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Methamphetamine: A review of the literature on methamphetamine to provide an informative overview of the history of methamphetamine, how it is produced and distributed, and the impact it has on the individual, families, neighborhoods, communities and local government.¹

ARTICLE

Everyday we see it...on the news, in the newspaper, and perhaps in our neighborhoods. Methamphetamine has become a household word and has been exclaimed as a scourge on our nation that has reached epidemic proportions. The Office of Victims of Crimes reports "methamphetamine is the fastest growing drug threat and the most prevalent synthetic drug manufactured in the United States." According to the 2000 National Household Survey on Drug Abuse, an estimated 8.8 million people, approximately four percent of the population, has tried methamphetamine at some time in their lives, (SAMSHA 2000). According to the World Health Organization, over 35 million people use methamphetamine or amphetamine on a regular basis and it is considered the second most widely abused illicit drug next to cannabis, (Rawson, Anglin, Ling, 2002).

Methamphetamine has become a tremendous problem for families, communities and local governments. Of 500 law enforcement agencies in 45 states reported an 87% increase in methamphetamine-related arrests in the last three years, and 62% reported increases in laboratory seizures. Fifty-eight percent said methamphetamine was their largest drug problem. Seventy percent of counties reported increases in robberies and burglaries because of methamphetamine; 62% reported increases in domestic violence; 53% reported an increase in assaults; and 27% reported an increase in identity theft. Bill Hansell, President-elect of the National Association of Counties and Umatilla County resident reports that "Meth abuse is ruining lives and families and filling our jails," (Zernike 2005).

Today's methamphetamine is almost six times as potent as the methamphetamine that people used in the 1960s. The US Center for Substance Abuse Treatment reported that "some of the most frightening research findings about methamphetamine suggest that its prolonged use not only modifies behaviors but literally changes the brain in fundamental and long lasting ways. Methamphetamine rewires the brain. Additionally, Dr. Michael Sise, a trauma surgeon at

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Mercy Hospital in San Diego, believes methamphetamine “carries a prognosis that is worse than many cancers.” Furthermore, Dr. Daniel Amen, ranks methamphetamine’s addictive characteristic second only to heroin’s addictiveness, but he believes it is far more dangerous to users and the people around them because of paranoia and psychosis that inevitably follow use.

This article will review the literature on methamphetamine to provide an informative overview of the history of methamphetamine, how it is produced and distributed, and the impact it has on the individual, families, neighborhoods, communities and local government.

History of Methamphetamine

In 1887, amphetamine was synthesized and evaluated as a possible treatment of a variety of ailments including depression and decongestion. Japan synthesized methamphetamine in 1919. In the 1930’s dextroamphetamine was marketed as Benzedrine and methamphetamine was marketed as Methedrine. Both products were used as over-the-counter bronchodilators in the form of inhalers to treat nasal and bronchial congestion due to asthma.

During World War II, amphetamines provided pilots with a means to stay alert during long flying missions. During this time over 200 million Benzedrine tablets were legally distributed to American GIs. After the war, the problems associated with amphetamine addiction plagued the military men as they returned home. San Diego, California is the home of several US military bases and since WWII it has seen amphetamine and methamphetamine as a major problem.

Japan also provided amphetamines to their troops and abuse of the drug continued after the war. Japan enacted a law in 1951 to control amphetamine abuse, but it still continues to be a large problem. Despite their efforts, there are still 1-2 million amphetamine users and 15,000-25,000 arrests for dealing each year.

The US felt an upsurge in amphetamine and methamphetamine use during the 1950s and 1960s. By the 1960s, underground methamphetamine labs popped up in California. The primary amphetamine users and abusers tended to be white males working in blue-collar, transportation, or service related occupations, (Luna 2001). Other users and abusers have included athletes, college students, and those desiring quick weight loss. Cultural preoccupation with thinness created a demand for amphetamine and methamphetamine-based products such as Dietamine, Nobese, Obetrol, Bar-Dexedrine, and Dexamyl. In addition, to the preoccupation with thinness, the youth movement in the late sixties contributed to experimentation with a variety of drugs including amphetamine and methamphetamine. During the Vietnam War between 1966 and 1969, 225 million Benzedrine tablets were distributed to GIs. In 1970, over 10 billion diet pills were legally produced in the world. Bike gangs such as the Hells Angels were also major users and suppliers of amphetamine and methamphetamine products.

In response to “speed” epidemic the Controlled Substance Act of 1970 classified amphetamines as Schedule II drugs. By making amphetamine a controlled substance, it became harder to buy them legally without a prescription, and prescriptions were more tightly regulated. The government launched the “Speed Kills” campaign.

In the 1980s and 1990s the US saw a reappearance of methamphetamine in the forms of methamphetamine sulfate (crank) and methamphetamine hydrochloride (crystal). Because of its controlled substance status, the chemicals to produce methamphetamine became difficult to obtain, and so different chemists learned how to alter the traditional recipe by using other street products. Further limitations of amphetamine type stimulants occurred by the passage of the Federal Domestic chemical Diversion Act of 1993. This legislation controlled the use of ephedrine and other legally obtainable chemicals for use in the illegal production of controlled substances such as methamphetamine and methcathinone. In 1995, the US Food and Drug Administration mandated that producers of bronchodilator drugs remove ephedrine and related ingredients, including ephedrine hydrochloride, ephedrine sulfate, and ractephedrine hydrochloride. Since then, many states have switched products containing ephedrine to prescription only status.

In the 1990s, dextro isomer methamphetamine HCL, "ice," a form of methamphetamine that was easier to smoke was developed. It was created quickly after the spread of "crack" cocaine, and it promised greater strength and longer duration of effects.

Manufacturing Methamphetamine

Methamphetamine is produced by using chemicals extracted from readily available household products. These products include over-the-counter cold remedies, diet pills, and household products such as lithium camera batteries, matches, tincture of iodine, and hydrogen peroxide. Flammable products such as charcoal lighter fluid, gasoline, kerosene, paint thinner, and rubbing alcohol may also be used. Corrosive products such as muriatic acid, sulfuric acid in battery acid, and sodium hydroxide from lye-based drain cleaners may also be added to the mix. Anhydrous ammonia from fertilizers is also easily accessible and used readily in "cooking" methamphetamine.

California clandestine Super Labs produce about 85% of the methamphetamine sold in the United States. Mexican-based labs and individual entrepreneurs make up the difference. Until recently, methamphetamine has been a West Coast problem, but now methamphetamine has reached into the Pacific Northwest, the Midwest, into the Southeast, and recently into the mid Atlantic states and New England. The number of small labs has increased making methamphetamine more accessible to regions on the East Coast. Recipes for the manufacture of methamphetamine are readily available on the Internet for anyone interested in pursuing this dangerous activity, (Swetlow 2003).

Illegal methamphetamine laboratories are considered clandestine because they are always hidden from view. The Drug Enforcement Agency (DEA) defines a clandestine laboratory as "an illicit operation consisting of a sufficient combination of apparatus and chemicals that either have been or could be used in the manufacture or synthesis of controlled substances." Labs have been found in family kitchens, sleeping areas, and garages. They are found in vehicles of all types, hotel and motel rooms, storage lockers, mobile homes, apartments, ranches, houses, campgrounds, rural and urban rental properties with absentee landlords, abandoned dumps, public restrooms, houseboats, and even an assisted living facility that cared for the elderly. Methamphetamine can be produced in 6 to 8 hours using hardware that easily dismantled and rapidly moved to another location to avoid detection, (Swetlow 2003). Home lab designs are primitive and vary widely depending on what equipment is available. The

reaction vessel is usually a jelly jar. The output might provide a cook with \$250.00 to \$500.00 worth of methamphetamine to sell, with two week's worth left over for personal use.

Prices for methamphetamine vary throughout different regions of the United States. At the distribution level, prices range from \$3,500 per pound in parts of California and Texas to \$21,000 per pound in southeastern and northeastern regions of the country. Retail prices range from \$400 to \$3,000 per ounce.

When manufacturing methamphetamine, a primary person, "the cook", handles and controls the chemicals during the heating process around open flame or a heat source. Some of these chemicals in their natural state are toxic to inhale or touch, and once the "cook" combines these chemical reactions can cause even more volatile chemicals and vapors that create significant health and safety hazards to the "cook," children and adults around the cooking site. People in the surrounding area may also be at risk due to fires, explosions, chemical residue entering the ground and water table, (Swetlow 2003).

About 15 percent of the methamphetamine labs are found because of fires or explosions. Careless handling or overheating of the chemicals used to manufacture methamphetamine cause solvents and other chemicals to burst into flames or explode. Storing these chemicals inadequately where they are exposed to heat, flame, and even stored too close to one another may also cause explosions or fires. Safety equipment such as fire extinguishers are not usually a consideration in methamphetamine production, (Swetlow 2003).

Children living in households where methamphetamine is manufactured and/or stored are exposed to acute health and safety risks that include physical, emotional, and sexual abuse and medical neglect. The manufacture of methamphetamine requires the use of toxic chemicals stored in and around the home. The process of making methamphetamine creates chemical reactions that are toxic to all living things. Children may be in the home during chemically ignited fires and explosions. During the developmental process children naturally explore their environment and frequently put objects in their mouth. Children may be exposed to the residues of chemical process by simply exploring their home environment. They may inhale or swallow substances found in their homes; inhale the second hand smoke of others using methamphetamine; receive an injection by a using person or an accidental prick from a discarded needle or other drug paraphernalia, absorb toxic chemicals through their skin from contaminated clothing or food. A child's physiology, higher metabolism and respiration rate as well as their developing central nervous system, can leave them vulnerable to toxic substances used in the production of methamphetamine, (Swetlow 2003). In addition, infants that are exposed to methamphetamine in utero are at risk for neurological abnormalities and respiration problems.

Even for adults, exposure to methamphetamine substances may cause a variety of ailments. Exposure to some of these chemicals, even in low dosages, can cause headache, fatigue, nausea, and dizziness. High levels of exposure can cause shortness of breath, coughing, chest pains, lack of coordination, eye and tissue irritation, chemical burns, and death. Chronic exposure during the process of manufacturing methamphetamine may cause cancer, brain damage, and damage to the liver, spleen, kidney, and the immunological system, (Swetlow 2003).

Normal cleaning of areas used for methamphetamine labs cannot be used. The chemicals used to produce methamphetamine are insidious. They may remain on eating and cooking utensils, floors, countertops, and all absorbent materials for an extensive period of time. Outdoor areas where chemicals have been dumped are extremely destructive for humans, animals, and all other living things (Swetlow 2003).

The production of methamphetamine contributes to a certain lifestyle that is especially harmful to children. In addition to harmful chemicals, booby traps and explosives are found with trip wires or loaded electrical switches to injure or maim intruders. Loaded firearms are also found accessible to young children. Most of the housing where labs are found has substandard housing structures where there may be exposed wires, dilapidated roofs, exposure to environmental elements caused by holes in the walls and/or flooring. Many live in squalor, without running water, electricity, and ways to cook and refrigerate their food adequately. Places are infested with rats, cockroaches, ants and other critters. Children may have lice, ticks, fleas, worms, and other communicable diseases found in places that lack sanitation, (Swetlow 2003).

Physical Effects of Methamphetamine

Methamphetamine is structurally similar to amphetamine, but there are differences. Similar to amphetamine, it causes increased activity, decreased appetite, and a general sense of well-being, but methamphetamine has more pronounced effects on the central nervous system. Methamphetamine causes an accumulation of the neurotransmitter dopamine in the brain. The excessive dopamine concentration tends to produce the stimulation and feelings of euphoria experienced by the user. Methamphetamine has a much longer duration of action and unlike other amphetamines, a larger percentage of the drug remains unchanged in the body resulting in the drug being present in the brain longer and prolonging the stimulant's effect, (NIDA 2002).

Methamphetamine can be smoked, snorted, orally ingested, or injected. It has a variety of names, most commonly it is known as "speed," "meth," "crank," and "crystal." Methamphetamine can come in colors ranging from white and yellow to darker colors such as red or brown depending on the chemicals used to manufacture it. In its smokeable form it is often referred to as "ice," "crystal," and "glass" because of its appearance.

Powder methamphetamine, also known as crystal methamphetamine, is the most common form. This form of methamphetamine is usually snorted or injected, but it can be smoked or orally ingested. Ice, also known as glass, looks similar to crushed ice or broken glass. It contains the same active chemical compound as powder methamphetamine, but undergoes a recrystallization process where impurities are removed. Ice is a very pure smokeable form of methamphetamine that is more addictive than other forms of the substance. The tablet form of methamphetamine is more popular in parts of Asia than in the US, but it has been found in Northern California. It is referred to by its Thai name, "Yaba." These pills are normally ingested orally, (DEA 2002).

When methamphetamine enters the brain cells from the bloodstream it produces a intense rush and high felt from a "storm" of neuro-chemical activity releasing high levels of catecholamine neurotransmitters, such as dopamine, norepinephrine and epinephrine. These neurotransmitters stimulate various sections of the brain that include the limbic system, brain

stem and cerebral cortex. The stimulation of the cerebral cortex causes a person to experience an increase in energy, elevated euphoria, and powers of reasoning and thinking. The limbic system influences instinctive behaviors, what is considered the "pleasure center" of the brain, and controls food, fight, flight and sex drive. The brain stem regulates involuntary responses such as blood pressure, heart rate, respiration, eating and sleeping. The effects of methamphetamine can last up to 24 hours, (NIDA 2003).

The drug alters moods according to how it is taken. If it is snorted or orally ingested, euphoria is produced but it is not the intense rush found in smoking the substance. When snorted, methamphetamine produces effects within three to five minutes whereas orally ingesting it produces effects in 15 to 20 minutes. If it is smoked, the user immediately experiences an "intense initial rush or 'flash' that lasts only a few minutes and is described as extremely pleasurable", (NIDA 1998). The euphoria that follows after smoking methamphetamine hydrochloride or "ice" is very potent and it lasts from 2 to 16 hours, (Narconon 2005). Using methamphetamine induces euphoria by blocking the reuptake and stimulating the release of dopamine and norepinephrine in the central nervous system. Smoking methamphetamine has become a preferred method of use. According to the DASIS, in 1992, 12 percent of primary methamphetamine/ amphetamine hospital admissions reported smoking as the primary route of administration, and by 2002, 50 percent preferred smoking. Over six months of use, 94% of those who smoke methamphetamine become addicted compared to 72% of those who snort it, (2004).

There are variations in ways to use methamphetamine. In San Francisco, methamphetamine is put into coffee and is called "biker's coffee." It is reportedly used by young urban professionals who want the drug's energizing and appetite suppressant effects, rather than snorting or injecting it. In Houston Texas, finely ground glass is mixed with methamphetamine. The glass irritates and scratches the nasal linings causing the drug to be absorbed easier. It is added to alcoholic drinks or wrapped in cigarette paper and swallowed or "bombing." Some methamphetamine, especially young users, will break off the ends of light bulbs, put the drug into the glass bulb, heat the underside of the bulb and inhale it, (Luna 2001).

Methamphetamine abuse has three patterns: low intensity, binge, and high intensity. Low-intensity users are not addicted psychologically, but use methamphetamine on a casual basis. Binge and high-intensity abusers are psychologically addicted and they prefer to smoke or inject methamphetamine to achieve a faster, stronger high.

Low doses of methamphetamine can boost alertness and block hunger and fatigue. There are some people who can maintain a lifestyle, family, and job while using low doses. But many people are unable to limit their use of the drug and begin to use higher doses to experience the euphoria and exhilaration caused by the drug. The stimulant effects of methamphetamine causes a variety of cardiovascular problems including rapid heart rate, irregular heartbeat, increased blood pressure, and irreversible, stroke-producing damage to small blood vessels in the brain. Elevated body temperature, hypothermia, and convulsions occur with overdose. Chronic use can result in inflammation of the heart lining. Intravenous use damages blood vessels and causes skin abscesses, (NIDA 1998). People using methamphetamine tend to become compulsive, repetitive, less organized, suspicious, and self-conscious. Large doses can cause fever and sweating, dry mouth, headache, paleness, blurred vision, dizziness, irregular heartbeat, tremors, loss of coordination, grand mal seizures, and even collapse, (Luna 2001). Methamphetamine literally tricks the brain into thinking the body

has unlimited stamina, in reality the drug stresses the body and interferes with vital organ functioning.

Increasing doses of methamphetamine creates agitation, irritability, paranoia, hallucinations of sight and sounds. Effects include mental illness similar to paranoid schizophrenia, as well as malnutrition, blockage of blood vessels, increased susceptibility to illness due to poor diet and lack of sleep. "A common method of illegal methamphetamine production uses lead acetate as a reagent" which may result in methamphetamine that is contaminated with lead, causing acute lead poisoning in users, especially intravenous users, (NIDA 1998).

Methamphetamine abusers go on binges or "runs" staying awake for 3, 4, or even up to 10 days at a time. Methamphetamine has a potential for tolerance: each time the drug is used; more methamphetamine is required to achieve the same effect. Binge abusers maintain the high by smoking or injecting more of the drug resulting in a decrease in effectiveness until there is no more rush or high. "Tweaking" describes an extremely unpleasant state at the end of a binge. The abuser may take other drugs, often alcohol, marijuana, diazepam, temazepam and dextromethorphan hydrobromide (DXM), to ease these feelings, (Luna 2001). The "crash" or withdrawal occurs after the abuser stops taking the drug and sleeps, often for several days at a time. Withdrawal becomes more severe as increasing amounts of methamphetamine are ingested and tolerance has developed. Some of the symptoms of withdrawal include fatigue, irritability, intense hunger, moderate to severe depression, psychotic reactions, and anxiety.

According to Dr. Jean Lud Cadet, clinical director of NIDA's Intramural Research Program (IRP), researchers believed the most serious methamphetamine-induced damage to the brain was to the dopamine nerve terminals increasing the risk of developing Parkinson's disease as users age. But methamphetamine does not only destroy the endings of the dopamine-containing nerve cells, it also "kills other nerve cells that produce other neurotransmitters in additional brain pathways," (Mathias 2004).

According to the North Dakota Department of Health, women using methamphetamine during their pregnancy expose their unborn fetuses to a variety of life threatening complications such as:

- May result prenatal complications such as premature birth and birth deformities.
- High doses of the drug may cause a baby's blood pressure to rise rapidly, leading babies to suffer from stroke or brain hemorrhage before birth.
- Babies whose mother used methamphetamine during pregnancy may experience learning disabilities, growth and developmental delays.
- Methamphetamine exposed babies may also suffer from gastroschisis, a condition when the baby is born with a hole in its abdomen, causing the intestines to be outside the body.
- As a result of methamphetamine exposure, some babies may suffer developmental and skeletal abnormalities such as club foot, or missing parts of a leg or arm.
- Because methamphetamine affects neurotransmitters in the brain, some babies may experience sleep disturbances and altered behavioral patterns. These babies have been described as "irritable" babies.

- Full term babies that are born to mothers, who used methamphetamine, may have difficult time with sucking and swallowing reflexes, much like premature babies.
- Often babies born to methamphetamine addicted mothers are extremely sensitive to light and touch. These babies suffer from tremors and coordination problems. (2002)

With growing rates of methamphetamine use in the United States another health problem is on the increase, rotting teeth. The chemicals used to make methamphetamine reduce the user's saliva which neutralizes acid and helps clear food from the mouth and teeth. With the reduction of saliva, more bacteria begin to build up at a faster rate directly eroding away the teeth. Methamphetamine users tend to neglect their oral hygiene while on binges by not brushing their teeth, drinking high-sugar containing drinks and foods. In addition, many methamphetamine users tend to grind and clench their teeth creating cracks and wearing away the enamel.

Increased HIV and Hepatitis B and C are consequences of methamphetamine use either through the use of injecting the drug, sharing needles with other infected users, or by casual and unprotected sexual intercourse with infected persons. Initially methamphetamine is considered a sexually stimulating drug that further increases sexual intercourse without protection leading to other sexually transmitted diseases like Chlamydia, Gonorrhea, Syphilis, and genital Herpes.

Symptoms of overdose of methamphetamine include sudden and dangerous increase in blood pressure, dangerous rise in body temperature, seeing spots due to increase in pressure on the nerves of the eye, heart attack, stroke, or coma, high fever, convulsions, and cardiovascular collapse. Death may occur spontaneously in methamphetamine users due to burst blood vessels in the brain, stroke, heart failure, or high fever.

Psychological Effects of Methamphetamine

Methamphetamine sends messages to the brain's pleasure center to release more dopamine and endorphins. These chemicals make people feel more confident, lose weight, work quicker at a myriad of tasks and enjoy sex more. One of the most alluring effects of methamphetamine use is the extra energy it provides. Overuse of the drug causes behavior to be persistent, repetitive, and compulsive such as vacuuming the same part of the floor over and over again, popping knuckles repetitively, picking sores on the face and extremities, taking apart and reassembling mechanical devices, and gambling. Although methamphetamine makes users more alert, it also makes them more accident prone, more easily confused, and their ability to work constructively and safely is compromised. "The psychological symptoms of prolonged methamphetamine use can resemble those of schizophrenia. One of the well known effects of long-term methamphetamine use is 'amphetamine psychosis', which is associated with paranoia," (UN General Assembly, 1998)

Methamphetamine users can cycle between violent psychotic episodes and prolonged periods of sleep, they then drop into severe depression leaving little time for users to participate in relationships with others and maintain regular employment. Users, especially during the tweaking stage, are very likely to commit extreme violent acts. In Arizona a man repeatedly

stabbed his 14-year-old son, then decapitated him and threw his head out the window of his van, believing that the devil was inside the van in the form of his son.

Methamphetamine users tend to belong to and foster a culture that is separate from the main culture. Dr. Trecia Wouldes, faculty member of Health and Medical Sciences of the University of Auckland, explains, "There is evidence that maternal drug use is associated with general psychosocial risk factors that may be more pronounced in drug using populations and include poverty, chaotic, and dangerous lifestyles, symptoms of psychopathology (e.g. personality disorders, depressive symptoms), a history of childhood sexual abuse and involvement difficult or abusive relationships with male partners," (News-Medical.Net 2004). This lifestyle is passed on from one generation to another and requires serious intervention to make changes in the world view of the individual.

Young people tend to use methamphetamine initially as a form of recreation and to provide them with the stamina to maintain a "party" lifestyle. This regular use according to Rotherm-Borus causes a problematic cycle:

Methamphetamine use can provide youth with an illusion of excitement and satisfaction in their lives. Initially, it is a means to an end to get high, to increase sexual potency with others. Eventually, chronic use becomes an end in itself, as waking hours are spent from one run [continuous and accelerated use] to the next and all efforts are geared towards getting more drugs. Instead of sexual potency, sexual dysfunction results; instead of intimacy, further isolation and paranoia occurs. The developmental tasks that face all youth are distorted or retarded. Metaphorically and in reality, methamphetamine use is equivalent to going nowhere fast, (1994)

Methamphetamine Affects the Family

Methamphetamine users become incapable of managing their personal affairs and, more importantly, their family responsibilities. Methamphetamine addicted parents neglect their children, fail to maintain safe and clean homes, and are often abusive, both physically and sexually. Using methamphetamine is the primary focus of an addict and children in the home become a nuisance. When a parent is awake for days at a time, their sense of time becomes unreal and they forget to feed or clean their children. When they crash into a coma-like state for days, no one is left to care for their children.

When a parent is high on methamphetamine they may spend hours focused intently on some incidental household chore, while they ignore their child starving or the garbage piling up in the living room. Homes of methamphetamine users are usually filthy. The term "path-house" is used to describe them because garbage literally lies knee deep on the floors and inhabitants make paths in order to walk from one room to another.

Children of methamphetamine addicts live in a chaotic world. They're locked in rooms, dumped on strangers and left to fend for themselves. Due to the drug's sexually arousing effects, sexual and physical abuse by parents or friends of parents, are significantly higher in homes where methamphetamine is used and/or manufactured.

Grandparents many times end up parenting their grandchildren, even their grandchildren. For the elderly, many living on fixed incomes, are financially strained from taking care of grandchildren who may have physical and psychological health problems due to their parents methamphetamine abuse.

County governments throughout the western states are burdened with the increased cost of foster care placements of children taken away from abusive and neglecting parents using and selling methamphetamine. Some counties report that more than 70% of their foster care placements result from methamphetamine addiction.

The "Meth Tax"

Oregon refers to the costs associated with methamphetamine use as the "Meth Tax." In 2004, the "Meth Tax" is estimated to have cost Oregon \$102.3 million in related costs of law enforcement, incremental foster care, methamphetamine lab cleanup, property crimes, fires, and health care costs. These costs are not paid by the methamphetamine users but by the community at large through economic losses, higher insurance premiums, and other means. This tax is approximately \$363 per household in Multnomah County which is more than the average 2004 county income tax, (Whelan 2003).

Law Enforcement costs are immense. Methamphetamine use involves violence – domestic violence, gang violence, violence due to paranoia and drug induced mental illness. Turf battles between rival methamphetamine distribution groups often fuel violence that spills out into neighborhoods injuring innocent bystanders. Criminal trafficking groups use illegal immigrants who have crossed the border. These immigrants are terrorized and even murdered. They are seen as expendable, especially since there is no record of their presence, (USDOJ 2001).

During the tweaking state, law enforcement officers are faced with an individual that is not only dangerous to himself and the officer, but to anyone nearby. The paranoia that accompanies methamphetamine abuse has caused users to assault and even kill family members.

In order to support their addiction, methamphetamine users are involved in various levels of crime, including theft, burglary, dealing, and trafficking drugs. Methamphetamine users will steal from anyone, as well as their parents, children, grandparents, neighbors, and friends.

When under the influence, methamphetamine users commit various motor vehicle violations, such as speeding and loss of control of their vehicle due to risk taking behavior and hallucinations. Many methamphetamine users will fall asleep at the wheel after bingeing for days without sleep, running off the road into buildings, crashing through fences or any barrier until they come to rest.

As young people experiment with methamphetamine there is an increase in juvenile crimes. Many of these children have grown up in families that use methamphetamine and drugs generationally. Families receiving government assistance are unable to pay the cost of crimes their children commit; therefore the county, businesses, or the individual is left paying for it. Even if parents are able to pay retribution for the damage done, there are costs that are not accounted for such as time in court, time spent getting insurance coverage, and time recovering

from the incident. Offenders whose parents do not have control over them may be sent to group homes, foster care, or juvenile correctional facilities. The state or county ends up covering these costs through tax dollars paid by taxpayers.

While a casual or new user may be able to hold a job and be satisfied with a \$10 hit, chronic users spend a minimum of \$50 a day. Chronic users are often unemployable, and therefore, they often turn to crime to support their habit. Methamphetamine addicts will usually begin by stealing from those closest to them, but then branch out to victimize society as a whole. Among the property crimes commonly committed by methamphetamine addicts are identify theft, fraud, forgery, burglary, larceny, and motor vehicle theft.

There are two distinct costs that property crimes impose on victims. The first is the actual value of the lost property. The second component is the value of lost productivity or time at work. As victims of property crimes know, they spend many hours repairing damage, dealing with insurance companies, working with law enforcement, remedying their loss, and in the case of identity theft, repairing their credit. Often victims suffer lost work time and lost income as a result, (Whelan 2003).

Adult violators also cost the community and state millions of dollars to support victims of crimes, cost of housing offenders in jails, court costs, medical costs while offenders are incarcerated, and prison costs. Methamphetamine is contributing to an increase in the number of crimes committed by adults and juveniles. The costs are clearly paid for by someone else than the offender – the taxpayer.

Methamphetamine production is inherently dangerous. Many of the chemicals used are flammable and explosive. Methamphetamine labs are operated in clandestine labs and usually operated by methamphetamine addicts who tend to make mistakes in the preparation, ultimately causing fires and explosions. Frequently fire department personnel are called to a scene of a burning facility with no idea the fire was caused by a methamphetamine lab. The health hazards associated with exposure to gases produced by the burning chemicals is enormous not only for the fire personnel, but the neighbors in the surrounding area.

Manufacturing one pound of methamphetamine produces five to six pounds of chemical waste, which is then dumped wherever a cook can dump it. Typically, the toxic waste is emptied into drains, thrown in trashcans, or is buried or dumped into the ground. Unsuspecting property owners have to pay for the cleanup of methamphetamine labs left by prior tenants so that their housing can be inhabited again. These costs are passed on directly to the property owners and also become a cost of business in the rental marketing, furthermore increasing rental rates. An example of these expenses is identified below:

<u>Clean Up of Meth Lab in Homes</u>	
Cost per home in Multnomah County 2004	
State Fees	\$1,400
Testing Costs	\$3,000
Decontamination	\$7,000
Replacement of Household Furnishings	\$6,000
<u>Loss of 3 months rent</u>	<u>\$3,120</u>
Total Cost Per Home	\$20,520

In the Central Valley of California, authorities have found barrels, hoses, glassware, and other waste products from methamphetamine labs in irrigation canals. The damage done to local agriculture is believed to be substantial. Cleanup costs have risen dramatically, draining the budget of county, state and federal governments.

Methamphetamine has education costs as well. The long term effects of methamphetamine use during pregnancy on the brain development of a child may last many years. School-aged children whose mother used during their pregnancy tend to be more hyperactive, have attention deficit disorders, learning disabilities, and unprovoked fits of anger. Special education and other resource needs have increased due to methamphetamine and drug exposure during pregnancy.

Parents who use methamphetamine while their children are infants and toddlers do not provide the necessary level of care and nurturing that children need. This leads to a host of psychological problems that may include attachment disorders, anti-social behavior, fighting, aggression, withdrawal, and depression. Demands for psychological services at the school have also increased. Children from families that use drugs tend to use drugs themselves at an earlier age, providing peer pressure to other youth their own age that may not have had the same experiences. Furthermore, once children begin to use drugs they don't mature emotionally and have difficulty problem solving. They tend to engage in other risk-taking behaviors such as early sexual experimentation leading to teen pregnancy and STDs.

Young people who begin to use drugs during high school or middle school lose interest in school and become truant, many times dropping out before graduation, or enrolling in alternative education programs that do not have as strict of guidelines as a traditional school. These students tend to be rebellious, disenfranchised, and unwilling to participate at the level expected by the school, family, neighbors, and community. Most of them do not learn the responsibility patterns needed to find and maintain employment such as getting up in the morning, following directions, and learning the basic skills needed to fulfill the requirements of the position.

Children living in households with parents using methamphetamine live chaotic lives. Meth-addicted parents have only one priority and that is the drug itself. Children from these homes move frequently, have little security about their future, many times malnourished, lack self-esteem, don't have boundaries about behavior, and are starving for attention. When they are in school they take up much of the teacher's time trying to get attention either positively or negatively. Many times they are absent from school because their parent is unable to get themselves up in the morning. They move from one school to another creating difficulty in fitting in and finding friends. Often times some kind of crisis like a domestic violence incident overwhelms the family and the child is too emotional to attend school. Children from these homes exhibit a variety of health problems, like head lice and scabies. Other problems include stomach aches and headaches. In many instances, a child will parent the adult and feel responsible for the well-being of the parent.

The educational costs are detrimental. From the school perspective, when the child is absent the school doesn't get its ADA to pay for the services they provide. When the child is there he/she may be behind in work, lower functioning and needing extra help, or developmentally disabled requiring much more help. Who pays the cost? The tax payers do.

Chronic use impairs an employee's ability to work safely, interferes with relationship to fellow employees, affects consistent attendance, and increases health problems. Chronic users eventually are unable to engage in consistent work patterns from bingeing for days at a time, followed by sleeping for days at a time. As unemployed adults they often use public assistance dollars to support themselves and their family. Continued use increases likelihood of long term unemployment. Many families where methamphetamine use is a persistent lifestyle, repeat this pattern from one generation to another.

Methamphetamine stresses every organ in the body and is particularly damaging to the kidneys heart, brain, teeth, blood vessels, skin and lungs. In addition, methamphetamine addicts engage in high-risk behaviors that expose them to diseases transmitted through bodily fluid exchange, such as HIV and Hepatitis C. Approximately 80% of the people who inject street drugs, such as methamphetamine have Hepatitis C.

Methamphetamine impacts healthcare costs in more subtle ways. It causes complications in the treatment of illnesses or injuries requiring longer hospital stays or longer term care, prescription drug use and physician time. With the increasing popularity of smoking methamphetamine, an increasing number of users suffer from rotting, brittle teeth that seem to crumble from their mouths. Because of using methamphetamine, addicts incur medical problems whose treatment costs fall mostly on public taxpayers.

Between 1992 and 2002, the methamphetamine/ amphetamine admission rate to emergency rooms in the United States increased from 10 to 52 admissions per 100,000 population aged 12 and older. In 1992 only 9 states had rates above the national rate of 10 admissions per 100,000. By 2002, 19 states are in excess of the national average of 52 admissions per 100,000. States such as California with 200.1, Hawaii with 217.2 and Oregon with 323.6 have felt the significant financial implications associated with the methamphetamine abuse, (DASIS Report 2004).

In rural communities mental health practitioners are often required to provide mental health and drug and alcohol treatment services. Increasing methamphetamine abuse in these communities seriously impacts these services because of the severe psychotic and paranoid behavior demonstrated by users is "frequently beyond the resources of the individual clinician," (Rawson, Anglin, and Ling 2002)

Methamphetamine use affects special populations such as youth and homosexuals. It contributes to family strife and runaway youth. Disagreements between parents and their children can leave a child living at friend's houses where there is no adult authority or flop houses where addicts end up with no other place to go. Teenagers and young adults engage in a different culture that may include body piercing, tattoos, and raving. Most of these youth are uneducated and untrained making them unable to hold down jobs. Often times they are at risk of being taken advantage by adults who give them drugs for sexual favors or use them to attract other youth to become addicted. The bottom comes when young people begin to prostitute themselves in order to have a place to stay, to eat, or to get more drugs.

Homosexual use of methamphetamine is an integral part of relationship building, establishing trust, and lovemaking. In the beginning, use of methamphetamine is very sexually stimulating, but after awhile its affects are the opposite and there is difficulty maintaining an erection. In order to improve their performance, male homosexuals will use methamphetamine

and combine it with other drugs like Viagra to have both the energy and performance of Viagra. Both drugs are very hard on the heart and sets up the user for future heart problems. Furthermore, the use of drugs tends to influence whether sexual partners choose to use safe sex practices or not. HIV is rampant amid the homosexual community and methamphetamine is the drug of choice for most encounters.

Social scientists have attributed the increasing use of methamphetamine and amphetamine type stimulants as a means for people to adapt “to increasing competition to survive financially and interpersonally.” People who fail “to adapt to rapid technological change have to escape psychologically and existentially” through the use of amphetamine type stimulants. And, the “socially alienated and disenfranchised to self-medicate with amphetamine type stimulants” as a means of temporarily avoiding social and economical inequities,”(Luna 2001).

Ethnicity, socioeconomic status, sexual orientation, musical preference, and the high school they attend influence a youth’s access to and choice of methamphetamine use. Youth, ravers, truck drivers, motorcycle groups, homosexuals, soccer moms and urban professionals all function in different socioeconomic cultures and they have their own rituals and specific codes of behavior. In Los Angeles alone, 10,000 gay men use methamphetamine regularly, maintaining social networks that facilitate their drug use practices and activities that they associate with their gay identity.

Methamphetamine tends to cause cravings differently than other types of drugs. Environmental cuing is characteristic of methamphetamine use and intense cravings for the drug can come from not just the people patients were around when they used the drug, but the room they did the drug in or the songs playing while they were doing it.

Methamphetamine users tend to overexciteable and extremely resistant to any form of intervention. The most frequent catalyst for treatment is through police intervention brought on by the user’s illicit activities including dealing, violence, theft or burglary.

It has been found that the most effective treatment for methamphetamine addiction is cognitive behavioral interventions. According to NIDA, “Cognitive approaches are designed to help modify the patient’s thinking, expectancies, and behaviors and to increase skills in coping with various life stressors,” (2004). There is no current pharmacological treatment for methamphetamine addiction. Medications such as antidepressants are used to offset drug withdrawal and damage to the neurotransmitter response. In addition to treatment, focus on relapse prevention and supporting recovery through the *12-Step* approaches like Narcotics Anonymous are necessary. Other treatment modalities range from total cessation models to alternative, holistic harm-reduction behavioral modifications. Some of the strategies may include counteracting the drug effects, improving diet, providing vitamins and herbs, sleep therapy, and changing geographical regions or other dramatic life changes.

One method of treatment is requiring a recovering addict to commit to a specific regimen that includes eight hours of sleep, exercising, eating three regularly spaced meals and enjoying at least one positive social contact a day.

Prevention of methamphetamine use is much more effective than treatment. Prevention programs should start early, be comprehensive, and repetitively stress key points. Young

women are particularly susceptible to methamphetamine abuse because it offers them a quick fix to thinness. Prevention messages need to question the desirability of the anorexic figure of fashion models and movie stars as seen in movies, on television, and in magazines. High achieving students in high school and college need educational messages that include information on the legal, medical, and neuropsychiatric dangers of methamphetamine use. Family focused prevention efforts have been found to have the most impact where the focus is not only on the parents or children, but on their relationship with each other. Finally, in workplaces where long hours of physically demanding and tedious work, employers need to enforce a drug free workplace such as frequent drug testing, drug education, and EAP programs for employees in need of assistance, (Rawson, Anglin, and Ling, 2002).

One form of prevention is environmental prevention where there is an attempt to change community norms, codes, and attitudes. Policy changes, ordinances, technical assistance to communities to maximize local enforcement procedures governing the availability and distribution of drugs, and geographic and data mapping are integral parts of changing the environment. (Prevention by Design 2004)

Prevention efforts have to be multi-faceted that includes various methods and activities. Approaches to youth programs need to include education, recreational activities, youth development practices, meaningful skillbuilding activities, and relationships with adults and peers. Focusing just on youth is not an end in itself; it is important to provide education and activities for adults and parents as well. Adults need education, resources for parenting practices, and support during the parenting process. Both adults and youth need to be included in the community as valuable components.

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