Using Data to Identify Substance Abuse Prevention Needs - Development of a Substance Abuse Priority Index (SAPI)

INTRODUCTION

Substance abuse continues to be a public health concern in Indiana and nationwide. The abuse of alcohol and other drugs may not only result in negative health outcomes but are often a key issue in the criminal justice system, either directly (e.g., possession or sale/manufacture of illicit substances) or indirectly (e.g., crimes committed while under the influence of alcohol or drugs, or to support drug-seeking behaviors). The U.S. Department of Health and Human Services declared substance abuse a leading health indicator and lists the reduction of alcohol and drug abuse "to protect the health, safety, and quality of life for all, especially children" as one of its goals in improving the nation's health [2].

According to findings from the National Survey on Drug Use and Health (NSDHUH), nearly 23 percent of Indiana residents ages 12 and older engaged in binge drinking[1] at least once in the past month; the prevalence rate for underage individuals, ages 12 to 20, alone was 16.4 percent. Furthermore, 9 percent of Hoosiers ages 12 and older reported current (past-month) use of an illicit substance, with the highest rate among young adults ages 18 to 25 (22 percent). Most of the illicit drug use was attributable to marijuana with an annual prevalence rate of 10.3 percent, followed by nonmedical pain reliever use (5.7 percent) among Indiana residents ages 12 and older [3].

While these rates are statewide estimates, the severity of substance abuse can differ by county. Patterns of drug consumption and associated consequences may vary depending upon geographic and socio-demographic characteristics of the community. Using data to understand the extent and distribution of substance abuse and its adverse consequences within the population (and among specific population groups) is essential in prevention planning [1, 4]. Since alcohol and drug problems generally manifest at the community level, it is often best to address them locally. For effective and efficient planning, it is crucial to identify "hot spots", i.e., counties that are at greatest risk for substance abuse problems, and to allocate funding and implement programs in these areas.

In 2006, the Indiana State Epidemiology and Outcomes Workgroup (SEOW) was established as part of a federal grant requirement from the Substance Abuse and Mental Health Services Administration (SAMHSA). The Workgroup, consisting of members from various state agencies, is responsible for monitoring substance abuse patterns and emerging trends; identifying key prevention priorities and target populations; informing policymakers, the prevention community, and the general public; and generally encouraging the implementation of data-driven and evidence-based prevention planning and funding in our State. Identifying the areas that have the greatest need for substance abuse prevention funding represents a major challenge for the State and, unfortunately, there is no "gold standard" when it comes to determining which communities have the most significant alcohol and

> *"**D**ata-driven decision-making for substance abuse … prevention in states should begin with a general, data-based understanding of the patterns of substance use … and related consequences."*
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> *Substance Abuse and Mental Health Services Administration, SAMHSA, 2012 [1]*

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[1] NSDUH defines binge alcohol use as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

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drug problems. The SEOW, with input from SAMHSA's Center for Substance Abuse Prevention, developed a scoring system that will assist policymakers and funders in identify the Indiana counties most impacted by alcohol and drug abuse. However, the Substance Abuse Priority Index (SAPI) is not a comprehensive instrument, rather a tool based on various county-level data sources; hence, its accuracy is dependent on the quality of the available data.

This issue brief represents a summary of the methodology and findings on the development of a substance abuse priority score. For a more detailed analysis and complete county-level data tables, refer to The Consumption and Consequences of Alcohol, Tobacco, and Drugs in Indiana: A State Epidemiological Profile, 2012 [5].

METHODOLOGY

To measure and compare the severity of substance abuse among Indiana communities, we identified county-level consumption and consequence data for individual drug categories, including alcohol, marijuana, cocaine and heroin, methamphetamine, and prescription drugs. We then ranked Indiana counties on the selected indicators, using a highest-need/highest-contributor model; i.e., counties received a priority score based on their need for intervention (measured by the rate[2] at which an indicator occurred) and their overall contribution to the problem (measured by the frequency with which an indicator occurred).

For each indicator, counties were given three points if they were in the top 10 percent (90th percentile), two points if they were in the top 11 to 25 percent (75th percentile), one point if they were in the top 26 to 50 percent (50th percentile), and zero points if they fell below the 50th percentile. The points were then added up, averaged over the number of indicators, and multiplied by 100. This created a priority score for each drug category. Higher scores equated to larger burdens of substance abuse. For each substance, the top 10 percent of counties, those most severely affected, were determined.

We then calculated an overall substance abuse priority score to assess severity of consumption and consequences of alcohol and other drugs within each community. This score was computed by averaging the priority scores from each drug category. The top 10 percent of counties, those with the highest overall scores and most severe problems, were identified (see Table 1).

The selection of substance abuse indicators was limited to datasets with county-level information, such as the 2012 Treatment Episode Data Set (TEDS)[3], 2010 Uniform Crime Reporting (UCR) Program[4], 2011 Indiana Automated Reporting Information Exchange System (ARIES), 2010 Meth Lab Statistics, and 2011 INSPECT data [6-10]. All data were aggregated and/or de-identified.

The following indicators were included in our analysis:
- Alcohol (10 indicators)
  - Number and rate of alcohol-related crashes
  - Number and rate of arrests for driving under the influence (DUI)
  - Number and rate of arrests for public intoxication
  - Number and rate of arrests for liquor law violations
  - Number and rate of substance abuse treatment episodes with reported alcohol use
- Marijuana (6 indicators)
  - Number and rate of arrests for possession of marijuana
  - Number and rate of arrests for sale/manufacture of marijuana
  - Number and rate of substance abuse treatment episodes with reported marijuana use
- Cocaine and heroin (8 indicators)
  - Number and rate of arrests for possession of cocaine and opiates
  - Number and rate of arrests for sale/manufacture of cocaine and opiates
  - Number and rate of substance abuse treatment episodes with reported cocaine use
  - Number and rate of substance abuse treatment episodes with reported heroin use

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[2] The rate was calculated by taking the frequency of an event (e.g., number of arrests), dividing it by the specified population (e.g., county population), and multiplying the result by 1,000. This represents the rate per 1,000 population.

[3] Indiana TEDS data are limited to individuals entering substance abuse treatment who are 200% below the federal poverty level and receive state-funded treatment; therefore, data are not representative of the entire substance abuse treatment population.

[4] States are not required to submit crime information to the FBI and level of reporting varies by county. The FBI uses statistical algorithms to estimate arrests for counties in which reporting is less than 100%. In Indiana, an average of about 60% of counties report the number of arrests, so the rest is estimated.

[5] Barbiturates (central nervous system depressants) and Benzedrine (amphetamine/stimulant) are types of prescription drugs that are frequently used nonmedically for recreational purposes.

- Methamphetamine (8 indicators)
  - o Number and rate of arrests for possession of synthetic drugs
  - o Number and rate of arrests for sale/manufacture of synthetic drugs
  - o Number and rate of substance abuse treatment episodes with reported meth use
  - o Number and rate of clandestine meth lab seizures
- Prescription Drugs (8 indicators)
  - o Number and rate of arrests for possession of "other drugs" (barbiturates and Benzedrine)[5]
  - o Number and rate of arrests for sale/manufacture of "other drugs" (barbiturates and Benzedrine)
  - o Number and rate of treatment episodes with nonmedical prescription drug use reported
  - o Number and rate of controlled substances dispensed in Indiana

RESULTS

Indiana counties with the highest priority scores (i.e., within the top 10 percent) are listed in Table 1. The possible range of scores was between 0 and 300. The counties with the highest overall substance abuse priority score (a composite based on all five alcohol/drug priority scores) were Vanderburgh, Marion, Lake, Monroe, Allen, Madison, Knox, Vigo, and Tippecanoe Counties (see Table 1 and Map 1).

Table 1. Indiana Counties with Priority Scores for Alcohol, Marijuana, Cocaine/Heroin, Methamphetamine, Prescription Drugs, and Overall in the Top 10%

Substance	County	Priority Score
Alcohol	Lake	260
	Tippecanoe	230
	Monroe	230
	LaPorte	220
	Vigo	220
	Vanderburgh	220
	Clark	200
	Porter	200
	Marion	200
Marijuana	Vanderburgh	300
	Marion	250
	Lake	233
	Monroe	217
	Allen	217
	Vigo	200
	Madison	200
	Knox	183
	Morgan	183
	Elkhart	183
	Saint Joseph	183
	Tippecanoe	183
Cocaine / Heroin	Allen	275
	LaPorte	263
	Lake	263
	Marion	263
	Wayne	250
	Saint Joseph	213
	Howard	213
	Lake	233
	Noble	200
	Monroe	188
	Clark	188
	Madison	188

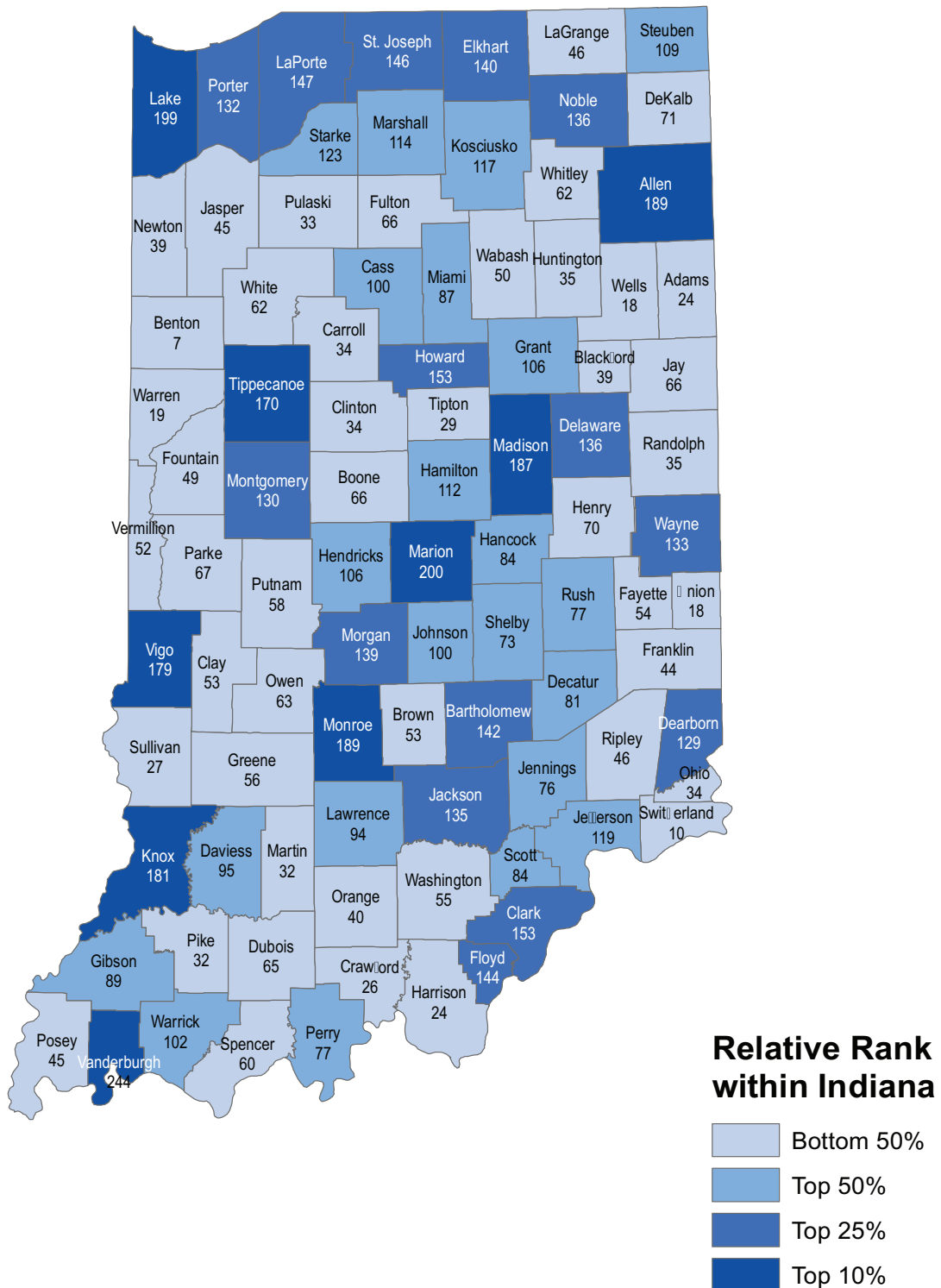| Methamphetamine	Knox	288
	Vanderburgh	263
	Bartholomew	250
	Starke	213
	Vigo	213
	Warrick	200
	Decatur	188
	Noble	188
	Parke	188
	Daviess	188
Prescripton Drugs	Madison	263
	Vanderburgh	263
	Howard	238
	Floyd	213
	Allen	200
	Knox	188
	Morgan	188
	Marion	188
	Lake	188
	Monroe	188
Overall Priority	Vanderburgh	244
	Marion	200
	Lake	199
	Monroe	189
	Allen	189
	Madison	187
	Knox	181
	Vigo	179
	Tippecanoe	170

THOUGHTS FOR POLICYMAKERS

Alcohol and drugs can have a profound effect, not only on the individuals who are abusing these substances, but also on their families and communities at large. A study conducted by the SEOW in 2010 found that direct and indirect costs of substance abuse and related consequences burden the State of Indiana by an estimated $7.3 billion [11].

Prevention research has demonstrated that within a broad public health approach we now have the capability to develop and implement effective strategies to decrease alcohol and drug related problems [4]. Comprehensive prevention and intervention programs can be successful in reducing substance use; consequently, diminishing harm to the individual and lessening the costs to society.

Allocation of prevention funding is necessary to implement effective evidence-based programs. Since alcohol and drug problems generally manifest at the community level, it is best to address them locally. Particularly in a climate of limited resources, focusing on "hot spots", areas and populations that are impacted the most, may help reduce the prevalence of substance abuse and the severity of consequences in these communities.

Substance abuse problems are "among the most difficult social problems to prevent or reduce" and require various comprehensive intervention approaches [4]. Using data to understand the extent and distribution of substance abuse and its adverse consequences within the population (and among specific population groups) is essential for effective prevention planning [1].

Map 1. Overall Priority Scores and Severity of Substance Abuse in Indiana Counties

Map showing Indiana counties with Overall Priority Scores:

County	Score	County	Score	County	Score
Lake	199	Porter	132	LaPorte	147
St. Joseph	146	Elkhart	140	LaGrange	46
Steuben	109	Starke	123	Marshall	114
Kosciusko	117	Noble	136	DeKalb	71
Newton	39	Jasper	45	Pulaski	33
Fulton	66	Whitley	62	Allen	189
White	62	Cass	100	Miami	87
Wabash	50	Huntington	35	Wells	18
Adams	24	Benton	7	Carroll	34
Howard	153	Grant	106	Blackford	39
Jay	66	Warren	19	Tippecanoe	170
Clinton	34	Tipton	29	Delaware	136
Randolph	35	Fountain	49	Montgomery	130
Boone	66	Hamilton	112	Madison	187
Henry	70	Wayne	133	Vermillion	52
Parke	67	Hendricks	106	Marion	200
Hancock	84	Putnam	58	Rush	77
Fayette	54	Union	18	Vigo	179
Clay	53	Owen	63	Morgan	139
Johnson	100	Shelby	73	Franklin	44
Sullivan	27	Greene	56	Monroe	189
Brown	53	Bartholomew	142	Decatur	81
Ripley	46	Dearborn	129	Jennings	76
Ohio	34	Lawrence	94	Jackson	135
Jefferson	119	Switzerland	10	Knox	181
Daviess	95	Martin	32	Scott	84
Washington	55	Clark	153	Orange	40
Floyd	144	Gibson	89	Pike	32
Dubois	65	Crawford	26	Harrison	24
Posey	45	Warrick	102	Spencer	60
Perry	77	Vanderburgh	244		

Relative Rank within Indiana

- Bottom 50%
- Top 50%
- Top 25%
- Top 10%

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