

## Princeton Health Department

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### Analysis of data related with Heroin & other Opiate abuse in Princeton

United States is experiencing a new epidemic of Opioid overuse as more opioid pain medications is being approved for use by FDA.

**Goal:** To identify the trend in opiate overuse in Princeton and other municipalities located in Mercer County.

**Objective:** To compile, analyze, and compare the data related with opiate admission in Princeton and other municipalities located within Mercer County.

**Introduction:** In United States, opioid pain relievers are prescribed by physicians for moderate to severe pain. The sale of narcotic has increased four times from 1999 to 2014.<sup>1</sup> Prescribing rate for opioid varies from state to state in United States because the healthcare providers do not have a guideline for prescribing it. Some states prescribe more opioids than others which depends on the state regulations.

TABLE 1 gives the 2012 prescribing rate per 100 person in New Jersey and United States.

	Opioid Pain Relievers	Rank	Long-acting or Extended-release opioid pain relievers	Rank	High-dose Opioid Pain Reliever	Rank
New Jersey	62.9	47	11.3	27	5.8	9
United States	82.5	-	10.3	-	4.2	-

Source: Vital Signs: Variation Among States in Prescribing of Opioid Pain Relievers and Benzodiazepines — United States, 2012. Morbidity and Mortality Weekly Report (MMWR).<sup>2</sup>

As shown in Table 1, the opiate pain medication prescribing rate per 100 people in New Jersey was 62.9 and average prescribing rate in United States is 82.5.

Opiates act to diminish the perception of pain by attaching to the opioid receptors in the brain and other body tissues and leading to dependence and tolerance. Tolerance for opioid leads to behavior that seeks a higher and a stronger dose of narcotic. It eventually makes an individual to overuse, abuse and then switch to Heroin because it is cheaper than prescription pain medications and easily available. Opiates also cause euphoric response by affecting the reward center in the brain which intensifies the experience if taken in other forms. Heroin is highly addictive and dangerous because it suppresses the respiratory center. Some of these people would have never tried heroin if they had not become addicted to the physician prescribed opioid medications. Heroin overuse has increased and so has the premature death related with it.

There have been 5,217 number of heroin related deaths in New Jersey since 2004.<sup>3</sup> Heroin related death rate per 100, 000 people in New Jersey is 8.3, which is 3 times more than the national average.<sup>3</sup> There have been 184,038 people admitted to substance abuse treatment facilities for heroin and opioid abuse since 2010.<sup>3</sup>

In New Jersey, an Opioid Antidote and Overdose Prevention Act was passed to protect the healthcare professionals from civil and criminal liability for prescribing and dispensing naloxone, the antidote for opiate overdose and to provide immunity from civil and criminal liability for people who administer it in order to save life. Affordable Care Act also has provisions to provide coverage for substance abuse treatment and rehabilitation.

**Method and Source of Data:** Table 2 contains data for the number of substance abuse treatment admissions for Mercer County residents by primary drug from 2010 to 2014. This data was obtained from New Jersey Substance Monitoring System (NJ-SAMS). Percentage of each drug used was calculated from the total number of admissions and a bar-graph plotted with the help of Microsoft Excel to compare the primary drug causing the maximum admissions. Table 2 shows that admission for treatment in Mercer County is highest for heroin and other opioids. The percentage increased from 41% in 2010 to 44% in 2012 and then a slight decrease was observed in 2013 and 2014.

Table 2 gives the number and percentage of primary drug abused in the substance abuse treatment admissions for Mercer County residents<sup>4</sup>

Year	Alcohol	Heroin & Other Opiates	Cocaine	Marijuana	Other Drug	Total
2010	24,556 (34%)	29,080 (41%)	4,784 (7%)	11,255 (16%)	2,199 (3%)	71,874
2011	23,669 (32%)	31,127 (42%)	4,665 (6%)	12,072 (15%)	2,481 (3%)	74,014
2012	23,156 (31%)	33,507 (44%)	4,415 (6)	12,477 (16%)	2,312 (3%)	75,867
2013	890 (30%)	993 (33%)	311 (11%)	718 (24%)	59 (2%)	2971
2014	580 (28%)	670 (32%)	239 (12%)	509 (25%)	63(3%)	2061

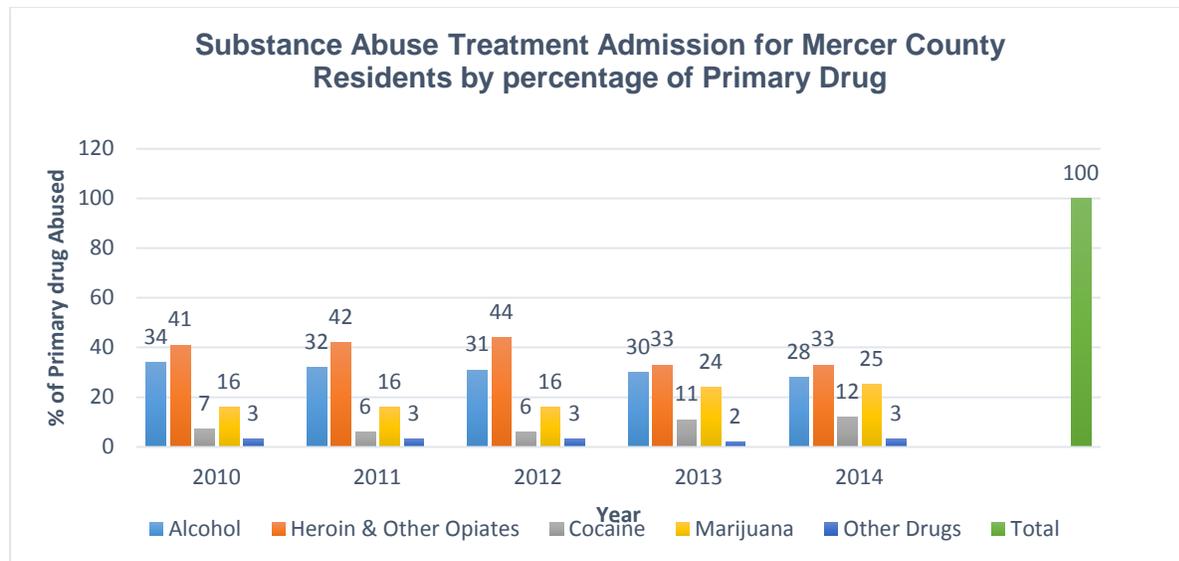


Figure 1. Gives the percentage of primary drug abused in the substance abuse treatment admissions for Mercer County residents.

Figure 1 is the bar-graph plotted to compare the primary drug being abused at the time of admission to a facility for substance abuse treatment. The graph shows that of the total admissions for substance abuse in Mercer County, 41% were admitted for heroin and other opiates overuse, 34% for alcohol abuse and 16% for marijuana addiction in 2010; 42% were admitted in 2011, 44% in 2012 and 33% in 2014 for opiate abuse.

The 2015 data for the number of Mercer County residents admitted for heroin and other opiate addiction was obtained from NJ.com. The data was then analyzed to calculate the rate per 1,000 people. The rate in Princeton was then compared with the rate of other municipalities located within Mercer County. Table 3 provides the number of admissions to treat Heroin and other opiate addiction in Princeton and other municipalities in Mercer County. The table also displays the calculated rate of admission per 1,000 people by municipality. The highest number and rate of admission for treatment of heroin and other opiate per 1,000 population is in Trenton in 2015. The admission rate per 1,000 people for Trenton is 2.9, for Ewing is 2.4 and for East Windsor it is 2.4. The rate in Princeton is .38 per 1,000 people.

Table 3 gives the number of Admissions due to Heroin & other Opiates addiction and the rate of admission for heroin & other opiates per 1, 000 people<sup>3</sup>.

Year	Mercer County Towns	Heroin Admission <sup>a</sup>	Other Opiate Admission <sup>a</sup>	Population <sup>a</sup>	Rate of Heroin Admission	Rate of Other Opioid Admission	Rate of Heroin & Other Opioid Admission
2015	Robbinsville	1	1	13813	0.07	0.072396	0.15
2015	Hamilton	9	1	88648	0.1	0.011281	0.11
2015	Trenton	184	58	84609	2.17	0.685506	2.9

2015	West Windsor	1	0	27711	0.04	0	0.04
2015	Princeton	6	5	28572	0.21	0.174997	0.38
2015	Lawrence	1	3	33228	0.03	0.090285	0.12
2015	Hopewell Township	15	2	18049	0.83	0.110809	0.94
2015	East Windsor	28	9	27295	1.03	0.329731	1.4
2015	Ewing	66	20	36125	1.8	0.553633	2.4
2015	Total	311	99	358050	6.28	2.028638	8.44

Note: <sup>a</sup> is the data from NJ.com. Herointown, N.J.: The state's heroin crisis in 9 startling statistics.<sup>3</sup>

Figure 2 shows that the rate of admission for all types of opiate including heroin is highest in Trenton, followed by Ewing and East Windsor Township. 11 opiate and heroin admissions have been reported Princeton in 2015. The treatment admission rate for heroin & opiate abuse is not very high in Princeton but it is very high in neighboring townships. It will not take long before heroin overuse becomes a problem for Princeton. Effective and efficient steps and measures need to be taken to combat this rising rate of substance abuse.

Surveys were distributed online to residents via the Princeton Health Department website from March 22, 2016 to April 11, 2016 to collect primary data. The survey monkey had some questions on substance abuse. The purpose of these questions was to analyze primary data in order to understand what the people living in Princeton thought about substance abuse and how much information they had about opiate.

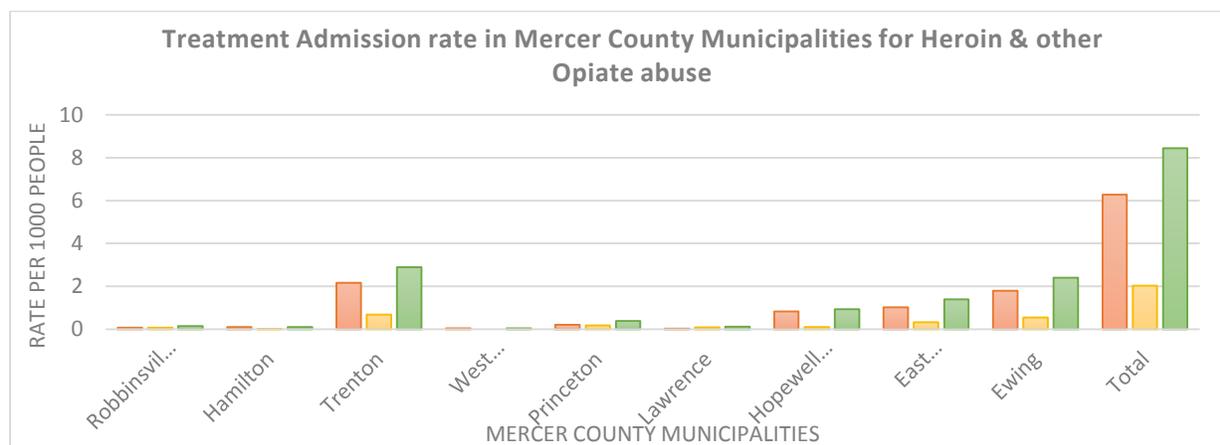


Figure 2 shows the rate of admission per 1,000 people for heroin, other opiate and heroin & other opiate together in the municipalities in Mercer County.

Of the 48 respondents who took the survey (46 were Princeton residents); 77% were (36) female, 40.4% were between 46 to 64 years(19), 10.6% were 31 to 45 in age (5), 12.8% 18 to 30 years (6) and 17 % 65 plus (17). Almost 90% of respondents were college graduates, with only 1 respondent whose highest level of education was High School completion. Most of the respondents were employed (57%, 27); and 63.4% had no barriers to medical treatment. 65% have employer-based insurance (28 out of 43), followed by Medicare 25.6% (11 out of 43).

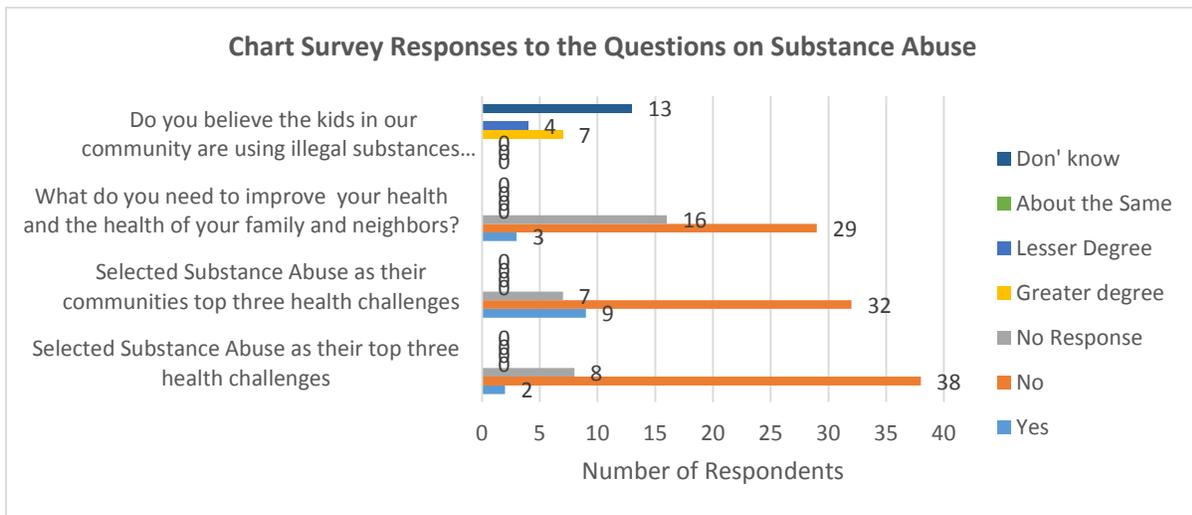


Figure 3: Survey responses to the questions on Substance Abuse

As shown in Figure 3, 40 respondents answered the question about their perceived health challenges, Only 2 (5%) respondents revealed having substance abuse problem. 9 (22%) out of the 41 respondents chose substance abuse as one of the top challenges facing their community. 3 (9%) out 32 respondents chose substance abuse services to improve their and the health of their family and neighbors. 37 respondents answered the question related with the perception that kids in their community are using illegal substance (such as alcohol and marijuana) to a greater or lesser degree than their peers in other communities. Of the 37 individuals who responded, 18.9% (7) perceive that kids are abusing drugs to a greater degree in their community than their peers; 10.8% (4) perceive to a lesser degree; 35.1% (13) think to the same degree; and 35.1% (13) did not know how to answer the question.

The survey participants are not representative of the Princeton Demographics. In Princeton, 81% of the residents have either a 4 year or higher degree and in the survey 90% of the survey takers have a 4 or more years of college education. Only 22% of the respondents think that substance abuse is a problem in the community and 18% think that kids in their community are using illegal substance to a greater degree than their peers. As an effective public health practice, it is better to act early to bring awareness among the community members about the hazards of substance abuse which is already present in the neighboring communities. Resources and education should be provided at all levels to the community members so that the residents of Princeton can make informed choices and protect themselves and their loved ones against becoming victims of substance abuse.

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