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Recommendations and Reports

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Health Impacts of Opioid Misuse in Alaska

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Executive Summary

The national opioid epidemic has rapidly grown into this decade's identifying public health crisis. This report utilizes current data from multiple data sources to provide an overview on the use patterns, trends, morbidity, and mortality associated with opioid use in Alaska.

In 2016, opioids were involved in more than 42,000 deaths in the United States, a number five times higher than in 1999. In Alaska, the highest number of opioid-related deaths identified in one year was 108 in 2017 (2017 data are preliminary); of which, 100 (93%) were due to overdose. During 2010–2017, 623 opioid overdose deaths were identified, and the opioid overdose death rate increased 77% (from 7.7 per 100,000 persons during 2010 to 13.6 per 100,000 persons during 2017). Synthetic opioids, excluding methadone, caused 37% (n=37) of all opioid overdose deaths in 2017, with fentanyl contributing to 76% (28/37) of the synthetic opioid overdose deaths.

During 2012–2017, the rate of out-of-hospital naloxone administration by emergency medical service (EMS) personnel more than doubled, from 8.0 to 17.7 administrations per 1,000 EMS calls in 2012 and 2017, respectively. The rates of opioid-related inpatient hospitalizations were 28.5 per 100,000 persons in 2016 and 26.0 per 100,000 persons in 2017. During 2016–2017, total inpatient hospitalization charges associated with opioid overdose exceeded $23 million.

Despite the escalating rate of opioid overdose deaths and high hospitalization rates, the data presented in this report reveal several encouraging findings. For example, the percentage of traditional high school students who report using heroin at least once dropped in 2011 and 2013 and has not increased since then. The rate of Medicare Part D patients who received opioid prescriptions has also decreased annually since 2015, suggesting that more judicious prescribing may be occurring in Alaska. Furthermore, naloxone use is increasing; this is likely due in part to the increased statewide availability of this life-saving overdose reversal medication.

Controlling the opioid epidemic will require a wide range of strategies employed over a prolonged period of time as well as collaboration with many sectors and disciplines. The broad public health prevention and control paradigms include: 1) environmental controls and improving social determinants (e.g., employing judicious prescribing practices, reducing exposure/initiation among adolescents and young adults, curtailing the illicit drug supply, and promoting mental wellness); 2) screening and management (e.g., understanding addiction as a chronic disease, using evidence-based screening tools, and assuring access to treatment and recovery services); and 3) acute health event control and prevention (e.g., preventing opioid overdose deaths through assuring widespread availability and appropriate use of naloxone). Other important strategies involve strengthening our understanding of the evolving epidemic through better public health surveillance and supporting pain management and addiction research.

1.0 Introduction

The national opioid epidemic has rapidly grown into this decade's defining public health crisis. Current estimates indicate that drug overdoses accounted for more than 60,000 deaths in the United States in 2016. Opioids were involved in over 42,000 (70%) of these deaths. Opioids bind to specific opioid receptors found in the brain, spinal cord, gastrointestinal tract, and other organs in the body.[1] Once bound to receptors, opioids decrease pain by inhibiting nociceptors (sensory neurons that send pain signals to the central nervous system) and increase pleasure by promoting the release of dopamine into parts of the brain, creating a euphoric high.[2] Regular use of opioids can lead to opioid use disorder, characterized clinically by a strong desire to obtain and use opioids, the inability to control or reduce use, continued use despite interference with major obligations or social functioning, use of larger amounts over time, development of tolerance, spending a great deal of time to obtain and use opioids, and withdrawal.[3] Tolerance occurs when the body adapts to repeated activation of the opioid receptors and the effect of the usual dosage becomes diminished, requiring additional drug to control pain or attain a comparable high thereby increasing the overdose risk. Opioid use disorder can be classified as mild, moderate, or severe.[4]

Opioid use disorder can occur with all classes of opioids. In a study involving opioid-naïve, cancer-free adults who received an opioid prescription for pain relief, the risk of long-term opioid use increased with each day larger amounts of pills were dispensed; this increased risk started on the third day of prescribed use.[5] Approximately 75% of those who begin using heroin have prior misuse of prescription opioids (used in any way not directed by a doctor).[6] Heroin has become a substitute for many people who initially became addicted to prescription opioids due to widespread availability, high potency, and relative affordability of heroin over the past decade.[7]

More recently, synthetic opioids, such as fentanyl, have been fueling the opioid epidemic. Fentanyl is up to 100 times more potent than morphine.[8] Non-pharmaceutical fentanyl is illicitly manufactured in clandestine laboratories to be mixed with heroin or other non-opioid illicit drugs or pressed into counterfeit prescription opioid or other pills (such as benzodiazepines) and sold on the black market.[9] In addition, fentanyl analogs, such as carfentanil, acryl fentanyl, furanyl fentanyl, and U-47700 are increasingly making their way into the illicit opioid supply.[10] Fentanyl analogs represent a uniquely unpredictable threat to the public's health because their potency can be widely variable and a single dose of the life-saving drug naloxone may not be enough to reverse a synthetic opioid overdose.

Opioid-related health threats extend beyond opioid use disorder and overdose. Recent studies have reported a rise in the incidence of neonatal abstinence syndrome (NAS), a withdrawal syndrome experienced by newborns born to mothers who used opioids during pregnancy.[11,12] Moreover, needle-sharing among people who inject drugs facilitates transmission of bloodborne pathogens such as the human immunodeficiency virus (HIV) and hepatitis B and C viruses.[13,14] Further, evidence is emerging linking higher doses of opioids to increased risk of fractures in older chronic pain patients.[15] Lastly, chronic opioid use might lead to long-term neuropsychological problems (e.g., difficulties with concentration and recall).[16]

The aim of this report is to characterize the trends and health impacts associated with opioid misuse in Alaska.

2.0 Methods

Data were obtained from multiple surveillance systems and databases, grouped into one of four categories: use patterns, morbidity, treatment, and mortality. Specific information obtained from each data source is outlined below.

2.1 Use Patterns

2.1.1 Youth Risk Behavior Survey

Youth Risk Behavior Survey (YRBS) results were retrieved via the interactive Alaska Indicator Based Information System (AK-IBIS). Through the "Explore Datasets" tool, the YRBS datasets were queried to obtain numbers and percentages of self-reported lifetime heroin use by Alaska high school students, grades 9–12. The sample of traditional Alaska high schools was used to produce statewide prevalence estimates. The Statewide YRBS dataset was used to obtain appropriate population estimates for sex, race, and grade level while the Local YRBS dataset was utilized for regional estimates. The Statewide YRBS dataset was also used to obtain the prevalence of lifetime use of heroin among alternative and correctional high school students. YRBS questionnaires are administered biennially; for this report, data were aggregated from the five most recently available survey years: 2009, 2011, 2013, 2015, and 2017. This population was then stratified by

survey year, sex, race, grade level, and public health region.

The Alaska alternative high school sample is selected separately from the Alaska traditional high school sample, and they are separate datasets. The correctional high school sample is part of the local sample and is included in the local dataset.

2.1.2 Medicare Part D Prescription Drug Claims

Opioid prescriptions and corresponding Medicare beneficiary data were derived using the Alaska Medicare Part D prescription drug claims dataset from fiscal years 2015–2017 (July 1–June 30). These data were obtained from Mountain-Pacific Quality Health which operates locally under the direction of the Centers for Medicare & Medicaid Services. Beneficiary data included individuals aged 65 years and older and individuals under 65 years of age who were receiving Social Security Disability Insurance. The number of Medicare Part D opioid drug claims included original prescriptions (no refills) classified as opioids in the Drug Category List. Opioid beneficiaries were defined as unique patients with at least one opioid prescription claim through Medicare Part D. This population was further stratified by sex, age, race/ethnicity, and geographic region. Opioid prescribing rates were calculated by dividing the number of opioid prescription claims by the total number of prescription claims.

2.2 Morbidity

2.2.1 Emergency Medical Services Information System

Statewide Emergency Medical Services (EMS) data were queried using the Alaska Uniform Response Online Reporting Access (AURORA) platform utilizing the National Emergency Medical Services Information System (NEMSIS). The total number patients receiving at least one dose of naloxone and the total number of naloxone doses administered per 1,000 EMS runs were calculated for 2012–2017. The statewide EMS data for 2014 did not include Anchorage. Patients who received at least one dose of naloxone from EMS during 2015–2017 were characterized by age group, sex, and race/ethnicity.

2.2.2 Health Facilities Data Reporting Program

The Health Facilities Data Reporting (HFDR) Program, housed within the Health Analytics and Vital Records Section, collects both inpatient and outpatient discharge data from Alaska health care facilities. Reporting was voluntary until mandated reporting regulations took effect in December 2014. In addition, effective October 1, 2015, the International Classification of Disease, Clinical Modifications (ICD-CM) updated its coding to version 10 (ICD-10-CM); therefore, only 2016–2017 data were analyzed. The version of the HFDR dataset used in the analysis does not include hospital records from PeaceHealth Ketchikan or the two military hospitals in Alaska. As a result, the data available for this report captures 24 of 27 Alaska hospitals (89%). Opioid-related hospital discharges were defined as in-state discharges with a primary or secondary diagnosis of opioid poisoning identified by ICD-10-CM codes (T40.0 – T40.4; and T40.6, excluding adverse effects, underdosing, and encounters due to sequelae; Table 1). Discharge records were further analyzed by opioid associated demographics, discharge status, length of stay, expected primary payer, intent of poisoning, and billed charges (which may not reflect what the payer has negotiated for a given service). Involvement of other drug poisonings at discharge were also identified by ICD-10-CM codes (T36-50 – poisoning by drugs, medicaments, and biological substances; T51 – toxic effect of alcohol).

2.3 Treatment

2.3.1 Treatment Episode Data Set

The Substance Abuse and Mental Health Services Administration (SAMHSA) Treatment Episode Data Set (TEDS) was used to provide information on the demographic and substance abuse characteristics of patients admitted to treatment from 2013–2016. State-specific results were retrieved via Alaska's Automated Information Management System (AKAIMS). Patients reporting any opioid as a primary, secondary, or tertiary drug of abuse were used to identify opioid admissions. In addition, the number of those reporting heroin as a primary drug of abuse and the number of those reporting other opioids as a primary drug of abuse were obtained. Alaska TEDS data were provided by fiscal year so it was necessary to normalize dates to calendar years to maintain consistency across the report.

2.4 Mortality

2.4.1 Alaska Vital Statistics

Death certificates from the Electronic Vital Records System (EVRS), managed by the Alaska Health Analytics and Vital Records Section, were analyzed for all opioid-related overdose deaths that occurred in Alaska during 2010–2017. Mortality rates were calculated using Alaska Department of Labor and Workforce Development population estimates and were age-adjusted by year 2000 standard population ratios.

- Drug overdose deaths were those defined by ICD-10 Code as having an *underlying cause of death* as unintentional drug poisoning (X40–X44), suicide drug poisoning (X60–64), homicide drug poisoning (X85), and drug poisoning of underdetermined intent (Y10–Y14).
- Opioid overdose deaths were those drug overdose deaths also listing a *contributory cause* of death as opium (T40.0), heroin (T40.1), natural or semi-synthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4), or other unspecified narcotics (T40.6) (Table 1). Fentanyl overdose deaths were characterized as those non-methadone synthetic opioid deaths (T40.4) that cited fentanyl (or fentanyl analogues) in the death certificate's text literal fields.
- Opioid-related non-overdose deaths were those defined as non-overdose deaths (i.e., excluding *underlying cause of death* ICD-10 Codes of X40–44, X60–64, X85, Y10–14) and containing the following *contributing cause of death* ICD-10 Codes: T40.0, T40.1, T40.2, T40.3, T40.4, and T40.6 (Table 1).

2.4.2 Alaska Violent Death Reporting System (AKVDRS)

The AKVDRS is a comprehensive reporting system that collects and centralizes information on violent and other manners of deaths from a variety of sources including death certificates, medical examiner records, and law enforcement reports. The AKVDRS captures information such as physical and mental health problems, employment and financial status, relationship and emotional crisis, legal issues, and toxicological results of drugs and alcohol at the time of death. Data from the AKVDRS were reviewed from deaths during 2010–2017 to analyze the manner and circumstances involved in opioid-related deaths, including the presence of other drugs at the time of death. Drug overdose deaths and opioid overdose deaths were identified using the same ICD-10 codes defined in the Alaska Vital Statistics section (2.4.1) (Table 1).

3.0 Results

3.1 Use Patterns

3.1.1 Youth Heroin Use in Alaska

During 2009–2017, an average of 2.5% of traditional high school students reported ever using heroin one or more times during their lifetime. The percentages ranged from 3.3% in 2009 to 2.2% in 2017 (Figure 1).

Lifetime heroin use during 2009–2017 was more common in male students than female students (3.1% and 1.4%, respectively; Table 2). By race and ethnicity, heroin use was most common among Black students (5.3%) and Hispanic/Latino students (6.5%) and least common among Asian and Alaska Native students (1.2% and 1.4%, respectively; Table 2). The proportion of high school students who have ever used heroin was highest in the Gulf Coast region (3.1%) and lowest in the Interior, Southwest, and Northern regions (2.2%, 2.0%, and 2.0%, respectively; Table 2).

During 2009–2017, 1.9% of 9th graders reported ever using heroin. This proportion increased to 2.4% by the 12th grade. (Figure 2). Prevalence by grade: 1.9% among 9th graders, 2.5% among 10th graders, 2.4% among 11th graders, 2.4% among 12th graders. These estimates are not significantly different at the 95% confidence limit.

Lifetime youth heroin use during 2009–2017 varied considerably by school setting, with correctional facilities reporting the highest percentages of high school student heroin use, followed by alternative high schools, and traditional high schools (17.4%, 9.8%, and 2.5%, respectively).

3.1.2 Prescription Opioid Drug Claims

During fiscal years 2015–2017 (July 1–June 30), the opioid prescribing rate for Medicare Part D beneficiaries decreased by 9%, from 15.2 per 100 prescriptions during fiscal year 2015 to 13.9 per 100 prescriptions during fiscal year 2017 (Table 3). During this period, the opioid prescribing rates decreased for both sexes, with females experiencing higher prescribing rates than males (Table 3).

During fiscal years 2015–2017, prescribing rates by race decreased across all races. However, during all 3 years, the highest prescribing rates were for Whites (Table 3). Prescribing rates by age group decreased

among all age groups, with people aged <65 years experiencing the highest rates (Table 3).

3.2 Morbidity

3.2.1 Naloxone Administrations by EMS

During 2012–2017, 1,943 patients received at least one naloxone administration by EMS in Alaska. This represents 0.9% of the 211,267 EMS runs during this period (Table 4). Each individual naloxone recipient received an average of 1.4 administrations per EMS call (range: 1–8 administrations).

The rate of individuals receiving at least one naloxone administration increased from 5.9 per 1,000 EMS calls in 2012 to 12.2 per 1,000 EMS calls in 2017 (Figure 3). The rate of total naloxone administrations ranged from 8.0 per 1,000 EMS calls in 2012 to 17.7 per 1,000 EMS calls in 2017 (Figure 3).

3.2.2 Opioid-Related Hospital Discharges and Emergency Room Visits

During 2016–2017, 1,244 opioid-related HFDR records were identified. Of the 1,244 records, 403 were inpatient hospitalization discharges, 712 were emergency department discharges, and 129 were other outpatient discharges (e.g., outpatient surgery, outpatient observation). The rates of opioid-related inpatient hospitalizations were similar in 2016 and 2017 (28.5 per 100,000 persons in 2016 and 26.0 per 100,000 persons in 2017; Figure 4). The rate of opioid-related emergency department discharges increased 22% from 43.5 discharges per 100,000 persons in 2016 to 52.9 discharges per 100,000 persons in 2017 (Figure 4).

The rate of opioid-related inpatient hospitalizations during 2016–2017 was higher among females than males (29.9 and 24.8 per 100,000 persons, respectively; Table 5). By race, opioid-related inpatient hospitalization rates were highest among Alaska Native people and Whites (41.6 and 27.2 per 100,000 persons, respectively; Table 5). Opioid-related inpatient hospitalization rates by region were highest in the Gulf Coast, followed by the Anchorage, Matanuska-Susitna, and Northern regions (40.0, 32.2, 30.0, and 28.8 per 100,000 persons, respectively; Table 5). Rates by age were highest among persons aged 65 years and older, followed by persons aged 45-54 years (41.4 and 40.1 per 100,000 persons, respectively; Table 5).

Of the 403 opioid-related inpatient hospitalizations during 2016–2017, 258 (64%) involved opioids alone, 89 (22%) were accompanied by one additional substance, and 56 (14%) were accompanied by two or more additional substances. The most common accompanying substances included benzodiazepines, amphetamines (including methamphetamine), antidepressants, non-opioid analgesics, and depressants (Table 6).

Of the patients involved in the 403 opioid-related inpatient hospitalizations during 2016–2017, 278 (69%) were discharged to home after their stay, 32 (8%) entered a mental health treatment facility, 30 (7%) left against medical advice, 18 (4%) died, 15 (4%) returned home under the care of an organized health service, 12 (3%) were of other/unknown final disposition, 11 (3%) were transferred for further care, and 7 (2%) entered the custody of the court/law enforcement (Figure 5). The length of hospital stay for opioid-related inpatient hospitalizations ranged from 0–114 days (median: 3 days). The most common expected primary payer sources for these patients were Medicaid and Medicare (38% and 28%, respectively; Figure 6).

During 2016–2017, the median charge for opioid-related inpatient hospitalizations was $36,228 (range: $0 to $692,125); the total inpatient charges for opioid-related hospitalization exceeded $23 million.

3.3 Treatment

3.3.1 Substance Abuse Treatment Admissions for Opioids

During 2013–2016, 12.7% (5,855) of admissions for substance abuse treatment involved an opioid as a substance of abuse, ranging from 9.7% in 2013 to 15.0% in 2016 (Figure 7). Males were admitted for treatment nearly as often as females (49% and 51%, respectively). The largest proportion of patients reporting an opioid as a drug of choice were those aged 25–44 years (69.8%; Figure 7). Of the 5,855 admissions where an opioid was reported as a substance of abuse, 46% reported heroin as a primary drug of choice and 23% reported an opioid other than heroin as a primary drug of choice.

3.4 Mortality

3.4.1 Opioid-Related Deaths

During 2010–2017, 661 opioid-related deaths were identified from death certificates; 623 (94%) were overdose fatalities and 38 (6%) were non-overdose fatalities (e.g., a motor vehicle death under the

influence of opioids). The annual number of opioid-related deaths increased steadily over the 8-year time period (Figure 8). The highest number of opioid-related deaths identified in one year was 108 in 2017 (2017 data are preliminary); of which, 100 (93%) were due to overdose. Synthetic opioids, excluding methadone, were involved in 107 (17%) opioid overdose deaths during 2010–2017; 75 (12%) of these deaths were due to fentanyl (Table 7).

During 2010–2017, the total opioid overdose death rate increased by 77% (from 7.7 to 13.6 per 100,000 persons; Figure 9). Natural and semi-synthetic opioid overdose death rates increased by 38% during the same period (from 4.5 to 6.2 per 100,000 persons; Figure 9). Heroin overdose death rates could not be reliably reported in 2010 due to small numbers. During 2011–2016, heroin overdose death rates increased nearly fourfold (from 1.4 to 6.5 per 100,000 persons; Figure 9). A 25% decrease in heroin overdose death rates occurred during 2016–2017 (from 6.5 to 4.9 per 100,000 persons; Figure 9). During 2016–2017, overdose death rates associated with synthetic opioids, excluding methadone, increased more than threefold (from 1.1 to 4.9 per 100,000 persons; Figure 9).

During 2013–2016, opioid overdose death rates increased among both sexes, with males experiencing consistently higher rates than females (Table 8). However, during 2017, opioid overdose death rates among males decreased by 10% (from 16.7 per 100,000 persons in 2016 to 15.0 per 100,000 persons in 2017; Table 8), while rates among females increased by 38% (from 8.8 per 100,000 persons in 2016 to 12.1 per 100,000 persons in 2017; Table 8). Opioid overdose death rates by race also increased across most races during this time period, with Alaska Native people experiencing the highest rates, followed by Whites (Table 8).

By region, Anchorage experienced the highest rates of opioid overdose deaths (from 12.5 per 100,000 persons in 2013 to 20.4 per 100,000 persons in 2017; Table 8). In 2017, opioid overdose death rates were highest among people aged 45–54 years, followed by people aged 25–34 years (Table 8).

3.4.2 Fatalities from AKVDRS

During 2010–2017, 630 opioid-related deaths were identified in AKVDRS; of which 614 (97%) had drug poisoning or overdose as the underlying cause of death. Of these 614 deaths, 562 (92%) were unintentional, 34 (6%) were suicides, 17 (3%) were of undetermined intent, and 1 was a homicide (<1%). During 2010–2017, 34 (2%) of the 1,418 suicide deaths in Alaska were caused by opioid overdose.

Of the 614 opioid overdose decedents reported in AKVDRS during 2010–2017, 190 (32%) tested positive for benzodiazepines, 187 (32%) tested positive for alcohol, 147 (25%) tested positive for marijuana, and 141 (24%) tested positive for amphetamines (Table 9).

Precipitating circumstances were identified for 596 (97%) of the 614 decedents, and included the following:

- 199 (32%) were suspected of using alcohol;
- 78 (13%) had a physical health problem;
- 53 (9%) were in the military;
- 16 (3%) were homeless; and
- 8 (1%) had a known intimate partner problem.

Documented mental health factors for the 596 decedents for whom precipitating circumstances were identified include the following:

- 160 (26%) had a known mental health problem;
- 91 (15%) had a known history of mental illness treatment;
- 51 (8%) were currently receiving mental health illness treatment or in therapy (e.g., for anxiety disorder, bipolar disorder, or depression);
- 32 (5%) had a known history of suicide ideation; and
- 23 (4%) had a known history of suicide attempt.

4.0 Discussion

Since the late 1990s, the opioid epidemic has impacted all regions of the country, including Alaska. In recent years, Alaska has experienced a steady increase in overdose deaths annually, with 100 such deaths identified in 2017. In addition, over 1,000 opioid-related hospitalizations and emergency room visits have occurred over the past 2 years alone. Moreover, while largely beyond the scope of this report, other wide-ranging adverse impacts of the opioid epidemic include increased crime rates and associated societal distress, decreased productivity, increased rates of bloodborne infections such as HIV and hepatitis B and C viruses, increased health care costs, and increased turmoil in interpersonal relationships (e.g., breakdown of family units and friendships, domestic violence, child abuse, and financial ruin).

Understanding the populations at greatest risk for serious adverse outcomes is important to help tailor intervention efforts. In terms of overdose deaths in Alaska during 2013–2017, the highest rates occurred

in males (nearly 60% higher than females), Alaska Native people and Whites, adults aged 25–44 years, and persons living in the Gulf Coast, Anchorage/Matanuska-Susitna (Southcentral), and Southeast Alaska (Table 8). In 2017, the number of deaths associated with the epidemic increased due to the dramatic rise in the number of fentanyl overdose deaths. In terms of inpatient hospitalizations, which may be driven in part by access to treatment facilities, during 2016–2017, the highest rates occurred in Alaska Native people and Whites; people living in the Gulf Coast, Southcentral, and Northern regions; and adults aged ≥25 years (Table 5). Moreover, the economic burden to society associated with hospitalizations is considerable, and the vast majority of the expenses are being paid for by Medicaid and Medicare services (Figure 6). During 2016–2017, the total inpatient charges for opioid-related hospitalization exceeded $23 million.

It is important to highlight that the epidemic has been further complicated by the escalating potency of circulating opioids and the pervasiveness of poly-drug use. For example, while overdose death rates have consistently been highest for natural and semisynthetic opioids (excluding heroin) almost every year since 2010 and have only increased slightly during the past 8 years, the overdose death rate due to heroin increased considerably during 2011–2016, and the overdose death rate due to synthetic opioids increased precipitously in 2017 (Figure 9). The recent emergence of highly potent synthetic opioids such as fentanyl and related substances has compounded the challenges of controlling the epidemic, as these drugs are often sold in counterfeit pills designed to look like prescription opioids or benzodiazepines, and can be added as an adulterant to heroin or other drugs without the user's knowledge. Illicit fentanyl may also contaminate other illicit drugs, such as methamphetamine, during production, resulting in exposure in persons who may have little or no opioid tolerance. Moreover, the pervasiveness of poly-drug use, as relayed in this report (Tables 6 and 9), presents additional challenges because whenever two or more respiratory-depressing drugs are taken in combination, the potential for serious medical complications escalates.

The data presented in this report also reveal a number of potentially encouraging findings. First, it is reassuring that the percentage of traditional high school students who report using heroin at least once dropped in 2011 and 2013 and has not increased since then. It is important, however, to underscore that some students reported relatively high use rates, such as Hispanic/Latino and black students (6.5% and 5.3%, respectively) and students living in the Gulf Coast (3.1%). Moreover, results presented here showed a substantial disparity among students in different school settings, with the percentage of students in alternative and correctional high schools having ever used heroin being 4-fold and 7-fold higher than traditional high school students, respectively.

Another positive finding is that the rate of Medicare Part D patients who received opioid prescriptions has decreased annually since 2015, suggesting that more judicious prescribing may be occurring in Alaska. Still, some Medicare Part D patients receive substantially more opioid prescriptions than others. These groups include women, white patients, and persons aged <65 years (Table 3). Alaska has made good headway in preventing overprescribing by mandating reporting to the Prescription Drug Monitoring Program (PDMP), which took effect in July 2017.[17] Participation in the PDMP allows clinicians to obtain information about their patients' opioid prescription histories, and provides clinicians with "report cards" that enable them to review their own prescribing patterns in relation to other clinicians.

Furthermore, the administration of naloxone is increasing (Figure 3). This is likely due in part to the substantial effort to increase the availability and use of naloxone to reverse opioid overdoses throughout Alaska in recent years through Project HOPE (Harm-reduction Overdose Prevention and Education; more information is available at: http://dhss.alaska.gov/dph/Director/Pages/heroin-opioids/narcan.aspx). It is important to note, however, that the rise in the number of administrations given by EMS providers has outpaced the rise in the number of individuals who received naloxone. This may be due in part to an escalating need for multiple administrations of naloxone to prevent respiratory arrest in persons who have taken higher-potency opioids such as fentanyl.

5.0 Limitations

There are a number of limitations in the data presented in this report. First, the Behavioral Risk Health Risk Factor Surveillance System does not include questions around opioids and the Pregnancy Risk Assessment Monitoring System only recently added opioid questions in 2016 (results not yet available); therefore, data from these health monitoring systems are not included in this report. Even usage data among non-adults are sparse. YRBS data are self-reported and while the survey is anonymous and results are de-identified, high school students may not answer

truthfully about their use of an illegal drug. The survey is also subject to recall bias. The extent of this under- or over-reporting cannot be determined. In addition, research has suggested substance use is frequently associated with reduced school attendance and increased drop-out rates.[18] YRBS data apply only to youth who attend school and therefore likely underestimate the overall prevalence of heroin use in this age group. Further, due to relatively low participation rates, not all regional estimates are weighted, potentially affecting the representativeness of regional findings each year. However, by combining years of data, we reduced this potential effect and improved the robustness of regional estimates. Finally, because grades 9–12 are surveyed every 2 years, results from the same student could potentially exist in multiple years, which could skew findings.

EMS data are limited by including events from participating agencies only, rather than including all events where naloxone is administered. In addition, the data are "event-based" meaning that a single patient can be represented in more than one record, such as when a patient requests EMS assistance multiple times or more than one EMS agency responds to a single call. In either case, the demographic or naloxone statistics could be skewed as a result. Further, the statewide EMS data for 2014 did not include Anchorage.

TEDS does not include all admissions to substance abuse treatment. The dataset includes admissions at facilities that are licensed or certified by a state substance abuse agency, in general, representing those facilities receiving state alcohol and/or drug agency funds for the provision of treatment services. Therefore, TEDS does not represent the total statewide utilization and demand for substance abuse treatment; however, it does represent those facilities constituting the burden on public funds. Additionally, TEDS counts admissions and does not represent individuals; an individual admitted to treatment twice within a calendar year would be counted as two admissions. The primary, secondary, and tertiary substances of abuse reported to TEDS are those substances that led to the treatment episode, and not necessarily a complete enumeration of all drugs used at the time of admission. In addition, current data limitations prevent differentiation of specific opioids other than heroin.

Medicare Part D claims data are categorized into fiscal years. This allows for the inclusion of more recent data, but prevents direct comparisons with other data sources in which calendar years are used. Information about the type, formulation, and number of days for each prescription was not available. As a result, it was not possible to determine if the number of days or dosage of prescribed opioids had an influence on the prescribing rate.

The Health Facilities Data Reporting Program captures billed charges only, rather than what is actually paid. The HFDR program currently utilizes the ICD-10-CM coding scheme which does not make a distinction between specific drugs that exist within the broader opioid categories. For example, a specific code indicating poisoning by fentanyl does not exist as a separate code. Instead, fentanyl is grouped into the larger "synthetic opioids, excluding methadone" category. Further, there is no way to distinguish if opioids were obtained illicitly or with a legal prescription. The ICD-10-CM classification system does not capture toxicology information on patients beyond categories of drug poisonings, making it impossible to assess the role that opioids play in hospitalizations of other underlying causes. Finally, the version of the HFDR dataset used does not include hospital records from PeaceHealth Ketchikan or the two military hospitals in Alaska. As a result, the data available for this report only capture 89% of Alaska hospitals.

Death certificates are used to produce ICD-10 classifications to describe cause of death, both underlying and contributory, among decedents. The ICD-10 coding scheme includes a separate code for synthetic opioid poisoning, which includes fentanyl, but it lacks a code to designate fentanyl poisoning specifically. However, based on a free text search of Alaska's 2017 death certificates, the synthetic opioid category (T40.4) was dominated by fentanyl; 76% of the deaths due to synthetic opioids, excluding methadone, involved fentanyl (Table 7). The ICD-10 classifications used to define overdose deaths due to natural, semi-synthetic, and synthetic opioids (excluding heroin) include poisonings due to natural and semi-synthetic opioid analgesics (T40.2), methadone (T40.3), and synthetic opioid analgesics excluding methadone (T40.4). This means that these opioid overdose deaths likely included some deaths associated with fentanyl. However, no method currently exists to determine if the fentanyl was obtained legally with a prescription or by illegal means. Further, June 2014 saw the addition of fentanyl to the basic toxicology panel utilized by the state medical examiner. Prior to this date, toxicology tests for fentanyl were conducted only if the medical examiner suspected its role in the cause or manner of death. As a result, fentanyl deaths could have been underestimated prior to June 2014.

6.0 Control Strategies

Controlling the opioid epidemic will require a wide range of strategies employed over an extended period of time. The broad public health practice paradigms involve 1) environmental controls and improving social determinants (e.g., employing judicious prescribing practices, reducing exposure/initiation among adolescents and young adults, curtailing the illicit drug supply, and promoting mental wellness), 2) chronic disease screening and management (e.g., understanding addiction as a chronic disease, using evidence-based screening tools, and assuring access to treatment and recovery services), and 3) the prevention and appropriate management of acute health events (e.g., preventing opioid overdose deaths through assuring widespread availability and appropriate use of naloxone).[19] Other important strategies involve strengthening our understanding of the evolving epidemic through better public health surveillance and supporting research on pain management and addiction.[20]

Treating opioid addiction is challenging and requires concerted effort. A mainstay of treatment for opioid use disorder is medication-assisted treatment (MAT), which involves the use of medications (e.g., methadone, naltrexone, and buprenorphine) in combination with counseling and behavioral therapies. MAT providers are located throughout the state;[21] however, barriers exist that limit or delay treatment. For example, clinicians hoping to prescribe buprenorphine must complete 8 hours of training and apply for a Drug Addiction Treatment Act of 2000 (DATA 2000) waiver, which only allows for treatment of 30 patients for the first year. Similarly, methadone can only be prescribed to treat addiction by a physician operating as part of a certified opioid treatment program (OTP), which currently operate only in Anchorage, Mat-Su, and Fairbanks. An additional barrier for patients is that the cost of treatment can be prohibitively high, particularly for those without health insurance. Depending on the specific medication, pharmacy, and dosage, the out-of-pocket cost for MAT can easily grow to thousands of dollars per year, a cost not always covered by insurance.[22] Fortunately, Alaska Medicaid covers the cost of treatment medications for those meeting eligibility requirements. Finally, stigma of addiction and misperceptions of the role of MAT in maintenance of recovery are persistent disincentives to seek needed treatment.

Hospital visits provide important opportunities to engage and link people who use opioids to care and services. Sometimes, however, patients leave against medical advice (AMA), resulting in a missed opportunity for intervention. During 2016–2017, 7% of opioid-related hospitalizations in Alaska involved patients who left AMA. Reasons for leaving AMA may include insufficiently addressed withdrawal symptoms, inadequate pain management (due to complexities around treating opioid-dependent patients for pain), procedural restrictions limiting harm-reductions strategies (e.g., access to clean injection supplies), and general mistrust between patients and the healthcare system.[23] Strategies aimed at improving the hospital care of people who inject drugs such as heroin and fentanyl could reduce both health care costs and the likelihood of readmission.[24] Training in addiction medicine among health care providers may help to diagnose co-occurring mental disorders and remove the stigma and discrimination people who inject drugs can experience in hospital settings. Additionally, integrated care models can provide linkages to behavioral health professionals, case workers, and other specialists to a population who may not regularly utilize the health care system.

Finally, 6% of the opioid overdose deaths during 2010–2017 were classified as intentional self-harm. Ruling a death a suicide requires evidence that the death was self-inflicted or that the decedent intended to commit suicide. As such, due to lack of supportive evidence, some drug overdose deaths are misclassified as accidental or undetermined when they are actually intentional self-harm events.[25,26] These tragic deaths underscore the role of addressing underlying mental health problems among persons with opioid and other substance use disorders as an important suicide prevention strategy.

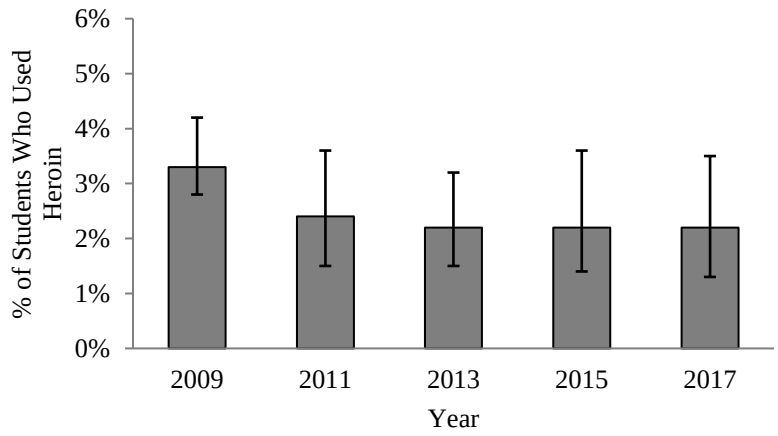
7.0 Appendix

Table 1. Opioid Drug Categories by ICD-10*/ICD-10-CM† Code with Corresponding Drug Examples

ICD-10 Code	Drug Category			
	Heroin	Natural and semi-synthetic, excluding heroin	Methadone	Synthetic, excluding methadone
T40.1	Heroin			
T40.2		Morphine, codeine, hydromorphone, oxycodone, hydrocodone		
T40.3			Methadone	
T40.4				Fentanyl, carfentanil, tramadol, propoxyphene, meperidine

Categorical coding source: Alaska Health Analytics and Vital Records Section
** ICD-10 coding for contributory cause of death due to an opioid drug*
† ICD-10-CM coding for external causes of poisoning due to an opioid drug

Figure 1. Percentage of Traditional High School Students who Reported Using Heroin One or More Times During their Lifetime*, by Year — Alaska, 2009–2017



**Percentages shown with 95% confidence intervals*

Table 2. Characteristics of Traditional High School Students Who Reported Using Heroin One or More Times During Their Lifetime — Alaska, 2009–2017

Sex	N	Percent*	95% CIs
Female	50	1.4%	1.1–1.9%
Male	104	3.1%	2.5–3.9%
Race	**N**	**Percent***	**95% CIs**
Alaska Native±	23	1.4%	0.9–2.1%
Asian	5	1.2%	0.5–3.1%
Black	10	5.3%	2.8–10.0%
Native Hawaiian/PI	7	4.4%	2.6–7.2%
White	60	2.0%	1.6–2.6%
Multiple Races – Hispanic/Latino	26	6.5%	4.1–7.8%
Multiple Races – non-Hispanic/Latino	9	3.6%	1.9–6.8%
Region	**N**	**Percent***	**95% CIs**
Anchorage	129	2.6%	2.1–3.1%
Gulf Coast	242	3.1%	2.6–3.6%
Interior	62	2.2%	1.5–3.1%
Mat-Su	80	3.2%	2.2–4.5%
Northern	69	2.0%	1.6–2.6%
Southeast	193	2.6%	2.1–3.2%
Southwest	47	2.0%	1.4–2.8%

**Percentages reported above have been produced by weighting the sample so that the results better represent the Alaska population*

†CI = Confidence Interval

±Alaska Native is defined as any mention of Alaska Native descent, and these individuals are not counted in the Hispanic or Latino or Multiple Races categories

Figure 2. Percentage of Traditional High School Students who Reported Using Heroin One or More Times during Their Lifetime, by Grade — Alaska, 2009–2017

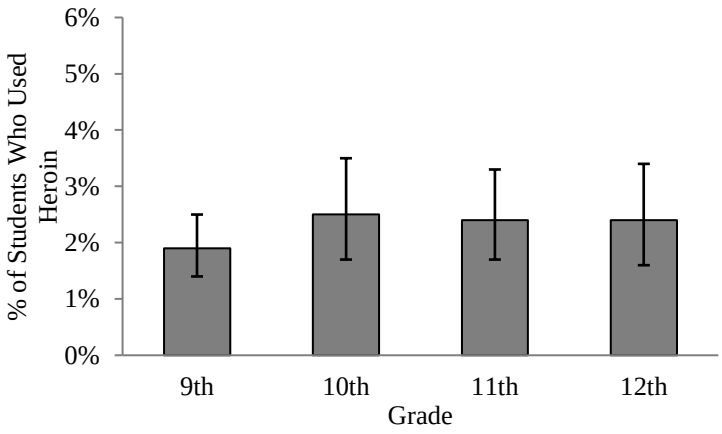


Table 3. Demographic Characteristics of Medicare Part D Opioid Beneficiaries — Alaska, FY 2015–2017

Characteristic	Rate of Opioid Prescriptions per 100 Total Prescriptions (# of Opioid Prescriptions)		
	FY 2015	FY 2016	FY 2017
Total	15.2 (72,186)	14.9 (73,889)	13.9 (71,669)
Sex			
Female	9.3 (44,086)	9.0 (44,683)	8.3 (42,886)
Male	5.8 (27,822)	5.8 (28,996)	5.5 (28,447)
Unknown	0.1 (427)	0.1 (561)	0.1 (562)
Race/Ethnicity			
White	10.7 (51,143)	10.6 (52,896)	10.0 (51,783)
Black	0.8*	0.8*	0.7*
Asian	0.5*	0.5*	0.4*
Hispanic	0.1*	0.1*	0.1*
Alaska Native	2.8 (13,278)	2.6 (12,847)	2.3 (11,980)
Age Group			
<65	8.2 (39,104)	7.9 (39,330)	7.2 (37,278)
65–69	2.6 (12,495)	2.6 (12,988)	2.7 (14,042)
70–74	1.9 (8,857)	1.9 (9,548)	1.7 (8,779)
75–79	1.1 (5,475)	1.1 (5,620)	1.0 (5,243)
80–84	0.7 (3,207)	0.7 (3,318)	0.6 (3,252)
>84	0.5 (2,770)	0.6 (2,875)	0.5 (2,739)

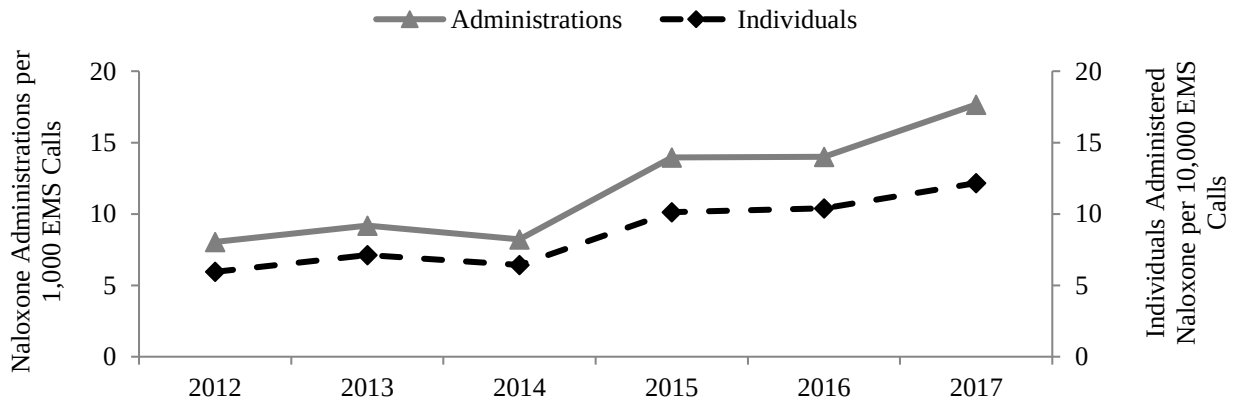
**Exact counts suppressed due to small numbers*

Table 4. Demographic Characteristics of Patients Receiving Naloxone by EMS — Alaska, 2015–2017 (N=1,412)

Characteristic	Rate* per 10,000 population (#)
Total	6.4 (1,412)
Sex	
Female	5.0 (533)
Male	7.7 (875)
Unknown/Not Reported	(4)
Race	
AI/AN	8.0 (272)
Asian/PI	2.4 (40)
Black	7.2 (59)
White	5.5 (800)
Other	(37)
Unknown/Not Reported	(204)
Age Group	
0–14	(5)
15–24	5.1 (151)
25–34	11.3 (390)
35–44	9.3 (258)
45–54	8.1 (230)
55–64	6.5 (195)
65+	7.7 (181)
Unknown/Not Reported	(2)

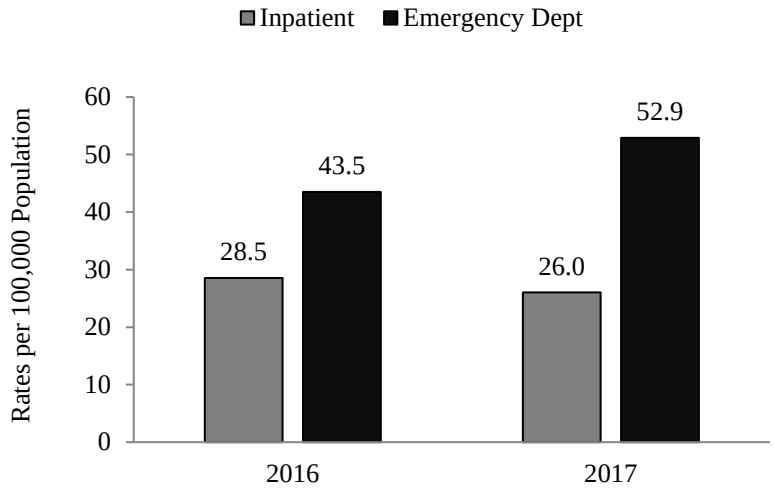
**Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution; rates based on fewer than 6 occurrences are not reported*

Figure 3. Rate of Individuals Receiving At Least One Naloxone Administration and Rate of Total Naloxone Administrations, per Total Number of EMS Calls — Alaska, 2012–2017*



**Statewide EMS data for 2014 do not include Anchorage.*

Figure 4. Rates of Hospital Care Associated with All Opioids — Alaska, 2016–2017 (Inpatient Hospitalizations: N=403; Emergency Department Discharges: N=712)



Data Source: Alaska Division of Public Health, Health Facilities Discharge Reporting Program, 2016 ver. 8, 2017 ver. 3

Table 5. Demographic Characteristics of Patients with Opioid-Related Inpatient Hospitalizations* — Alaska, 2016–2017

Characteristic	Rate per 100,000 (#)
Total	27.3 (403)
Sex	
Female	29.9 (214)
Male	24.8 (189)
Race	
White	27.2 (266)
Black	10.9† (6)
AI/AN	41.6 (94)
Asian/PI	5.3† (6)
Other/Unknown	(31)
Age Group	
0–14	3.8† (12)
15–24	21.5 (42)
25–34	33.0 (76)
35–44	28.5 (53)
45–54	40.1 (75)
55–64	39.1 (78)
65+	41.4 (67)
Region	
Anchorage	32.2 (192)
Gulf Coast	40.2 (65)
Interior	10.2 (23)
Mat-Su	30.0 (62)
Northern	28.8 (16)
Southeast	15.0 (22)
Southwest	11.8† (10)

Data Source: Alaska Division of Public Health, Health Facilities Discharge Reporting Program, 2016 ver. 8, 2017 ver. 3

**Opioid ICD-10-CM codes queried: poisoning due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), or other unspecified narcotics (T40.6)*

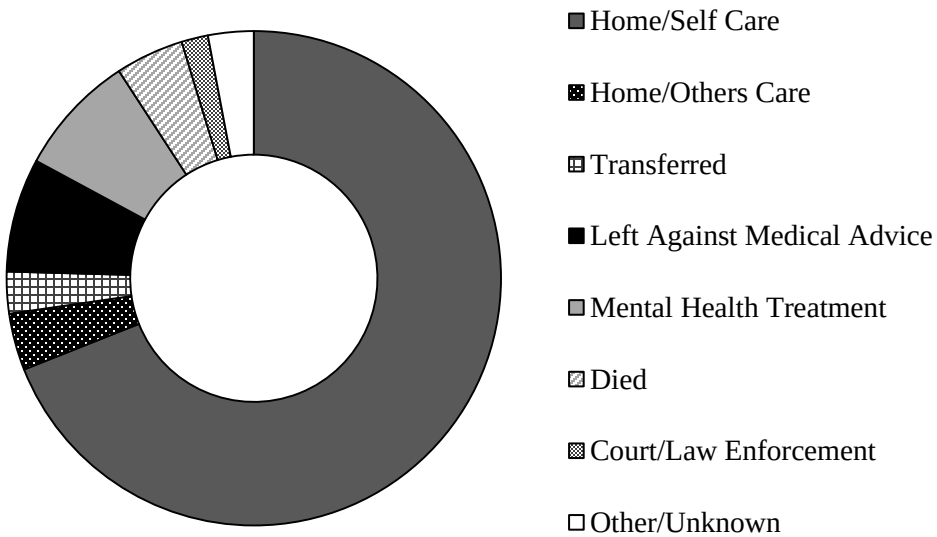
† Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution; rates based on fewer than 6 occurrences are not reported

Table 6. Other Substances Involved in Opioid-Related Inpatient Hospitalizations — Alaska, 2016–2017 (N=403)

	Count	Percent*
Opioids Alone	258	64%
Opioids in Addition to		
Any Additional Drug	145	36%
1 Additional Drug	89	22%
2 Additional Drugs	36	9%
3 Additional Drugs	14	3%
>3 Additional Drugs	6	1%
Opioids in Addition to		
Benzodiazepines	48	12%
Amphetamines	25	6%
Antidepressants	17	4%
Acetaminophen (Non-opioid, Non-NSAID analgesics)	15	4%
Depressants	13	3%
Cannabis	14	3%
NSAIDs	11	3%
Alcohol	10	2%

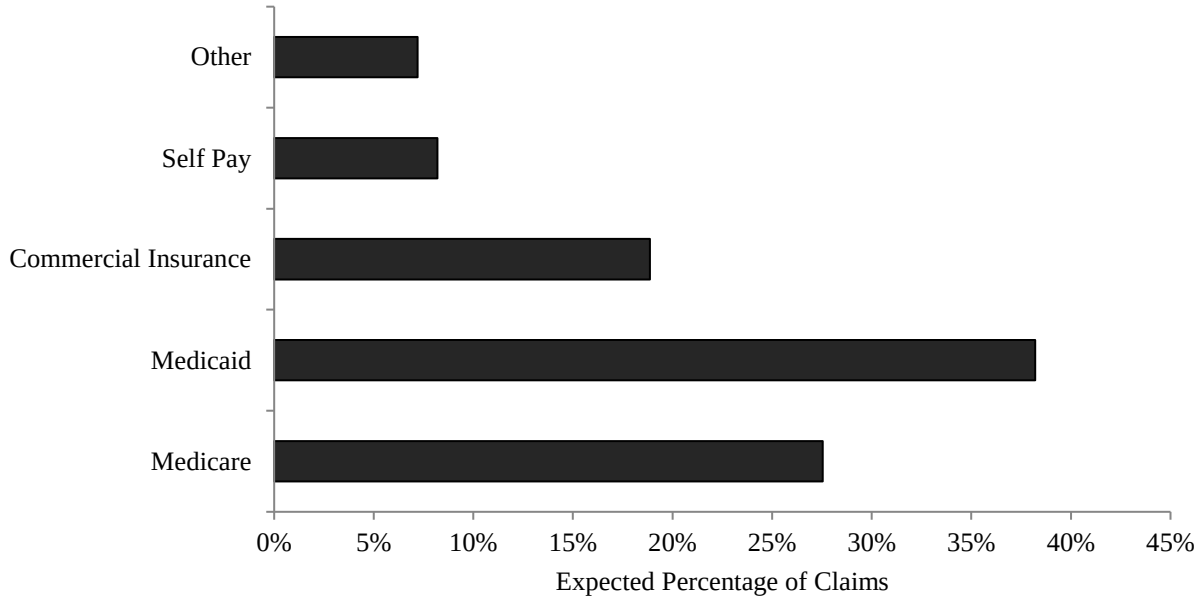
Data Source: Alaska Division of Public Health, Health Facilities Discharge Reporting Program, 2016 ver. 8, 2017 ver. 3
**Percent of total opioid-related hospitalizations*

Figure 5. Final Disposition of Patients Involved in Opioid-Related Inpatient Hospitalizations — Alaska, 2016–2017 (N=403)



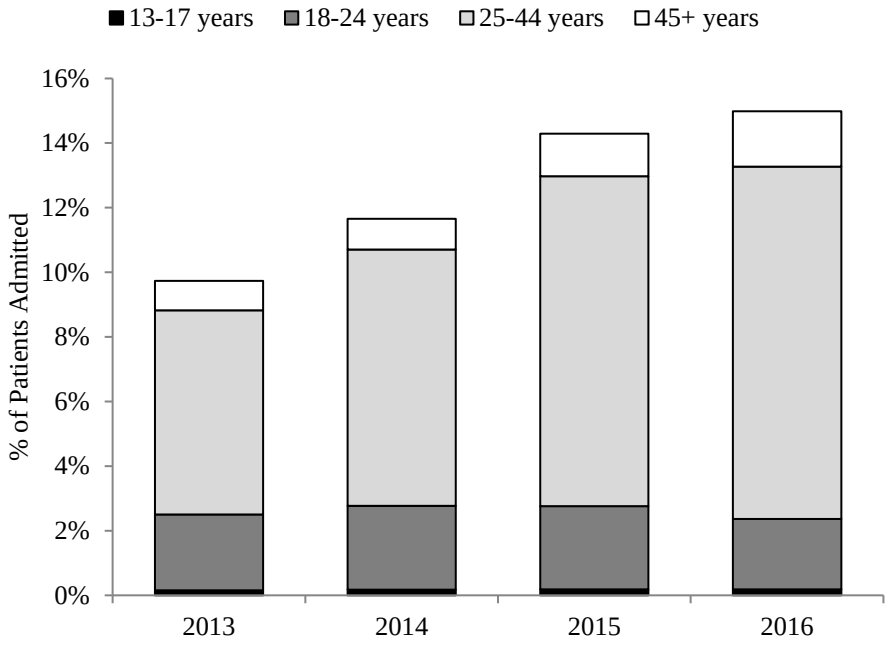
Data Source: Alaska Division of Public Health, Health Facilities Discharge Reporting Program, 2016 ver. 8, 2017 ver. 3

Figure 6. Expected Primary Payer Source* for Opioid-Related Inpatient Hospitalizations — Alaska, 2016–2017 (N=403)



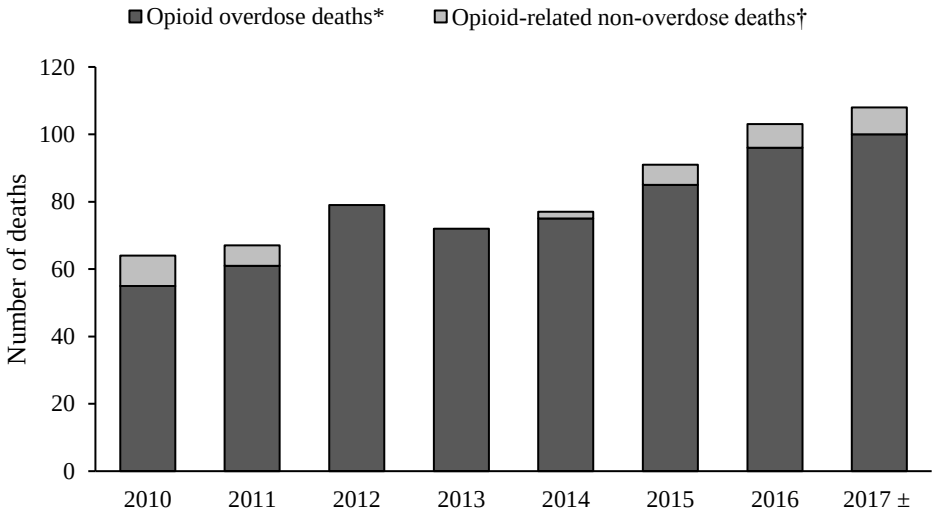
Data Source: Alaska Division of Public Health, Health Facilities Discharge Reporting Program, 2016 ver. 8, 2017 ver. 3
**Percentage of claims expected to be paid by the primary payer listed*

Figure 7. Admissions to Treatment Where Patient Reported Any Opioid as a Substance of Abuse* — Alaska, 2013–2016



**Primary, secondary, or tertiary substance of abuse*

Figure 8. Number of Deaths Involving Opioids, by Year and Type of Death — Occurred in Alaska, 2010–2017 (N=661)



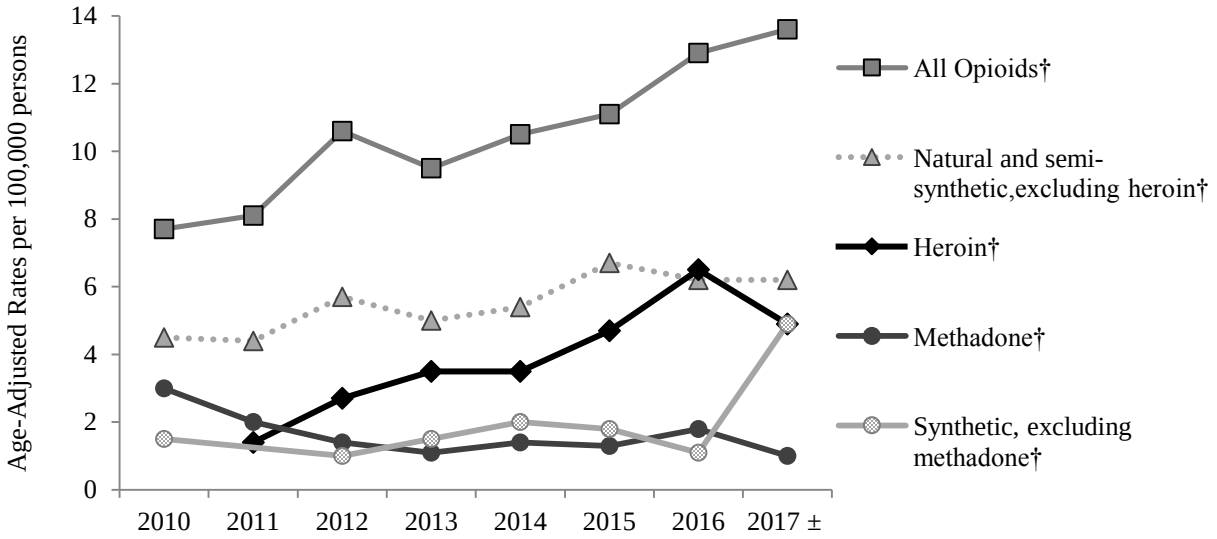
Data Source: Alaska Division of Public Health, Vital Statistics, Mortality
**Opioid overdose deaths were queried by ICD-10 Codes for 1) underlying cause of death due to unintentional drug poisoning (X40-44), suicide drug poisoning (X60-64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10-14) and 2) contributory cause of death due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), or other unspecified narcotics (T40.6)*
† Opioid-related non-overdose deaths were queried by ICD-10 Codes for Contributory Cause of death due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), or other unspecified narcotics (T40.6)
± 2017 data are preliminary and subject to change

Table 7. Number of Overdose† Deaths by Year and Type of Opioid — Occurred in Alaska, 2010–2017 (N=623)

Category*	2010	2011	2012	2013	2014	2015	2016	2017 ±
All Opioids†	55	61	79	72	75	85	96	100
Heroin	3	11	21	26	26	36	49	36
Natural, semi-synthetic, and synthetic, excl. heroin	52	48	53	51	51	68	59	75
Natural and semi-synthetic, excl. heroin	32	33	42	38	38	52	46	46
Methadone	22	16	10	8	11	10	14	8
Synthetic, excl. methadone	10	4	8	12	14	14	8	37
Fentanyl	9	2	5	4	10	12	5	28

Data Source: Alaska Division of Public Health, Vital Statistics, Mortality
**Drug category queried by ICD-10 Codes for 1) underlying cause of death due to unintentional drug poisoning (X40-44), suicide drug poisoning (X60-64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10-14) and 2) contributory cause of death due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), or other unspecified narcotics (T40.6); fentanyl overdoses are non-methadone synthetic opioid deaths (T40.4) that cite fentanyl (or fentanyl analogs) in the death certificate's text literal fields*
† Opioid overdose deaths may involve multiple substances, therefore the individual categories are not mutually exclusive, for example opioid deaths involving heroin could also involve methadone
± 2017 data are preliminary and subject to change

Figure 9. Overdose Death Rates by Year and Type of Opioid* — Alaska, 2010–2017 (N=623)



Data Source: Alaska Division of Public Health, Vital Statistics, Mortality
**Drug category queried by ICD-10 Codes for 1) underlying cause of death due to unintentional drug poisoning (X40-44), suicide drug poisoning (X60-64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10-14) and 2) contributory cause of death due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), or other unspecified narcotics (T40.6)*
†Opioid overdose deaths may involve multiple substances, therefore the individual categories are not mutually exclusive, for example opioid deaths involving heroin could also involve methadone
± 2017 data are preliminary and subject to change

Table 8. Demographic Characteristics of Opioid Overdose Decedents* — Alaska, 2013–2017 (N=428)

Characteristic	Rate per 100,000 Population (# of decedents)					
	2013	2014	2015	2016	2017†	2013–2017†
Sex						
Female	6.0 (22)	9.0 (31)	8.4 (31)	8.8 (31)	12.1 (45)	8.8 (160)
Male	12.7 (50)	12.0 (44)	13.5 (54)	16.7 (65)	15.0 (55)	14.0 (268)
Race						
White	10.8 (59)	10.4 (53)	10.8 (59)	14.4 (75)	13.3 (70)	11.9 (316)
AI/AN	9.6± (11)	14.8± (16)	18.8 (23)	9.9± (12)	22.0 (25)	15.1 (87)
Asian/PI/Black	(2)	(4)	(1)	(6)	(4)	3.5± (17)
Age Group						
0-14	(0)	(0)	(1)	(0)	(0)	(1)
15-24	(3)	11.6± (12)	14.8± (15)	13.2± (13)	(5)	9.5 (48)
25-34	15.3± (17)	15.0± (17)	20.0 (23)	25.1 (29)	24.4 (28)	20.0 (114)
35-44	19.5± (18)	25.1 (23)	15.3± (14)	24.9 (23)	23.5 (22)	21.7 (100)
45-54	15.4± (16)	10.9± (11)	14.3± (14)	16.8± (16)	26.2 (24)	16.6 (81)
55-64	17.5± (17)	9.2± (9)	14.2± (14)	13.0± (13)	16.1± (16)	14.0 (69)
65+	(1)	(3)	(4)	(2)	(5)	4.0± (15)
Region						
Anchorage	12.5 (40)	11.4 (33)	11.6 (38)	13.2 (40)	20.4 (60)	13.8 (211)
Gulf Coast	11.4± (8)	17.2± (12)	20.7± (16)	19.3± (16)	10.0± (8)	15.8 (60)
Interior	8.1± (10)	6.8± (8)	(4)	6.4± (8)	4.3± (6)	5.9 (36)
Mat-Su	6.7± (7)	9.7± (9)	12.3± (12)	20.6 (20)	12.5± (13)	12.3 (61)
Northern	(2)	(2)	(2)	(1)	(0)	5.8± (7)
Southeast	(4)	10.2± (8)	11.3± (9)	11.8± (8)	14.3± (11)	10.5 (40)
Southwest	(1)	(3)	(3)	(3)	(2)	5.5± (12)

Data Source: Alaska Division of Public Health, Vital Statistics, Mortality

**Drug category queried by ICD-10 Codes for 1) underlying cause of death due to unintentional drug poisoning (X40-44), suicide drug poisoning (X60-64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10-14) and 2) contributory cause of death due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), or other unspecified narcotics (T40.6)*

† 2017 data are preliminary and subject to change

± Rates based on fewer than 20 occurrences are statistically unreliable and should be used with caution; rates based on fewer than 6 occurrences are not reported

Table 9. Other Substances Involved in Opioid Overdose Deaths Documented in AKVDRS* — Alaska, 2010–2017 (N=614)

Substance	Cases Tested †		Tested Positive	
	No.	% ±	No.	% ±
Alcohol	583	95%	187	32%
Amphetamines	586	95%	141	24%
Barbiturates	578	94%	8	1%
Benzodiazepines	585	95%	190	32%
Cocaine	587	96%	65	11%
Marijuana	591	96%	147	25%

Data Source: Alaska Division of Public Health, Alaska Violent Death Reporting System (AKVDRS), Mortality
**Opioid overdose deaths were queried by ICD-10 Codes for 1) underlying cause of death due to unintentional drug poisoning (X40-44), suicide drug poisoning (X60-64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10-14) and 2) contributory cause of death due to opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids, excluding heroin (T40.2), methadone (T40.3), synthetic opioids, excluding methadone (T40.4), and other unspecified narcotics (T40.6)*
† Number of opioid overdose decedents tested for the presence of each substance
± Percentage of cases tested

8.0 References

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