocaine	15	9%	3	3%	18	9%	6	4%
Methadone and alcohol	5	3%	7	6%	5	2%	8	6%
Methadone without other drugs of abuse or alcohol	21	12%	14	12%	23	11%	15	11%
Buprenorphine ²	1	0.6%	0	0.0%	1	0.5%	0	0.0%
Fentanyl	3	2%	1	1%	3	1%	1	1%
Codeine, Oxycodone or Hydrocodone	6	4%	4	4%	6	3%	4	3%
Cocaine	67	39%	36	32%	78	39%	45	34%
Cocaine and alcohol	8	5%	9	8%	8	4%	10	7%
Cocaine without other drugs of abuse or alcohol	12	7%	9	8%	12	6%	11	8%
Benzodiazepines	4	2%	0	0%	6	3%	1	1%
Alcohol	31	18%	29	26%	36	18%	34	25%
Alcohol without other drugs of abuse	4	2%	5	4%	7	3%	5	4%

¹ Except where noted, involvement of one substance does not preclude the possibility that other substances are involved as well.

² In contrast with the other substances in this table, samples are not routinely tested for buprenorphine, only when it is deemed indicated by the OCME.

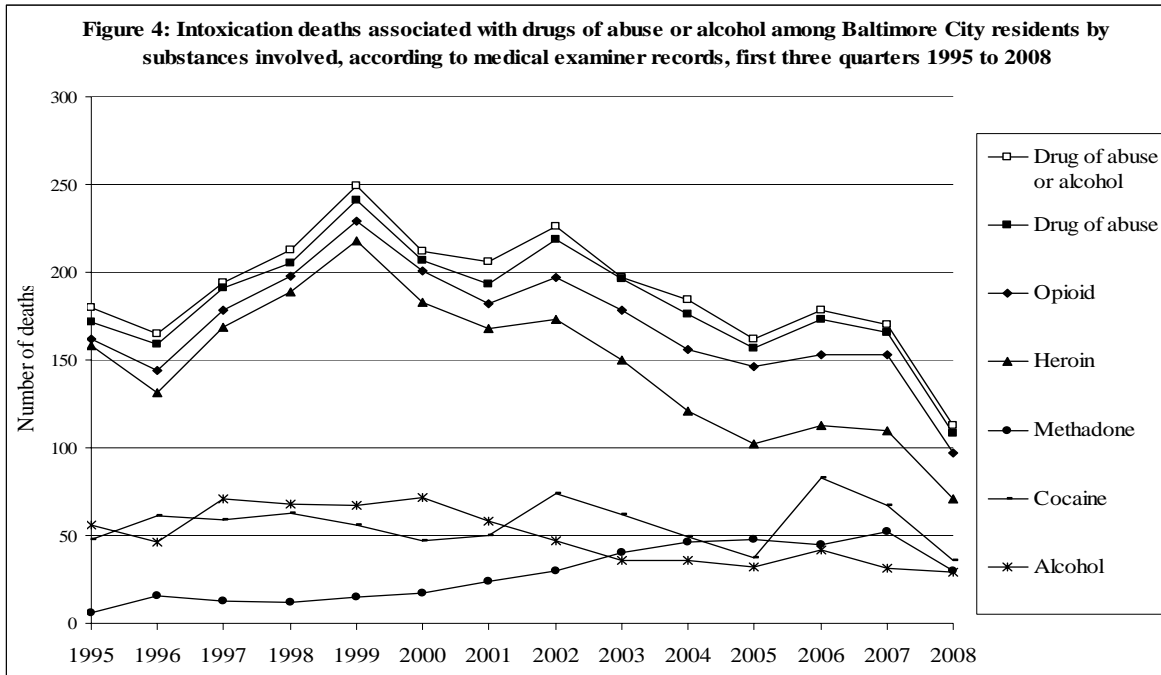
Looking at trends over time, deaths associated with drugs of abuse decreased 34-35% in the first three quarters of 2008 compared to the same period in 2007, while deaths associated with alcohol stayed relatively flat.

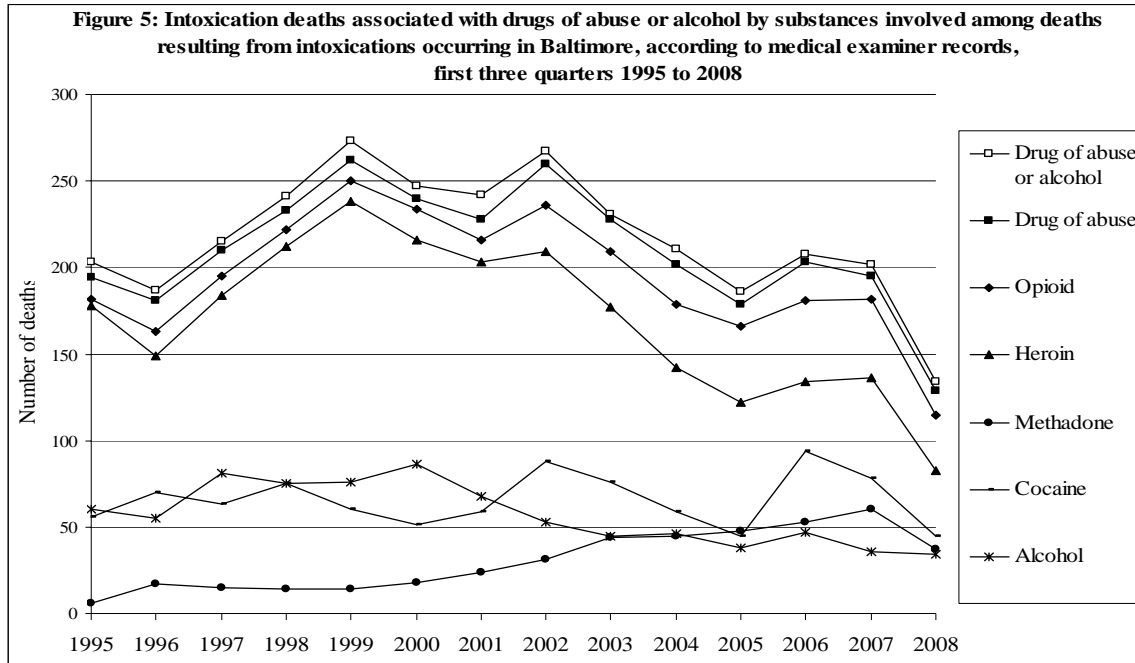
Among residents, drug of abuse associated deaths decreased by 35%, from 166 to 108. Deaths associated with heroin dropped by 35% (from 110 to 71), deaths associated with methadone by 42% (from 52 to 30), and deaths associated with cocaine by 46% (from 67 to 36). In contrast, deaths associated with alcohol decreased by only 6% (from 31 to 29).

Among deaths resulting from intoxications occurring in Baltimore regardless of residence, the pattern was similar. Drug of abuse associated deaths decreased by 34%, from 195 to 129. Among these, heroin-associated deaths decreased by 39% (from 136 to 83), methadone-associated deaths by 38% (from 60 to 37), cocaine-associated deaths by 42% (from 78 to 45), while alcohol-associated deaths decreased by only 6% (from 36 to 34).

As in the first half of 2008, no buprenorphine-associated deaths were observed during the third quarter of 2008. However, it is important to note that samples are not routinely tested for buprenorphine, but instead are only tested when it is deemed indicated by the OCME.

Figures 4 and 5 present the number of deaths associated with specific substances for the first two quarters of each year from 1995 to 2008 among resident deaths (Figure 4) and among deaths resulting from intoxications in Baltimore (Figure 5). These graphs show that deaths associated with all substances studied except alcohol decreased in 2008 compared to previous years.





❖ *Demographic characteristics of victims*

As in 2007, victims of fatal drug of abuse- or alcohol-associated intoxications in the first half of 2008 were predominantly male, African American and were on average in their mid-forties (Table 2).

Table 2: 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

	Baltimore resident deaths		Deaths resulting from intoxications in Baltimore	
	2007	Q1-Q3 2008	2007	Q1+Q2 2008
	%	%	%	%
Sex				
% Male	67%	66%	71%	69%
Race				
% African American	67%	67%	61%	60%
% White	33%	33%	39%	39%
Age				
Mean (SD)	45.8 (8.7)	46.5 (10.4)	44.9 (9.3)	45.8 (10.3)
Min-Max	18.3-76.7	19.7-74.2	17.8-76.7	19.0-74.2

CONCLUSIONS

The decrease in intoxication deaths associated with drugs of abuse or alcohol observed for the first two quarters of 2008 has persisted during the third quarter of 2008. As a result, the number of deaths that occurred during the first three quarters of 2008 was 34% lower than the number of deaths observed during the same period in 2007. The decrease was seen mainly in deaths associated with drugs of abuse such as heroin, methadone and cocaine. Alcohol-associated deaths in contrast stayed relatively constant.