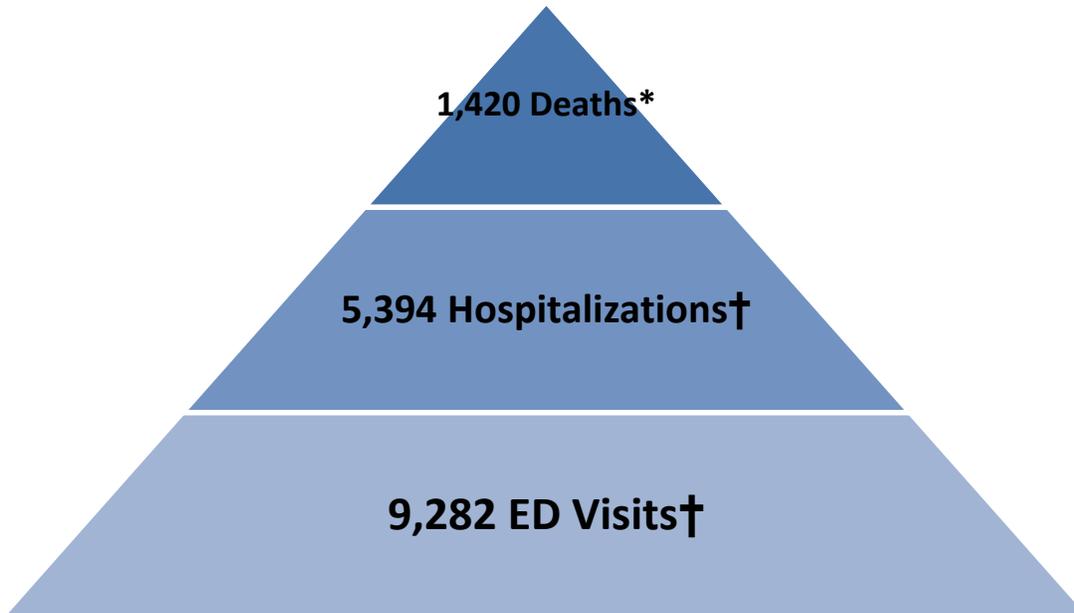


## SECTION 4.1: SUICIDES AND SELF-HARM



\*SOURCE: OHIO DEPARTMENT OF HEALTH, VITAL STATISTICS, 2010

† SOURCE: OHIO HOSPITAL ASSOCIATION

### CHAPTER HIGHLIGHTS:

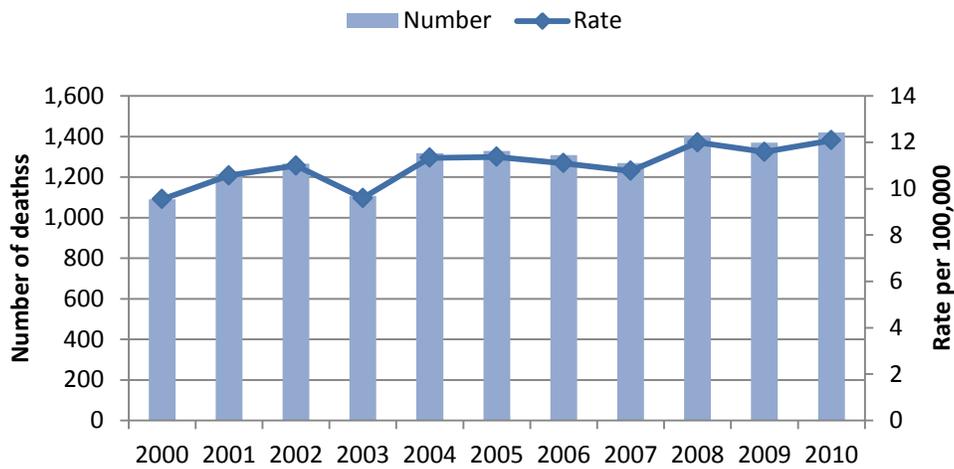
#### Patterns:

- Suicide rates were 4 times higher among males while females were more likely to experience a non-fatal self-harm injury than males.
- Highest rates of suicide were found among adults ages 45-54.
- Highest rates of non-fatal self-harm related injuries were among ages 15-44.
- Most suicides involved the use of a firearm and self-harm related injuries were caused by poisoning.

#### Trends:

- Suicide rates have increased 27 percent since 2000.
- Hospitalization and ED visit rates increased in 2002-2007 and then leveled off in 2007-2010.
- Most suicides involved the use of a firearm while poisoning was associated with most self-harm hospitalizations and ED visits throughout the study period.

**Figure 11.1. Number and age adjusted rate for suicides by year, Ohio, 2002-2010**



Source: Ohio Department of Health

**DEATHS:**

In 2010, 1,420 deaths resulted from a suicide in Ohio. The suicide rate was 12.1 per 100,000 (see Figure 11.1). Suicide rates were 4 times higher among males (20 per 100,000) compared to females (5 per 100,000). Rates among males increased among ages 15-34, leveled off between ages 35-84 and then increased among ages 85 or older. Among females, the highest rates were found among ages 45-54 (see Figure 11.2). See Table 11.1 for a suicide risk profile.

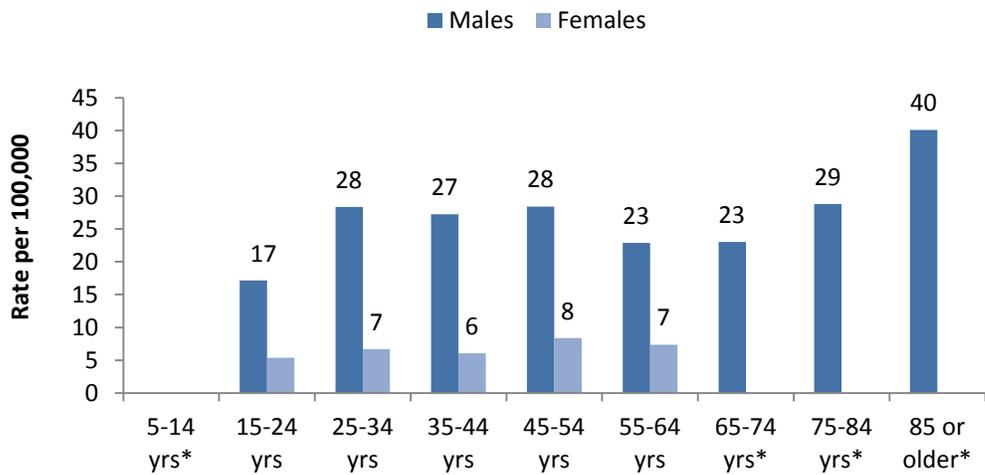
Approximately one-half of suicides resulted from firearms. Other leading mechanisms included hanging (26 percent) and poisoning (17 percent).

	2010 At Risk Groups	Annual trend since 2000
Overall		+27%
Sex	Males	Females (largest increase)
Age	45-54	45-54 (largest increase)
Race and ethnicity	Whites	Whites (largest increase)

**TRENDS:**

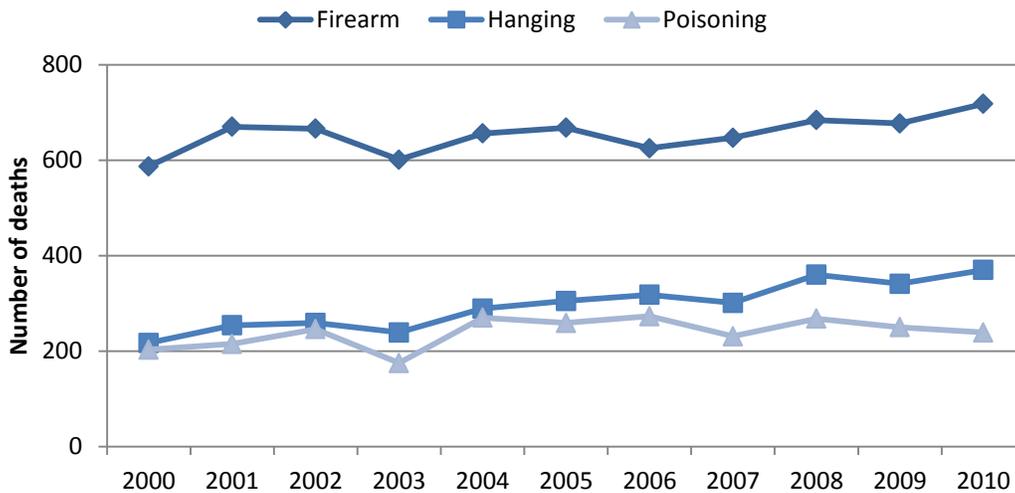
The suicide rate increased 27 percent from 9.5 per 100,000 in 2000 to 12.1 per 100,000 in 2010 (Figure 11.1). The average annual increase was 0.2 per 100,000 per year. Suicide rates increased among females (0.2 per 100,000 per year) while rates among males did not follow a consistent trend. Rates increased among adults ages 45-64 while rates decreased among adults 75-84. Rates did not follow a consistent trend among other age groups. Suicide rates increased among whites (0.3 per 100,000 per year) while rates did not follow a consistent trend among blacks. The number of suicides resulting from hanging increased by an average of 14 deaths per year while the number of suicides resulting from other mechanisms did not follow a consistent trend (Figure 11.3). See Tables 40a-c located at the end of this section for more detailed information on the number and rate of suicides in Ohio.

Figure 11.2. Suicide rates by sex and age group, Ohio, 2010



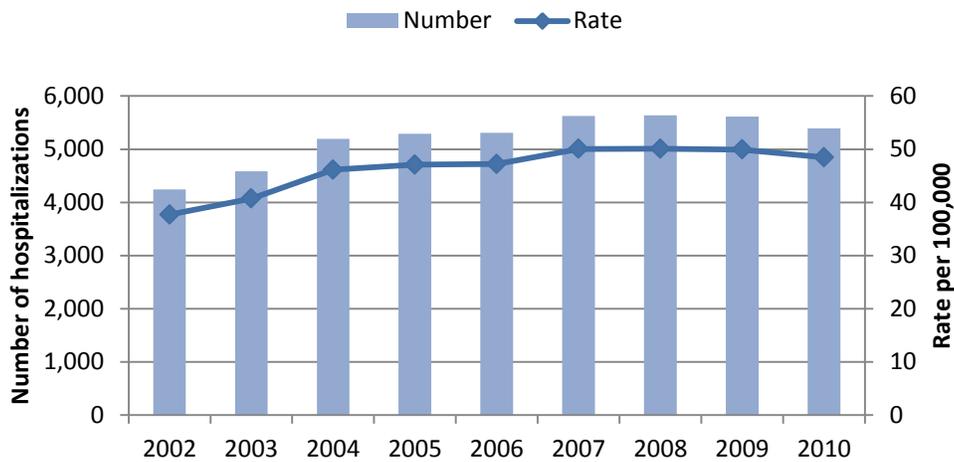
Source: Ohio Department of Health, Vital Statistics  
 \*Rates suppressed due to small cell sizes

Figure 11.3. Number of suicides by mechanism, Ohio, 2010



Source: Ohio Department of Health, Vital Statistics

**Figure 11.4. Number and age adjusted rate for self-harm hospitalizations by year, Ohio, 2002-2010**



Source: Ohio Hospital Association

**HOSPITALIZATIONS:**

In 2010, nearly 5,400 hospitalizations resulted from self-harm. The self-harm hospitalization rate was 48.5 per 100,000 (Figure 11.4). The rate was higher among females (57 per 100,000) than males (40 per 100,000). For both males and females, hospitalization rates were highest among ages 15-54 then decreased among ages 55 and older (Figure 11.5). See Table 11.2 for a self-harm hospitalization risk profile.

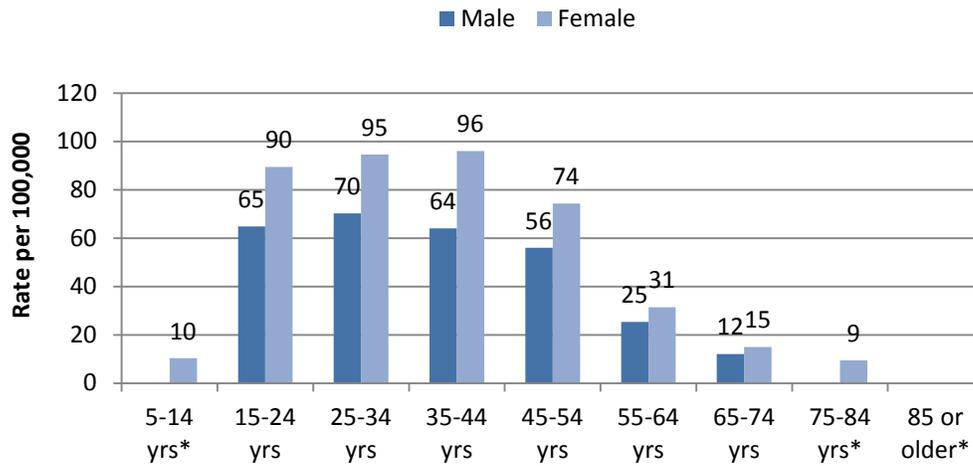
Roughly 92 percent of hospitalizations were associated with poisoning (Figure 11.6).

Table 11.2 Self-Harm Hospitalization Risk Profile		
	2010 At Risk Groups	Annual trend Since 2002
Overall		+29%
Sex	Females	Similar for males and females
Age	15-44 yrs	45-54 (largest increase)

**TRENDS:**

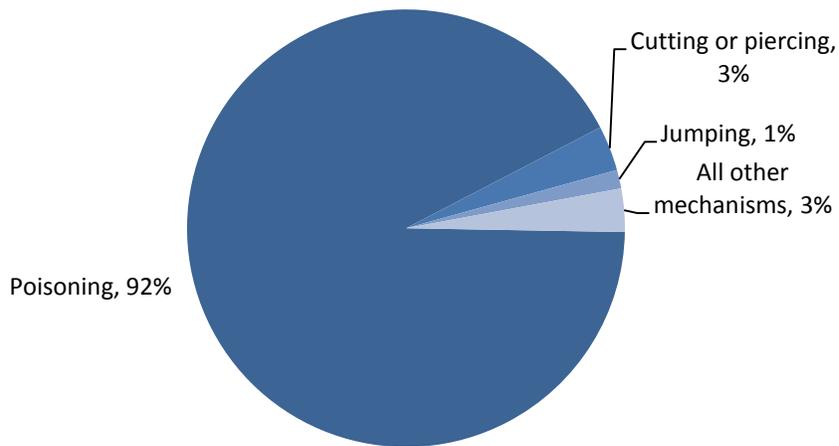
Hospitalization rates increased 29 percent from 37.7 per 100,000 in 2002 to 48.5 per 100,000 in 2010 (Figure 11.4). The average annual increase was 1.4 per 100,000 per year. The increase in rates was similar among males and females. Rates increased among ages 15-64 with the largest average increase found among adults ages 45-54 (3 per 100,000 per year). Rates among children ages 5-14 and adults ages 65-84 did not follow consistent trend. The number of self-harm hospitalizations resulting from poisoning increased by an average of 170 per year. Trends in other mechanisms did not following a consistent pattern over time. See Tables 41a-c located at the end of this section for more detailed information on the number and rates of self-harm related hospitalizations in Ohio.

Figure 11.5. Hospitalization rates for self-harm by age and sex, Ohio, 2010



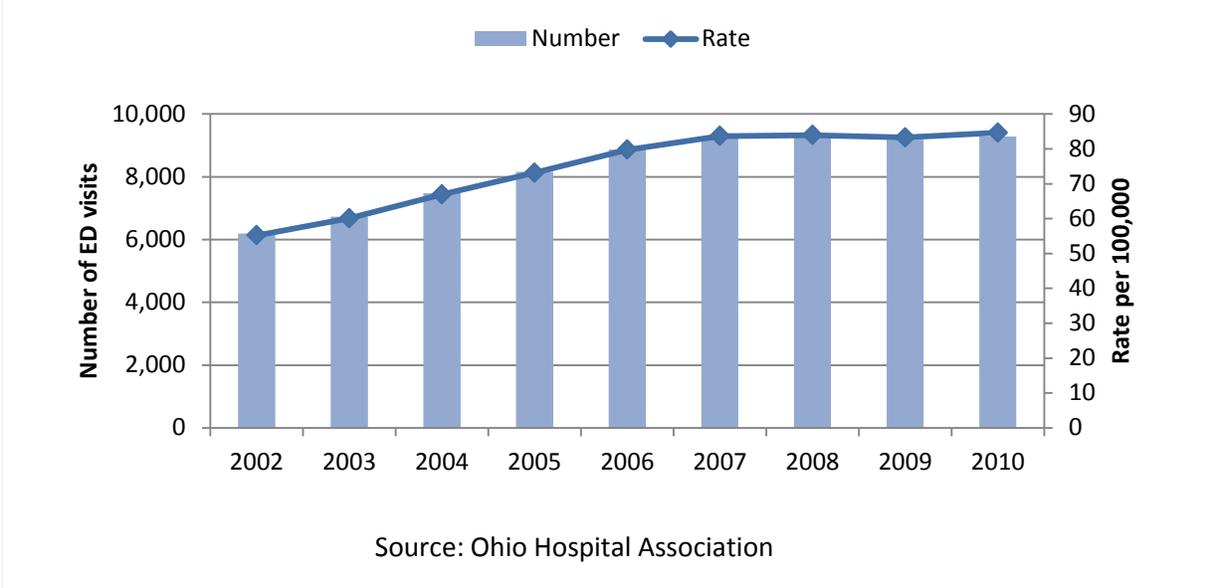
Source: Ohio Hospital Association

Figure 11.6. Distribution of hospitalizations resulting from self-harm, by mechanism, Ohio, 2010



Source: Ohio Hospital Association

**Figure 11.7. Number and age adjusted rate for self-harm related ED visits by year, Ohio, 2002-2010**



**EMERGENCY DEPARTMENT VISITS:**

Over 9,000 ED visits were associated with self-harm in 2010. The ED visit rate was 85 per 100,000 (Figure 11.7). Females were more likely than males to visit the ED. The highest rates of ED visits were among ages 15-24 and a steadily decrease in rates were found after age 25 (Figure 11.8). See Table 11.3 for a self-harm ED visit risk profile.

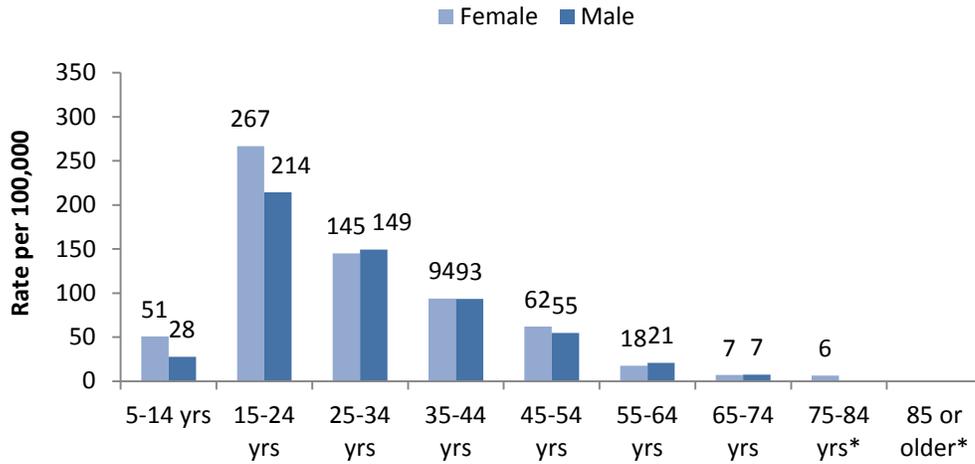
Most self-harm related ED visits were associated with poisonings (51 percent) and cutting or piercing (30 percent). Approximately 14 percent of self-harm related ED visits did not have a specified mechanism.

Table 11.3 Self-Harm ED Visit Risk Profile		
	2010 At Risk Groups	Trend since 2002
Overall		+53%
Sex	Females	Similar for males and females
Age	15-24	15-24 (largest increase)

**TRENDS:**

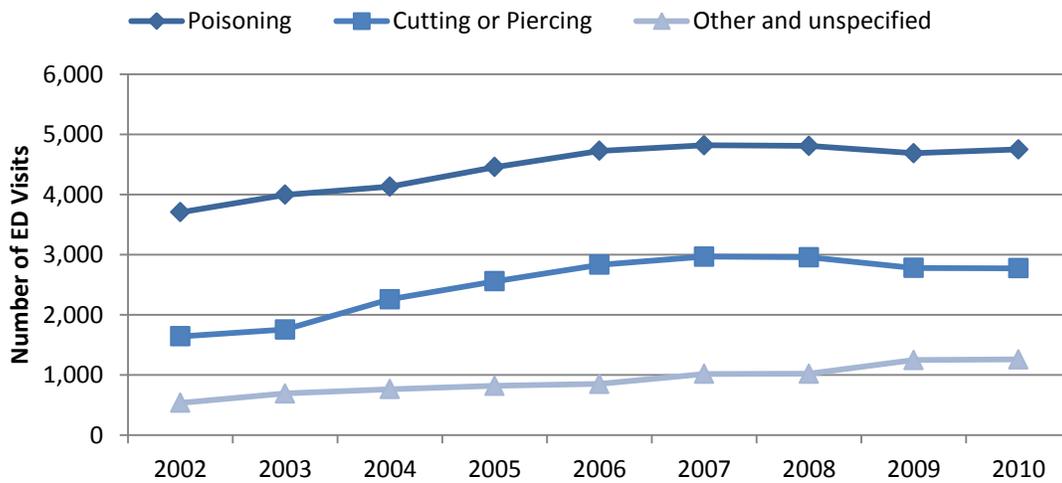
Between 2002 and 2010, the rate of ED visits resulting from self-harm increased 53 percent from 55 per 100,000 to 85 per 100,000 in 2010. Rates increased by an average of 4 per 100,000 per year. The increase was similar among males and females. ED visit rates increased among all age groups with the largest increases found among ages 15-24 (12 per 100,000 per year). The number of self-harm related ED visits resulting from cutting or piercing, poisoning, and other or unspecified mechanisms increased. The number of ED visits resulting from cutting or piercing increased by an average of 157 per year. An annual increase of 137 was found for poisoning while other and unspecified increased by an average of 88 ED visits per year (Figure 11.9). See Tables 42a-c located at the end of this section for more detailed information on self-harm related ED visits.

Figure 11.8. ED visit rates for self-harm by age and sex, Ohio, 2010



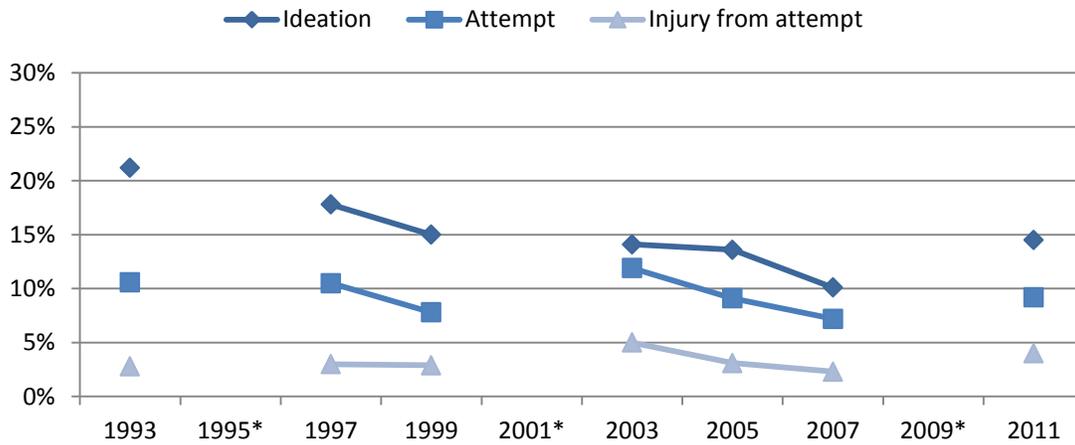
Source: Ohio Hospital Association

Figure 11.9. Number of ED visits resulting from self-harm, by mechanism and year, Ohio, 2002-2010



Source: Ohio Hospital Association

**Figure 11.10. Percentage of high school students who reported self-harm behaviors by behavior and year, Ohio, 1993-2011**



Source: Ohio Youth Risk Behavior Survey  
 \*Rates suppressed due to poor response rates

**SELF-HARM BEHAVIORS AMONG YOUTH:**

In 2011, approximately 1 in 7 or 14 percent of high school students reported to have seriously considered suicide in the past 12 months (Figure 11.10). Female (18%) were more likely to report suicide ideation than males (11%). Suicide ideation was reported more frequently by 9<sup>th</sup> graders and Hispanics compared students in other grades and race or ethnic group.

Approximately 1 in 10 or 9 percent of high school students reported to have attempted suicide in the past 12 months (Figure 11.10). The percentage of students who reported at least one suicide attempt was similar by sex and race or ethnic groups. Ninth grade students were nearly 3 times more likely to report a suicide attempt than students in the 12<sup>th</sup> grade.

In 2011, 1 in 25 or 4 percent of high school students reported an injury resulting from a suicide attempt in the last 12 months (Figure 11.10). The percentage of students who reported at least one suicide attempt related injury was similar by sex and race or ethnic groups. Ninth grade students were 2 times more likely to report a suicide attempt related injury than students in grades in 10, 11 or 12.

	2011	1993
<b>Ideation</b>	14%	28%
<b>Attempts</b>	9%	11%
<b>Attempt Injuries</b>	4%	3%

**TRENDS:**

The percentage of students who reported suicide ideation decreased from 1993 to 2007 and then increased between 2007 and 2011. The percentage of students who reported suicide attempts and injuries resulting from suicide attempts did not change significantly since 1993. See Tables 43a-c located at the end of this section for more detailed information about self-harm behaviors among high school students in Ohio.

**Burden of Injury in Ohio, 2000-2010**

Ohio Violence and Injury Prevention Program, Ohio Department of Health

**Table 40a. Number of deaths resulting from suicides, by year, Ohio, 2000-2010**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	1,091	1,214	1,267	1,108	1,318	1,330	1,309	1,269	1,402	1,370	1,420
<b>Sex</b>											
Males	899	1,000	1,015	920	1,035	1,095	1,029	1,041	1,117	1,082	1,129
Females	192	214	252	188	283	235	280	228	285	288	291
<b>Age</b>											
< 1 yr	0	0	0	0	0	0	0	0	0	0	0
1-4 yrs	0	0	0	0	0	0	0	0	0	0	0
5-14 yrs	10	6	16	12	19	10	12	8	15	15	6
15-24 yrs	140	157	148	137	182	179	174	166	186	167	180
25-34 yrs	162	192	204	207	211	195	215	193	223	198	246
35-44 yrs	259	270	271	226	252	270	226	252	293	262	245
45-54 yrs	207	242	247	226	290	282	306	284	308	330	317
55-64 yrs	97	128	135	125	166	182	187	190	188	206	216
65-74 yrs	88	90	108	79	98	80	77	80	103	100	108
75-84 yrs	96	97	100	71	75	96	82	71	60	61	72
85 or older	32	32	38	25	25	36	30	25	26	31	30
<b>Race and ethnicity</b>											
White‡	997	1,096	1,148	1,008	1,179	1,232	1,191	1,158	1,256	1,252	1,308
Black‡	83	96	83	83	100	80	93	92	111	92	79
Hispanic	6	11	18	8	25	9	17	11	21	17	21
Other‡	<5	9	7	6	11	<5	5	7	14	9	11

‡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 40b. Death rates per 100,000 resulting from suicides, by year, Ohio, 2000-2010**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	9.5	10.6	11.0	9.6	11.3	11.4	11.1	10.8	12.0	11.6	12.1	0.20
<b>Sex†</b>												
Males	16.9	18.6	18.8	16.8	18.7	19.6	18.2	18.4	19.8	19.0	20.0	0.21 (NL)
Females	3.3	3.6	4.2	3.2	4.7	3.9	4.6	3.7	4.8	4.8	4.8	0.15
<b>Age</b>												
< 1 yr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*
1-4 yrs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*
5-14 yrs	*	*	*	*	*	*	*	*	*	*	*	*
15-24 yrs	9.0	10.0	9.4	8.6	11.5	11.3	11.0	10.5	11.8	10.7	11.3	0.23 (NL)
25-34 yrs	10.7	12.9	13.8	14.0	14.3	13.3	14.7	13.2	15.2	13.4	17.5	0.35 (NL)
35-44 yrs	14.4	15.2	15.5	13.2	15.0	16.4	13.9	15.8	18.8	17.2	16.6	0.30 (NL)
45-54 yrs	13.1	14.8	15.0	13.5	17.1	16.4	17.6	16.2	17.5	18.8	18.2	0.50
55-64 yrs	9.6	12.5	12.5	11.1	14.2	15.0	14.8	14.6	14.1	14.9	14.9	0.44
65-74 yrs	11.2	11.5	14.0	10.3	12.7	10.4	9.9	10.1	12.6	12.0	12.7	0.02 (NL)
75-84 yrs	17.7	17.7	18.0	12.7	13.4	17.2	14.7	12.8	11.0	11.3	13.3	-0.61
85 or older	18.0	17.7	20.6	13.2	12.9	18.1	14.5	11.7	11.8	13.7	13.0	-0.62 (NL)
<b>Race and Ethnicity†</b>												
White‡	10.1	11.1	11.6	10.2	11.9	12.4	11.9	11.6	12.7	12.6	13.4	0.26
Black‡	6.5	7.6	5.9	6.4	7.3	5.9	6.9	6.6	8.0	6.7	5.5	-0.02 (NL)
Hispanic	*	*	*	*	9.7	*	*	*	6.9	*	6.3	*
Other‡	*	*	*	*	*	*	*	*	*	*	*	*

\*Rates suppressed due to less than 20 deaths.

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

‡Non-Hispanic

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 40c. Number of deaths resulting from suicides, by mechanism and year, Ohio, 2000-2010**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	% in 2010	Trend (per yr)
Poisoning	203	215	246	175	270	259	273	231	268	250	239	17%	4.5 (NL)
Hanging	217	254	259	239	289	305	318	301	360	341	370	26%	14.3
Drowning	9	5	16	8	14	12	9	10	12	11	7	0%	*
Firearm	587	670	666	601	656	668	625	647	684	677	718	51%	7.3 (NL)
Explosive material	0	0	<5	0	<5	0	0	<5	0	0	0	0%	*
Smoke, fire, or flames	10	5	9	11	7	6	8	7	8	8	<5	*	*
Steam or hot vapors	0	0	0	0	0	0	0	0	<5	0	0	0%	*
Sharp object	18	20	23	16	21	21	16	14	17	30	22	2%	*
Jumping	28	27	29	45	46	39	42	22	33	30	35	2%	0.08 (NL)
Motor vehicle crash	6	<5	7	<5	<5	5	<5	8	5	<5	8	1%	*
Other means	7	<5	<5	6	5	<5	9	<5	8	6	10	1%	*
Unspecified means	5	11	7	<5	5	12	<5	24	<5	9	<5	*	*
Sequelae of suicide	<5	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	*	*

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 41a. Number of hospitalization resulting from self-harm, by year, Ohio, 2002-2010**

	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Overall	4,245	4,587	5,196	5,289	5,308	5,624	5,636	5,613	5,394
<b>Sex</b>									
Males	1,713	1,899	2,118	2,178	2,155	2,405	2,414	2,409	2,231
Females	2,532	2,688	3,078	3,111	3,153	3,219	3,222	3,204	3,163
<b>Age</b>									
5-14 yrs	131	119	116	148	130	128	100	80	95
15-24 yrs	1,014	1,107	1,204	1,230	1,277	1,268	1,320	1,269	1,223
25-34 yrs	916	1,023	1,188	1,101	1,170	1,199	1,194	1,180	1,163
35-44 yrs	1,180	1,194	1,306	1,390	1,265	1,381	1,284	1,301	1,187
45-54 yrs	639	778	935	977	968	1,115	1,140	1,189	1,139
55-64 yrs	188	227	291	295	325	354	409	425	414
65-74 yrs	86	65	76	82	107	99	111	89	116
75-84 yrs	67	56	58	46	58	58	54	65	43
85 or older	24	18	22	20	8	22	24	15	14

Source: Ohio Hospital Association

**Burden of Injury in Ohio, 2000-2010**

Ohio Violence and Injury Prevention Program, Ohio Department of Health

**Table 41b. Hospitalization rates per 100,000 resulting from self-harm, by year, Ohio, 2002-2010**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	40.5	43.7	49.5	50.6	50.7	53.8	53.8	53.6	52.1	1.5
<b>Sex†</b>										
Males	33.3	36.6	40.9	42.1	41.6	46.3	46.4	46.5	43.3	1.4
Females	47.8	50.9	58.2	59.1	59.8	61.3	61.2	60.8	60.8	1.5
<b>Age</b>										
5-14 yrs	8.1	7.4	7.3	9.5	8.5	8.4	6.7	5.4	6.2	-0.27 (NL)
15-24 yrs	64.1	69.4	75.5	77.2	80.7	80.5	84.0	81.1	77.1	1.79
25-34 yrs	62.1	69.8	81.3	75.5	80.3	82.1	81.6	79.8	82.5	1.98
35-44 yrs	67.6	70.0	77.9	84.4	78.0	86.7	82.5	85.6	80.2	1.80
45-54 yrs	38.8	46.5	55.1	56.9	55.7	63.8	65.1	67.8	65.4	3.28
55-64 yrs	17.4	20.2	24.9	24.3	25.9	27.3	30.7	30.7	28.5	1.51
65-74 yrs	11.1	8.5	9.9	10.7	13.9	12.7	13.8	10.6	13.6	0.44 (NL)
75-84 yrs	12.1	10.1	10.4	8.3	10.6	10.7	10.1	12.0	7.9	-0.16 (NL)
85 or older	12.7	*	11.0	9.7	*	9.9	10.5	*	*	*

\*Rates suppressed due to less than 20 hospitalizations.

†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 41c. Number of hospitalizations resulting from self-harm by mechanism and year, Ohio, 2002-2010**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	% in 2010	Trend (per yr)
Poisoning	3,730	4,026	4,695	4,869	4,919	5,269	5,297	5,238	4970	92.1%	170
Hanging	126	166	127	44	53	41	44	37	<5	*	*
Drowning	52	69	40	41	<5	<5	<5	86	31	0.6%	*
Firearms	106	89	89	68	83	80	73	164	43	0.8%	-1 (NL)
Cutting or piercing	132	144	141	166	169	139	140	26	74	1.4%	-10 (NL)
Jumping	38	25	32	24	27	33	21	60	180	3.3%	11 (NL)
Other and unspecified	57	61	62	69	54	61	56	<5	27	0.5%	*
Late effects	5	7	10	10	<5	0	<5	0	66	1.2%	*

\*Suppressed due to less than 20 hospitalizations.

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 42a. Number of ED visits resulting from self-harm by year, Ohio, 2002-2010**

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Overall	6,180	6,716	7,473	8,158	8,864	9,252	9,264	9,170	9,276
<b>Sex</b>									
Males	2,689	2,860	3,241	3,554	4,037	4,186	4,300	4,155	4,350
Females	3,491	3,856	4,232	4,604	4,827	5,066	4,964	5,015	4,926
<b>Age</b>									
5-14 yrs	387	476	586	508	587	618	575	594	593
15-24 yrs	2,419	2,684	3,075	3,311	3,551	3,771	3,742	3,821	3,810
25-34 yrs	1,462	1,570	1,632	1,774	1,996	2,042	2,105	2,001	2,076
35-44 yrs	1,195	1,225	1,297	1,463	1,505	1,588	1,494	1,424	1,385
45-54 yrs	547	593	655	849	883	896	1,005	1,022	1,019
55-64 yrs	104	118	154	172	238	252	246	226	280
65-74 yrs	35	29	42	47	53	46	59	47	61
75-84 yrs	23	15	19	28	35	27	27	28	39
85 or older	8	6	13	6	16	12	11	7	13

Source: Ohio Hospital Association

**Table 42b. ED visit rates per 100,000 resulting from self-harm by year, Ohio, 2002-2010**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Trend (per yr)
Overall†	55.1	60.0	66.8	73.1	79.7	83.6	83.9	83.2	84.6	3.9
<b>Sex†</b>										
Males	48.8	51.2	58.0	63.7	72.6	75.4	77.7	75.0	79.5	4.1
Females	62.2	68.9	75.9	82.7	87.3	92.1	90.3	91.6	90.0	3.6
<b>Age</b>										
5-14 yrs	24.0	29.8	37.1	32.7	38.2	40.8	38.4	39.7	38.9	1.7
15-24 yrs	152.9	168.3	192.7	207.9	224.5	239.5	238.1	244.2	240.1	11.7
25-34 yrs	99.1	107.1	111.7	121.7	137.1	139.7	143.8	135.4	147.2	6.0
35-44 yrs	68.5	71.8	77.4	88.8	92.8	99.7	96.0	93.7	93.6	3.6
45-54 yrs	33.2	35.5	38.6	49.4	50.8	51.3	57.4	58.3	58.5	3.5
55-64 yrs	9.6	10.5	13.2	14.2	18.9	19.4	18.5	16.3	19.3	1.2
65-74 yrs	4.5	3.8	5.5	6.1	6.9	5.9	7.3	5.6	7.2	0.3
75-84 yrs	4.2	*	*	5.1	6.4	5.0	5.0	5.2	7.2	*
85 or older	*	*	*	*	*	*	*	*	*	*

\*Rates suppressed due to less than 20 ED visits

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

Source: Ohio Hospital Association

**Burden of Injury in Ohio, 2000-2010**

Ohio Violence and Injury Prevention Program, Ohio Department of Health

**Table 42c. Number of ED visit resulting from self-harm by method and year, Ohio, 2002-2010**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	% in 2010	Trend (per yr)
Poisoning	3,706	3,998	4,131	4,457	4,729	4,820	4,809	4,687	4,751	51%	138
Hanging	153	159	195	197	268	281	312	303	301	3%	22
Drowning	16	13	6	5	8	5	11	10	11	*	*
Firearms	87	72	52	85	98	102	75	89	90	1%	2 (NL)
Cutting or piercing	1,643	1,757	2,259	2,558	2,832	2,968	2,958	2,780	2,774	30%	157
Jumping	33	26	32	26	55	47	53	44	40	0%	2 (NL)
Other and unspecified	535	692	763	818	851	1,017	1,021	1,247	1,258	14%	88
Late effects	16	11	15	17	29	22	35	21	23	*	*

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

Source: Ohio Hospital Association

**Table 43a. Percentage of high school students who reported suicide ideation, by sex, grade level, and race/ethnicity, Ohio, 1993-2011**

	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011
Overall	28.1%	UW	23.0%	20.3%	**	18.2%	17.9%	13.4%	UW	14.3%
<b>Sex</b>										
Males	20.9%		15.2%	15.7%		15.2%	14.6%	10.6%		10.7%
Females	35.6%		30.8%	24.9%		21.3%	21.5%	16.0%		18.1%
<b>Grade</b>										
9th	24.8%		24.8%	18.5%		18.3%	16.0%	14.3%		18.1%
10th	24.9%		24.9%	24.5%		19.6%	21.8%	13.0%		13.8%
11th	22.3%		22.3%	18.1%		17.1%	15.8%	13.2%		14.7%
12th	18.8%		18.8%	19.7%		17.3%	18.7%	12.7%		10.3%
<b>Race and Ethnicity</b>										
White, non-Hispanic	NA		23.0%	20.2%		16.6%	18.9%	12.5%		14.4%
Black, non-Hispanic			*	*		*	11.9%	14.5%		10.9%
Hispanic			*	*		*	*	19.9%		21.9%

\*Percentages suppressed to due to fewer than 100 respondents.

\*\*Survey was not conducted.

NA: Not available

Source: Ohio Youth Risk Behavior Survey

UW: Ohio did not achieve sufficient response rate for weighted data.

*Burden of Injury in Ohio, 2000-2010*

Ohio Violence and Injury Prevention Program, Ohio Department of Health

**Table 43b. Percentage of high school students who reported making a suicide attempt, by sex, grade level, and race/ethnicity, Ohio, 1993-2011**

	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011
Overall	10.6%	UW	10.5%	7.8%	**	11.9%	9.1%	7.2%	UW	9.1%
<b>Sex</b>										
Males	6.3%		6.0%	5.0%		10.8%	6.9%	4.9%		8.0%
Females	15.0%		15.0%	10.6%		12.8%	11.3%	9.4%		9.9%
<b>Grade</b>										
9th	12.5%		11.0%	9.0%		13.6%	10.8%	7.3%		13.3%
10th	9.3%		13.3%	9.1%		9.2%	12.9%	7.2%		8.6%
11th	9.8%		11.3%	6.0%		13.6%	6.2%	6.0%		8.7%
12th	10.0%		5.7%	6.4%		11.0%	6.3%	7.4%		5.3%
<b>Race and Ethnicity</b>										
White, non-Hispanic	NA		9.7%	7.1%		11.2%	8.7%	6.4%		8.3%
Black, non-Hispanic			10.0%	4.5%		*	12.6%	8.6%		8.7%
Hispanic			*	*		*	*	12.5%		*

\*Percentages suppressed to due to fewer than 100 respondents.

\*\*Survey was not conducted.

NA: Not available

Source: Ohio Youth Risk Behavior Survey

UW: Ohio did not achieve sufficient response rate for weighted data.

*Burden of Injury in Ohio, 2000-2010*

Ohio Violence and Injury Prevention Program, Ohio Department of Health

**Table 43c. Percentage of high school students who reported an injury after making a suicide attempt, by sex, and grade level, Ohio, 1993-2011**

	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011
Overall	2.8%	UW	3.0%	2.9%	**	5.0%	3.1%	2.3%	UW	4.0%
<b>Sex</b>										
Males	1.3%		2.2%	2.5%		4.2%	2.0%	1.5%		4.1%
Females	4.2%		3.7%	3.3%		5.7%	4.1%	3.1%		3.9%
<b>Grade</b>										
9th	4.0%		3.1%	4.3%		5.9%	3.2%	1.8%		6.8%
10th	2.7%		4.0%	2.2%		2.8%	5.1%	3.1%		3.0%
11th	1.3%		2.7%	2.0%		6.9%	2.8%	2.0%		3.2%
12th	2.3%		1.6%	2.2%		4.3%	1.1%	1.6%		2.9%
<b>Race and Ethnicity</b>										
White, non-Hispanic	NA		2.4%	2.7%		4.0%	2.8%	1.7%		3.7%
Black, non-Hispanic			3.2%	0.7%		*	5.0%	2.6%		3.8%
Hispanic			*	*		*	*	6.3%		*

\*Percentages suppressed to due to fewer than 100 respondents.

\*\*Survey was not conducted.

NA: Not available

Source: Ohio Youth Risk Behavior Survey

UW: Ohio did not achieve sufficient response rate for weighted data.

## **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](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](http://www.cdc.gov/injury/wisqars/leading_causes_death.html)

---

---

## ***Burden of Injury in Ohio, 2000-2010***

---

Ohio Violence and Injury Prevention Program, Ohio Department of Health

### ***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](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](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](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.
-

Ohio Violence and Injury Prevention Program, Ohio Department of Health

- 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
-

## *Burden of Injury in Ohio, 2000-2010*

---

Ohio Violence and Injury Prevention Program, Ohio Department of Health

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.
-

### **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.
-