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Bulletin

Recommendations
and
Reports

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Health Impacts of Heroin Use in Alaska

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Executive Summary

There has been a dramatic rise in the number of people who use, abuse, and die from heroin in the United States in recent years. The purpose of this review is to use currently available data sources to describe the health impacts of heroin use in Alaska. This review draws from several independent databases that collect information on heroin-related morbidity, mortality, and treatment.

From 2008 to 2012 in Alaska, a total of 51 hospital admissions and 201 out-patient evaluations occurred for heroin poisoning, the rate of inpatient hospital discharges (i.e., hospitalizations) coded for heroin poisoning nearly doubled from 2.4 per 10,000 population in 2008 to 4.7 per 10,000 population in 2012, and heroin-related inpatient and outpatient hospital costs exceeded \$2 million. Moreover, 72 persons died with heroin use as the primary or a contributing cause of death, and the number of heroin-associated deaths more than tripled during 2008–2013. The number of Medicaid health care services payment requests for heroin poisoning increased almost ten-fold from 2004 to 2013. During the years 2009–2013, heroin-related admissions to publicly-funded substance use treatment centers nearly doubled, and the majority of patients admitted for heroin use treatment were aged 21–29 years; the number of treatment admissions for all patients reporting heroin as their primary substance of choice increased by 58%; and the number of treatment admissions for patients aged 21–29 reporting heroin as their primary substance of choice increased by 74%.

Measures to reduce heroin-related morbidity and mortality include the following: broaden access to naloxone for acute heroin overdose reversal; reduce inappropriate prescribing of opioids by health care providers and enable early identifications of opioid abuse through Alaska’s Prescription Drug Monitoring Program; treat heroin addiction with a combined behavioral and pharmacological approach; evaluate Alaska’s existing heroin treatment resources to better understand the degree and distribution of coverage gaps statewide, and work to address the identified gaps; endorse SAMHSA’s evidence-based “Screening, Brief Intervention, and Referral to Treatment” model to assist health care providers with assessing patients for risky substance use behaviors, engaging in communication, and treating; and assure that students get effective drug prevention education.

Background

The Substance Abuse and Mental Health Services Administration (SAMHSA) estimates that the number of people in the United States (U.S.) who used heroin nearly doubled during 2007–2013 (from 373,000 to 681,000, respectively).^{1,2} Largely driven by an increase in use among teens and young adults, the number of persons reporting heroin dependence or abuse in the U.S. during the same period more than doubled (from 213,000 to 517,000).^{2,3} According to the Centers for Disease Control and Prevention (CDC), during 2002–2013, heroin overdose death rates nearly quadrupled in the United States.⁴

SAMHSA estimates that the annual average number of people in Alaska who used heroin in the past year quadrupled during 2002–2013, from less than 500 during 2002–2005 to approximately 2,000 during 2010–2013.⁵ Across these same two time periods, the estimated annual average number of persons in Alaska with heroin dependence or abuse doubled from less than 500 to approximately 1,000, respectively.⁴

Heroin can contribute directly and indirectly to numerous adverse health outcomes. Indirect consequences of heroin use include facilitation of hepatitis C virus (HCV) and human immunodeficiency virus (HIV) transmission, as well as bacterial infections of the skin, bloodstream, and heart by way of needle sharing among persons who inject heroin. Of the 17,000 new HCV infections reported in the U.S. in 2012, over half were in injection drug users.⁶

The recent resurgence of heroin use impacts public safety.⁷ In Alaska, during 2008–2014, the number of heroin arrests and the amount of heroin seized by law enforcement on an annual basis both increased substantially over time.^{7,8} The rise in demand for heroin

as a drug of choice is likely due in part to the growing availability and affordability of the drug. In fact, many people who become addicted to prescription opioids switch to heroin because it can be cheaper and easier to acquire.⁹

The purpose of this review is to use currently available data sources to describe the health impacts of heroin use in Alaska.

Methods

This review draws from several independent databases that collect information on heroin-related morbidity, mortality, and treatment. The Alaska Hospital Discharge Data System (HDDS), which included hospital discharge data from 10 Alaska health care facilities that consistently reported discharge data during 2008–2012, was queried for heroin poisoning.ⁱ Occurrences were identified using either the ICD-9-CM code 965.01 for poisoning by heroin or ICD-10 code T40.1 for poisoning by heroin.^{ii,iii} Variables analyzed included demographics, primary and secondary diagnoses, discharge status, length of stay, billing payer, and direct medical costs.

The SAMHSA Treatment Episode Data Set (TEDS) was used to identify persons who received treatment for addiction and dependence to heroin during 2009–2013.^{iv} Admissions noting “heroin” as the “primary

ⁱ *Facilities reporting data are critical access and acute care facilities that provide medical /surgical, psychiatric or medical rehabilitation services either as inpatient or outpatient (emergency department) services.*

ⁱⁱ *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).*

ⁱⁱⁱ *International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10).*

^{iv} *Treatment facilities receiving state/public funding from a state substance abuse agency or other public agency are required to report into the SAMHSA Treatment Episode Data Set.*

substance of choice at the time of admission” were used to identify treatment occurrences.

The Alaska Department of Health and Social Services (DHSS) maintains billing records for Medicaid clients statewide. Alaska health care providers who request reimbursement from Medicaid must report service dates, diagnoses, and procedures to DHSS. The Alaska Medicaid billing database was analyzed to identify persons who received Medicaid services for heroin-related problems during 2004–2013. Records that did not specify heroin (ICD-9-CM code 965.01 for poisoning by heroin), but specified an opioid other than heroin, were not included.

Fatality reports from the Alaska Violent Death Reporting System (AKVDRS) and the Alaska Bureau of Vital Statistics (AKBVS) mortality database were reviewed to identify all deaths in Alaska associated with heroin from 2008–2013.^v Decedents were identified by ICD-10 code T40.1 for heroin as a contributing cause of death. Records that did not specify heroin (T40.1), but specified opioid(s) were not included. Additional case information was requested and abstracted from medical examiner and law enforcement records and reports. Variables included in the analysis were demographics, circumstances, environment characteristics, and contributing causes of

^v *The AKVDRS is a comprehensive reporting system that collects and centralizes information on violent and other manners of deaths from a variety of sources. The AKVDRS captures information such as mental health treatment status, physical and mental health problems and diagnoses, employment and financial status, relationship and emotional crisis, legal issues, and toxicological results of alcohol, antidepressants, and other drugs at the time of death. The data also provide a better understanding of the personal and environment characteristics in order to develop and implement prevention programs.*

death. Population estimates from the Alaska Department of Labor and Workforce Development’s Research and Analysis Section were used to calculate crude rates. The 2010 U.S. Census data were used for calculating age-adjusted rates.

Statistical Analyses

Occurrences were summarized by counts, percentages, and rates. The rates were presented as occurrences per 10,000 admissions/discharges and deaths per 100,000 population. Rates were not calculated for occurrences with fewer than five observations. The odds ratios (OR), 95% confidence intervals (CI), coefficients of correlation (R) and determination (R²), and P-values were calculated using SPSS and SAS. P-values <0.05 were considered to be significant.

Results

Hospital Care for Heroin Poisoning

During 2008–2012, 252 discharge records were identified with a primary or secondary diagnosis of poisoning by heroin – 51 were inpatient and 201 were outpatient (e.g., emergency department; Table 1). Demographic characteristics of these patients are summarized in Table 2. Over the 5-year period, the average annual number of discharges with any diagnosis of heroin was 50 (range: 17 in 2010 to 74 in 2012); the average annual rate of heroin poisoning was 2.7 per 10,000 inpatient discharges and 0.9 per 10,000 outpatient discharges. The rate of inpatient hospital discharges (i.e., hospitalizations) coded for heroin poisoning nearly doubled during 2008–2012 (from 2.4 per 10,000 in 2008 to 4.7 per 10,000 in 2012; Figure 1).

Of the 252 inpatients and outpatients who were discharged, 214 (85%) were sent home or deemed capable of self-care, 12 (5%)

were transferred to other institutions or health care facilities, and 4 (<2%) expired.

Of the 51 inpatients who were discharged, 30 (59%) were admitted for emergency care, 6 (12%) for urgent care, and 15 (29%) for elective care.^{vi} The median length of stay was 2 days (range: 1–17 days).

The average cost per hospitalization was approximately \$30,000 (range: \$4,700–\$168,000). The total inpatient cost of heroin poisoning when indicated as the primary diagnosis exceeded \$1.1 million. The total inpatient cost associated with heroin poisoning when indicated as either the primary or secondary diagnosis exceeded \$1.5 million.

Of the 201 outpatient discharges identified, 196 (98%) were for emergency care. The average cost per emergency department visit was \$2,700. The total emergency department cost associated with heroin poisoning when indicated as either the primary or secondary diagnosis exceeded \$530,000.

Substance Use Disorder Treatment Admissions for Heroin Use

During 2009–2013, the number of substance use disorder treatment admissions for all patients reporting heroin as their primary substance of choice increased by 58% (from 476 during 2009–2010 to 751 during 2012–2013), and the number of treatment admissions for patients aged 21–29 reporting heroin as their primary substance of choice increased by 74% (from 281 during 2009–2010 to 490 during 2012–2013; Figure 2).

^{vi} *Emergency care constitutes the need of action without any impediment to reduce the risk of loss of life, urgent care constitutes quick but not immediate action, and elective care constitutes the remaining health services.*

During 2009–2013, Alaska TEDS indicated that females were admitted for heroin treatment 30% more often than males, persons aged 21–29 years represented the largest proportion of admissions reporting heroin as their primary substance of choice, and 85% of patients who reported using heroin did so intravenously (rather than smoking or snorting).^{vii} Among persons aged 21–29 years who were admitted for substance use disorder treatment during 2009–2012, heroin was listed as the primary drug of choice 70% more frequently in Alaska than in the U.S. overall (59% vs. 35%, respectively).

Medicaid Billing for Heroin Poisoning

During 2004–2013, DHSS Medicaid received a total of 158 payment requests for patients with poisoning by heroin; the number of Medicaid health care services payment requests for heroin poisoning increased almost ten-fold (from 9 during 2004–2006 to 84 during 2011–2013; Figure 3). A total of 90 people received care for heroin poisoning; of which, five people received care more than once (range: 2–3 episodes). The demographic characteristics of persons receiving care for heroin poisoning are summarized in Table 3. During 2004–2013, the total amount reimbursed by Medicaid for heroin poisoning was \$248,000. The average reimbursement per claim was \$3,900; the maximum reimbursement for one case was \$112,000.

Heroin-Associated Mortality

During 2008–2013, a total of 72 deaths were attributed to heroin as the underlying or a

^{vii} *Beginning in 2013, the SAMHSA Drug and Alcohol Services Information System adjusted its 10-year age groups by one year for ages ≥21 years; the new 10-year age groups are as follows: 21–30, 31–40, 41–50, 51 and older.*

contributory cause of death. The average annual number of deaths was 12 per year (range: 4–23 deaths); the number of heroin-associated deaths increased by over 300% (from 17 during 2008–2010 to 55 during 2011–2013; Figure 4). The annual age-adjusted heroin-associated death rate during 2012 and 2013 was 2.7 deaths per 100,000 persons. The majority of deaths (68, 94%) were classified as drug overdoses (underlying cause of death). The remaining four deaths (6%) involved heroin as either one component of a multi-drug poisoning or a contributing cause of death.^{viii}

Of the 72 decedents,

- the median age was 38 years (range: 19–60 years), and most were aged 30–49 years (Figure 5);
- 50 (69%) were White, 7 (10%) were American Indian/Alaska Native, and 3 (4%) were persons with two or more races;
- 38 (53%) were never married, 19 (26%) were widowed or divorced, 11 (15%) were married, and 4 (6%) had an unknown marital status;
- 52 (72%) had at least 12 years of education (range: 7–17 years);
- 69 (96%) were Alaska residents;
- 54 (75%) died in the Anchorage/Mat-Su region (Table 4); and
- 53 (74%) were found in a house or apartment.

Precipitating circumstances were identified for 71 (99%) of the 72 decedents, and included the following:

- 36 (51%) had been using heroin plus at least one additional drug at the time of the incident;
- 34 (48%) were suspected of using alcohol;

- 24 (34%) had a physical health problem;
- 6 (8%) had a known legal problem or recent criminal legal problem;
- 3 (4%) were using heroin at a worksite;
- 3 (4%) were in the military;
- 3 (4%) had a known intimate partner problem; and
- 2 (3%) were in custody or under legal confinement/monitoring.

Documented mental health factors for these 71 decedents included the following:

- 9 (13%) had a known mental health problem;
- 8 (11%) had a known history of mental illness treatment; and
- 6 (8%) were currently receiving mental illness treatment or in therapy for anxiety disorder, bipolar disorder, depression/dysthymia, or schizophrenia.

Discussion

Morbidity

As is true nationwide, Alaska is experiencing an alarming increase in heroin-related hospitalizations and deaths. During 2008–2012, Alaska’s inpatient hospital discharge rates coded for heroin poisoning nearly doubled, and the combined inpatient and outpatient hospital costs exceeded \$2 million. During 2010–2013, admissions into substance use disorder treatment facilities for heroin as the primary substance of choice increased by 58% for patients of all ages and by 74% for patients aged 21–29 years.

According to CDC, needle sharing during injection drug use accounts for approximately 60% of new HCV transmissions every year.¹⁰ If CDC’s estimate holds true for Alaska, that would mean that 675 of the HCV cases reported last year in Alaska were due to needle sharing (1125 newly identified cases of HCV infection were reported to the Section

^{viii} Underlying Cause of Death ICD-10 code X42 and X44

of Epidemiology in 2014).¹¹ Needle exchange programs help prevent needle sharing among injection drug users, and have been shown to be cost-effective for preventing transmission of bloodborne pathogens such as HCV and HIV.¹² Alaska currently has three needle exchange programs—one in Anchorage, one in Fairbanks, and one in Juneau. In light of the ongoing outbreak of HIV and HCV in rural Indiana associated with needle sharing among opioid addicts,¹³ coupled with the widespread use of heroin throughout Alaska, many additional Alaska communities would likely benefit from establishing needle exchange programs.

Mortality

During 2008–2013, the number of heroin-associated deaths more than tripled in Alaska, and in 2012, the rate of heroin-associated deaths in Alaska was 42% higher than that for the U.S. overall (2.7 per 100,000 vs. 1.9 per 100,000, respectively).¹⁴ According to a recent SAMHSA report on heroin trends in the U.S., heroin “use” and heroin “dependence or abuse” among persons aged 18 or older have risen steadily since 2007.³ In addition to rising use patterns, the authors cite other reasons for increases in drug-poisoning deaths, including 1) the availability of high purity heroin causing users to accidentally overdose, and 2) some users switching from prescription opioids with a known dosage amount and chemical composition to heroin, which often contains varying purities, dosage amounts, and unknown adulterants used to cut costs and increase potency.³

Addiction Treatment

Treating heroin addiction is challenging and requires concerted effort. The most effective treatments include a combined behavioral and pharmacological approach. Behavioral therapeutic approaches for heroin addiction include contingency management, which

uses voucher-based rewards for negative drug tests, and cognitive-behavioral therapy, which helps modify the patient’s expectations and behaviors related to drug use and to increase skills in coping with life stressors.^{15, 16}

The pharmacological treatment for heroin addiction involves medicines that work through opioid receptors. Three general types of heroin addiction medications include 1) *agonists*, which activate opioid receptors (e.g., methadone); 2) *partial agonists*, which also activate opioid receptors but produce a smaller response (e.g., buprenorphine); and 3) *antagonists*, which block the receptor and interfere with the rewarding effects of heroin (e.g., naltrexone).

The practicality of methadone treatment is limited because it is only available through approved outpatient treatment programs, where it is dispensed to patients on a daily basis. In 2002, FDA approved buprenorphine (e.g., Subutex®), the first medication eligible to be prescribed by certified physicians through the Drug Addiction Treatment Act.^{ix} This eliminated the need to visit specialized treatment clinics, thereby expanding access to treatment. Suboxone® is an example of a combined formulation of buprenorphine and naltrexone. Suboxone® is also advantageous in that the buprenorphine binds to opioid receptors more avidly than any other opioid, and remains bound for 24 hours, providing users with a sustained, mild opioid effect. This property allows users to avoid withdrawal for a full day, yet retain clear cognition all day. The addition of naltrexone

^{ix} To prescribe medication for opioid dependence (e.g., methadone, buprenorphine naltrexone), physicians must complete special training, work at a treatment facility or have an approved waiver to prescribe.

induces withdrawal symptoms in persons who attempt to inject the medicine to get high instead of taking it orally, as prescribed. The drawback of Suboxone[®] is that patients often have trouble complying with the treatment. An alternative treatment to improve therapeutic effectiveness is monthly injections of naltrexone-extended release, which can be prescribed by any individual licensed to prescribe medication.¹⁷

Alaska currently has four methadone clinics and approximately 50 Suboxone[®] and Subutex[®] treatment programs and certified prescribers.¹⁸ During the 2014 state fiscal year, a total of 114 persons received state-funded opioid treatment (i.e., methadone detox or maintenance) services for heroin dependence or abuse; 684 additional persons with heroin dependence or abuse received some other type of state-funded substance use disorder service.¹⁹ Evaluation of Alaska's existing heroin treatment resources is warranted to better understand the degree and distribution of coverage gaps statewide.

Overdose Death Prevention

In this report, we describe 72 deaths that were attributed to heroin either as the underlying or a contributory cause of death during the 6-year study period (2008–2013). A helpful resource for overdose prevention among heroin users is SAMHSA's Opioid Overdose Prevention Toolkit, which provides information on developing evidence-based policies and practices to prevent opioid overdoses.²⁰ One example of a good policy that helps prevent overdose deaths is Alaska's "Good Samaritan Law" (AS 11.71.311), which affords protection from prosecution to a person who summons aid for someone experiencing a drug overdose.

Another effective tool for preventing overdose deaths is naloxone (e.g., Narcan[®]), an opioid antagonist that can reverse an acute overdose. In April 2014, the U.S. Food and Drug Administration (FDA) approved a naloxone hand-held auto-injector called Evzio[®], which rapidly delivers a single dose of naloxone into the muscle or under the skin, buying time until medical assistance can arrive. CDC reports that naloxone has been responsible for reversing over 10,000 opioid overdoses nationwide.²¹ The number of reports of naloxone administration by emergency medical service providers into the Alaska Uniform Response Online Reporting Access (AURORA) system increased considerably in 2014 (Figure 6).²²

Most states have laws that provide protections for prescribing naloxone to persons using opioids (and to their friends, family members, and caregivers), and administering the medication. A bill to provide such immunity from civil penalties for prescribing, providing, and administering an opioid overdose drug was introduced during the first session of the 29th Legislature (SB 23).^x The bill passed in the Senate, but is still under consideration in the House.

Limitations

Alaska Hospital Discharge Data System

Discharge information was only collected from the 10 hospitals that have voluntarily reported data consistently from 2008–2012. These hospitals are not representative of Alaska as a whole, creating a data gap in some regions of Alaska. Therefore, the data presented here likely represent an underestimate of the true burden of heroin

^x*Alaska Senate Bill 23 – "An Act relating to opioid overdose drugs and to immunity for prescribing, providing, or administering opioid overdose drugs."*

poisoning hospitalizations in Alaska during the time period reviewed.

Treatment Admissions Data

TEDS data reflect episodes or incidences rather than individuals; therefore, the data do not provide the number of unique individuals re-admitted into care.

DHSS Medicaid Billing Data Set

Providers often do not bill specifically for heroin poisoning. The broader opioid poisoning category may capture some underreporting, but it also filters out patients who used a combination of heroin and another specific opioid. Therefore, only records with ICD-9-CM code 965.01 were used. In addition, providers are not required to report non-Medicaid data to DHSS. Lastly, females represent a larger proportion of the Medicaid recipients.

Mortality Data

Death certificates may indicate the cause of death as “opiate” or “multiple drugs” poisoning or overdose, and may not specify heroin as a contributing cause of death. As such, some cases of heroin deaths would have been missed and the findings should be considered an under ascertainment of heroin-associated death.

Risk Factor Data

This study did not involve hypothesis testing to examine risk factors for heroin use, abuse/dependence, or mortality. A recent CDC study on the demographic and substance use trends among heroin users in the United States found that during 2002–2013, persons with higher odds of past-year heroin abuse or dependence included males; persons aged 18–25 years; non-Hispanic whites; people residing in an urban area; <\$20,000 household income; having no health insurance or being on Medicaid; and having past-year abuse or dependence on

alcohol, marijuana, cocaine, or opioid pain relievers.²³ A similar study to examine Alaska-specific risk factors for heroin abuse would be helpful to better target intervention efforts.

Recommendations

1. Health care providers should endorse SAMHSA’s evidence-based “Screening, Brief Intervention, and Referral to Treatment” (SBIRT) model to assist with assessing patients for risky substance use behaviors, engaging in communication, and providing treatment referral.²⁴ As antepartum maternal opiate use in the U.S. has increased 5-fold from 2000 to 2009, obstetricians and women’s health providers, in particular, should be aware of treatment resources for pregnant women.²⁵ (See: <http://www.integration.samhsa.gov/clinical-practice/SBIRT>)
2. Health care providers should familiarize themselves with SAMHSA’s Opioid Overdose Prevention Toolkit, which provides information on developing evidence-based policies and practices to prevent opioid overdoses.²⁰
3. Health care providers should facilitate appropriate access to naloxone.²⁶
4. Naloxone kits (either intranasal spray or injectable applications such as Evzio[®]) and training should be made available to law enforcement, corrections, probation officers, and to persons who are frequently in close contact with heroin users.
5. Health care providers should endorse the use of evidence-based clinical guidelines for opioid pain relievers.²⁷ While opioids remain a potent tool for the alleviation of pain, some people who become addicted

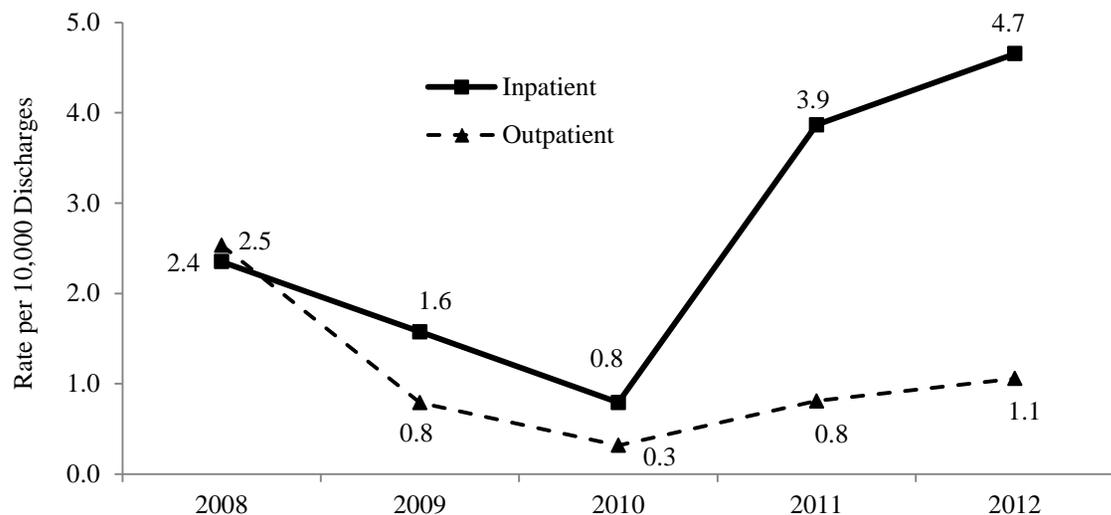
to prescription opioids may begin using heroin in order to obtain a similar sensation for less money per dose.²⁸ A recent SAMHSA study found that the rate of heroin initiation among people with a history of nonmedical use of opioid pain relievers was approximately 19 times greater than those with no history of nonmedical use.²⁹ Moreover, in a study recently released by CDC on the demographic and substance use trends among heroin users in the United States, the authors found that in 2011–2013, 45% of people who used heroin were also abusing or addicted to opioid pain relievers.²³

6. Health care providers should participate in the Alaska Prescription Drug Monitoring Program for monitoring Schedule II–V controlled substances. All dispensers of controlled substances are required to participate in the Alaska Prescription Drug Monitoring Program (AS 17.30.200). This program was created to improve patient safety and deter prescription drug misuse by allowing prescribers to review prescription history information and look for potential interactions, and to encourage cooperation and coordination among state, local, and federal agencies and other states to reduce the abuse and diversion of controlled substances.³⁰ (See: <http://www.alaskapdmp.com>)
7. Educators should incorporate skills to prevent initial drug use and abuse into curricula throughout a student’s career. Effective drug prevention programs have been shown to reduce drug use and to be cost-effective.³¹ These programs work best when they are interactive; tailored to the culture, age, sex, and location of the students; and paired with consistent

messages from other community programs.

8. All health care facilities should report hospital discharge and emergency department visit data to DHSS (7 AAC 27.660). Timely and complete reporting helps public health practitioners and researchers examine important topics of interest in public health.

Figure 1. Rate of Hospital Discharges Coded for Heroin Poisoning, by Year — Alaska HDDS, 2008–2012



Source: Hospital Discharge Data System (HDDS) data from 10 Alaska healthcare facilities submitting discharge data annually from 2008–2012

Table 1. Number and Percentage of Patients* With a Primary or Secondary Diagnosis of Heroin Poisoning (ICD code 965.01) — Alaska HDDS, 2008–2012

Diagnosis	Inpatient (n=51)			Outpatient (n=201)			Total (n=252)		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Primary	31 (78%)	9 (23%)	40	130 (71%)	53 (29%)	183	161 (72%)	62 (28%)	223
Secondary	6 (55%)	9 (45%)	11	11 (61%)	7 (39%)	18	17 (59%)	12 (41%)	29
Total	37 (73%)	14 (27%)	51 (100%)	141 (70%)	60 (30%)	201 (100%)	178 (71%)	74 (29%)	252 (100%)

*Percentage totals may not equal 100% due to rounding

Source: Hospital Discharge Data System (HDDS) data from 10 Alaska healthcare facilities submitting discharge data annually from 2008–2012

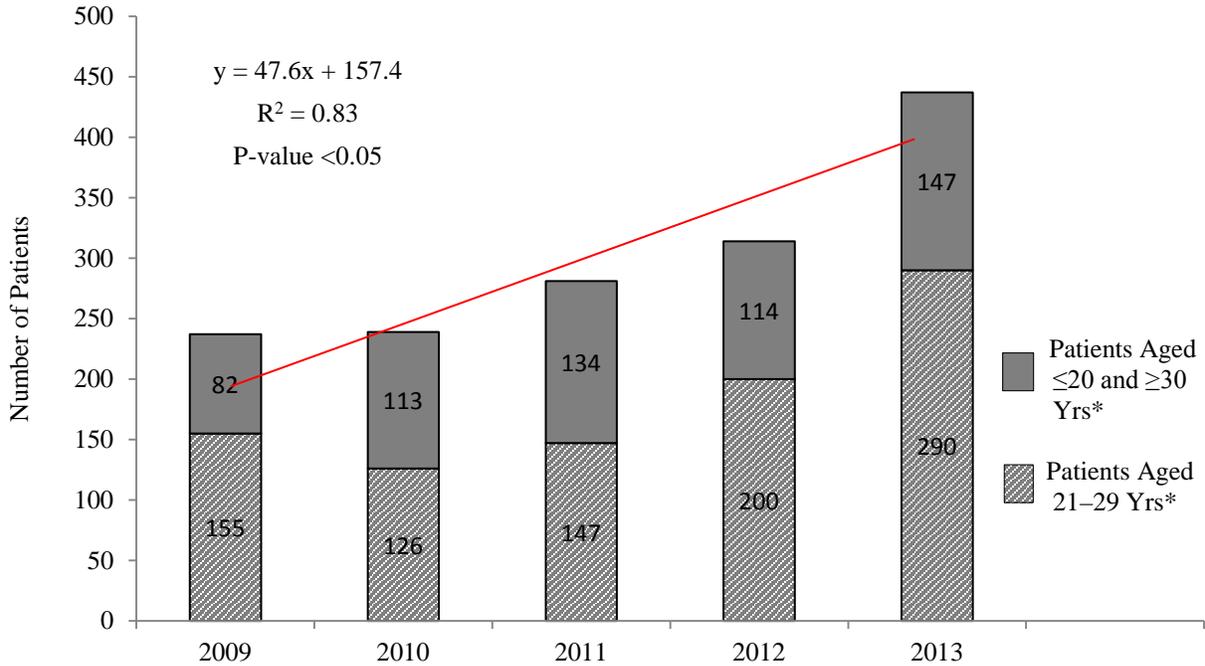
Table 2. Number and Percentage of Patients* With a Diagnosis of Heroin Poisoning (ICD code 965.01) — Alaska HDDS, 2008–2012

Age Group (years)	Inpatient (n=51)			Outpatient (n=201)			Total (n=252)		
	Males	Females (% by row)	Total	Males	Females (% by row)	Total	Males	Females (% by row)	Total
≤19	3 (75%)	1 (25%)	4	5 (38%)	8 (62%)	13	8 (47%)	9 (53%)	17
20–29	24 (77%)	7 (23%)	31	72 (75%)	24 (25%)	96	96 (76%)	31 (24%)	127
30–39	5 (50%)	5 (50%)	10	33 (70%)	14 (30%)	47	38 (67%)	19 (33%)	57
40–49	3 (100%)	0	3	17 (63%)	10 (37%)	27	20 (67%)	10 (33%)	30
50+	2 (67%)	1 (33%)	3	14 (76%)	4 (24%)	18	16 (75%)	5 (25%)	21
Total	37 (73%)	14 (27%)	51 (100%)	141 (70%)	60 (30%)	201 (100%)	178 (71%)	74 (29%)	252 (100%)
Median Age (years)	26	28	26	28	28	28	27	28	27
Range (years)	18–59	18–55	18–59	17–60	16–52	16–60	17–60	16–55	16–60
Race									
White	29 (76%)	9 (24%)	38	130 (70%)	57 (30%)	187	159 (71%)	66 (29%)	225
Black	0	0	0	4 (100%)	0	4	4 (100%)	0	4
American Indian/Alaska Native	8 (67%)	4 (33%)	12	4 (57%)	3 (43%)	7	12 (63%)	7 (37%)	19
Asian	0	0	0	3 (100%)	0	3	3 (100%)	0	3
Other	0	1 (100%)	1	0	0	0	0	1 (100%)	1
All Races	37 (73%)	14 (27%)	51 (100%)	141 (70%)	60 (30%)	201 (100%)	178 (71%)	74 (29%)	252 (100%)

*Percentage totals may not equal 100% due to rounding

Source: Hospital Discharge Data System (HDDS) data from 10 Alaska healthcare facilities submitting discharge data annually from 2008–2012

Figure 2. Number of Treatment Admissions for Patients Reporting Heroin as Primary Substance of Choice, by Year — Alaska TEDS, 2009–2013



* Beginning in 2013, the SAMHSA Drug and Alcohol Services Information System’s 10-year age groups was increased by one year for persons aged ≥ 21 years; the new 10-year age groups are as follows: 21–30, 31–40, 41–50, 51 and older.

Figure 3. Number of Medicaid Health Care Services Payment Requests for Heroin Poisoning — Alaska, 2004–2013 (N=158)

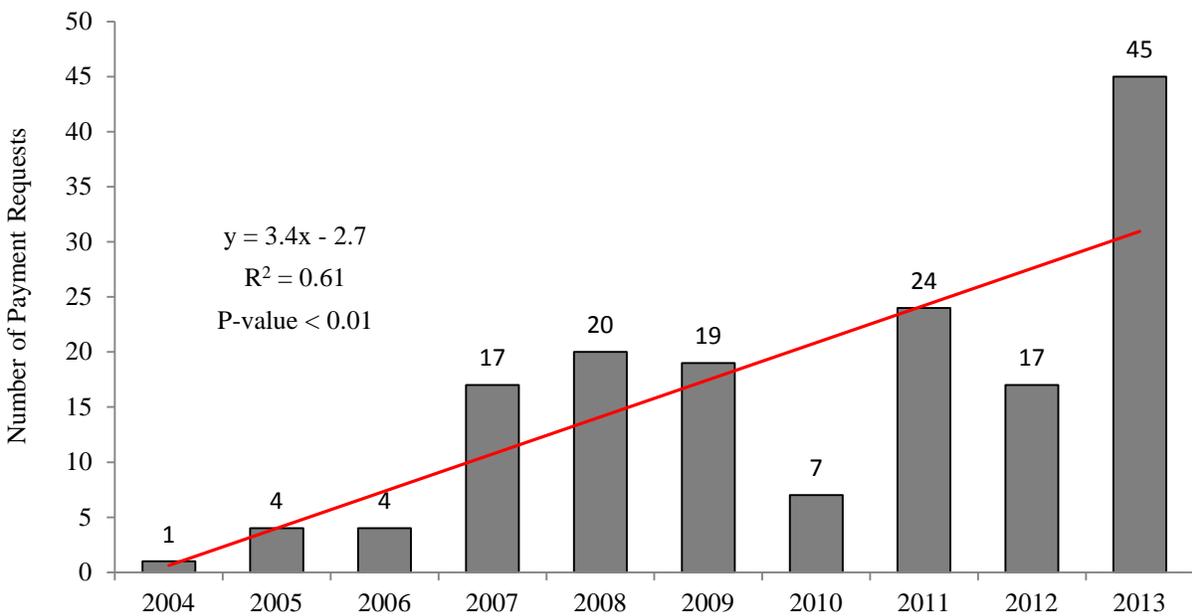


Table 3. Medicaid Patient Demographic Information, ICD-9 Code for Heroin Poisoning — Alaska, 2003–2014 (N=90)

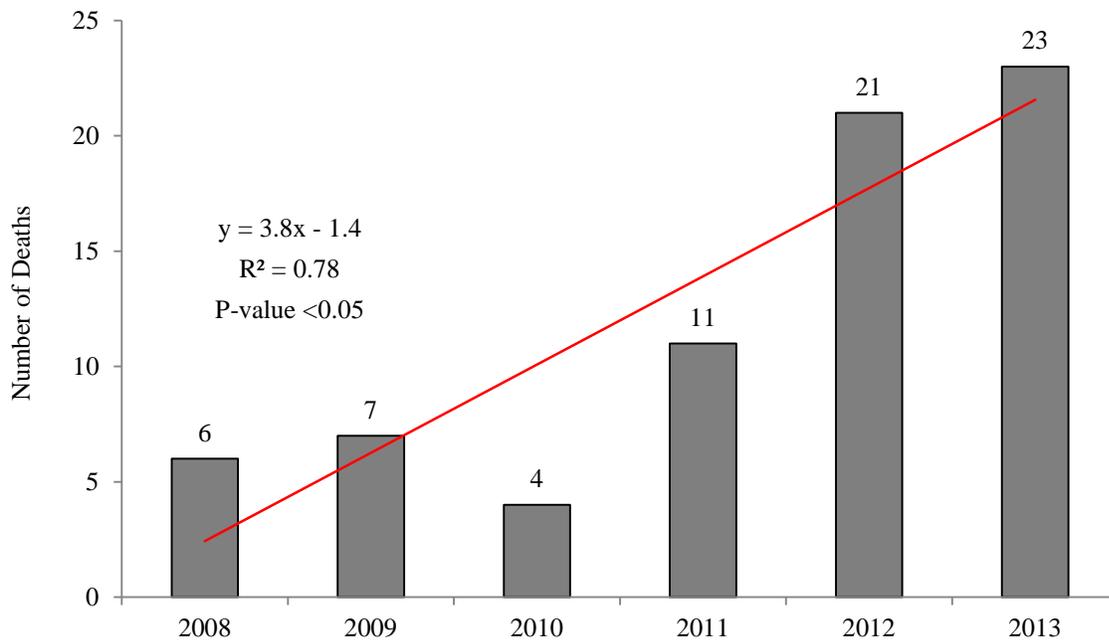
	Category	N	%
Age	0–19 Years	8	9
	20–29 Years	30	33
	30–39 Years	28	31
	40–49 Years	12	13
	50–59 Years	9	10
	60 Years and Older	3	3
	Total	90	100

	Category	N	%
Sex	Female	53	59
	Male	37	41
	Total	90	100

	Category	N	%
Race	Alaska Native / American Indian	23	24
	Asian	1	1
	Black	3	3
	White	65	68
	Other	4	4
	Total Responses*	96	100

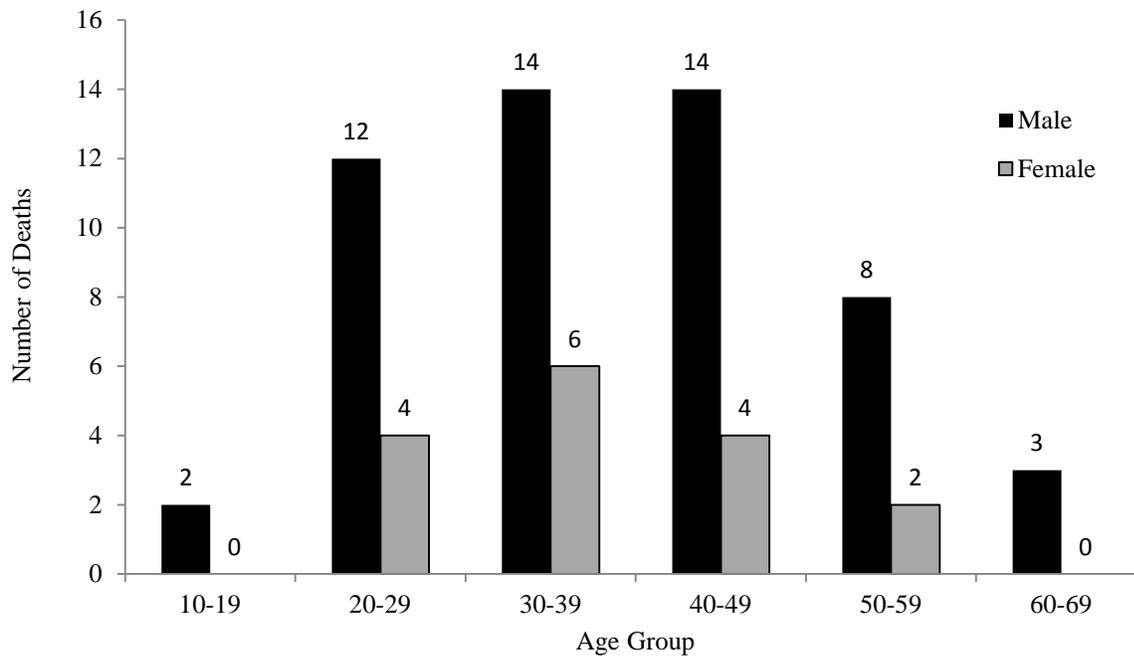
**This total is greater than 90 due to persons reporting 2 or more races.*

Figure 4. Number of Heroin-Associated Deaths*, by Year — Alaska, 2008–2013 (N=72)



**Represents deaths where heroin was either the underlying and contributory cause of death.*

Figure 5. Number of Heroin-Associated Deaths*, by 10-Year Age Group and Sex — Alaska, 2008–2013 (N=72)



*Represents deaths where heroin was either the underlying and contributory cause of death

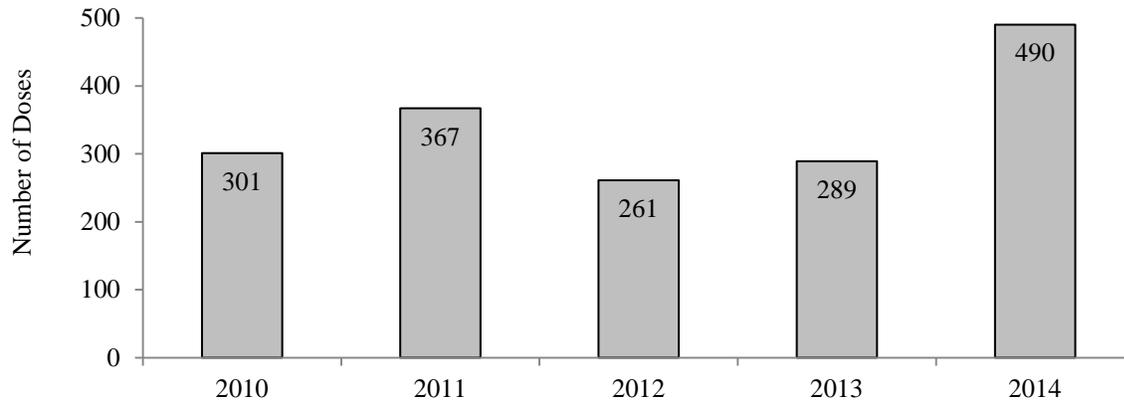
Table 4. Number, Percentage, and Rate of Heroin-Associated Deaths by Region — Alaska, 2008–2013 (N=72)

Region	Number	Percentage	Crude Rate*
Anchorage/ Mat-Su	54	75%	2.3
Gulf Coast	6	8%	1.3
Interior	3	4%	N/A
Northern	1	1%	N/A
Southeast	7	10%	1.6
Southwest	1	1%	N/A
Total	72	99% [†]	0.9

* Rates per 100,000 persons; N/A = rate not calculated for <5 observations

[†] Percentage total does not equal 100% due to rounding

Figure 6. Number of Doses of Naloxone (e.g., Narcan®) Administered by Emergency Medical Service Providers Reporting into AURORA,* by Year — Alaska, 2010–2014



*AURORA=Alaska Uniform Response Online Reporting Access²²

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