

Select Opioid-Related Morbidity and Mortality

Data for Wisconsin

November 2016



This report was prepared by the Prescription and Nonprescription Opioid Harm Prevention Program.
For questions regarding this report, contact DHSOpioids@wisconsin.gov.

For additional information about opioids, visit <https://www.dhs.wisconsin.gov/opioids/index.htm>.

Overview of opioids morbidity and mortality in Wisconsin

Wisconsin is in the midst of a drug overdose epidemic driven by opioids. Over the last decade, the rate of opioid overdose deaths has almost doubled, from 5.9 deaths/100,000 residents in 2006 to 10.7 deaths/100,000 in 2015. Prescription opioids have been the main driver of drug overdose deaths and poisonings. In 2015, the majority of opioid-related deaths (63%) in Wisconsin involved prescription drugs. Prescription opioid use is often the gateway to heroin use. Three out of four people who use heroin first use prescription opioids (CDC, 2016). Consequently, in recent years, heroin-related deaths and hospital encounters have increased dramatically due to heroin's low cost, easy access, and high potency.

Opioid overdose deaths represent the "tip of the iceberg" of the total opioid harm in Wisconsin. In 2014 alone, there were nearly 3,000 hospital encounters for opioid overdose compared to 622 deaths. There are additional costs to individuals, families, and communities, including psychological harm, employment difficulties, stress, child abuse and neglect, and neonatal abstinence syndrome. This report provides selected opioid-related data at a state and county level. There are additional data sources that could provide a more complete picture of the scope of the problem relating to opioids, such as drug investigation reports or those in the criminal justice system or those provided substance use disorder treatment, but this information is not included in this report.

How to use these data

Availability of this data at a county level will support local activities. Importantly, the measures provided are not mutually exclusive. For example, a death or hospital encounter involving heroin may also involve prescription opioids.

As these data are used, it should be noted that county-level rates may be based on a small number of deaths or hospitalizations. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next. Consequently, any change in county-level rates over time should be interpreted cautiously.

It may be appropriate in some instances to combine several years of data and compute a multiple-year rate for a particular county. Population estimates for Wisconsin counties are available at <https://www.dhs.wisconsin.gov/wish/population/form.htm> for calculation of rates over multiple years.

Crude rates are provided in the tables and maps for each opioid-related measure. Caution should be used when comparing rates between counties, as differences in rates may be influenced by differences in the age distribution of the population.

Contents

Drug overdose deaths involving opioids.....	1
Table 1. Crude rate of drug overdose deaths involving opioids by county of decedent residence, Wisconsin, 2006-2015.....	2
Figure 1. Three-year crude rate of drug overdose deaths involving opioids by decedent county of residence, 2013-2015	5
Figure 2. Crude rate of drug overdose deaths involving opioids by age category and sex, Wisconsin, 2015	6
Drug overdose deaths involving prescription opioids	6
Table 2. Crude rate of drug overdose deaths involving prescription opioids by county of decedent residence, Wisconsin, 2006-2015	7
Figure 3. Three-year crude rate of prescription opioid-related deaths by decedent county of residence, 2013-2015	10
Figure 4. Crude rate of prescription opioid-related deaths by age and sex, Wisconsin, 2015	11
Drug overdose deaths involving heroin.....	11
Table 3. Crude rate of drug overdose deaths involving heroin by resident county of decedent, Wisconsin, 2006-2015.....	12
Figure 5. Three-year crude rate of drug overdose deaths involving heroin by decedent county of residence, 2013-2015	15
Figure 6. Crude rate of drug overdose deaths involving heroin by age category and sex, Wisconsin, 2015	16
Hospital encounters involving opioid acute poisoning (including overdose).....	16
Table 4. Crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving opioids by county of residence, Wisconsin, 2013-2015.....	17
Figure 7. Three-year crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving opioids by county of residence, Wisconsin, 2013-2015.....	21
Figure 8. Crude rate of hospital encounters involving opioids by age and sex, Wisconsin, 2015	22
Hospital encounters involving prescription opioids	22
Table 5. Crude rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving prescription opioids by county of residence, Wisconsin, 2006-2015.....	23
Figure 9. Three-year crude rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving prescription opioids by county of residence, Wisconsin, 2012-2014.....	27
Figure 10. Crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving prescription opioids by age and sex, Wisconsin, 2015.....	28
Hospital encounters involving heroin	28

Table 6. Crude rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving heroin by county of residence, Wisconsin, 2006-2015	29
Figure 11. Three-year average rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving heroin by county of residence, Wisconsin, 2013-2015	32
Figure 12. Crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving heroin by age and sex, Wisconsin, 2015	33
Ambulance runs with naloxone administration.....	33
Table 7. Crude rate of ambulance runs in which naloxone was administered by county of residence, 2011-2015	34
Figure 12. Three-year crude rate of ambulance runs with naloxone administration by patient county of residence, Wisconsin, 2013-2015	37
Figure 13. Rate of ambulance runs with naloxone administration by age and sex, Wisconsin, 2015...	38
Neonatal abstinence syndrome	38
Table 8. Crude rate of neonatal abstinence syndrome (NAS) by County of Residence, Wisconsin, 2006-2015	39
Figure 13. Three-year crude rate of neonatal abstinence syndrome by county of residence, Wisconsin, 2012-2014	43

Drug overdose deaths involving opioids

Drug overdose death is the leading cause of unintentional (accidental) death in the U.S.¹ In Wisconsin, poisoning, which includes drug overdose, was the second leading cause of unintentional deaths in 2015, surpassed by falls. The majority of drug-related deaths in 2015 involved opioids (70%).

How is this measure defined?

Deaths of Wisconsin residents with any of the following ICD-10 codes as an **underlying** cause of death:

- (X40-X44): Accidental poisoning by drugs
- (X60-X64): Intentional self-poisoning by drugs
- (X85): Assault by drug poisoning
- (Y10-Y14): Drug poisoning of undetermined intent

AND with any of the following ICD-10 **contributing** cause of death codes:

- (T40.0): Opium
- (T40.1): Heroin
- (T40.2): Natural and semisynthetic opioids
- (T40.3): Methadone
- (T40.4): Synthetic opioids, other than methadone
- (T40.6): Other and unspecified narcotics

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of deaths. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.
- Any differences between counties should be interpreted cautiously. Some counties may have different age distributions, which could influence death rates.

Data highlights:

- From 2006 to 2015, the rate of drug overdose deaths involving opioids increased from 5.9 to 10.7 per 100,000 (81%; Table 1).
- Generally, rates of drug overdose deaths involving opioids were higher among counties in the southeastern region of the state (Figure 1).
- Rates of drug overdose deaths involving opioids were higher among men compared to women (Figure 2).
- For men, rates were highest among young adults aged 25-34 years (Figure 2).
- For women, rates were highest among women aged 35-54 years (Figure 2).

Table 1. Crude rate of drug overdose deaths involving opioids by county of decedent residence, Wisconsin, 2006-2015

*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.9 (333)	6.6 (370)	6.3 (359)	7.0 (396)	7.2 (410)	8.2 (469)	8.8 (502)	10.3 (588)	10.8 (622)	10.7 (614)
Adams	0.0 (0)	9.4 (2)	0.0 (0)	14.0 (3)	0.0 (0)	19.2 (4)	9.6 (2)	4.8 (1)	14.5 (3)	14.4 (3)
Ashland	0.0 (0)	6.0 (1)	0.0 (0)	17.9 (3)	0.0 (0)	24.9 (4)	0.0 (0)	6.2 (1)	12.4 (2)	6.2 (1)
Barron	0.0 (0)	2.1 (1)	4.2 (2)	2.1 (1)	2.2 (1)	2.2 (1)	4.4 (2)	8.7 (4)	4.4 (2)	4.3 (2)
Bayfield	0.0 (0)	0.0 (0)	0.0 (0)	6.3 (1)	0.0 (0)	0.0 (0)	6.6 (1)	6.6 (1)	6.6 (1)	6.6 (1)
Brown	0.8 (2)	0.4 (1)	0.8 (2)	1.6 (4)	1.6 (4)	3.6 (9)	4.8 (12)	3.2 (8)	4.7 (12)	4.7 (12)
Buffalo	7.1 (1)	7.1 (1)	0.0 (0)	0.0 (0)	7.4 (1)	0.0 (0)	0.0 (0)	7.4 (1)	0.0 (0)	0.0 (0)
Burnett	6.0 (1)	6.0 (1)	6.0 (1)	12.0 (2)	6.5 (1)	0.0 (0)	12.9 (2)	13.0 (2)	0.0 (0)	6.4 (1)
Calumet	6.6 (3)	4.4 (2)	2.2 (1)	4.3 (2)	2.0 (1)	0.0 (0)	0.0 (0)	4.0 (2)	4.0 (2)	5.9 (3)
Chippewa	3.3 (2)	1.6 (1)	3.2 (2)	1.6 (1)	3.2 (2)	3.2 (2)	1.6 (1)	3.2 (2)	1.6 (1)	1.6 (1)
Clark	2.9 (1)	2.9 (1)	5.8 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.8 (2)	2.9 (1)	0.0 (0)
Columbia	12.6 (7)	3.6 (2)	7.1 (4)	1.8 (1)	5.3 (3)	3.5 (2)	5.3 (3)	10.6 (6)	7.0 (4)	10.5 (6)
Crawford	11.5 (2)	5.8 (1)	5.7 (1)	5.8 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Dane	6.0 (28)	7.4 (35)	7.1 (34)	7.5 (36)	9.4 (46)	12.4 (61)	11.1 (55)	13.9 (70)	12.0 (61)	11.2 (57)
Dodge	2.2 (2)	4.5 (4)	6.7 (6)	14.6 (13)	12.4 (11)	9.0 (8)	4.5 (4)	7.9 (7)	7.9 (7)	16.7 (15)
Door	0.0 (0)	0.0 (0)	0.0 (0)	3.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	7.2 (2)	3.6 (1)	3.5 (1)
Douglas	9.1 (4)	6.8 (3)	6.8 (3)	6.7 (3)	6.8 (3)	6.8 (3)	9.1 (4)	9.1 (4)	4.5 (2)	4.5 (2)
Dunn	2.3 (1)	0.0 (0)	2.3 (1)	4.6 (2)	2.3 (1)	4.6 (2)	2.3 (1)	2.3 (1)	2.3 (1)	11.3 (5)
Eau Claire	9.3 (9)	7.1 (7)	5.0 (5)	2.0 (2)	7.1 (7)	4.0 (4)	3.0 (3)	2.0 (2)	4.0 (4)	5.9 (6)
Florence	0.0 (0)	19.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	22.7 (1)	45.0 (2)	0.0 (0)	22.4 (1)
Fond du Lac	4.0 (4)	3.0 (3)	4.9 (5)	3.0 (3)	9.8 (10)	6.9 (7)	9.8 (10)	7.8 (8)	8.8 (9)	12.6 (13)
Forest	9.8 (1)	9.8 (1)	0.0 (0)	9.8 (1)	10.7 (1)	10.9 (1)	10.9 (1)	0.0 (0)	10.8 (1)	0.0 (0)
Grant	0.0 (0)	2.0 (1)	5.9 (3)	3.9 (2)	0.0 (0)	3.9 (2)	1.9 (1)	5.8 (3)	1.9 (1)	1.9 (1)
Green	8.3 (3)	2.8 (1)	2.7 (1)	5.5 (2)	10.9 (4)	2.7 (1)	13.6 (5)	13.6 (5)	2.7 (1)	2.7 (1)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.9 (333)	6.6 (370)	6.3 (359)	7.0 (396)	7.2 (410)	8.2 (469)	8.8 (502)	10.3 (588)	10.8 (622)	10.7 (614)
Green Lake	5.2 (1)	0.0 (0)	5.1 (1)	10.4 (2)	5.2 (1)	5.2 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Iowa	0.0 (0)	4.2 (1)	0.0 (0)	0.0 (0)	8.4 (2)	0.0 (0)	4.2 (1)	4.2 (1)	4.2 (1)	8.4 (2)
Iron	0.0 (0)	16.9 (1)								
Jackson	5.0 (1)	0.0 (0)	0.0 (0)	0.0 (0)	9.8 (2)	0.0 (0)	4.9 (1)	0.0 (0)	0.0 (0)	9.6 (2)
Jefferson	1.2 (1)	5.0 (4)	9.8 (8)	3.7 (3)	2.4 (2)	2.4 (2)	10.7 (9)	5.9 (5)	13.1 (11)	8.3 (7)
Juneau	0.0 (0)	3.7 (1)	3.6 (1)	18.3 (5)	15.0 (4)	3.7 (1)	7.5 (2)	3.7 (1)	3.7 (1)	3.7 (1)
Kenosha	15.5 (25)	16.0 (26)	13.5 (22)	16.5 (27)	16.2 (27)	13.8 (23)	20.3 (34)	20.3 (34)	22.1 (37)	19.1 (32)
Kewaunee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.8 (1)	4.9 (1)	4.9 (1)	0.0 (0)
La Crosse	3.6 (4)	10.7 (12)	3.5 (4)	4.4 (5)	10.5 (12)	8.7 (10)	6.9 (8)	7.7 (9)	5.1 (6)	6.0 (7)
Lafayette	0.0 (0)	11.9 (2)	5.9 (1)	0.0 (0)						
Langlade	0.0 (0)	4.7 (1)	14.1 (3)	14.1 (3)	15.0 (3)	10.1 (2)	15.2 (3)	0.0 (0)	0.0 (0)	5.0 (1)
Lincoln	6.6 (2)	0.0 (0)	0.0 (0)	6.6 (2)	3.5 (1)	7.0 (2)	3.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Manitowoc	6.0 (5)	4.8 (4)	6.0 (5)	8.4 (7)	8.6 (7)	3.7 (3)	7.4 (6)	9.9 (8)	13.6 (11)	18.4 (15)
Marathon	3.0 (4)	1.5 (2)	3.0 (4)	2.2 (3)	0.7 (1)	4.5 (6)	4.5 (6)	1.5 (2)	2.2 (3)	5.2 (7)
Marinette	0.0 (0)	0.0 (0)	2.3 (1)	2.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)	2.4 (1)	2.4 (1)	0.0 (0)
Marquette	6.5 (1)	6.6 (1)	6.5 (1)	6.6 (1)	6.5 (1)	19.5 (3)	13.0 (2)	26.1 (4)	19.6 (3)	0.0 (0)
Menominee	0.0 (0)	47.0 (2)	46.1 (2)	23.6 (1)						
Milwaukee	13.1 (122)	12.6 (119)	13.7 (128)	13.8 (130)	12.5 (118)	15.1 (143)	15.7 (149)	19.0 (181)	22.2 (211)	23.0 (218)
Monroe	2.3 (1)	9.2 (4)	2.3 (1)	4.5 (2)	6.7 (3)	8.9 (4)	8.9 (4)	11.0 (5)	8.8 (4)	2.2 (1)
Oconto	0.0 (0)	0.0 (0)	0.0 (0)	2.6 (1)	2.7 (1)	5.3 (2)	0.0 (0)	0.0 (0)	5.3 (2)	2.6 (1)
Oneida	2.6 (1)	0.0 (0)	2.6 (1)	5.2 (2)	0.0 (0)	0.0 (0)	5.6 (2)	11.1 (4)	8.3 (3)	2.8 (1)
Outagamie	2.9 (5)	1.1 (2)	1.7 (3)	2.3 (4)	2.8 (5)	3.9 (7)	3.4 (6)	7.2 (13)	7.2 (13)	6.6 (12)
Ozaukee	6.9 (6)	4.6 (4)	0.0 (0)	3.4 (3)	3.5 (3)	5.8 (5)	2.3 (2)	6.9 (6)	6.9 (6)	6.8 (6)
Pepin	0.0 (0)	13.5 (1)	0.0 (0)	0.0 (0)						
Pierce	0.0 (0)	5.0 (2)	2.5 (1)	7.4 (3)	4.9 (2)	4.9 (2)	2.4 (1)	12.2 (5)	2.4 (1)	2.4 (1)
Polk	2.2 (1)	0.0 (0)	4.4 (2)	2.2 (1)	2.3 (1)	4.5 (2)	2.3 (1)	2.3 (1)	0.0 (0)	6.8 (3)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.9 (333)	6.6 (370)	6.3 (359)	7.0 (396)	7.2 (410)	8.2 (469)	8.8 (502)	10.3 (588)	10.8 (622)	10.7 (614)
Portage	7.3 (5)	8.6 (6)	4.3 (3)	1.4 (1)	2.9 (2)	2.8 (2)	11.3 (8)	8.5 (6)	7.1 (5)	4.2 (3)
Price	6.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	7.1 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Racine	7.2 (14)	8.7 (17)	8.1 (16)	5.6 (11)	5.1 (10)	7.2 (14)	10.3 (20)	16.4 (32)	18.9 (37)	15.3 (30)
Richland	0.0 (0)	0.0 (0)	5.5 (1)	0.0 (0)	5.5 (1)	0.0 (0)	11.1 (2)	5.6 (1)	5.6 (1)	0.0 (0)
Rock	3.8 (6)	11.9 (19)	6.2 (10)	4.4 (7)	8.1 (13)	10.6 (17)	11.9 (19)	15.6 (25)	13.1 (21)	13.7 (22)
Rusk	19.4 (3)	0.0 (0)	6.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	13.7 (2)	0.0 (0)
St. Croix	6.3 (5)	0.0 (0)	2.5 (2)	0.0 (0)	1.2 (1)	1.2 (1)	2.3 (2)	5.8 (5)	2.3 (2)	2.3 (2)
Sauk	8.4 (5)	8.3 (5)	9.9 (6)	14.9 (9)	8.1 (5)	19.3 (12)	8.0 (5)	14.4 (9)	8.0 (5)	16.1 (10)
Sawyer	0.0 (0)	11.5 (2)	0.0 (0)	0.0 (0)	6.0 (1)	0.0 (0)	6.0 (1)	0.0 (0)	6.0 (1)	6.0 (1)
Shawano	7.1 (3)	2.4 (1)	0.0 (0)	2.4 (1)	2.4 (1)	7.2 (3)	9.6 (4)	2.4 (1)	2.4 (1)	0.0 (0)
Sheboygan	2.6 (3)	4.3 (5)	1.7 (2)	5.1 (6)	0.0 (0)	5.2 (6)	1.7 (2)	2.6 (3)	1.7 (2)	5.2 (6)
Taylor	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.8 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Trempealeau	0.0 (0)	3.6 (1)	0.0 (0)	3.5 (1)	0.0 (0)	6.9 (2)	3.4 (1)	6.8 (2)	6.8 (2)	0.0 (0)
Vernon	3.4 (1)	3.4 (1)	0.0 (0)	6.7 (2)	10.1 (3)	0.0 (0)	3.3 (1)	3.3 (1)	16.6 (5)	0.0 (0)
Vilas	4.5 (1)	13.3 (3)	21.7 (5)	17.6 (4)	14.0 (3)	4.7 (1)	9.3 (2)	9.3 (2)	14.0 (3)	23.2 (5)
Walworth	5.0 (5)	5.0 (5)	2.0 (2)	14.8 (15)	12.7 (13)	8.8 (9)	11.7 (12)	12.6 (13)	13.6 (14)	11.7 (12)
Washburn	5.8 (1)	0.0 (0)	11.4 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.3 (1)
Washington	2.3 (3)	7.7 (10)	5.4 (7)	7.6 (10)	7.6 (10)	10.6 (14)	8.3 (11)	15.1 (20)	12.0 (16)	9.7 (13)
Waukesha	4.5 (17)	6.3 (24)	6.3 (24)	6.0 (23)	10.0 (39)	9.5 (37)	9.7 (38)	8.4 (33)	10.4 (41)	9.1 (36)
Waupaca	1.9 (1)	1.9 (1)	3.7 (2)	5.6 (3)	1.9 (1)	0.0 (0)	7.6 (4)	0.0 (0)	7.6 (4)	3.8 (2)
Waushara	4.0 (1)	0.0 (0)	11.9 (3)	4.0 (1)	0.0 (0)	4.1 (1)	0.0 (0)	4.1 (1)	4.1 (1)	4.1 (1)
Winnebago	3.1 (5)	7.3 (12)	7.9 (13)	6.1 (10)	5.4 (9)	11.3 (19)	9.5 (16)	5.9 (10)	13.6 (23)	8.9 (15)
Wood	2.6 (2)	6.6 (5)	1.3 (1)	3.9 (3)	8.0 (6)	2.7 (2)	6.7 (5)	5.4 (4)	2.7 (2)	1.3 (1)

Figure 1. Three-year crude rate of drug overdose deaths involving opioids by decedent county of residence, 2013-2015

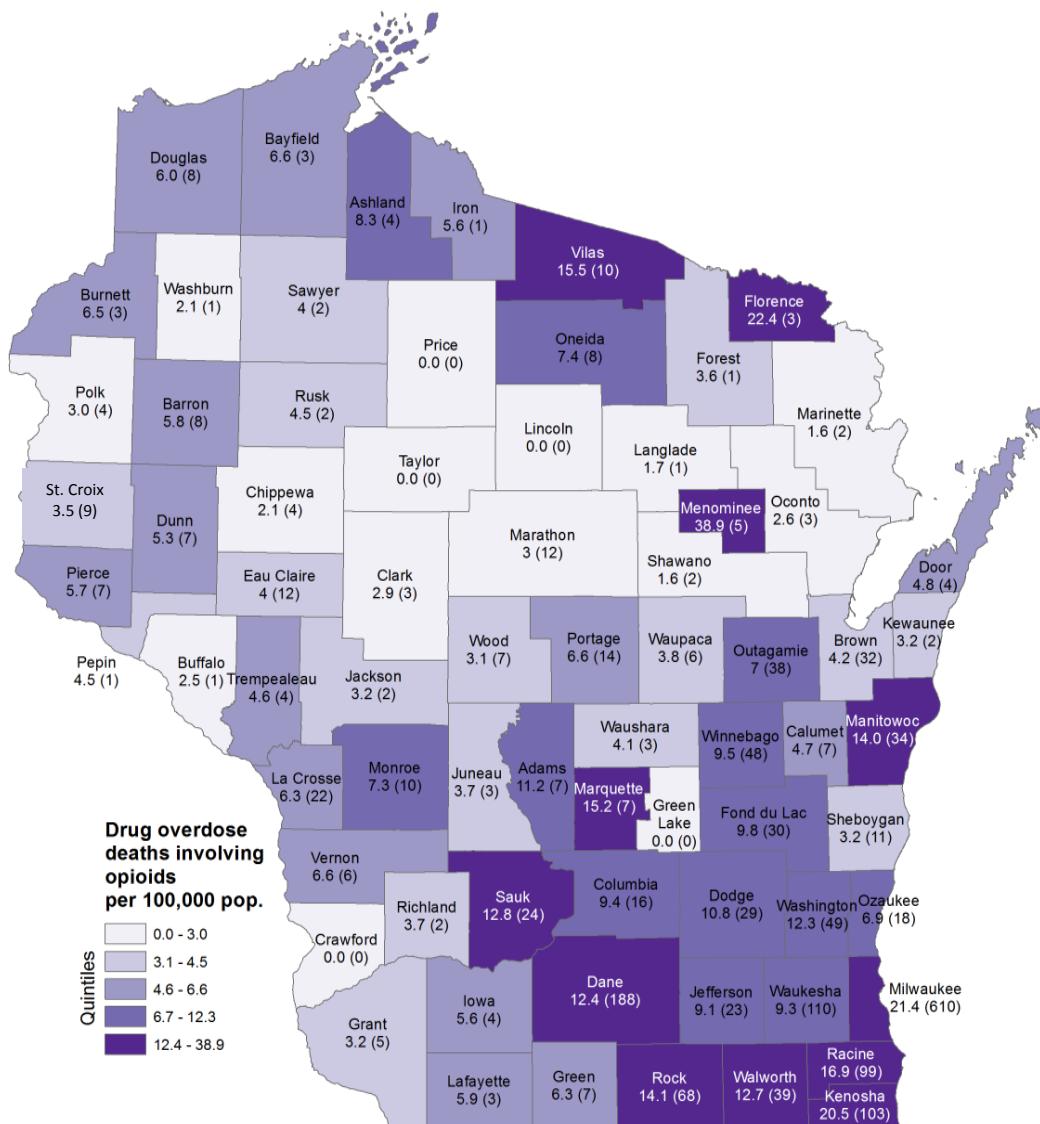
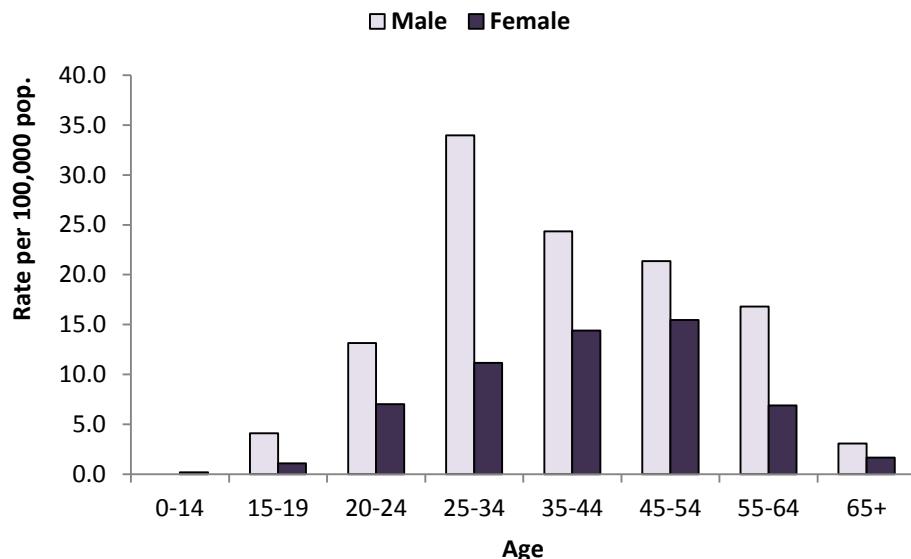


Figure 2. Crude rate of drug overdose deaths involving opioids by age category and sex, Wisconsin, 2015



Drug overdose deaths involving prescription opioids

Prescription opioids have been the main driver of drug overdose deaths in Wisconsin. In 2015, 63% of opioid overdose-related deaths involved prescription opioids.

How is this measure defined?

Deaths of Wisconsin residents with any of the following ICD-10 codes as an **underlying** cause of death:

- (X40-X44): Accidental poisoning by drugs
- (X60-X64): Intentional self-poisoning by drugs
- (X85): Assault by drug poisoning
- (Y10-Y14): Drug poisoning of undetermined intent

AND with any of the following ICD-10 **contributing** cause of death codes:

- (T40.3): Methadone
- (T40.4): Synthetic opioids, other than methadone
- (T40.6): Other and unspecified narcotics

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of deaths. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.
- Any differences between counties should be interpreted cautiously. Some counties may have different age distributions, which could influence death rates.

Data highlights:

- From 2006 to 2015, the rate of drug overdose deaths involving prescription opioids in Wisconsin increased from 5.3 to 6.7 per 100,000 (26%; Table 2).
- Generally, rates of drug overdose deaths involving prescription opioids were higher among some counties in the southeastern and northern regions of the state (Figure 3).
- Rates of drug overdose deaths involving prescription opioids were higher among men compared to women (Figure 4).
- For men, rates were highest among young adults aged 25-34 years (Figure 2).
- For women, rates were highest among those aged 35-54 years (Figure 2).

Table 2. Crude rate of drug overdose deaths involving prescription opioids by county of decedent residence, Wisconsin, 2006-2015

*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.3 (298)	5.8 (329)	5.2 (297)	5.6 (316)	5.6 (320)	5.7 (327)	5.7 (324)	6.7 (383)	6.8 (392)	6.7 (384)
Adams	0.0 (0)	9.4 (2)	0.0 (0)	9.3 (2)	0.0 (0)	9.6 (2)	9.6 (2)	4.8 (1)	9.7 (2)	0.0 (0)
Ashland	0.0 (0)	6.0 (1)	0.0 (0)	17.9 (3)	0.0 (0)	24.9 (4)	0.0 (0)	6.2 (1)	12.4 (2)	6.2 (1)
Barron	0.0 (0)	2.1 (1)	4.2 (2)	2.1 (1)	2.2 (1)	2.2 (1)	2.2 (1)	6.5 (3)	4.4 (2)	4.3 (2)
Bayfield	0.0 (0)	0.0 (0)	0.0 (0)	6.3 (1)	0.0 (0)	0.0 (0)	6.6 (1)	6.6 (1)	6.6 (1)	6.6 (1)
Brown	0.8 (2)	0.4 (1)	0.4 (1)	0.4 (1)	1.2 (3)	2.0 (5)	1.2 (3)	2.0 (5)	1.6 (4)	2.7 (7)
Buffalo	7.1 (1)	7.1 (1)	0.0 (0)	0.0 (0)	7.4 (1)	0.0 (0)	0.0 (0)	7.4 (1)	0.0 (0)	0.0 (0)
Burnett	6.0 (1)	6.0 (1)	6.0 (1)	12.0 (2)	6.5 (1)	0.0 (0)	12.9 (2)	6.5 (1)	0.0 (0)	6.4 (1)
Calumet	6.6 (3)	4.4 (2)	2.2 (1)	4.3 (2)	2.0 (1)	0.0 (0)	0.0 (0)	2.0 (1)	4.0 (2)	5.9 (3)
Chippewa	3.3 (2)	1.6 (1)	3.2 (2)	1.6 (1)	1.6 (1)	3.2 (2)	0.0 (0)	3.2 (2)	1.6 (1)	0.0 (0)
Clark	2.9 (1)	2.9 (1)	5.8 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.8 (2)	2.9 (1)	0.0 (0)
Columbia	10.8 (6)	3.6 (2)	7.1 (4)	1.8 (1)	3.5 (2)	1.8 (1)	1.8 (1)	3.5 (2)	3.5 (2)	0.0 (0)
Crawford	11.5 (2)	5.8 (1)	5.7 (1)	5.8 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Dane	5.4 (25)	6.4 (30)	5.4 (26)	6.0 (29)	6.8 (33)	9.8 (48)	6.8 (34)	9.3 (47)	7.9 (40)	7.7 (39)
Dodge	2.2 (2)	4.5 (4)	6.7 (6)	11.2 (10)	10.1 (9)	6.8 (6)	2.3 (2)	7.9 (7)	5.6 (5)	13.4 (12)
Door	0.0 (0)	0.0 (0)	0.0 (0)	3.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	3.6 (1)	0.0 (0)	0.0 (0)
Douglas	6.8 (3)	6.8 (3)	6.8 (3)	6.7 (3)	6.8 (3)	6.8 (3)	4.5 (2)	2.3 (1)	2.3 (1)	0.0 (0)
Dunn	2.3 (1)	0.0 (0)	2.3 (1)	2.3 (1)	0.0 (0)	4.6 (2)	2.3 (1)	2.3 (1)	2.3 (1)	11.3 (5)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.3 (298)	5.8 (329)	5.2 (297)	5.6 (316)	5.6 (320)	5.7 (327)	5.7 (324)	6.7 (383)	6.8 (392)	6.7 (384)
Eau Claire	9.3 (9)	7.1 (7)	5.0 (5)	2.0 (2)	7.1 (7)	4.0 (4)	3.0 (3)	2.0 (2)	3.0 (3)	4.0 (4)
Florence	0.0 (0)	19.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	22.7 (1)	45.0 (2)	0.0 (0)	22.4 (1)
Fond du Lac	3.0 (3)	3.0 (3)	3.0 (3)	1.0 (1)	7.9 (8)	3.9 (4)	4.9 (5)	5.9 (6)	6.8 (7)	8.7 (9)
Forest	9.8 (1)	9.8 (1)	0.0 (0)	9.8 (1)	10.7 (1)	0.0 (0)	10.9 (1)	0.0 (0)	10.8 (1)	0.0 (0)
Grant	0.0 (0)	2.0 (1)	5.9 (3)	3.9 (2)	0.0 (0)	1.9 (1)	0.0 (0)	3.9 (2)	1.9 (1)	1.9 (1)
Green	5.5 (2)	2.8 (1)	2.7 (1)	5.5 (2)	10.9 (4)	0.0 (0)	8.1 (3)	5.4 (2)	2.7 (1)	2.7 (1)
Green Lake	5.2 (1)	0.0 (0)	5.1 (1)	10.4 (2)	5.2 (1)	5.2 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Iowa	0.0 (0)	4.2 (1)	0.0 (0)	0.0 (0)	8.4 (2)	0.0 (0)	4.2 (1)	0.0 (0)	4.2 (1)	8.4. (2)
Iron	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Jackson	5.0 (1)	0.0 (0)	0.0 (0)	0.0 (0)	4.9 (1)	0.0 (0)	4.9 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Jefferson	1.2 (1)	3.7 (3)	9.8 (8)	3.7 (3)	2.4 (2)	2.4 (2)	8.3 (7)	3.6 (3)	8.3 (7)	2.4 (2)
Juneau	0.0 (0)	3.7 (1)	0.0 (0)	18.3 (5)	7.5 (2)	3.7 (1)	0.0 (0)	3.7 (1)	0.0 (0)	3.7 (1)
Kenosha	14.3 (23)	14.8 (24)	10.4 (17)	11.6 (19)	9.6 (16)	7.2 (12)	13.2 (22)	12.0 (20)	13.1 (22)	10.7 (18)
Kewaunee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.9 (1)	0.0 (0)
La Crosse	1.8 (2)	9.8 (11)	3.5 (4)	4.4 (5)	9.6 (11)	5.2 (6)	4.3 (5)	5.2 (6)	4.3 (5)	4.3 (5)
Lafayette	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	11.9 (2)	5.9 (1)	0.0 (0)
Langlade	0.0 (0)	4.7 (1)	14.1 (3)	14.1 (3)	15.0 (3)	10.1 (2)	15.2 (3)	0.0 (0)	0.0 (0)	0.0 (0)
Lincoln	6.6 (2)	0.0 (0)	0.0 (0)	3.3 (1)	3.5 (1)	3.5 (1)	3.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Manitowoc	6.0 (5)	3.6 (3)	6.0 (5)	6.0 (5)	8.6 (7)	2.5 (2)	7.4 (6)	8.6 (7)	12.4 (10)	13.5 (11)
Marathon	3.0 (4)	1.5 (2)	3.0 (4)	1.5 (2)	0.7 (1)	2.2 (3)	1.5 (2)	0.0 (0)	0.0 (0)	3.0 (4)
Marinette	0.0 (0)	0.0 (0)	2.3 (1)	2.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.4 (1)	0.0 (0)
Marquette	6.5 (1)	6.6 (1)	6.5 (1)	6.6 (1)	6.5 (1)	19.5 (3)	0.0 (0)	26.1 (4)	19.6 (3)	0.0 (0)
Menominee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	23.5 (1)	46.1 (2)	23.6 (1)
Milwaukee	11.6 (108)	10.7 (101)	11.0 (103)	10.1 (95)	9.6 (91)	11.2 (106)	11.6 (110)	13.0 (124)	13.4 (128)	14.4 (137)
Monroe	2.3 (1)	9.2 (4)	2.3 (1)	4.5 (2)	6.7 (3)	6.7 (3)	4.4 (2)	8.8 (4)	4.4 (2)	2.2 (1)
Oconto	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.7 (1)	0.0 (0)	0.0 (0)	2.6 (1)	2.6 (1)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.3 (298)	5.8 (329)	5.2 (297)	5.6 (316)	5.6 (320)	5.7 (327)	5.7 (324)	6.7 (383)	6.8 (392)	6.7 (384)
Oneida	2.6 (1)	0.0 (0)	2.6 (1)	5.2 (2)	0.0 (0)	0.0 (0)	2.8 (1)	8.3 (3)	5.6 (2)	2.8 (1)
Outagamie	2.9 (5)	1.1 (2)	1.1 (2)	2.3 (4)	2.8 (5)	2.8 (5)	2.8 (5)	5.6 (10)	5.5 (10)	5.5 (10)
Ozaukee	5.8 (5)	4.6 (4)	0.0 (0)	3.4 (3)	3.5 (3)	3.5 (3)	1.2 (1)	4.6 (4)	3.4 (3)	5.7 (5)
Pepin	0.0 (0)	13.5 (1)	0.0 (0)	0.0 (0)						
Pierce	0.0 (0)	5 (2)	2.5 (1)	7.4 (3)	2.4 (1)	4.9 (2)	2.4 (1)	7.3 (3)	0.0 (0)	2.4 (1)
Polk	2.2 (1)	0.0 (0)	4.4 (2)	2.2 (1)	2.3 (1)	4.5 (2)	2.3 (1)	2.3 (1)	0.0 (0)	6.8 (3)
Portage	7.3 (5)	7.2 (5)	4.3 (3)	1.4 (1)	2.9 (2)	1.4 (1)	7.1 (5)	7.1 (5)	7.1 (5)	4.2 (3)
Price	6.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	7.1 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Racine	5.6 (11)	7.7 (15)	7.1 (14)	4.0 (8)	4.1 (8)	5.1 (10)	5.1 (10)	9.2 (18)	11.3 (22)	8.2 (16)
Richland	0.0 (0)	0.0 (0)	5.5 (1)	0.0 (0)	5.5 (1)	0.0 (0)	11.1 (2)	5.6 (1)	5.6 (1)	0.0 (0)
Rock	3.8 (6)	11.9 (19)	3.7 (6)	1.9 (3)	6.9 (11)	5.6 (9)	8.7 (14)	9.4 (15)	10.0 (16)	9.4 (15)
Rusk	19.4 (3)	0.0 (0)	6.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	13.7 (2)	0.0 (0)
St. Croix	6.3 (5)	0.0 (0)	2.5 (2)	0.0 (0)	1.2 (1)	1.2 (1)	1.2 (1)	2.3 (2)	2.3 (2)	2.3 (2)
Sauk	8.4 (5)	8.3 (5)	6.6 (4)	14.9 (9)	6.5 (4)	14.5 (9)	4.8 (3)	9.6 (6)	4.8 (3)	4.8 (3)
Sawyer	0.0 (0)	5.7 (1)	0.0 (0)	0.0 (0)	6.0 (1)	0.0 (0)	6.0 (1)	0.0 (0)	0.0 (0)	6.0 (1)
Shawano	7.1 (3)	2.4 (1)	0.0 (0)	2.4 (1)	2.4 (1)	7.2 (3)	4.8 (2)	2.4 (1)	0.0 (0)	0.0 (0)
Sheboygan	2.6 (3)	4.3 (5)	1.7 (2)	4.3 (5)	0.0 (0)	0.9 (1)	1.7 (2)	0.9 (1)	0.9 (1)	0.9 (1)
Taylor	0.0 (0)									
Trempealeau	0.0 (0)	3.6 (1)	0.0 (0)	3.5 (1)	0.0 (0)	3.5 (1)	3.4 (1)	6.8 (2)	6.8 (2)	0.0 (0)
Vernon	3.4 (1)	3.4 (1)	0.0 (0)	6.7 (2)	3.4 (1)	0.0 (0)	0.0 (0)	3.3 (1)	10.0 (3)	0.0 (0)
Vilas	4.5 (1)	13.3 (3)	21.7 (5)	17.6 (4)	14 (3)	0.0 (0)	4.7 (1)	9.3 (2)	9.3 (2)	23.2 (5)
Walworth	3.0 (3)	2.0 (2)	1.0 (1)	13.8 (14)	8.8 (9)	2.9 (3)	7.8 (8)	6.8 (7)	10.7 (11)	5.9 (6)
Washburn	5.8 (1)	0.0 (0)	11.4 (2)	0.0 (0)						
Washington	2.3 (3)	7.0 (9)	5.4 (7)	6.1 (8)	5.3 (7)	5.3 (7)	4.5 (6)	9.0 (12)	5.3 (7)	5.2 (7)
Waukesha	3.7 (14)	5.2 (20)	4.4 (17)	5.5 (21)	8.0 (31)	6.7 (26)	4.9 (19)	4.8 (19)	5.6 (22)	5.1 (20)
Waupaca	1.9 (1)	1.9 (1)	3.7 (2)	5.6 (3)	1.9 (1)	0.0 (0)	3.8 (2)	0.0 (0)	5.7 (3)	1.9 (1)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	5.3 (298)	5.8 (329)	5.2 (297)	5.6 (316)	5.6 (320)	5.7 (327)	5.7 (324)	6.7 (383)	6.8 (392)	6.7 (384)
Waushara	4.0 (1)	0.0 (0)	7.9 (2)	4.0 (1)	0.0 (0)	4.1 (1)	0.0 (0)	0.0 (0)	4.1 (1)	4.1 (1)
Winnebago	2.5 (4)	6.7 (11)	6.7 (11)	4.8 (8)	4.2 (7)	9.0 (15)	5.9 (10)	2.4 (4)	7.1 (12)	5.9 (10)
Wood	2.6 (2)	6.6 (5)	1.3 (1)	3.9 (3)	6.7 (5)	2.7 (2)	6.7 (5)	2.7 (2)	1.3 (1)	1.3 (1)

Figure 3. Three-year crude rate of prescription opioid-related deaths by decedent county of residence, 2013-2015

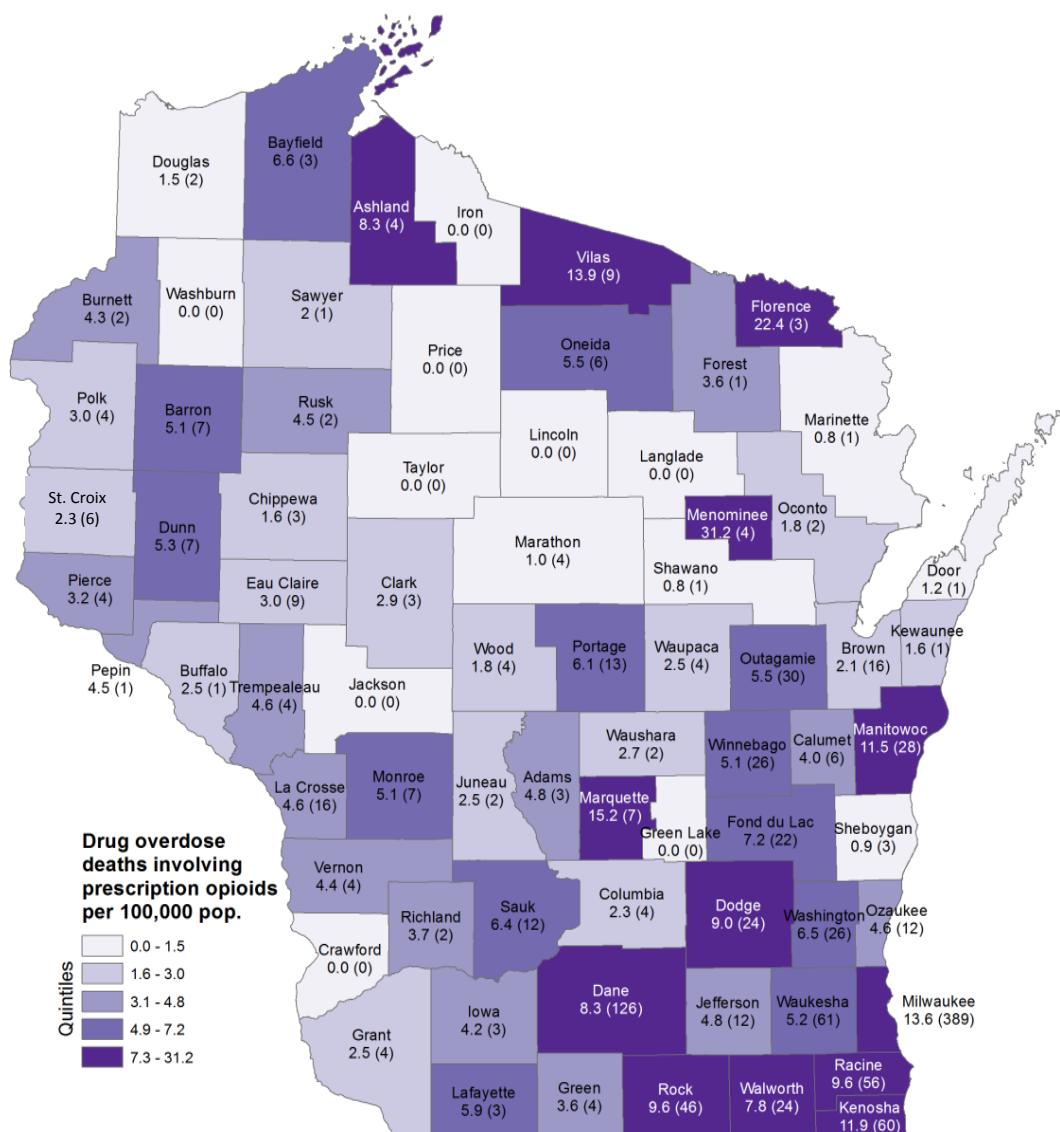
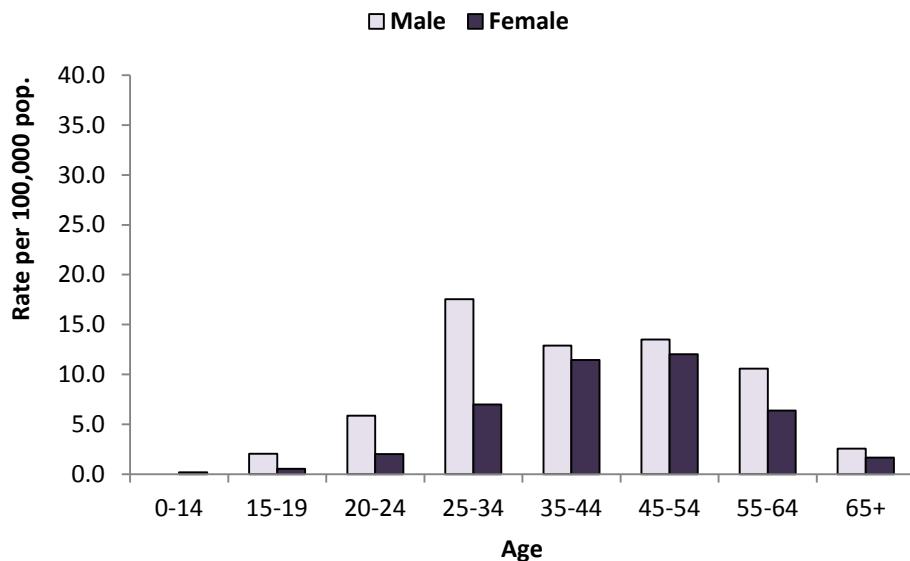


Figure 4. Crude rate of prescription opioid-related deaths by age and sex, Wisconsin, 2015



Drug overdose deaths involving heroin

Nationally and in Wisconsin, heroin use and heroin-related deaths have increased substantially over the past several years. Nationally, three out of four people using heroin report using prescription opioids prior to heroin use.² Heroin has become more readily available at higher purity and lower costs, which has likely contributed to increased heroin use over the last decade.²

How is this measure defined?

Deaths of Wisconsin residents with any of the following ICD-10 codes as an **underlying** cause of death:

- (X40-X44): Accidental poisoning by drugs
- (X60-X64): Intentional self-poisoning by drugs
- (X85): Assault by drug poisoning
- (Y10-Y14): Drug poisoning of undetermined intent

AND with the following ICD-10 **contributing** cause of death code: (T40.1): Heroin

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of deaths. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.
- Any differences between counties should be interpreted cautiously. Some counties may have different age distributions, which could influence death rates.

Data highlights:

- From 2006 to 2015, the rate of drug overdose deaths involving heroin in Wisconsin increased from 0.5 to 4.9 per 100,000 (880%; Table 3).
- Generally, rates of drug overdose deaths involving heroin were higher among counties in the southeastern region of the state (Figure 5).
- Rates of drug overdose deaths involving opioids were higher among men compared to women (Figure 6).
- For men and women, rates were highest among young adults aged 25-34 years (Figure 6).

Table 3. Crude rate of drug overdose deaths involving heroin by resident county of decedent, Wisconsin, 2006-2015

*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	0.5 (29)	0.6 (34)	1.2 (67)	1.3 (75)	1.6 (91)	2.3 (134)	3.3 (187)	3.9 (226)	4.6 (266)	4.9 (281)
Adams	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	9.6 (2)	4.8 (1)	4.8 (1)	4.8 (1)	9.6 (2)
Ashland	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.2 (1)
Barron	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.2 (1)	2.2 (1)	0.0 (0)	0.0 (0)
Bayfield	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Brown	0.0 (0)	0.0 (0)	0.4 (1)	1.2 (3)	0.4 (1)	1.2 (3)	4.0 (10)	1.2 (3)	3.5 (9)	2.3 (6)
Buffalo	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Burnett	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Calumet	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.0 (1)	0.0 (0)	2.0 (1)
Chippewa	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.6 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.6 (1)
Clark	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.9 (1)	0.0 (0)
Columbia	0.0 (0)	0.0 (0)	0.0 (0)	1.8 (1)	1.8 (1)	1.8 (1)	3.5 (2)	5.3 (3)	5.3 (3)	10.5 (6)
Crawford	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Dane	0.9 (4)	1.5 (7)	2.1 (10)	1.9 (9)	3.1 (15)	3.5 (17)	4.4 (22)	7.6 (38)	5.3 (27)	4.9 (25)
Dodge	0.0 (0)	0.0 (0)	0.0 (0)	2.2 (2)	3.4 (3)	1.1 (1)	2.3 (2)	2.3 (2)	2.2 (2)	4.5 (4)
Door	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.6 (1)	3.6 (1)	3.5 (1)
Douglas	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.8 (3)	2.3 (1)	4.5 (2)
Dunn	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Eau Claire	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.0 (1)	1.0 (1)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	0.5 (29)	0.6 (34)	1.2 (67)	1.3 (75)	1.6 (91)	2.3 (134)	3.3 (187)	3.9 (226)	4.6 (266)	4.9 (281)
Florence	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Fond du Lac	0.0 (0)	0.0 (0)	1.0 (1)	0.0 (0)	2.0 (2)	2.0 (2)	4.9 (5)	2.0 (2)	2.0 (2)	4.8 (5)
Forest	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	10.9 (1)	0.0 (0)	0.0 (0)	10.8 (1)	0.0 (0)
Grant	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.9 (1)	1.9 (1)	1.9 (1)	0.0 (0)	0.0 (0)
Green	2.8 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.7 (1)	8.1 (3)	5.4 (2)	0.0 (0)	0.0 (0)
Green Lake	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Iowa	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.2 (1)	0.0 (0)	0.0 (0)
Iron	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	16.9 (1)
Jackson	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.9 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	9.6 (2)
Jefferson	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.6 (3)	3.6 (3)	4.8 (4)	4.7 (4)
Juneau	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.8 (1)	0.0 (0)	3.7 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Kenosha	1.2 (2)	1.2 (2)	4.3 (7)	4.3 (7)	6.6 (11)	6.0 (10)	9.0 (15)	8.4 (14)	10.7 (18)	10.7 (18)
Kewaunee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.8 (1)	4.9 (1)	4.9 (1)	0.0 (0)
La Crosse	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.9 (1)	3.5 (4)	1.7 (2)	2.6 (3)	0.0 (0)	1.7 (2)
Lafayette	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Langlade	0.0 (0)	0.0 (0)	0.0 (0)	4.7 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.0 (1)
Lincoln	0.0 (0)	0.0 (0)	0.0 (0)	3.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Manitowoc	0.0 (0)	0.0 (0)	0.0 (0)	1.2 (1)	0.0 (0)	1.2 (1)	0.0 (0)	1.2 (1)	1.2 (1)	4.9 (4)
Marathon	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.5 (2)	3.7 (5)	1.5 (2)	1.5 (2)	2.2 (3)
Marinette	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.4 (1)	2.4 (1)	0.0 (0)
Marquette	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	13.0 (2)	0.0 (0)	13.1 (2)	0.0 (0)
Menominee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	23.5 (1)	0.0 (0)	0.0 (0)
Milwaukee	1.4 (13)	1.9 (18)	3.6 (34)	3.8 (36)	3.5 (33)	4.5 (43)	5.0 (48)	6.6 (63)	10.6 (101)	11.1 (105)
Monroe	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.2 (1)	4.4 (2)	4.4 (2)	4.4 (2)	0.0 (0)
Oconto	0.0 (0)	0.0 (0)	0.0 (0)	2.6 (1)	0.0 (0)	2.7 (1)	0.0 (0)	0.0 (0)	2.6 (1)	2.6 (1)
Oneida	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.8 (1)	2.8 (1)	2.8 (1)	0.0 (0)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	0.5 (29)	0.6 (34)	1.2 (67)	1.3 (75)	1.6 (91)	2.3 (134)	3.3 (187)	3.9 (226)	4.6 (266)	4.9 (281)
Outagamie	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.1 (2)	0.6 (1)	1.1 (2)	1.7 (3)	1.1 (2)
Ozaukee	1.2 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.3 (2)	1.2 (1)	2.3 (2)	3.4 (3)	2.3 (2)
Pepin	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Pierce	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.4 (1)	0.0 (0)	0.0 (0)	4.9 (2)	2.4 (1)	0.0 (0)
Polk	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.3 (1)	0.0 (0)	0.0 (0)
Portage	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.4 (1)	2.8 (2)	1.4 (1)	0.0 (0)	0.0 (0)
Price	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Racine	1.5 (3)	1.5 (3)	1.0 (2)	1.0 (2)	1.5 (3)	2.0 (4)	5.1 (10)	8.2 (16)	10.2 (20)	7.7 (15)
Richland	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Rock	0.0 (0)	0.0 (0)	2.5 (4)	2.5 (4)	1.2 (2)	5.0 (8)	3.7 (6)	6.9 (11)	5.6 (9)	7.5 (12)
Rusk	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
St. Croix	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.2 (1)	3.5 (3)	0.0 (0)	0.0 (0)
Sauk	0.0 (0)	0.0 (0)	3.3 (2)	0.0 (0)	1.6 (1)	4.8 (3)	4.8 (3)	1.6 (1)	3.2 (2)	11.3 (7)
Sawyer	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.0 (1)	0.0 (0)
Shawano	0.0 (0)	0.0 (0)	0.0 (0)	0.9 (1)	0.0 (0)	0.0 (0)	4.8 (2)	0.0 (0)	2.4 (1)	0.0 (0)
Sheboygan	0.0 (0)	0.0 (0)	0.0 (0)	0.9 (1)	0.0 (0)	2.6 (3)	0.0 (0)	1.7 (2)	0.9 (1)	3.5 (4)
Taylor	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.8 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Trempealeau	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Vernon	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.3 (1)	0.0 (0)	3.3 (1)	0.0 (0)
Vilas	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.7 (1)	0.0 (0)
Walworth	1.0 (1)	3.0 (3)	1.0 (1)	1.0 (1)	3.9 (4)	4.9 (5)	2.9 (3)	3.9 (4)	3.9 (4)	3.9 (4)
Washburn	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Washington	0.8 (1)	0.8 (1)	0.0 (0)	1.5 (2)	3.0 (4)	2.3 (3)	3.0 (4)	5.3 (7)	5.3 (7)	5.2 (7)
Waukesha	0.5 (2)	0.0 (0)	1.0 (4)	0.5 (2)	1.5 (6)	1.5 (6)	4.9 (19)	3.6 (14)	4.1 (16)	4.8 (19)
Waupaca	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.8 (2)
Waushara	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.1 (1)	0.0 (0)	4.1 (1)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
STATEWIDE	0.5 (29)	0.6 (34)	1.2 (67)	1.3 (75)	1.6 (91)	2.3 (134)	3.3 (187)	3.9 (226)	4.6 (266)	4.9 (281)
Winnebago	0.6 (1)	0.0 (0)	0.6 (1)	0.6 (1)	0.0 (0)	2.4 (4)	3.6 (6)	4.2 (7)	7.1 (12)	4.7 (8)
Wood	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.3 (1)	1.3 (1)	0.0 (0)

Figure 5. Three-year crude rate of drug overdose deaths involving heroin by decedent county of residence, 2013-2015

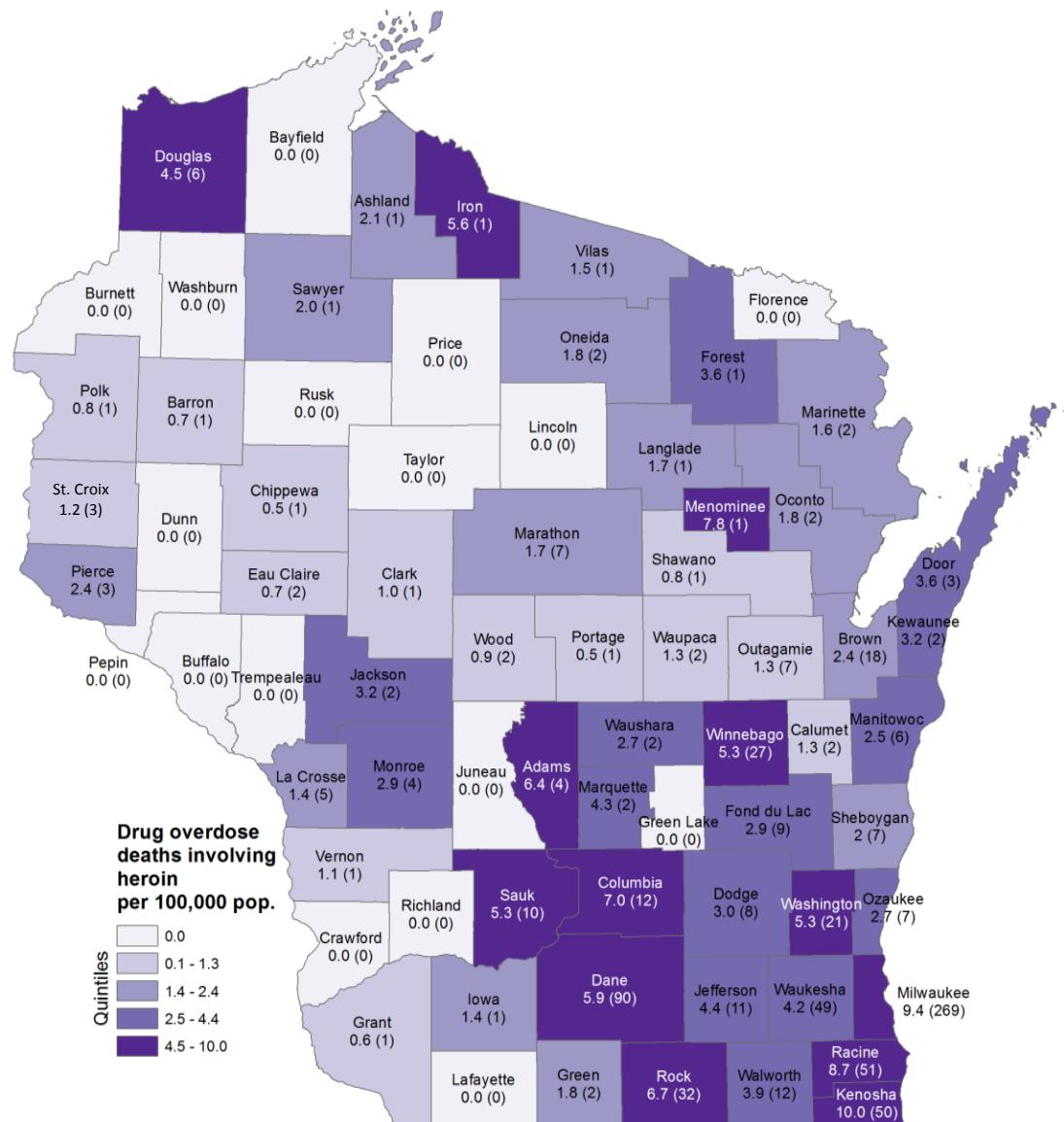
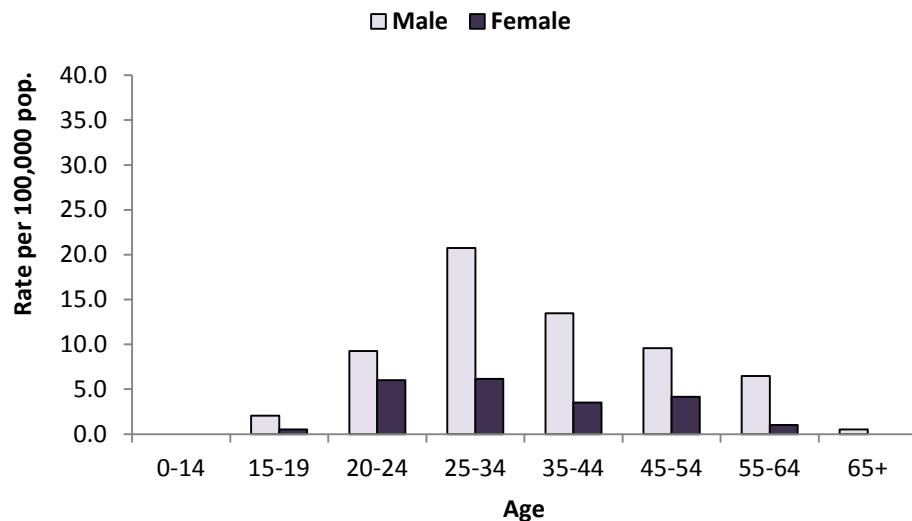


Figure 6. Crude rate of drug overdose deaths involving heroin by age category and sex, Wisconsin, 2015



Hospital encounters involving opioid acute poisoning (including overdose)

Opioid-related hospital encounters, which include both inpatient hospitalizations and emergency department visits, have doubled over the last decade in Wisconsin. These hospital encounters provide important information to help us understand the scope of the opioid epidemic beyond overdose deaths. In 2015, there were nearly six hospital encounters involving opioids for every death involving opioids.

How is this measure defined?

Emergency department visits or inpatient hospitalizations of Wisconsin residents with the following ICD-9 codes in the principal diagnosis, any contributing diagnosis, or first-listed external cause of injury (e-code):

- (965.00): Poisoning by opium (alkaloids), unspecified
- (965.01): Poisoning by heroin
- (965.02): Poisoning by methadone
- (965.09): Poisoning by other opiates and related narcotics
- (E850.0): Accidental poisoning by heroin
- (E850.1): Accidental poisoning by methadone
- (E850.2): Accidental poisoning by other opiates and related narcotics

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Rates include inpatient or emergency department hospital encounters among Wisconsin residents at Wisconsin, Minnesota, or Iowa facilities.
- Federal facilities are not included.

- Hospital encounters are identified as involving opioid poisoning if a relevant ICD-9 code is present in any diagnosis field. Opioid poisoning may or may not be the primary reason for the hospital encounter.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of hospital encounters. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.
- Any differences between counties should be interpreted cautiously. Some counties may have different age distributions, which could influence hospital encounter rates.

Data highlights:

- From 2006 to 2014, the rate of hospital encounters involving opioids in Wisconsin increased by from 25.3 to 52.0 per 100,000 (158%; Table 4).
- Generally, rates of hospital encounters involving opioids were higher among counties in the southern and southeastern regions of the state (Figure 7).
- For men and women, rates were highest among young adults aged 20-34 years (Figure 8).

Table 4. Crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving opioids by county of residence, Wisconsin, 2013-2015

*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	25.3 (1419)	27.4 (1545)	30.4 (1727)	33.3 (1893)	34.6 (1967)	39.4 (2245)	44.0 (2517)	45.1 (2583)	52.0 (2991)
Adams	9.3 (2)	37.4 (8)	13.9 (3)	27.9 (6)	28.7 (6)	24.0 (5)	9.6 (2)	19.3 (4)	58.1 (12)
Ashland	59.6 (10)	12.0 (2)	17.8 (3)	35.8 (6)	43.3 (7)	31.1 (5)	18.7 (3)	24.9 (4)	24.9 (4)
Barron	14.9 (7)	10.6 (5)	21.1 (10)	23.2 (11)	24.0 (11)	26.1 (12)	34.9 (16)	17.4 (8)	24.0 (11)
Bayfield	31.9 (5)	19.1 (3)	25.1 (4)	12.5 (2)	26.6 (4)	33.2 (5)	26.5 (4)	6.6 (1)	19.9 (3)
Brown	21.8 (53)	21.3 (52)	33.8 (83)	34.5 (85)	35.1 (87)	31.2 (78)	35.4 (89)	26.5 (67)	25.9 (66)
Buffalo	0.0 (0)	21.3 (3)	28.3 (4)	28.6 (4)	36.8 (5)	51.5 (7)	51.7 (7)	14.8 (2)	7.4 (1)
Burnett	18.1 (3)	24.1 (4)	23.9 (4)	24.1 (4)	32.3 (5)	19.4 (3)	12.9 (2)	6.5 (1)	51.8 (8)
Calumet	4.4 (2)	6.6 (3)	10.8 (5)	8.7 (4)	10.2 (5)	8.1 (4)	6.1 (3)	2.0 (1)	12.0 (6)
Chippewa	24.6 (15)	34.3 (21)	25.9 (16)	32.3 (20)	41.7 (26)	33.5 (21)	31.8 (20)	25.4 (16)	36.3 (23)
Clark	17.4 (6)	8.8 (3)	26.0 (9)	11.6 (4)	17.3 (6)	17.3 (6)	20.2 (7)	8.7 (3)	23.1 (8)
Columbia	34.3 (19)	19.8 (11)	37.4 (21)	51.7 (29)	31.7 (18)	63.3 (36)	77.6 (44)	67.0 (38)	84.5 (48)
Crawford	34.6 (6)	11.5 (2)	17.2 (3)	23.0 (4)	12.0 (2)	30.0 (5)	36.1 (6)	12.1 (2)	12.1 (2)
Dane	26.2 (122)	31.5 (149)	39.2 (187)	42.7 (205)	42.2 (206)	56.1 (276)	60.6 (301)	53.9 (271)	57.8 (294)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	25.3 (1419)	27.4 (1545)	30.4 (1727)	33.3 (1893)	34.6 (1967)	39.4 (2245)	44.0 (2517)	45.1 (2583)	52.0 (2991)
Dodge	19.1 (17)	29.2 (26)	30.2 (27)	37.0 (33)	31.5 (28)	31.6 (28)	29.3 (26)	41.7 (37)	49.4 (44)
Door	6.8 (2)	10.2 (3)	20.2 (6)	16.9 (5)	14.4 (4)	25.2 (7)	17.9 (5)	7.2 (2)	25.0 (7)
Douglas	38.6 (17)	36.3 (16)	40.7 (18)	42.7 (19)	36.2 (16)	47.6 (21)	63.5 (28)	47.6 (21)	74.8 (33)
Dunn	7.0 (3)	7.0 (3)	13.8 (6)	23.0 (10)	22.8 (10)	22.8 (10)	25.0 (11)	22.7 (10)	22.6 (10)
Eau Claire	21.7 (21)	22.5 (22)	29.3 (29)	38.3 (38)	43.6 (43)	32.2 (32)	38.0 (38)	41.8 (42)	21.8 (22)
Florence	19.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)	22.6 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Fond du Lac	13.9 (14)	10.9 (11)	11.8 (12)	20.7 (21)	16.7 (17)	24.5 (25)	30.4 (31)	23.5 (24)	40.0 (41)
Forest	9.8 (1)	39.3 (4)	19.4 (2)	9.8 (1)	64.5 (6)	0.0 (0)	0.0 (0)	32.6 (3)	43.4 (4)
Grant	6.0 (3)	15.9 (8)	11.8 (6)	13.8 (7)	13.7 (7)	25.3 (13)	23.3 (12)	21.2 (11)	32.4 (17)
Green	5.5 (2)	16.6 (6)	13.7 (5)	27.4 (10)	27.1 (10)	51.5 (19)	51.6 (19)	70.5 (26)	54.1 (20)
Green Lake	10.4 (2)	15.6 (3)	51.3 (10)	41.4 (8)	21.0 (4)	26.2 (5)	47.2 (9)	10.5 (2)	47.3 (9)
Iowa	20.9 (5)	8.3 (2)	29.0 (7)	37.4 (9)	33.8 (8)	38.0 (9)	50.5 (12)	21.0 (5)	54.6 (13)
Iron	29.2 (2)	0.0 (0)	44.0 (3)	14.8 (1)	0.0 (0)	34.2 (2)	17.0 (1)	17.0 (1)	0.0 (0)
Jackson	5.0 (1)	25.0 (5)	19.8 (4)	29.7 (6)	48.9 (10)	19.5 (4)	48.7 (10)	24.3 (5)	38.7 (8)
Jefferson	23.6 (19)	26.1 (21)	30.8 (25)	44.4 (36)	21.5 (18)	26.2 (22)	22.6 (19)	39.2 (33)	28.5 (24)
Juneau	37.1 (10)	25.9 (7)	36.3 (10)	43.9 (12)	33.8 (9)	33.6 (9)	22.4 (6)	52.2 (14)	63.5 (17)
Kenosha	32.9 (53)	33.3 (54)	44.2 (72)	47.7 (78)	40.9 (68)	48.5 (81)	42.5 (71)	47.2 (79)	58.5 (98)
Kewaunee	19.0 (4)	14.3 (3)	14.2 (3)	37.9 (8)	24.3 (5)	9.7 (2)	24.2 (5)	4.9 (1)	29.1 (6)
La Crosse	30.8 (34)	25.0 (28)	42.4 (48)	28.2 (32)	26.2 (30)	42.5 (49)	38.8 (45)	43.8 (51)	55.4 (65)
Lafayette	6.1 (1)	18.5 (3)	18.3 (3)	18.4 (3)	11.9 (2)	41.5 (7)	5.9 (1)	11.9 (2)	5.9 (1)
Langlade	37.7 (8)	56.7 (12)	23.4 (5)	37.7 (8)	20.0 (4)	15.1 (3)	55.6 (11)	30.4 (6)	45.6 (9)
Lincoln	32.8 (10)	23.1 (7)	6.6 (2)	9.9 (3)	17.4 (5)	24.4 (7)	20.8 (6)	45.0 (13)	55.7 (16)
Manitowoc	28.6 (24)	35.9 (30)	21.5 (18)	29.9 (25)	35.6 (29)	25.8 (21)	32.0 (26)	46.9 (38)	45.7 (37)
Marathon	21.2 (28)	13.5 (18)	17.8 (24)	15.6 (21)	16.4 (22)	23.8 (32)	28.2 (38)	32.6 (44)	35.5 (48)
Marinette	29.5 (13)	22.7 (10)	36.2 (16)	31.8 (14)	33.5 (14)	26.4 (11)	81.6 (34)	45.6 (19)	43.4 (18)
Marquette	45.8 (7)	19.7 (3)	58.5 (9)	39.3 (6)	26.0 (4)	45.4 (7)	71.8 (11)	39.2 (6)	104.6 (16)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	25.3 (1419)	27.4 (1545)	30.4 (1727)	33.3 (1893)	34.6 (1967)	39.4 (2245)	44.0 (2517)	45.1 (2583)	52.0 (2991)
Menominee	21.6 (1)	21.7 (1)	107.9 (5)	21.7 (1)	94.5 (4)	70.5 (3)	23.5 (1)	94.0 (4)	46.1 (2)
Milwaukee	39.3 (365)	43.4 (409)	42.7 (400)	44.3 (416)	55.5 (526)	62.4 (593)	71.2 (677)	78.6 (748)	97.0 (923)
Monroe	29.9 (13)	18.3 (8)	31.6 (14)	24.8 (11)	15.7 (7)	40.0 (18)	57.6 (26)	53.0 (24)	61.7 (28)
Oconto	20.7 (8)	18.2 (7)	30.9 (12)	20.7 (8)	23.9 (9)	23.9 (9)	29.2 (11)	26.5 (10)	29.1 (11)
Oneida	31.7 (12)	31.6 (12)	18.3 (7)	15.7 (6)	19.4 (7)	13.9 (5)	30.6 (11)	30.6 (11)	19.5 (7)
Outagamie	12.7 (22)	13.2 (23)	15.9 (28)	19.3 (34)	17.5 (31)	20.2 (36)	22.4 (40)	21.7 (39)	23.7 (43)
Ozaukee	19.6 (17)	28.9 (25)	31.1 (27)	20.7 (18)	34.7 (30)	27.7 (24)	45.0 (39)	52.9 (46)	45.8 (40)
Pepin	0.0 (0)	13.1 (1)	26.2 (2)	13.1 (1)	26.8 (2)	40.3 (3)	13.4 (1)	40.5 (3)	13.5 (1)
Pierce	20.1 (8)	15.0 (6)	7.4 (3)	32.1 (13)	24.4 (10)	31.7 (13)	22.0 (9)	19.5 (8)	21.9 (9)
Polk	15.5 (7)	39.8 (18)	17.5 (8)	43.9 (20)	20.4 (9)	38.5 (17)	34.1 (15)	25.0 (11)	34.1 (15)
Portage	34.8 (24)	34.5 (24)	32.8 (23)	18.5 (13)	15.7 (11)	32.7 (23)	38.2 (27)	21.2 (15)	26.8 (19)
Price	6.4 (1)	25.7 (4)	19.3 (3)	51.5 (8)	7.1 (1)	7.1 (1)	21.4 (3)	21.4 (3)	14.3 (2)
Racine	29.7 (58)	21.5 (42)	38.5 (76)	34.4 (68)	36.3 (71)	36.3 (71)	36.9 (72)	55.3 (108)	50.7 (99)
Richland	16.5 (3)	38.4 (7)	32.9 (6)	27.5 (5)	44.4 (8)	27.7 (5)	22.3 (4)	44.7 (8)	39.1 (7)
Rock	32.7 (52)	34.4 (55)	39.2 (63)	56.1 (90)	40.5 (65)	47.4 (76)	55.5 (89)	54.9 (88)	63.6 (102)
Rusk	25.9 (4)	19.6 (3)	13.1 (2)	19.7 (3)	33.9 (5)	20.4 (3)	34.2 (5)	6.8 (1)	41.0 (6)
St. Croix	8.8 (7)	15.0 (12)	12.4 (10)	27.1 (22)	9.5 (8)	14.2 (12)	18.8 (16)	23.4 (20)	36.0 (31)
Sauk	16.7 (10)	38.3 (23)	36.3 (22)	39.6 (24)	43.6 (27)	40.3 (25)	54.7 (34)	52.9 (33)	76.7 (48)
Sawyer	57.5 (10)	17.2 (3)	22.7 (4)	39.8 (7)	30.2 (5)	24.1 (4)	42.1 (7)	60.2 (10)	30.1 (5)
Shawano	14.3 (6)	19.0 (8)	21.3 (9)	28.4 (12)	26.2 (11)	47.8 (20)	16.7 (7)	26.3 (11)	31.1 (13)
Sheboygan	29.3 (34)	17.2 (20)	16.3 (19)	32.6 (38)	30.3 (35)	31.2 (36)	43.4 (50)	53.8 (62)	49.4 (57)
Taylor	5.0 (1)	15.1 (3)	10.0 (2)	5.0 (1)	19.3 (4)	19.3 (4)	14.5 (3)	24.2 (5)	19.4 (4)
Trempealeau	0.0 (0)	10.7 (3)	28.2 (8)	21.2 (6)	13.9 (4)	34.5 (10)	41.2 (12)	51.2 (15)	40.9 (12)
Vernon	20.4 (6)	13.6 (4)	13.5 (4)	13.5 (4)	26.9 (8)	43.5 (13)	33.3 (10)	39.9 (12)	33.2 (10)
Vilas	35.6 (8)	26.6 (6)	39.1 (9)	52.7 (12)	84.0 (18)	41.9 (9)	32.7 (7)	46.6 (10)	51.2 (11)
Walworth	13.9 (14)	13.9 (14)	19.7 (20)	18.7 (19)	22.5 (23)	23.4 (24)	32.1 (33)	35.0 (36)	28.2 (29)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	25.3 (1419)	27.4 (1545)	30.4 (1727)	33.3 (1893)	34.6 (1967)	39.4 (2245)	44.0 (2517)	45.1 (2583)	52.0 (2991)
Washburn	11.7 (2)	17.4 (3)	34.3 (6)	28.7 (5)	69.1 (11)	56.6 (9)	88.1 (14)	25.2 (4)	69.4 (11)
Washington	12.5 (16)	19.3 (25)	30.6 (40)	19.8 (26)	28.8 (38)	28.7 (38)	33.2 (44)	38.4 (51)	43.5 (58)
Waukesha	27.6 (105)	33.8 (129)	30.8 (118)	33.6 (129)	35.9 (140)	41.5 (162)	40.6 (159)	48.4 (190)	48.5 (191)
Waupaca	7.5 (4)	31.9 (17)	24.2 (13)	13.1 (7)	21.0 (11)	17.1 (9)	28.7 (15)	26.7 (14)	45.9 (24)
Waushara	15.9 (4)	39.8 (10)	23.8 (6)	15.9 (4)	20.4 (5)	20.4 (5)	32.7 (8)	24.5 (6)	41.0 (10)
Winnebago	21.5 (35)	19.5 (32)	15.8 (26)	24.2 (40)	28.1 (47)	34.6 (58)	34.5 (58)	24.3 (41)	35.0 (59)
Wood	13.1 (10)	22.4 (17)	13.1 (10)	31.5 (24)	18.7 (14)	24.1 (18)	41.6 (31)	30.9 (23)	47.0 (35)

Figure 7. Three-year crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving opioids by county of residence, Wisconsin, 2012-2014

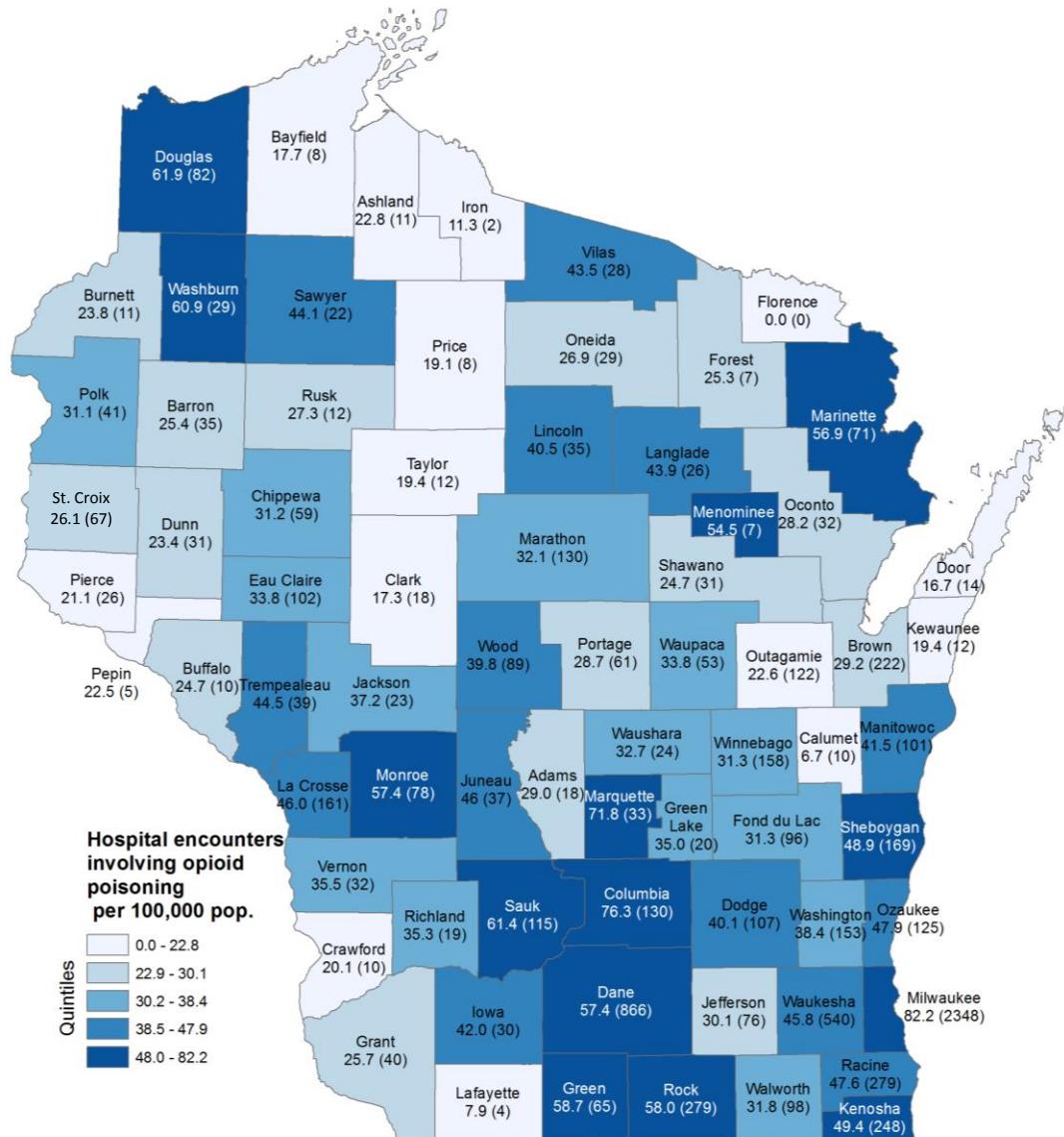
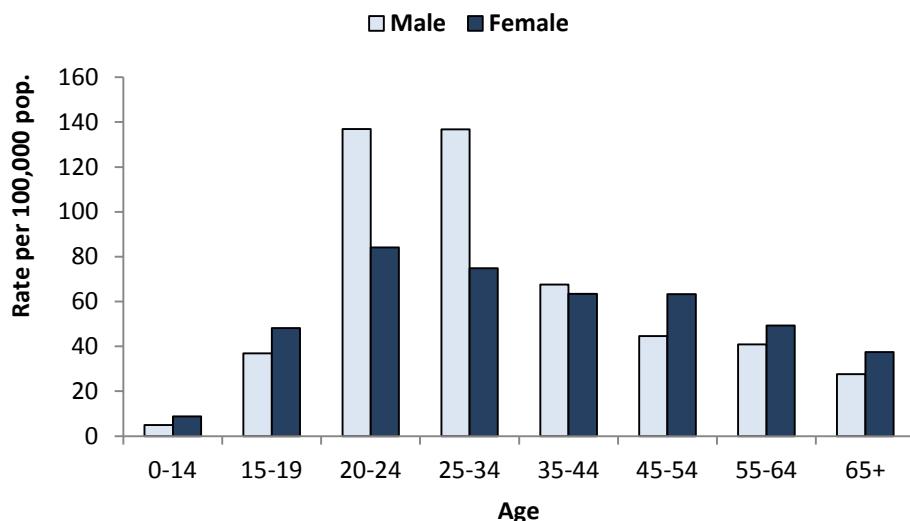


Figure 8. Crude rate of hospital encounters involving opioids by age and sex, Wisconsin, 2014



Hospital encounters involving prescription opioids

In 2015, the majority of opioid-related hospital encounters involved prescription opioids (68%).

How is this measure defined?

Emergency department visits or inpatient hospitalizations of Wisconsin residents with the following ICD-9 codes in the principal diagnosis, any contributing diagnosis, or first-listed external cause of injury (e-code):

- (965.00): Poisoning by opium (alkaloids), unspecified
- (965.02): Poisoning by methadone
- (965.09): Poisoning by other opiates and related narcotics
- (E850.1): Accidental poisoning by methadone
- (E850.2): Accidental poisoning by other opiates and related narcotics

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Rates include inpatient or emergency department hospital encounters among Wisconsin residents at Wisconsin, Minnesota, or Iowa facilities.
- Federal hospitals are not included.
- Hospital encounters are identified as involving opioid poisoning if a relevant ICD-9 code is present in any diagnosis field. Opioid poisoning may or may not be the primary reason for the hospital encounter.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of hospital encounters. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.
- Any differences between counties should be interpreted cautiously. Some counties may have different age distributions, which may influence hospital encounter rates.

Data highlights:

- From 2006 to 2014, the rate of hospital encounters involving prescription opioids in Wisconsin increased from 22.8 to 35.4 per 100,000 (81%; Table 5).
- Rates of hospital encounters involving prescription opioids varied throughout the state (Figure 9).

Table 5. Crude rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving prescription opioids by county of residence, Wisconsin, 2006-2015

*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	22.8 (1277)	25.1 (1414)	27.0 (1533)	28.7 (1632)	28.8 (1637)	30.7 (1751)	33.0 (1884)	31.8 (1823)	35.4 (2035)
Adams	9.3 (2)	37.4 (8)	9.3 (2)	23.3 (5)	19.2 (4)	24.0 (5)	0.0 (0)	9.7 (2)	38.8 (8)
Ashland	59.6 (10)	12.0 (2)	17.8 (3)	35.8 (6)	43.3 (7)	31.1 (5)	12.5 (2)	18.7 (3)	24.9 (4)
Barron	14.9 (7)	10.6 (5)	21.1 (10)	23.2 (11)	24.0 (11)	24.0 (11)	32.7 (15)	17.4 (8)	24.0 (11)
Bayfield	31.9 (5)	19.1 (3)	25.1 (4)	12.5 (2)	26.6 (4)	33.2 (5)	19.9 (3)	6.6 (1)	13.3 (2)
Brown	21.8 (53)	21.3 (52)	29.7 (73)	30.8 (76)	33.9 (84)	25.6 (64)	26.6 (67)	21.3 (54)	18.0 (46)
Buffalo	0.0 (0)	21.3 (3)	28.3 (4)	28.6 (4)	36.8 (5)	51.5 (7)	51.7 (7)	14.8 (2)	7.4 (1)
Burnett	18.1 (3)	24.1 (4)	23.9 (4)	24.1 (4)	32.3 (5)	19.4 (3)	12.9 (2)	6.5 (1)	45.3 (7)
Calumet	4.4 (2)	6.6 (3)	10.8 (5)	8.7 (4)	6.1 (3)	8.1 (4)	4.0 (2)	2.0 (1)	10.0 (5)
Chippewa	24.6 (15)	34.3 (21)	25.9 (16)	32.3 (20)	40.1 (25)	31.9 (20)	27.0 (17)	22.2 (14)	31.6 (20)
Clark	17.4 (6)	8.8 (3)	26.0 (9)	11.6 (4)	14.4 (5)	17.3 (6)	20.2 (7)	8.7 (3)	23.1 (8)
Columbia	32.5 (18)	19.8 (11)	35.6 (20)	35.7 (20)	22.9 (13)	45.7 (26)	58.2 (33)	44.1 (25)	66.9 (38)
Crawford	34.6 (6)	11.5 (2)	11.5 (2)	23.0 (4)	12.0 (2)	18.0 (3)	36.1 (6)	6.0 (1)	12.1 (2)
Dane	22.1 (103)	26.9 (127)	33.7 (161)	31.7 (152)	28.3 (138)	35.3 (174)	40.8 (203)	31.4 (158)	34.8 (177)
Dodge	19.1 (17)	29.2 (26)	29.1 (26)	33.7 (30)	28.2 (25)	29.3 (26)	25.9 (23)	31.5 (28)	34.8 (31)
Door	6.8 (2)	10.2 (3)	20.2 (6)	16.9 (5)	14.4 (4)	25.2 (7)	14.3 (4)	7.2 (2)	25.0 (7)
Douglas	38.6 (17)	34.1 (15)	40.7 (18)	42.7 (19)	36.2 (16)	38.5 (17)	45.4 (20)	36.3 (16)	52.2 (23)
Dunn	7.0 (3)	7.0 (3)	13.8 (6)	23.0 (10)	22.8 (10)	20.5 (9)	25.0 (11)	22.7 (10)	20.4 (9)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	22.8 (1277)	25.1 (1414)	27.0 (1533)	28.7 (1632)	28.8 (1637)	30.7 (1751)	33.0 (1884)	31.8 (1823)	35.4 (2035)
Eau Claire	21.7 (21)	22.5 (22)	29.3 (29)	38.3 (38)	43.6 (43)	28.2 (28)	34.0 (34)	31.8 (32)	18.8 (19)
Florence	19.3 (1)	0.0 (0)	0.0 (0)	0.0 (0)	22.6 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Fond du Lac	13.9 (14)	10.9 (11)	11.8 (12)	18.7 (19)	16.7 (17)	20.6 (21)	23.5 (24)	16.7 (17)	24.4 (25)
Forest	9.8 (1)	39.3 (4)	19.4 (2)	9.8 (1)	64.5 (6)	0.0 (0)	0.0 (0)	32.6 (3)	43.4 (4)
Grant	4.0 (2)	13.9 (7)	11.8 (6)	13.8 (7)	13.7 (7)	21.4 (11)	19.4 (10)	13.5 (7)	24.8 (13)
Green	5.5 (2)	16.6 (6)	13.7 (5)	24.7 (9)	27.1 (10)	38.0 (14)	38.0 (14)	51.5 (19)	40.6 (15)
Green Lake	10.4 (2)	15.6 (3)	51.3 (10)	41.4 (8)	21.0 (4)	20.9 (4)	36.7 (7)	10.5 (2)	42.0 (8)
Iowa	20.9 (5)	8.3 (2)	29.0 (7)	37.4 (9)	29.6 (7)	25.3 (6)	21.0 (5)	4.2 (1)	33.6 (8)
Iron	29.2 (2)	0.0 (0)	44.0 (3)	14.8 (1)	0.0 (0)	34.2 (2)	17.0 (1)	17.0 (1)	0.0 (0)
Jackson	5.0 (1)	25.0 (5)	19.8 (4)	29.7 (6)	44.0 (9)	19.5 (4)	43.9 (9)	24.3 (5)	19.3 (4)
Jefferson	23.6 (19)	24.8 (20)	25.9 (21)	38.2 (31)	17.9 (15)	19.1 (16)	17.8 (15)	20.2 (17)	20.2 (17)
Juneau	37.1 (10)	25.9 (7)	36.3 (10)	43.9 (12)	33.8 (9)	33. 6 (9)	18.6 (5)	48.5 (13)	48.6 (13)
Kenosha	27.3 (44)	32.7 (53)	31.3 (51)	33.7 (55)	27.0 (45)	32.4 (54)	22.1 (37)	25.1 (42)	28.0 (47)
Kewaunee	19.0 (4)	14.3 (3)	14.2 (3)	37.9 (8)	24.3 (5)	9.7 (2)	14.5 (3)	4.9 (1)	29.1 (6)
La Crosse	30.8 (34)	25.0 (28)	42.4 (48)	27.3 (31)	25.3 (29)	33.8 (39)	26.7 (31)	24.0 (28)	35.0 (41)
Lafayette	6.1 (1)	18.5 (3)	18.3 (3)	18.4 (3)	11.9 (2)	41.5 (7)	5.9 (1)	11.9 (2)	5.9 (1)
Langlade	37.7 (8)	56.7 (12)	23.4 (5)	28.2 (6)	20.0 (4)	15.1 (3)	55.6 (11)	30.4 (6)	45.6 (9)
Lincoln	32.8 (10)	23.1 (7)	6.6 (2)	9.9 (3)	17.4 (5)	17.4 (5)	20.8 (6)	45.0 (13)	55.7 (16)
Manitowoc	28.6 (24)	35.9 (30)	21.5 (18)	28.7 (24)	33.2 (27)	20.9 (17)	25.9 (21)	44.4 (36)	32.1 (26)
Marathon	21.2 (28)	13.5 (18)	17.8 (24)	13.3 (18)	15.7 (21)	17.9 (24)	23.8 (32)	20.7 (28)	28.8 (39)
Marinette	29.5 (13)	20.4 (9)	31.7 (14)	25.0 (11)	31.1 (13)	24.0 (10)	62.4 (26)	38.4 (16)	36.2 (15)
Marquette	45.8 (7)	19.7 (3)	52.0 (8)	32.8 (5)	26.0 (4)	45.4 (7)	71.8 (11)	39.2 (6)	91.5 (14)
Menominee	21.6 (1)	21.7 (1)	107.9 (5)	21.7 (1)	94.5 (4)	47.0 (2)	23.5 (1)	94.0 (4)	46.1 (2)
Milwaukee	32.8 (305)	36.1 (340)	35.5 (333)	37.8 (355)	45.1 (427)	50.2 (477)	51.8 (493)	55.9 (532)	64.5 (614)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	22.8 (1277)	25.1 (1414)	27.0 (1533)	28.7 (1632)	28.8 (1637)	30.7 (1751)	33.0 (1884)	31.8 (1823)	35.4 (2035)
Monroe	27.6 (12)	31.6 (18.3 (8))	24.8 (14)	15.7 (11)	31.1 (7)	44.3 (14)	48.6 (20)	48.4 (22)	48.4 (22)
Oconto	20.7 (8)	18.2 (7)	30.9 (12)	20.7 (8)	23.9 (9)	18.6 (7)	26.5 (10)	21.2 (8)	18.5 (7)
Oneida	31.7 (12)	31.6 (12)	18.3 (7)	15.7 (6)	13.9 (5)	13.9 (5)	27.8 (10)	30.6 (11)	19.5 (7)
Outagamie	12.7 (22)	11.5 (20)	15.9 (28)	19.3 (34)	15.8 (28)	19.7 (35)	16.8 (30)	17.2 (31)	18.2 (33)
Ozaukee	15.0 (13)	26.6 (23)	23.1 (20)	20.7 (18)	26.6 (23)	18.5 (16)	32.3 (28)	33.3 (29)	30.9 (27)
Pepin	0.0 (0)	13.1 (1)	26.2 (2)	13.1 (1)	26.8 (2)	40.3 (3)	13.4 (1)	40.5 (3)	13.5 (1)
Pierce	20.1 (8)	12.5 (5)	7.4 (3)	32.1 (13)	24.4 (10)	26.8 (11)	19.5 (8)	14.6 (6)	21.9 (9)
Polk	15.5 (7)	39.8 (18)	17.5 (8)	43.9 (20)	20.4 (9)	34.0 (15)	34.1 (15)	22.7 (10)	31.8 (14)
Portage	33.4 (23)	34.5 (24)	32.8 (23)	18.5 (13)	15.7 (11)	27.0 (19)	35.4 (25)	15.6 (11)	19.8 (14)
Price	6.4 (1)	25.7 (4)	19.3 (3)	51.5 (8)	7.1 (1)	7.1 (1)	21.4 (3)	21.4 (3)	14.3 (2)
Racine	25.1 (49)	21.5 (42)	31.9 (63)	26.3 (52)	27.6 (54)	25.6 (50)	25.6 (50)	39.4 (77)	36.9 (72)
Richland	16.5 (3)	38.4 (7)	32.9 (6)	27.5 (5)	33.3 (6)	27.7 (5)	11.1 (2)	39.1 (7)	22.4 (4)
Rock	23.2 (37)	30.0 (48)	28.7 (46)	40.5 (65)	29.3 (47)	34.3 (55)	43.1 (69)	32.4 (52)	41.1 (66)
Rusk	25.9 (4)	19.6 (3)	13.1 (2)	19.7 (3)	33.9 (5)	20.4 (3)	34.2 (5)	6.8 (1)	41.0 (6)
St. Croix	8.8 (7)	15.0 (12)	9.9 (8)	24.7 (20)	9.5 (8)	9.4 (8)	18.8 (16)	19.8 (17)	30.2 (26)
Sauk	16.7 (10)	38.3 (23)	36.3 (22)	38.0 (23)	40.3 (25)	32.2 (20)	40.2 (25)	44.8 (28)	63.9 (40)
Sawyer	57.5 (10)	17.2 (3)	22.7 (4)	39.8 (7)	30.2 (5)	24.1 (4)	36.1 (6)	60.2 (10)	30.1 (5)
Shawano	14.3 (6)	19.0 (8)	21.3 (9)	26.0 (11)	26.2 (11)	43.0 (18)	16.7 (7)	16.7 (7)	21.5 (9)
Sheboygan	28.5 (33)	16.3 (19)	16.3 (19)	30.0 (35)	26.0 (30)	27.7 (32)	35.6 (41)	42.5 (49)	27.7 (32)
Taylor	5.0 (1)	15.1 (3)	10.0 (2)	5.0 (1)	19.3 (4)	19.3 (4)	14.5 (3)	24.2 (5)	19.4 (4)
Trempealeau	0.0 (0)	10.7 (3)	28.2 (8)	21.2 (6)	13.9 (4)	27.6 (8)	37.8 (11)	47.8 (14)	34.1 (10)
Vernon	20.4 (6)	13.6 (4)	13.5 (4)	13.5 (4)	26.9 (8)	36.8 (11)	26.6 (8)	36.6 (11)	26.6 (8)
Vilas	35.6 (8)	26.6 (6)	39.1 (9)	48.3 (11)	70.0 (15)	41.9 (9)	32.7 (7)	46.6 (10)	46.5 (10)
Walworth	13.9 (14)	13.9 (14)	19.7 (20)	15.8 (16)	12.7 (13)	19.5 (20)	24.4 (25)	30.2 (31)	18.5 (19)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	22.8 (1277)	25.1 (1414)	27.0 (1533)	28.7 (1632)	28.8 (1637)	30.7 (1751)	33.0 (1884)	31.8 (1823)	35.4 (2035)
Washburn	11.7 (2)	17.4 (3)	34.3 (6)	28.7 (5)	69.1 (11)	50.3 (8)	81.8 (13)	25.2 (4)	69.4 (11)
Washington	10.9 (14)	14.7 (19)	25.2 (33)	15.3 (20)	19.7 (26)	22.7 (30)	18.9 (25)	27.1 (36)	26.3 (35)
Waukesha	23.4 (89)	30.4 (116)	28 (107)	27.6 (106)	29.5 (115)	28.4 (111)	29.9 (117)	28.8 (113)	23.9 (94)
Waupaca	7.5 (4)	31.9 (17)	22.4 (12)	13.1 (7)	21.0 (11)	17.1 (9)	26.8 (14)	13.4 (7)	32.5 (17)
Waushara	15.9 (4)	39.8 (10)	23.8 (6)	15.9 (4)	16.3 (4)	20.4 (5)	24.5 (6)	20.5 (5)	32.8 (8)
Winnebago	20.2 (33)	18.3 (30)	15.2 (25)	23.6 (39)	24.6 (41)	26.3 (44)	22.6 (38)	16.6 (28)	23.7 (40)
Wood	11.8 (9)	22.4 (17)	13.1 (10)	30.2 (23)	18.7 (14)	22.8 (17)	36.2 (27)	22.8 (17)	37.6 (28)

Figure 9. Three-year crude rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving prescription opioids by county of residence, Wisconsin, 2012-2014

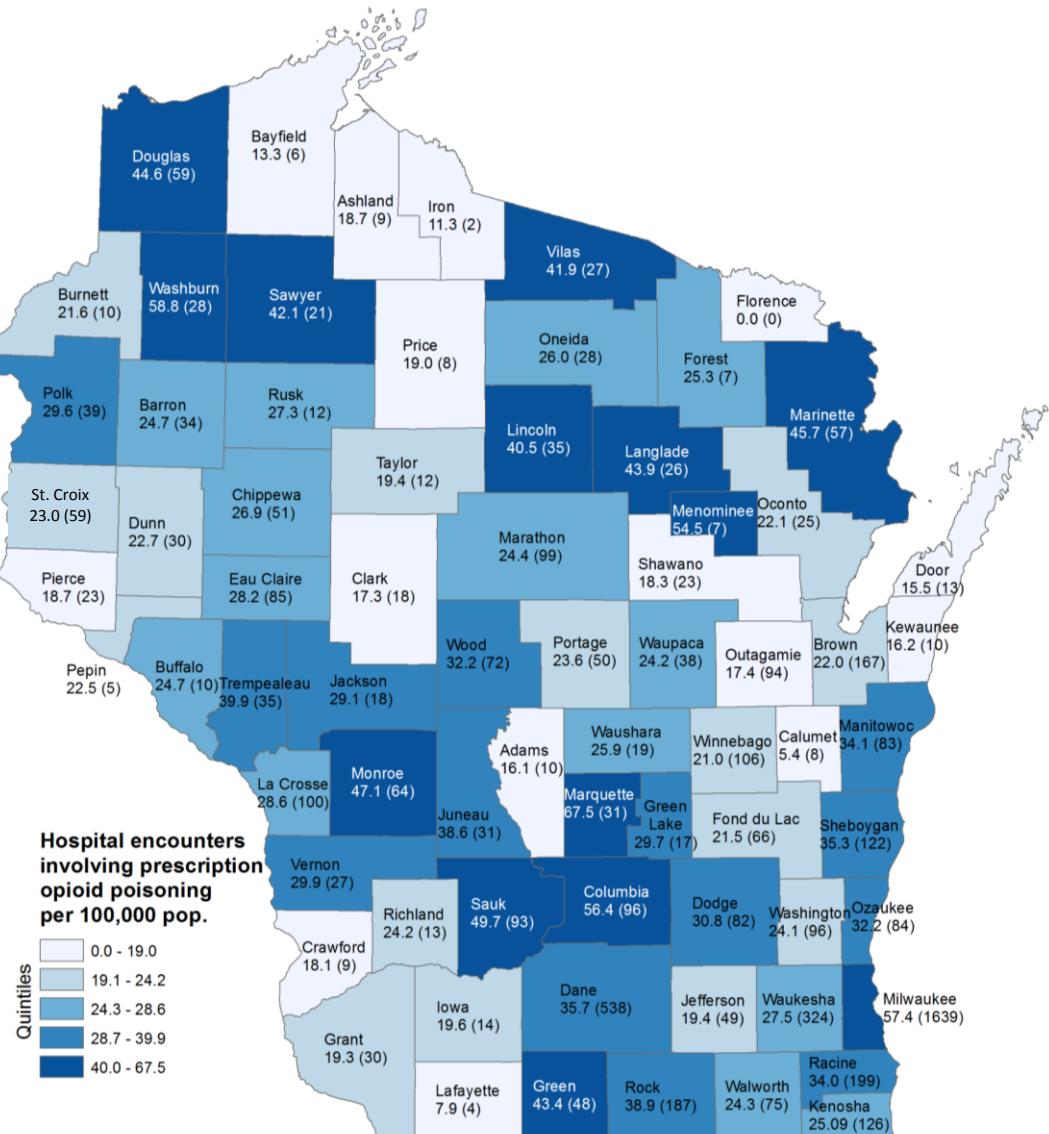
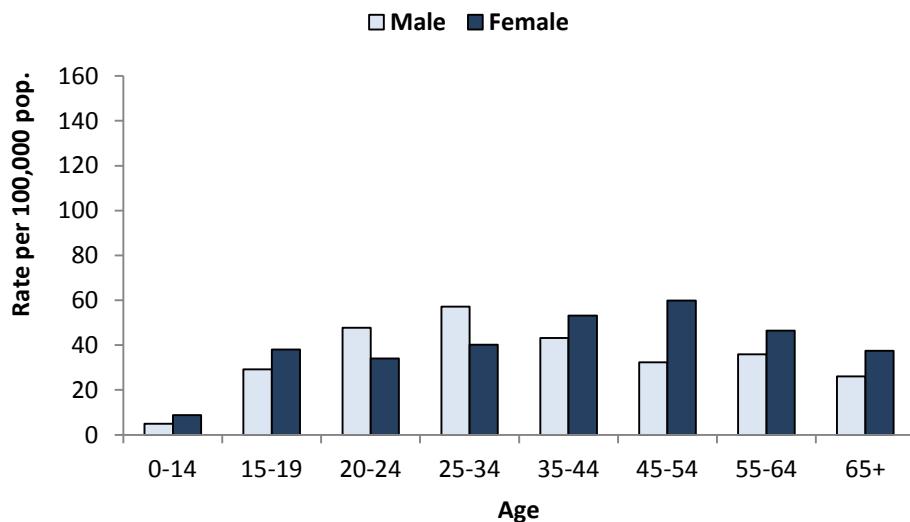


Figure 10. Crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving prescription opioids by age and sex, Wisconsin, 2014



Hospital encounters involving heroin

In Wisconsin, more than one-third of opioid-related hospital encounters involved heroin poisoning in 2015 (38%).

How is this measure defined?

Emergency department visits or inpatient hospitalizations of Wisconsin residents with the following ICD-9 codes in the principal diagnosis, any contributing diagnosis, or first-listed external cause of injury (e-code):

- (965.01): Poisoning by heroin
- (E850.0): Accidental poisoning by heroin

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Rates include inpatient or emergency department hospital encounters among Wisconsin residents at Wisconsin, Minnesota, or Iowa facilities.
- Federal hospitals are not included.
- Hospital encounters are identified as involving heroin poisoning if a relevant ICD-9 code is present in any diagnosis field. Heroin poisoning may or may not be the primary reason for the hospital encounter.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of hospital encounters. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.
- Any differences between counties should be interpreted cautiously. Some counties may have different age distributions, which could influence hospital encounter rates.

Data highlights:

- From 2006 to 2014, the rate of hospital encounters involving heroin in Wisconsin increased from 2.6 to 17.4 per 100,000 (569%; Table 6).
- Generally, rates of hospital encounters involving heroin were higher among counties in the southeastern region of the state (Figure 11).
- For men and women, rates were highest among adults aged 20-34 years (Figure 12).

Table 6. Crude rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving heroin by county of residence, Wisconsin, 2006-2014

*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.6 (147)	2.4 (137)	3.6 (207)	4.7 (269)	6.0 (342)	9.0 (514)	11.4 (651)	13.7 (783)	17.4 (999)
Adams	0.0 (0)	0.0 (0)	4.6 (1)	4.7 (1)	9.6 (2)	4.8 (1)	9.6 (2)	9.7 (2)	19.4 (4)
Ashland	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.2 (1)	6.2 (1)	0.0 (0)
Barron	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.2 (1)	2.2 (1)	0.0 (0)	0.0 (0)
Bayfield	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.6 (1)	0.0 (0)	6.6 (1)
Brown	0.0 (0)	0.0 (0)	4.1 (10)	3.7 (9)	1.6 (4)	6.0 (15)	8.7 (22)	5.1 (13)	8.2 (21)
Buffalo	0.0 (0)	0.0 (0)	0.0 (0)						
Burnett	0.0 (0)	0.0 (0)	6.5 (1)						
Calumet	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.1 (2)	0.0 (0)	2.0 (1)	0.0 (0)	4.0 (2)
Chippewa	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	1.6 (1)	1.6 (1)	4.8 (3)	3.2 (2)	6.3 (4)
Clark	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.9 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Columbia	1.8 (1)	0.0 (0)	1.8 (1)	17.8 (10)	8.8 (5)	17.6 (10)	19.4 (11)	22.9 (13)	21.1 (12)
Crawford	0.0 (0)	0.0 (0)	5.7 (1)	0.0 (0)	0.0 (0)	12.0 (2)	6.0 (1)	6.0 (1)	0.0 (0)
Dane	4.3 (20)	4.9 (23)	5.9 (28)	11.0 (53)	14.3 (70)	21.3 (105)	20.5 (102)	22.7 (114)	23.4 (119)
Dodge	0.0 (0)	0.0 (0)	1.1 (1)	3.4 (3)	3.4 (3)	2.3 (2)	3.4 (3)	11.3 (10)	15.7 (14)
Door	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.6 (1)	0.0 (0)	0.0 (0)
Douglas	0.0 (0)	2.3 (1)	0.0 (0)	2.2 (1)	0.0 (0)	9.1 (4)	18.1 (8)	11.3 (5)	24.9 (11)
Dunn	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.3 (1)	0.0 (0)	0.0 (0)	2.3 (1)
Eau Claire	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.0 (4)	4.0 (4)	9.9 (10)	3.0 (3)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.6 (147)	2.4 (137)	3.6 (207)	4.7 (269)	6.0 (342)	9.0 (514)	11.4 (651)	13.7 (783)	17.4 (999)
Florence	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	22.6 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Fond du Lac	0.0 (0)	0.0 (0)	0.0 (0)	2.0 (2)	0.0 (0)	3.9 (4)	6.9 (7)	7.8 (8)	16.6 (17)
Forest	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Grant	2.0 (1)	2.0 (1)	0.0 (0)	0.0 (0)	0.0 (0)	3.9 (2)	3.9 (2)	7.7 (4)	7.6 (4)
Green	0.0 (0)	0.0 (0)	0.0 (0)	2.7 (1)	0.0 (0)	13.6 (5)	13.6 (5)	19.0 (7)	13.5 (5)
Green Lake	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.2 (1)	10.5 (2)	0.0 (0)	5.3 (1)
Iowa	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.2 (1)	12.7 (3)	29.5 (7)	16.8 (4)	21.0 (5)
Iron	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Jackson	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.9 (1)	0.0 (0)	9.7 (2)	0.0 (0)	19.3 (4)
Jefferson	0.0 (0)	1.2 (1)	4.9 (4)	6.2 (5)	3.6 (3)	7.2 (6)	4.8 (4)	19.0 (16)	10.7 (9)
Juneau	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.7 (1)	7.5 (2)	14.9 (4)
Kenosha	5.6 (9)	0.6 (1)	12.9 (21)	14.1 (23)	15.6 (26)	16.2 (27)	20.3 (34)	22.7 (38)	31.0 (52)
Kewaunee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	9.7 (2)	0.0 (0)	0.0 (0)
La Crosse	0.0 (0)	0.0 (0)	0.9 (1)	0.9 (1)	0.9 (1)	9.5 (11)	12.1 (14)	19.7 (23)	21.3 (25)
Lafayette	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Langlade	0.0 (0)	0.0 (0)	0.0 (0)	9.4 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Lincoln	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	7.0 (2)	0.0 (0)	0.0 (0)	0.0 (0)
Manitowoc	0.0 (0)	0.0 (0)	0.0 (0)	1.2 (1)	2.5 (2)	4.9 (4)	6.2 (5)	2.5 (2)	13.6 (11)
Marathon	0.0 (0)	0.0 (0)	0.0 (0)	2.2 (3)	0.7 (1)	6.0 (8)	4.5 (6)	11.9 (16)	6.7 (9)
Marinette	0.0 (0)	2.3 (1)	4.5 (2)	6.8 (3)	2.4 (1)	2.4 (1)	19.2 (8)	7.2 (3)	9.6 (4)
Marquette	0.0 (0)	0.0 (0)	6.5 (1)	6.6 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	26.1 (4)
Menominee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	23.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Milwaukee	6.6 (61)	7.5 (71)	7.4 (69)	6.7 (63)	10.8 (102)	13.1 (124)	19.8 (188)	23.8 (227)	34.1 (325)
Monroe	2.3 (1)	0.0 (0)	2.3 (1)	0.0 (0)	0.0 (0)	8.9 (4)	13.3 (6)	6.6 (3)	15.4 (7)
Oconto	0.0 (0)	0.0 (0)	2.6 (1)	0.0 (0)	0.0 (0)	5.3 (2)	2.7 (1)	5.3 (2)	10.6 (4)
Oneida	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.6 (2)	0.0 (0)	2.8 (1)	0.0 (0)	0.0 (0)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.6 (147)	2.4 (137)	3.6 (207)	4.7 (269)	6.0 (342)	9.0 (514)	11.4 (651)	13.7 (783)	17.4 (999)
Outagamie	0.0 (0)	1.7 (3)	0.0 (0)	0.0 (0)	1.7 (3)	0.6 (1)	5.6 (10)	4.4 (8)	6.1 (11)
Ozaukee	4.6 (4)	2.3 (2)	8.1 (7)	0.0 (0)	8.1 (7)	9.2 (8)	13.8 (12)	19.5 (17)	14.9 (13)
Pepin	0.0 (0)	0.0 (0)	0.0 (0)						
Pierce	0.0 (0)	2.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)	7.3 (3)	2.4 (1)	4.9 (2)	0.0 (0)
Polk	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.5 (2)	2.3 (1)	2.3 (1)	2.3 (1)
Portage	2.9 (2)	0.0 (0)	0.0 (0)	1.4 (1)	0.0 (0)	7.1 (5)	2.8 (2)	5.7 (4)	7.1 (5)
Price	0.0 (0)	0.0 (0)	0.0 (0)						
Racine	5.1 (10)	0.0 (0)	7.1 (14)	8.1 (16)	8.7 (17)	11.3 (22)	11.3 (22)	15.9 (31)	15.4 (30)
Richland	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	11.1 (2)	0.0 (0)	11.1 (2)	5.6 (1)	16.8 (3)
Rock	9.4 (15)	4.4 (7)	11.2 (18)	15.6 (25)	11.2 (18)	13.7 (22)	13.1 (21)	23.1 (37)	23.1 (37)
Rusk	0.0 (0)	0.0 (0)	0.0 (0)						
St. Croix	0.0 (0)	0.0 (0)	2.5 (2)	2.5 (2)	0.0 (0)	4.7 (4)	0.0 (0)	3.5 (3)	5.8 (5)
Sauk	0.0 (0)	0.0 (0)	0.0 (0)	1.7 (1)	4.8 (3)	9.7 (6)	14.5 (9)	9.6 (6)	12.8 (8)
Sawyer	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.0 (1)	0.0 (0)	0.0 (0)
Shawano	0.0 (0)	0.0 (0)	0.0 (0)	2.4 (1)	0.0 (0)	4.8 (2)	0.0 (0)	9.6 (4)	9.6 (4)
Sheboygan	0.9 (1)	0.9 (1)	0.0 (0)	2.6 (3)	4.3 (5)	3.5 (4)	8.7 (10)	11.3 (13)	23.4 (27)
Taylor	0.0 (0)	0.0 (0)	0.0 (0)						
Trempealeau	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.9 (2)	6.9 (2)	3.4 (1)	6.8 (2)
Vernon	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.7 (2)	6.7 (2)	3.3 (1)	6.6 (2)
Vilas	0.0 (0)	0.0 (0)	0.0 (0)	4.4 (1)	14.0 (3)	0.0 (0)	0.0 (0)	0.0 (0)	4.7 (1)
Walworth	0.0 (0)	0.0 (0)	1 (1)	3.0 (3)	9.8 (10)	3.9 (4)	7.8 (8)	6.8 (7)	9.7 (10)
Washburn	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	6.3 (1)	6.3 (1)	0.0 (0)	0.0 (0)
Washington	1.6 (2)	4.6 (6)	5.4 (7)	5.3 (7)	9.1 (12)	6.0 (8)	14.3 (19)	12.0 (16)	17.3 (23)
Waukesha	4.5 (17)	4.2 (16)	3.7 (14)	6.5 (25)	6.7 (26)	13.3 (52)	11.2 (44)	19.6 (77)	24.9 (98)
Waupaca	0.0 (0)	0.0 (0)	1.9 (1)	0.0 (0)	0.0 (0)	0.0 (0)	1.9 (1)	13.4 (7)	13.4 (7)
Waushara	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.1 (1)	0.0 (0)	8.2 (2)	4.1 (1)	8.2 (2)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.6 (147)	2.4 (137)	3.6 (207)	4.7 (269)	6.0 (342)	9.0 (514)	11.4 (651)	13.7 (783)	17.4 (999)
Winnebago	1.2 (2)	1.2 (2)	0.6 (1)	0.6 (1)	3.6 (6)	8.4 (14)	12.5 (21)	8.3 (14)	11.3 (19)
Wood	1.3 (1)	0.0 (0)	0.0 (0)	1.3 (1)	0.0 (0)	1.3 (1)	5.4 (4)	8.1 (6)	10.7 (8)

Figure 11. Three-year average rate of hospital encounters (inpatient hospitalizations and emergency room visits) involving heroin by county of residence, Wisconsin, 2012-2014

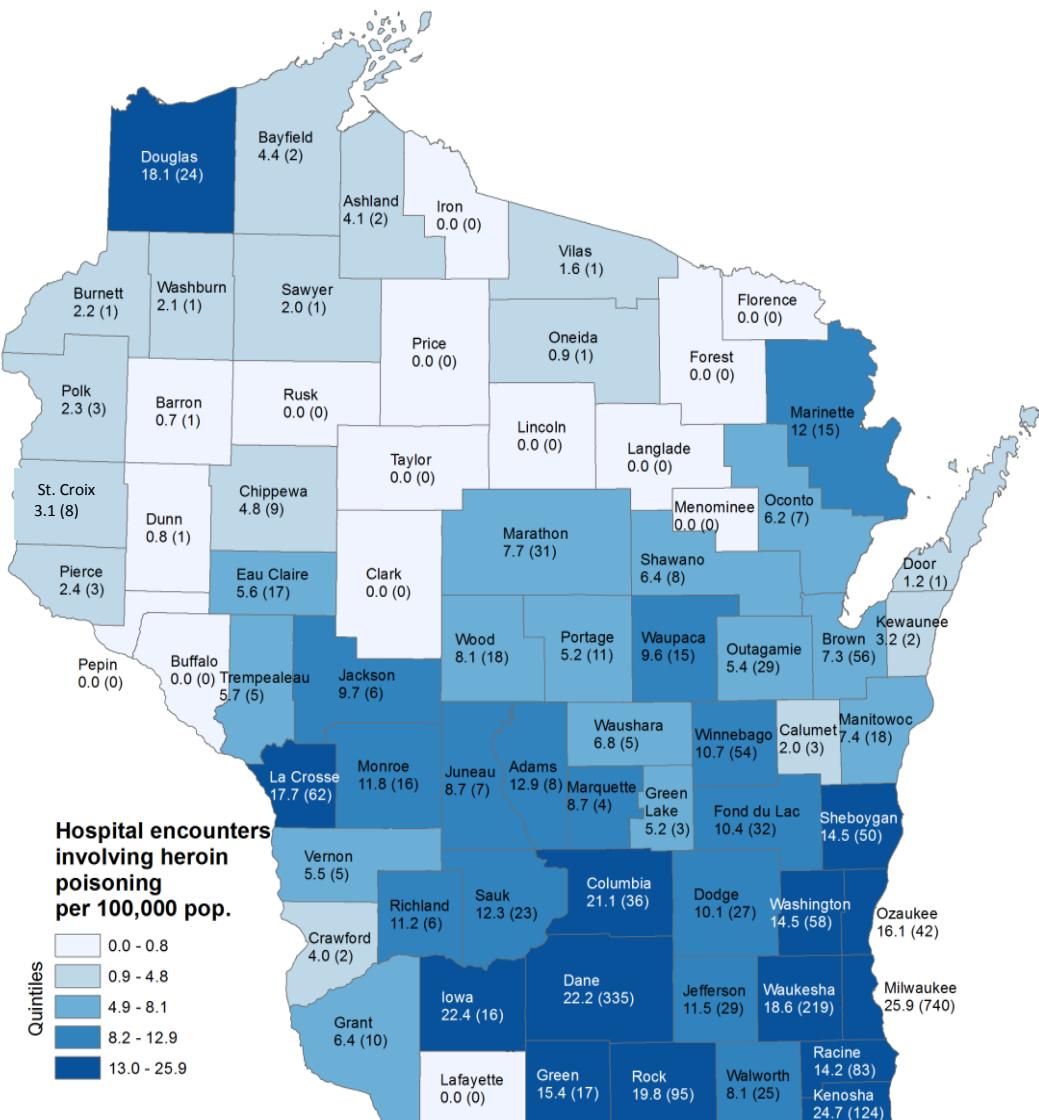
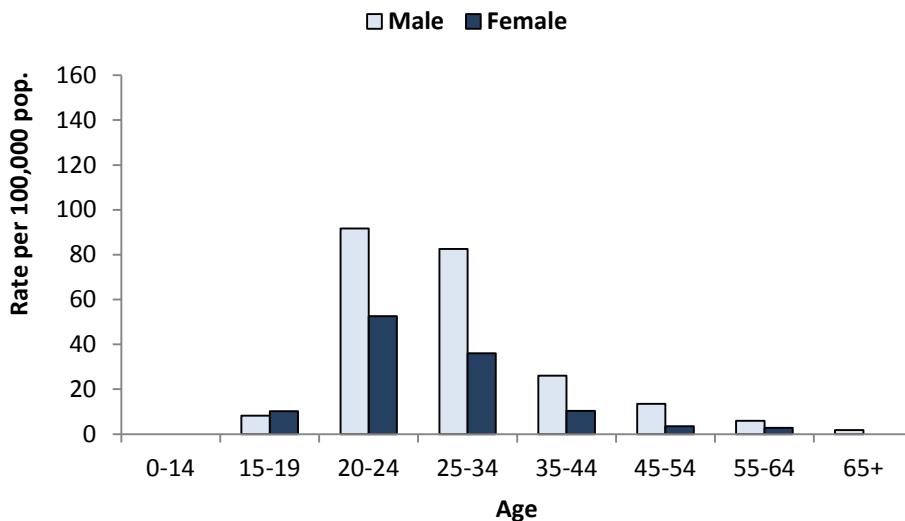


Figure 12. Crude rate of hospital encounters (inpatient hospitalizations and emergency department visits) involving heroin by age and sex, Wisconsin, 2014



Ambulance runs with Naloxone administration

Naloxone (Narcan®) is a medication that can reverse a drug overdose caused by an opioid. EMS (Emergency Medical Services) providers often administer Naloxone in medical emergencies when overdose is suspected.

How is this measure defined?

These data represent the number of EMS runs in which Naloxone was administered at least once. Naloxone may be given to a patient more than once within the same EMS encounter.

Data notes and limitations:

- Rates are calculated per 100,000 population.
- Naloxone is sometimes given to an unresponsive person when it is unclear whether or not there is an opioid overdose event. Thus, some reported cases may not be opioid-related. However, these trends mirror other data sources that describe the current opioid epidemic.
- Cases missing “patient county” or “patient state of residence” and patients living out of state have been removed from this analysis to focus only on Wisconsin residents.

Data highlights:

- From 2011 to 2015, rate of ambulance EMS runs in which naloxone was administered increased from 51.2 to 67.0 per 100,000 (31%; Table 7).
- For men, Naloxone administrations were most common among adults aged 25-34 years (Figure 13).

Table 7. Crude rate of ambulance runs in which naloxone was administered by county of residence, 2011-2015.

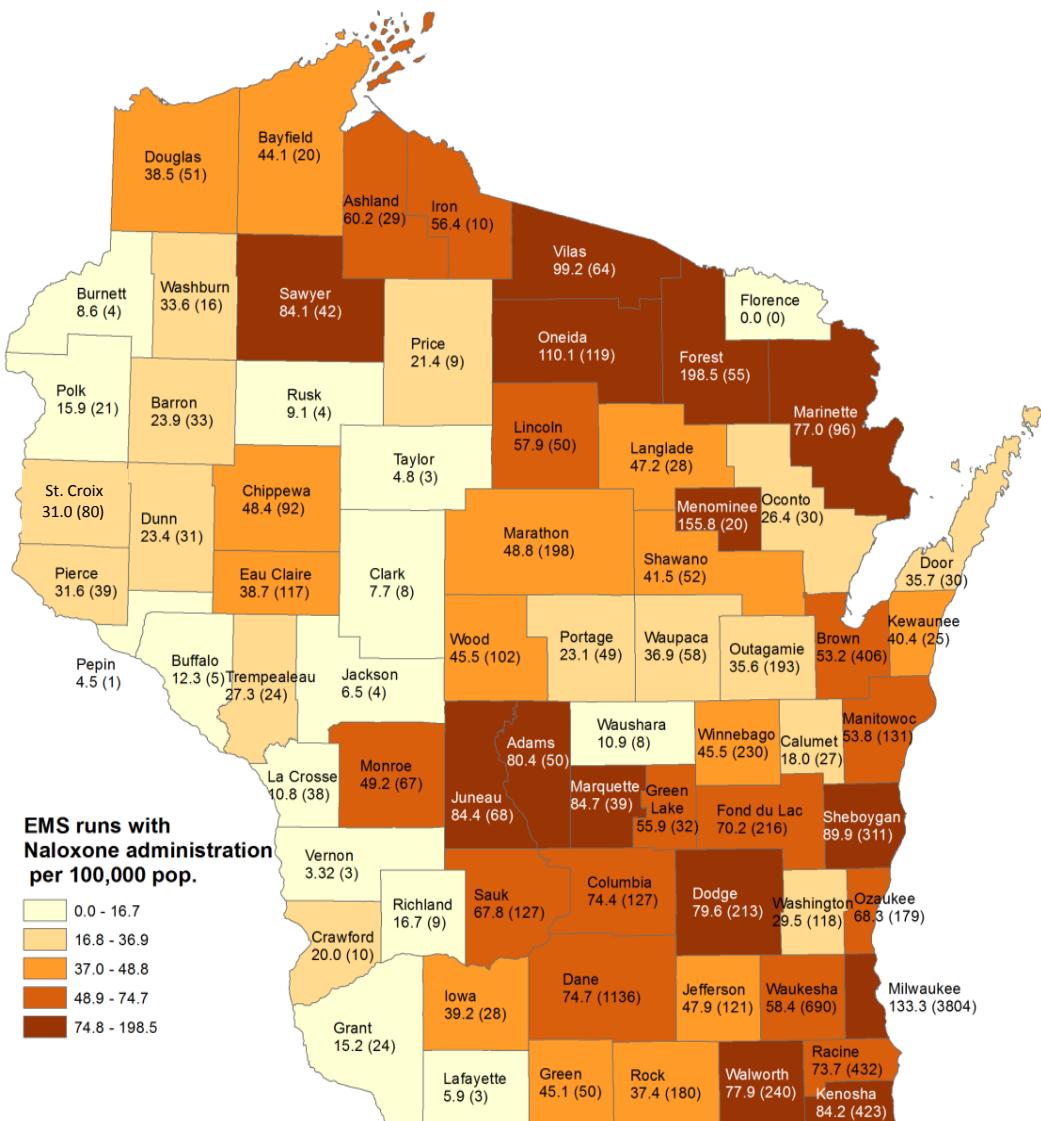
*Data are presented as rate per 100,000 Wisconsin residents (count)

County	2011	2012	2013	2014	2015
STATEWIDE	51.2 (2921)	61.9 (3538)	68.7 (3938)	61.9 (3557)	67.0 (3857)
Adams	48.0 (10)	77.0 (16)	91.7 (19)	77.5 (16)	71.9 (15)
Ashland	62.2 (10)	31.2 (5)	37.4 (6)	62.2 (10)	80.9 (13)
Barron	30.5 (14)	32.7 (15)	24.0 (11)	26.1 (12)	21.6 (10)
Bayfield	26.5 (4)	26.5 (4)	33.1 (5)	13.3 (2)	85.6 (13)
Brown	24.0 (60)	33.4 (84)	37.1 (94)	54.1 (138)	68.1 (174)
Buffalo	22.1 (3)	7.4 (1)	14.8 (2)	0.0 (0)	21.9 (3)
Burnett	6.5 (1)	0.0 (0)	6.5 (1)	13.0 (2)	6.4 (1)
Calumet	48.7 (24)	50.6 (25)	18.2 (9)	16.0 (8)	19.7 (10)
Chippewa	46.2 (29)	30.2 (19)	49.2 (31)	48.9 (31)	47.2 (30)
Clark	11.5 (4)	14.4 (5)	2.9 (1)	5.8 (2)	14.3 (5)
Columbia	38.7 (22)	40.5 (23)	59.9 (34)	61.6 (35)	101.7 (58)
Crawford	12.0 (2)	12.0 (2)	6.0 (1)	6.0 (1)	47.8 (8)
Dane	24.4 (120)	22.7 (113)	65.8 (331)	71.1 (362)	87.1 (443)
Dodge	38.3 (34)	55.3 (49)	59.7 (53)	75.2 (67)	103.8 (93)
Door	35.9 (10)	32.3 (9)	42.9 (12)	35.8 (10)	28.4 (8)
Douglas	31.7 (14)	27.2 (12)	34.0 (15)	29.5 (13)	51.8 (23)
Dunn	16.0 (7)	13.7 (6)	11.4 (5)	15.8 (7)	42.9 (19)
Eau Claire	23.1 (23)	31.0 (31)	32.8 (33)	34.7 (35)	48.5 (49)
Florence	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Fond du Lac	49.1 (50)	58.9 (60)	61.7 (63)	77.1 (79)	71.8 (74)
Forest	76.1 (7)	86.9 (8)	206.7 (19)	173.4 (16)	215.4 (20)
Grant	7.8 (4)	0.0 (0)	9.7 (5)	20.9 (11)	15.1 (8)

County	2011	2012	2013	2014	2015
STATEWIDE	51.2 (2921)	61.9 (3538)	68.7 (3938)	61.9 (3557)	67.0 (3857)
Green	21.7 (8)	21.7 (8)	48.8 (18)	40.6 (15)	46.0 (17)
Green Lake	5.2 (1)	21.0 (4)	52.5 (10)	42.0 (8)	73.0 (14)
Iowa	12.7 (3)	4.2 (1)	29.5 (7)	16.8 (4)	71.3 (17)
Iron	0.0 (0)	34.0 (2)	85.0 (5)	50.7 (3)	33.8 (2)
Jackson	4.9 (1)	14.6 (3)	0.0 (0)	0.0 (0)	19.3 (4)
Jefferson	28.6 (24)	40.4 (34)	38.0 (32)	40.4 (34)	65.3 (55)
Juneau	18.7 (5)	52.2 (14)	70.9 (19)	112.1 (30)	70.4 (19)
Kenosha	68.3 (114)	109.4 (183)	86.1 (144)	74.6 (125)	91.9 (154)
Kewaunee	0.0 (0)	19.4 (4)	9.7 (2)	43.7 (9)	67.6 (14)
La Crosse	54.6 (63)	50.9 (59)	4.3 (5)	15.3 (18)	12.8 (15)
Lafayette	11.9 (2)	17.8 (3)	11.9 (2)	5.9 (1)	0.0 (0)
Langlade	60.4 (12)	70.7 (14)	30.4 (6)	40.6 (8)	70.3 (14)
Lincoln	38.3 (11)	45.1 (13)	31.2 (9)	55.7 (16)	86.7 (25)
Manitowoc	57.8 (47)	53.0 (43)	40.7 (33)	51.9 (42)	68.8 (56)
Marathon	33.5 (45)	32.7 (44)	42.2 (57)	57.6 (78)	46.5 (63)
Marinette	52.8 (22)	91.2 (38)	81.6 (34)	79.6 (33)	69.8 (29)
Marquette	45.4 (7)	52.2 (8)	26.1 (4)	124.2 (19)	103.7 (16)
Menominee	94.1 (4)	234.7 (10)	70.5 (3)	207.5 (9)	188.5 (8)
Milwaukee	118.1 (1122)	154.2 (1467)	180.7 (1720)	117.6 (1120)	101.5 (964)
Monroe	28.9 (13)	53.2 (24)	30.9 (14)	61.7 (28)	55.0 (25)
Oconto	13.3 (5)	34.5 (13)	26.5 (10)	29.1 (11)	23.6 (9)
Oneida	75.1 (27)	22.3 (8)	97.4 (35)	111.2 (40)	121.4 (44)
Outagamie	26.4 (47)	39.2 (70)	34.5 (62)	33.1 (60)	39.2 (71)
Ozaukee	27.7 (24)	48.4 (42)	49.4 (43)	72.1 (63)	83.3 (73)
Pepin	0.0 (0)	0.0 (0)	0.0 (0)	13.5 (1)	0.0 (0)
Pierce	26.8 (11)	39.1 (16)	36.6 (15)	36.5 (15)	21.8 (9)

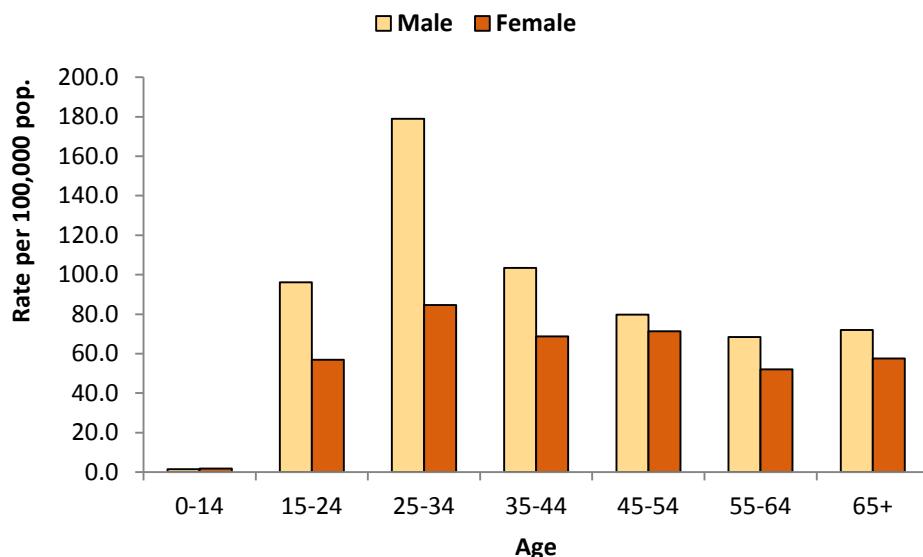
County	2011	2012	2013	2014	2015
STATEWIDE	51.2 (2921)	61.9 (3538)	68.7 (3938)	61.9 (3557)	67.0 (3857)
Polk	4.5 (2)	20.4 (9)	4.5 (2)	22.7 (10)	20.3 (9)
Portage	42.6 (30)	25.5 (18)	19.8 (14)	24.0 (17)	25.4 (18)
Price	42.8 (6)	42.8 (6)	14.3 (2)	14.3 (2)	35.4 (5)
Racine	67.1 (131)	63.6 (124)	66.6 (130)	68.1 (133)	86.5 (169)
Richland	11.1 (2)	16.7 (3)	11.2 (2)	22.4 (4)	16.7 (3)
Rock	31.8 (51)	40.6 (65)	42.4 (68)	33.0 (53)	36.9 (59)
Rusk	6.8 (1)	6.8 (1)	13.6 (2)	13.7 (2)	0.0 (0)
St. Croix	20.1 (17)	24.7 (21)	42.0 (36)	24.4 (21)	26.7 (23)
Sauk	95.0 (59)	86.8 (54)	56.1 (35)	71.9 (45)	75.6 (47)
Sawyer	24.1 (4)	24.0 (4)	78.2 (13)	78.3 (13)	95.7 (16)
Shawano	50.2 (21)	40.7 (17)	28.7 (12)	38.3 (16)	57.3 (24)
Sheboygan	79.7 (92)	96.3 (111)	87.7 (101)	75.4 (87)	106.7 (123)
Taylor	14.5 (3)	9.7 (2)	9.7 (2)	4.8 (1)	0.0 (0)
Trempealeau	38.0 (11)	20.6 (6)	6.8 (2)	40.9 (12)	34.1 (10)
Vernon	23.4 (7)	23.3 (7)	0.0 (0)	6.6 (2)	3.3 (1)
Vilas	83.9 (18)	93.3 (20)	83.9 (18)	111.6 (24)	101.9 (22)
Walworth	68.2 (70)	92.5 (95)	80.8 (83)	74.8 (77)	78.1 (80)
Washburn	25.1 (4)	18.9 (3)	18.9 (3)	56.8 (9)	25.1 (4)
Washington	11.3 (15)	11.3 (15)	21.1 (28)	24.8 (33)	42.7 (57)
Waukesha	49.9 (195)	55.7 (218)	60.1 (236)	53.6 (211)	61.7 (243)
Waupaca	26.7 (14)	32.5 (17)	24.8 (13)	49.7 (26)	36.2 (19)
Waushara	20.4 (5)	0.0 (0)	8.2 (2)	8.2 (2)	16.3 (4)
Winnebago	43.6 (73)	50.6 (85)	42.7 (72)	46.2 (78)	47.5 (80)
Wood	26.8 (20)	33.5 (25)	30.9 (23)	42.9 (32)	62.7 (47)

Figure 12. Three-year crude rate of ambulance runs with Naloxone administration by patient county of residence, Wisconsin, 2013-2015



- These figures reflect the number of ambulance runs with naloxone administration, not the total number of naloxone administrations.
- Naloxone may be given to an unresponsive person when it is unclear whether the event was related to an opioid overdose.
- Naloxone administration rates may vary due to differences in EMS policies, programs, and practices.
- These data do not include law enforcement or other non-EMS naloxone usage.

Figure 13. Rate of ambulance runs with Naloxone administration by age and sex, Wisconsin, 2015



Neonatal abstinence syndrome

Opioid use during pregnancy has more than doubled over the past decade.³ When opioids or other substances are used during pregnancy, the infant may be born with withdrawal from substances taken by the mother. This condition, termed neonatal abstinence syndrome (NAS), is associated with physiologic and behavioral consequences, such as low birth weight, feeding difficulties and respiratory problems.⁴ NAS has increased five-fold in the U.S. since 2000.³

How is this measure defined?

Hospitalizations of infants with the following ICD-9 code in principal diagnosis or any contributing diagnosis within 28 days after delivery:

(779.5) Drug withdrawal syndrome in newborn

Data highlights:

From 2006 to 2014, the rate of NAS in Wisconsin increased from 2.0 to 8.7 per 1,000 live births (350%) (Table 6).

Data notes and limitations:

- Different populations of women can give birth to an infant with NAS, including women with medical conditions in which medication is prescribed, women in recovery from opioid addiction and maintained on methadone or buprenorphine, women actively misusing prescription or non-prescription opioids, and women using other substances. Some critically ill infants may be diagnosed with NAS due to medical interventions.
- Rates are calculated per 1,000 live births.
- Rates include inpatient hospitalizations among Wisconsin residents at Wisconsin, Minnesota, or Iowa facilities.

- Federal facilities are not included.
- Any change in county-level rates over time should be interpreted cautiously. County-level rates may be based on a small number of hospital encounters. Rates are not stable when calculated from a small number of events, and a small change in the number of events can lead to a large change in the rate from one year to the next.

Data highlights:

- From 2006 to 2014, the rate of NAS in Wisconsin increased from 2.0 to 8.7 per 1,000 live births (335%).

Table 8. Crude rate of neonatal abstinence syndrome (NAS) by County of Residence, Wisconsin, 2006-2015

*Data are presented as rate per 1,000 live births (count)

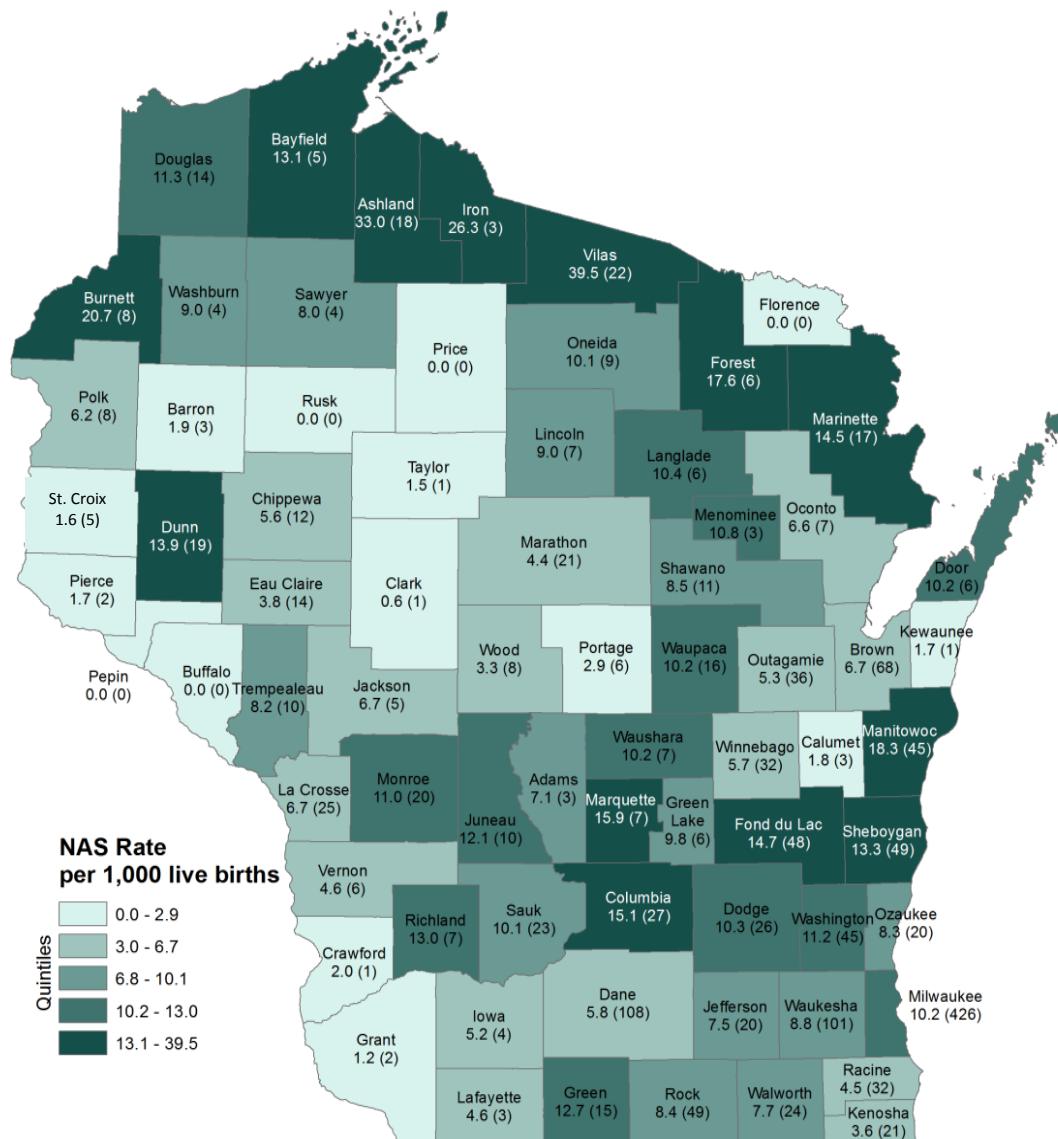
County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.0 (142)	2.0 (143)	2.8 (204)	3.3 (234)	4.7 (321)	5.9 (399)	6.5 (438)	8.7 (580)	8.7 (583)
Adams	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	8.9 (1)	0.0 (0)	13.7 (2)	7.3 (1)
Ashland	0.0 (0)	0.0 (0)	0.0 (0)	19.3 (4)	11.3 (2)	42.9 (7)	0.0 (0)	49.2 (9)	53.6 (9)
Barron	5.3 (3)	0.0 (0)	4.0 (2)	4.0 (2)	7.3 (4)	1.9 (1)	3.7 (2)	1.9 (1)	0.0 (0)
Bayfield	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	46.5 (6)	14.0 (2)	17.5 (2)	8.1 (1)
Brown	2.6 (9)	3.1 (11)	3.5 (12)	1.5 (5)	2.1 (7)	4.1 (14)	4.3 (15)	8.9 (30)	6.8 (23)
Buffalo	0.0 (0)	0.0 (0)	0.0 (0)	6.8 (1)	24.0 (3)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Burnett	12.0 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	7.8 (1)	7.3 (1)	16.1 (2)	40.0 (5)
Calumet	0.0 (0)	0.0 (0)	3.2 (2)	3.4 (2)	0.0 (0)	3.5 (2)	0.0 (0)	2.0 (1)	3.6 (2)
Chippewa	0.0 (0)	2.5 (2)	1.2 (1)	1.3 (1)	1.3 (1)	2.7 (2)	5.2 (4)	6.0 (4)	5.5 (4)
Clark	0.0 (0)	0.0 (0)	0.0 (0)	5.2 (3)	0.0 (0)	1.7 (1)	1.8 (1)	0.0 (0)	0.0 (0)
Columbia	6.3 (4)	4.4 (3)	4.6 (3)	9.1 (6)	6.7 (4)	6.5 (4)	15.0 (9)	10.1 (6)	20.1 (12)
Crawford	0.0 (0)	0.0 (0)	5.1 (1)	5.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	5.8 (1)	0.0 (0)
Dane	3.1 (19)	2.7 (17)	2.1 (13)	4.1 (25)	3.3 (20)	6.3 (38)	4.7 (29)	6.1 (37)	6.6 (42)
Dodge	2.0 (2)	0.0 (0)	6.3 (6)	4.5 (4)	4.6 (4)	3.6 (3)	6.2 (5)	12.4 (11)	12.1 (10)
Door	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	9.3 (2)	0.0 (0)	11.0 (2)	13.5 (3)	5.4 (1)
Douglas	2.0 (1)	2.0 (1)	4.3 (2)	0.0 (0)	6.2 (3)	2.0 (1)	9.7 (4)	15.0 (6)	9.3 (4)
Dunn	5.8 (3)	0.0 (0)	2.4 (1)	2.2 (1)	2.1 (1)	2.2 (1)	9.0 (4)	10.8 (5)	22.0 (10)
Eau Claire	0.8 (1)	2.5 (3)	1.7 (2)	1.7 (2)	3.6 (4)	6.2 (7)	2.5 (3)	1.7 (2)	7.2 (9)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.0 (142)	2.0 (143)	2.8 (204)	3.3 (234)	4.7 (321)	5.9 (399)	6.5 (438)	8.7 (580)	8.7 (583)
Florence	0.0 (0)	0.0 (0)							
Fond du Lac	0.0 (0)	0.8 (1)	6.0 (7)	0.9 (1)	2.8 (3)	7.8 (9)	11.1 (12)	14.2 (16)	18.7 (20)
Forest	9.4 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	18.0 (2)	26.5 (3)	8.6 (1)
Grant	0.0 (0)	1.7 (1)	0.0 (0)	0.0 (0)	3.7 (2)	1.8 (1)	0.0 (0)	1.9 (1)	1.8 (1)
Green	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	2.4 (1)	0.0 (0)	11.8 (5)	5.5 (2)	20.3 (8)
Green Lake	0.0 (0)	9.2 (2)	0.0 (0)	0.0 (0)	4.7 (1)	10.2 (2)	0.0 (0)	5.0 (1)	25.1 (5)
Iowa	6.2 (2)	0.0 (0)	0.0 (0)	9.6 (3)	3.4 (1)	6.9 (2)	11.2 (3)	0.0 (0)	4.0 (1)
Iron	0.0 (0)	27.0 (1)	47.6 (2)						
Jackson	0.0 (0)	0.0 (0)	4.1 (1)	0.0 (0)	4.2 (1)	7.9 (2)	8.1 (2)	0.0 (0)	11.1 (3)
Jefferson	4.8 (5)	2.9 (3)	3 (3)	1.0 (1)	4.3 (4)	5.4 (5)	11.2 (10)	5.6 (5)	5.7 (5)
Juneau	0.0 (0)	0.0 (0)	7.3 (2)	10.6 (3)	0.0 (0)	15.0 (4)	10.0 (3)	3.8 (1)	22.4 (6)
Kenosha	1.4 (3)	3.3 (7)	1.7 (4)	3.7 (8)	3.4 (7)	3.6 (7)	1.6 (3)	4.0 (8)	5.1 (10)
Kewaunee	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	9.8 (2)	4.6 (1)	0.0 (0)	5.2 (1)	0.0 (0)
La Crosse	3.0 (4)	0.8 (1)	6 (8)	3.6 (5)	4.5 (6)	6.9 (9)	3.3 (4)	11.4 (14)	5.6 (7)
Lafayette	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.6 (1)	0.0 (0)	8.9 (2)
Langlade	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	24.5 (5)	0.0 (0)	14.7 (3)	15.8 (3)	0.0 (0)
Lincoln	2.9 (1)	0.0 (0)	6.3 (2)	3.1 (1)	17.7 (5)	3.7 (1)	7.8 (2)	14.5 (4)	4.1 (1)
Manitowoc	2.3 (2)	4.4 (4)	3.2 (3)	2.5 (2)	12.4 (10)	15.0 (13)	13.3 (11)	16.0 (13)	25.8 (21)
Marathon	1.2 (2)	0.6 (1)	1.2 (2)	3.6 (6)	1.2 (2)	4.9 (8)	5.6 (9)	5.7 (9)	1.9 (3)
Marinette	0.0 (0)	0.0 (0)	2.5 (1)	2.6 (1)	20.6 (8)	0.0 (0)	4.7 (2)	13.4 (5)	27.0 (10)
Marquette	6.4 (1)	0.0 (0)	0.0 (0)	6.5 (1)	12.5 (2)	0.0 (0)	7.4 (1)	19.2 (3)	20.1 (3)
Menominee	0.0 (0)	0.0 (0)	7.7 (1)	0.0 (0)	0.0 (0)	21.5 (2)	11.0 (1)	9.6 (1)	12.0 (1)
Milwaukee	2.2 (34)	2.4 (37)	4.2 (64)	4.5 (68)	6.2 (89)	8.4 (119)	8.7 (122)	12.9 (181)	8.8 (123)
Monroe	0.0	0.0	1.5	1.6	3.2	8.1	9.7	14.6	8.5

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.0 (142)	2.0 (143)	2.8 (204)	3.3 (234)	4.7 (321)	5.9 (399)	6.5 (438)	8.7 (580)	8.7 (583)
	(0)	(0)	(1)	(1)	(2)	(5)	(6)	(9)	(5)
Oconto	0.0 (0)	2.5 (1)	2.8 (1)	2.4 (1)	5.4 (2)	2.8 (1)	5.8 (2)	0.0.0 (0)	13.3 (5)
Oneida	3.4 (1)	0.0 (0)	3.1 (1)	0.0 (0)	0.0 (0)	6.4 (2)	9.6 (3)	16.2 (5)	3.8 (1)
Outagamie	0.0 (0)	2.6 (6)	4.6 (11)	1.8 (4)	3.1 (7)	3.0 (7)	4.5 (10)	4.9 (11)	6.6 (15)
Ozaukee	2.4 (2)	2.3 (2)	1.2 (1)	0.0 (0)	1.3 (1)	6.0 (5)	8.8 (7)	9.9 (8)	6.3 (5)
Pepin	0.0 (0)								
Pierce	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.7 (2)	2.5 (1)	0.0 (0)	5.5 (2)	0.0 (0)
Polk	0.0 (0)	0.0 (0)	0.0 (0)	3.9 (2)	2.2 (1)	0.0 (0)	7.4 (3)	4.7 (2)	6.7 (3)
Portage	2.7 (2)	3.8 (3)	0.0 (0)	2.5 (2)	1.3 (1)	1.4 (1)	2.8 (2)	3.0 (2)	2.8 (2)
Price	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	10.1 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Racine	0.8 (2)	1.5 (4)	0.7 (2)	1.5 (4)	2.8 (7)	4.5 (11)	3.4 (8)	5.1 (12)	5.1 (12)
Richland	0.0 (0)	4.5 (1)	0.0 (0)	0.0 (0)	10.3 (2)	0.0 (0)	0.0 (0)	0.0 (0)	38.5 (7)
Rock	1.4 (3)	0.5 (1)	1.0 (2)	1.0 (2)	1.5 (3)	2.1 (4)	6.9 (13)	5.1 (10)	13.2 (26)
Rusk	0.0 (0)								
St. Croix	0.8 (1)	0.8 (1)	0.9 (1)	0 (0)	0.9 (1)	3.6 (4)	1.0 (1)	1.0 (1)	2.7 (3)
Sauk	1.3 (1)	0.0 (0)	3.9 (3)	5.1 (4)	12.8 (10)	7.6 (6)	6.8 (5)	10.7 (8)	12.7 (10)
Sawyer	9.0 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.9 (1)	0.0 (0)	6.0 (1)	19.1 (3)
Shawano	0.0 (0)	3.9 (2)	0.0 (0)	4.6 (2)	13.4 (6)	6.8 (3)	13.8 (6)	6.7 (3)	4.9 (2)
Sheboygan	2.1 (3)	2.8 (4)	1.4 (2)	3.7 (5)	6.8 (9)	6.9 (9)	11.7 (15)	12.2 (15)	16.0 (19)
Taylor	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	4.2 (1)	0.0 (0)	4.6 (1)	0.0 (0)
Trempealeau	3.0 (1)	0.0 (0)	2.5 (1)	2.6 (1)	2.7 (1)	0.0 (0)	7.4 (3)	15.0 (6)	2.4 (1)
Vernon	0.0 (0)	2.4 (1)	2.3 (1)	2.3 (1)	2.5 (1)	0.0 (0)	2.2 (1)	2.6 (1)	8.7 (4)
Vilas	34.3 (7)	0.0 (0)	5.7 (1)	10.0 (2)	31.4 (6)	25.3 (4)	42.3 (8)	33.1 (6)	42.8 (8)
Walworth	1.6 (2)	0.8 (1)	0.8 (1)	1.7 (2)	3.7 (4)	3.0 (3)	7.4 (8)	8.1 (8)	7.5 (8)

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
STATEWIDE	2.0 (142)	2.0 (143)	2.8 (204)	3.3 (234)	4.7 (321)	5.9 (399)	6.5 (438)	8.7 (580)	8.7 (583)
Washburn	5.1 (1)	0.0 (0)	0.0 (0)	12.3 (2)	0.0 (0)	0.0 (0)	6.8 (1)	6.0 (1)	15.3 (2)
Washington	1.3 (2)	2.6 (4)	5.2 (8)	7.1 (11)	5.8 (8)	8.3 (11)	7.5 (10)	10.4 (14)	15.8 (21)
Waukesha	1.9 (8)	2.5 (10)	4.8 (19)	5.3 (20)	6.2 (24)	7.2 (27)	8.0 (31)	10.0 (37)	8.5 (33)
Waupaca	0.0 (0)	5.1 (3)	0.0 (0)	6.8 (4)	2.0 (1)	3.8 (2)	7.7 (4)	13.4 (7)	9.5 (5)
Waushara	0.0 (0)	7.6 (2)	0.0 (0)	4.3 (1)	0.0 (0)	21.5 (5)	0.0 (0)	8.7 (2)	22.1 (5)
Winnebago	1.6 (3)	0.5 (1)	2.0 (4)	3.1 (6)	8.5 (16)	5.2 (10)	5.8 (11)	5.9 (11)	5.5 (10)
Wood	2.3 (2)	2.3 (2)	1.1 (1)	0.0 (0)	2.4 (2)	1.1 (1)	3.7 (3)	3.6 (3)	2.7 (2)

Figure 13. Three-year crude rate of neonatal abstinence syndrome by county of residence, Wisconsin, 2012-2014



Different populations of women can give birth to an infant with NAS, including women with medical conditions in which medication is prescribed, women in recovery from opioid addiction and maintained on methadone or buprenorphine, women actively misusing prescription or non-prescription opioids, and women using other substances. Some critically ill infants may be diagnosed with NAS due to medical interventions.

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