

Data Report on Opiate-Related Deaths in Multnomah County, 2009-2013



Introduction

This report describes current trends in deaths involving heroin and prescription opiates in Multnomah County from 2009-2013. This report also describes a change in state legislation that allows the implementation of an opiate overdose intervention, and compares opiate outcomes from before and after the legislation. Data in this report were collected by the Multnomah County Medical Examiner's Office (ME) and analyzed by the Multnomah County Health Department (MCHD). Cases for which prescription opiates or heroin were an immediate or significant underlying cause of death are included in this report. All cases are referred to as opiate-related deaths (ORDs) throughout this report. All ORDs that occurred in Multnomah County were included in analysis, regardless of whether decedents resided in or outside of Multnomah County. A small number of infant ORDs occurred and were excluded from analysis. In these infant deaths, opiates were implicated as a factor contributing to the death – for example, some situations involved pre- or post-natal drug exposure or SIDS. While these cases are of concern and warrant further investigation, they are not included in this report.

Some analyses in this report assess change in the number or type of ORDs over time. We used statistical techniques to assess if those changes were significant, meaning that the differences were real and did not happen by chance alone. For more detailed information about the statistical methods used for this report, please see the final section titled "Notes on the Data."

2013 Demographics

In 2013, 112 deaths investigated by the ME were found to be related to opiates. Of these, 68% were male, with an average age of approximately 44 years (Table 1). Female decedents were on average about 8 years older than male decedents. However, just the year before, the average age of both men and women was around 40.

Table 1. Average Age and Sex: Opiate-Related Deaths in Multnomah County, 2013 (N=112)

	n(%)	Median Age (years)
Male	76 (68%)	44
Female	36 (32%)	52
Total	112 (100%)	46

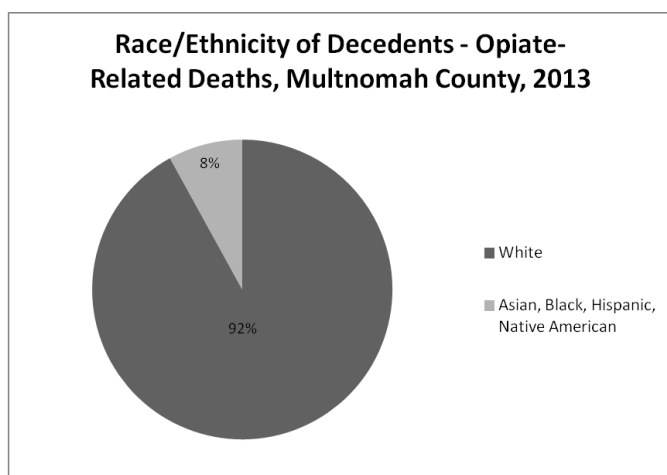


Figure 1. Racial/ethnic composition of opiate-related deaths has been consistent in recent years in Multnomah County.

Racial and ethnic categories presented here are those used in the ME database. 92% of all ORDs in 2013 were among Whites (Figure 1). The remaining deaths occurred among the Asian, Black, Hispanic, and Native American groups, with each accounting for <5% of the cases. This racial/ethnic breakdown has been consistent over recent years.



Historic Trend Data

In 2011, the number of ORDs in Multnomah County peaked at 156, a significant increase from the year before (Figure 2). In 2012, there were 25 fewer cases than the year before, but there were still more deaths in 2012 than there were in 2010. While ORDs decreased significantly from 2011 to 2013, the number of ORDs in 2013 fell within the expected range when compared to the median of the previous four years.

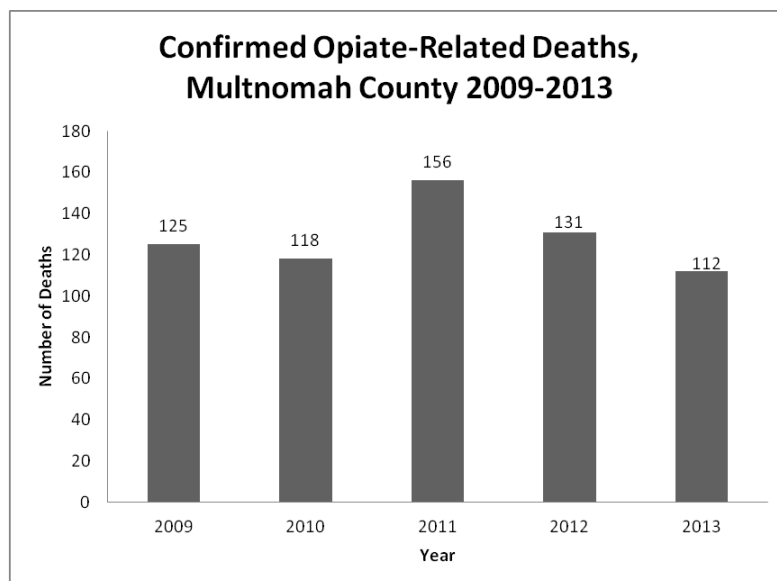


Figure 2. The increase from 2010 to 2011 and decrease from 2011 to 2013 are statistically significant ($p < .05$).

Specific Drug Types

Specific drug type information is available in most ME case files. However, the terms “opiate” and “opioid” are sometimes used instead of a specific drug name. This may indicate a prescription or heroin overdose, but without manual review or follow-up with the ME office, this information is not readily available. These cases are therefore reported as “unspecified opiate” cases.

Similar to the overall ORD trend, there was an increase in heroin-related deaths (heroin only and combined with prescription) in 2011 (Table 2). In 2013, heroin-related deaths decreased suggesting the influence of some external factor, like a change in drug supply, drug quality, or a reduction in at-risk individuals due to a decrease in drug use or improved access to treatment. Despite the decrease in heroin-related deaths in 2013, there were still more deaths in 2012 than there were in the years before the 2011 peak.

	2009	2010	2011	2012	2013
Heroin Only	72	60	88*	84	60*
Rx Only	46	53	58	39	45
Heroin and Rx	5	<5	6	8	<5
Unspecified Opiate	<5	<5	<5	<5	<5

*Significant change in deaths compared to previous year ($p < .05$)



Throughout the five-year period of analysis, the median age of decedents whose death was related to heroin and no other opiates, has been consistently lower than those who died after using only prescription opiates (Table 3). In 2012, there was a 12 year difference in median age for these two groups. The median age of decedents who used only prescription opiates at the time of death has not dropped below 42 in the past five

	Heroin Only	Rx Only	Heroin and Rx	All deaths
2009	43	46	40	44
2010	35	45	-	42
2011	35	42	59	40
2012	37	49	38	40
2013	45	51	36	46
5-year median	43	46	40	

years. While the overall trend in age suggests decedents have been between 40 and 46 years old, the range in ages was much broader, from 19 to 89 (data not shown here).

Naloxone Law

Naloxone is a generic, low-cost prescription medication that reverses opiate overdoses. It has been safely and widely used by emergency medical services and in emergency departments for over 40 years. It has no potential for abuse and is not a controlled substance. While syringe exchanges in Oregon have provided education to clients on overdose prevention and response for a number of years, syringe exchange staff have expected that the addition of naloxone to their “prevention tool kit” would significantly influence overdose outcomes. On June 6, 2013, the Governor of Oregon signed legislation (Oregon Laws 2013, Chapter 340) that allows organizations to train lay individuals to administer naloxone. The law also allows trained individuals to receive naloxone kits for the purpose of administering the naloxone to other individuals who appear to be experiencing opiate overdose. Oregon was the 12th state to pass legislation that increases lay access to naloxone (including D.C.). Since then, at least 7 more states have passed naloxone laws.

On July 9th, 2013, the Oregon Health Authority’s Public Health Division adopted the bill’s rules (OARS 333-055) and posted a training protocol on their web site. Outside In, a community-based organization and MCHD contractor, began training clients and distributing naloxone kits within 4 hours after the rules were posted on July 9th.

The following analyses use July 9th to mark “before” and “after” the law. Analysis of data from 2009-2013 indicates that there is generally no difference in the number of cases that occurred in the first portion of the year, before July 9th, compared to the second. This absence of a seasonal effect suggests that any change in deaths during the second part of the year could in fact be associated with an external factor such as increased naloxone use.



Compared to the median for the latter half of previous four years, there was no difference in the number of ORDs that occurred in 2013 (Figure 3). However, 2013 does represent a decreasing trend not seen in the past four years. Comparing 2013 to the higher recent years (2009 and 2012), a reduction in ORDs in the second half of the year approaching significance was detected. If this downward trend continues, more data in future years may suggest that the reduction in ORDs can be attributed to the naloxone legislation and programming, in addition to other potential factors.

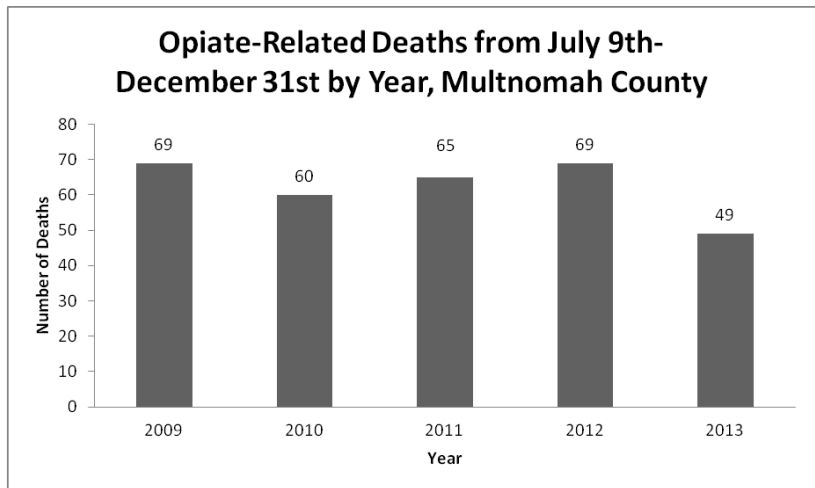


Figure 3. There were significantly fewer opiate-related deaths in 2013 compared to 2012 and 2009 ($p < .05$).

Currently, the naloxone training program in Multnomah County is co-located with Outside In's syringe exchange program, effectively reaching heroin users in the community. While fewer heroin-related deaths occurred in the post-law window of 2013 compared to that time during each of the four previous years, 2013 was not significantly lower than the 2009-2012 median (Figure 4). However, from 2012 to 2013 there was a statistically significant 44% decrease in heroin-related deaths during the latter portion of the year that suggests the implementation of the naloxone law may be influencing opiate-death outcomes, particularly among heroin users. From July 9 to December 31, 2013, Outside In trained and disseminated naloxone to 482 individuals. During the same time period, individuals reported using naloxone to reverse an overdose 135 times. MCHD is preparing to launch its own naloxone program at its syringe exchange sites, which may contribute to further reductions in ORDs.

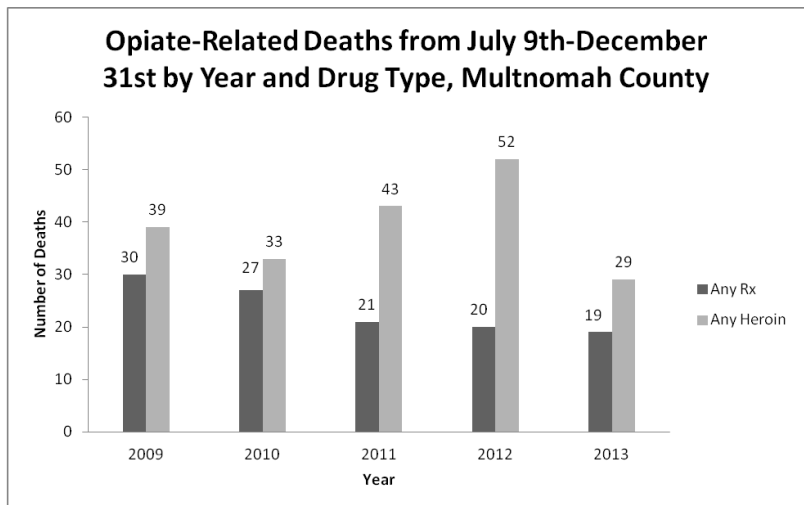


Figure 4. There were significantly fewer heroin-related deaths in 2013 compared to 2012 ($p < .05$).



Concluding Remarks

Both heroin and prescription opiates continue to be a problem in Multnomah County, responsible for deaths among a broad range of community members. However, the decrease in ORDs during the short period of July to December in 2013 is promising. As Oregon further establishes naloxone training programs across the state, we hope to see a reduction in ORDs similar to the reductions seen in other jurisdictions that have passed comparable legislation.

Parallel efforts to standardize safe opioid prescribing policies and monitor prescribed opiates for patients are also underway by the health care system. Less research has been done on the efficacy of co-prescribing naloxone with prescription opiates (e.g. oxycodone) in the health care setting. However, increased awareness among health care providers and the public of opiate overdose risk and the life-saving benefits of naloxone may contribute to a reduction in prescription opiate deaths. We will continue to evaluate the effectiveness of the naloxone legislation in reducing all ORDs in future reports.

Notes on the Data

The data presented here were collected by the Multnomah County Medical Examiner's Office, meaning they were limited to deaths of people who died while not under the immediate care of a physician (medical provider) or suspicious deaths. Therefore, there are likely a number of ORDs each year that are not captured in this data but may be found in vital records (i.e. death certificates). Research suggests that medical examiner data can be used for surveillance of poisoning deaths, but inclusion of vital statistic data is a more sensitive method (Landen et al., 2003). A future report will include comparison with vital statistic data. Any differences between numbers presented here and reports published by the ME are the result of different case definitions. For example, in our case definition, we included any case where an opiate was listed as an immediate or underlying cause of death, while the ME might narrow the case definition for some reports to only cases where opiates were the immediate cause of death.

Demographics were calculated using basic frequencies, while historical trends were analyzed in two different ways. First, we used logistic regression with a Poisson distribution for count data to compare change across the 5 years. We repeated this analysis with each year set as the reference to look at comparisons between individual years. Second, to compare 2013 to the four previous years collectively, we employed a one sample median test. Without the requirement for normal distribution of the data, this test allowed for calculation of the four-year median and comparison to the 2013 total. All analyses were conducted in SAS 9.3 using a significance level of .05.

Outside In provided data regarding naloxone training, and used self-report surveys from clients enrolled in the naloxone program to gather information regarding overdose reversals.



Acknowledgments:

Data was collected and stored by the Multnomah County Medical Examiner's. Analyses were conducted by Maayan Simckes (MCHD), Amy Zlot (MCHD), Jaime Walters (MCHD), and Amy Sullivan (MCHD), with input from Erin Patrick with the Multnomah County Medical Examiner's Office. The report was written and edited by Maayan Simckes (MCHD), Lindsay Jenkins (MCHD), Amy Zlot (MCHD), Amy Sullivan (MCHD), Kim Toevs (MCHD), and Gary Oxman. Haven Wheelock and Outside In trained individuals in naloxone use, and gathered information on dissemination and overdose reversals. Additional thanks to Aviel Forster, Robert Johnson, Karen Garber, and Justin Denny.

Reference

Landen, M. G., Castle, S., Nolte, K. B., Gonzales, M., Escobedo, L. G., Chatterjee, B. F., . . . Sewell, C. M. (2003). Methodological issues in the surveillance of poisoning, illicit drug overdose, and heroin overdose deaths in New Mexico. *American Journal of Epidemiology*, 157(3), 273-278.

Contact:

Multnomah County Communications Office

Julie Sullivan-Springhetti, (503) 709-9858, Julie.Sullivan.Springhetti@multco.us

