

# HEROIN IN COLORADO



LAW ENFORCEMENT  
PUBLIC HEALTH  
TREATMENT  
DATA 2011 - 2016

**APRIL 2018**

WORKING TOGETHER TOWARD A SOLUTION.

**Prepared By:  
Heroin Response Work Group**

<http://www.corxconsortium.org/heroin-response-work-group/>

**Heroin Response Work Group Member Agencies**

Addiction Research & Treatment Services (ARTS)	Johns Hopkins School of Public Health
Arapahoe County Sheriff's Department	KEPRO
Boulder County Drug Task Force	KEPRO Quality Improvement Organization (QIO) Program
Boulder County Public Health	Larimer County Sheriff's Department
Center for Dependency, Addiction and Rehabilitation	Liver Health Connection (formerly Hep C Connection)
Chaffee County Public Health	Longmont Police Department
Colorado Association of Chiefs of Police	Medtronic
Colorado Attorney General's Office	Millennium Health
Colorado Consortium for Prescription Drug Abuse Prevention	New Beginnings Recovery
Colorado Criminal Justice Reform Coalition	Opioid Advisory Group BOCO
Colorado Department of Corrections	Organized Crime Drug Enforcement Task Force (OCDETF)
Colorado Department of Human Services	Phoenix Multisport
Colorado Department of Public Health and Environment (CDPHE)	Red Rock Recovery
Colorado Dept of Human Services, Office of Children Youth and Families	Retired - Law Enforcement
Colorado Drug Investigators Association	Rocky Mountain Crisis Services
Colorado Health Institute	Rocky Mountain High Intensity Drug Trafficking Areas (RMHIDTA)
Colorado National Guard	San Luis Valley Health Education Center
Colorado Permanente Medical Group	Southern Colorado Harm Reduction Association
Denver Public Health and Environment	St. Joseph Hospital
Denver Public Health	Thornton Police Department
Denver Recovery Group	University of Colorado Denver
Denver Springs Behavioral Health Hospital	University of Colorado Skaggs School of Pharmacy
Drug Enforcement Administration	US Attorney's Office (CO)
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# Introduction

On December 29, 2015, Rocky Mountain High Intensity Drug Trafficking Area (RMHIDTA) sponsored a meeting with representatives from the Colorado Department of Public Health and Environment (CDPHE), the Colorado Department of Human Services (CDHS), the Colorado Attorney General's Office (COAG), the Colorado Drug Investigators Association (CDIA), and the Drug Enforcement Administration (DEA) to discuss assessing Colorado's heroin problem. This group of partners decided to form a multidisciplinary Heroin Response Work Group to coordinate a statewide response to Colorado's emerging heroin problem. Heroin Work Group members represent diverse backgrounds and include representatives from federal, state, and local law enforcement, prevention, treatment and recovery organization. The Heroin Response Work Group is now one of 10 work groups under the Colorado Consortium for Prescription Drug Abuse Prevention, a large coalition that was formed in 2013 to oversee the implementation of the Colorado Plan to Reduce Prescription Drug Abuse.

Phase 1 of the Heroin Response Work Group involved completing an assessment to determine the extent of the heroin problem in Colorado. This document is an update to the original Heroin in Colorado Report that was released in April 2017. The Heroin Response Work Group compiled the data in this report from the following agencies: RMHIDTA, CDPHE, CDHS, DEA, the Rocky Mountain Poison and Drug Center, and the El Paso Intelligence Center. Each agency reviewed drafts of this assessment and provided edits to ensure the accuracy of the data presented. Although the Heroin Response Work Group utilized all available data regarding heroin in Colorado, each data source has unavoidable limitations.

Since the publication of the original Heroin in Colorado report, members of the Heroin Response Work Group continued to meet to develop and implement strategies to address the identified problems. Current work group goals for 2017-2018 are to:

- Enhance relationships between law enforcement, treatment and public health.
- Expand Crisis Services to handle opioid use disorder calls and act as a resource for responding law enforcement.
- Expand medication-assisted treatment in jails.
- Conduct ongoing data monitoring related to Colorado's heroin epidemic.
- Target opioid and heroin source of supply to reduce availability.

# Executive Summary

In May 2016, the Heroin Response Work Group was officially established as part of the Colorado Consortium for Prescription Drug Abuse Prevention. The work group established a number of goals including completing a preliminary assessment to determine the extent of the heroin problem in Colorado.

Numerous data sources indicate that Colorado is experiencing an increasing problem with heroin. This is supported by data indicating increased rates of heroin seizures and arrests, heroin overdoses, administration of naloxone, new cases of hepatitis C, Neonatal Abstinence Syndrome (NAS), heroin exposure and treatment for opioid use disorders.

## Findings:

### Section 1: Heroin Seizures and Arrests

Reported heroin seizures in Colorado by law enforcement have increased from 2011 - 2016.

- The number of incidents of heroin seizures increased 2,310 percent from 20 to 482 incidents in 2016.
- The pounds of heroin seized annually increased 615 percent from 16.2 in 2011 to 115.9 pounds in 2016. From a high of 334.8 pounds in 2015, the number of pounds of heroin seized decreased 65 percent in 2016.

Reported arrests for heroin offenses in Colorado have increased by 152 percent from 91 in 2011 to 229 arrests in 2016.

### Section 2: Fatal and Non-Fatal Overdoses

Heroin-related deaths among Colorado residents have nearly tripled in six years.

- 2011 – 79 deaths
- 2016 – 228 deaths

The age-adjusted rate of heroin-related overdose deaths.

- 2011 – 1.5 deaths per 100,000 Colorado residents
- 2016 – 4.1 deaths per 100,000 Colorado residents

The age-adjusted heroin-related hospitalization rate increased by 68 percent from 2011-2016.

- 2011 – 1.9 hospitalizations per 100,000 Colorado residents
- 2016 – 3.2 hospitalizations per 100,000 Colorado residents

The age-adjusted rate of heroin-related emergency department visits tripled from 2011 to 2016.

- 2011 – 4.4 per 100,000 Colorado residents
- 2016 – 13.7 per 100,000 Colorado residents

### Section 3: Naloxone

The documented use of Naloxone by emergency medical services (EMS) in Colorado to treat suspected heroin overdoses has increased 248 percent from 2011 – 2016.

- 2011 – 997 events
- 2016 – 3,465 events

# Executive Summary

## **Section 4: Disease Transmission and Opioid Use Disorders**

Reported cases of hepatitis C virus (HCV) have increased, and most people become infected with the HCV by sharing needles or other equipment for injection drug use (IDU).

- Although HCV surveillance systems do not directly measure acute cases attributed to IDU, potentially related new cases of hepatitis C have increased. The age-adjusted HCV (acute and newly reported chronic cases) rate increased by 129 percent from 2012 – 2016.
  - 2012 – 366 cases (33.4 cases per 100,000 population)
  - 2016 – 894 cases (76.4 cases per 100,000 population)

## **Section 5: Neonatal Abstinence Syndrome (NAS)**

Cases of opiate withdrawal syndrome in Colorado newborns have increased, while state birth rates have remained relatively stable.

- From 2011 – 2016, NAS rates have increased by 120 percent
  - 2011 – 132 cases
  - 2016 – 290 cases

## **Section 6: Heroin Exposure Calls**

Calls for heroin related exposures in Colorado have increased 70 percent from 2011 to 2016.

- 2011 – 40 calls
- 2016 – 68 calls

## **Section 7: Heroin Treatment Admissions and Client Information**

- The number of people in treatment for opioid use disorders at State licensed facilities has increased 189 percent from 2,748 in 2011 to 7,949 admissions in 2016.
- The majority of the clients in treatment for opioid use disorders are white males between the ages of 18 and 42 who have never married and are unemployed.

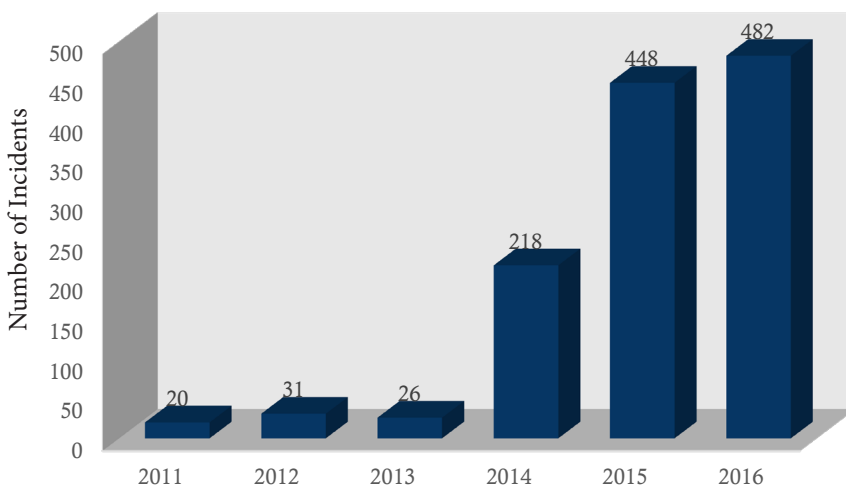
# Section 1: Heroin Seizure and Arrest Data

## Heroin Seizure and Arrest Data

In the law enforcement community, intelligence indicating an emerging threat is often compared with data to help assess the validity of the information. In the case of heroin in Colorado, the intelligence indicates an emerging trend which is supported by the increases in heroin seizures and arrests for heroin offenses.

The El Paso Intelligence Center (EPIC) tracks data related to drug seizures as reported by law enforcement (local, state, and federal). The database is known as the National Seizure System (NSS). This is not a mandatory reporting process for all law enforcement agencies and not all Colorado agencies report drugs seized to EPIC's NSS:

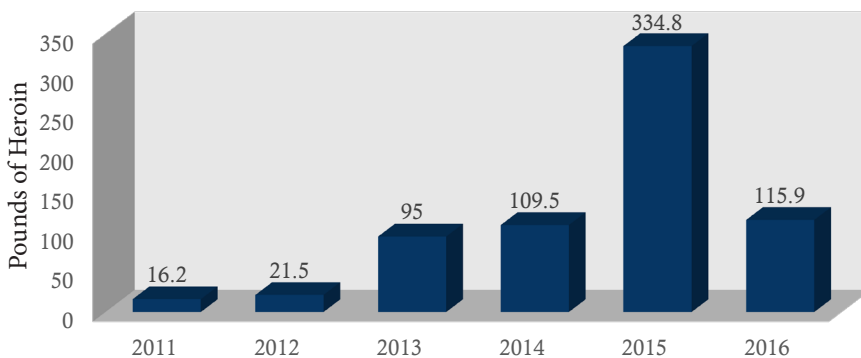
**Figure 1.1 Number of Heroin Seizure Incidents Reported in Colorado**



Source: El Paso Intelligence Center (EPIC)<sup>1</sup>

There was a 2,310 percent increase in heroin seizure incidents reported from 2011 to 2016.

**Figure 1.2 Pounds of Heroin Seized in Colorado**



Source: El Paso Intelligence Center (EPIC)<sup>1</sup>

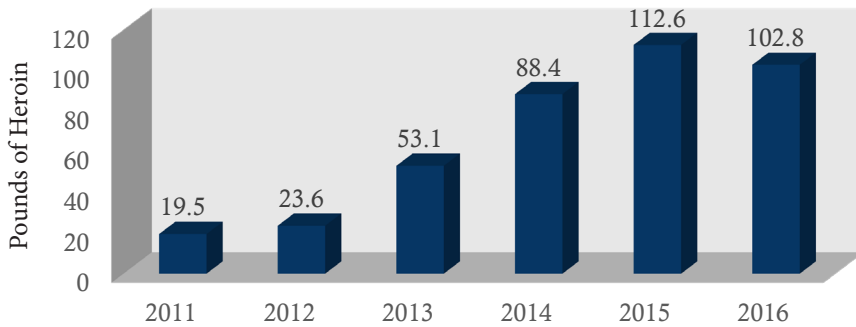
### Findings

- Heroin Seizures – Reported heroin seizures in Colorado by law enforcement have increased from 2011-2016.
  - The number of incidents of heroin seizures in Colorado increased 2,310 percent from 20 in 2011 to 482 incidents in 2016.
  - Total pounds of heroin seized in Colorado increased 615 percent from 16.2 to 115.9 pounds in 2016. RMHIDTA drug task forces in Colorado seized 427 percent more pounds of heroin, from 19.5 pounds in 2011 to 102.8 pounds in 2016.
- The yearly price per ounce of heroin in Denver decreased \$300 from 2011 to 2016. The average heroin purity levels in Denver decreased by 10.7 percentage points from a high in 2012 to 2016. There was a 444 percent increase in arrests for heroin in Colorado from 2011 to 2016.

# Heroin Seizure and Arrest Data

In Colorado, RMHIDTA supports and funds 11 drug task forces in the more populated counties and the Colorado State Patrol criminal interdiction efforts. These initiatives are comprised of local, state, and federal law enforcement personnel. The mission of the task forces is to identify significant drug trafficking organizations (DTOs) operating in the state, investigate them, and subsequently, disrupt or dismantle their ability to traffic drugs. The task force seizure data represents 100 percent reporting for each calendar year.

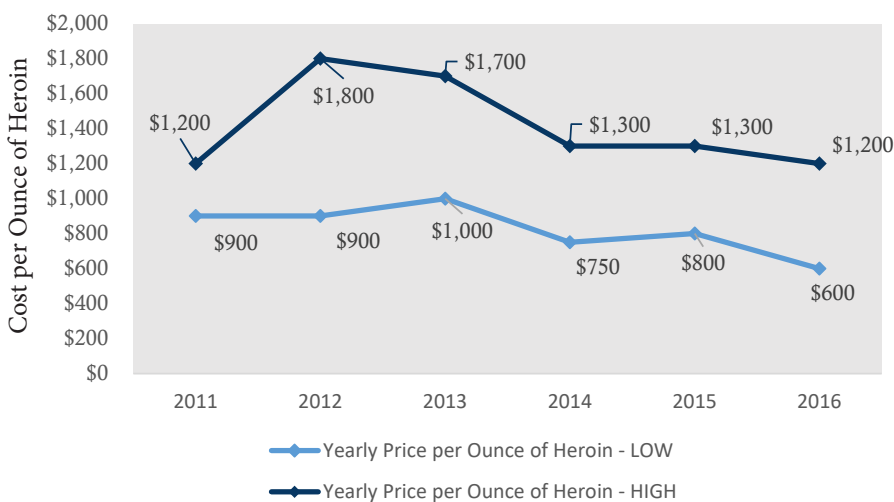
**Figure 1.3 Pounds of Heroin Seized by RMHIDTA Initiatives in Colorado**



Source: Rocky Mountain HIDTA<sup>2</sup>

There was a 427 percent increase in reported pounds of heroin seized from 2011 to 2016, but a nine percent decrease from 2015 to 2016.

**Figure 1.4 The Low and High Yearly Price per Ounce of Heroin**



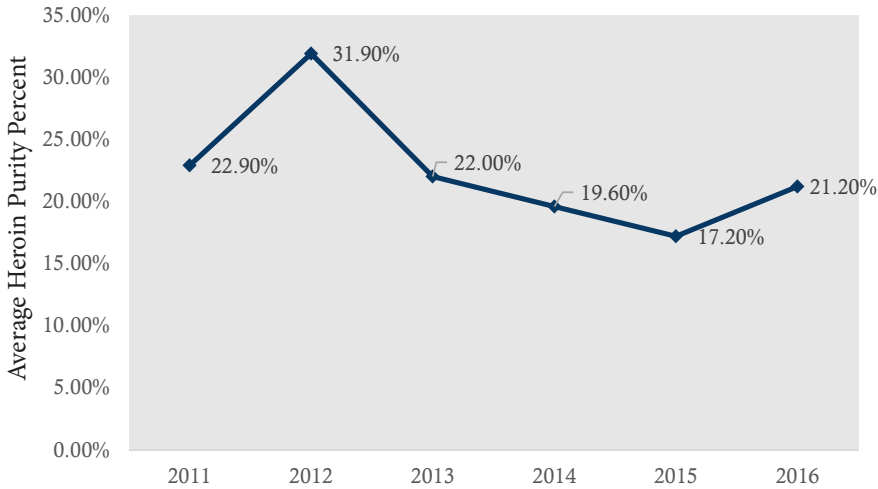
The yearly price per ounce of heroin in Denver decreased \$300 from 2012 to 2016 (at the low end of cost).

Source: DEA (2011-2016)<sup>3</sup>



# Heroin Seizure and Arrest Data

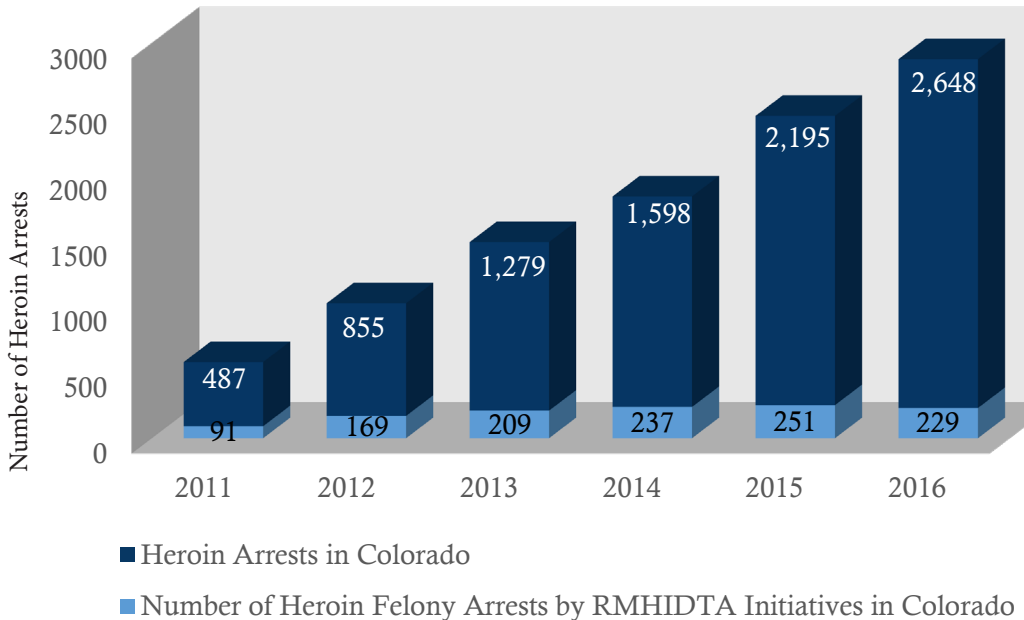
**Figure 1.5 The Average Heroin Purity Levels in Denver**



The average heroin purity levels in Denver decreased by 10.7 percentage points from a high of 31.9 percent in 2012 to 21.2 percent in 2016.

Source: DEA/Heroin Domestic Monitoring Program (2011-2016)<sup>3</sup>

**Figure 1.6 Arrests for Heroin - Colorado**



Source: Colorado Bureau of Investigation<sup>4</sup>

There was a 444 percent increase in arrests for heroin in Colorado from 2011 to 2016. Please be aware that this data was reported incorrectly in the 2017 report because it included all offenses and arrests.

# Section 2: Heroin Fatal & Non-Fatal Overdoses

## Heroin Fatal & Non-Fatal Overdoses

Drug-related deaths, often called drug overdoses, are a leading cause of injury death in Colorado. The Colorado Department of Public Health and Environment (CDPHE) monitors the severity of Colorado's drug overdose epidemic using a variety of available data, including mortality data from death certificates and non-fatal data from hospital discharges and emergency department discharges. While each of these data sources provides valuable information to help understand the burden of overdose data in Colorado, they also have limitations. For example, CDPHE does not have access to the toxicology reports on death and cannot determine whether the drugs that are not indicated on a death certificate represent negative test results or whether the drug was not part of the testing. Thus, a reporting bias exists in data analysis.

However, compared to earlier years, a greater proportion of drug overdose death certificates for 2011-2016 include the specific drug results, which suggests that data quality is improving. Similarly, hospitalization and emergency department data comes from medical billing codes, which vary in their completeness and can limit CDPHE's ability to specify the specific drug or drugs that are associated with a non-fatal overdose.

This section of the report includes rates of fatal and non-fatal overdoses, with consideration for these limitations in the data. Rates are calculated by dividing the number of overdoses that occur in specified period of time by the average population (e.g., the population of Colorado residents or the population of nation as a whole). After a rate is calculated, it is often multiplied by 100,000, so that it is easy to determine how many events happen per 100,000 people in the population. The rates reported in this section are age-adjusted, which means that they allow communities with different age distributions to be compared. For example, if Colorado has a slightly younger population than the nation as a whole, it is important to statistically adjust for the age difference to accurately compare Colorado's rates to national rates.

### Findings

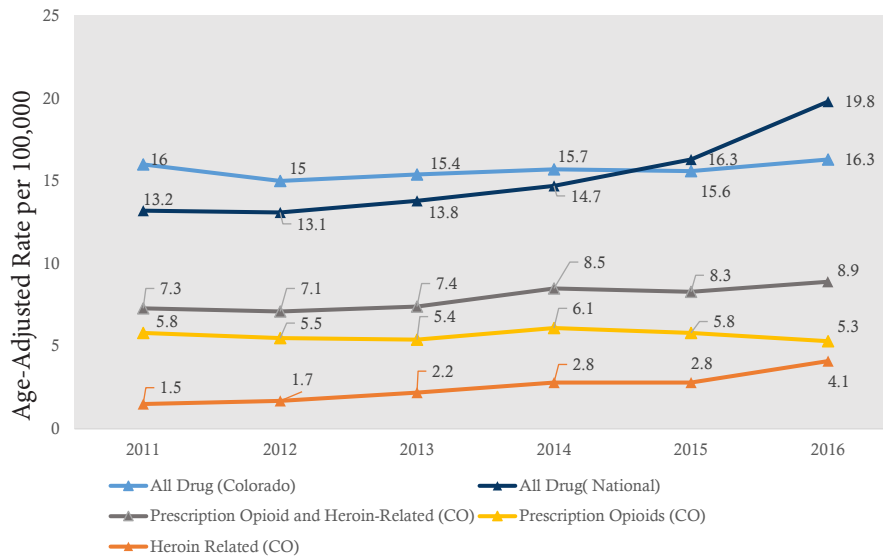
- Heroin-related deaths among Colorado residents have nearly tripled in six years.
  - 2011 – 79 deaths
  - 2016 – 228 deaths
- The age-adjusted rate of heroin-related overdose deaths has doubled in four years.
  - 2011 – 1.5 deaths per 100,000 Colorado residents
  - 2016 – 4.1 deaths per 100,000 Colorado residents
- Colorado's heroin death rates are slightly lower than national rates.
  - National – Age-adjusted rate in 2015: 4.1 per 100,000<sup>1</sup>
  - Colorado – Age-adjusted rate in 2015: 2.8 per 100,000

# Heroin Fatal & Non-Fatal Overdoses

## Heroin Overdose Deaths in Colorado

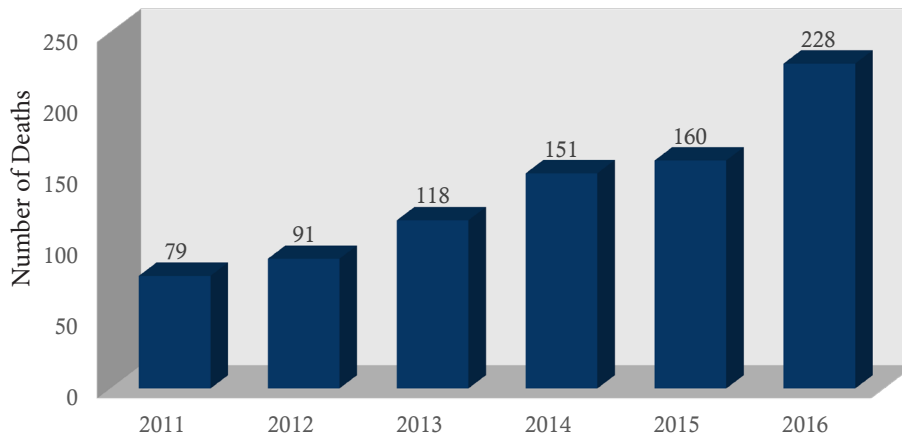
From 2000-2016, there were 11,364 drug overdose deaths among Colorado residents, with age-adjusted rates rising almost every year. Opioid-related overdoses, which comprise a significant proportion of total drug overdose deaths, tripled over the 16-year time period in Colorado. Heroin-related overdose deaths are a subset of total drug poisoning deaths and have more than tripled since 2011.

**Figure 2.1 Age-adjusted Rates for Drug Overdose Deaths in Colorado and in the US**



Sources: Colorado Department of Public Health and Environment (CDPHE)<sup>5</sup>  
Centers for Disease Control and Prevention

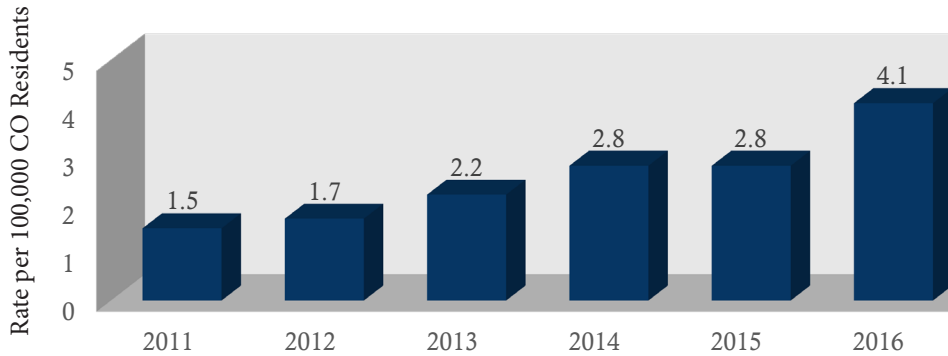
**Figure 2.2 Number of Heroin Overdose Deaths in Colorado**



Source: Colorado Department of Public Health and Environment (CDPHE)<sup>5</sup>

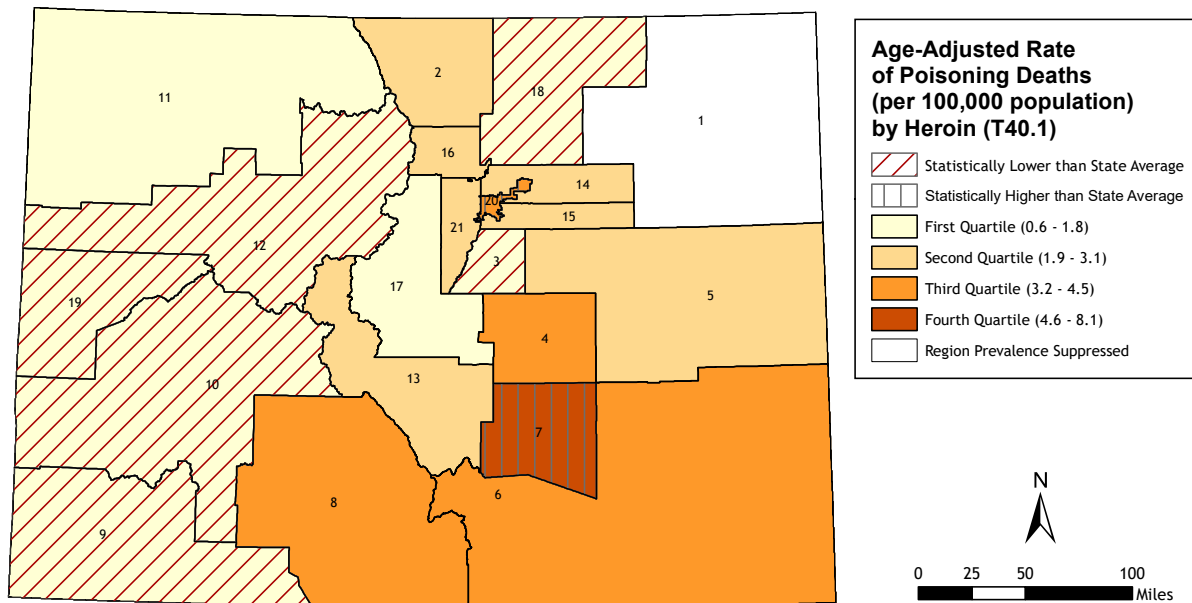
# Heroin Fatal & Non-Fatal Overdoses

**Figure 2.3 Age-Adjusted Heroin-Related Overdose Death Rates in Colorado**



Source: Colorado Department of Public Health and Environment (CDPHE)<sup>5</sup>

**Figure 2.4 Age-Adjusted Rate of Poisoning Deaths by Heroin\* Among Colorado Residents, by Health Statistics Region, Colorado, 2012-2016**



\* Missing Indicates one or two events in category.  
 Regions are based on Health Statistics Regions; more information can be found at <http://www.chd.dphe.state.co.us/HealthIndicators/Default.aspx>.  
 Rates are per 100,000 population in year and sex category.  
 Definitions used based on NCHS Data Brief, No. 81, December 2011, "Drug Poisoning Deaths in the United States, 1980-2008".  
 Source: Vital Statistics Program, Colorado Department of Public Health and Environment.

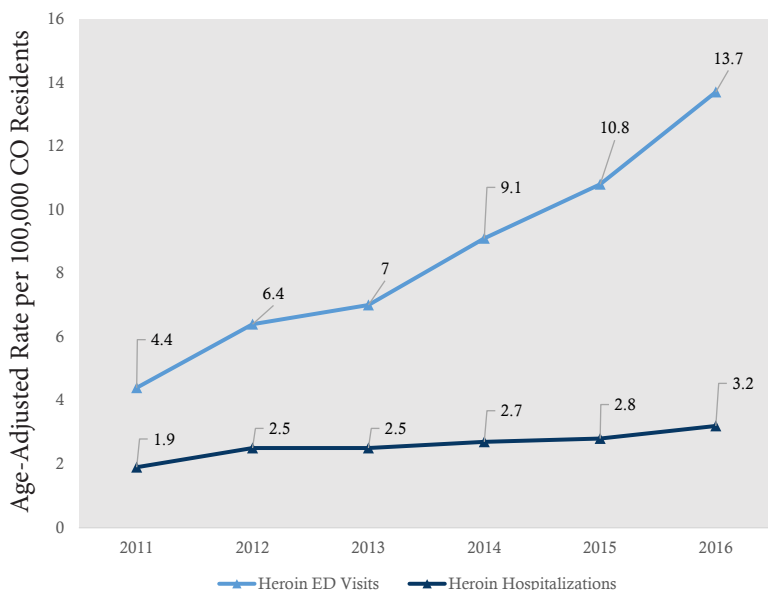
The highest rates of heroin-related death occurred in urban regions of the state, as defined by the Colorado Health Statistics Regions. Pueblo County had the highest age-adjusted rate of heroin-related overdoses in 2011-2016 (8.1 deaths per 100,000 residents), which was over three times the state rate.

# Heroin Fatal & Non-Fatal Overdoses

## Non-Fatal Heroin-Related Overdoses in Colorado

Not all heroin overdoses result in death. From 2011-2016, there were 2,795 emergency department visits associated with non-fatal heroin overdose among Colorado residents, and an additional 838 hospitalizations associated with heroin. While rates of heroin-related hospitalizations steadily increased during this time period, emergency department visits more than tripled. More specifically, heroin-related hospitalizations increased from 1.9 visits in 2011 to 3.2 visits per 100,000 residents in 2016. Heroin emergency department visits went from 4.4 visits in 2011 to 13.7 visits per 100,000 residents in 2016.

**Figure 2.5 Heroin-Related Hospitalizations & Emergency Department Visits in Colorado**



Due to the change in hospital billing codes in October of 2015, results for the year 2015 were defined as records from 10/1/14 - 9/30/15 in order to select records using one coding scheme.

**Source:** Colorado Department of Public Health and Environment (CDPHE)<sup>5</sup>

On October 1, 2015 in the United States, International Classifications of Diseases (ICD)-10-CM replaced ICD-9-CM for coding information in hospital discharge, emergency department, and outpatient records for administrative and financial transactions. Since ICD-10-CM is a major expansion from ICD-9-CM, a national workgroup is charged with determining standard definitions for monitoring non-fatal drug overdoses from 2016 forward. This workgroup will release recommendations after publication of this report. This analysis uses records where only the first-listed diagnosis is an acute drug overdose. ICD-9-CM codes were used to identify records from 2011-2015 and ICD-10-CM codes were used to select records from 2016.:

- In 2016, there were 694 emergency department (ED) visits where heroin poisoning was listed as the first discharge diagnosis, resulting in an adjusted rate of 13.7 ED visits per 100,000 Colorado residents.
- In 2016, there were 133 hospitalizations where heroin poisoning was listed as the first discharge diagnosis, resulting in an adjusted rate of 2.4 hospitalization per 100,000 Colorado residents.

# Section 3: Naloxone Use

## Naloxone Use

Naloxone, commonly known under its trade name, “Narcan,” is a medication called an “opioid antagonist” used to rapidly counter the effects of opioid overdose, such as a heroin overdose. Specifically, naloxone counteracts life-threatening depression of the central nervous system and respiratory system, allowing an overdose victim to breathe normally. Naloxone is a non-scheduled (i.e. non-addictive) prescription medication. Naloxone only works if a person has opioids in their system and does no harm if a person is not on opioids. Although traditionally administered by emergency response personnel, naloxone can be administered by minimally-trained laypeople, which makes it ideal for treating overdose. Naloxone may be injected in the muscle, vein, or under the skin, or sprayed into the nose. It is a temporary drug that wears off in approximately 30-90 minutes.<sup>6</sup>

Since most overdoses are witnessed and happen over hours, it is essential that individuals experiencing opioid use disorders have access to this life-saving medication. In Colorado, those experiencing opioid use disorders have had access to naloxone since 2012. In 2013, Colorado SB 13-014 was passed to allow for 3rd party access to naloxone, so that the mothers, fathers, roommates, and friends could have access to it, in addition to homeless service providers and law enforcement officials. In 2015, SB 15-053 passed, allowing pharmacies and harm reduction organizations to dispense naloxone without a physician present, giving further naloxone access to individuals experiencing opioid use disorders and 3rd parties. As a result of the new law, the chief medical officer of the Colorado Department of Public Health and Environment (CDPHE) may issue standing orders for naloxone to be dispensed by pharmacies and harm reduction organization employees and volunteers, which will help expand statewide naloxone access to those who need it most.

As part of the multi-pronged Colorado approach to targeting opioid use disorders, a Naloxone workgroup was also created within the Colorado Consortium on Prescription Drug Abuse Prevention. The Naloxone Work Group focuses on increasing awareness of, and access to, the opioid overdose reversing drug naloxone in the State of Colorado, and making clinical, organizational, and public policy recommendations to achieve this goal.

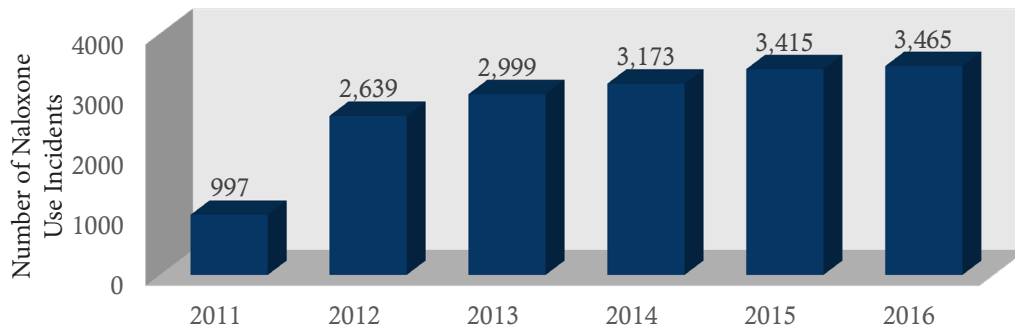
### Findings

- From 2012-November 2016, the Harm Reduction Action Center trained over 1,100 individuals experiencing opioid use disorders in Naloxone administration.
- As of April 2018, over 500 pharmacies, 200 law enforcement agencies, and 8 county jails are carrying naloxone.

The documented use of naloxone by emergency medical services (EMS) personnel in Colorado to treat suspected heroin overdoses has increased 248 percent from 997 events in 2011 to 3,465 events in 2016.

# Naloxone Use

**Figure 3.1 Naloxone Use by EMS Personnel in Colorado**



**Source: Colorado Department of Public Health and Environment (CDPHE)<sup>7</sup>**

Incidents of EMS personnel using Naloxone increased 248 percent from 997 events in 2011 to 3,465 events in 2016. All cases of naloxone administration were included, regardless of whether the medication was administered prior to, or following EMS arrival on scene, allowing for some non-EMS personnel administration counts to be included. Data may not be inclusive of all ambulance services.

# Section 4: Disease Transmission and Heroin

## Disease Transmission and Heroin Use

Injection drug use (IDU) is associated with high risk of bloodborne infections, including human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). Each of these viruses can be transmitted by sharing needles, syringes, or other drug injection equipment (such as cookers, rinse water, cotton) that were used by a person who is currently infected. Although curative treatment is available for HCV and effective suppressive therapy is available for HBV and HIV, all can be potentially fatal.

Based on a recent study of people who inject drugs (PWID) in the Denver metro area, the majority report using non-sterile injection materials, although the proportion of PWID who reported sharing a needle or syringe declined to 35.5 percent in 2012 from 40.9 percent in 2009.<sup>9</sup> Syringe exchange programs appear to be having a positive impact on the availability of sterile needles.<sup>9</sup> Onward transmission of bloodborne infections to others is common through shared IDU equipment, especially for HCV which is highly infectious and can sometimes persist for weeks in a syringe.<sup>8</sup> Currently, most new HCV infections are caused by sharing needles or other equipment for injection drug use (IDU).<sup>10</sup> Among drugs used in Colorado, heroin is the drug most predominantly injected.

Since heroin is the substance most predominantly injected, as rates of opioid use disorders continue to rise, Colorado is more vulnerable to outbreaks of bloodborne disease driven by IDU.<sup>11</sup> Such outbreaks have been previously documented in other states, most dramatically in Indiana where a co-outbreak of HIV and HCV driven by IDU occurred in 2015.<sup>12</sup> In June of 2016, the Centers for Disease Control and Prevention (CDC) concurred that “Colorado is at risk for an increase in viral hepatitis or HIV infections due to injection drug use,” based on a CDPHE assessment of nine variables related to substance abuse and IDU.<sup>13</sup> This type of analysis, using variables in lieu of direct measurement of IDU-driven transmission of disease, is necessary because public health surveillance systems are not fully funded to monitor new HCV infections related to unsafe injection practices. Eight counties have established a legal basis for syringe access based in Colorado state law (CRS 25-1-520). Currently, seven counties have operational points of service, with ten total access points for distributing sterile syringes. However, with very limited resources available, none of these sites fully met the criteria for “comprehensive syringe services programs” as defined by CDC.<sup>14</sup>

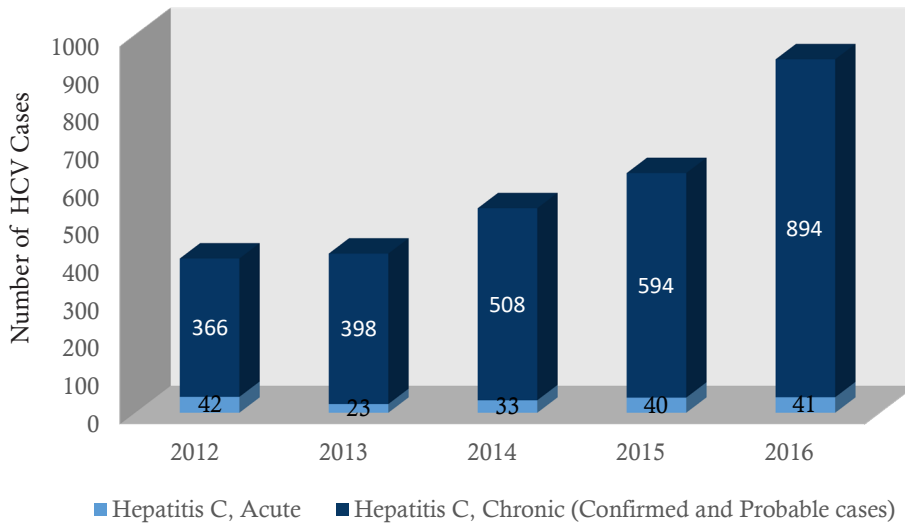
### Findings

- HCV – In the absence of direct measurement of new HCV infections related to unsafe injection practices, proxy measures can be used, such as acute HCV cases and newly-diagnosed chronic HCV cases among persons 15-29 years of age. The rate of reported cases of HCV in these categories more than doubled in Colorado from 2012-2016.
  - 2012 – 366 cases (33.4 cases per 100,000 population)
  - 2016 – 894 cases (76.4 cases per 100,000 population)



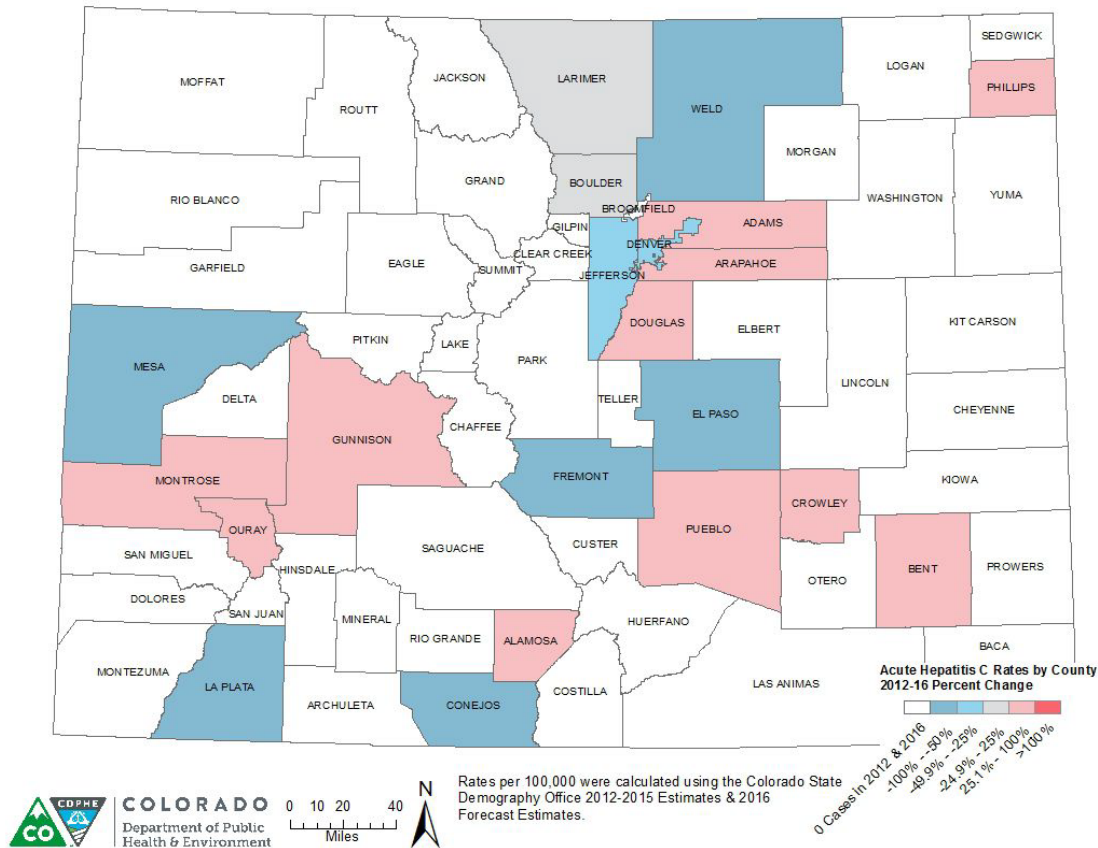
# Disease Transmission and Heroin Use

**Figure 4.1 HCV Cases in Colorado: Acute and Newly Reported Chronic Cases Among Persons 15-29 Years of Age**



Source: Colorado Department of Public Health and Environment (CDPHE)<sup>15</sup>

**Figure 4.2 Rates of Hepatitis C in Colorado Counties in 2016**

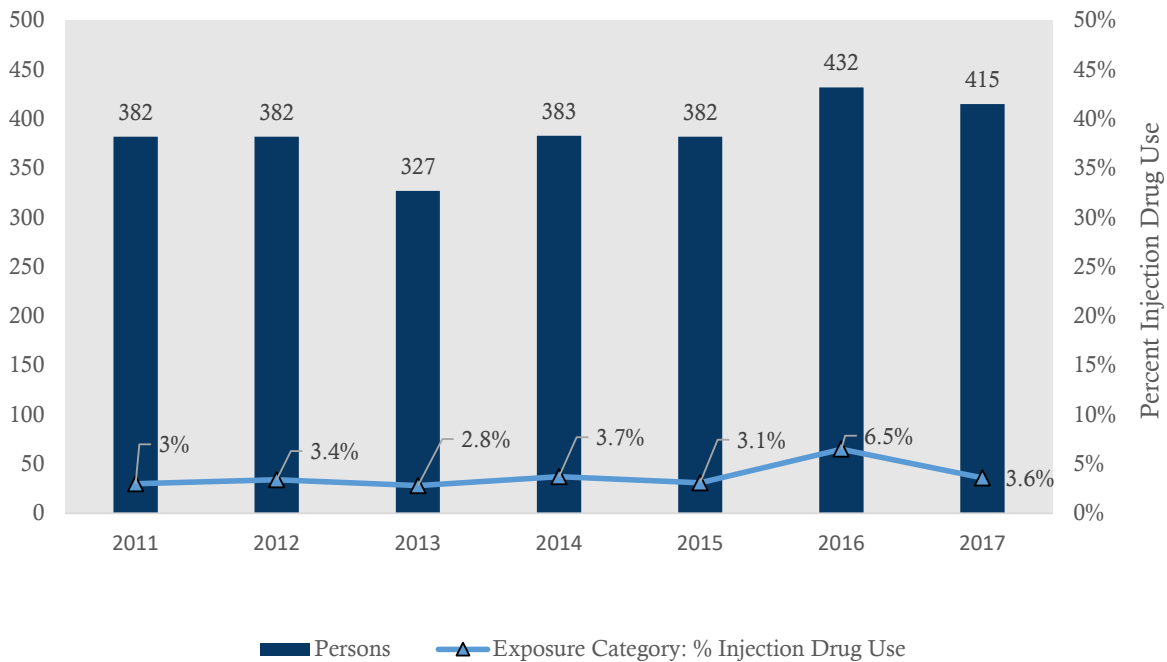


Source: Colorado Department of Public Health and Environment (CDPHE)<sup>15</sup>

# Disease Transmission and Heroin Use

Rates of newly diagnosed cases of HIV in Colorado remained fairly stable from 2011-2017. The average yearly rate for new cases is 365 persons per year. In approximately 60 percent of all new cases, male-to-male sexual contact was the leading cause of new exposures. IDU has historically accounted for a small percentage of new diagnoses, averaging 3.7 percent between 2011 and 2017.

**Figure 4.3 Newly Diagnosed Cases of HIV in Colorado**



Source: Colorado Department of Public Health and Environment (CDPHE)<sup>15</sup>

# Section 5: Neonatal Abstinence Syndrome

## Neonatal Abstinence Syndrome (NAS)

The U.S. National Library of Medicine defines Neonatal Abstinence Syndrome (NAS) as, “a group of problems that occur in a newborn who was exposed to addictive opiate drugs while in the mother’s womb.”<sup>16</sup> This includes drugs from both the opiate and opioid families. NAS is often caused by a woman taking prescription opioids in pregnancy, but using heroin, methadone or buprenorphine during pregnancy can also cause NAS. As the mother continues to use these substances during pregnancy, the unborn child is at risk of developing a dependency. Among infants exposed to opiate or opioids in utero, 55-94 percent will exhibit signs of withdrawal, according to a literature review by the American Academy of Pediatrics.<sup>17</sup> Withdrawal symptoms often include central nervous system irritability (such as tremors, high-pitched crying, etc.), temperature instability, and gastrointestinal tract dysfunction exhibited by poor feeding, loose stools, vomiting, dehydration, or poor weight gain. Symptoms commonly occur within two to three days after birth. Withdrawal symptoms also may occur in babies exposed to alcohol, benzodiazepines, barbiturates, and certain antidepressants. Data on long-term developmental outcomes related to NAS are limited.

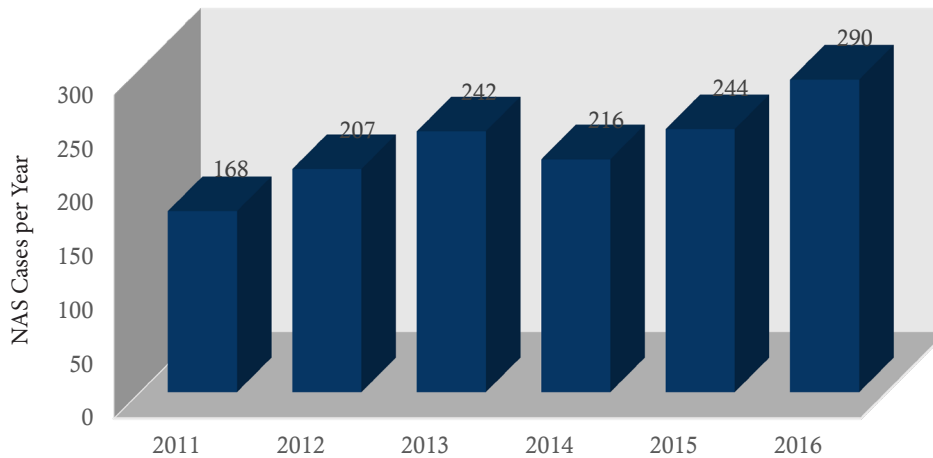
The NAS data presented in this section originates from hospital discharge coding based on the International Classification of Diseases (ICD)-9-CM for 2011-2015 and ICD-10-CM for 2016. It is not possible to determine from these codes what caused the NAS for these infants.<sup>18</sup> Therefore, the cases of NAS reported here likely were caused by a variety of different drugs, including, but not limited to heroin.

### Findings

- Cases of infants born with neonatal abstinence syndrome (NAS) in Colorado have increased, while Colorado birth rates have remained relatively stable. From 2011-2016, cases of NAS births have increased 73 percent.
  - 2011 – 168 cases
  - 2016 – 290 cases
- From 2011-2016, NAS rates in newborns addicted to opiate drugs have increased 69 percent.
  - 2011 – 2.6 per 1,000 births
  - 2016 – 4.4 per 1,000 births

# Neonatal Abstinence Syndrome (NAS)

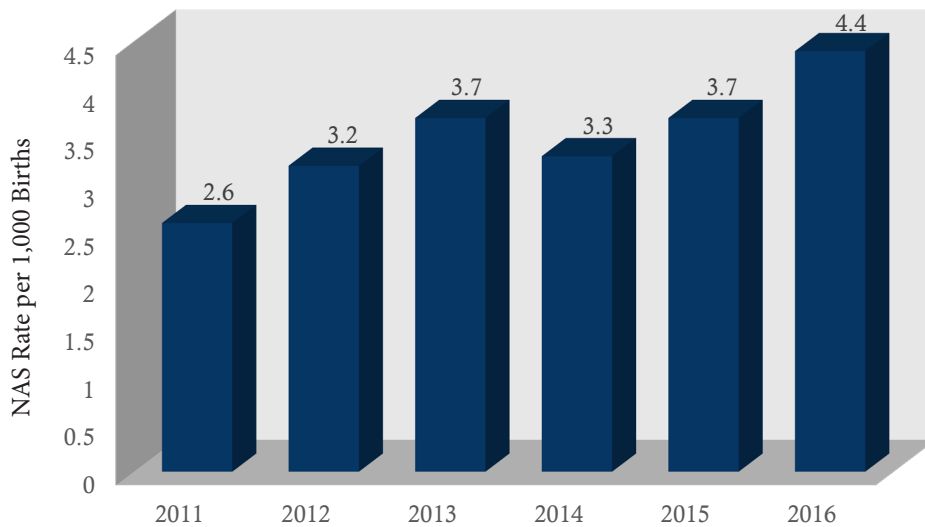
**Figure 5.1 Colorado NAS Cases**



Data from the Colorado Department of Public Health and Environment indicates that there was a 73 percent increase in NAS cases among Colorado infants from 2011-2016.

Source: Colorado Department of Public Health and Environment (CDPHE)<sup>18</sup>

**Figure 5.2 Colorado NAS Rates**



Similarly, although Colorado recorded birth rates remained relatively stable from 2011–2016, the rates of NAS, which take into account changes in birth rates, increased 69 percent during this time period. This indicates that the increase in NAS in Colorado is not due to more infants being born in Colorado.

Source: Colorado Department of Public Health and Environment (CDPHE)<sup>18</sup>

# Section 6: Heroin Exposure Calls

## Heroin Exposure Calls

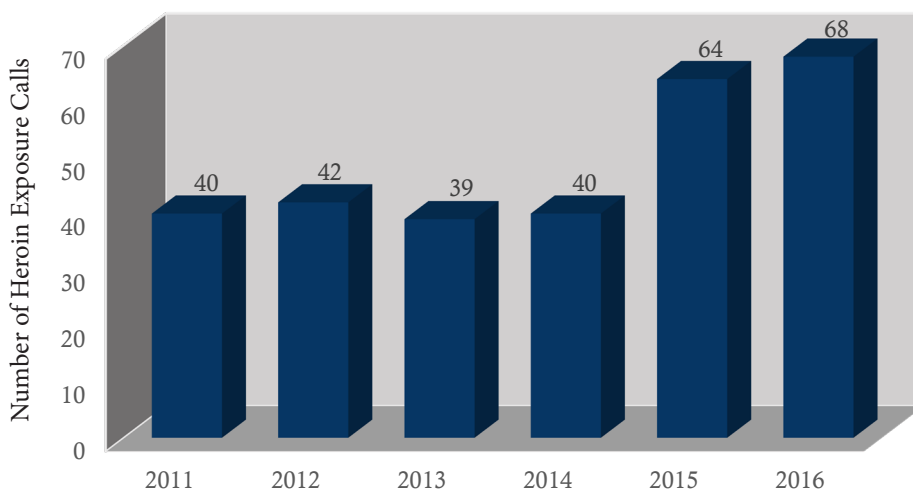
The Rocky Mountain Poison and Drug Center (RMPDC) is part of the national network for the American Association of Poison Control Centers (AAPCC).<sup>19</sup> They are responsible for a wide variety of public health projects and services aimed at reducing the incidence of toxicity, disease, and injury. The RMPDC collects data on callers reporting incidents of “exposures” or requests for information on various drugs, including illicit drugs such as heroin.

The AAPCC defines an “exposure” as an incident where there is actual or suspected contact (e.g., ingestion, inhalation, absorption, etc.) reported with a particular substance. By contrast, an “information” case is when a caller contacts the poison center with questions about a particular substance; however, there is no identifiable exposure involved. The AAPCC database tracks both exposure and information calls and is updated almost immediately.<sup>20</sup>

### Findings

- Exposure to heroin calls increased 70 percent in Colorado from 2011-2016.
- Exposure to heroin calls increased 149 percent in the nation from 2011-2016.

**Figure 6.1 Heroin Exposure Calls - Colorado**

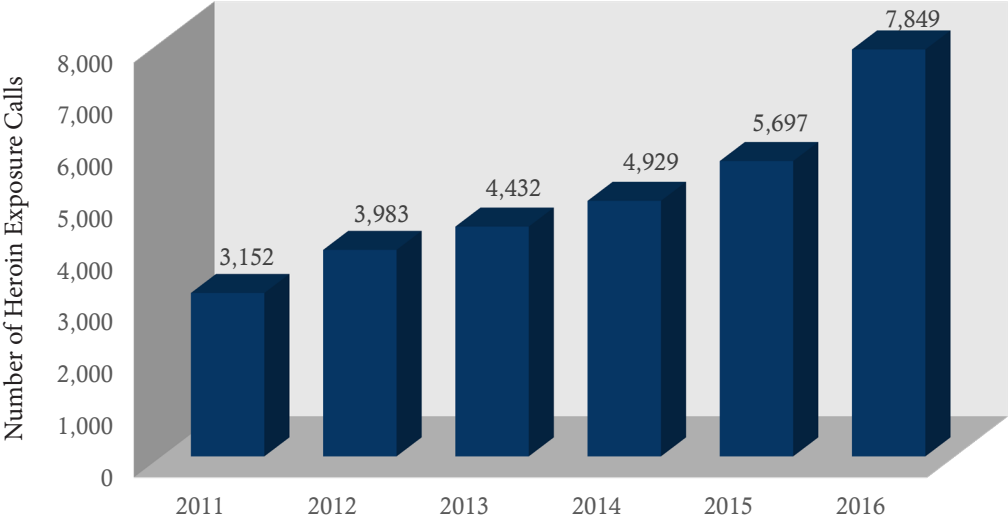


Source: Rocky Mountain Poison and Drug Center (RMPDC)<sup>19</sup>

Exposure to heroin calls increased 70 percent in Colorado from 2011 - 2016.

# Heroin Exposure Calls

**Figure 6.2 Heroin Exposure Calls - National**



Source: American Association of Poison Control Centers (AAPCC)<sup>20</sup>

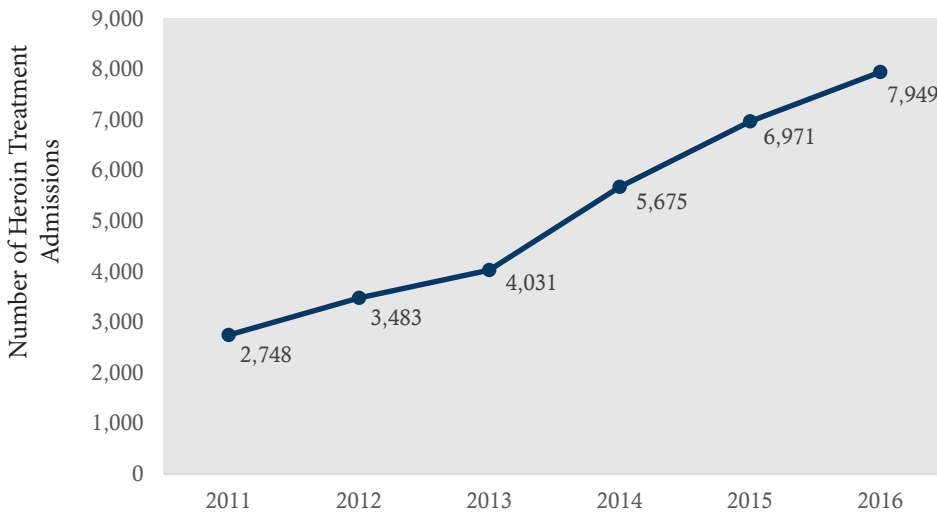
Exposure to heroin calls increased 149 percent in the nation from 2011-2016.

# Section 7: Heroin Treatment Admissions and Client Information

## Heroin Treatment Admissions and Client Information

The data in this section comes from the Colorado Department of Human Services, Office of Behavioral Health. The agency's Drug and Alcohol Coordinated Data System (DACODS) provides information on substance abuse treatment admissions in Colorado at state-licensed facilities.

**Figure 7.1 Heroin Treatment Admissions In Colorado State Facilities\***



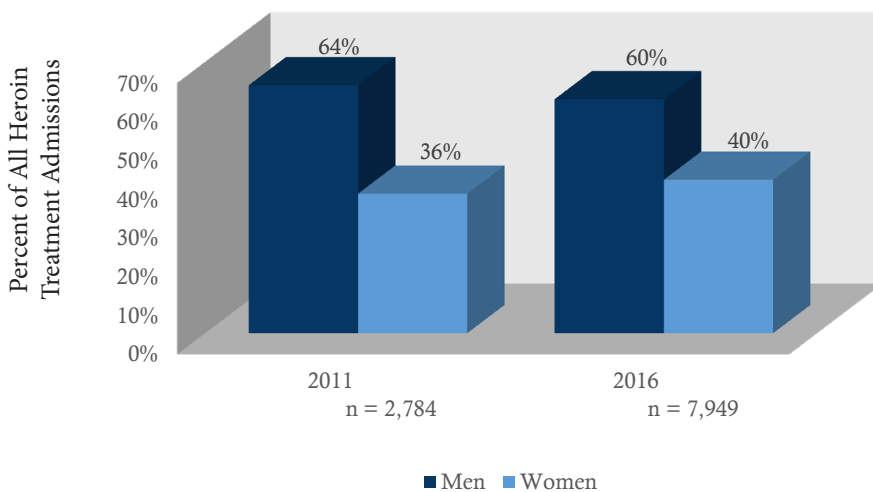
\*Clients who identified heroin as their primary, secondary, or tertiary drug of use on their admissions DACODS.

Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

### Findings

- There was a 189 percent increase in heroin treatment admissions disorders from 2011 (2,748 admissions) to 2016 (7,949 admissions).
- The majority of the clients admitted for treatment for heroin use disorders are white males between the ages of 25 through 34 who have never married and are unemployed.

**Figure 7.2 Colorado State Heroin Treatment Clients by Gender**

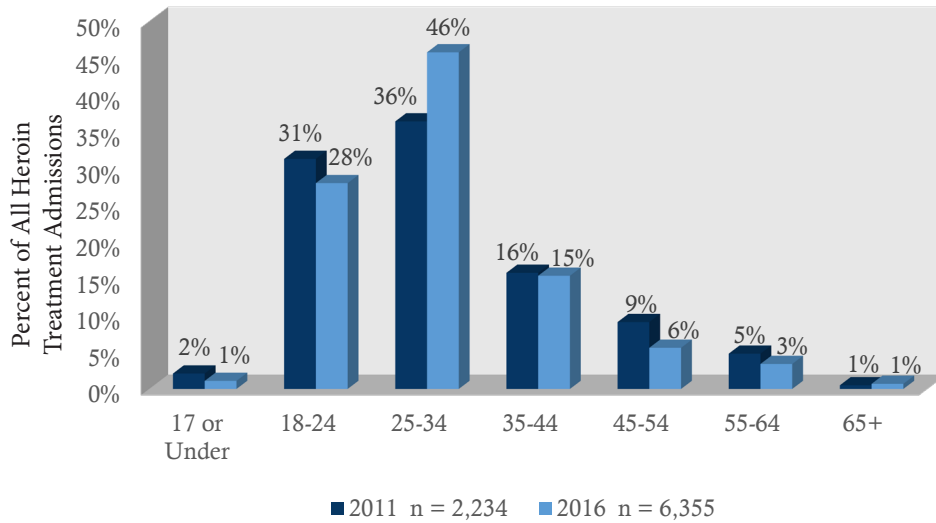


Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

Please note that in Figures 7.1 - 7.11, the *n*-values representing the total number of responses are sometimes discrepant because *n* cannot be reported in the data if there are less than 10 responses per category (to comply with HIPPA and 42-CFR Part 2 privacy rules).

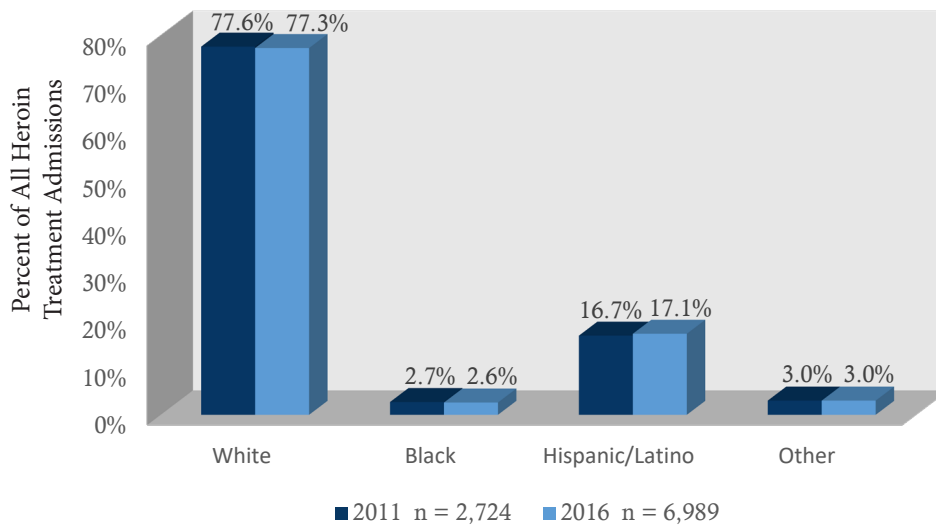
# Heroin Treatment Admissions and Client Information

**Figure 7.3 Colorado State Heroin Treatment Clients by Age**



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

**Figure 7.4 Colorado State Heroin Treatment Clients by Race**

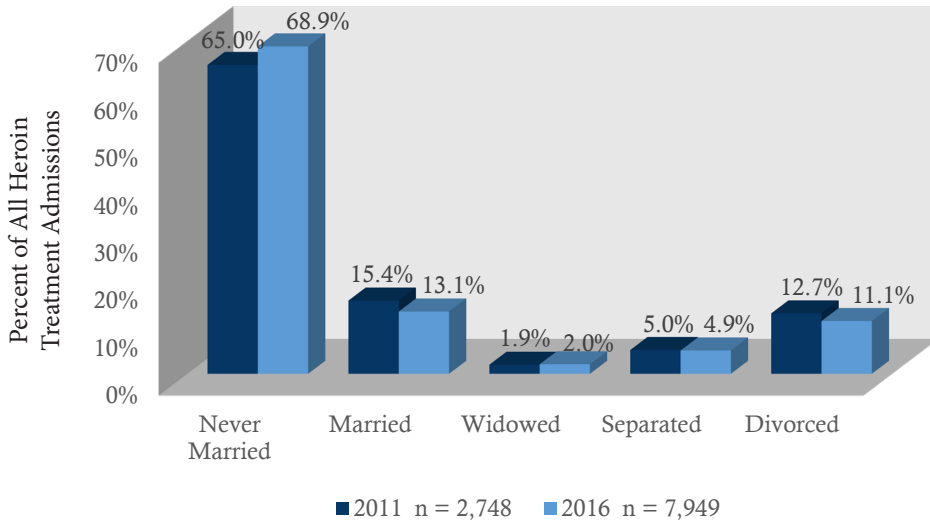


Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>



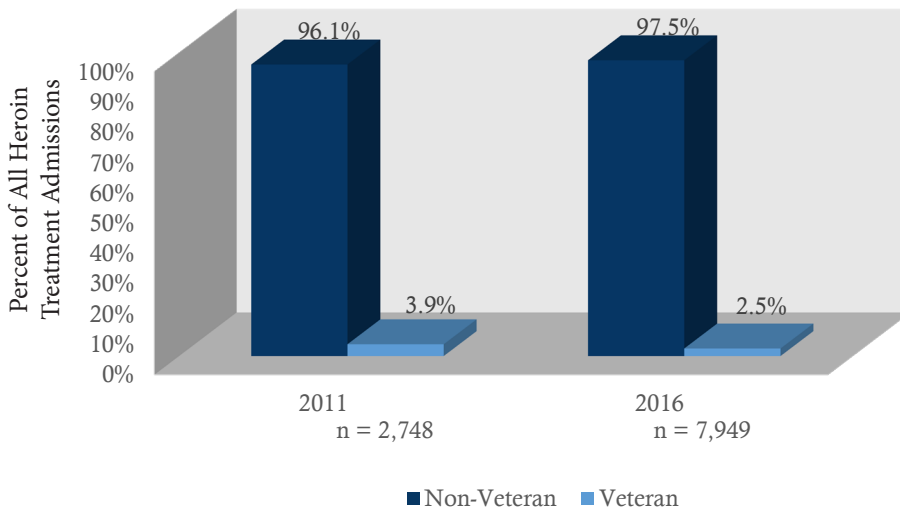
# Heroin Treatment Admissions and Client Information

**Figure 7.5 Colorado State Heroin Treatment Clients by Marital Status**



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

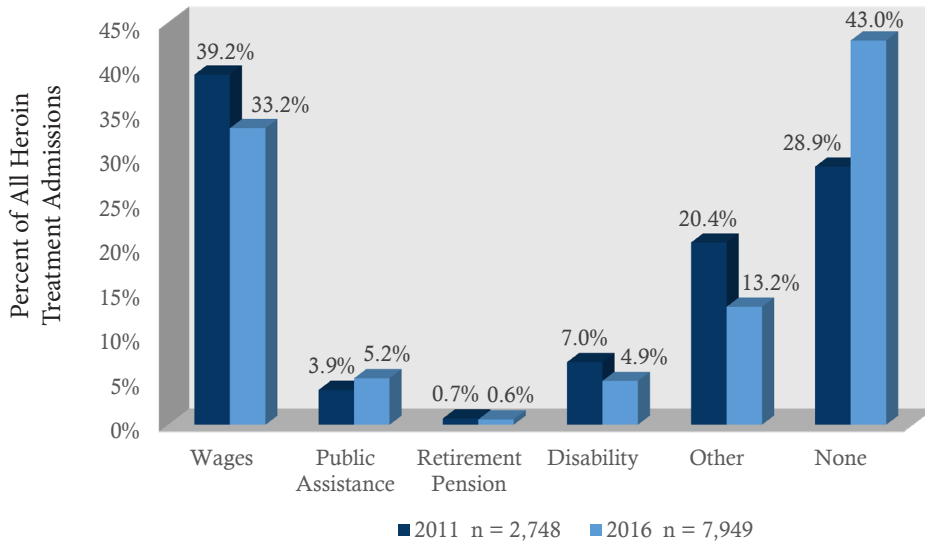
**Figure 7.6 Colorado Heroin Treatment Clients by Military Status**



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

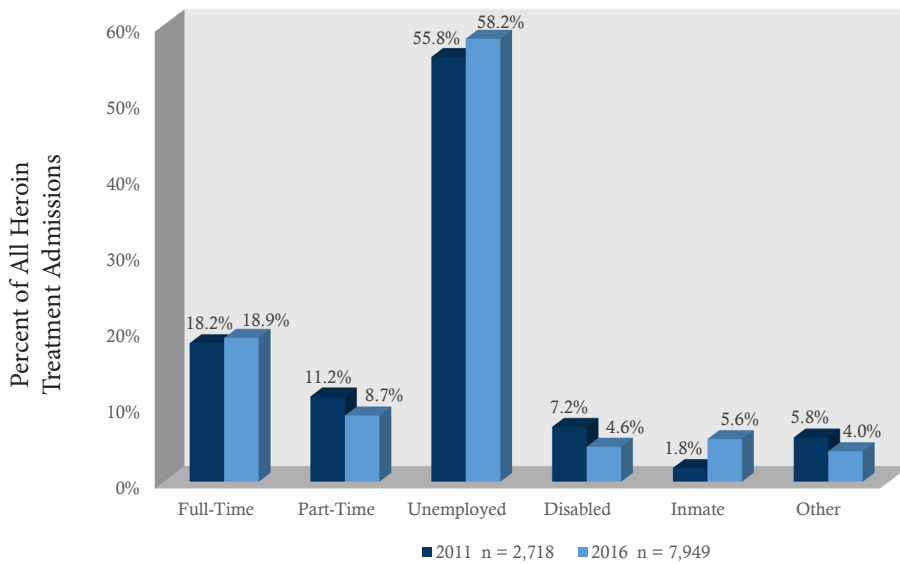
# Heroin Treatment Admissions and Client Information

**Figure 7.7 Colorado State Heroin Treatment Clients by Primary Source of Income**



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

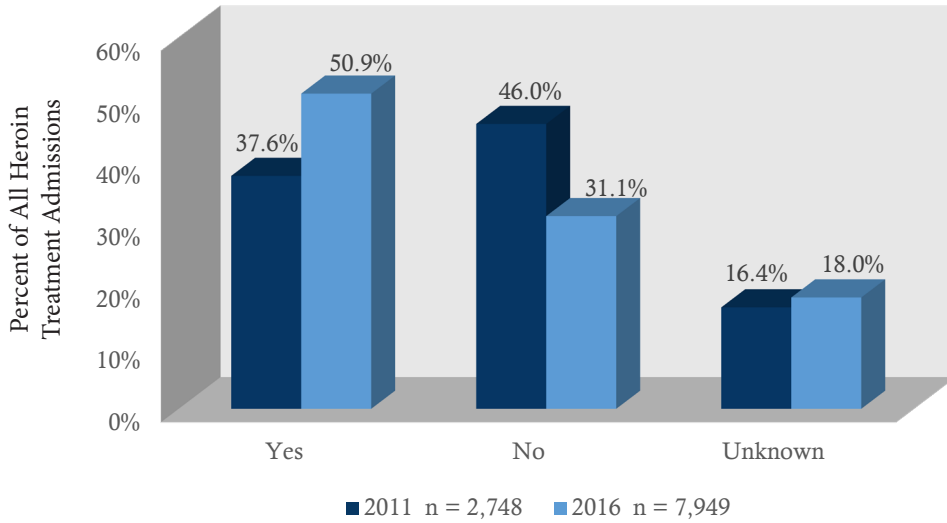
**Figure 7.8 Colorado State Heroin Treatment Clients by Employment Status**



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

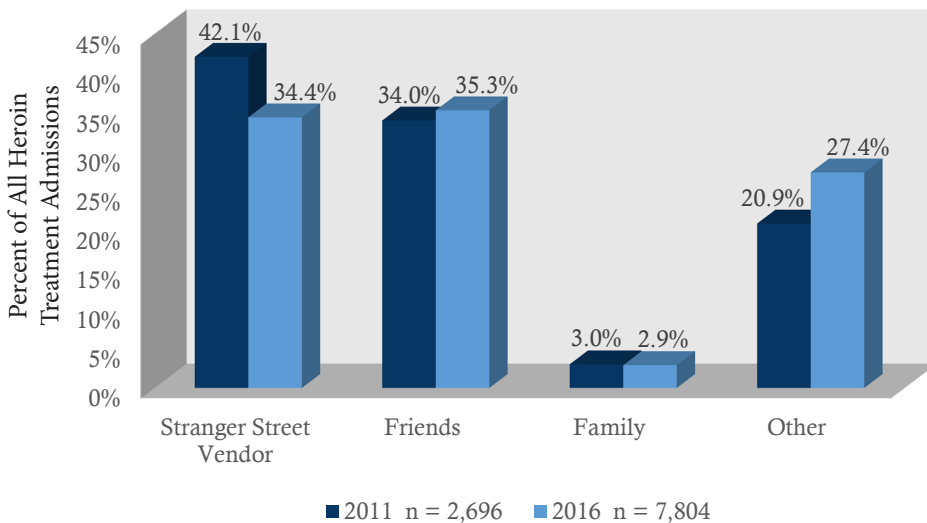
# Heroin Treatment Admissions and Client Information

**Figure 7.9 Colorado State Heroin Treatment Clients with History of Mental Health Issues**



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

**Figure 7.10 Colorado State Heroin Treatment Clients by Source of Illicit Drugs**



\*Includes school, internet, refused to respond, and unknown

Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

# Heroin Treatment Admissions and Client Information

Figure 7.11 Colorado State Heroin Treatment Clients by Source of Treatment Referral



Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

Table 7.1 Characteristics of Colorado State Clients in Treatment in 2016

	Heroin User	Prescription Opioid User	All Treatment Admissions
<b>Male</b>	60.4%	55.2%	72.7%
<b>Ages</b>			
18-24	28.0%	16.4%	17.1%
25-34	45.8%	45.7%	36.3%
35-44	15.4%	27.3%	22.2%
<b>White</b>	77.3%	79.3%	67.0%
<b>Marital Status</b>			
Married	13.1%	22.8%	15.2%
Never Married	68.9%	52.9%	60.3%
<b>Employment Status</b>			
Full Time Employee	18.9%	24.5%	33.3%
Unemployed	58.2%	46.5%	42.8%
<b>History of Mental Health Problems</b>	50.9%	52.8%	29.9%
<b>Source of Drugs</b>			
From Friend	35.3%	26.9%	34.2%
From Stranger	34.4%	23.8%	17.1%
<b>Criminal Justice Referral</b>	34.5%	21.9%	47.6%

Source: Colorado Department of Human Services, Office of Behavioral Health, DACODS<sup>21</sup>

# Conclusion

The data in this assessment indicate a recent increase in the number of treatment admissions for heroin in Colorado. To reduce the adverse impacts of heroin use and trafficking, greater effort needs to be placed on a coordinated response to the ongoing issue. This will require a joint effort by the law enforcement, prevention, treatment and recovery communities working together to curb the harmful impact heroin is having in Colorado. Members of the Heroin Response Work Group are committed to using the information presented in this assessment to identify, implement and evaluate strategies to address gaps in data collection and reporting related to heroin and to prevent adverse outcomes associated with heroin use in Colorado.

# References

- <sup>1</sup>El Paso Intelligence Center (EPIC), National Seizure System (NSS) data.
- <sup>2</sup>RMHIDTA Performance Management Process (PMP) Seizure Data – (Colorado, 2011 – 2016).
- <sup>3</sup>Department of Drug Enforcement, The Heroin Signature Program and Heroin Domestic Monitor Program Reports (2011-2016).
- <sup>4</sup>Colorado Bureau of Investigation, Heroin Arrests in Colorado 2011 - 2016.
- <sup>5</sup>Age-adjusted rates by Colorado Department of Public Health and Environment (CDPHE) – Poisoning deaths, by selected categories: Colorado residents, 1999 – 2016.
- <sup>6</sup>Harm Reduction Coalition, Understanding Naloxone, 2016.
- <sup>7</sup>Health Facilities & Emergency Medical Services Division, Colorado Department of Public Health and Environment (CDPHE) / Emergency Medical and Trauma Services' Data Section – Naloxone Summary 2011 – 2016.
- <sup>8</sup>Paintsil E et al. Survival of Hepatitis C Virus in Syringes: Implication for Transmission among Injection Drug Users. *J Infect Dis.* 2010 October 1; 202(7): 984-990.
- <sup>9</sup>Denver Public Health. HIV Behavioral Surveillance in the Denver Metro Area: Understanding HIV Risk and Prevention Behaviors among Persons Who Inject Drugs. July 2014.
- <sup>10</sup>Centers for Disease Control and Prevention. Viral Hepatitis – Hepatitis C Information. <http://www.cdc.gov/hepatitis/hcv/index.htm>.
- <sup>11</sup>Mendelson B. Patterns and Trends in Drug Abuse in Denver and Colorado: 2013. Proceedings of the Community Epidemiology Work Group, June 2014. Available at: <https://www.drugabuse.gov/sites/default/files/denver2014.pdf>.
- <sup>12</sup>Conrad C et al. Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone – Indiana, 2015. *MMWR Morb Mortal Wkly Rep* 2015;64:443-444.
- <sup>13</sup>Centers for Disease Control and Prevention, Syringe Services Programs Determination Panel. Response from CDC re: SSP DON [Determination of Need]. Received by Daniel Shodell, CDPHE, June 25, 2016.
- <sup>14</sup>CDC Program Guidance for Implementing Certain Components of Syringe Services Programs, 2016
- <sup>15</sup>Colorado Department of Public Health and Environment. Disease Transmission Data.
- <sup>16</sup>U.S. National Library of Medicine website (<https://medlineplus.gov/ency/article/007313.htm>) – July 2016
- <sup>17</sup>Hudak ML, Tan RC; Committee on Drugs; Committee on Fetus and Newborn; American Academy of Pediatrics. Neonatal drug withdrawal. *Pediatrics* 2012;129:e540–60. <http://dx.doi.org/10.1542/peds.2011-3212>
- <sup>18</sup>Colorado Department of Public Health and Environment - NAS Data Based on ICD-9 Code 779.5
- <sup>19</sup>Rocky Mountain Poison and Drug Center data. Heroin Exposure Calls. <http://rmpdc.org/>
- <sup>20</sup>American Association of Poison Control Centers (AAPCC) database – (Data date: 08-24-16)
- <sup>21</sup>Drug/Alcohol Coordinated Data System (DACODS), Office of Behavioral Health (OBH) Colorado Department of Human Services (CDHS).