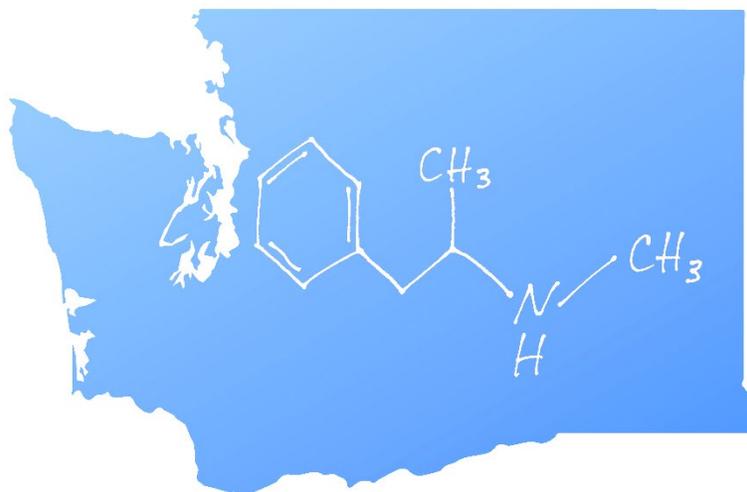


Methamphetamine in Washington

**Report to the Division of Behavioral Health and Recovery,
Washington State Department of Social and Health Services**

June 2018



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1. Key Findings

- Methamphetamine-involved deaths increased in Washington State from 2008 to 2016; in that time span, deaths quadrupled from 1.3 per 100,000 residents to 5.1 per 100,000.
- Death rates vary across Washington counties, and by race/ethnicity, with Whites making up the majority of deaths.
- Native Americans are over-represented among methamphetamine-related deaths and treatment admissions.
- People who use methamphetamine often have social, cultural, and functional reasons for their use, and interventions to reduce use should address these factors.
- There is no clearly effective medication to treat methamphetamine use disorders.
- Evidence-based treatments for methamphetamine use disorder include contingency management, the Matrix Model, other forms of cognitive behavioral therapy, motivational interviewing, mindfulness-based approaches, and exercise.
- Harm reduction strategies present important alternatives to those uninterested in abstinence.

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URL: <http://adai.uw.edu/pubs/pdf/2018MethamphetamineInWashington.pdf>

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2. Introduction to the Report

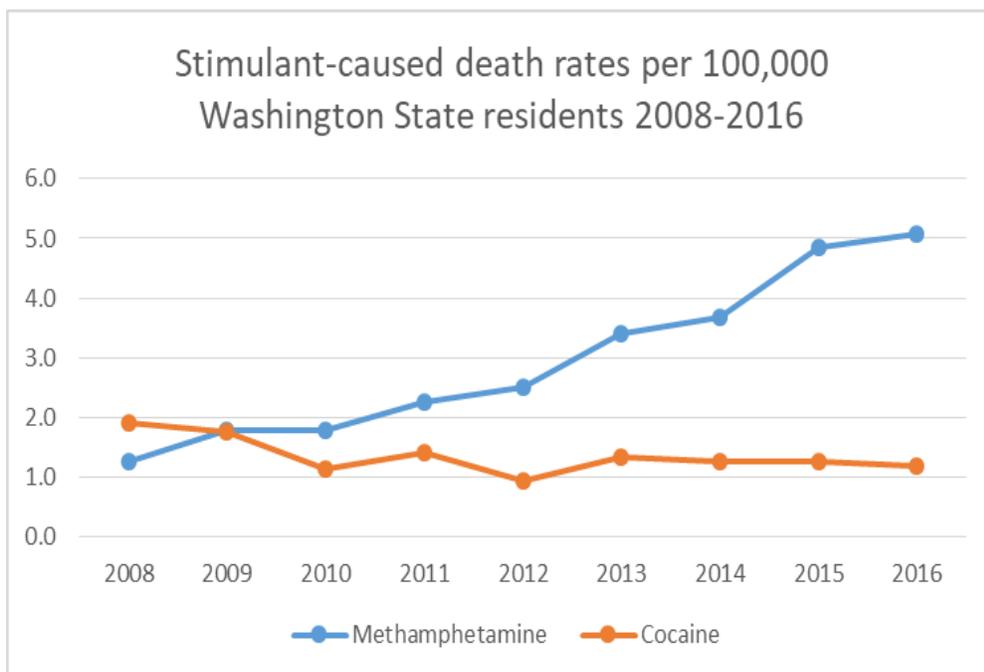
Methamphetamine use is a significant and increasing problem in Washington State. This report presents the scope of methamphetamine use; reviews harms associated with use; describes characteristics of users, their treatment utilization and needs; and reviews current approaches for treating methamphetamine use disorder. Finally, we note key issues to consider when developing strategies aimed at reducing the use of and harms associated with methamphetamine use in Washington.

The authors would like to acknowledge the contributions of the Treatment Research Subcommittee, which met on March 15, 2018 to discuss issues around methamphetamine use. Their insights helped to inform the development of this report and are presented in the Appendices.

3. Scope of Methamphetamine Use in Washington

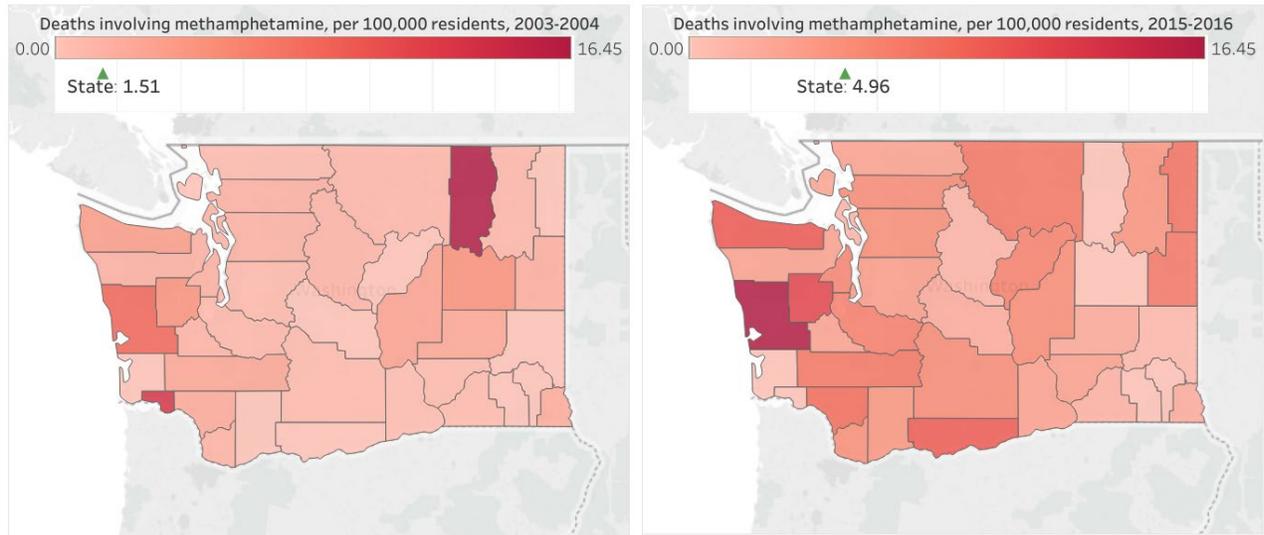
Methamphetamine Related Deaths

In Washington, deaths associated with methamphetamine increased over the last decade; from 2008 to 2016, the number of deaths per year attributed to methamphetamine poisoning increased from 83 to 364 (1.3 to 5.1 per 100,000). During the same time frame, rates of deaths attributed to cocaine poisoning remained relatively stable, and the gap between deaths due to cocaine vs. methamphetamine poisoning increased since 2009.



Sources: Washington State Department of Health (deaths), state Office of Financial Management (population)

The maps below show the rate of methamphetamine involved overdose deaths for each county in Washington State (see interactive maps at <http://adai.washington.edu/WAdata>). The data indicate both highly variable rates between counties as well as different rates of change of methamphetamine overdose deaths over time. For example, Spokane County has twice the rate of methamphetamine-involved overdose deaths as King County. In Spokane County methamphetamine deaths greatly exceed heroin deaths, while the inverse is true in King County.



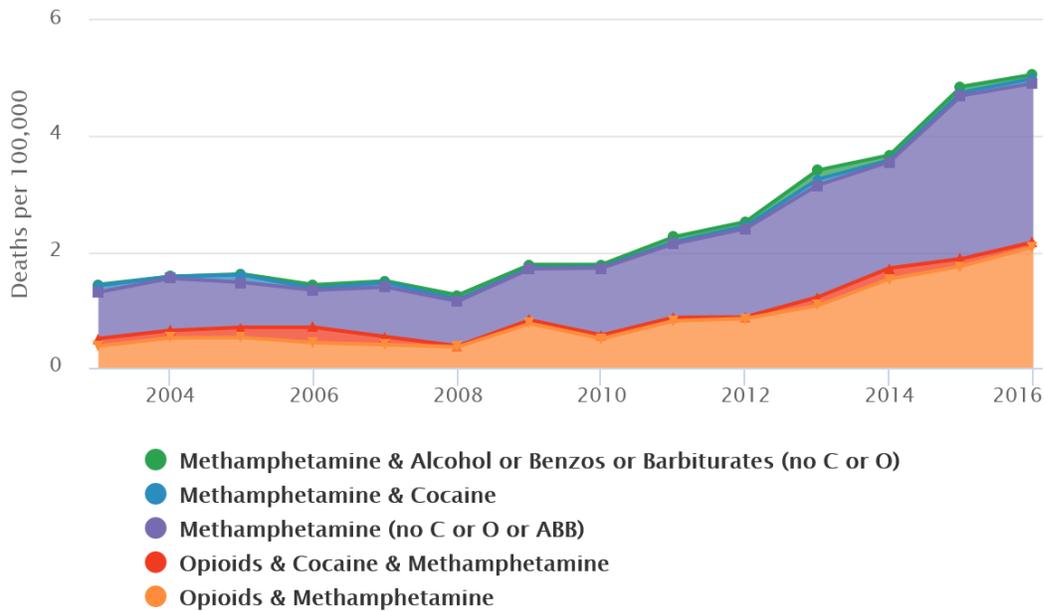
Race and Ethnicity of Individuals Who Died from Methamphetamine

The large majority of methamphetamine deaths were among white people, although the number of non-white individuals dying from methamphetamine increased between 2003 and 2016. The average age ranged from 39.5-46 years old, and the percent of deaths among women made up 25.8%-34.9% of deaths. Native Americans were over-represented among methamphetamine deaths; they make up 1.9% of the population of Washington State but were between 3.6%-7.2% of deaths from 2003-2016. More detailed demographics can be found at <http://adai.uw.edu/wadata/methamphetamine.htm>.

Other Drugs Co-ingested with Methamphetamine in Overdose Deaths

The presence of co-ingestants in methamphetamine-involved overdose deaths is detailed below. The graph indicates that even as the rate of methamphetamine involved overdose deaths increased dramatically from 2003 to 2016, the pattern of co-ingestants did not change. Specifically, a slight majority of deaths involving methamphetamine do not include other major drugs such as alcohol, cocaine, heroin, benzodiazepines or barbiturates. A consistent substantial minority of deaths involve methamphetamine and an opioid.

Death rates per 100,000 state residents, methamphetamine deaths detail

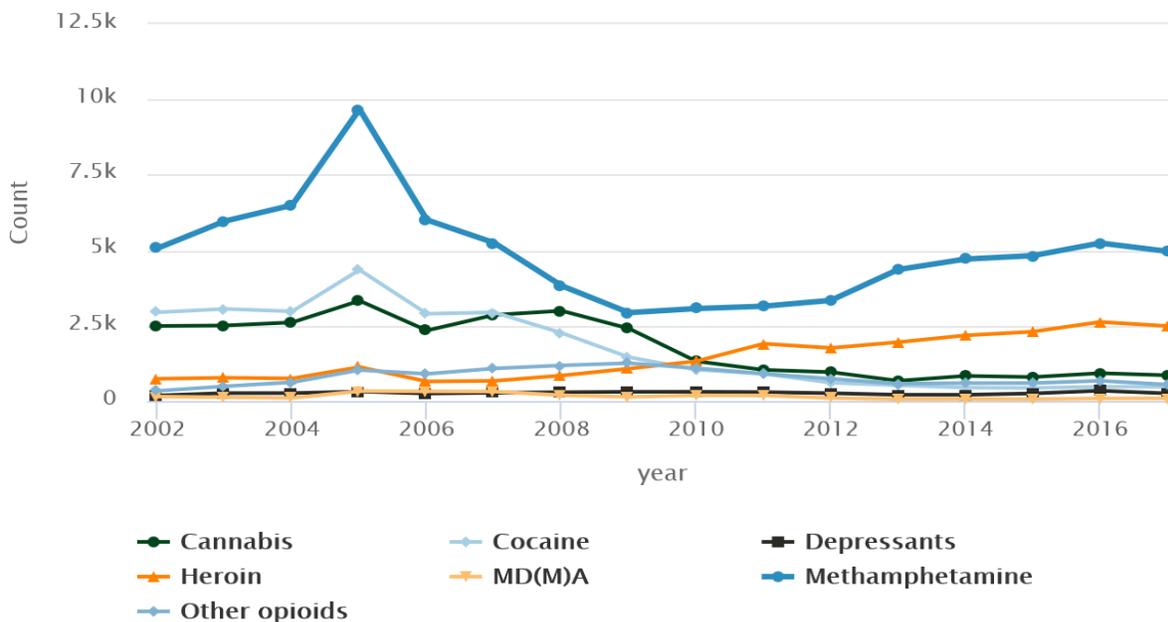


Analysis by UW ADAI. For data sources, see text or adaai.uw.edu/WAdata

Crime Lab Cases

Methamphetamine in police evidence testing peaked in 2005 with 9,677 cases, declined for several years, and in 2017 totaled 4,964. Throughout the entire period of observation, methamphetamine was consistently the most common drug detected in police evidence.

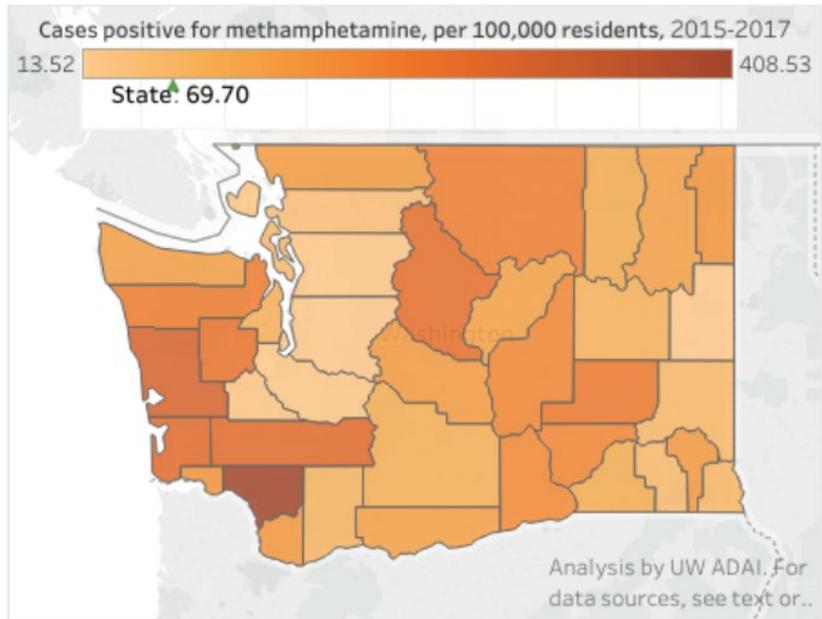
Counts of crime lab cases by drug result, statewide



Analysis by UW ADAI. For data sources, see text or adaai.uw.edu/WAdata

In Washington, crime lab cases positive for methamphetamine varied across counties, with rural parts of the state seeing more positive cases. Cowlitz County had the highest rate of positive crime lab cases with 408.5 per 100,000 residents, compared with the statewide average of 69.7, rates are impacted.

Crime lab cases positive for methamphetamine by county, 2015-2017



Law Enforcement Perception of Drug “Threats” – Data from the DEA

As shown in Table 1, results of a 2017 survey of law enforcement agencies in the DEA Seattle Field Division¹, indicated that methamphetamine was perceived as highly available by 79% of respondents. It was identified as the greatest drug threat by 40%, the drug that most contributes to property crime by 54%, and the drug that takes up most law enforcement resources by 49%.

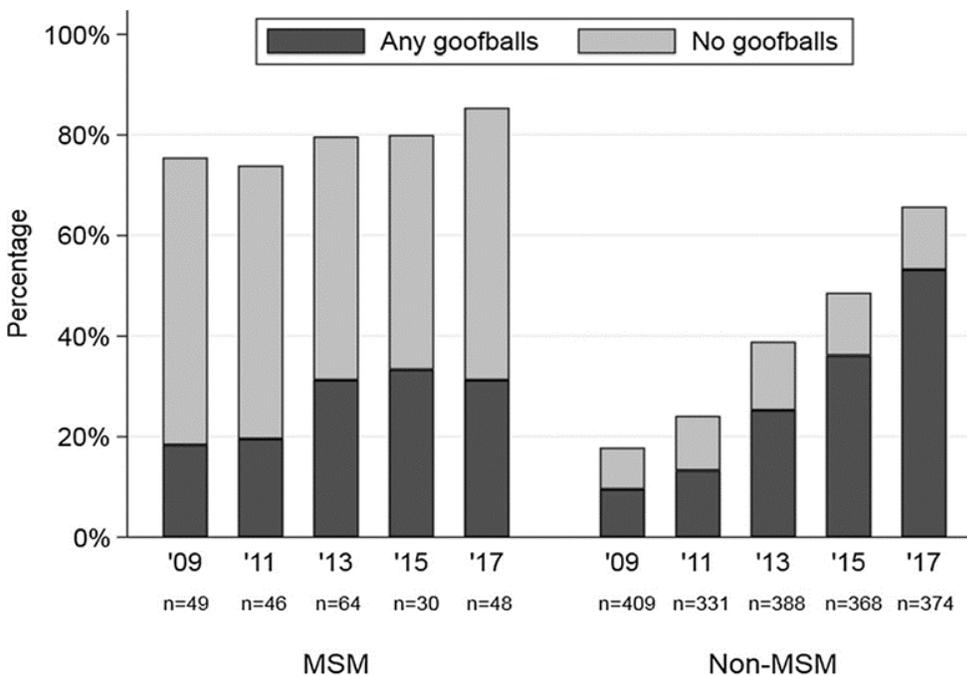
	Heroin	MA	CPDs	Fentanyl	MJ	Cocaine	NPS
High availability	68%	79%	47%	5%	90%	9%	6%
Greatest drug threat	46%	40%	4%	3%	6%	1%	0%
Most contributes to property crime	35%	54%	4%	5%	0%	1%	0%
Most contributes to violent crime	71%	14%	2%	5%	1%	1%	1%
Takes up most law enforcement resources	37%	49%	7%	5%	1%	1%	0%

*Seattle Field Division covers the states of Washington, Oregon, and Idaho. MA, methamphetamine; CPDs, controlled prescription drugs; MJ, marijuana; NPS, new psychoactive substances.

Methamphetamine Use and Transmission of HIV in MSM and non-MSM

Glick et al.² examined methamphetamine injection rates and behaviors among men who have sex with men (MSM) and non-MSM using data from two serial cross-sectional surveys of people who inject drugs (PWID), including five biannual surveys of Public Health–Seattle and King County Needle and Syringe Exchange Program (NSEP) clients and three National HIV Behavioral Surveillance IDU (NHBS-IDU) surveys.

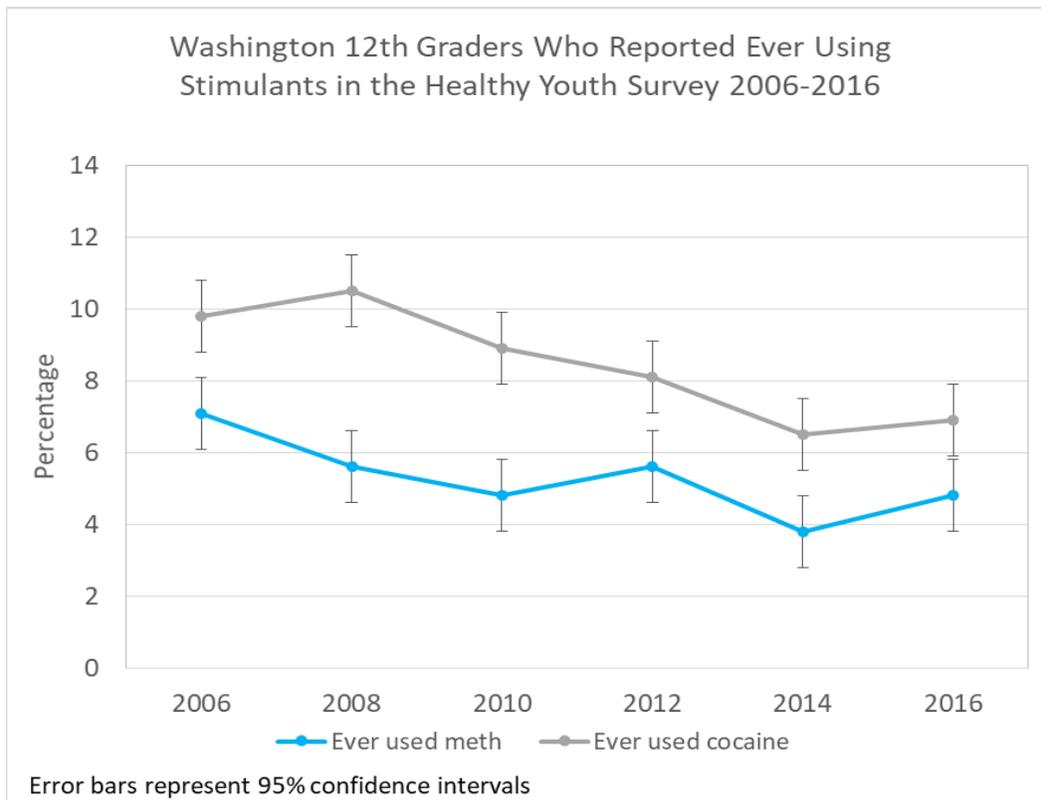
Approximately 16% of all men reported sex with a man in the past year. Homelessness and unstable housing were very common in both samples (49-59%). More than two thirds (68-74%) of participants reported injecting drugs at least once a day. Among those who reported any opioid use, 16-19% reported an overdose in the past year. Methamphetamine injection was consistently higher among MSM than among non-MSM with 85-88% of MSM reporting methamphetamine injection in the most recent surveys. Neither the NSEP nor the NHBS-IDU showed evidence of a significant increase in methamphetamine injection among MSM PWID since 2009. However, the proportion of non-MSM PWID who reported recent (past 3 months) methamphetamine injection increased substantially between 2009 and 2017 from 18-23% to 62-66%. Data from the NSEP suggested that most of the increase was attributable to an increase in injecting a combination of methamphetamine and heroin, known as a “goofball.” While sharing syringes was less common (27-39%), sharing any injection equipment was relatively common (53-69%).



Source: NSEP data reported in Glick et al., 2018.

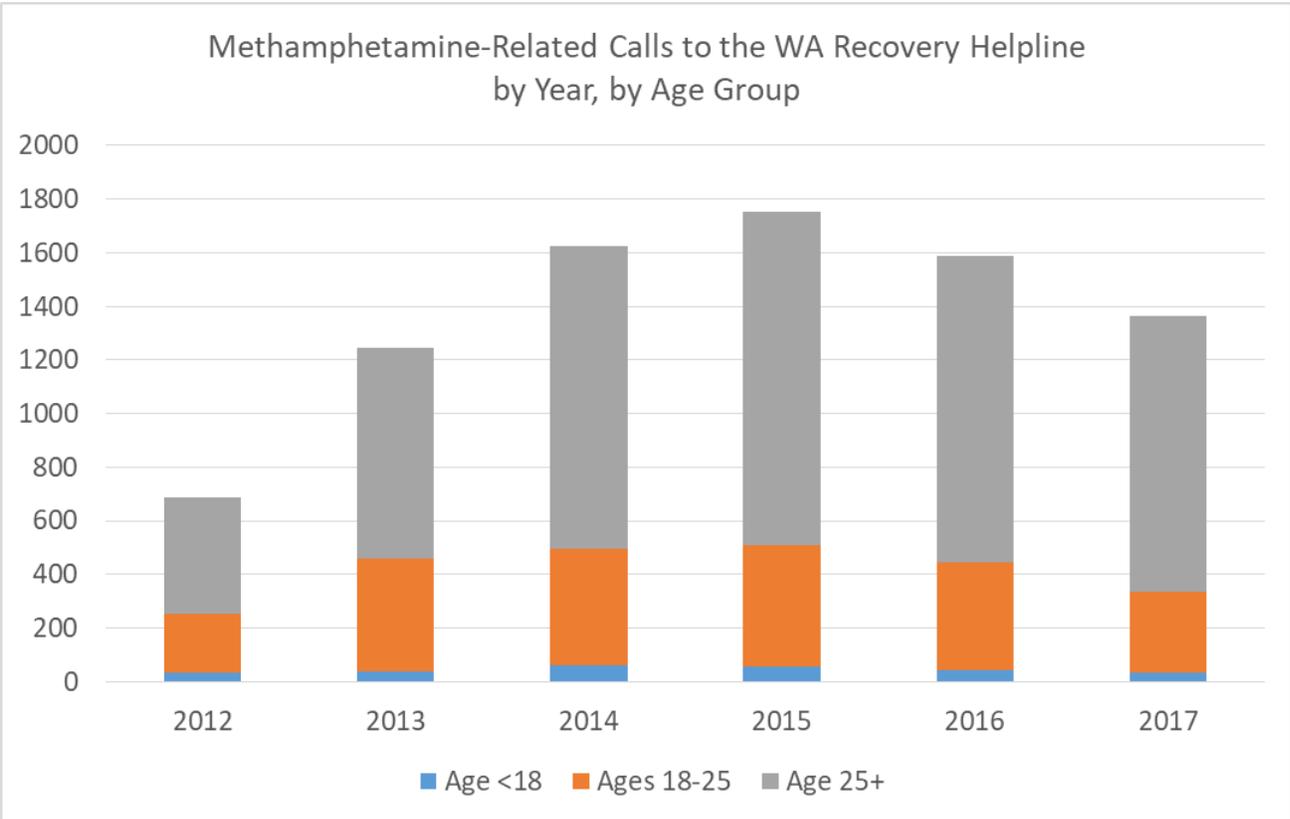
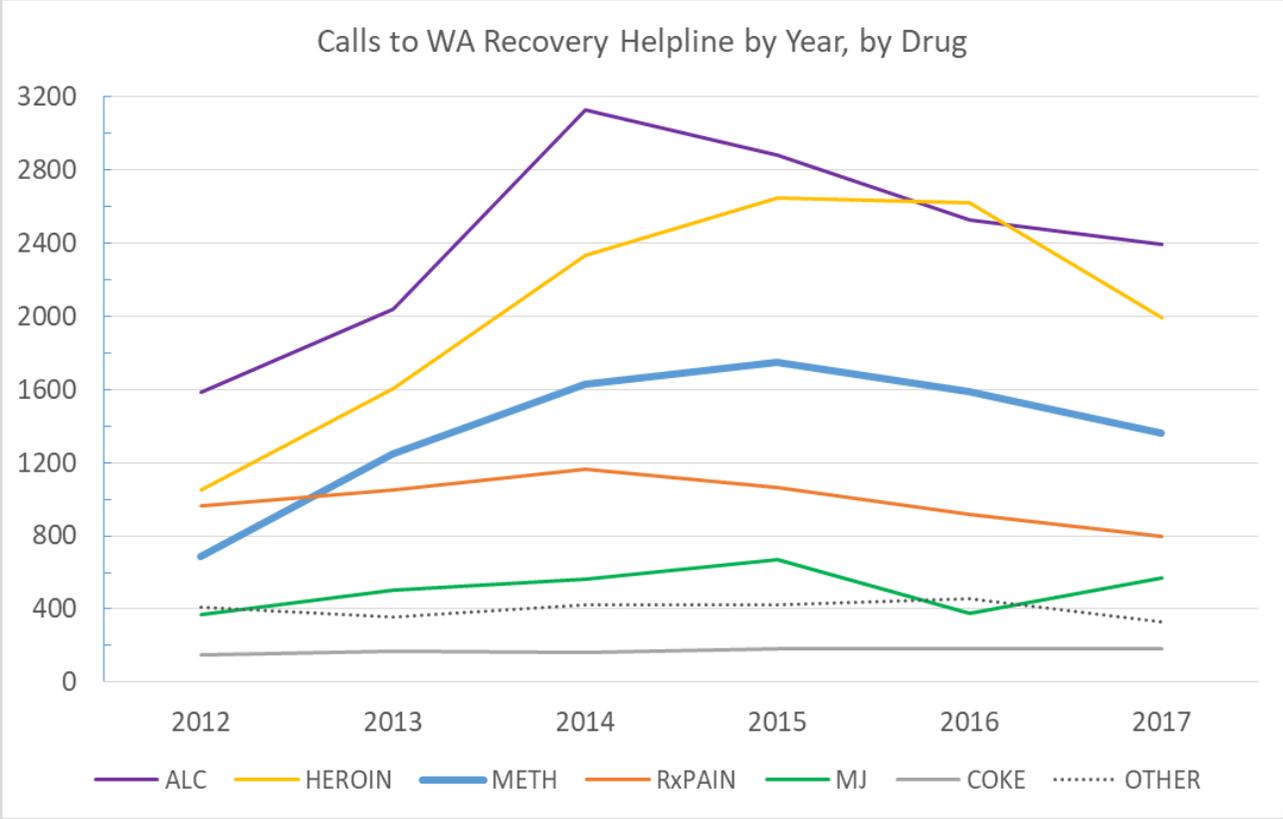
Healthy Youth Survey

The Healthy Youth Survey is a statewide survey of Washington students in grades 6, 8, 10, and 12, conducted every two years since 2002. In the fall of 2016, over 230,000 students in over 1,000 schools in 236 school districts in all 39 counties took part.⁴ Results of the survey from 2006-2016 suggest that lifetime rates of stimulant use among 12th graders have declined. Of those who reported any stimulant use in the 2006-2016 surveys, more 12th graders had “ever used” cocaine than had “ever used” methamphetamine. Approximately 4.8% of 12th graders reported ever using methamphetamine in 2016, down from 7.1 a decade earlier.



Washington State Recovery Helpline Calls

Calls to the Washington State Recovery Helpline provide an indication of the relative level of care-seeking for specific substances, however trends over time are difficult to interpret due to changes in overall call volume year to year. Data are presented by age group for the primary drug mentioned during calls for each year. In 2017, methamphetamine was the third most common substance identified by those under age 18, less common than alcohol and marijuana, similar to prior years. Among young adults 18-25, a different pattern is evident, with methamphetamine consistently the second most common drug mentioned following heroin and/or pharmaceutical opioids. For those 25 and older, methamphetamine is consistently the third most common substance following alcohol and heroin/pharmaceutical opioids. These data indicate methamphetamine is a persistent problem over time and across age groups.



4. Harms Associated with Methamphetamine Use

Potential harms from the use of methamphetamine come from acute and long-term effects of the drug, consequences of route of administration, drug-involved sexual activity, drug use during pregnancy, and drug production.³⁵

Harm from Acute and Long-term Effects of Methamphetamine

Harms may arise from negative acute effects of methamphetamine intoxication. These include increased heart rate, elevated body temperature, increased respiratory rate, shaking, teeth grinding, dry mouth, appetite suppression, abdominal cramps, anxiety, aggressiveness, insomnia, and hallucinations, including formication (a crawling sensation under the skin).^{36, 37}

Drug effects may be harmful during intoxication, or harms may accrue over time. Users may develop skin lesions, sores, and scabs. Methamphetamine use alters inflammatory responses within the immune system, degrading physical and chemical protective barriers which results in delayed healing.³⁶ Long-term use may increase the likelihood of arrhythmia, tachycardia, abnormally elevated blood pressure, and ischemic stroke.³⁶

Teeth grinding and dry mouth are implicated in the development of mouth sores and "meth mouth," or methamphetamine-related tooth decay that often results in tooth loss. Lifestyle factors associated with methamphetamine use have also been associated with tooth decay, including inadequate oral hygiene and preference for sugary foods and beverages.³⁶

Psychiatric symptoms commonly associated with methamphetamine dependence include anxiety, depression, insomnia, and psychosis, and acute intoxication observed in emergency departments is associated with agitation, aggression, and suicidality.³⁷

Methamphetamine users who do not want to stop using the drug completely may reduce the harms they experience from the drug by addressing hydration, nutrition and hygiene; moderating patterns of use; and attending to physical and mental health.³⁵

Harm from Route of Administration

There is a widely accepted hierarchy of risk with regard to routes of administration for illicit drugs that holds true for methamphetamine. Generally speaking injecting is riskier and potentially more harmful than smoking, snorting, and ingesting, which are less risky and harmful, roughly in that order. Injecting and smoking methamphetamine confer higher risk of acute toxicity due to rapid drug uptake and development of addiction because the intensity of the effects provide a powerful motivator for re-administration.³⁷ Thus, one approach to harm reduction is to encourage meth users to switch from a riskier or more harmful route of administration to a less risky/harmful approach.³⁵

When injected intravenously, methamphetamine reaches cerebral circulation in 10-15 seconds.³⁷ In addition to addiction and acute toxicity, risks and harms from injecting methamphetamine are largely due to sharing and/or using non-sterile injection equipment and include overdose, blood-borne viruses (HIV, hepatitis), endocarditis, abscesses, sepsis, and collapsed veins. Syringe exchange services are available to injection drug users regardless of their drug of choice and, as demonstrated in the Washington State Syringe Exchange survey described above, are attended by methamphetamine users. Syringe exchange services typically provide not only sterile syringes but also other safe injection equipment and often provide wound care and testing for blood-borne viruses in addition to health education.³⁸

When smoked, methamphetamine reaches the brain in 6-8 seconds, making this route of administration comparable to injection in terms of achieved blood levels and subjective effects.³⁷ In addition to addiction and acute toxicity, risks and harms from smoking methamphetamine are largely due to sharing pipes and/or using unsafe smoking materials or methods and include blood-borne viruses contracted through cracked lips, burns, and inhalation of toxic fumes. Some syringe exchange services have sought to address these risks and harms by distributing glass pipes.

Snorting methamphetamine produces euphoria in 3-5 minutes.³⁷ Risks and harms from snorting methamphetamine come primarily from sharing straws or razor blades. Again these include blood-borne viruses contracted through irritated nasal passages.³⁵ Harm reduction organizations address these issues by distributing straws and other sterile snorting supplies in addition to health education materials.



"Snorting Party Kit" distributed by the People's Harm Reduction Alliance and Stay Safe Seattle.

Source: <http://www.peoplesharmreductionalliance.org>

Absorption of ingested methamphetamine occurs through the intestines, with peak plasma levels occurring 180 minutes after ingestion. Clinical reports describe methamphetamine dependence occurring with levels of use ranging from 50 to 1000 mg daily.³⁷ In addition to addiction or dependence, risks and harms from ingesting methamphetamine include gastric ulcers from long-term use, nausea, and vomiting.³⁵

Other changes in methods of routes of administration may help methamphetamine users be safer, such as changing from smoking with a pipe to smoking with foil and a tube to decrease the intensity of the high.³⁵ Many harm reduction advocates, such as the People's Harm Reduction Alliance, emphasize that it is important that active and former drug users with lived drug use experience be involved in—and ideally lead—harm reduction efforts.³⁹

Harm from Methamphetamine-involved Sexual Activity

Methamphetamine use is associated with increased risky sexual behavior, including unprotected sex and sex with multiple partners, which increases the risk of sexually transmitted infections.⁴⁰ Disinhibiting effects of methamphetamine facilitate sex, including high-risk sex, and resultant impulsivity often means methamphetamine users are less likely to use condoms.³⁵ Methamphetamine smokers associate the drug with better, longer and more adventurous sex, and some reported sex could be rougher and potentially more damaging.⁴¹ Among men who have sex with men (MSM), methamphetamine users and injection drug users are at higher risk of HIV infection.⁴¹ MSM have reported that sharing pipes is integral to methamphetamine use in sexual transactions in which methamphetamine is shared in exchange for sex.⁴² Strategies to reduce harm from sexual activity include discussing sexual risk and risk perception, providing condoms and lubricant and promoting their use, providing information about HIV and other STIs and low threshold STI/HIV testing, encouraging condom use, discussing sexual violence, addressing barriers to safer sex.³⁵

Harm from Methamphetamine Use during Pregnancy

Although prenatal exposure to methamphetamine does not appear to cause birth defects, it has been associated with low birth weight, premature birth, increased emotional reactivity and anxiety in preschool-age children, and subtle deficits in inhibitory control during early school years.³⁵ Potential harms to mothers from methamphetamine use during pregnancy include postpartum hemorrhage and retained placenta.³⁵ Because harms may be due to the drug itself or to correlates of drug use, such as poor nutrition, poor sleep, or inattention to prenatal care,³⁵ strategies to reduce harm would include reducing drug use, improving maternal health in general, and improving access to prenatal care.

Harm from Methamphetamine Production

Production of methamphetamine in illicit settings (e.g., in a home "meth lab"), can be extremely dangerous. Chemical processes require and produce flammable, carcinogenic, poisonous and caustic substances that can cause explosions, particularly with novice producers or those impaired by drug use.³⁵ Risks of harm exist not only for those making the drug, but also for their neighbors and other members of the community, as chemicals can spread into surrounding areas, contaminating soil and water and necessitating dangerous, expensive, and time-consuming cleanup.⁴³ To reduce the harms from illicit methamphetamine production, in 2010 the Washington Legislature passed legislation to restrict the sale and purchase of

methamphetamine precursors, i.e., nonprescription products containing ephedrine, pseudoephedrine, and phenylpropanolamine or their salts or isomers, or salts of isomers.⁴³ Precursor legislation appears to have been partially successful in reducing harm from production. According to the 2017 National Drug Threat Assessment, domestic production has been occurring at much lower levels and seizures of domestic methamphetamine laboratories have declined since 2010; however, there has been little effect on drug availability as production has largely shifted to Mexico.

5. Characteristics of Methamphetamine Users, their Treatment Utilization, and Needs

Motivations for and Harms Due to Methamphetamine Use

Research investigating motivations for and harms resulting from methamphetamine use provide important insights into why people use, and types of care that may support them in stopping their use. Two relevant papers are summarized. (see also Section 4 re: meth-related harms.)

A 2014 paper from Texas surveyed methamphetamine users in residential treatment.⁵ In considering the comparability of the findings, Texas gets its methamphetamine and other drugs such as heroin via Mexico, the same source as Washington State, though Texas has different demographics with a larger Latino and smaller Native American population. Major findings are that a majority of those surveyed reported both smoking and injecting methamphetamine and that most had gone on a “binge”, defined as being high on methamphetamine for at least 48 hours. Mental health and dental problems were reported by a majority of respondents. The most common benefits of methamphetamine were “the high”, having fun, enhanced sexual experience, increased energy, and weight loss, with many other benefits also cited. Women were significantly more likely to report they used methamphetamine for the following reasons: “do more housework/care of kids”, “increased confidence”, “weight loss”, and “to not be depressed”. Men were significantly more likely to report using for “enhanced sexual experience” and “the high”. The most common risks of methamphetamine use reported were addiction/dependence, paranoia, depression, anxiety/panic, legal/police problems, and damage to brain function. Women were more likely to report problems with child welfare and men were somewhat more likely to report lack of motivation. Other major issues included 56% having been arrested in the prior year and 63% having been homeless at some point.

Interviews conducted with men who have sex with men and inject methamphetamine in the Seattle area in the mid-1990s found some similar motivations and consequences of use including increased energy and enhancing sex.⁶ as well as mental health problems associated with use and withdrawal: “Methamphetamine withdrawal is a lot more psychological... more devastating than heroin. That’s what usually kept me out there [using methamphetamine]...”. This population is at very high risk for HIV infection, even relative to other MSM. Unique findings for this population include that methamphetamine use was closely intertwined with sexual behaviors, some reported only having sex while on methamphetamine, and also closely identified with gay culture and identity. These findings suggest that services to support reducing

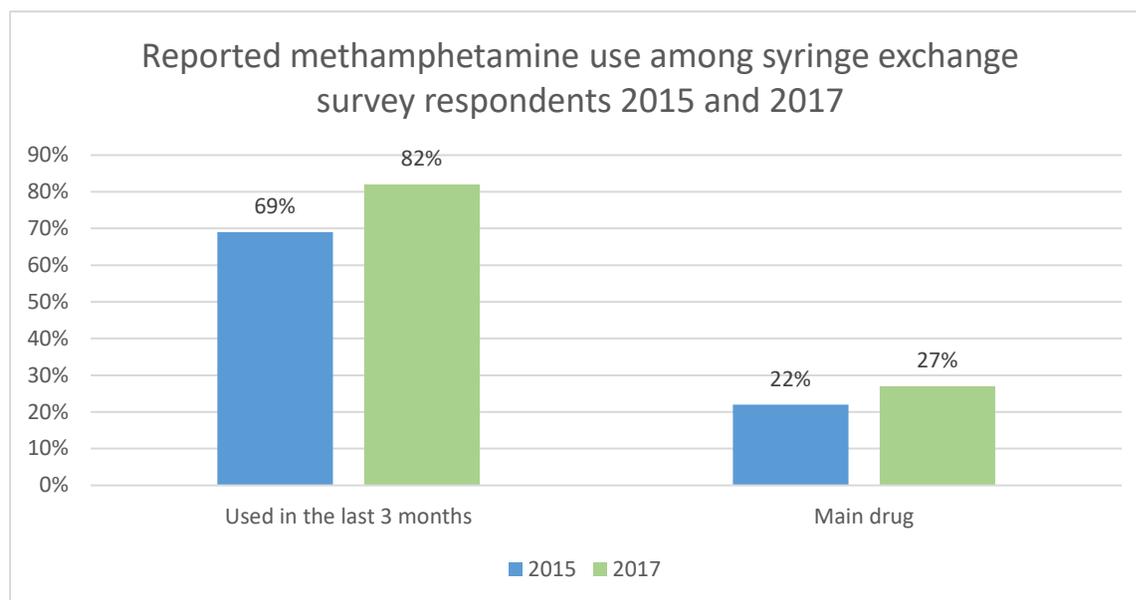
or stopping methamphetamine use need to address these cultural and identity issues associated with the drug, not just the biological effects of methamphetamine. Though these data are two decades old, similar associations between sexual behaviors, identity, and methamphetamine use continue in the Seattle area.

Data from the 2017 Syringe Exchange Survey

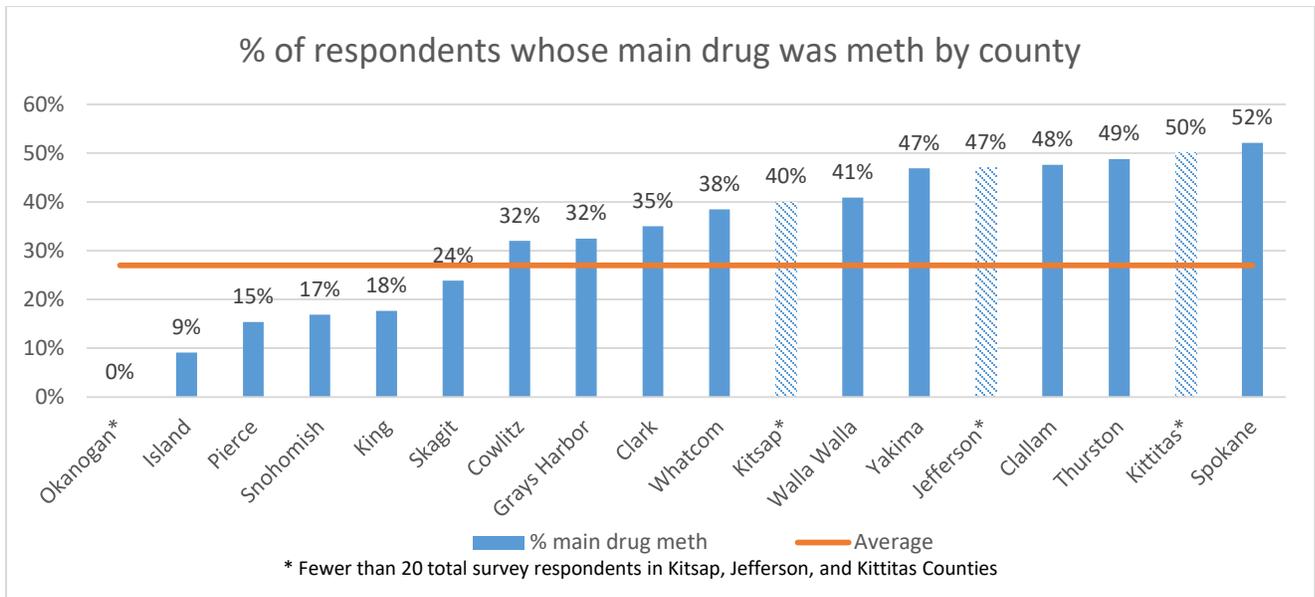
The Washington State Syringe Exchange survey was conducted by the University of Washington Alcohol and Drug Abuse Institute (ADAI) in 2015 and 2017.³ Syringe exchange clients were surveyed about drug use, health, and interest in reducing or stopping their drug use. Data presented here are for people whose main drug was methamphetamine, referred to hereafter as primary methamphetamine users.

Syringe exchange programs in Washington are operated by non-profit organizations or public health departments. Exchange programs vary in how many hours a week they operate, from a few hours a week to up to 40 hours per week, as well as whether or not they have a fixed or mobile site for exchange. They provide a range of services including exchanging used syringes for sterile one, HIV/HCV testing, providing other safe injection supplies, and referring people to drug treatment or other services.

Among the 1,079 respondents to the 2017 survey, 82% (n=885) reported they had used methamphetamine in the last three months, and 27% (n=292) reported that it was their main drug. This was an increase from the 2015 survey where 69% of respondents reported past three month use of methamphetamine, and 22% reported it was their main drug.



The percent of respondents who used methamphetamine in the last three months ranged from 75%-95% across Washington counties. There was a much larger variation between the percent of respondents who were primary methamphetamine users, from 0%-52%.



Primary methamphetamine users by county from the 2017 Syringe Exchange Survey							
County	Primary meth users	Total surveys	% Primary meth users	County	Primary meth users	Total surveys	% Primary meth users
Okanogan*	0	5	0%	Whatcom	10	26	38%
Island	2	22	9%	Kitsap*	8	20	40%
Pierce	10	65	15%	Walla Walla	9	22	41%
Snohomish	12	71	17%	Yakima	15	32	47%
King	75	424	18%	Jefferson*	8	17	47%
Skagit	16	67	24%	Clallam	30	63	48%
Cowlitz	8	25	32%	Thurston	20	41	49%
Grays Harbor	25	77	32%	Kittitas*	5	10	50%
Clark	14	40	35%	Spokane	25	48	52%
				Total	292	1075	27%

Demographics of Primary Methamphetamine Users

Almost two-thirds of primary methamphetamine users were men (65%), and the majority were white (85%). About a quarter of primary methamphetamine users were under 30. Only 28% had permanent housing, and 32% had been in jail or prison in the last twelve months. Legal income was very low, with a mean of \$454 a month. Overall, 20% (n=37) of men reported having sex with other men in the last 12 months. However, of these the majority (67%, n=25) were located in King County.

Gender	n	%	What race are you?	n	%
Male	189	65%	White	249	85%
Female	100	34%	American Indian/Alaska Native	28	10%

Transgender	1	<1%	Latino/Hispanic	14	5%
Other	1	<1%	Black/African American	9	3%
Age			Asian/South Asian	3	1%
18-21	8	3%	Hawaiian/Pacific Islander	2	1%
22-25	20	7%	Other	10	3%
26-29	38	13%	Housing Status		
30-39	96	33%	Homeless	93	32%
40-49	63	22%	Temporary	117	40%
50-59	54	19%	Permanent	82	28%
60+	12	4%	In jail or prison in the last 12 months?	93	32%
			Legal monthly income*	Mean =\$454	

*No King County data

Drug Use Patterns and Consequences

About half (48%) of primary methamphetamine users were also polysubstance users, with 36% reporting having used heroin in the last three months. This is in contrast to primary heroin users, who were much more likely to report having used another substance (89%). Neither alcohol nor cannabis use were documented in the survey.

	Primary HEROIN n=664	Primary METH n=291
Used another drug in last 3 months	89%	48%
Other Drugs Used		
Heroin by itself	100%	36%
Methamphetamine	78%	100%
Heroin mixed with methamphetamine (goofball)	52%	24%
Powder cocaine by itself	16%	12%
Crack cocaine by itself	16%	8%
Cocaine mixed with heroin (speedball)	13%	5%
Prescription opioids	37%	20%
Benzodiazepines/downers	34%	16%
Fentanyl	13%	4%

Route of Administration

Among primary methamphetamine users, 92% (n=266) reported injecting and 61% (n=177) reported smoking methamphetamine in the last three months.

Overdose and “Overramping” Among Primary Methamphetamine Users

Twenty percent of primary methamphetamine users had experienced “overramping” (stimulant overdose) and 33% had witnessed someone overramp. Of these who witnessed a stimulant overdose, 23% called 911. Seven percent of primary methamphetamine users had experienced an opioid overdose, while 40% had witnessed one, showing that they may be good candidates to carry naloxone. Of those who witnessed an opioid overdose, about half (47%) called 911, compared with 23% who called 911 the last time they witnessed a stimulant overdose.

Overdose and overramping among primary methamphetamine users (n=292)		
Had an opioid overdose	20	7%
Witnessed an opioid overdose	117	40%
Called 911 for an opioid overdose	39	47%
Had a naloxone kit	105	36%
Had a stimulant overdose	59	20%
Witnessed a stimulant overdose	95	33%
Called 911 for a stimulant overdose	14	23%

Health Concerns and Healthcare Access

The large majority of primary methamphetamine users had health insurance (89%), mainly Medicaid (77% of all primary methamphetamine users). However, respondents reported other barriers to accessing healthcare, and 53% of respondents reported there was a time in the last 12 months when they should have seen a health care provider, but did not go. Distrust of doctors and stigma related to drug use were top reasons for not seeking medical care.

Healthcare access among primary methamphetamine users		
Had health insurance	n=260	89%
Had Medicaid	226	77%
<i>In the last 12 months, was there a time when you thought you should see a healthcare provider for a medical/physical issue, but you did not go?*</i>	114	53%
<i>What were the main reasons you did not go?</i>		
Don't trust/like doctors	29	25%
Other**	24	21%
Other bigger priorities (e.g. homeless)	17	15%
Drug use gets in the way	16	14%
Don't want to be lectured/judged for my drug use	15	13%
No money or health insurance	11	10%
No transportation	8	7%
Too long to get seen	6	5%
Don't know where/no place to go	5	4%
Symptoms went away/not bad enough	5	4%
Won't help/not worth it	3	3%

Fear of results	1	1%
Other **	24	21%
*Not asked by King County		
**Other reasons included warrants or other legal issues, mental health challenges		

Where Primary Methamphetamine Users Receive Health Care

The emergency room was the most common place where primary methamphetamine users received medical care in the last 12 months, with 47% reporting having gone to an E.R. Other places primary methamphetamine users received care were other clinic or hospital settings (32%), and jail or prison (13%). Twenty-two percent of primary methamphetamine users reported they did not receive medical care in the last year.

Serious Health Conditions Reported by Primary Care Users

In the last 12 months have you:		
Had an abscess	n=69	24%
Had a skin or tissue infection	60	21%
Had endocarditis	2	1%
Had an STI (not asked by King County)	18	8%
Pregnancy (among women only)	8	8%

Biggest Health Concerns

When asked about their biggest health concern, 27% of primary methamphetamine users reported that they had none, while others reported that mental health and respiratory issues were major concerns.

What is your biggest concern about your health?*		
None	n=57	27%
Miscellaneous	25	12%
Mental health	24	11%
Respiratory issue	20	9%
Drug use/addiction	14	7%
Pain	13	6%
Cardiac/circulatory issue	13	6%
Nutrition/weight	9	4%
Dental	8	4%
Complications from injecting	5	2%
Hepatitis C	5	2%
Sexual/reproductive health	5	2%
Aging	4	2%
Cancer/tumors	4	2%
Homelessness	3	1%

Other chronic condition	2	1%
Health system issues	2	1%
Overdosing	1	0%
HIV	1	0%
Total	215	100%
*Not asked by King County		

Mental Health Concerns

Although mental health was a primary concern for only 11% of respondents, over half (55%) of *primary* methamphetamine users reported that they were somewhat or very *concerned* about their anxiety, depression, or other mental health issues. Forty-five percent said they were not at all concerned. [This question was not asked by King County].

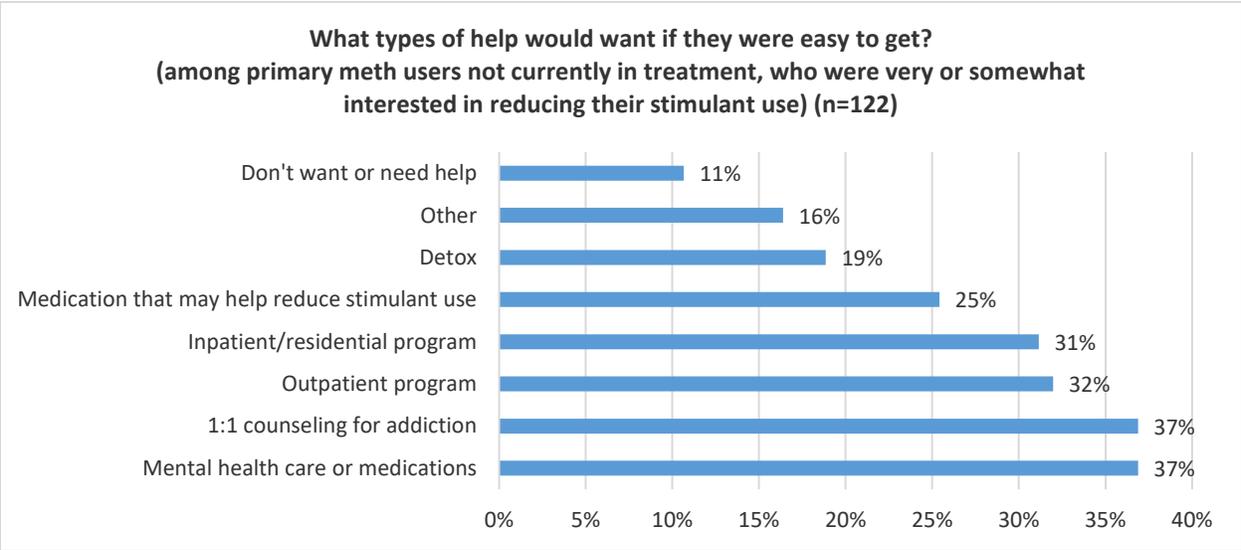
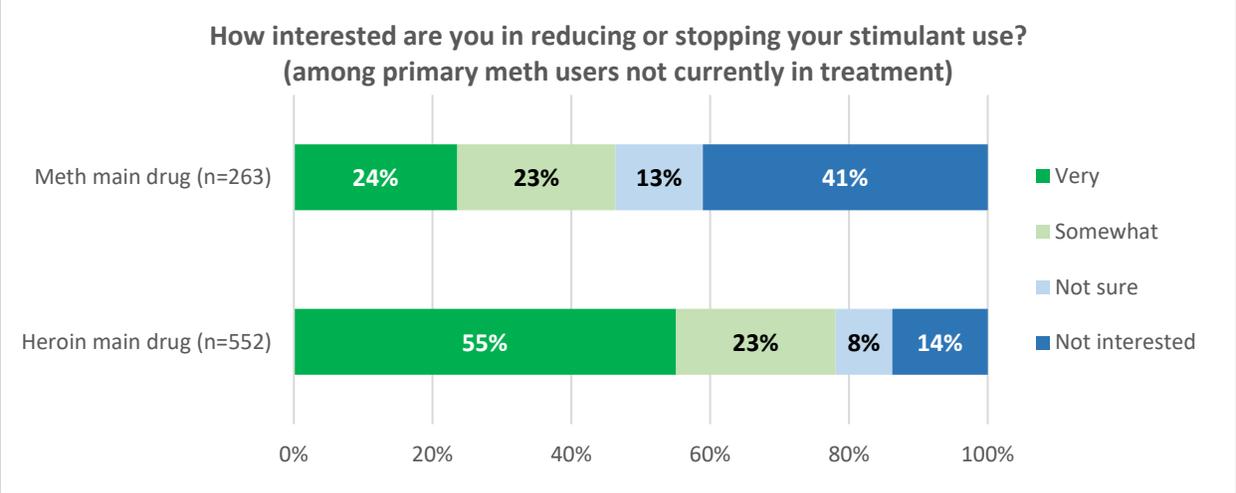
Treatment for Drug Use

Ten percent of primary methamphetamine users surveyed were currently receiving treatment for their drug use, and 28% had received some form of treatment in the last year. Support groups, inpatient and outpatient programs were the most frequent forms of treatment.

Currently receiving treatment for drug use	n=28	10%
Any treatment in the last 12 months	81	28%
12-step/support groups	34	12%
Inpatient	32	11%
Outpatient	26	9%
Detox	14	5%
Buprenorphine	12	4%
Methadone	8	3%
Other	1	0%
Naltrexone	0	0%

Interest in Reducing or Stopping Methamphetamine Use

Almost half (47%) of primary methamphetamine users were very or somewhat interested in reducing or stopping their stimulant use. Among those who were very or somewhat interested there was no clear preference for types of help. Respondents were interested in mental health care or medications, one on one counseling, inpatient and outpatient programs, medication to reduce stimulant use, and detox.



Among primary methamphetamine users who were not sure or not interested in reducing or stopping their use, 71% said it was because they “did not want to quit.” Other reasons for being not sure or not interested included:

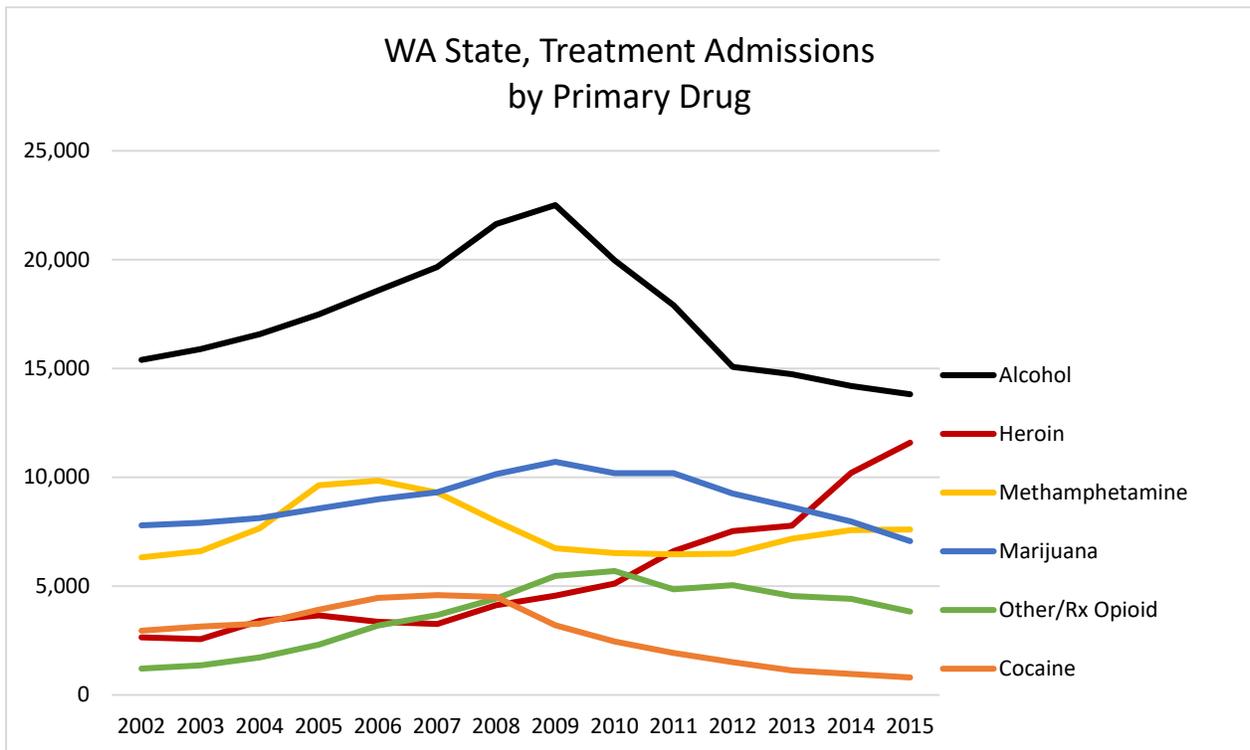
- “I’m dying of cancer.”*
- “Not sure how my anxiety would feel-meth calms me down.”*
- “Only thing keeping me going right now.”*
- “Not sure how my body would handle without meth.”*
- “I like it. Feel normal.”*

Limitations of the Syringe Exchange Survey Data

Because the survey was conducted at syringe exchanges, it represents the views and experiences of injectors. It does not capture primary methamphetamine users who only smoke, and do not inject. Some questions were not included in the survey conducted in King County.

Treatment Admissions

Treatment admission data from 2015 are presented here, as that is the last year with comparable data collected statewide. Data are presented for those who received any public funding for their treatment and for which data were entered into the Washington State Department of Behavioral Health and Recovery (DBHR) TARGET data system. Data are reported as the number of treatment admissions, not the number of unique people, that is, the data are duplicated for people with multiple admissions per year to the same or different treatment modalities. Data are presented by the primary drug identified at the time of admission, comparing methamphetamine with treatment admissions for all drugs and alcohol, including methamphetamine.



A higher proportion of primary methamphetamine users are female compared to everyone entering treatment. The largest proportion of methamphetamine users were ages 30-39. Methamphetamine users were more likely to be white, less likely to be African American, and a substantial proportion, relative to population size, were American Indian/Alaskan Native.

	Methamphetamine		All drugs / alcohol	
	#	%	#	%
Gender				
Female	4,351	48%	23,275	41%
Male	4,729	52%	33,713	59%
Other/Unknown	-	0%	4	0%
Age				
<18	547	6%	5,801	10%

18-25	1,790	20%	10,203	18%
26-29	1,516	17%	8,751	15%
30-39	3,115	34%	15,403	27%
40-49	1,473	16%	9,223	16%
50-59	597	7%	6,243	11%
60+	42	0%	1,365	2%
Race				
White	7,004	77%	38,886	68%
African American	384	4%	4,321	8%
American Indian/Alaskan Native	830	9%	7,054	12%
Asian	85	1%	609	1%
Pacific Islander	110	1%	642	1%
Multiple race	97	1%	698	1%
Other/unknown	570	6%	4,782	8%
Total	9,080		56,992	

Most, 62%, reported smoking methamphetamine, with 31% injecting. This is important context for interpreting the syringe exchange data, knowing that among the relatively severe group or users entering treatment, a minority are injecting. (Route of ingestion is not reported for all substances as it is not interpretable across different types of substances.)

	Methamphetamine		All drugs/alcohol	
Route of ingestion (primary)	#	%	#	%
Inhalation	93	1%	-	-
Injection	2,793	31%	-	-
Oral	143	2%	-	-
Smoking	5,598	62%	-	-
Other	453	5%	-	-
Unknown	-	0%	-	-
Secondary substance				
Heroin	1,486	16%	2,929	5%
Other opioids	452	5%	3,826	7%
Alcohol	2,060	23%	9,091	16%
Methamphetamine	-	0%	9,350	16%
Marijuana/hashish	3,100	34%	12,724	22%
Cocaine/Crack	388	4%	2,475	4%
Other Amphetamines	75	1%	1,036	2%
Benzodiazepine	35	0%	702	1%
Other drugs	154	2%	949	2%
None	1,330	15%	13,910	24%
Total	9,080		56,992	

Most methamphetamine-primary users, 85%, reported a secondary drug with almost all of them being sedating substances i.e. marijuana, alcohol and opioids. This is a common pattern where

people use different types of substances to address the biological and psychological effects of methamphetamine. Among those reporting primary drugs other than methamphetamine, many reported methamphetamine as a secondary drug used. The number of people reporting methamphetamine as a secondary drug (9,350) was similar to the number reporting it as a primary drug (9,080), indicating that methamphetamine is very commonly used among those entering drug treatment. These data indicate that in 2015, more than 18,000 treatment admissions in Washington State involved methamphetamine as a primary or secondary drug.

Insights from the Treatment Research Subcommittee

In March 2018, a meeting of the Treatment Research Subcommittee brought together researchers, clinicians, and other professionals who work on substance use disorders and methamphetamine. The meeting included presentations and discussion about the epidemiology of methamphetamine use, lessons learned from working with people who use methamphetamine, and treatments to help reduce methamphetamine use. A few key themes emerged:

- Patterns of methamphetamine use are different than those for opioids or alcohol
- Methamphetamine has some functional purposes for the people who use it
- Traditional substance use disorder treatment may not be appropriate or adequate for some people who use methamphetamine
- Methamphetamine use continues to be highly stigmatized.

During this meeting Susan Kingston, now at UW-ADAI, presented on her experience working as a counselor with methamphetamine users in the 1990s. Johnny Ohta, a counselor who works with street youth, also shared his experiences working with this population.

Both Kingston and Ohta expressed that patterns of use are very different for methamphetamine than for opioids, and desire for treatment may wax and wane depending on how someone is feeling about their use in the moment.

"The other thing about the motivation for change is the binge use pattern of methamphetamine. People go hard, and then they get some sleep and do some stuff, and turn back up, everything's fine. So if you talk to them at that point, it's not a big problem," –Johnny Ohta

People may use methamphetamine for functional reasons such as helping them cope with being homeless.

"And then when we talk about homeless people who are homeless and pretty much driven to use every day and can't sleep very much, then we have that whole other group of people that we're talking about, that's really separate, I think, from probably the majority of methamphetamine users in Washington state who are using and not homeless." –Johnny Ohta

Traditional forms of treatment and services may not be a good fit for methamphetamine users because of the patterns, motivations for, and functions that its use serves. Methamphetamine

users may need services that are available more readily so they can access them during the brief windows when they want those services. They also need services and treatment that can help address the functional role that methamphetamine may provide.

"Traditional drug treatment failed to realize the utility that methamphetamine offered people in their lives. What I heard regularly...is that the model of drug treatment doesn't at all fit them and their experience. They couldn't handle the boredom, to be honest, of regular treatment... None of the discussions were relevant to methamphetamine use that talked about cravings. Nothing was at all reflective of what their experience was." –Susan Kingston

Speakers felt that people who use methamphetamine face even greater stigma than people who use other drugs such as opioids.

"What everybody said is that, "Nobody else gets us," that the experience of using methamphetamine is so different and so unique, and the stigma at that time was so severe, that at that time the most disgusting person you could be was somebody who used methamphetamine. You remember the pictures, remember the posters. We all remember that." –Susan Kingston

One meeting attendee spoke about the importance of empathy for all people who have substance use disorders, including those who use methamphetamine, and that people may use substances as a way to cope with emotional trauma.

"Empathy is really, really important because... we in the field watched the shift of attitude [with the opioid epidemic], when all of a sudden, it wasn't "those people" anymore, it was your daughter ... it wasn't "those" people anymore. Hopefully there has been some awareness about substance use disorder that has come along with this epidemic. But I also think that there's an opportunity in helping folks understand about substance use disorder and the tie to childhood trauma and understanding that there is such a connection there. That both really are just trying to use drugs to feel normal." –TRSC meeting attendee

The full transcript of the TRSC meeting is included as Appendix C to this report.

6. Current Treatment Approaches for Methamphetamine Use Disorders

Pharmacotherapeutic Treatments

A wide range of pharmacotherapeutic approaches have been tried in the treatment of methamphetamine use disorders, including antidepressants, antipsychotics, and substitution/replacement therapies.⁸ There are currently no approved medications for the treatment of methamphetamine use disorders, nor are there any medications on the horizon with scientific literature sufficient to demonstrate a robust treatment effect.

Pharmacotherapeutic agents that have shown the most, albeit modest, promise include the atypical antidepressants mirtazapine and bupropion, the attention deficit drug methylphenidate-SR, and the anticonvulsant topiramate.⁸

Substitution therapies for methamphetamine dependence deserve particular mention due to existence of FDA-approved substitution therapies for opioid and nicotine dependence. Studies of substitution therapies for methamphetamine dependence have provided mixed results.⁸ A 2013 Cochrane review of the efficacy of stimulant drugs for amphetamine abuse or dependence by Pérez-Mañá et al.⁹ identified 11 randomized clinical trials with 791 participants investigating four drugs with psychostimulant effects. The review concluded that neither psychostimulants as a group nor any single drug was found to reduce amphetamine use (as evidenced by urinalysis), attain sustained amphetamine abstinence, or improve treatment retention. Pérez-Mañá et al.⁹ concluded that the available data did not support substitution therapy for amphetamine dependence.

Frontiers of pharmacotherapeutic treatment development for methamphetamine use disorders include novel functionally-selective serotonin 5HT₂ drugs (phenylaminotetralin analogs), drugs selectively binding synaptic glycoprotein 2C (which plays an important role in dopamine neurotransmission) or the trace amine-associated receptor 1 (TAAR1), nonpeptide small molecule compounds for the neurotensin receptor system (NTR1 and NTR2), drugs targeting the cannabinergic and oxytocinergic systems, and immunotherapies.^{8,10}

Behavioral/Psychosocial Treatments

Behavioral and psychosocial interventions are the primary form of treatment for methamphetamine use disorders. Interventions vary in terms of the extent to which they are delivered to individuals, families, or groups of unrelated individuals, and they may differ substantially in terms of frequency and duration. Reviews of behavioral/psychosocial treatments for methamphetamine have not found that any particular treatment is clearly superior to others.^{11,12}

The behavioral and psychosocial treatments with the most research support, those supported by Substance Abuse and Mental Health Services Administration (SAMHSA) as effective for methamphetamine use disorders, include the Matrix Model, other forms of cognitive-behavioral therapy (CBT), contingency management (CM), motivational interviewing (MI), mindfulness-based approaches, and exercise.

Matrix Model

One of the most commonly used psychosocial treatments for stimulant use disorders in general and methamphetamine use disorders in particular is the Matrix Model.¹³ Developed in response to the cocaine epidemic of the 1980s by the Matrix Institute in Los Angeles, Matrix sought to incorporate empirically-supported treatment elements into a manualized, non-confrontational, structured program that is considered to be primarily cognitive-behavioral in nature. Standard Matrix Model treatment generally spans 16 weeks and consists of group cognitive behavioral therapy (36 sessions), individual counseling (4 sessions), family education groups (12 sessions),

group social support (4 sessions) and urine and weekly breath alcohol testing. Weekly (at least) attendance at 12-step meetings such as Crystal Meth Anonymous is also encouraged.

Other Forms of Cognitive Behavioral Therapy

CBT encompasses a range of interventions that may be quite different in application and focus.¹⁴ In general, the term is applied to approaches that derive from principles of learning and classical conditioning and emphasize the role of thoughts in behavior change. CBT seeks to provide and strengthen skills to reduce or stop drug use and sustain abstinence (relapse prevention). In 2008, Lee and Rawson¹⁴ reviewed the literature on CBT for methamphetamine dependence and noted that relapse prevention and coping skills therapy are the most widely known and commonly practiced approaches. They concluded that while there was only a small number of studies examining interventions for methamphetamine users, those that have been conducted with CBT (with and without MI) have shown some evidence of efficacy. They noted that studies are difficult to compare because many of the studies had only a brief description of the intervention that was conducted, despite having fidelity checks built in to their methods.¹⁴

Motivational Interviewing

Engaging the disengaged is a key aim of MI. A number of studies have examined different forms of MI for methamphetamine use disorders, with favorable effects found for one-¹⁵, two-¹⁶, three-¹⁷, and nine-session¹⁸ adaptations of the intervention. In the nine-session adaptation, session one focused on problem identification and feedback. Session two focused on ambivalence, reasons for using, and desires for change. The third session focused on developing a change plan and identifying possible obstacles. Patterned after the "booster sessions" in the Project MATCH motivational enhancement therapy manual, sessions four through eight reviewed events of the past week, relapses, and other concerns raised by the client, focused on progress made on the change plan, ambivalence towards the change plan, revision of goals, and desired changes in strategies for achieving goals.¹⁹

Contingency Management

Contingency Management (CM) is a behavioral technique that seeks to encourage positive behavior change (e.g., abstinence) by providing positive reinforcement (i.e., desirable consequences) when clients meet treatment goals and by withholding reinforcement or providing punishment when patients engage in an undesired behavior (e.g., drug use). For example, consequences for abstinence may include positive reinforcement in the form of vouchers exchangeable for money or prizes while consequences for drug use may include non-reinforcement by withholding vouchers or punishment by making an unfavorable report to a parole officer. Reinforcing or punishing consequences may be contingent on objective evidence of drug use (e.g., urine screens) or on another important behavior, such as compliance with a medication regimen or regular clinic attendance. CM procedures are frequently implemented with written contracts that detail the desired behavior change, duration of intervention, frequency of monitoring, and potential consequences of the person's success or failure in making the agreed upon behavior changes.²⁰

CM is the most studied and considered the most promising psychosocial approach to be added to treatment as usual.¹² However, studies suggest that the efficacy of CM programs tends to be greatest during the treatment period when contingent rewards are provided and deteriorates

after rewards are withdrawn.²¹ Cost effectiveness and sustainability of this resource-intensive intervention remain in question.

Mindfulness-based Approaches

Mindfulness-based approaches, such as acceptance and commitment therapy (ACT) and mindfulness-based relapse prevention (MBRP) are considered among the "third wave" of cognitive and behavioral therapies, where behavior therapy and traditional CBT represent the first and second waves. Unlike traditional CBT, mindfulness-based approaches do not seek to directly engage with and change thoughts but rather encourages its adherents simply to notice thoughts without engaging with or judging them and striving to be present fully in the moment.²²

ACT for substance use disorders emphasizes observation of the thinking process rather than disputation and modification of thought content, reducing experiential avoidance through increasing distress tolerance and acceptance skills, and values clarification to direct alternative activities to substance use.²³ With a somewhat different focus, MBRP typically seeks to increase awareness of relapse triggers, interrupt automatic behavior sequences to promote mindful responses to triggers and cravings, and practice nonjudgmental awareness of one's moment-to-moment experience.^{24,25} MBRP sessions commonly begin with a guided meditation followed by homework review, and participants may be given meditation exercise CDs for between-session practice and logs to record time spent practicing.

Exercise

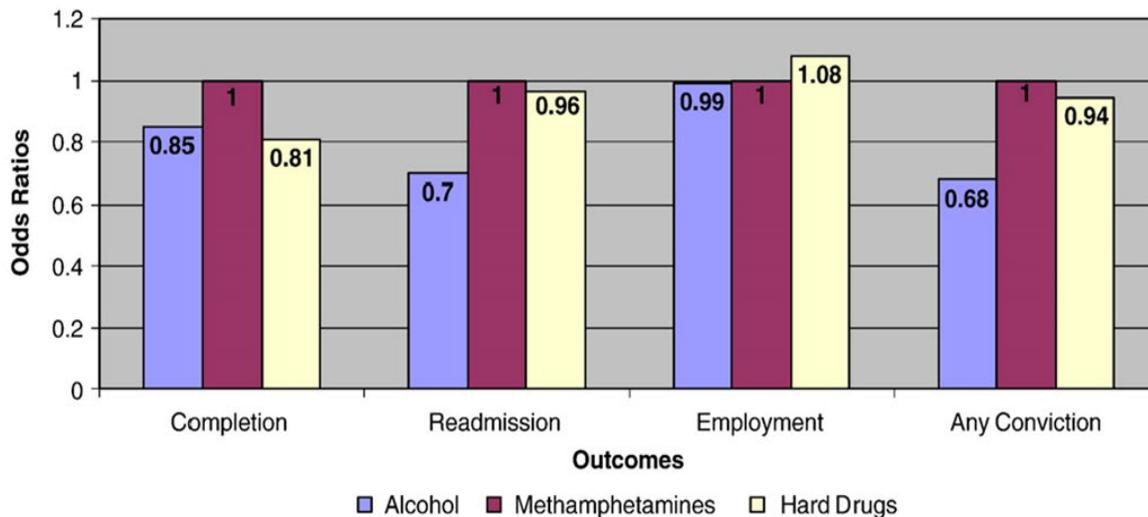
Exercise has been proposed as a potential treatment for methamphetamine dependence because it has been shown to ameliorate negative mood states and improve cognition. Methamphetamine dependence is associated with comorbid depression and anxiety, and cessation of methamphetamine use produces an abstinence syndrome characterized by anhedonia, dysphoria, irritability, poor concentration, hypersomnia, low energy, and possible suicidality coupled with drug cravings.²⁶ Morais et al.²⁷ reviewed the literature on exercise and methamphetamine dependence and concluded that methamphetamine users who engaged in a physical exercise program showed less depression and anxiety symptoms, lower relapse rates, and sustained abstinence when compared to non-exercised individuals. Relatively few studies have examined methamphetamine use outcomes, but the most favorable outcomes have generally been observed among those who were most adherent to the exercise intervention.²⁸

Outcomes of Treatment for Methamphetamine Use Disorders

Psychosocial treatment provided for methamphetamine abuse and dependence provided in both inpatient and outpatient treatment settings frequently emphasizes abstinence, especially in residential inpatient settings. In outpatient settings aims of drug use reduction and harm minimization are also commonly pursued. Beyond these primary aims common goals of psychosocial interventions are to engage and retain dependent methamphetamine users in the treatment process, to promote treatment compliance, and to help them avoid relapse into harmful methamphetamine use.¹¹

Because methamphetamine users tend to present for treatment with greater medical and psychiatric disorders compared to cocaine users, researchers have questioned whether there is a differential treatment effect for methamphetamine and cocaine users and whether methamphetamine use disorders should have a specialized treatment. A 2007 study in Washington by Luchansky et al.²⁹ examined whether treatment outcomes of methamphetamine users were different than those of users of other substances. Using data from administrative systems in Washington State, for both adults (n = 12,726) and youth (n = 2,715), results indicated that one-year post-treatment outcomes for methamphetamine users were similar to those for users of other hard drugs but not as positive as outcomes for users of marijuana or alcohol. As shown in the figure, in the adult sample, methamphetamine users were actually more likely to complete treatment than alcohol or other hard drug users.

Odds ratios on four outcomes comparing primary drugs of abuse



Source: Luchansky et al., 2007.

Vocci and Montoya³⁰ examined the research literature in 2009 to compare outcomes for methamphetamine and cocaine users and concluded that, despite the worse medical and psychiatric condition of methamphetamine users, there was no evidence for a differential treatment effect of any psychosocial treatment. The researchers asserted that the efficacy of psychological and behavioral treatments may be improved by providing treatments for a longer time and developing efficacious relapse prevention strategies, consistent with a chronic disease approach. Furthermore, they argued that while abstinence from methamphetamine use may be the ultimate goal of treatment, interventions aimed at reducing drug use and minimizing harm from drug use should be investigated.

A recent Australian study³¹ found that treatment success, defined as abstinence from or a reliable reduction in frequency of use of the primary drug of choice in the month prior to follow-up, was actually greatest when the primary drug of choice was methamphetamine / amphetamine. The researchers asserted the outcomes following engagement in treatment are at least as good among those with methamphetamine use disorders as they are among those with heroin or alcohol-related problems and that this is a critical message for professionals and the

public alike. They argue that future priorities should include stronger communication to the general population of the potential for positive outcomes for methamphetamine users following treatment as well as increased promotion of strategies to encourage treatment-seeking and facilitate access to diverse evidence-based treatment options.³²

Harm Reduction Approaches

For methamphetamine users who are not interested in stopping their use, recommended strategies can help to minimize harm that might result from ongoing drug use, improve users' quality of life, and contribute to overall public health. Harm reduction is a conceptual framework that provides for individuals willing to be engaged in services without immediately seeking abstinence.³ MacMaster³³ articulated five assumptions common to discussions of harm reduction to frame the development of interventions to reduce drug-related harm without insisting on abstinence as the only solution:

1. *Substance use has and will be part of our world; accepting this reality leads to focus on reducing drug related harm rather than reducing drug use.*
2. *Abstinence from substances is clearly effective at reducing substance related harm, but is only one of many possible objectives of services to substance users.*
3. *Substance use inherently causes harm; however, many of the most harmful consequences of substance use (HIV/AIDS, Hepatitis C, overdoses, etc.) can be eliminated without complete abstinence,*
4. *Services to substance users must be relevant and user friendly if they are to be effective in helping people minimize their substance-related harm.*
5. *Substance use must be understood from a broad perspective and not solely as an individual act; accepting this idea moves interventions from coercion and criminal justice to a public health or counseling perspective.*

The Interior Health Authority of British Columbia has developed and published on the web a *Guide to Harm Reduction* for frontline staff who deliver harm reduction services. Covering principles and history of harm reduction, trauma informed practices, service delivery and engagement strategies, special populations, peer engagement, working with personal values, attitudes and misconceptions, stigma and discrimination, best practices for supply distribution, best practices for needles syringe distribution, disposal and handling of drug use equipment, disposing of needles safely, commonly used drugs and their effects, and common infections related to substance use, the guide is an excellent example of a comprehensive resource for harm reduction service providers.³⁴

7. Discussion and Recommendations

Discussion

Methamphetamine use as measured by youth surveys and Helpline calls is moderate, with declines in lifetime use reported by youth over the prior decade. Methamphetamine remains the most common drug detected in police evidence and is up in recent years, though well below the peak in 2005. Police across Washington State indicate that methamphetamine is a major drug of abuse and is associated with substantial levels of property crime and takes up substantial law enforcement resources. Recent treatment data indicate that most entering treatment with methamphetamine as their primary drug report smoking as their primary route of administration. Drug treatment data show an uptick in methamphetamine primary admissions from 2012 through 2015 (the most recent data) though below the level seen a decade earlier. Most syringe exchange clients report using methamphetamine, though a minority report it as their primary drug. Mortality data are up four-fold from 2010 to 2016 when there were 364 methamphetamine involved deaths in the state. While methamphetamine use and consequences occur across Washington State, rates vary substantially by region.

Methamphetamine users identify many positive consequences of use including relieving depression, increasing energy, and weight loss. However, negative consequences are also common and severe, including mental health, dental problems, and consequences of injecting. Among methamphetamine primary injectors surveyed in Washington in 2017, 72% were homeless or impermanently housed, and 32% had been incarcerated in the previous year. Despite negative consequences, slightly less than half of methamphetamine users indicate they are interested in stopping or reducing their use, a much smaller proportion than heroin users. There are a range of services that people would be interested in accessing to help stop or reduce their use, including mental health care and medications, counseling, drug treatment and “medication that may help reduce stimulant use”.

Experienced clinicians have identified many challenges in working with heroin users and the limitations of existing services, perhaps best summed up by:

“Traditional drug treatment failed to realize the utility that methamphetamine offered people in their lives.” –Susan Kingston

Treatment research indicates modest and inconsistent findings for the impact of anti-depressants on decreasing methamphetamine use and no positive findings for maintenance on stimulant medications. Some behavioral treatments have been found to have modest impact on methamphetamine use, with contingency management having perhaps the strongest effects while it is maintained.

Recommendations

High and increasing mortality rates must be addressed.

Almost half of methamphetamine overdose deaths involve an opioid, so treatment of opioid use disorder and use of the opioid antidote naloxone may help decrease some methamphetamine involved overdoses.

People who have an overdose involving methamphetamine without other major drugs often have signs of chronic cardiovascular disease likely due to their methamphetamine use so decreasing or ceasing methamphetamine use and obtaining health care are necessary.

All meaningful interventions, even those with modest benefits, should be considered given the severity of consequences due to methamphetamine use. Many people who use methamphetamine do want to stop their use and are interested in mental health care; some express interest in treatment medications. Despite their modest and inconsistent effects, clinicians may wish to consider psychiatric medications knowing that some patients will be open to their use and there may be some benefit, with likely modest side effects compared to the serious side effects of methamphetamine use.

Homelessness is high among methamphetamine users and often cited as exacerbating use due to the appetite suppressant and stimulant effects of methamphetamine. Homeless people often feel vulnerable to violence at night, with methamphetamine perceived as protective by keeping them awake. Addressing homelessness may help reduce methamphetamine use indirectly by decreasing some of the factors that reinforce use.

Given the serious consequences of methamphetamine use on those who use, their social networks, law enforcement and the broader community, it is important to consider multiple approaches to intervening directly on methamphetamine use as well as social factors that exacerbate use. And, we must continue researching interventions that may have direct and indirect effects on reducing methamphetamine use and the severe consequences of use.

Growing out of discussions with the Division of Behavioral Health and Recovery and the Treatment Research Subcommittee, the UW Alcohol and Drug Abuse Institute is planning a conference in 2019 that will focus on methamphetamine. This event will be an opportunity to enhance our understanding of methamphetamine use in Washington and the needs of individuals, families, and communities affected by methamphetamine use.

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