

Fatal Drug Overdoses: A Growing Concern in Indiana

Since 1999, the number of deaths directly attributable to alcohol and drugs has grown steadily in the United States, raising national and local public health concerns. The most recent statistics show that in 2004, nearly 31,000 deaths in the nation were from drug-induced causes and more than 21,000 from alcohol-induced causes.¹ Before 2000, deaths directly related to alcohol were more numerous than those directly related to other drugs, but this has clearly changed; drug-induced mortality rose more than 60 percent from 1999 to 2004, while alcohol-induced mortality increased only 8 percent (see Figure 1).

Overall mortality rates among illicit drug users in the nation are nearly seven times those of the general public.² In other words, in any one year, the risk of dying for an illicit drug user is 7 times that of a person in the general population. Most of these deaths are associated with drug overdose, but some are from self-inflicted injuries, accidents, violence, or medical causes.³

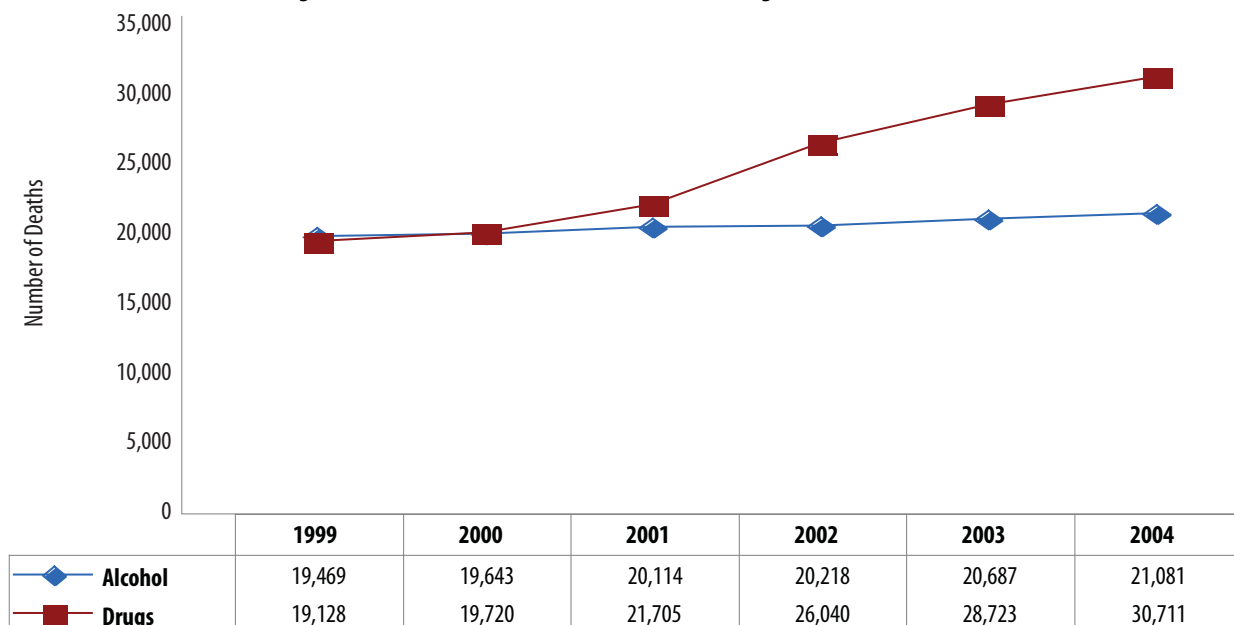
Polydrug use, the use of two or more substances, contributes substantially to rising overdose mortality statistics—for every additional drug used, the mortality odds ratio for addicts almost doubles.³ The Drug Abuse Warning Network reported that three of four drug abuse deaths reported by medical examiners nationally involved more than one substance.⁴

Male drug abusers are far more likely to die from an overdose than female abusers—at a 7 to 1 ratio—and older drug users have higher mortality rates than younger users.⁵ Not all data sets include information about race, but in a nine-year study in New York City, 33 percent of drug-abuse decedents were white, 36 percent were black, and 30 percent were Latino.⁶

Opiates Are Most Often Used in Overdose Deaths

Heroin, cocaine, prescription drugs, and alcohol are the substances most commonly used in accidental overdoses. Opiates are the substances most commonly detected during post-mortem examinations, but they are seldom the only substance found. Alcohol and benzodiazepines in conjunction with opioids play a significant role in overdose fatalities. According to a study by Darke and Ross, two-thirds of drug-induced deaths were associated with heroin and another drug.⁷ The American Medical Association reported in 1999 that prescription drugs were involved in 70 percent of all drug-related deaths in the United States. Alcohol also plays a major role—in at least half of opiate overdoses, alcohol had been used just prior to death.⁶

Figure 1: Number of Alcohol- and Drug-Induced Deaths in the United States, 1999 through 2004



Source: Miniño et al., 2007

Polysubstance Abuse and Other Risk Factors Play a Role in Overdose Deaths

Older opioid users may use benzodiazepines and alcohol to manage withdrawal symptoms as it is difficult for older addicts to sustain high levels of daily heroin use. Long-term polysubstance abusers tend to develop riskier drug use patterns in later life, increasing overdose mortality rates, and this explains why more overdoses occur among older abusers.⁸ The risk of a fatal overdose also increases when addicts use non-prescribed benzodiazepines and amphetamines and drink alcohol excessively.

Homelessness and anxiety are also predictive of drug-induced overdoses. It is widely recognized that polysubstance abusers have a higher propensity for psychiatric problems which must be managed in conjunction with their addictions.

Another significant risk factor for drug-induced deaths is nonfatal overdoses, i.e., illicit drug users who have experienced a nonfatal overdose previously are much more likely to die from an overdose.³ Investigators estimate that nonfatal overdoses occur approximately seven times more often than fatal overdoses.⁹

Prevalence of Drug-Induced Deaths in Indiana

Indiana's drug-induced death rates were substantially lower than comparable U.S. rates in 1999, but have accelerated to match them. The Centers for Disease Control and Prevention (2007) reported that the national rate of drug-induced deaths increased from 0.07 in 1999 to 0.11 in 2004 (per 1,000 population).¹⁰ By comparison, Indiana's drug-induced mortality rate was 0.04 in 1999 (per 1,000 population), more than doubled to 0.10 by 2004, and reached 0.11 in 2005¹¹ (see Table 1 and Figure 2; for county-level information, see Table 4, pages 6-7). [The most recent statistics available based on ICD-10 codes are from 1999-2004 for U.S. data and from 1999-2005 for Indiana data. ICD-10 codes included in analysis: F11-F19, X40-X44, X60-X64, X85, Y10-Y14].

Identification of "Hot Spots" in Indiana

To compare the impact of fatal drug overdoses on the community level and identify "hot spots" in the state, analysts at the Indiana University Center for Health Policy ranked Indiana counties based on a highest contributor/highest need model. We measured two indicators in each county:

1. number of deaths due directly to alcohol and drugs (an overall contribution to mortality regardless of population size), and
2. death rate due to alcohol and drugs (a function of number and population size).

To compute a stable rate that is statistically valid, a numerator of at least 20 is required. However, most Indiana counties reported fewer than 20 fatal drug overdoses in any of the years reviewed (between 1999 and 2005). In order to compute valid mortality rates for these counties, we combined the numbers of fatal overdoses from 1999 through 2005 (see Table 5, page 8). Even then, only 33 of the 92 counties met the threshold of 20 fatal overdoses.

Nevertheless, this provides some useful information; counties that have death numbers over the seven-year period that are below 20 are not high contributors to Indiana's alcohol- and drug-induced mortality.

We computed overdose mortality priority (OMP) scores for the qualifying 33 counties based on two indicators, number and rate. For each indicator, counties were given three points if they ranked in the top most severe 10 percent (90th percentile rank), two points if they were in the top most severe 25 percent (75th percentile rank), one point if they were in the top most severe 50 percent (50th percentile rank), and zero points if they ranked below. The points for each indicator were then summed to an overall OMP score (see Table 6, pages 9-10). The counties with the highest OMP scores and, therefore, with the most severe fatal drug overdose problems, were Madison, Marion, Henry, and Vanderburgh counties (see Table 2, page 3, and Figure 4 on page 5).

Possible Causes for Increases in Fatal Overdoses

Analysis of the data leaves us with the question: What caused the increase in fatal overdoses in recent years? We might assume that substance use has expanded over the years and that the increase is a result; however, this assumption appears to be incorrect. Population-based data from the National Survey on Drug Use and Health showed no significant increase in the rates of current (past-month) illicit drug use or binge alcohol use in Indiana from 1999 to 2005 (see Table 3).¹² The answer to this question may lie in two factors that have shown dramatic increase: nonmedical (or recreational) use of prescription drugs and polysubstance use.

Non-Medical Use of Prescription Medications Has Increased in

Indiana – The National Institute on Drug Abuse (2005) reported a dramatic increase in the nonmedical (recreational) use of prescription drugs in the United States.¹³ According to emergency department accounts, hydrocodone

Table 1: Numbers and Rates of Drug-Induced Deaths in Indiana and the United States, per 1,000 Population, 1999–2005

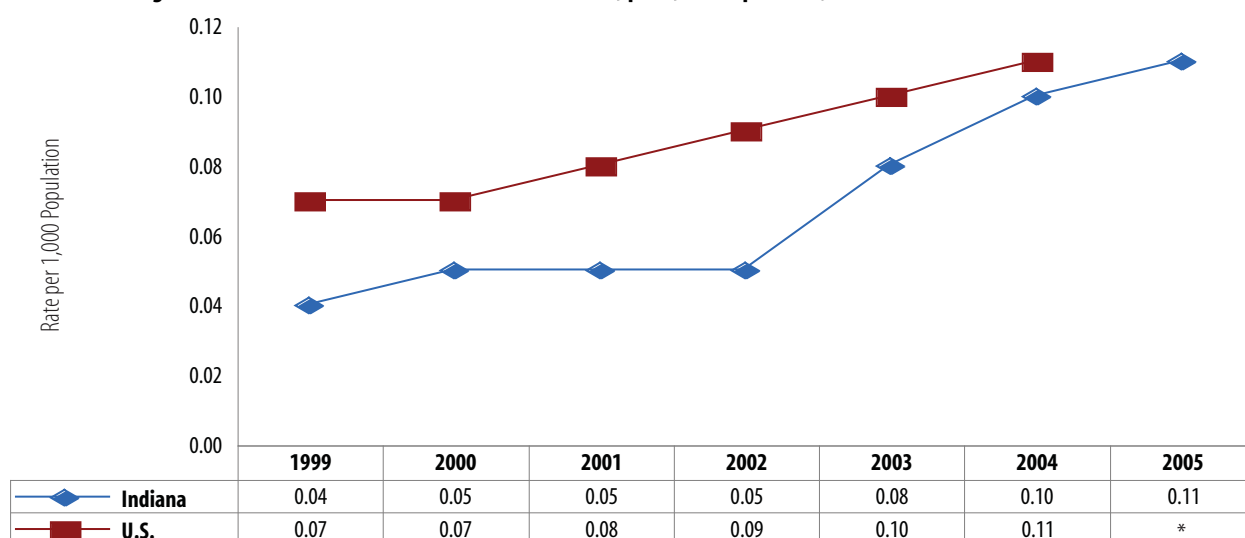
Year	Indiana		U.S.	
	Number	Rate*	Number	Rate*
1999	245	0.04	19,311	0.07
2000	282	0.05	19,874	0.07
2001	335	0.05	21,854	0.08
2002	333	0.05	26,204	0.09
2003	493	0.08	28,866	0.10
2004	605	0.10	30,865	0.11
2005	665	0.11	N/A†	N/A†

* Rate per 1,000 population.

† U.S. mortality data for 2005 are not yet available.

Sources: Indiana State Department of Health, 2007; U.S. Centers for Disease Control and Prevention, 2007

Figure 2: Rates of Drug-Induced Deaths in Indiana and the United States, per 1,000 Population, 1999-2005



* U.S. mortality data for 2005 is not yet available.

Source: Indiana State Department of Health, 2007; U.S. Centers for Disease Control and Prevention, 2007.

and oxycodone overdoses (opioid pain relievers that are among the most popular prescription medications in drug-abuse cases) increased by 170 percent and 450 percent, respectively, between 1994 and 2002. Furthermore, the distribution of oxycodone to retail registrants in Indiana (pharmacies, hospitals, and physicians) nearly doubled from about 29 million dosage units in 2002 to a projected 54 million in 2007. Based on 2006 numbers (about 43 million dosage units), this represents a rate of 6.9 dosage units of oxycodone per Indiana resident.¹⁴ There are additional signs of this increase among data compiled about Hoosiers who enter substance-abuse treatment programs. Admissions for pain reliever and sedative/tranquilizer abuse increased significantly in this population from 2001 to 2005 (see Figure 3, page 4).^{15, 16}

Polysubstance Abuse Is Associated with Fatal Overdose – As we have seen, fatal drug overdoses are highly correlated with the use of two or more substances,⁸ and the increase in polysubstance use may also be a key factor in the increase in substance-induced deaths in Indiana. Treatment admissions for polysubstance abuse increased significantly in Indiana from 2000 to 2005; 62 percent of Hoosiers entering substance abuse treatment in 2005 reported using two or more drugs, and 28 percent used three or more drugs. Both of these Indiana rates are significantly higher than U.S. rates. Much of the substance abuse in Indiana involves two or more substances, most often alcohol together with another drug.¹⁶

It is difficult to speculate on reasons for the increase in direct alcohol- and drug-induced deaths. Increases in non-medical prescription drug use and polysubstance abuse appear to play a role. However, more research is needed to evaluate the evidence of the link between drug-induced mortality, prescription drug misuse, and polysubstance abuse, and investigate other possible associations.

Table 2: Indiana Counties with the Highest Overdose Mortality Priority (OMP) Scores, Based on Pooled Data from 1999 through 2005

County of Residence	Total Deaths (1999-2005)	Death Rate* (1999-2005)	OMP Score
Top 10% (90th Percentile Rank)			
Madison	135	0.15	6
Marion	572	0.10	5
Henry	57	0.17	4
Vanderburgh	116	0.10	4
Top 25% (75th Percentile Rank)			
Bartholomew	49	0.10	3
Clark	70	0.10	3
Delaware	77	0.09	3
Howard	64	0.11	3
Lake	199	0.06	3
Monroe	71	0.08	3
Scott	26	0.16	3
Starke	27	0.17	3

* Rate per 1,000 population.

Source: Indiana State Department of Health, 2007.

Table 3: Percentage of Population Reporting Current (Past-Month) Binge Alcohol and Illicit Substance Use in Indiana, 1999 and 2005 (National Survey on Drug Use and Health, 1999 and 2005)

	1999	2005
Binge Alcohol Use	19.6%	22.0%
	95% CI: 16.8-22.7	95% CI: 19.8-24.4
Illicit Substance Use	6.7%	7.4%
	95% CI: 5.4-8.2	95% CI: 6.3-8.6

CI = Confidence Interval

Source: Substance Abuse and Mental Health Services Administration, 2007



Thoughts for Policymakers

The increase in substance-induced mortality is evidence of a significant public health problem in Indiana. It appears that the rise in drug overdoses is strongly driven, at least in part, by two factors: an increase in prescription drug abuse and the propensity of users to consume two or more substances simultaneously.

As we have seen in this report, oxycodone distribution to retail registrants in Indiana nearly doubled from 2002 to 2007, and the amount sold is alarming. About 43 million dosage units were sold in Indiana in 2006, representing 6.9 dosage units per Indiana resident.¹⁴ In addition, high school seniors reported a significant increase in nonprescribed or recreational use of Ritalin from 2006 to 2007,¹⁷ and admissions to substance abuse treatment programs for prescription drug abuse (pain relievers and sedatives/tranquilizers) increased significantly from 2000 to 2005.¹⁵ What's more, nearly two-thirds of people in substance abuse treatment programs in Indiana said they used two or more substances at admission, and nearly one-third used three or more—most commonly, alcohol with at least one other drug. Also, treatment admissions for polysubstance abuse have increased significantly from 2000 to 2005.¹⁵

However, the occurrence of fatal drug overdoses presents only one aspect of the substance abuse challenges we face in Indiana. To reduce substance-induced mortality, expansive resources and initiatives focusing on alcohol and drug prevention are required. Theory-based logic models, created by the Pacific

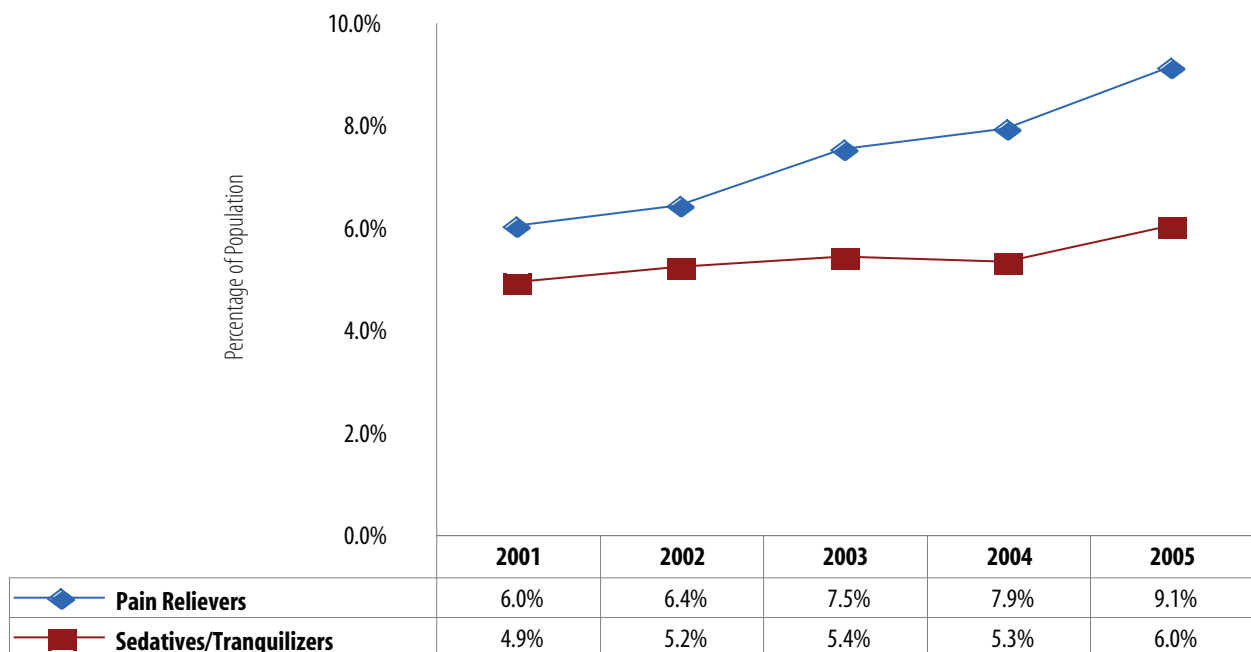
Institute for Research Evaluation and adapted by the Center for Health Policy for Indiana, suggest a comprehensive framework of evidence-based environmental strategies to reduce the prevalence of alcohol and drug abuse. Researchers incorporated evidence from multiple studies to build these models, and identified these major components that should be included for effective policy:

- Laws and their enforcement—laws to regulate or prohibit sale, manufacture, and use of substances along with the enforcement of these laws have been shown effective in reducing substance abuse.
- Availability and price—less availability and higher prices for alcohol and other drugs have been shown to decrease substance abuse rates.
- Community norms—permissive community norms that tolerate alcohol and drug abuse have been linked to increased substance abuse.

Substance abuse is a complex issue, and fatal overdoses are only one of its many devastating consequences. Unfortunately, there is no easy fix that can solve the problem. If policymakers want to develop programs that effectively prevent substance abuse and its harmful effects, the state will need a comprehensive evidence-based and prevention-focused strategic plan with the goal to prevent substance-induced mortality by reducing the prevalence of alcohol and drug abuse.

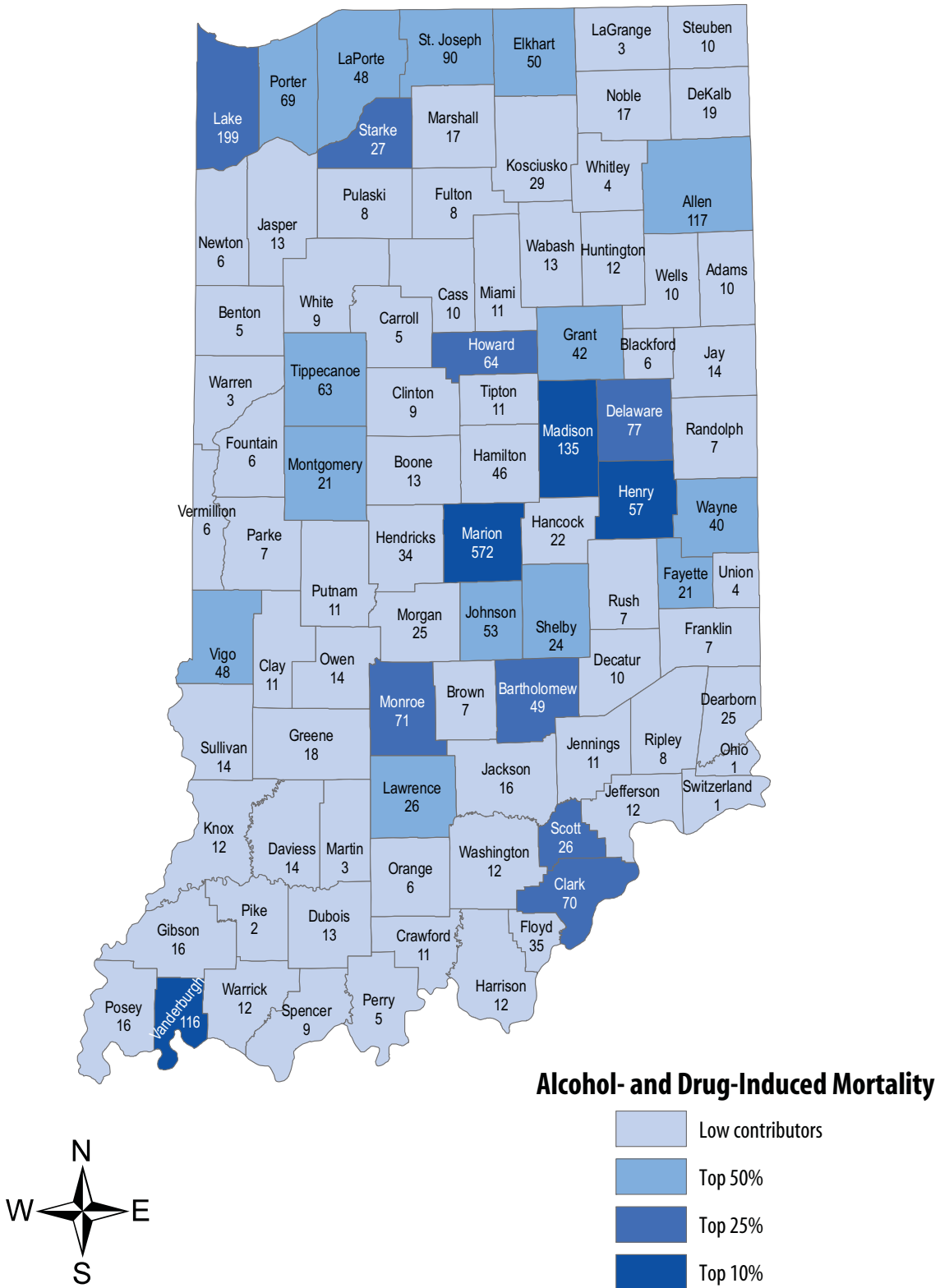
What's more, reductions in substance abuse and addictions would have substantial benefits, far more than a decline in fatal overdoses. A decrease in crime, motor vehicle accidents, domestic and child abuse, as well as improvements in health and productivity could be the result of effective prevention planning.

Figure 3: Percentage of Population Entering Substance Abuse Treatment who Reported Using Pain Relievers and Sedatives/Hypnotics in Indiana, 2001 through 2005 (Treatment Episode Data Set, 2001–2005)



Source: Substance Abuse and Mental Health Data Archive, 2007

Figure 4: Number of Drug-Induced Deaths in Indiana, from 1999 through 2005



Source: Indiana State Department of Health, 2007



Table 4: Numbers and Rates (per 1,000 Population) of Drug-Induced Deaths and Population Estimates in Indiana by County, from 2003 through 2005 (Indiana State Department of Health, 2007)

Indiana County of Residence	2003			2004			2005		
	Number of Deaths	Population Estimate	Death Rate	Number of Deaths	Population Estimate	Death Rate	Number of Deaths	Populations Estimate	Death Rate
Adams	0	33,708	0.00*	3	33,724	0.09*	4	33,748	0.12*
Allen	10	339,946	0.03*	27	341,487	0.08	36	343,946	0.10
Bartholomew	8	72,319	0.11*	11	72,871	0.15	11	73,611	0.15
Benton	0	9,232	0.00*	3	9,108	0.33*	1	9,023	0.11*
Blackford	0	13,879	0.00*	3	13,804	0.22*	3	13,768	0.22*
Boone	1	49,495	0.02*	2	50,776	0.04*	3	51,918	0.06*
Brown	1	15,285	0.07*	1	15,195	0.07*	2	15,123	0.13*
Carroll	0	20,524	0.00*	1	20,286	0.05*	1	20,446	0.05*
Cass	1	40,415	0.02*	3	40,343	0.07*	1	40,179	0.02*
Clark	22	99,343	0.22	12	100,400	0.12*	10	101,625	0.10*
Clay	4	26,796	0.15*	3	27,036	0.11*	2	27,118	0.07*
Clinton	0	34,009	0.00*	4	34,055	0.12*	3	34,073	0.09*
Crawford	2	11,110	0.18*	3	11,135	0.27*	2	11,175	0.18*
Daviess	1	30,021	0.03*	0	30,262	0.00*	3	30,284	0.10*
Dearborn	7	47,952	0.15*	2	48,560	0.04*	9	48,930	0.18*
Decatur	2	24,720	0.08*	2	24,939	0.08*	3	25,016	0.12*
Dekalb	2	41,057	0.05*	9	41,402	0.22*	2	41,638	0.05*
Delaware	22	118,265	0.19	16	117,416	0.14	16	116,203	0.14
Dubois	3	40,257	0.07*	3	40,614	0.07*	2	40,922	0.05*
Elkhart	7	188,964	0.04*	13	191,670	0.07*	11	195,276	0.06*
Fayette	0	24,995	0.00*	3	24,934	0.12*	4	24,804	0.16*
Floyd	8	71,206	0.11*	4	71,468	0.06*	12	72,025	0.17*
Fountain	1	17,702	0.06*	1	17,556	0.06*	2	17,411	0.11*
Franklin	2	22,741	0.09*	2	22,898	0.09*	2	23,142	0.09*
Fulton	0	20,515	0.00*	0	20,586	0.00*	1	20,597	0.05*
Gibson	2	32,990	0.06*	3	33,224	0.09*	6	33,347	0.18*
Grant	5	71,922	0.07*	8	71,226	0.11*	8	70,468	0.11*
Greene	2	33,320	0.06*	8	33,428	0.24*	1	33,408	0.03*
Hamilton	5	220,973	0.02*	7	230,064	0.03*	10	240,732	0.04*
Hancock	0	59,596	0.00*	1	60,879	0.02*	6	62,972	0.10*
Harrison	2	35,673	0.06*	1	36,333	0.03*	3	36,729	0.08*
Hendricks	10	118,674	0.08*	2	123,440	0.02*	10	127,261	0.08*
Henry	14	47,731	0.29*	10	47,610	0.21*	15	47,207	0.32*
Howard	12	84,739	0.14*	15	84,488	0.18*	17	84,843	0.20*
Huntington	1	38,194	0.03*	4	38,072	0.11*	4	38,084	0.11*
Jackson	3	41,655	0.07*	6	41,840	0.14*	5	42,258	0.12*
Jasper	1	31,158	0.03*	2	31,551	0.06*	4	31,761	0.13*
Jay	2	21,663	0.09*	1	21,651	0.05*	4	21,581	0.19*
Jefferson	1	32,009	0.03*	1	32,183	0.03*	3	32,379	0.09*
Jennings	1	28,095	0.04*	2	28,345	0.07*	4	28,471	0.14*
Jennings	1	28,095	0.04*	2	28,345	0.07*	4	28,471	0.14*
Johnson	7	124,334	0.06*	12	126,793	0.09*	18	129,823	0.14*
Knox	4	38,434	0.10*	4	38,447	0.10*	0	38,298	0.00*
Kosciusko	5	75,279	0.07*	7	75,523	0.09*	6	76,017	0.08*
Lagrange	0	36,022	0.00*	1	36,471	0.03*	1	36,834	0.03*
Lake	29	486,837	0.06	42	489,039	0.09	24	491,706	0.05
Laporte	10	109,664	0.09*	11	109,648	0.10*	13	110,281	0.12*

(continued on next page)



Table 4 Continued: Numbers and Rates (per 1,000 Population) of Drug-Induced Deaths and Population Estimates in Indiana by County, from 2003 through 2005 (Indiana State Department of Health, 2007)

Indiana County of Residence	2003			2004			2005		
	Number of Deaths	Population Estimate	Death Rate	Number of Deaths	Population Estimate	Death Rate	Number of Deaths	Populations Estimate	Death Rate
Lawrence	6	46,288	0.13*	7	46,184	0.15*	4	46,342	0.09*
Madison	26	130,893	0.20	26	130,445	0.20	34	130,389	0.26
Marion	92	862,150	0.11	107	860,674	0.12	99	861,760	0.11
Marshall	0	46,279	0.00*	6	46,670	0.13*	4	46,997	0.09*
Martin	1	10,342	0.10*	0	10,401	0.00*	2	10,320	0.19*
Miami	2	36,110	0.06*	1	35,899	0.03*	5	35,502	0.14*
Monroe	16	120,459	0.13*	20	120,959	0.17	14	121,473	0.12*
Montgomery	1	37,765	0.03*	8	37,897	0.21*	6	38,189	0.16*
Morgan	4	68,693	0.06*	8	69,229	0.12*	6	69,751	0.09*
Newton	1	14,420	0.07*	2	14,346	0.14*	2	14,423	0.14*
Noble	3	47,019	0.06*	3	47,184	0.06*	5	47,640	0.10*
Ohio	1	5,741	0.17*	0	5,795	0.00*	0	5,836	0.00*
Orange	0	19,632	0.00*	3	19,646	0.15*	0	19,716	0.00*
Owen	2	22,883	0.09*	4	22,933	0.17*	1	22,853	0.04*
Parke	2	17,357	0.12*	1	17,252	0.06*	0	17,218	0.00*
Perry	0	18,845	0.00*	1	19,016	0.05*	3	18,915	0.16*
Pike	0	12,926	0.00*	0	12,933	0.00*	1	12,766	0.08*
Porter	16	152,577	0.10*	11	154,717	0.07*	13	157,408	0.08*
Posey	0	26,871	0.00*	8	26,909	0.30*	5	26,834	0.19*
Pulaski	3	13,803	0.22*	3	13,772	0.22*	2	13,786	0.15*
Putnam	1	36,641	0.03*	2	36,665	0.05*	4	36,914	0.11*
Randolph	1	26,863	0.04*	0	26,645	0.00*	1	26,589	0.04*
Ripley	1	27,349	0.04*	3	27,501	0.11*	3	27,647	0.11*
Rush	1	18,037	0.06*	0	17,850	0.00*	3	17,785	0.17*
St. Joseph	11	265,491	0.04*	16	265,547	0.06*	25	266,019	0.09
Scott	6	23,569	0.25*	10	23,559	0.42*	2	23,749	0.08*
Shelby	3	43,563	0.07*	4	43,691	0.09*	6	43,775	0.14*
Spencer	3	20,254	0.15*	2	20,321	0.10*	1	20,476	0.05*
Starke	8	22,629	0.35*	5	22,777	0.22*	6	22,953	0.26*
Stauben	1	33,624	0.03*	1	33,590	0.03*	4	33,673	0.12*
Sullivan	2	21,840	0.09*	1	21,819	0.05*	3	21,675	0.14*
Switzerland	1	9,422	0.11*	0	9,514	0.00*	0	9,707	0.00*
Tippecanoe	13	151,230	0.09*	9	152,129	0.06*	16	154,024	0.10*
Tipton	1	16,510	0.06*	2	16,527	0.12*	4	16,425	0.24*
Union	0	7,245	0.00*	1	7,222	0.14*	2	7,245	0.28*
Vanderburgh	21	172,387	0.12	22	172,691	0.13	25	172,774	0.14
Vermillion	2	16,503	0.12*	1	16,532	0.06*	2	16,576	0.12*
Vigo	5	104,144	0.05*	8	102,936	0.08*	17	102,735	0.17*
Wabash	2	34,254	0.06*	3	34,084	0.09*	4	33,775	0.12*
Warren	0	8,702	0.00*	2	8,731	0.23*	1	8,749	0.11*
Warrick	1	54,649	0.02*	4	55,396	0.07*	4	56,435	0.07*
Washington	4	27,629	0.14*	1	27,795	0.04*	5	27,817	0.18*
Wayne	5	70,165	0.07*	7	69,588	0.10*	6	69,192	0.09*
Wells	2	27,944	0.07*	2	27,974	0.07*	2	28,050	0.07*
White	2	24,865	0.08*	1	24,722	0.04*	3	24,495	0.12*
Whitley	0	31,739	0.00*	0	31,882	0.00*	2	32,186	0.06*
Indiana	493	6,191,719	0.08	605	6,223,329	0.10	665	6,266,019	0.11

* Rate is based on a total number of deaths <20 and, therefore, is statistically unstable.

Source: (Indiana State Department of Health, 2007)



Table 5: Total Numbers and Rates (per 1,000 Population) of Drug-Induced Deaths and Population Estimates in Indiana by County, Pooled from 1999 through 2005 (Indiana State Department of Health, 2007)

Indiana County of Residence	Total Deaths (1999 - 2005)	Total Population Estimate (1999-2005)	Death Rate (1999-2005)
Adams	10	235,034	0.04*
Allen	117	2,347,167	0.05
Bartholomew	49	504,158	0.10
Benton	5	65,124	0.08*
Blackford	6	97,108	0.06*
Boone	13	338,999	0.04*
Brown	7	107,007	0.07*
Carroll	5	142,080	0.04*
Cass	10	282,410	0.04*
Clark	70	688,424	0.10
Clay	11	187,581	0.06*
Clinton	9	237,311	0.04*
Crawford	11	76,974	0.14*
Daviess	14	208,987	0.07*
Dearborn	25	333,962	0.07
Decatur	10	174,104	0.06*
Dekalb	19	285,362	0.07*
Delaware	77	824,478	0.09
Dubois	13	281,538	0.05*
Elkhart	50	1,305,683	0.04
Fayette	21	176,585	0.12
Floyd	35	500,653	0.07
Fountain	6	124,530	0.05*
Franklin	7	157,982	0.04*
Fulton	8	144,419	0.06*
Gibson	16	229,679	0.07*
Grant	42	504,239	0.08
Greene	18	232,879	0.08*
Hamilton	46	1,452,635	0.03
Hancock	22	409,673	0.05
Harrison	12	248,688	0.05*
Hendricks	34	798,389	0.04
Henry	57	335,800	0.17
Howard	64	592,442	0.11
Huntington	12	266,096	0.05*
Jackson	16	291,509	0.05*
Jasper	13	215,249	0.06*
Jay	14	151,830	0.09*
Jefferson	12	224,199	0.05*
Jennings	11	196,922	0.06*
Johnson	53	850,794	0.06
Knox	12	271,404	0.04*
Kosciusko	29	522,174	0.06
Lagrange	3	249,378	0.01*
Lake	199	3,403,486	0.06
Laporte	48	770,179	0.06

Indiana County of Residence	Total Deaths (1999 - 2005)	Total Population Estimate (1999-2005)	Death Rate (1999-2005)
Lawrence	26	322,695	0.08
Madison	135	920,338	0.15
Marion	572	5,981,005	0.10
Marshall	17	322,791	0.05*
Martin	3	72,522	0.04*
Miami	11	249,981	0.04*
Monroe	71	840,586	0.08
Montgomery	21	263,767	0.08
Morgan	25	476,748	0.05
Newton	6	101,336	0.06*
Noble	17	325,615	0.05*
Ohio	1	39,920	0.03*
Orange	6	136,992	0.04*
Owen	14	155,788	0.09*
Parke	7	120,433	0.06*
Perry	5	132,535	0.04*
Pike	2	90,286	0.02*
Porter	69	1,059,167	0.07
Posey	16	187,959	0.09*
Pulaski	8	96,169	0.08*
Putnam	11	253,822	0.04*
Randolph	7	189,263	0.04*
Ripley	8	191,086	0.04*
Rush	7	126,180	0.06*
St. Joseph	90	1,853,226	0.05
Scott	26	164,058	0.16
Shelby	24	305,942	0.08
Spencer	9	143,248	0.06*
Starke	27	160,528	0.17
Steuben	10	232,975	0.04*
Sullivan	14	152,268	0.09*
Switzerland	1	65,505	0.02*
Tippecanoe	63	1,048,818	0.06
Tipton	11	115,744	0.10*
Union	4	51,009	0.08*
Vanderburgh	116	1,201,449	0.10
Vermillion	6	116,568	0.05*
Vigo	48	729,267	0.07
Wabash	13	240,846	0.05*
Warren	3	60,263	0.05*
Warrick	12	378,198	0.03*
Washington	12	193,860	0.06*
Wayne	40	492,152	0.08
Wells	10	193,966	0.05*
White	9	175,363	0.05*
Whitley	4	219,894	0.02*
Indiana	2,958	42,997,435	0.07

*Rate is based on a total number of deaths <20 and, therefore, is statistically unstable.
Source: Indiana State Department of Health, 2007.



Table 6: Total Numbers and Rates (per 1,000 Population) of Drug-Induced Deaths and Overdose Mortality Priority Scores in Indiana by County, Pooled From 1999 through 2005 (Indiana State Department of Health, 2007)

County of Residence	Total Deaths (1999-2005)	Death Rate (1999-2005)	Overdose Mortality Priority (OMP) Score
Allen	49 (75th percentile)	0.1 (<50th percentile)	3
Bartholomew	49 (50th percentile)	0.1 (75th percentile)	3
Clark	70 (50th percentile)	0.1 (75th percentile)	3
Dearborn	25 (<50th percentile)	0.07 (<50th percentile)	0
Delaware	77 (75th percentile)	0.09 (50th percentile)	3
Elkhart	50 (50th percentile)	0.04 (<50th percentile)	1
Fayette	21 (<50th percentile)	0.12 (75th percentile)	2
Floyd	35 (<50th percentile)	0.07 (<50th percentile)	0
Grant	42 (<50th percentile)	0.08 (50th percentile)	1
Hamilton	46 (<50th percentile)	0.03 (<50th percentile)	0
Hancock	22 (<50th percentile)	0.05 (<50th percentile)	0
Hendricks	34 (<50th percentile)	0.04 (<50th percentile)	0
Henry	57 (50th percentile)	0.17 (90th percentile)	4
Howard	64 (50th percentile)	0.11 (75th percentile)	3
Johnson	53 (50th percentile)	0.06 (<50th percentile)	1
Kosciusko	29 (<50th percentile)	0.06 (<50th percentile)	0
Lake	199 (90th percentile)	0.06 (<50th percentile)	3
Laporte	48 (50th percentile)	0.06 (<50th percentile)	1
Lawrence	26 (<50th percentile)	0.08 (50th percentile)	1
Madison	135 (90th percentile)	0.15 (90th percentile)	6
Marion	572 (90th percentile)	0.1 (75th percentile)	5

(continued on next page)



Table 6, Continued

County of Residence	Total Deaths (1999-2005)	Death Rate (1999-2005)	Overdose Mortality Priority (OMP) Score
Monroe	71 (75th percentile)	0.08 (50th percentile)	3
Montgomery	21 (<50th percentile)	0.08 (50th percentile)	1
Morgan	25 (<50th percentile)	0.05 (<50th percentile)	0
Porter	69 (50th percentile)	0.07 (<50th percentile)	1
Scott	26 (<50th percentile)	0.16 (90th percentile)	3
Shelby	24 (<50th percentile)	0.08 (50th percentile)	1
St. Joseph	90 (75th percentile)	0.05 (<50th percentile)	2
Starke	27 (<50th percentile)	0.17 (90th percentile)	3
Tippecanoe	63 (50th percentile)	0.06 (<50th percentile)	1
Vanderburgh	116 (75th percentile)	0.1 (75th percentile)	4
Vigo	48 (50th percentile)	0.07 (<50th percentile)	1
Wayne	40 (<50th percentile)	0.08 (50th percentile)	1

Note: For each indicator (number of deaths and death rate), counties were given 3 points if they ranked in the top most severe 10% (90th percentile rank), 2 points if they were in the top 25% (75th percentile rank), 1 point if they were in the top 50% (50th percentile rank), and 0 points if they ranked below. The points for each indicator were then summed to an overall Overdose Mortality Priority (OMP) score.

Source: Indiana State Department of Health, 2007.

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