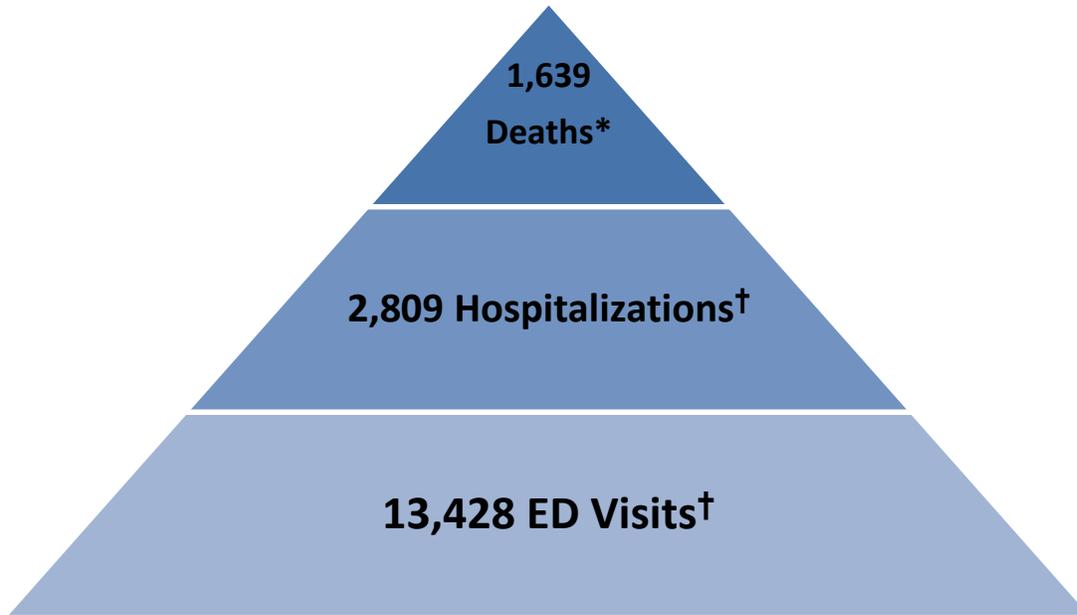


SECTION 3.1: UNINTENTIONAL POISONINGS



*SOURCE: OHIO DEPARTMENT OF HEALTH, VITAL STATISTICS

†SOURCE: OHIO HOSPITAL ASSOCIATION

CHAPTER HIGHLIGHTS:

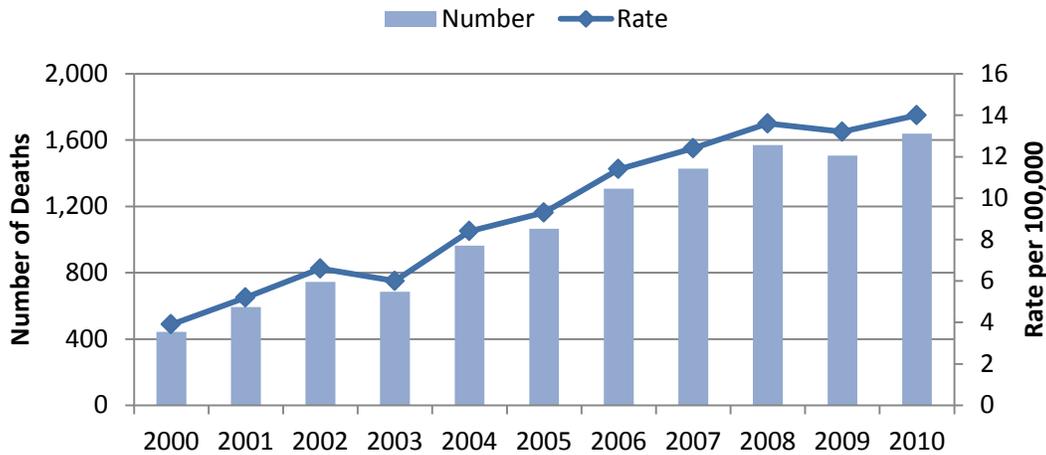
Patterns:

- Unintentional poisonings are one of the leading causes of fatal and non-fatal injuries.
- Higher rates of death and ED visits were found among males compared to females.
- Poisoning severity distinctly varied by age with the highest rates of death found among ages 45-54, hospitalizations among older adults ages 45 or older, and ED visits among children ages 1-4.
- Prescription medication and controlled substances are implicated in most unintentional poisoning deaths and hospitalizations. Approximately one-half of poisoning-related ED visits were associated with food and other non-drug substances; whereas drugs and medications have caused over 90 percent of unintentional poisoning deaths and hospitalizations.

Trends:

- Deaths, hospitalizations and ED visit rates have increased rapidly.
- Largest increases in death and hospitalization rates were found among ages 45-54. Largest increase in ED visit rates were found among children ages 1-4.

Figure 3.2. Number and age adjusted rate of unintentional poisoning deaths by year, Ohio, 2000-2010



Source: Ohio Department of Health, Office of Vital Statistics

DEATHS:

In 2010, 1,639 Ohioans died from an unintentional poisoning. The 2010 unintentional poisonings fatality rate was 14.2 per 100,000 (see Figure 3.2). The rate of unintentional poisoning fatalities was higher among males (18.6 per 100,000) compared to females (10.0 per 100,000). Rates increased with age up to 45-54 year olds, and decreased among ages 55 and older (Figure 3.3). Whites had a higher rate than Blacks or Hispanics. See Table 3.1 for an unintentional poisoning death risk profile. Drugs and medicinal substances contributed to nearly all (94 percent) of the poisoning deaths in 2010 (Figure 3.4).

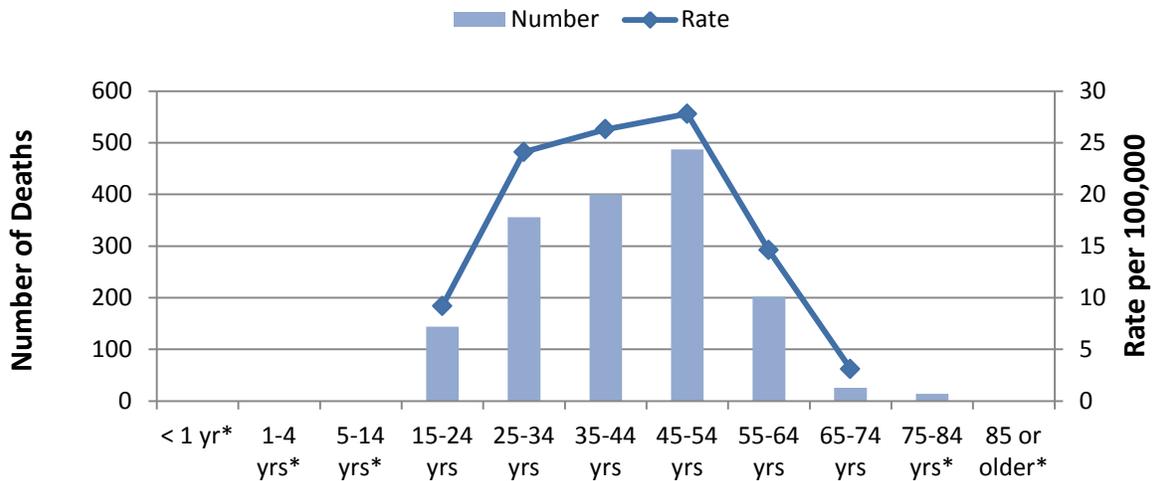
Table 3.1. Unintentional Poisoning Death Risk Profile

	2010 At Risk Groups	Annual trend since 2000
Overall		+264%
Sex	Males	Males (largest increase)
Age	45-54	45-54 and 25-34 (largest increases)
Race and ethnicity	Whites	Whites (largest increase)

TRENDS:

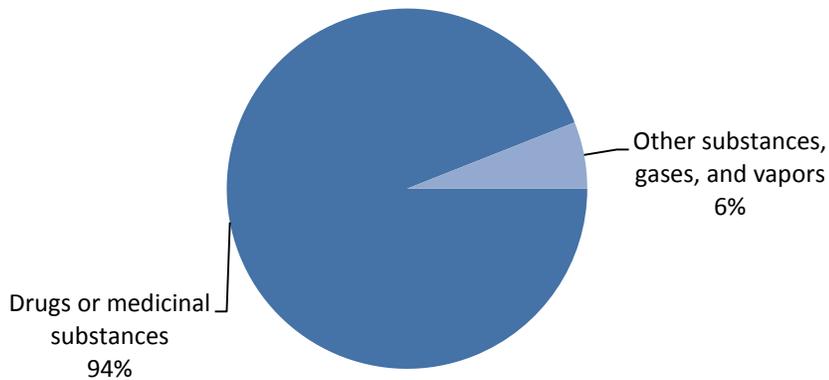
Fatal unintentional poisoning rates have quadrupled from 3.9 per 100,000 in 2000 to 14.2 per 100,000 in 2010 (Figure 3.2). Unintentional poisoning is now the leading cause of injury-related death in Ohio, surpassing motor vehicle traffic in 2006 and continuing the trend through 2010. Rates increased rapidly among both males and females. Fatality rates increased across most age groups with the largest increases observed among adults aged 45-54 and 25-34. Contrasting trends in drug poisoning deaths were found by race. In 2000, rates were higher among blacks than whites. Rates among whites increased by 1.2 deaths per 100,000 throughout the study period while rates among blacks increased in 2000-2006 then decreased in 2006-2010. Ultimately death rates among whites surpassed blacks in 2008 and remained higher in 2009-2010. Drugs and medications contributed to nearly all unintentional poisoning deaths throughout the study period. See Tables 4a-b located at the end of this section for more detailed information on the number and rate of unintentional poisoning fatalities.

Figure 3.3. Number and rates for unintentional poisoning deaths by age group, Ohio, 2010

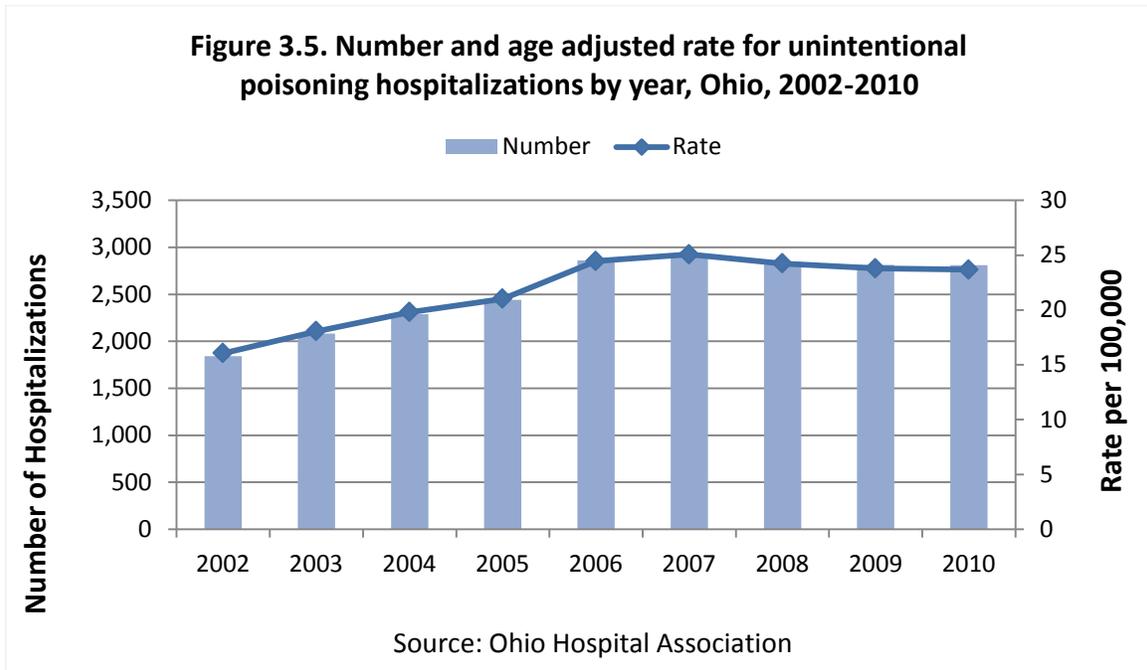


Source: Ohio Department of Health, Office of Vital Statistics
 *Rates suppressed due to < 20 deaths

Figure 3.4. Distribution of unintentional poisoning deaths by agent, Ohio, 2010



Source: Ohio Department of Health, Office of Vital Statistics



HOSPITALIZATIONS:

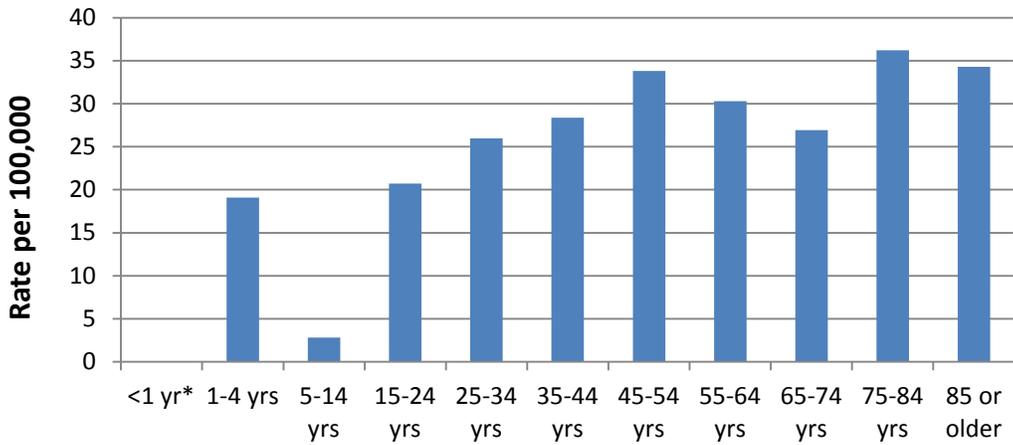
Over 2,800 hospitalizations resulted from unintentional poisonings in Ohio in 2010. The poisoning hospitalization rate was 24 per 100,000 (Figure 3.5). The hospitalization rate was similar for males and females and rates of hospitalizations varied by age. Starting at age 15, rates increased through age 54 then decreased among 55-74 year olds and increased among ages 75 or older (Figure 3.6). Rates of hospitalizations for males and females were similar among all age groups except for adults 85 or older with higher rates found among males (data not shown). Ninety-two percent of hospitalizations resulted from unintentional poisoning by a drug or medicinal substance (Figure 3.7).

Table 3.2 Unintentional Poisoning Hospitalization Risk Profile		
	2010 At Risk Groups	Annual Trend since 2002
Overall		+46%
Sex	Similar for males and females	Similar for males and females
Age	75-84	45-64 (largest increase)

TRENDS:

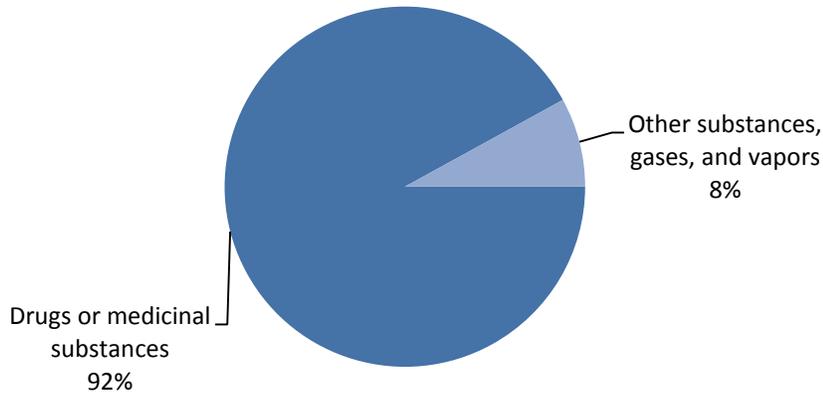
Unintentional poisoning hospitalizations rates increased 46 percent from 16 per 100,000 in 2002 to 24 per 100,000 in 2010. Rates increased by an average of 1 per 100,000 per year. The increase in hospitalizations was similar among males and females. Hospitalization rates increased among most age groups with the largest increases found among ages 45-64 (2 per 100,000). Most poisonings were caused by drugs or medications throughout the study period (data not shown). See Tables 5a-c located at the end of this section for more detailed information on the number and rate of unintentional poisoning hospitalizations.

Figure 3.6. Rates for unintentional poisoning hospitalizations by age, Ohio, 2010



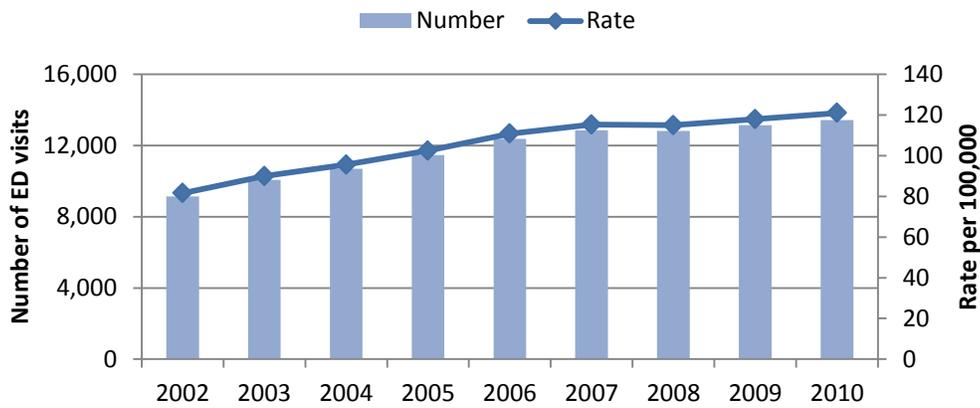
Source: Ohio Hospital Association
* Rate suppressed due to < 20 poisonings

Figure 3.7. Distribution of unintentional poisoning hospitalizations by agent, Ohio, 2010



Source: Ohio Hospital Association

Figure 3.8. Number and age adjusted rate for unintentional poisoning ED visits by year, Ohio, 2002-2010



Source: Ohio Hospital Association

EMERGENCY DEPARTMENT VISITS:

Over 13,000 ED visits resulted from unintentional poisonings in 2010. The ED visit rate was 121 per 100,000 (Figure 3.8). The rate of unintentional poisoning ED visits was slightly higher among males compared to females (129 versus 113 per 100,000). ED visit rates were the highest among children ages 1-4 years (Figure 3.9). See Table 3.3 for an unintentional poisoning ED visit risk profile. Approximately one-half of unintentional poisoning ED visits resulted from drug, medication or biological substances and the other half resulted from foodstuff and other non-drug substances (Figure 3.10).

Table 3.3 Unintentional Poisoning ED Visit Risk Profile		
	2010 At Risk Groups	Annual trend since 2002
Overall		+48%
Sex	Males	Males (largest increase)
Age	1-4	1-4 (largest increase)

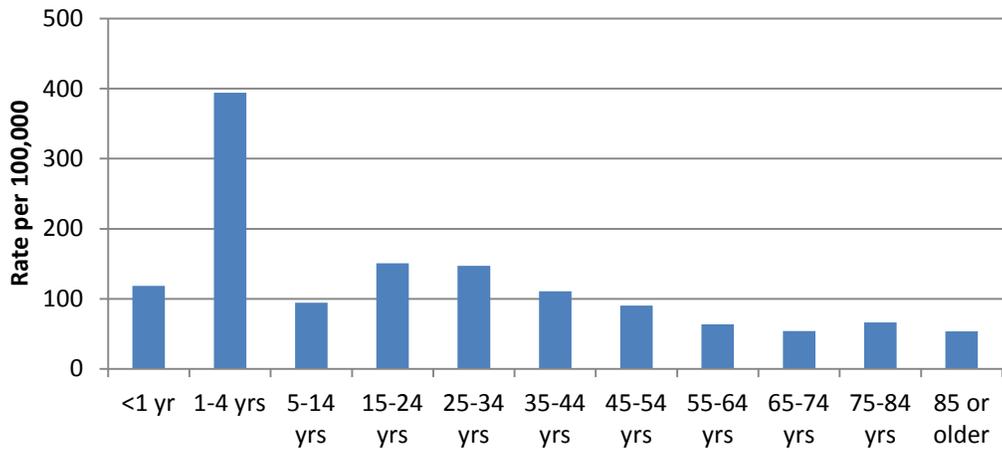
TRENDS:

The rate of unintentional poisoning ED visits increased 48 percent from 82 per 100,000 in 2002 to 121 per 100,000 in 2010. The average annual increase was 5 ED visits per 100,000 per year. The annual increase was slightly higher among males (6 per 100,000) compared to females (4 per 100,000). ED visit rates increased across all age groups with the largest annual increases found among most age groups with the largest increase found among children ages 1-4 (14 per 100,000). The number of ED visits increased for both drug and non-drug substances. The number of ED visits resulting from drug, medicinal, and biologic substances increased by an average of 373 while foodstuff and other non-drug substances increased by an average of 160 per year. The number of ED visits resulting from drug related poisoning surpassed non-drug substances in 2008 and remained higher through 2010. See Tables 6a-c for more detailed information on the number and rate of unintentional poisoning ED visits.

Burden of Injury in Ohio, 2000-2010

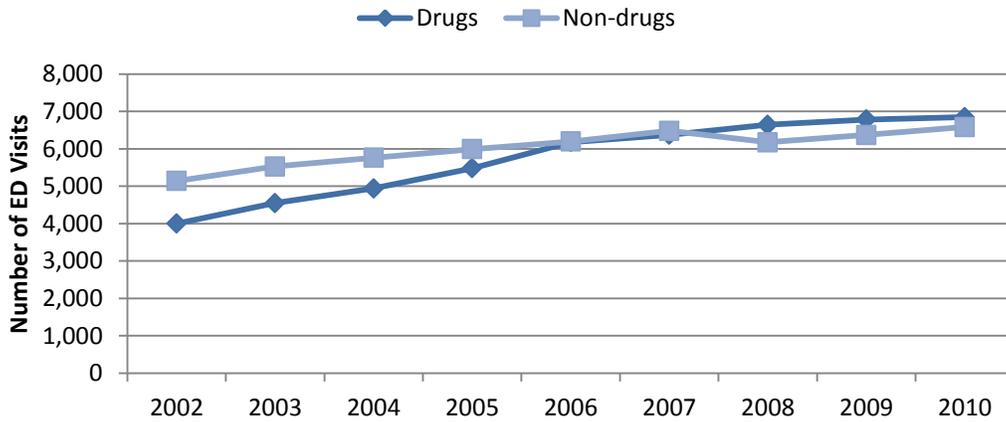
Ohio Violence and Injury Prevention Program, Ohio Department of Health

Figure 3.9. Rates for unintentional poisoning ED visits by age and sex, Ohio, 2010



Source: Ohio Hospital Association

Figure 3.10. Number of unintentional poisoning ED visits by agent and year, Ohio, 2002-2010



Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 4a. Number of deaths resulting from unintentional poisoning by year, Ohio, 2000-2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	443	593	745	686	963	1,065	1,308	1,428	1,570	1,507	1,639
Sex											
Males	313	390	487	462	648	687	865	928	1,010	963	1,056
Females	130	203	258	224	315	378	443	500	560	544	583
Age											
< 1 yr	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1-4 yrs	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
5-14 yrs	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
15-24 yrs	17	56	60	90	108	109	112	129	121	109	144
25-34 yrs	76	96	130	133	156	207	244	263	320	341	356
35-44 yrs	175	213	260	191	289	294	372	383	388	385	400
45-54 yrs	121	165	202	191	290	326	428	470	494	470	487
55-64 yrs	25	25	51	35	68	83	111	138	177	146	202
65-74 yrs	8	13	17	12	21	20	14	27	30	28	26
75-84 yrs	12	14	18	12	20	16	11	10	25	18	14
85 or older	6	9	< 5	19	8	< 5	9	5	10	5	< 5
Race/Ethnicity											
White‡	359	463	610	576	795	912	1,110	1,238	1,371	1,332	1,458
Black‡	77	107	112	95	151	130	184	176	173	150	151
Hispanic	< 5	17	14	8	13	20	7	11	19	20	26
Other‡	< 5	6	< 5	< 5	< 5	< 5	< 5	< 5	5	5	< 5

‡Non-Hispanic

Source: Ohio Department of Health, Office of Vital Statistics

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 4b. Death rates per 100,000 resulting from unintentional poisoning by year, Ohio, 2000-2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	3.9	5.2	6.6	6.0	8.4	9.3	11.4	12.4	13.6	13.2	14.2	1.1
Sex†												
Males	5.7	7.1	8.8	8.3	11.5	12.2	15.3	16.4	17.8	17.0	18.6	1.4
Females	2.2	3.4	4.4	3.8	5.4	6.4	7.5	8.4	9.5	9.4	10.0	0.8
Age												
< 1 yr	*	*	*	*	*	*	*	*	*	*	*	*
1-4 yrs	*	*	*	*	*	*	*	*	*	*	*	*
5-14 yrs	*	*	*	*	*	*	*	*	*	*	*	*
15-24 yrs	*	3.6	3.8	5.7	6.8	6.9	7.1	8.2	7.7	7.0	9.2	*
25-34 yrs	5.0	6.4	8.8	9.0	10.6	14.1	16.7	17.9	21.7	23.1	24.1	2.0
35-44 yrs	9.7	12.0	14.9	11.2	17.2	17.8	22.9	24.0	24.9	25.3	26.3	1.8
45-54 yrs	7.7	10.1	12.3	11.4	17.1	18.9	24.6	26.8	28.1	26.8	27.8	2.3
55-64 yrs	2.5	2.4	4.7	3.1	5.8	6.8	8.8	10.6	13.2	10.5	14.6	1.2
65-74 yrs	*	*	*	*	2.7	2.6	*	3.4	3.7	3.4	3.1	*
75-84 yrs	*	*	*	*	3.6	*	*	*	4.6	*	*	*
85 or older	*	*	*	*	*	*	*	*	*	*	*	*
Race/Ethnicity†												
White‡	3.7	4.8	6.3	6.0	8.3	9.5	11.6	12.9	14.3	14.1	15.4	1.2
Black‡	6.4	8.6	9.0	7.6	12.0	9.9	14.0	13.2	13.0	11.1	11.0	0.5
Hispanic	*	*	*	*	*	8.0	*	*	*	7.1	9.5	-
Other‡	*	*	*	*	*	*	*	*	*	*	*	-

*Rates suppressed due to less than 20 deaths.

‡Non-Hispanic

†Rates are age adjusted to 2000 U.S. standard population

NL: Interpret with caution because trend does not follow linear pattern

Source: Ohio Department of Health, Office of Vital Statistics

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 5a. Number of hospitalizations resulting from unintentional poisonings, by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	1,858	2,096	2,303	2,461	2,879	2,957	2,867	2,840	2,809
Sex									
Males	945	1,025	1,108	1,234	1,509	1,428	1,392	1,396	1,384
Females	913	1,071	1,195	1,227	1,370	1,529	1,475	1,444	1,425
Age									
< 1 yr	12	14	9	13	17	20	18	18	7
1-4 yrs	181	191	175	160	188	218	228	200	111
5-14 yrs	76	63	72	54	55	65	88	54	43
15-24 yrs	240	295	307	304	354	328	303	330	329
25-34 yrs	190	237	249	309	333	372	329	379	366
35-44 yrs	334	352	397	407	474	447	433	398	420
45-54 yrs	305	359	425	474	595	595	590	579	589
55-64 yrs	166	200	223	267	374	351	382	380	440
65-74 yrs	165	153	205	239	227	255	237	246	229
75-84 yrs	132	166	171	149	175	212	176	176	196
85 or older	57	66	70	85	87	94	83	80	79

Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 5b. Hospitalization rates per 100,000 resulting from unintentional poisonings, by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	16.2	18.2	19.9	21.2	24.6	25.3	24.4	24.0	23.7	1.0
Sex†										
Males	17.2	18.6	20.1	22.2	26.9	25.4	24.5	24.6	24.3	1.0
Females	15.2	17.7	19.7	20.1	22.3	24.9	24.2	23.5	23.0	1.0
Age										
< 1 yr	*	*	*	*	*	13.2	*	*	*	*
1-4 yrs	30.1	31.9	29.4	26.9	32.0	37.1	38.6	33.8	19.1	-0.2 (NL)
5-14 yrs	4.7	3.9	4.6	3.5	3.6	4.3	5.9	3.6	2.8	-0.1 (NL)
15-24 yrs	15.2	18.5	19.2	19.1	22.4	20.8	19.3	21.1	20.7	0.5 (NL)
25-34 yrs	12.9	16.2	17.0	21.2	22.9	25.5	22.5	25.6	26.0	1.6
35-44 yrs	19.1	20.6	23.7	24.7	29.2	28.1	27.8	26.2	28.4	1.1
45-54 yrs	18.5	21.5	25.1	27.6	34.3	34.0	33.7	33.0	33.8	2.0
55-64 yrs	15.3	17.8	19.1	22.0	29.8	27.0	28.7	27.4	30.3	1.9
65-74 yrs	21.4	19.9	26.7	31.2	29.5	32.6	29.4	29.4	26.9	1.0 (NL)
75-84 yrs	23.9	29.9	30.8	26.9	31.8	39.1	32.9	32.5	36.2	1.2
85 or older	30.2	33.7	34.9	41.1	40.5	42.2	36.3	35.2	34.3	0.4 (NL)

*Rates suppressed due to less than 20 hospitalizations.

†Rates are age adjusted to 2000 U.S. standard population

NL: Interpret with caution because trend does not follow linear pattern

Source: Ohio Hospital Association

Table 5c. Number of hospitalizations resulting from unintentional poisonings by agent and year, Ohio, 2002-2010

YEAR	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Drug, medicinal, or biologic substances	1,625	1,881	2,060	2,212	2,639	2,693	2,615	2,632	2,579	127
Non-drug substances	233	215	243	249	240	264	252	208	230	0

*Rates suppressed due to less than 20 hospitalizations.

†Rates are age adjusted to 2000 U.S. standard population

NL: Interpret with caution because trend does not follow linear pattern

Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 6a. Number of ED visits resulting from unintentional poisonings by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	9,141	10,075	10,703	11,469	12,370	12,856	12,815	13,152	13,428
Sex									
Males	4,650	5,064	5,342	5,843	6,358	6,513	6,574	6,765	7,049
Females	4,491	5,011	5,361	5,626	6,012	6,343	6,241	6,387	6,379
Age									
< 1 yr	196	189	162	168	205	239	218	230	165
1-4 yrs	1,950	2,050	2,080	2,173	2,422	2,591	2,635	2,618	2,294
5-14 yrs	1,025	1,164	1,249	1,309	1,438	1,523	1,471	1,504	1,439
15-24 yrs	1,570	1,720	1,803	1,970	2,107	2,106	2,125	2,194	2,389
25-34 yrs	1,298	1,464	1,495	1,697	1,724	1,789	1,807	1,970	2,071
35-44 yrs	1,267	1,361	1,479	1,497	1,507	1,505	1,505	1,506	1,637
45-54 yrs	866	958	1,106	1,234	1,333	1,370	1,359	1,402	1,572
55-64 yrs	386	533	593	676	723	769	828	833	920
65-74 yrs	304	319	386	350	427	465	419	443	459
75-84 yrs	224	242	269	299	361	366	316	327	359
85 or older	55	75	81	96	123	133	132	125	123

Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 6b. ED visit rates per 100,000 resulting from unintentional poisonings by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	82	90	96	102	111	115	115	118	121	4.9
Sex†										
Males	84	91	96	105	115	118	119	122	129	5.5
Females	79	88	95	99	106	112	111	113	113	4.3
Age										
< 1 yr	133	128	109	115	138	158	143	156	119	2.3 (NL)
1-4 yrs	324	343	349	366	413	441	446	442	394	14.1
5-14 yrs	63	73	79	84	94	101	98	101	95	4.4
15-24 yrs	99	108	113	124	133	134	135	140	151	5.5
25-34 yrs	88	100	102	116	118	122	123	133	147	6.4
35-44 yrs	73	80	88	91	93	94	97	99	111	3.9
45-54 yrs	53	57	65	72	77	78	78	80	90	4.2
55-64 yrs	36	47	51	56	58	59	62	60	63	2.9
65-74 yrs	39	41	50	46	56	59	52	53	54	1.8
75-84 yrs	40	44	48	54	66	67	59	60	66	3.1
85 or older	29	38	40	46	57	60	58	55	53	3.3

†Rates are age adjusted to 2000 U.S. standard population

Source: Ohio Hospital Association

NL: Interpret with caution because trend does not follow linear pattern

Table 6c. Number of ED visit rates resulting from unintentional poisonings by agent and year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010	% in 2010	Trend (per yr)
Substances involved											
Drugs, biologic, or medicinal substances	4,001	4,550	4,941	5,480	6,177	6,374	6,643	6,781	6,846	51%	373
Non-drug substances	5,140	5,526	5,762	5,989	6,195	6,482	6,172	6,371	6,582	49%	160

Source: Ohio Hospital Association

SECTION 3.1A: UNINTENTIONAL DRUG POISONINGS (OVERDOSES)

BACKGROUND INFORMATION

- Drugs/medications are involved with 95% of unintentional poisoning deaths.
- Drugs/medications are involved with 92% of unintentional poisoning hospitalizations.
- Drug overdose death rates increased 319 percent in the past decade in Ohio.
- Drug poisonings are now the leading cause of injury death in Ohio.

Please note that the terms drug poisoning and overdose will be used interchangeably in this report.

From 2000 to 2010, unintentional drug overdose (poisoning) deaths have increased more than 319% and are now the leading cause of injury death in Ohio surpassing motor vehicle traffic, suicide, homicide, firearms and falls. On average, an Ohioan suffers an unintended drug overdose every six hours leading to four deaths per day in this state alone. This epidemic is largely driven by abuse and misuse of prescription pain medication (opioids). In 2010, 45 percent of Ohio unintentional overdose deaths involved prescription opioids. These medications led to more deaths than any other legal or illicit substance including heroin and cocaine combined. Factors contributing to this epidemic include:

- Changes in clinical pain management guidelines encouraging the use of opioids as a result of pain treatment advocacy groups and pharmaceutical companies leading to state law changes.
- Release of new, long-acting opioids into the market (e.g., OxyContin, Duragesic)
- Aggressive marketing of opioids by pharmaceutical companies to primary care physicians
- Use of methadone as a pain medication
- Widespread prescribing, abuse and diversion of these medications

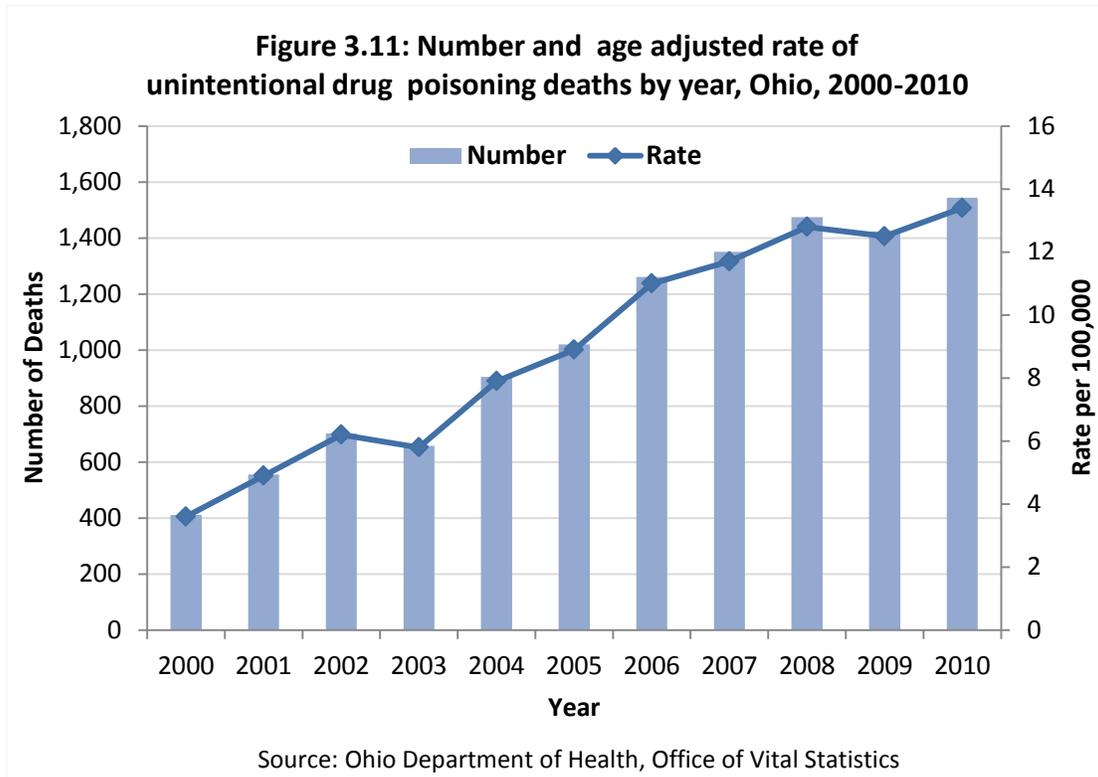
These factors led to rapid increases in the prescribing of prescription opioids for chronic pain. From 1997 to 2010, the total distribution of opioid grams (in morphine milligram equivalent grams) per 100,000 Ohioans increased 670 percent (Source: DEA ARCOS reports). The increasing use of prescription opioids has led to increased risk for opioid dependency and addiction and subsequent diversion of medications as those affected find ways to obtain the drugs.

Admissions for prescription opioid substance abuse treatment have closely followed increased prescribing trends and overdose death rates. In the past decade, admissions have increased more than 750 percent in Ohio (Source: Treatment Episode Data System, SAMHSA). Ohio's fatal overdose epidemic is the result of the increased exposure to these highly addictive and powerful medications with essentially the same active ingredient as heroin.

This epidemic is not limited to Ohio. In 2008, there were 14,800 prescription painkiller deaths across the United States. For every 1 death, there are 10 treatment admissions for abuse, 130 people who abuse or are dependent and 825 nonmedical users leading to significant direct and indirect costs.

PROGRAMMATIC EFFORTS TO ADDRESS DRUG POISONING

- **Surveillance of drug overdose trends and patterns** and providing data on the Ohio Drug Overdose webpage: <http://www.healthyohioprogram.org/vipp/drug/dpoison.aspx>
- **Coordination of the Prescription Drug Abuse Action Group (PDAAG)** The PDAAG is an ongoing state-level work group comprised of over 100 member organizations dedicated to reducing prescription drug abuse, misuse and overdose in Ohio. The PDAAG serves as a conduit for information sharing, networking and the development of state-level recommendations to address the issue. The PDAAG is an action group of the Ohio Injury Prevention Partnership (OIPP) described in the report introduction.
- **Conducting a social marketing campaign: Prescription for Prevention: Stop the Epidemic (P4P) (www.p4pohio.org)**. P4P is a multi-level social marketing campaign to combat the epidemic of prescription drug overdose that includes coalition establishment and support in high risk counties, public education and outreach, TV and radio public service announcements, peer-to-peer programs in schools and education at work sites.
- **Funding two pilot projects in Scioto and Montgomery Counties from 2010-2013** with funding from the CDC's Preventive Health and Health Services Block Grant. These projects engage in activities such as coalition development, education of healthcare prescribers and service providers, formation of a poison death review committee, policy development and implementation of public education and awareness campaigns.
- **Providing start-up support and resources for Scioto County's naloxone distribution program: Project DAWN** (Deaths Avoided with Naloxone) <http://bit.ly/projectdawn>; the first of its kind in the State.
- **Encouraging excess drug disposal solutions and methods** such as take back events and permanent drug disposal drop boxes through the development of take-back guidelines and support for permanent drop boxes.
- **Collaboration with other state organizations to plan conferences, summits and educational opportunities.**
- Providing support for the Governor's Opiate Cabinet Action Team, Prescriber Education Workgroup including **development of Emergency and Acute Care Opioid and Other Controlled Substances Prescribing Guidelines and other responsible prescribing guidelines.**



DEATHS:

In 2010, 1,544 Ohioans died from unintentional drug poisoning with a fatality rate of 13.4 per 100,000 (Figure 3.11). The rate of unintentional drug poisoning fatalities was higher among males (17.5 per 100,000) compared to females (9.5 per 100,000). Rates of unintentional poisoning fatalities began increasing at age 15 and peaked among adults age 54 then decreased among adults 55 or older. Whites had a rate of 14.6 per 100,000 followed by blacks (10.3 per 100,000) and Hispanics (8.0 per 100,000). See Table 3.4 for an unintentional drug poisoning death risk profile.

	2010 At Risk Groups	Annual trend since 2000
Overall		+319%
Sex	Males	Similar for males and females
Age	45-54	45-54 (largest increase)
Race and ethnicity	Whites	Whites (largest increase)

TRENDS:

Since 2000, fatal unintentional drug poisoning rates have increased 319 percent from 3.6 per 100,000 in 2000 to 13.4 per 100,000 in 2010. A rapid increase in rates was found among males and females. Fatality rates increased among ages 25-64 with the largest increase found among ages 25-34 and 45-54 (2.0 per 100,000 per year). Although whites exhibit the largest rate increase over time, 329 percent, Black, Non-Hispanics have had higher rates in seven of the last eleven years. It is not until 2008, that whites exceed rates among blacks.

The top six drug categories that were coded on the death certificate as contributing to the unintentional drug poisoning death are presented on the right. The categories are presented as the five-year average number of deaths for comparison purposes for 2000 to 2010 in Table 3.5.

Drug Category	2000-2005 Annual Ave.	2006-2010 Annual Ave.	Percent of all 2006-10 Overdoses
Other/Unspecified Drug Included ³	504	842	60%
All Opioids	337	613	43%
Prescription Opioids	254	460	33%
Other/Unspecified Drug Only ⁴	186	341	24%
Cocaine	159	215	15%
Heroin	100	224	16%
All Overdoses*	708	1,411	

1. The category with the highest number of average occurrences is “other or unspecified drug included”*, which groups all instances where an unspecified drug (e.g., multiple drug use, poly-substance use) was listed on the death certificate as contributing to an individual’s death. This drug category indicates multiple drugs were involved in the death. This category increased by 67 percent from the 2000 - 2005 average of 504 occurrences to the 2006- 2010 average of 842. From 2006 to 2010, approximately 60 percent of the unintentional overdoses included *other/unspecified* drugs.

2. The second drug category, all opioids, includes prescription opioids as well as heroin. Fatal unintentional overdoses involving all opioids increased by 82 percent from the 2000 - 2005 average of 337 occurrences to the 2006- 2010 average of 613. From 2006 to 2010, 43 percent of the unintentional overdoses included *all opioids*.

3. The third drug category, prescription opioids includes commonly-prescribed narcotic pain medications such as hydrocodone, oxycodone, fentanyl, morphine, codeine, methadone, etc. This category increased by 81 percent from the 2000 - 2005 average of 254 occurrences to the 2006- 2010 average of 460. From 2006 to 2010, one-third of the unintentional overdoses involved a prescription opioid. This percentage has been increasing and is 45 percent for 2010.

4. The fourth drug category includes only instances where only “other/unspecified drug(s)” were listed as the cause of death for the individual. The first drug category “Other/Unspecified Included” differs from this category in that specific drugs may have been included in addition to other/unspecified. The unspecified only drug category increased 83 percent from the 2000 - 2005 average of 186 occurrences to the 2006- 2010 average of 341. In nearly one in four (24 percent) of the overdoses, no specific drug is indicated on the death certificate.

5. Fatal unintentional overdoses involving cocaine increased by 35 percent from the 2000 - 2005 average of 159 occurrences to the 2006- 2010 average of 215. Cocaine was mentioned in 15 percent of the unintentional overdoses from 2006 to 2010.

¹Source: ODH Office of Vital Statistics

²Multiple drugs may be involved in any death.

³includes all instances where 'other/unspecified' is included as contributing to death; may also be included with specific drugs.

⁴includes only those instances where no other drug than 'other/unspecified' is included as contributing to death.

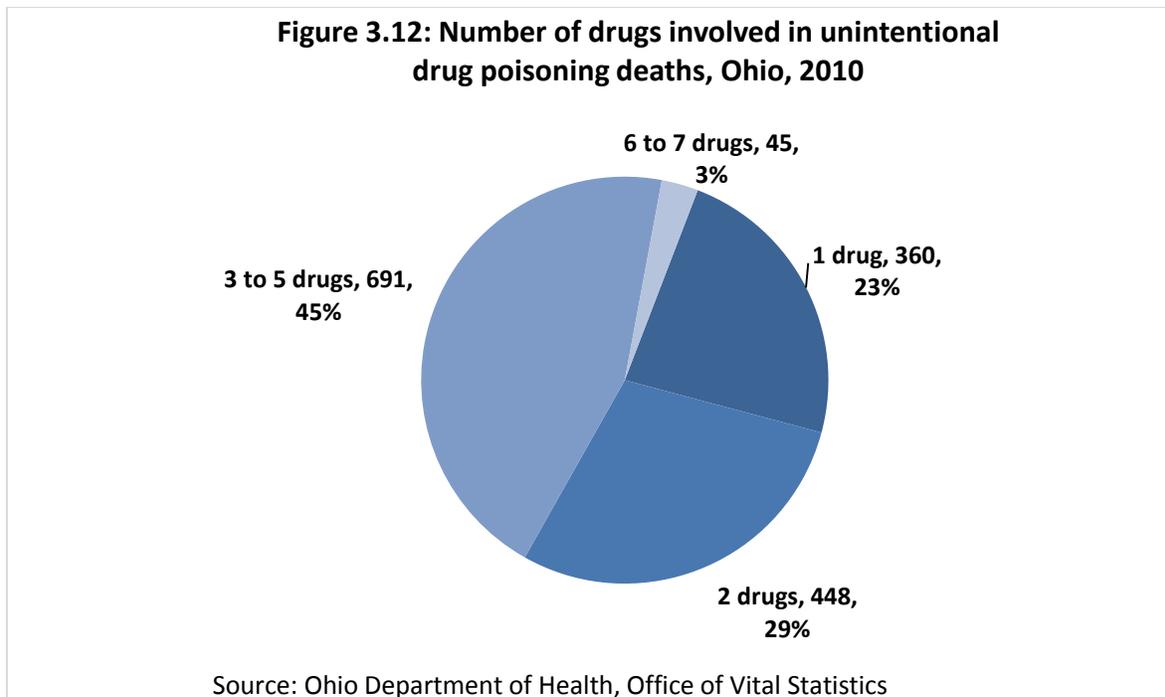
Ohio Violence and Injury Prevention Program, Ohio Department of Health

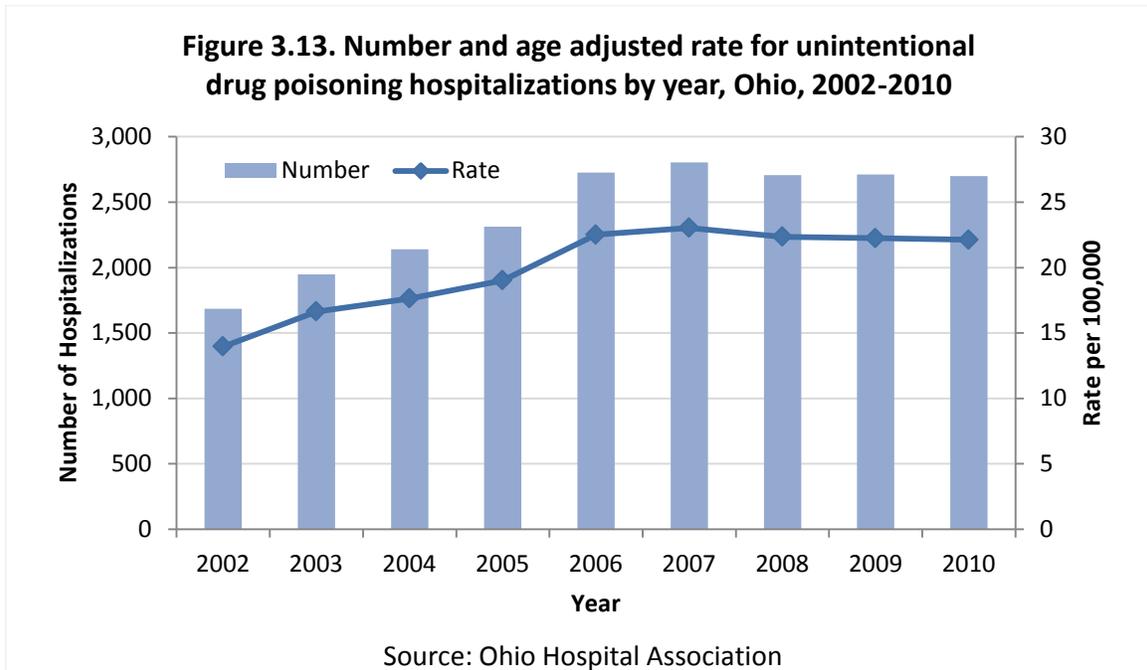
- 6. Fatal unintentional overdoses involving heroin increased from an average of 100 annual occurrences in 2000-2005 to an average of 224 annual occurrences in 2006-2010. In 2006-2010, 15 percent of the unintentional overdoses involved heroin.

Notice that the rank order of the drug category occurrences did not change from the 2000-2005 average to the 2006- 2010 average. As stated above, all of the drug category occurrences increased, however, cocaine only increased by 35 percent while other/unspecified drug only, other/unspecified drug included, prescription opioids and all opioids were all above 80 percent. Also stated above is that the drug categories, except for other/unspecified drug only, are not mutually exclusive, so that multiple drugs can be listed on the death certificate as contributing to the death.

MULTIPLE DRUG USE

After examining the types of drugs involved in unintentional drug poisonings, the emphasis now turns to the number of substances involved in the death. In addition to rapidly rising opioid use, multiple drug use is another key contributing factor in this epidemic. Presenting the number of drugs/medications listed on the death certificate, Figure 3.12 displays the percentage of single and multiple unintentional drug poisoning deaths for Ohio in 2010. Grouped into categories, 360 or nearly one fourth (23 percent) of the decedents had only one drug listed **while the remaining three fourths (77%) involved more than one substance**. Twenty nine percent (448) of decedents had 2 drugs/medications. The largest category with 45 percent (691) had 3 to 5 drugs/medications while the smallest group, with 3 or 3 percent of the individuals, had 6 to 7 drugs/medications. None of the death certificates indicated over 7 drugs were involved in the deaths.





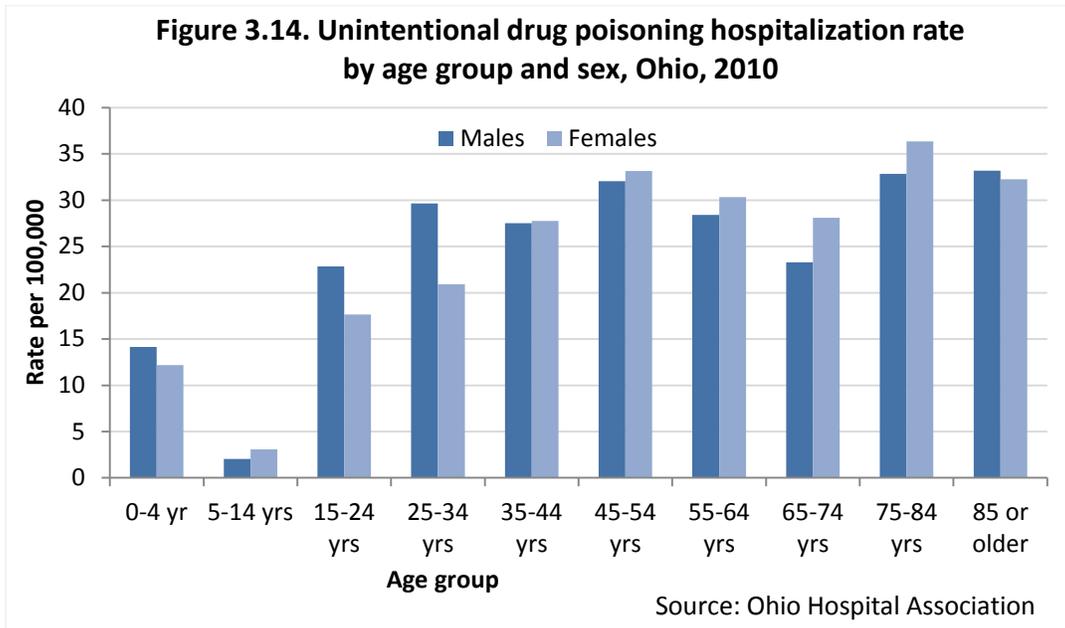
HOSPITALIZATIONS:

Over 2,700 hospitalizations resulted from unintentional drug poisonings in Ohio in 2010 (Figure 3.13). Nearly all (92 percent) of the hospitalizations for unintentional poisoning were related to drug/medications. For both males and females, the number of drug poisoning-related hospitalizations decreased with age from 0-14 years, steadily increased between ages 15 and 54, and remained elevated among ages 55 or older (Figure 3.14). See Table 3.6 for an unintentional drug poisoning hospitalization risk profile.

Table 3.6 Unintentional Drug Poisoning Hospitalization Risk Profile		
	2010 At Risk Groups	Annual trend since 2002
Overall		+57%
Sex	Similar for males and females	Similar for males and females
Age	45 or older	45-54 (largest increase)

TRENDS:

Unintentional drug poisoning hospitalization rates for unintentional drug poisonings have increased from 14 per 100,000 in 2002 to 22 per 100,000 in 2010. Rates increased on average by 1 hospitalization per 100,000 per year. The increase was similar for males and females. The hospitalization rate increased across almost all age groups, with the largest increase found among adults ages 45-54 (2 per 100,000 per year). Trends among ages 0-14 and 85 or older did not follow a linear trend. See Tables 8a and 8b located at the end of this section for more detailed information on the number and rate of hospitalizations resulting from unintentional drug poisoning.



DRUGS AND MEDICATION:

Between 2007 and 2010, the most common drugs involved in unintentional poisoning were opioids (889 per year), prescription opioids (841 per year), alcohol (523 per year), benzodiazepines (498 per year), cocaine (307 per year), tranquilizers (287 per year), methadone (189 per year) and heroin (133 per year). An increase in the annual number of poisonings was found for almost all drug categories. The largest increases were found for methadone (73 percent), all opioids (51 percent), and prescription opioids (51 percent). In contrast, the annual number of poisonings involving cocaine remained the same in 2002-2006 and 2007-2010.

Consistent with death data, all opioids and prescription opioids were involved in the greatest percentage (33 percent or one-third) of hospitalizations for unintentional drug overdose. Among specific opioids, methadone was involved in a higher percentage of the unintentional overdoses than heroin. Prescription opioids and

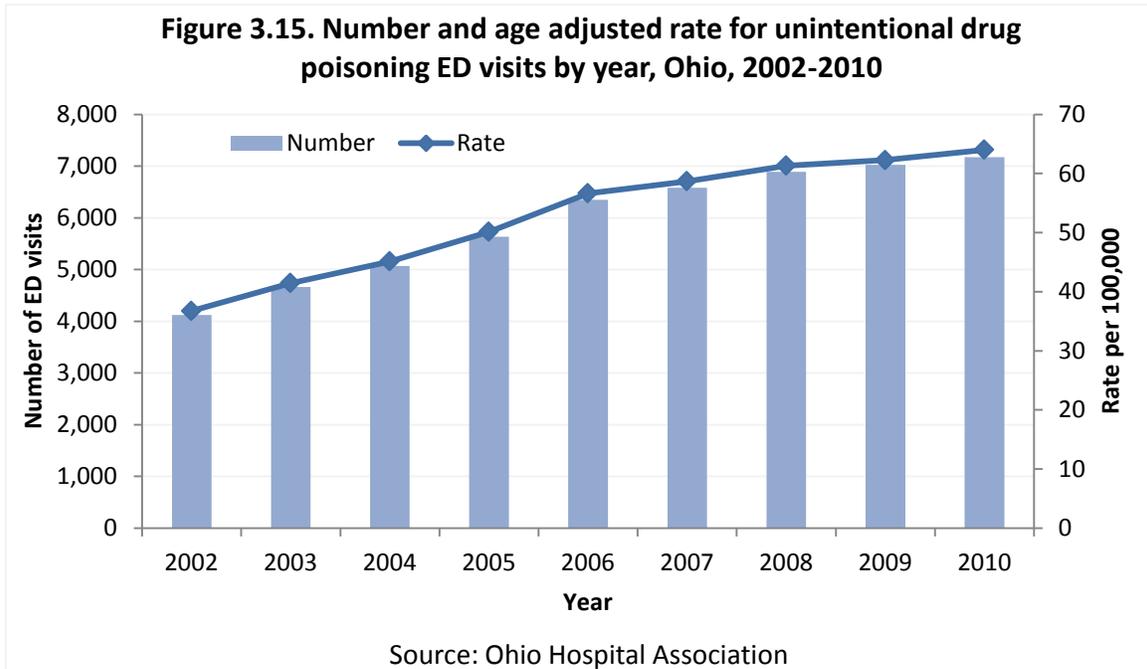
Table 3.7 Drug Involvement in Unintentional Drug Poisoning Hospitalizations: Risk Profile

Drug Category	2002-2006 Annual Ave.	2007-2010 Annual Ave.	Percent of all 2007-2010 Drug Poisonings
All opioids	587	889	33%
Prescription opioid	557	841	31%
Alcohol	408	523	19%
Benzodiazepines	341	498	18%
Cocaine	307	307	11%
Tranquilizers	201	287	11%
Methadone	87	189	7%
Heroin	86	133	5%
All Drug Poisoning Hospitalizations	2,162	2,731	

Ohio Violence and Injury Prevention Program, Ohio Department of Health

benzodiazepines were involved in 31 and 18 percent, respectively, of the hospitalized unintentional overdoses.

See table 8c at the end of this section for more detailed information on the number of drugs and medications involved with unintentional poisonings.



EMERGENCY DEPARTMENT VISITS:

Approximately 7,200 ED visits resulted from unintentional drug poisonings in 2010 resulting in a rate of 64 visits per 100,000 Ohioans (Figure 3.15). The rate of unintentional drug poisoning-related ED visits was similar among males and females for ages 0-74. Among ages 75 or older, rates were higher for males compared to females. The highest rate of ED visits was found among children ages 1-4 years (264 per 100,000) while the lowest number of ED visits was found among children ages 5-14 (24 per 100,000) (Figure 3.16). See Table 3.8 for an unintentional drug poisoning ED visit risk profile.

Table 3.8 Unintentional Drug Poisoning ED Visit Risk Profile		
	2010 At Risk Groups	Annual trend since 2002
Overall		+73%
Sex	Similar for males and females	Similar for males and females
Age	1-4 years	1-4 years (largest increase)

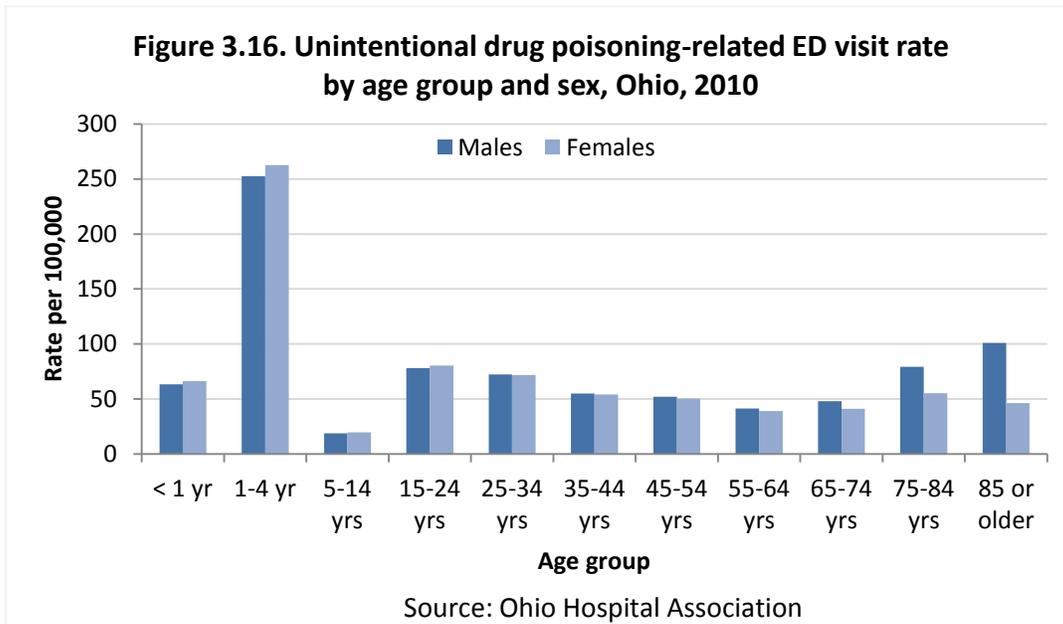
TRENDS:

Since 2002, the rate of unintentional drug poisoning-related ED visits nearly doubled from 37 per 100,000 in 2002 to 64 per 100,000 in 2010. The average annual increase was 4 per 100,000 per year. The increase was similar among males and females. Drug poisoning-related ED visit rates increased among all age groups with the largest increases found among children ages 1-4 (14 per 100,000 per year). See Tables 9a and 9b located

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at the end of this section for more detailed information on the number and rate of unintentional drug poisoning ED visits.



DRUGS AND MEDICATION:

From 2007 to 2010, the most common drugs involved with ED visits resulting from unintentional drug poisonings included opioids (1,185 per year), prescription opioids (909 per year), benzodiazepines (635 per year), tranquilizers (557 per year), methadone (475 per year) and heroin (442 per year). The number of ED visits increased rapidly among most drug categories. Compared to annual averages in 2002-2006, the most rapid increase was found among visits associated with the use of Methadone (265 percent) and Heroin (149 percent).

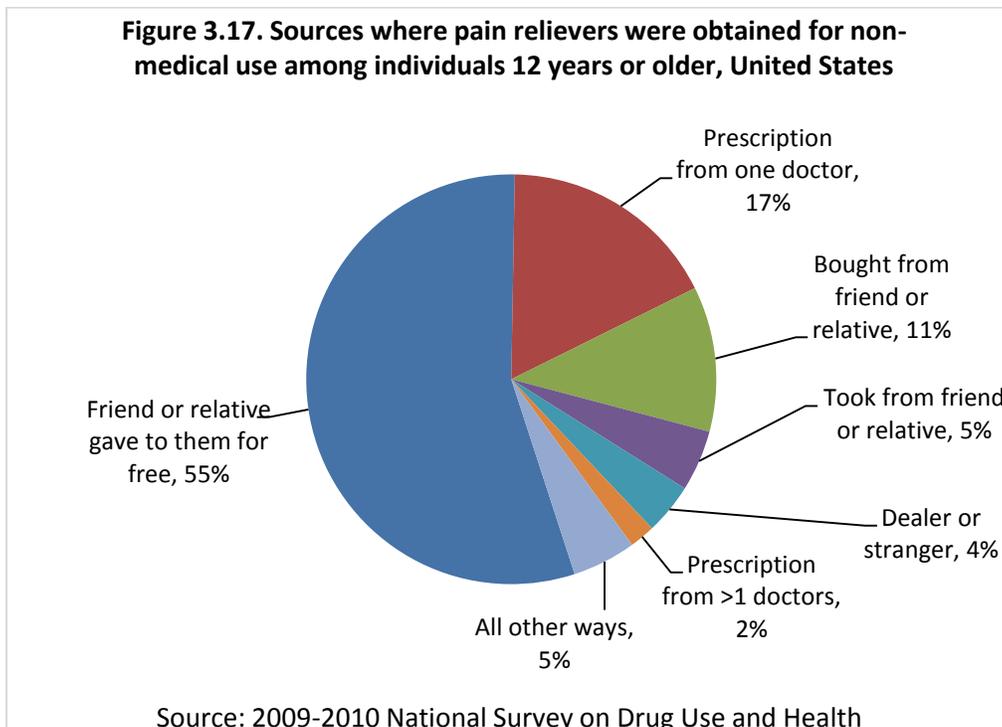
See Table 9c located at the end of this section for more detailed information on trends in the type of drugs associated with unintentional drug poisoning ED visits.

Drug Category	2002-2006 Annual Ave.	2007-2010 Annual Ave.	Percent of all ED Visits for Drug Poisoning, 2007-2010
All opioids	662	1,185	17%
Prescription opioids	509	909	13%
Benzodiazepines	442	635	9%
Tranquilizers	330	557	8%
Methadone	130	475	7%
Heroin	178	442	6%
Alcohol	325	377	5%
Total ED Visits for Drug Poisoning	5,170	6,919	

PAIN MEDICATION USE:

According to the 2010, Ohio Behavioral Risk Factor Surveillance Survey (BRFSS), one third of adults in Ohio reported using pain medications in the last 12 months. The use of pain medication varied across segments of the population. Females were more likely to report use than males. Adults who were widowed, separated, or divorced were more likely to use than married couples. Substantial differences in pain medication use were found by socioeconomic groups. College graduates were less likely to use pain medications than other educational attainment categories. Adults living below or near the federal poverty level were more likely to report usage than individuals 200 percent or more above poverty.

While opioid pain medications are controlled substances that should be accessible only through prescriptions by legitimate prescribers, studies have shown these medications are commonly diverted and used by people for whom they are not prescribed. Nationwide, most nonmedical users of pain relievers reported accessing the drugs through someone else. The most common source was a friend or relative (71 percent) with most getting the pain relievers for free (55 percent), some buying them (11 percent) and a small proportion taking them without asking (5 percent). Only 1 in 5 reported obtaining pain relievers through one (17 percent) or more doctors (2 percent) (see Figure 3.17).



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In Ohio, the most common prescription pain medications reported were drugs with the active ingredients of hydrocodone (e.g., Vicodin, Lortabs), oxycodone (e.g., OxyContin, Percocet) and medications with other active ingredients. In addition, 21 percent of adults with a prescription and 14 percent of adults without a prescription did not know the active ingredient.

Findings from the survey suggest that the majority of adults with a prescription had leftover medication.

Among those with leftover medication, most either kept it (69 percent) or disposed of it (28 percent). Secure

storage and proper disposal of unused medication is an important public health issue because it can reduce access to unintended users and reduce the environmental threat to natural resources.

While prescription opioid medication is commonly used to manage pain, the active ingredients in the medication have highly addictive properties structurally similar to heroin. It is recommended using the medication as directed by a physician in order to avoid addiction and possible overdose. Findings from the survey found that 5 percent of those with a prescription did not use as directed and 4 percent of all adults used pain medication for recreation or non-medical use. Based on the overwhelming and escalating prescription drug abuse problem facing Ohio, these figures are likely under-reported. See Tables 10a-d for more detailed information about self-reported prescription medication use.

Table 3.10 Most common pain medications reported by active ingredient¹

Active ingredient	With a prescription	Without a prescription
Hydrocodone	34%	31%
Oxycodone	20%	29%
Other drug	18%	16%
Don't know	21%	14%

¹Source: Ohio BRFSS, ODH, 2010

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Table 7a. Number of deaths resulting from unintentional drug poisoning by year, Ohio, 2000-2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	411	555	702	658	904	1,020	1,261	1,351	1,475	1,423	1,544
Sex											
Males	287	364	454	443	604	654	828	871	937	898	989
Females	124	191	248	215	300	366	433	480	538	525	555
Age											
< 1 yr	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1-4 yrs	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
5-14 yrs	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
15-24 yrs	15	54	58	88	103	103	109	120	117	104	138
25-34 yrs	72	90	124	128	147	204	234	258	306	332	345
35-44 yrs	168	204	249	183	275	282	268	364	374	370	381
45-54 yrs	116	157	195	183	280	318	412	449	461	434	463
55-64 yrs	22	23	46	33	65	81	108	125	163	137	183
65-74 yrs	6	9	14	12	16	13	12	22	28	24	19
75-84 yrs	6	10	12	11	10	12	7	6	15	13	7
85 or older	<5	7	<5	17	6	<5	<5	5	6	5	6
Race/Ethnicity											
White‡	332	435	574	552	748	875	1,076	1,172	1,292	1,253	1,377
Black‡	73	97	107	92	140	124	173	165	160	145	141
Hispanic	<5	17	12	<5	12	18	<5	11	16	20	23
Other‡	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

‡Non-Hispanic

Source: Ohio Department of Health, Office of Vital Statistics

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 7b. Death rates per 100,000 resulting from unintentional drug poisoning, by year, Ohio, 2000-2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	3.6	4.9	6.2	5.8	7.9	8.9	11.0	11.7	12.8	12.5	13.4	1.0
Sex†												
Males	5.2	6.5	8.2	7.9	10.7	11.6	14.7	15.4	16.5	15.9	17.5	1.3
Females	2.1	3.2	4.2	3.6	5.1	6.2	7.4	8.1	9.1	9.1	9.5	0.8
Age												
< 1 yr	*	*	*	*	*	*	*	*	*	*	*	*
1-4 yrs	*	*	*	*	*	*	*	*	*	*	*	*
5-14 yrs	*	*	*	*	*	*	*	*	*	*	*	*
15-24 yrs	*	3.4	3.7	5.5	6.5	6.5	6.9	7.6	7.5	6.6	8.8	*
25-34 yrs	4.8	6.0	8.4	8.7	10.0	13.9	16.0	17.6	20.8	22.5	23.3	2.0
35-44 yrs	9.3	11.5	14.3	10.7	16.4	17.1	22.6	22.8	24.0	24.3	25.1	1.7
45-54 yrs	7.4	9.6	11.8	10.9	16.5	18.5	23.7	25.6	26.3	24.7	26.4	2.1
55-64 yrs	2.2	2.2	4.2	2.9	5.5	6.7	8.6	9.6	12.2	9.9	13.2	1.1
65-74 yrs	*	*	*	*	*	*	*	2.8	3.4	2.9	*	*
75-84 yrs	*	*	*	*	*	*	*	*	*	*	*	*
85 or older	*	*	*	*	*	*	*	*	*	*	*	*
Race/Ethnicity†												
White‡	3.4	4.5	6.0	5.8	7.8	9.1	11.3	12.3	13.5	13.4	14.6	1.2
Black‡	6.1	7.8	8.6	7.3	11.1	9.5	13.2	12.3	12.0	10.7	10.3	0.5
Hispanic	*	*	*	*	*	*	*	*	*	*	8.0	*
Other‡	*	*	*	*	*	*	*	*	*	*	*	*

*Rates suppressed due to less than 20 deaths

†Age adjusted to 2000 U.S. standard population

‡Non-Hispanic

Source: Ohio Department of Health, Office of Vital Statistics

Burden of Injury in Ohio, 2000-2010

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Table 8a. Number of hospitalization resulting from unintentional drug poisonings, by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	1,685	1,948	2,141	2,312	2,726	2,805	2,706	2,711	2,700
Sex									
Males	838	1,012	1,013	1,134	1,400	1,350	1,299	1,317	1,324
Females	847	1,014	1,128	1,178	1,326	1,455	1,407	1,394	1,376
Age									
0-4 yr	122	141	125	136	159	191	196	174	95
5-14 yrs	64	54	65	47	43	56	75	48	39
15-24 yrs	224	280	291	286	345	313	293	326	322
25-34 yrs	174	229	236	294	319	360	316	370	356
35-44 yrs	324	340	377	396	455	439	418	383	409
45-54 yrs	288	351	416	457	578	569	570	564	568
55-64 yrs	158	192	210	254	361	343	365	367	427
65-74 yrs	154	145	193	223	219	244	229	235	220
75-84 yrs	122	155	162	139	165	201	167	169	189
85 or older	55	61	66	80	82	89	77	75	75

Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 8b. Hospitalization rates per 100,000 resulting from drug unintentional poisonings, by year, Ohio, 2002-2010[†]

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	14.0	16.6	17.6	19.0	22.5	23.0	22.4	22.2	22.1	1.0
Sex†										
Males	14.0	16.6	16.8	18.9	23.3	22.5	21.7	21.8	21.9	1.0
Females	14.1	16.8	18.7	19.4	21.9	23.9	23.3	22.9	22.5	1.1
Age										
0-4 yr	16.3	18.9	16.8	18.4	21.6	25.8	25.9	23.8	18.9	0.8 (NL)
5-14 yrs	4.0	3.4	4.1	3.0	2.8	3.7	4.4	4.1	2.6	<-0.1 (NL)
15-24 yrs	14.2	17.6	18.2	18.0	21.8	19.9	19.3	19.7	20.4	0.6
25-34 yrs	11.8	15.6	16.2	20.2	21.9	24.6	23.7	24.0	26.0	1.7
35-44 yrs	18.6	19.9	22.5	24.0	28.0	27.5	26.0	27.1	27.0	1.1
45-54 yrs	17.5	21.0	24.5	26.6	33.3	32.6	32.2	31.9	32.5	1.9
55-64 yrs	14.6	17.1	18.0	20.9	28.7	26.4	26.7	25.6	27.7	1.7
65-74 yrs	20.0	18.9	25.1	29.1	28.5	31.2	29.9	28.5	28.5	1.2
75-84 yrs	22.1	27.9	29.1	25.1	30.0	37.0	34.0	31.9	32.9	1.3
85 or older	29.1	31.1	32.9	38.7	38.2	40.0	42.4	37.4	27.3	0.5 (NL)

†Rates are age adjusted to 2000 U.S. standard population

NL: Interpret with caution because trend does not follow linear pattern

Source: Ohio Hospital Association

Table 8c. Number of hospitalizations resulting from unintentional drug poisonings, by drug type, Ohio, 2002-2010

Drug/medication	2002-2006		2007-2010		Change
	N	Annual Ave	N	Annual Ave	
All opioids	2,936	587	3,555	889	51%
Prescription opioid	2,785	557	3,364	841	51%
Alcohol	2,041	408	2,091	523	28%
Benzodiazepines	1,707	341	1,991	498	46%
Cocaine	1,534	307	1,226	307	0%
Tranquilizers	1,006	201	1,149	287	43%
Methadone	436	87	756	189	117%
Heroin	430	86	531	133	54%
Barbituates	393	79	407	102	29%

Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 9a. Number of ED visits resulting from unintentional drug poisonings, by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	4,125	4,662	5,072	5,638	6,352	6,581	6,893	7,025	7,172
Sex									
Males	1,954	2,165	2,347	2,651	3,070	3,121	3,315	3,429	3,525
Females	2,171	2,497	2,725	2,987	3,282	3,460	3,578	3,596	3,647
Age									
< 1 yr	101	89	81	108	117	128	130	129	97
1-4 yr	1,178	1,235	1,304	1,437	1,669	1,803	1,833	1,786	1,538
5-14 yrs	270	299	321	370	401	390	420	370	363
15-24 yrs	708	876	887	954	1,067	992	1,077	1,149	1,284
25-34 yrs	472	539	574	685	748	795	846	970	1,090
35-44 yrs	478	533	641	634	674	694	740	706	748
45-54 yrs	361	436	487	572	672	668	704	759	826
55-64 yrs	181	245	302	352	382	416	504	507	540
65-74 yrs	183	187	229	227	247	324	292	298	313
75-84 yrs	153	166	185	225	277	270	242	252	276
85 or older	40	57	61	74	98	101	105	99	101

Source: Ohio Hospital Association

Burden of Injury in Ohio, 2000-2010

Ohio Violence and Injury Prevention Program, Ohio Department of Health

Table 9b. ED visit rates per 100,000 resulting from unintentional drug poisonings, by year, Ohio, 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	36.8	41.5	45.1	50.1	56.6	58.7	61.3	62.3	64.0	3.5
Sex†										
Males	35.2	39.0	42.3	47.8	55.6	56.5	59.7	61.6	63.8	3.8
Females	38.2	43.7	47.9	52.2	57.4	60.7	62.8	62.9	63.9	3.3
Age										
< 1 yr	68.6	60.4	54.3	73.7	79.0	84.4	85.2	87.3	69.8	2.6
1-4 yr	195.8	206.5	219.0	241.8	284.3	306.7	310.1	301.8	264.3	13.5
5-14 yrs	16.7	18.7	20.3	23.8	26.1	25.7	28.1	24.8	23.8	1.1
15-24 yrs	44.7	54.9	55.6	59.9	67.4	63.0	68.5	73.4	80.9	3.8
25-34 yrs	32.0	36.8	39.3	47.0	51.4	54.4	57.8	65.6	77.3	5.2
35-44 yrs	27.4	31.2	38.3	38.5	41.5	43.6	47.6	46.4	50.5	2.7
45-54 yrs	21.9	26.1	28.7	33.3	38.7	38.2	40.2	43.3	47.4	3.0
55-64 yrs	16.7	21.8	25.8	29.0	30.4	32.0	37.8	36.6	37.2	2.6
65-74 yrs	23.7	24.3	29.8	29.6	32.1	41.4	36.2	35.7	36.8	1.8
75-84 yrs	27.7	29.9	33.3	40.6	50.4	49.7	45.2	46.5	51.0	2.9
85 or older	21.2	29.1	30.4	35.8	45.6	45.4	45.9	43.5	43.8	2.9

†Rates are age adjusted to 2000 U.S. standard population

Source: Ohio Hospital Association

Table 9c. Number of ED visits resulting from unintentional drug poisonings, by type of drug and year, Ohio, 2002-2010

Drug	2002	2003	2004	2005	2006	2007	2008	2009	2010	2002-2006	2007-2010	Change
										Annual Ave.	Annual Ave.	
Barbituates	46	39	38	52	38	53	61	60	53	43	57	33%
Alcohol	275	295	336	333	386	349	371	381	408	325	377	16%
Benzodiazepines	339	353	450	513	553	568	654	675	641	442	635	44%
Cocaine	117	62	80	127	153	128	136	85	90	108	110	2%
Heroin	104	138	157	221	268	294	361	472	641	178	442	149%
Methadone	40	69	125	159	257	320	401	465	712	130	475	265%
Prescription opioid	384	515	539	671	434	753	880	952	1,049	509	909	79%
All opioid	456	609	647	765	832	934	1,099	1,239	1,467	662	1185	79%
Tranquilizers	238	255	335	348	472	510	582	568	567	330	557	69%

Source: Ohio Hospital Association

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Table 10a. Prevalence of prescription pain medication use in last 12 months among adults 18 or older, Ohio, 2010

	N	Percent	95% CI
Overall	2,041	31.7	(30.0-33.3)
Male	677	27.8	(25.2-30.4)
Female	1,364	35.2	(33.1-37.3)
18-24	34	29.5	(18.9-40.0)
25-34	136	31.0	(25.7-36.3)
35-44	250	28.1	(24.4-31.8)
45-54	435	33.8	(30.5-37.0)
55-64	565	35.1	(32.1-38.2)
65 or older	621	32.8	(30.1-35.4)
Married or unmarried couple	1,035	29.4	(27.4-31.4)
Widow, divorce, or separated adult	763	39.3	(36.2-42.4)
Never married	238	33.2	(28.0-38.4)
Employed	815	26.2	(24.1-28.4)
Not employed	142	33.6	(27.0-40.2)
Other	1,079	41.0	(38.3-43.7)
Did not graduate from HS	210	52.2	(45.2-59.2)
HS grad/GED	686	32.2	(29.3-35.1)
Some college	602	37.3	(33.8-40.8)
College graduate	538	23.2	(20.7-25.7)
Below poverty	235	45.2	(38.7-51.7)
Above poverty < 200%	454	39.3	(35.2-43.3)
Above poverty ≥ 200%	1,072	27.2	(25.2-29.2)
Missing household/income	279	30.9	(26.2-35.5)
Metropolitan	1,268	32.1	(29.9-34.3)
Suburban	296	29.1	(25.2-32.9)
Rural	201	30.5	(25.9-35.2)
Appalachian	259	35.8	(31.2-40.5)

Source: Ohio Behavioral Risk Factor Surveillance System

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Table 10b. Prevalence of prescription pain medication use among adults age 18 or older who have used with a prescription in last 12 months, by drug used, Ohio, 2010

	N	2010 Ohio BRFSS	
		Percent	95% CI
Hydrocodone	607	33.6	(30.6-36.6)
Oxycodone	355	19.8	(17.3-22.3)
Other prescription drug	388	18.4	(16.0-20.7)
Tramadol	128	5.9	(4.4-7.3)
Propoxyphene	144	5.2	(4.1-6.3)
Tylenol with codeine	75	3.8	(2.7-4.9)
Codeine	38	2.3	(1.3-3.2)
Morphine	39	1.4	(0.7-2.2)
Hydromorphone	15	0.9	(0.3-1.5)
Methadone	14	0.6	(0.3-1.0)
Fentanyl	12	0.5	(0.2-0.9)
Meperidine	10	0.4	(0.1-0.7)
Don't know or refused	473	20.7	(18.3-23.1)

Source: Ohio Behavioral Risk Factor Surveillance System

Table 10c. Prevalence of pain medication use among adults ages 18 or older who have used and not been prescribed in last 12 months, by drug used, Ohio, 2010

	N	2010 Ohio BRFSS	
		Percent	95% CI
Hydrocodone	38	31.4	(19.4-43.4)
Oxycodone	35	28.7	(17.5-39.9)
Other prescription drug	25	15.9	(8.0-23.8)
Tylenol with codeine	12	5.9	(1.8-10.0)
Tramadol	7	4.1	(0.0-9.0)
Propoxyphene	7	4.1	(0.0-9.2)
Morphine	<5	3.7	(0.0-8.7)
Codeine	6	2.0	(0.0-3.9)
Hydromorphone	0	0.0	-
Methadone	0	0.0	-
Fentanyl	0	0.0	-
Meperidine	0	0.0	-
Don't know or refused	21	14.3	(4.0-24.6)

Source: Ohio Behavioral Risk Factor Surveillance System

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Table 10d. Prevalence of dispersion methods among prescription pain medication users who had medication leftover from last prescription by dispersion type, Ohio 2010

	2010 Ohio BRFSS		
	N	Percent	95% CI
Kept it	723	68.8	(64.6-73.0)
Disposed of it	246	28.0	(24.0-32.1)
Gave it someone else	12	1.8	(0.5-3.0)
Other	10	0.7	(0.2-1.3)
Sold it	<5	0.6	(0.0-1.9)

Source: Ohio Behavioral Risk Factor Surveillance System

APPENDICES

APPENDIX 1: DATA SOURCES

This report uses data from behavioral risk factor surveys, hospital discharge records and death certificates to study patterns and trends in injuries among Ohio residents. The following is brief summary of each data source referenced in this report.

Cost of Injuries

The medical and work loss cost of injuries was estimated by the Centers for Disease Control and Prevention (CDC). Cost estimates for fatal and non-fatal injuries can be queried on the CDC's Web-based Injury Statistics Query and Reporting System Web (WISQARS).

http://www.cdc.gov/injury/wisqars/pdf/WISQARS_Cost_Methods-a.pdf

Death Records

Death records are maintained by ODH's Office of Vital Statistics. Death certificates provide limited information about circumstances of injury circumstances or contributing factors. Both injuries and their external causes were classified according to the 10th Revision of the International Classification of Diseases (ICD-10). See Appendix 3 for a complete list of external cause of injury codes by mechanism and intent.

<http://dwhouse.odh.ohio.gov/datawarehousev2.htm>

Hospital Discharge Records

Hospital discharge records are collected and maintained by the Ohio Hospital Association (OHA) from information provided by member hospitals. Both injuries and their external causes were classified according to the 9th Revision of the International Classification of Diseases, Clinical Modification (ICD-9-CM). For hospitalizations, a case was defined as an Ohio resident with an injury listed in the primary diagnosis field. For ED visits, a case was defined as an Ohio resident with an injury listed in the primary diagnosis field or a valid external cause of injury code any of the 15 diagnosis fields. Injury mechanisms for both hospitalizations and ED visits were based on the first listed external cause of injury. See Appendix 2 for a complete list external cause of injury codes by mechanism and intent.

<http://www.ohanet.org/>

Leading Causes of Death

The data source for WISQARS Fatal Injury Data is the National Vital Statistics System (NVSS) operated by the National Center for Health Statistics. WISQARS provides death counts and death rates for the United States and by state, county, age, race, Hispanic ethnicity, sex, and leading cause of death, injury intent, and injury mechanism categories. WISQARS can be used to query death data for the years 1999 - 2009, of which the underlying cause of death is specified using ICD-10 codes.

http://www.cdc.gov/injury/wisqars/leading_causes_death.html

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Ohio Behavioral Risk Factor Surveillance System (BRFSS)

The Ohio Behavioral Risk Factor Surveillance System (BRFSS) is a random digit dial telephone survey of non-institutionalized adults aged 18 years of older. The BRFSS has been conducted annually by the Ohio Department of Health since 1984. The survey collects information on the prevalence of health behaviors, health care usage, and disease diagnosis associated with the leading cause of disease, injury and death in the United States. Results from the survey are weighted to represent the age, sex, race, and ethnic composition of Ohio.

<http://www.odh.ohio.gov/healthstats/brfss/behrisk1.aspx>

Ohio Population Estimates

The National Center for Health Statistics releases bridged-race population estimates of the resident population of the United States for use in calculating vital rates. These estimates result from bridging the 31 race categories used in Census 2000 and Census 2010. The bridged-race population estimates are produced under a collaborative arrangement with the U. S. Census Bureau.

http://www.cdc.gov/nchs/nvss/bridged_race.htm

Ohio Pregnancy Risk Assessment Monitoring System (PRAMS)

The Pregnancy Risk Assessment Monitoring System (PRAMS) is a population-based survey designed to examine maternal behaviors and experiences before, during and after a woman's pregnancy, and during the early infancy of her child. The Centers for Disease Control and Prevention initiated PRAMS in 1987 in an effort to reduce infant mortality and the incidence of low birth weight. PRAMS were implemented in Ohio in 1999.

<http://www.odh.ohio.gov/healthstats/pramshs/prams1.aspx>

Ohio Traffic Crash Reports

The Ohio Department of Public Safety compiles statistical data on crashes that occur on Ohio's roads and highways. Crash data is available in the form of annual reports. Users can also develop customized queries of the data online.

http://ohiohighwaysafetyoffice.ohio.gov/otso_annual_crash_facts.stm

Ohio Youth Risk Behavior Survey (YRBS)

The Ohio Youth Risk Factor Survey (YRBS) is an anonymous paper and pencil survey of high school students enrolled in public and non-public schools. The YRBS has been conducted in Ohio since 1993 and is collaborative project between the Ohio Departments of Education and Health. The survey collects information on the prevalence of health behaviors, health care usage, and disease diagnosis associated with the leading cause of disease, injury and death in the United States. Results from the survey are weighted to represent the age, sex, race, and ethnic composition of Ohio.

http://www.odh.ohio.gov/odhprograms/chss/ad_hlth/youthrsk/youthrsk1.aspx

APPENDIX 2: ANALYTIC METHODS

This analysis was limited to descriptive statistics, which were generated through the use of Statistical Analysis System (SAS) Version 9.1, Cary, N.C. The data were analyzed using injury surveillance guidelines from the Centers for Disease Control and Prevention (CDC).

Deaths:

- Injury deaths were defined as a death with the underlying cause of death listed as an injury. Traumatic brain injury deaths were defined as deaths with an injury as underlying cause of death and a traumatic brain injury listed in one of the multiple cause of death fields. See Appendix 4 for a list of ICD-10 codes for injury mechanisms and Appendix 6 for a list of mechanism subcategories.
- Deaths included in this report were restricted to Ohio residents.
- Rates were calculated by dividing the number of injuries by the number of Ohio residents. Population estimates were based on estimates from the National Center for Health Statistics. Rates were age adjusted to the 2000 U.S. standard population.

Hospitalizations:

- Discharge dataset includes nonfederal, acute care, or inpatient facilities. The dataset does not include Veterans' Affairs and other federal hospitals, rehabilitation centers, or psychiatric hospitals.
- Injury hospitalizations were defined as an inpatient visit with an injury listed in the primary discharge diagnosis field. See Appendix 5 for a list of ICD-9-CM codes for injury mechanisms and Appendix 7 for a list of mechanism subcategories.
- Datasets include readmissions, transfers, and deaths occurring in the hospital.
- Hospitalizations included in this report were restricted to Ohio residents.
- The external cause of injury code used in the analysis was the first listed cause of the discharge diagnosis fields. If the codes E000-E030, E849, E967, E869.4, E870-E879, or E930-E949 were the first listed codes then the next valid external cause code was used.
- Rates were calculated by dividing the number of injuries by the number of Ohio residents. Population estimates were based on estimates from the National Center for Health Statistics. Rates were age adjusted to the 2000 U.S. standard population.

Emergency Department Visits:

- Discharge dataset includes nonfederal, acute care, or inpatient facilities. The dataset does not include Veterans' Affairs and other federal hospitals, rehabilitation centers, or psychiatric hospitals.
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- Injury ED visits were defined as an ED visit with an injury listed in the primary discharge diagnosis field or a valid external cause of injury code in any of the discharge diagnosis fields. See Appendix 5 for a complete list of ICD-9-CM codes.
- ED visits included in this report were restricted to Ohio residents.
- Persons who are treated at an ED and later admitted to a hospital are removed from the ED dataset, and therefore are not included in any analysis of ED data.
- The external cause of injury code used in the analysis was the first listed cause of the discharge diagnosis fields. If the codes E000-E030, E849, E967, E869.4, E870-E879, or E930-E949 were the first listed codes then the next valid external cause code was used.
- Rates were calculated by dividing the number of injuries by the number of Ohio residents. Population estimates were based on estimates from the National Center for Health Statistics. Rates were age adjusted to the 2000 U.S. standard population.

Trend Analysis for Deaths, Hospitalizations and Emergency Department Visits:

- Trend analysis for annual injury death, hospitalization, and ED visit rates was conducted in Microsoft Excel. Annual injury rates were plotted and a linear trend line was drawn to minimize the distance between the trend line and data point. The goodness of fit for the linear trend line was determined by the R-squared value. Linear trends were defined as a trend line with an R-squared value of 0.5 or higher. Non-linear trends were defined as a trend line with an R-squared value of less than 0.5. The slope and goodness of fit of the trend line were reported in the data tables. Non-linear trends were labeled with (NL) next to the slope.

Poverty Status and County Urbanity Classifications:

- County urbanity was derived from county of residence reported by Ohio Behavioral Risk Factor Surveillance System respondents. County urbanity classifications were based on a combination of proximity and connectedness to urban core economic development area and definitions of Appalachian counties established by the Appalachian Development Commission. See Appendix 11 for a map with county classifications.
- Poverty status was derived from household income and household composition reported by Ohio Behavioral Risk Factor Surveillance System respondents. Respondents were grouped into categories based on the 2010 Federal Poverty Guidelines. See Appendix 12 for household income and composition thresholds.

Cost of Injuries:

- Fatal Injury costs were calculated by multiplying the number of injury deaths in Ohio by the average cost associated the death for Ohio published on the CDC's
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WISQARS website. See Appendix 8 for average cost estimates by mechanism and intent.

- Non-fatal injury costs for hospitalizations were calculated by multiplying the number of hospitalizations by the average cost associated with hospitalizations for the United States published on the CDC's WISQARS website. See Appendix 9 for average cost estimates by mechanism and intent.
 - Non-fatal injury costs for ED visits were calculated by multiplying the number of ED visits by the average cost associated with ED visits for the United States published on the CDC's WISQARS website. See Appendix 10 for average cost estimates by mechanism and intent.
 - Total injury costs were calculated by adding the estimated costs for injury deaths, hospitalizations and ED visits.
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APPENDIX 3: LIMITATIONS OF INJURY SURVEILLANCE DATA

Death Certificate Data:

- The cause of death reported on the death certificate is based on the underlying cause of death determined by a physician or coroner. While physicians and coroners are well trained to investigate and determine causes of death, a standardized process for investigating and determining causes of death does not exist in Ohio. This lack of uniformity may lead to differences in how underlying causes of death are classified and pose limitations for comparing rates across local jurisdictions.

Hospital Discharge Data:

- In each year of the study period, approximately 30 percent of injuries treated in the as inpatients and emergency departments were not assigned an external cause code (E-code). This most likely resulted in an underestimate of total costs and incidence rates, because not all mechanism and intents for injuries could be identified and included in the analysis by mechanism.
- Of the non-fatally injured, only those who sought medical care were captured for this analysis.
- Discharges, not individuals, were the unit of measurement, thereby resulting in duplication when readmissions for the same initial event occurred. The inclusion of readmissions would lead to an overestimate of incidence rates.
- Race and ethnicity are largely incomplete in the hospital discharge data and were not included in the analysis.
- Ohio residents treated in out-of-state hospitals are not consistently included, thereby affecting rates, particularly of border counties.
- Severity of injury is assumed based on type of medical treatment received (i.e., inpatient treatment is for more severe injuries than ED visits).

Behavioral Risk Factor Data:

- Data from the Pregnancy Risk Assessment Monitoring System (PRAMS), Ohio Youth Risk Behavior Survey (YRBS) and Behavioral Risk Factor Surveillance System (BRFSS) are based on self-reported behaviors by respondents. The accuracy of self-reported data depends on the respondents' ability to recall and willing to report the information. Self-reported data can lead to overestimates or underestimates of the true prevalence in the population depending on the topic being asked.
 - Results from Ohio YRBS represent a random sample of students enrolled in high schools in Ohio. The results do not represent high school age youth who have dropped out of school.
 - Results from the Ohio BRFSS represent a random sample of non-institutionalized adults ages 18 or older in Ohio with a landline in their home. The BRFSS excludes institutionalized adults and adults living in cell phone only households.
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