National Poison Data System: Louisiana 2012- 2016 Report Card

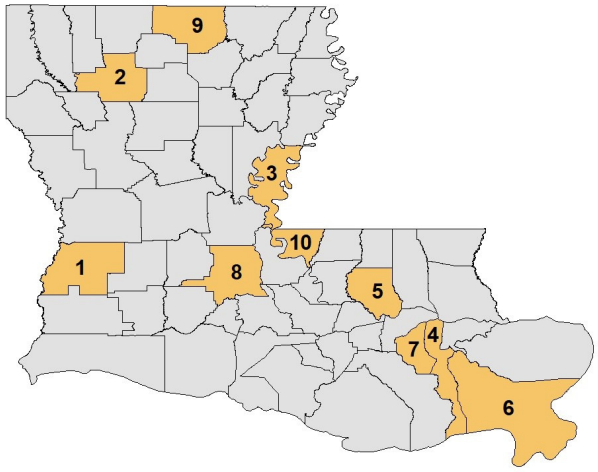
BACKGROUND

This report details trends in Louisiana **youth** and young adults (ages 12-25) poison control rates captured by the National Poison Data System (NPDS) between 2012-2016. As part of the Louisiana Partnerships for Success Grant (LaPFS), high need communities (HNCs) were designated to receive funds from 2013-2018 to implement interventions to reduce underage drinking and adolescent prescription drug misuse and abuse. The outcomes data presented in this report compare rates of poison control cases in the HNCs to the rest of the state of Louisiana. Data were made available to Partnerships for Success Grantees by the Substance Abuse and Mental Health Association.

METHODS

This report summarizes data from the National Poison Data System (NPDS) 2012-2016. The NPDS registers information about drug and alcohol poisoning exposures cases reported to the American Association of Poison Control Centers (AAPCC). Through a data use agreement with RTI International and the AAPCC, the Substance Abuse and Mental Health Association provided Partnerships for Success (PFS) grantees with relevant county or parish-level data for their state. In this report, we compare poison control case rates among the 2013 LaPFS HNCs to the rest of the state. The 2013 LaPFS HNCs include: 1. Beauregard Parish, 2. Bienville Parish, 3. Concordia Parish, 4. Jefferson Parish, 5. Livingston Parish, 6. Plaquemines Parish, 7. St. Charles Parish, 8. St. Landry Parish, 9. Union Parish, and 10. West Feliciana Parish.

Figure 1. Louisiana PFS - 2013 HNC parishes



In this report, we limited poison control cases to the target age ranges for LaPFS activities: 12-20 for underage drinking (ethanol or alcohol), and 12-25 for four specific substance categories (sedatives, anti-depressants, stimulants, and opioids). Cases in which multiple substances were reported (i.e., alcohol and opioid use involved in the same poisoning case) are counted as a single poison control case. Zip code data was used to determine parish-level counts of poison control cases. To calculate case rates, we divided poison control case rates by counts of persons ages 12-24 at the parish level using population data from the 2010 American Communities Survey. To assess trends in poison control rates we fit a mixed effect poisson regression using parish as a random effect to analyze changes over time while accounting for variability between parishes. Case rates are presented per 10,000 persons.

RESULTS

Summary

- On the national level, communities receiving PFS funds generally have higher poison control case rates than non-PFS communities. Typically, after PFS interventions were implemented, the disparity in poisoning rates between the two groups decreased significantly or showed a decreasing trend [1].
- In Louisiana, parishes receiving PFS funds are called high need communities (HNCs). The HNCs had slightly lower poison control rates than the rest of the state prior to implementation of PFS-funded interventions, although the difference between HNCs and other parishes was not statistically significant.
- Poison control case rates across Louisiana fluctuated between 2012 and 2016. Changes in rates varied between HNCs and the rest of the state. However, these differences were not statistically significant.

RESULTS CONTINUED

Figure 2. Louisiana Youth Poison Control Case Rates by Specific Substance

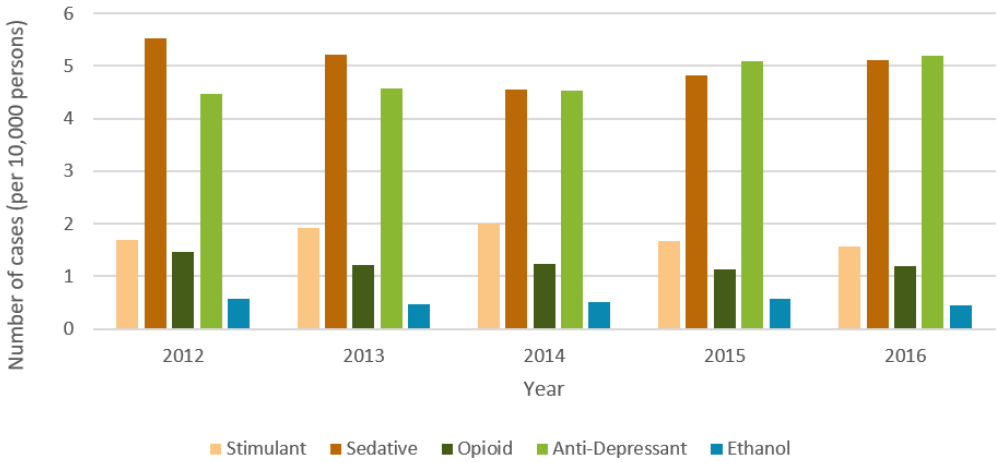


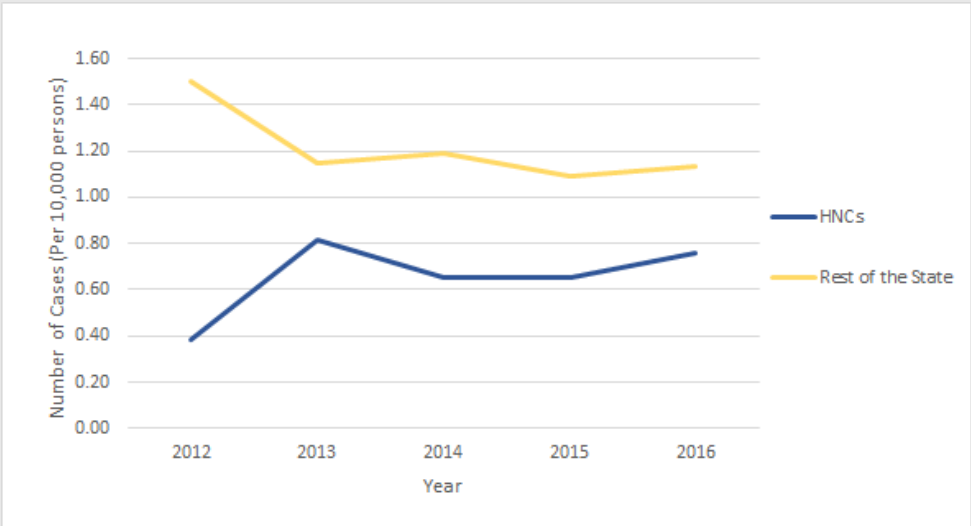
Figure 2 on the left shows the following trends:

- In Louisiana, there are higher rates of sedatives and anti-depressant cases compared to other substances during 2012-2016.
- The trend for sedative poisonings declined between 2012 – 2014, but reversed in 2015 & 2016.

OPIOIDS

Opioids are a class of drugs that include the illegal drug heroin, synthetic opioids such as fentanyl, and pain relievers available legally by prescription, such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, and many others [3]. Opioid pain relievers are generally safe when taken for a short time and as prescribed by a doctor, but because they produce euphoria in addition to pain relief, they can be misused (taken in a different way or in a larger quantity than prescribed, or taken without a doctor's prescription). Regular use—even as prescribed by a doctor—can lead to dependence and, when misused, opioid pain relievers can lead to overdose incidents and deaths [3].The majority of drug overdoses in the United States involve an opioid [4].

In **Figure 3**, opioid poisoning rates increased from 2012 to 2013 among HNCs and decreased among the rest of the state. From 2013 to 2016, there were minimal changes in opioid poisoning rates for both groups.

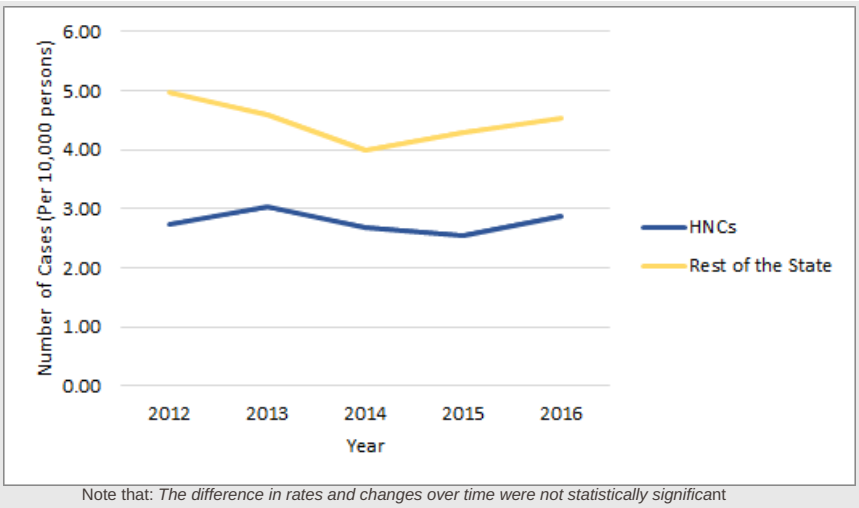


Note that: *The difference in rates and changes over time were not statistically significant*

Figure 2. Youth Poison Control Rates - Opioids (HNCs vs. Rest of State)

SEDATIVES

Sedatives are a diverse group of drugs whose purpose is to relax the central nervous system. Also known as tranquilizers or depressants, "downers" or "sleeping pills," the term sedative encompasses drug classes including barbiturates and benzodiazepines [6]. The most commonly used prescription sedatives include Ambien®, Xanax, Valium, and similar products [6]. Though these drugs may be prescribed and there are over-the-counter sedatives that may be bought without a prescription, sedatives may be abused (taken in a different way or in a larger quantity than prescribed, or taken without a doctor's prescription) [6].

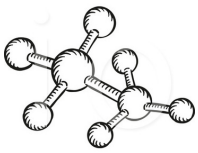


Note that: *The difference in rates and changes over time were not statistically significant*

Figure 3. Youth Poison Control Rates - Sedatives (HNCs vs. Rest of State)

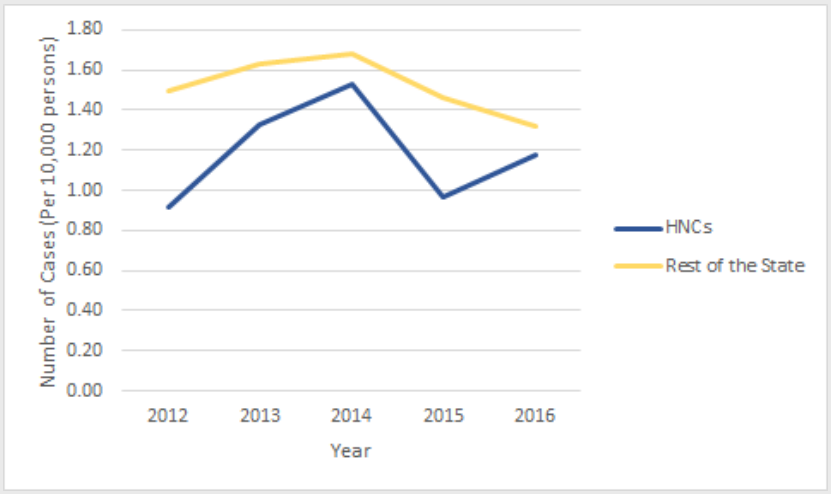
Figure 4 shows that there was a decrease in sedative poisonings in HNCs from 2013 to 2015, followed by an increase in 2016.

STIMULANTS



As the name suggests, stimulants (also known as "uppers" or "speed") increase alertness, attention, and energy, as well as elevate blood pressure, heart rate, and respiration [2]. Stimulants are prescribed to treat a few health conditions, including ADHD, narcolepsy, and occasionally depression. Stimulants such as amphetamines may also be abused by those to whom they are not prescribed for the purpose of losing weight, staying awake, and concentration; common stimulants include Ritalin,®, Adderall® and Concerta [6].

Figure 5 shows that there was a rise in stimulant poisonings in HNCs and the rest of the state from 2012 to 2014, followed by a decrease in 2015. Stimulant poisoning rates in HNCs rose again in 2016 while rates in the rest of the state continued to fall.

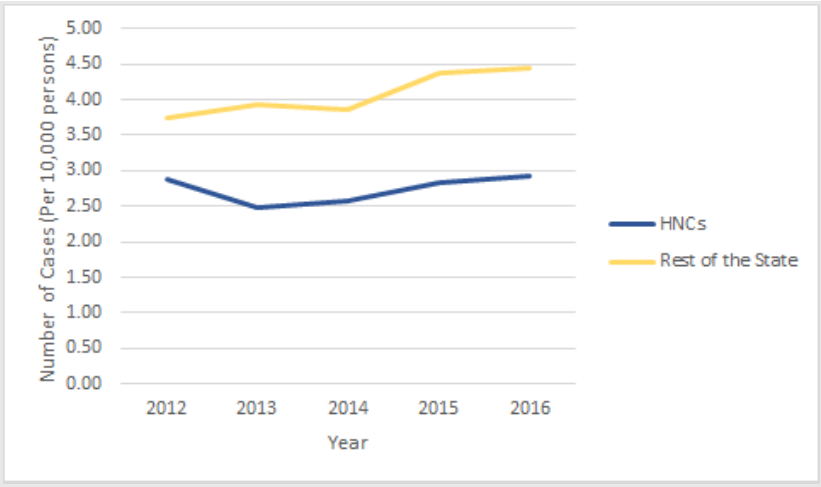


Note that: *The difference in rates and changes over time were not statistically significant*

Figure 4. Youth Poison Control Rates - Stimulants (HNCs vs. Rest of State)

ANTI-DEPRESSANTS

Antidepressants are medications commonly used to treat depression. Antidepressants are also used for other health conditions, such as anxiety, pain, and insomnia [8]. The most popular types of antidepressants are called selective serotonin reuptake inhibitors (SSRIs). Examples of SSRIs include Fluoxetine, Citalopram, and Sertraline. Other types of antidepressants are serotonin and norepinephrine reuptake inhibitors (SNRIs), as well as bupropion [8]. Older antidepressant medications include tricyclics, tetracyclics, and monoamine oxidase inhibitors (MAOIs); MAOIs are the most commonly abused anti-depressant. Examples of MAOIs include Marplan, Nardil, Emsam, and Parnate [9].



Note that: *The difference in rates and changes over time were not statistically significant*

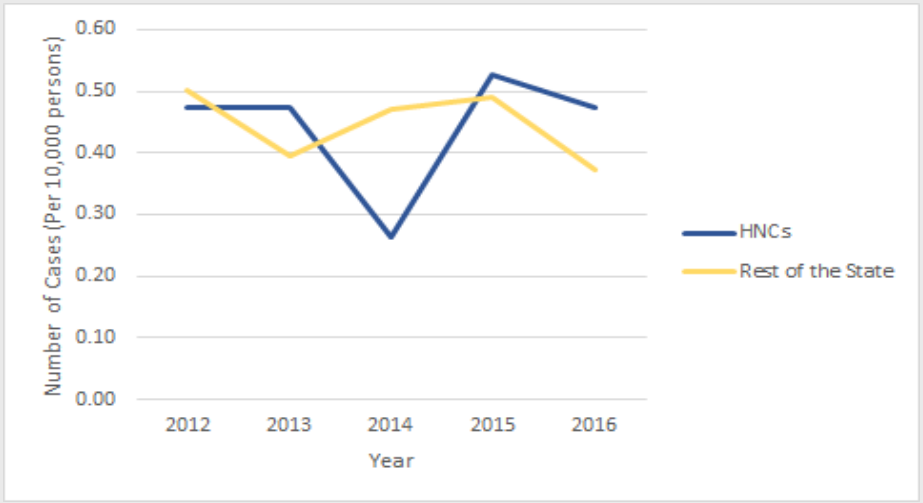
Figure 5. Youth Poison Control Rates - Anti-Depressants (HNCs vs. Rest of State)

In **Figure 6**, Anti-depressant poisoning rates in HNCs fall from 2012 to 2013 then steadily increase 2013 to 2016. In the rest of the state there in an increasing trend of anti-depressant poisoning from 2012 to 2016.

ETHANOL

Ethanol is the principal type of alcohol found in alcoholic beverages. According to the Centers for Disease Control and Prevention (CDC), alcohol use causes 88,000 deaths a year [12]. According to the 2015 National Survey on Drug Use and Health (NSDUH), an estimated 623,000 adolescents ages 12–17 (2.5 percent of this age group) had Alcohol Use Disorder [11]. This number includes 298,000 males (2.3 percent of males in this age group) and 325,000 females (2.7 percent of females in this age group) [11].

Figures 7 shows a decrease in ethanol poisoning rates in HNCs from 2013 to 2014, followed by an increase that showed rates similar to 2012. Ethanol poisoning rates for the rest of the state remained relatively stable.



Note that: *The difference in rates and changes over time were not statistically significant*

Figure 6. Youth Poison Control Rates - Ethanol (HNCs vs. Rest of State)

LIMITATIONS

The limitations of this study are based on the data available for analysis. Poisoning case data is based on zip-code; zip-codes may fall in multiple parishes allowing poisoning cases to be included in rates for multiple parishes. Poisoning case data relies on self-reported information reported by callers. Self-reported information about exposures may be incomplete or inaccurate. Further, there are likely many occasions in which drug or alcohol cases occur but are not reported to the Poison Control Centers because individuals do not recognize the poisoning or are embarrassed or fearful about reporting it. Additionally, the youth poison control rates are comparable but imprecise because there is a difference in age groups used for the numerators and denominators. The numerators of the substance-specific poison control rates are based on LaPFS target ranges: 12-20 for ethanol and 12-25 for other substances. The denominators for the poison control rates are based on 12-24 population counts from the American Communities Youth Survey (ACS) because ACS population counts are limited to age categories. And lastly, poison control cases were rare which limits the statistical power to detect significant changes in poison control rates between LaPFS HNCs and the rest of the state as well as changes in rates over time.

RECOMMENDATIONS

Work with state and local prevention groups to:

1. **Expand education on the signs and symptoms of drug and alcohol poisoning.**
2. **Encourage reporting of drug and alcohol poisoning to the National Poison Data System by calling 1-800-222-1222.**
3. **Continue monitoring poisoning data to understand changes in drug and alcohol poisonings over time.**
4. **Consider poison control reports during the planning and tailoring of evidence-based interventions to reduce the incidence of drug and alcohol poisoning.**
5. **Contact your Local Governing Entity (LGE) for more information.**

REFERENCES

1. Substance Abuse and Mental Health Services Administration, Program Evaluation for Prevention: PFS Annual Evaluation Report, FY2015. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2016.
2. National Institute of Mental Health (NIMH). (October 2016). Mental Health Medications. Retrieved from: https://www.nimh.nih.gov/health/topics/mental-health-medications/index.shtml
3. National Institutes on Drug Abuse (NIDA). (May 2017). Opioids: Brief Description. Retrieved from: https://www.drugabuse.gov/drugs-abuse/opioids
4. Rudd RA, Seth P, David F, Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. MMWR Morb Mortal Wkly Rep 2016;65:1445–1452.
5. Center for Behavioral Health Statistics and Quality (CBHSQ). (2015). 2014 National Survey on Drug Use and Health: Methodological summary and definitions. Rockville, MD: Substance Abuse and Mental Health Services Administration.
6. Substance Abuse and Mental Health Services Administration (SAMHSA). (September 2016). Prescription Drug Use and Misuse in the United States: Results from the 2015 National Survey on Drug Use and Health.
7. National Institutes on Drug Abuse (NIDA). (August 2016). Misuse of Prescription Drugs: What are stimulants? Retrieved from: https://www.drugabuse.gov/publications/research-reports/prescription-drugs/stimulants/what-are-stimulants
8. National Institute of Mental Health (NIMH). (October 2016). Mental Health Medications. Retrieved from: https://www.nimh.nih.gov/health/topics/mental-health-medications/index.shtml
9. Mayo Clinic. (June 2016). Monoamine oxidase inhibitors (MAOIs). Retrieved from: http://www.mayoclinic.org/diseases-conditions/depression/in-depth/maois/art-20043992.
10. National Institutes on Drug Abuse (NIDA). (August 2016). Misuse of Prescription Drugs: What are CNS depressants?
11. National Institute on Alcohol Abuse and Alcoholism (NIAAA). (February 2017). Alcohol Facts and Statistics. Retrieved from: https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-facts-and-statistics
12. Substance Abuse and Mental Health Services Administration (SAMHSA). (October 2015). Alcohol, Tobacco, and Other Drugs - Alcohol. Retrieved from: https://www.samhsa.gov/atod/alcohol

This report was developed for the Louisiana State Epidemiology Workgroup (SEW) by the LaPFS Evaluation Team at Drexel University.

SUGGESTED CITATION

Roth AM, Gedeon D, Piecara BL, Berhane Z. (2017) *National Poison Data System: Louisiana 2012- 2016 Report Card*. Philadelphia, PA: Drexel University Dornsife School of Public Health.