

**From Made in America to Hecho en Sinaloa: A Historical Geography of North
American Methamphetamine Networks**

BY

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ABSTRACT

Most of the major drugs of abuse in the United States have a relatively uniform distribution. Their use may cluster in cities, for example, but that general pattern tends to repeat itself in every region of the country. This is not true of the stimulant methamphetamine, which today shows a decidedly uneven distribution.

Confounding the matter more is the fact that, because it is a synthetic drug, it is theoretically possible to make methamphetamine anywhere. But it is not made everywhere. In fact, for much of its history, the drug has been concentrated in the American West. Further complicating our understanding is the public's general amnesia regarding methamphetamine's long history in the United States. Without that knowledge, it is impossible to explain the drug's present geography. This dissertation traces the evolution of the various networks that have coalesced around the production and distribution of methamphetamine and finds that much of the drug's current geography can be traced to the manner in which these various groups responded to official attempts to stem the supply of the precursors necessary to produce it.

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Introduction

Uneven Menace: The Strange Geography of Methamphetamine

In 2003, at the height of the national methamphetamine epidemic, the Office on National Drug Control Policy's deputy director of state and local affairs, John C. Horton, attempted to explain to the United States House of Representatives why methamphetamine production was booming. Public concern over the drug was at an all-time high. Law enforcement officials had shut down 9,324 meth labs nationwide in 2002, and by the end of the year in which Horton was testifying, that total would be 10,332 (NCLSS 2011).¹ The reasons Horton gave did little to appease the Senators present. Meth production, he claimed, was growing because of continuing demand, the ease of obtaining ingredients, and the availability of recipes on how to make the drug on the Internet. He added that meth production had become part of the culture of the places where it had taken root (House of Representatives 2003).

Horton's final point should be of particular interest to a geographer. Methamphetamine had become a part of the subculture *in the places where it had taken root*. But meth had not taken root everywhere. In fact, previously in his testimony, Horton had noted a "lack of uniformity" in the distribution of the meth epidemic (70). In certain parts of the country, methamphetamine was considered *the* most significant drug threat, while in others its mention barely even sparked recognition. The other major problem drugs in the United States—marijuana, cocaine, and heroin—might show some variation in threat level by region, but that

¹ These numbers reflect data extracted from the National Seizure System in January 2011.

variation was negligible compared to the one exhibited by methamphetamine. A map of drug availability from the *National Drug Threat Assessment: 2003* reflected the truth in Horton’s observation (Figure I.1). Methamphetamine was readily available west of the Mississippi, but largely absent from the rest of the country. The 2011 version of the map reflects essentially the same distribution (NDIC 2002b; 2011a).

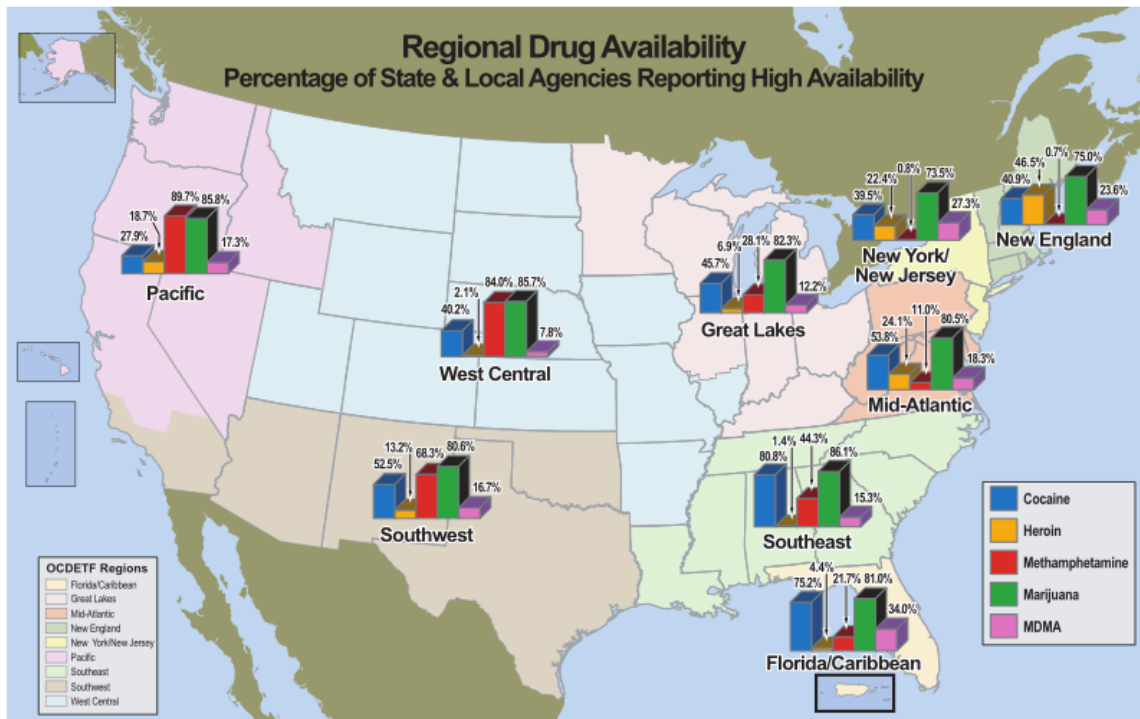


Figure I.1: Drug availability by Organized Crime Drug Enforcement Task Force region (NDIC 2002b).

Methamphetamine is a synthetic drug. Its production does not have any climatic or soil requirements. In theory, it can be made anywhere. During the height of the epidemic, it was this potential ubiquity of supply that sparked the most fear. Meth labs could be found in houses, hotel rooms, trailers, car trunks, suitcases, back packs, and even soda bottles. The list of possible locations for production was

and is almost limitless. However, methamphetamine is not made everywhere. In 2003, only three methamphetamine labs were seized in all of New England. New York and New Jersey had only 10 labs combined. For the sake of comparison, 82 lab seizures occurred that year in a single Missouri county: Jefferson. The entire state of Missouri had over a thousand lab seizures in 2003 (NCLSS 2011).

Further complicating matters is the fact that, at one point in its history, methamphetamine was available in numerous over-the-counter and prescription preparations. Every part of the country had the opportunity to develop a taste for the stimulant. However, by the end of the 1980s, use and production were concentrated almost entirely on the West Coast. Over the course of the last twenty years, methamphetamine markets have begun to diffuse from West to East across the United States (Figure 5.5). Yet to this day, they are unevenly distributed across the country, and have yet to penetrate most of the East Coast.

The task of explaining why the geography of methamphetamine has evolved in the way that it has is further complicated by our culture's insistence on either ignoring or forgetting that this drug has a long history. The titles given to hearings on the subject are illustrative of this trend. In 1994, for example, the House of Representatives held a hearing called "New Problems Facing the DEA," and in 1998 the Senate met for "Methamphetamine: A New Deadly Neighbor." During opening remarks at a hearing in 2004, Representative Mark Souder of Indiana made a similarly erroneous claim, arguing that "this meth phenomenon has really caught the political attention because it's a new drug" (House of Representatives 2004b). These assertions of newness are hard to explain. Representative Souder had been

present at no fewer than four hearings on methamphetamine before he made his statement. In fact, in the year that he spoke, methamphetamine had been available in American markets for seventy years.

Our cultural blind spot regarding the drug's history has meant that officials who ought to be able to explain methamphetamine's current distribution cannot. For example, when Rogelio Guevara, the chief of operations for the Drug Enforcement Administration, was asked by Congress to explain why meth markets were so disproportionately encountered on the West Coast, he could not (House of Representatives 2003). Some of this governmental ignorance regarding methamphetamine undoubtedly comes from the drug's low status in the pantheon of hardcore addictive substances. Veteran officials sometimes refer to meth as "kiddie dope," and Suo (2004e) has claimed that the DEA has long denigrated the significance of methamphetamine in the overall war on drugs (A1).

Public ignorance regarding methamphetamine also stems from the very nature of the drug itself. Jenkins (1999) has argued that synthetic drugs have been studied and monitored less than others because they have historically been consumed by whites. With the focus of antidrug campaigns largely directed at heroin and cocaine, which are consumed predominantly by minorities, data initiatives such as the Drug Abuse Warning Network (DAWN) and Treatment Episode Datasets (TEDS)² have emphasized inner-city locations. He went on to note that little or no coverage of methamphetamine existed in the popular press or academic journals before the mid 1990s.

² DAWN monitors emergency room admissions and coroners' reports for the drugs responsible. TEDs monitor the number of people who seek treatment for addiction to specific drugs.

Jenkins stressed that the dearth of historical studies on synthetic drugs gave them the appearance of having *no history*, causing us to perceive false explosions in growth from long-term trends, and to create epidemics out of slow burns. “Without a historical perspective,” he argued, “we will continually be surprised by what seem to be ‘new’ synthetic drug problems, though in reality these situations usually have deep local roots” (27).

My study seeks to disinter the roots of methamphetamine markets and to explain the drug’s unique geography from a historical perspective. This approach yields a much more complete understanding of methamphetamine’s present distribution and should be useful for predicting future patterns. Before we can explore that history, however, it is important to understand the nature of the drug this project intends to study.

Methamphetamine

Methamphetamine is a central nervous system stimulant that the federal government has labeled as a Schedule II substance. This scheduling means that the drug possesses some medical benefits, but has been recognized to be addictive and potentially dangerous. Schedule II drugs are in a precarious position.

Methamphetamine, for example, can still be obtained with a prescription. It is available legally under the name Desoxyn, and is prescribed for the treatment of Attention Deficit Disorder in children and adults, as well as for narcolepsy (Covey 2007a). On the street, methamphetamine assumes another life. The volume of its sales increases tremendously, and it goes by many names: speed, crank, crystal, ice

and more. In Hawaii and parts of Asia it is called *batu* or *shabu* (Laidler and Morgan 1997). When used for illegal purposes, it can be ingested, snorted, smoked, or taken intravenously. Methamphetamine use produces an intense euphoric high. The degree of its effects vary slightly depending upon the manner in which it is used and, more significantly, on the dosage taken.

Methamphetamine works on the human body by encouraging the rapid release of norepinephrine (the neurotransmitter responsible for stimulation of the sympathetic nervous system³) and dopamine (the neurotransmitter responsible for activating pleasure centers in the brain), and then inhibiting their re-uptake. The result, if smoked or injected, is a profound initial feeling of well-being often called a “rush,” which lasts for approximately thirty minutes, followed by a high that can last for as many as twelve hours. This secondary high is often compared to that of other stimulants such as cocaine, however the buzz associated with cocaine only lasts between fifteen minutes and an hour. After the lengthy high of methamphetamine comes a crash, in which users have increased irritability, fatigue, and depression. To avoid this crash, heavy users will go on “runs” where they repeatedly use the drug for numerous days. The crash after a multiday run will often lead the abuser to enter an unresponsive sleep that can last eighteen hours or more (Iversen 2006).

The short-term effects of methamphetamine can be divided based on the neurotransmitters released. The release of norepinephrine can cause elevated blood pressure and heart rate, teeth grinding, appetite suppression, insomnia, tremors, and blurry vision. Effects caused by the release of dopamine include:

³ The sympathetic nervous system controls the heart rate, blood pressure, and some glandular activity.

feelings of euphoria (well-being), elevated energy, increased sensory perception, improved attention, excitation, intensification of emotions, perception of elevated self-esteem, increased alertness, agitation, aggression, restlessness, irritability, repetitive stereotyped behavior, and increased physical activity (Wells 2007).

Many users report first using meth for its energizing effects. Since its introduction in the 1930s, it has often been associated with the working class, particularly factory laborers, members of the military, students, and truck drivers, all of whom used it as a means to get more hours out of the day. In a recent study of heavy users in Georgia, Lende et al. (2007) found that most people used the drug to improve their own functionality. Women are said to be drawn to it for the extreme weight loss that it can cause, though Linnemann (2010) has found that the logic behind this has more to do with gender stereotypes than actual fact. Other people purportedly use the drug as an enhancement to sexual intercourse, where it is particularly popular among homosexual men (Morgan and Beck 1997; Rebeck 2004; Bonnell 2008). Finally, its energizing and euphoric effects have led to its popularity as a club drug (Owen 2007; Covey 2007a; Iversen 2006; Wilkinson 1998; Rasmussen 2008; Klee 1997).

Continued long-term use of methamphetamine can lead to numerous serious health risks, not the least of which is addiction. According to the Center for Substance Abuse Treatment's *Treatment Improvement Protocol for Treatment for Stimulant Use Disorders* (1999), methamphetamine addiction usually occurs after a latency period of between two and five years, though it can certainly happen sooner depending on the amount used and method of consumption. It is comparable to, but no worse than, heroin.

The continued excessive release of norepinephrine can cause heart arrhythmias, hypertension, inflammation of the heart muscle and lining, aneurysms, and heart attacks. However, the most serious and concerning long-term effects of methamphetamine abuse are associated with the brain. Any excess dopamine that cannot be reabsorbed by that organ must be broken down, resulting in a toxic byproduct that sits on the brain's surface, and can cause the loss of fine and gross motor skills, memory, and cognition. The brain of a serious meth abuser has been compared to that of a patient with Parkinson's disease. Such brain damage can lead to seizures, strokes, and aneurisms (Wells 2007; Iversen 2006).

Short-term use of methamphetamine can cause hallucinations and feelings of paranoia. Prolonged use often leads to amphetamine psychosis, a condition characterized by extreme paranoia, anxiety, and vivid audio and visual hallucinations, which closely resemble paranoid schizophrenia. Sufferers of amphetamine psychosis can injure themselves and others. They often believe that they have bugs or other nuisances on or under their skin, and will have tell-tale scabs where they have picked holes trying to get at these imagined pests. The paranoid hallucinations of amphetamine psychosis have led to violent outbursts and even murder, though the rate at which such violence happens is unclear (Iversen 2006).

Damage also occurs in the cells involved with dopamine release and uptake, meaning that long-term users lose the ability to experience the same levels of pleasure that they had when they began taking the drug, creating increasing levels of tolerance, which then lead to even more bingeing. This sequence causes addicts to

go on ever-longer runs, which produce a series of stereotypical meth-addict features. During a long run, users generally do not eat, resulting in extreme weight loss. They also tend not to worry about personal hygiene. A lack of tooth brushing, for example, combined with teeth grinding and a reduction of saliva production brought on by the drug can result in “meth mouth,” a series of yellow, rotten, and often missing teeth.

Methamphetamine Production

Methamphetamine is a synthetic drug, meaning that it can be produced without the need of organic ingredients. Whereas cocaine is derived from the coca leaf and heroin from the poppy, methamphetamine can be made entirely from products found in most homes. Although methamphetamine is not the only synthetic drug to have achieved popularity (LSD, PCP, Ecstasy, and Fentanyl are common examples), it is by far the one most commonly manufactured in the United States and the world (ONDCP 2004c; UNODC 2008).

All illicit drugs are a drain on society. The violence and crime associated with them create numerous costs for taxpayers. Criminals are imprisoned. Families are broken up. Children become wards of the state. High drug treatment and healthcare costs are associated with drug abuse, often for users without insurance. A psychic toll is also taken on communities that face high rates of usage and addiction (Reding 2009; Garriot 2011). In a study conducted by the Rand Corporation, Nicosia et al. (2009) estimated that methamphetamine cost the United States 23.4 billion dollars in the year 2005 alone. Some \$61 million of that total was

related to meth labs, production facilities unlike those found for any other major drug.

Obviously, all illegal synthetic drugs are produced in laboratories. Some of them, such as LSD and Fentanyl, are very difficult to make. Others, such as PCP, are easy. In terms of difficulty, methamphetamine falls somewhere in the middle. Despite that fact, since the beginning of the 1990s, greater than 95% of all the synthetic drug labs seized in the United States have produced methamphetamine (NDIC 2005a).

Meth can be made in numerous ways. Recipes or methods depend on different raw materials, the most important of which are precursor chemicals, which are incorporated into the final product's molecular structure as a result of the production process (Sevick 1993). Different recipes have risen and declined in popularity over time, usually as a result of governmental attempts to limit access to particular precursors. Today, anyone interested in learning how to make the drug can easily find a recipe. Books such as Uncle Fester's *Secrets of Methamphetamine Manufacture* (2009) can be purchased from Amazon.com, and whole websites are devoted to the subject. In many ways, it is not surprising that labs have proliferated.

Labs vary in size, producing quantities from just a few grams to fifty pounds or more. In the U. S. the trend has been away from large, immobile facilities that need to be set up for several days to much smaller mobile ones that can produce the drug in just a few hours. Most labs today are small-scale, designed to produce enough product for the "cook" and perhaps a few others. These facilities are often referred to as small toxic labs (STLs) or "mom-and-pop" operations. Large-scale

operations, those producing greater than ten pounds of the drug at a time, are referred to as “superlabs,” and are generally associated with sophisticated drug trafficking organizations (DEA 2005). In 2009, 85% of the labs seized in the U. S. had a capacity at or below two ounces per batch (NDIC 2010; 2011a). Interestingly, though the size of labs has shrunk, the quality of the meth produced has increased.

Chemical	Hazard
Acetone/Ethyl Alcohol	Extremely flammable, posing a fire risk in and around the laboratory. Inhalation/ingestion causes severe gastric irritation, narcosis, or coma.
Freon	Inhalation can cause sudden cardiac death or severe lung damage. Corrosive if ingested.
Anhydrous Ammonia	Inhalation causes edema of the respiratory tract and asphyxia. Contact with vapors damages eyes and mucous membranes.
Red Phosphorous	May explode on contact or friction. Ignites if heated above 260 degrees. Vapors from ignited phosphorus severely irritate nose, throat and lungs.
Hypophosphorous Acid	Extremely dangerous substitute for red phosphorous. If overheated, deadly phosphine gas is released. Poses a serious fire and explosion hazard.
Lithium Metal	Extremely caustic to all body tissue. Reacts violently with water and poses a fire or explosion hazard.
Hydroiodic Acid	A corrosive acid with vapors that are irritating to the respiratory system, eyes, and skin. If ingested, causes severe internal irritation and damage that may cause death.
Iodine Crystals	Give off vapor that is irritating to respiratory system and eyes. Solid form irritates the eyes and may burn skin. If ingested, it will cause severe internal damage.

Table I.1: Hazards associated with the common chemicals used in methamphetamine production (House of Representatives 2003, 71).

Most of the essential chemicals involved in methamphetamine production are hazardous, making meth labs toxic places (Table I.1). Today, police officers are required to take a forty-hour course before being certified to enter a lab, and have to don haz/mat suits before entering a building where they know a lab is present. Such caution is justified, as the DEA estimates that, for every pound of methamphetamine created, five pounds of toxic waste are produced (DEA 2005). Not surprisingly, these byproducts are rarely dealt with properly. More often than not, they are dumped down a drain or left outside to leach into the ground, thus extending contamination well beyond the structure in which the meth was cooked. Law enforcement is responsible for removing lab equipment and chemicals from a location, but property owners must cover the cost of remediation, or “the cleanup of residual contamination after gross removal has occurred” (EPA 2009, 3).

Researching Methamphetamine

Though other disciplines have devoted great amounts of time and energy to the study of drugs, few geographers have bothered to do so. Rengert (1996) produced the seminal study, in which he explored the diffusion of illegal drugs in general across the U. S. Among geographies of a single drug, Crooker (1985, 1987, 1988, 1992a, 1992b) has produced several studies of opium production in Asia, and Steinberg (2000) took a political economy perspective in examining the connections between drug trafficking and military juntas in developing countries.

Geographical analyses of methamphetamine have been limited. Lu and Burnum (2008) conducted a statistical analysis of lab seizures around Colorado

Springs, while Weisheit and Wells (2010) performed a similar analysis for lab seizures for the entire United States, and Gilbreath (2010) ran spatial regressions on seizure data from Jefferson County, Missouri. Although offering important insight into the nature of the distribution of methamphetamine labs and producing snapshots of a process that is still evolving, these studies offer little in terms of understanding the drug's geography in a historical context.

The nature of methamphetamine's production sets it apart from the other major drugs in America. Cocaine and heroin are extracted from plants that are harvested and processed outside of the United States. Marijuana cultivation, while occurring in significant amounts within our borders, is spatially extensive. Meth is the only significant drug that can actually be made anywhere. As such, it makes sense to study methamphetamine's geography through time, and from the supply side. By answering the two-fold question of who has controlled methamphetamine production in different decades, and how they have produced it, this dissertation is able to explain the drug's unique distribution.

To recreate the historical geography of methamphetamine, this study relies on a number of sources. Rasmussen (2008) and Grinspoon and Hedblom (1975) have thoroughly documented the early history of amphetamines in America, though not from a geographical perspective. I supplement their work with newspaper and magazine articles as well as those from professional journals. The writings of forensic scientists have been particularly useful in tracking emerging production trends. As the war on drugs has become more formalized, primary sources become more numerous. Reports from government agencies such as the National Institute

on Drug Abuse (NIDA), the Substance Abuse and Mental Health Services Administration (SAMHSA), Office of National Drug Control Policy (ONDCP), and Drug Enforcement Administration (DEA), as well as transcripts from hearings before both houses of Congress begin to be abundant in the 1980s.

Statistics regarding drug use indicators become available in the 1970s. The National Household Survey on Drug Use began in 1974, and evolved into the National Survey on Drug Use and Health. Unfortunately, methamphetamine-specific questions did not enter this survey until the 1990s. The Drug Abuse Warning Network (DAWN) is a nationwide system used to track drug-related emergency department (ED) visits and drug-related deaths examined by coroners. This system records such events in Metropolitan Statistical Areas across the country, and has done so since 1972. Though the methodology has changed over time and comparisons between specific eras of the DAWN system should be done only with caution,⁴ the system was specifically designed to track emerging trends in drug use and is ideally suited to the designs of this project (Caulkins et al. 1995).

Two distinct systems have tracked admissions for drug abuse treatment for the entire United States: the Client-Oriented Data Acquisition Process (CODAP) and the Treatment Episode Data Sets (TEDS). CODAP, which began in 1972, was designed to track drug treatment admissions in all facilities that received federal funding. The project ran until 1981. The TEDS system expanded coverage to include facilities that receive state funding or federal block grants. Unfortunately, TEDS did not begin until 1992, creating an eleven-year gap in treatment data.

⁴ The exception here is when the Substance Abuse and Mental Health Services Administration (SAMHSA) releases reports that have normalized the data.

CODAP, TEDS, and DAWN all report incidents and not individuals, so individuals may be counted multiple times if they are involved in more than one incident in a given year.

Data on methamphetamine lab seizures are also available to varying degrees. Before 2000, no formalized system existed to track seizures by state or local police agencies. The DEA kept statistics, but published them only erratically and some hard-hit states kept their own statistics. Often, the DEA numbers underreport the actual number of labs seized by all agencies. For example, in California, which has been at the forefront of methamphetamine production for most of the drug's history, the state's Bureau of Narcotics Enforcement almost assuredly took down far more methamphetamine labs than the DEA during the 1980s, but their data collection and reporting processes were inconsistent, so we must rely on DEA totals.

Even today, when the DEA runs the National Clandestine Laboratory Seizure System (NCLSS), which is designed to be the national clearinghouse of lab seizure data, numbers often vary. For example, the *National Drug Threat Assessment 2011* (NDIC 2011a) states that 6,032 labs were seized in 2009, while the *National Methamphetamine Threat Assessment: 2010* puts the total that year at 5,306 (NDIC 2010).⁵ Such discrepancies are significant. All statistical analyses of lab seizures in this study use data obtained from the DEA through a Freedom of Information Act request and reflect data extracted from the system in January 2011.

⁵ Further complicating matters, states or municipalities may report labs differently. For example, a lab that is no longer in operation might be classified as a lab seizure in one jurisdiction and as a dump-site in another.

In combination, these various sources have allowed me to trace the historical geography of methamphetamine in America. In doing so, I hope to accomplish two interrelated goals: to rid the country of its collective amnesia about the drug's past and to explain the drug's uniquely irregular distribution. Such an understanding should be of use to policy makers and academics alike.

The organization of this dissertation is largely chronological. After a brief literature review, chapters are organized around the type of organization that was dominant during a particular era. First comes a discussion of pertinent literature on commodity chains, organized crime, and drug markets. Chapter 2 explores the years of legally produced methamphetamine. Next, in chapter 3, I explain how methamphetamine came to be concentrated in the West. Chapter 4 then describes market penetration by international drug-trafficking organizations, while chapter 5 looks at the growth in small-scale lab production over the last twenty years.

Chapter 1

Actor-Network Theory, Commodity Chains, and Drug Markets

Before we can discuss the history of methamphetamine in the United States, it is important to understand the nature of what we are studying. For most of its history, methamphetamine has been a controlled substance. The very fact of its illegality makes it difficult to research. Its production, distribution, and consumption have been illicit activities conducted away from the prying eyes of the public, police, and researchers. This has led, in some cases, to exaggerated claims about the drug's prevalence, addictive nature, and potential for growth (Jenkins 1999; Owen 2007).

Though drugs often come drenched in rhetoric and hysteria, it is important to remember that they are, first and foremost, commodities. They are produced and distributed for profit, oftentimes by members of society who have been deprived of access to other economic outlets (Natarajan and Hough 2000; Brownstein et al. 2010; Caulkins and Reuter 1998, 2006; Eck 1994, 1995; Gootenberg 2009; Kleiman and Young 1995). Historian Paul Gootenberg (2009) has summarized the many ways that illicit drugs operate as commodities through an explanation of the heroin trade:

The again booming heroin trade can be seen as comprised of shifting patterns of supply and demand, profit-seeking and risk-taking entrepreneurs, rationalized labor and flexible-production schedules, extensive networks of middlemen and retailers, transport and outsourcing dilemmas, product testing and product substitution, all under crunching global competition (15).

Any commodity lends itself to analysis via the sequential stages the product must go through to reach consumers (Hughes and Reimer 2004). These stages form

what is known as a commodity chain. For a typical illicit drug the process might look like this: cultivation > production > importation/smuggling > trafficking > wholesale distribution > retail distribution > consumer. Members of the criminal underworld have controlled these various links since methamphetamine first became a controlled substance in 1971. How we might understand the nature of that control, the level to which it is and has been organized, and the structure and qualities of the markets in which the drug is sold is the subject of this chapter.

Actor-Network Theory

Perhaps the most promising approach to tracing the commodity networks of methamphetamine is from the perspective of actor-network theory (ANT). Developed by Bruno Latour, John Law and Manuel Castells, ANT is a poststructuralist social theory that relies on tenets that, at first glance, seem controversial or counterintuitive, but which offer useful insight into the study of any commodity (Murdoch 1995; Thrift and Olds 1996). It is particularly applicable to the study of methamphetamine.

Latour describes actor-network theory as a sociology of associations (Latour, 2005). ANT is a theory and methodology that attempts to trace the various associations that are formed between actors. These actors may come together (form associations) for any number of reasons. In the case of a commodity network, that reason is to produce, distribute, sell, and consume a product. ANT uses the network as the primary metaphor for these groups of associations and for actors within the network. Because each actor (people, groups, inanimate objects -- this is

a broad term in ANT) contains within itself all the associations necessary to exist and function, an actor is technically an actor-network.

Actors enroll (or are enrolled) in any network because they share its goals. However, each enrollee is transformed by that enrollment. This is the idea of translation, a key element of actor-network theory. A second major tenet of ANT is that power is generated by the size of a network. To extend or create a network, new entities or actors must be added. Power emerges as an actor incorporates and translates more and more actors into the network and gains the ability to control (to varying degrees) their actions. Applying this thinking to the methamphetamine trade is easy. Larger methamphetamine networks include more producers and users, control more territory, and produce larger profits.

Networks are often fleeting and tenuous things. Actors must share goals and associations must be maintained. If an actor-network does not succeed in meeting its purpose through extension and translation, then the various entities making up that system will drop out, and the network will cease to exist. It is for this reason that translation is such an important part of the process. Presumably, it is translation that enables success. Murdoch (2006) has called the location of the actor-network (single entity) that dictates translations and controls the network the “center of calculation.” This center is “a discrete place able to act effectively on many other dispersed spaces” (64). In *Reassembling the Social*, Latour (2005) offered the example of an army’s control center. Such a center is not as large as the front upon which the battle is raging, but as long as it remains connected to the theater of battle, it can control what goes on there (Latour, 182).

In the case of large-scale methamphetamine commodity networks, the center of calculation might be the mother chapter of an outlaw motorcycle gang or the home base of an international drug-trafficking organization. Murdoch has called rigidly defined and organized networks with strong centers of calculation “networks of prescription.” Homegrown, small-production networks probably lack any real center of calculation. If we consider individual labs to be small individual networks, then the cook or lab would be the center. But, if we put all clandestine, small-scale labs into a larger, loosely defined small-lab network, then no clear center emerges, a fact that helps to explain the relative weakness of those networks and the federal government’s difficulty in ending domestic methamphetamine production. There is no head that can be removed to shut down the network.

The most controversial aspect of ANT is that it assigns agency to nonhuman actors within a network. Latour has argued that, in addition to serving as a “back-drop for human action, *things* [my emphasis] might authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on [any activity]” (Latour 2005, 72). ANT theorists assert that the study of associations is not complete until the roles of nonhuman actors are fully investigated and appreciated, and that these nonhuman actors are often essential to the production and maintenance of any network. This bold assumption is easy to appreciate in association with methamphetamine. In the case of small clandestine production in the past, the government was not able to curb production even remotely through the removal of human actors. Only supply-side interventions that removed methamphetamine precursors from the network have had success in disrupting

production (Cunningham and Liu 2003 and 2005; McBride et al. 2008; NDIC 2009; Dobkin and Nicosia 2009; Weisheit and Wells 2010). Furthermore, in the case of large-scale production in the superlabs of Mexican DTOs, production is not even close to being halted, and Mexico recently banned the importation of any products containing ephedrine or pseudoephedrine into that country (UNODC 2008). In this sense, the key actor in any methamphetamine commodity network may be the precursors themselves. Only their removal halts production.

ANT is a decidedly spatial theory and methodology, but it reconceptualizes space. The main tenet of ANT as a methodology is to follow connections or associations, so ANT practitioners should come into any situation with no preconceived notion of scale. Latour (2005) has argued that any structuring force that is perceived to be global (such as capitalism) must constantly be reproduced on the local level. However, any place perceived as local is actually connected to any number of other locales through its enrollment in a network. A small lab in Oelwein, Iowa, may seem entirely local, yet it is connected to large pharmaceutical corporations that produce ephedrine- or pseudoephedrine-based products, that are then connected to international chemical producers in India and China that process those necessary precursors. As Latour put it: “No place dominates enough to be global and no place is self-contained enough to be local” (204).

By following the associations or connections between actors in the various methamphetamine networks that have existed in the U. S. over time, this study is able to fill in a number of holes that exist in its spatial history. However, it would be folly to rely on ANT alone. There is a great deal of literature, mostly in sociology and

criminology, that addresses organized crime, drug markets, and drug-trafficking organizations. Without directly addressing ANT, their findings support many of the assertions laid out by Latour (2005). My deployment of ANT as a means of discerning the networks that have coalesced around methamphetamine is buttressed by that work.

Television, movies, and the popular press all seem to want us to believe that the criminals involved in the business of drugs are generally intelligent and crafty, developing incredibly complicated schemes to move enormous amounts of illicit product throughout the country via carefully maintained networks of smugglers, traffickers, and dealers (Felson and Boba 2010). The truth is that most “organized crime” could barely live up to its moniker. Rarely are drugs supplied and dealt by the vertically integrated drug-trafficking organizations (DTOs) depicted in shows like *Miami Vice* (Felson 2009). More often than not, their movements are controlled by loose associations of dealers or individual operators (Eck and Gersh 2000; Curtis and Wendel 2000; Natarajan 2006). As Latour would predict, the markets they establish are often fleeting collisions between motivated sellers and craving consumers. Fortunately, a number of criminologists, economists, historians and geographers have studied illicit drug markets and the organized crime associated with them.

Retail Drug Markets

Drug markets come in a dizzying number of varieties (Hough and Natarajan 2000). Variation depends on many factors including the type of distributors

operating in the market, the type of drug being sold, the history and duration of drug preference in a particular place, the effects of police efforts, security concerns of dealers and users, and the geography of the market's locale (Eck 1994 and 1995; Eck and Gersh 2000; Rengert 1996; Rengert et al. 2000, 2006; Robinson and Rengert 2006; Jenkins 1999; Brownstein et al. 2010; Felson and Boba 2010).

On the retail level, be it controlled by independent dealers or cogs in a vast DTO, drug markets occur where a dealer with product to sell meets a buyer with cash or goods to exchange for that product. Eck (1994, 1995) noted that each step of this transaction is precarious. The dealer is in possession of often highly valuable, but illegal drugs. In seeking out consumers for his product, he runs the risk of either being arrested by the police or assaulted or robbed by a competitor or consumer. If the latter should occur, the dealer has no legal recourse to make back the money he would have earned from his sale. He has none of the structural protection given to retailers in the licit marketplace. Similarly, the consumer, too, is in a precarious spot. She also runs the risk of arrest or robbery without legal recourse. These two factors cause both dealers and consumers to make specific choices about where they go to sell and purchase drugs.

Eck (1994, 1995) had identified two types of retail drug markets for illicit drugs. In the "routine activities market" buyers and sellers operate in public places, usually on or near busy thoroughfares. Hough and Natarajan (2000) refer to such places as open markets. In this situation, buyer and consumer are generally strangers to one another, and a significant portion the buyers will have traveled from a distance to purchase their drugs. This is because, as Rengert et al. (2005)

have noted, such locations tend to develop regional reputations and are often inadvertently promoted by the press in news reports about a regional drug problem. As more consumers are drawn to an open market, more dealers will concentrate their efforts there as well. The result is what Rengert et al. described as agglomeration economies, where dealers and users, by sheer virtue of their numbers, are somewhat protected from police persecution.

The second type of retail drug market is the “social network.” In this situation dealers only sell to users they know or to friends of friends. In this model, dealers will often travel to the homes of consumers. The need for security is less in this type of market. It also removes the stress of having to seek out potential buyers or sellers from the general public. Social drug networks are small and not easily joined. They can be remarkably concentrated in one neighborhood or building, or they can be incredibly dispersed. Writing about San Diego in the early 1990s, Eck described the local methamphetamine markets as being largely social in nature.

Rengert (1996) expanded on Eck’s simple classification system and identified four different types of drug markets that differ in scope of operation and the concern for security of both dealer and user. “Neighborhood markets” are made up of low-level retail sales between friends. They are often disorganized and spontaneous. “Open regional drug markets” are located near areas of heavy nonresident traffic such as shopping malls, schools and transportation nodes. These are usually larger-scale markets (though still retail), and can be referred to as “drugmarts,” or fixed-site neighborhood sales. Sales at drugmarts occur mostly between strangers. According to Eck (1994, 1995) this type of market requires that

the people in charge of running and informally policing an area be taken into account if these markets are to succeed. This may mean bribing a hotel manager, having a complicit apartment building supervisor, or simply having lackadaisical policing of the region. Rengert's third type, "semi-open regional drug markets," are ones in which dealers restrict their business to people whom they know. Dealers in such markets will travel to sell their drugs, but the selling goes on within an established social network, much like Eck's description of methamphetamine markets in San Diego. The fourth category for Rengert is the "closed regional network," which operates over wide areas within extremely tight networks of associates. This type represents the scale at which wholesale drug transactions occur.

Evolution of Retail Markets

Curtis and Wendel (2000) differentiated retail drug markets based on technical organization (where drugs were sold, and the policies and procedures associated with sales) and social organization (differing levels of cooperation, differentiation of responsibilities, and power and authority among members). They identified three locations of retail sales: street level, indoor sales, and home delivery. These are similar to Eck's typologies. Home delivery would be akin to his social network, whereas indoor sales are just slightly different from street sales in that they are located in public places indoors (such as malls), rather than completely in the open.

Curtis and Wendel also identified three types of social organization associated with drug markets. The simplest, “freelance distributors,” are distinguished by having no division of labor or formal hierarchy. Freelance dealers are in open competition with their fellow peers. The least-organized retail drug market would have freelance dealers operating at the street level. The authors also noted that freelance distributors tend to dominate “whenever a new product (or innovation) is introduced” (133), and they are also most often users of the drug that they deal. Because they are users, they often try to sell their product as quickly as possible so that they will not use it up themselves. Based on my interviews with the Independence, Missouri Police Department, this is a good description of individual methamphetamine cooks. Freelance operators typically struggle to maintain enough cash to buy more drugs to continue selling. Though they often are able to create a client base quickly, they tend to be “incompetent entrepreneurs” who do not last long on the scene but who often “pave the way for more organized distributors to move in” (133).

The second type of organization, the “socially bonded business,” is usually based on family or ethnic ties. These groups can vary between an egalitarian cooperative of quasi-freelancers to a fairly hierarchical organization with defined roles. Hierarchical, family-based distribution networks often have roles divided by gender and age. Money typically goes to the head of the family who then redistributes it to the other members. Nonfamily-based socially bonded groups, such as those based on ethnic membership will also frequently redistribute their funds in an effort to help out noninvolved members of their community. This makes

these types of dealer networks less offensive, or sometimes even appealing to neighborhoods. Curtis and Wendel noted that in Bushwick, Queens, socially bonded distribution networks that helped the community were actually protected from policing efforts while the more cutthroat, corporate-style networks were dismantled.

The third and most complex type of social organization is the “corporate-style” distributor network. These have complex divisions of labor and hierarchies. They may exhibit the ethnic or family associations of socially bonded networks, but their focus is more on making money than contributing to the community. In this system, low-level dealers are kept unaware of the inner workings of the organization, often ignorant of even which cartel or organization they work for. Their only contact is with the person directly above them in the hierarchy. Such secrecy is a defense mechanism, of course, so that apprehension of the highest risk dealers cannot lead directly to the arrests of those who run the organizations.

A strictly maintained hierarchy can lead to discontent among the rank and file of the corporate-style network. Little real opportunity exists to rise up within the organization, and lower-level employees are the ones who assume most of the risk in day-to-day operations. Because of such tensions, corporate organizations are far more likely to rely on terror and fear rather than trust and family ties as a way to protect themselves. Public displays of violence not only intimidate the general public who might be inclined to turn in drug dealers, but also keep low-level employees in line. This type of activity is associated more with street-level corporate distribution systems than with indoor or delivery corporate systems

(where social ties were still relied on by low-level distributors within the larger network). As a rule, the further a distribution network gets from the street, the more trust is incorporated into the process.

Curtis and Wendel (2000) acknowledged that their typologies are somewhat platonic ideals, with the reality on the ground being messier and more difficult to discern. They also argue that the social organizations involved in specific retail drug markets tend to change over time. For example, the introduction of a new drug into a market is usually dominated by freelancers. Distribution is disorganized, chaotic. Because freelancers are usually users, however, they act as promoters for the drug, building the market through social ties and boosterism. But, once sufficient demand for a drug exists in a given market, corporate distributors will move in. These networks are much more stable. They do not abuse their product and have reliable access to supply. Perhaps surprisingly, given their complexity and size, corporate distribution networks are also more adaptive than freelancers, and can move and adapt their strategies based on policing efforts and competition from other DTOs. Freelancers, on the other hand, are often tied to specific locations and specific suppliers.

As a market slows due to the leveling off of demand, corporate distributors find it increasingly difficult to maintain profits. They face increasing discontent among the rank and file of their business, and attract increasing attention from police, who can begin to take advantage of the low-level unhappiness. Those conflicts create openings for socially bonded distributors to enter the market and flourish.

Hamid (1992), like Curtis and Wendel (2000), has posited that the manner of distribution of a drug changes over its life cycle. He argued that every drug epidemic is characterized by periods of “onset, incubation, widespread diffusion, peak, decline, and stabilization,” and that different distribution methods reflect these transitions. He also argued that any drug use will decline and stabilize naturally after an epidemic, even without police intervention. Although his study looked specifically at smokable cocaine (crack), he believed his results were transferable. The nature of the stages might differ in time and location, but every drug epidemic would have a life cycle. The crack epidemic specifically ended because the drug itself was an instrument of “capital depletion,” leaving the communities in which it was most widely used without the population of consumers and dealers (due largely to arrests) or the money necessary to sustain its market.

Factors beyond capital availability also affect drug markets. Consumer demand is important. So is crime between DTOs or by criminals upon DTOs. Licit economic activity also has a huge effect on markets, creating changes in neighborhoods (gentrification, business relocations, real estate development) that affect their viability as centers for illegal activity. Rengert et al. (2005) described a situation in which open markets within a neighborhood drove away so many residents that there was no longer sufficient population to support the market.

Though drugs undeniably represent a commodity and their sale a market, the usual rules of markets do not always apply to them. The relationship between supply and demand in such markets is not generally well understood or researched, but recent studies indicate a complicated relationship whereby effective policing

efforts have produced surprising or undesired results. For example, limiting supply keeps prices high, which may actually attract new sellers to the market because they receive a higher return on their investment (Natarajan and Hough 2000). Further complicating matters is the nature of addiction, which tends to create inelastic demand, meaning that when better enforcement reduces supply, causing an increase in price, a corresponding reduction in consumption may not occur, particularly among heavy users. Conversely, Caulkins and Reuter (2006) found that lower drug prices actually reduced consumption for “jugglers” (low-level heroin dealers who are also users). Caulkins and Reuter (2006) theorized several other economic abnormalities that can occur in retail drug markets. For example, police action that removes a particularly violent dealer from the street may actually reduce the price of drugs, as other dealers no longer need to incorporate the cost of protection into their pricing.

Drug Trafficking Organizations

Most retail sales occurring in drug markets, no matter which of the forms described above that they take, cannot go on without the effort of a drug-trafficking organization (DTO).⁶ Someone must be responsible for the earlier, higher-level links in the commodity chain. Drugs must be produced, imported (smuggled), and distributed at a wholesale level before they get into the hands of retail dealers. Eck and Gersh (2000) studied the organization of DTOs that operate at the middle levels

⁶ This is not *always* the case. It is true with methamphetamine only when production occurs at a large scale in superlabs either domestically or abroad. Small lab production is hardly ever intended for wholesale distribution.

of the commodity chain, which they viewed as the least visible step in the process of drug distribution, and therefore, the least investigated. These levels are the ones that actually place drugs into the hands of street-level dealers. Eck and Gersh's study is illuminating in that it helps to expose the lack of organization that is so often attributed to drug traffickers and dealers.

Eck and Gersh began with two popular theoretical models of organized crime, and then posited their drug-trafficking equivalents. The first of these, the "concentrated industry model," is similar to the corporate distribution network described in Curtis and Wendel (2000), and is associated with the conspiracy/bureaucratic model of organized crime. In this model, DTOs are highly organized with hierarchical roles and leadership. Every phase of the drug chain is controlled by a few vertically integrated organizations. The belief by policy makers and policing agencies who subscribe to this model is that, if one or several of these DTOs could be taken out, a severe disruption in U. S. drug markets would occur. The authors argue that the Office of National Drug Control Policy's (ONDCP) High Intensity Drug Trafficking Areas (HIDTA) agencies were established with this model in mind, quoting language from their written objectives that describes the goal of "dismantling or severely disrupting the most significant national, regional and local drug trafficking organizations" (quoted in Eck and Gersh 2000, 245).

Natarajan (2006) argued against the prominence of the "concentrated industry" DTO. She cited the paucity of evidence of mid- and upper-level dealing being controlled by highly organized and hierarchical organizations, going so far as to say that even famous cartels such as Medellin and Cali of Columbia were little

more than loose syndicates of independent entrepreneurs. In general, she found that mid-level trafficking and smuggling was usually undertaken by small groups of “entrepreneurs” who came together in brief cooperation to take advantage of fleeting economic opportunities. Natarajan tested this assertion further with an analysis of wiretap records of a purported heroin network operating in New York City. It, too, proved to be a “highly fragmented business, consisting of a large number of entrepreneurial groups separately engaged in exploiting the lucrative opportunities presented by the demand for drugs” (189). Such loose affiliation was actually deemed a strength for the network, as small groups with few ties were potentially able to move and adapt more easily than larger, more rigidly structured organizations.

The “cottage industry” model, the second mid-level DTO described by Eck and Gersh, is closely aligned with the enterprise model of organized crime, and occupies a space between the freelancers and socially bonded organizations described by Curtis and Wendel (2000). Under this model, the drug-supply chain from importation to retail is controlled not by a few vertically integrated DTOs, but by numerous small groups and individuals. It is a fairly easy business to enter and to leave. Some groups may have specified roles and chains of command, but most are less organized. Although the overall volume of drugs within a market is large, no group is responsible for a significant enough portion of the product that their removal would mark a serious disruption in the market as a whole.

The authors tested the utility and veracity of their models with data from the law enforcement agencies of the Washington/Baltimore HIDTA. They analyzed the

structures of DTOs investigated by the HIDTA, as well as the effect that their removal had on drug markets in the area. Specific qualities, such as hierarchical organization or access to complicated technology proved important in differentiating between the two DTO models. The results showed that most DTOs operating in the HIDTA were best fitted to the cottage industry model. Thinking more generally, the authors noted that, if there were a place in the United States that did not fall into the drug trade as a cottage industry model, it would be one where there was “a great deal of drug importation” (265).

Natarajan and Belanger (1998) similarly found evidence that the majority of DTOs involved in the commodity chain above the retail level did not fit the concentrated industry/bureaucratic model. They examined court cases from thirty-nine midlevel DTOs prosecuted by federal courts in New York City between 1984 and 1997 (cases had to involve more than retail sales, and at least multikilo quantities). They divided these DTOs based on tasks performed (manufacturer, importer/smuggler, wholesale distributor, or regional distributor) and type of organization (freelance, family business, communal business, or corporation). They found high degrees of specialization among the DTOs, with only 40 percent involved in more than one of the tasks listed above. Freelancers tended to work at higher-level tasks, and corporations at lower. No organization operated at all tasks.

All of the organizations relied to some extent on ethnic ties for their membership. This is not particularly surprising given that ethnic minorities have consistently been involved in drug distribution and sales in most industrialized societies (Natarajan and Hough 2000). Natarajan and Hough credit some of this to

the international nature of drug production and smuggling, and some to the fact that minorities have been excluded from other economic opportunities in their current countries. Gootenberg (2009) echoed their analysis, arguing that prohibition had seriously altered the geography of drug production causing it to be “scattered to zones where production [can] be safely concealed and pursued,” and thereby developing a cycle where increased persecution leads to more remote sites for production:

The typical global hot zone of drug production, whether remote from or close to their final markets, is a zone of refuge with a displaced, alienated or ethnically segregated peasantry (for working drug plantations) and an especially weak state or ill-defined borders (23).

In the case of methamphetamine, ethnic minorities did not become heavily involved in trafficking and retail until production went international. As long as the drug was manufactured in the United States, its production and sales were largely controlled by whites operating at various levels of organization. However, most of those whites were from economically depressed locations and backgrounds.

Most of the above studies focused on DTOs trafficking in heroin, marijuana, or cocaine and not methamphetamine. I argue that methamphetamine, as a synthetic drug that for much of its history could be produced domestically without any need for smuggling, is unique. Local production combined with its synthetic nature has produced a greatly truncated commodity chain. The commodity chain for a methamphetamine market based on domestic production looks something like this: production > retail sales. Such brevity can only be matched by other synthetics, such as LSD. Markets based on imported meth, on the other hand, should be

expected to have commodity chains similar to those for cocaine and heroin with additional links for importation (smuggling) and wholesale distribution.

In the remaining chapters, I follow the tenets of ANT to retrace associations between actors and identify the various networks, both legal and criminal, that have formed around the task of supplying methamphetamine to the American market over the last eighty years. Each chapter focuses primarily on the dominant organization type for a particular era, though effort has been made to identify other competing forms as well.

Chapter 2

“Who Put the Benzedrine in Mrs. Murphy’s Ovaltine?”—Amphetamine Production, Diversion and Abuse in the United States, 1937-1972

Before it was known as speed, meth, crank, crystal or ice, methamphetamine had commercial names such as Methedrine and Desoxyn, and was marketed as one of the many drugs in the amphetamine family, alongside such pharmaceutical luminaries as Benzedrine and Dexedrine. These drugs were produced by some of the largest pharmaceutical corporations in the U. S. and Europe: Smith, Kline & French, Burroughs Wellcome, and Abbott Laboratories. They were hailed as wonder curatives, capable of treating any number of maladies, some of which had not existed at the time of their synthesis. The amphetamines’ fall from grace occurred only after their incredible potential for abuse was reluctantly acknowledged in the 1960s, some thirty years after warning bells first sounded. The early history of the amphetamines in the United States is one tied directly to the advent of the modern pharmaceutical industry, military industrial complex, and federal bureaucracy, together with changing definitions of health and sickness.

Birth of a Wonder Drug

Amphetamines were first synthesized in 1887 by a German scientist named Edeleano. Thirty-two years later, in 1919, the Japanese scientist Ogata synthesized methamphetamine for the first time. Neither discovery attracted much attention from the medical community. It was not until Gordon Alles, a young scientist whose

day job was producing pollen shots for a Los Angeles allergy doctor, began working with different formulations of Edeleano's basic amphetamine molecule that the medical potential for amphetamines was appreciated.

Alles' goal was to find a better asthma medication. In the 1920s, asthma was treated largely with ephedrine, a medicine that could be extracted from the *ma huang* herb. As the best of the available bronchial dilators, it was an incredibly popular drug, and producers feared that *ma huang* supplies would soon be insufficient to meet demand. Alles, armed with a Ph. D. in chemistry, was hoping to make his fortune with a patent for a pill form of asthma treatment, as most asthma medications at the time were given in inhalers. After several attempts, he produced a drug that he thought might work in 1929. It was a salt version of Edeleano's original creation, which he called amphetamine sulfate.

The first test subject for amphetamine sulfate was Alles himself. He noted that a 50 mg injection produced a pronounced "feeling of well-being," and a heightened level of talkativeness (Rasmussen 2008). Further experiments showed that the drug in pill form was not particularly effective at fighting asthma, though it did consistently raise the heart rate and blood pressure of recipients and produce the aforementioned feelings of euphoria. Though undoubtedly disappointed that he had not found the new asthma drug of the 1930s, Alles saw enough value in amphetamine sulfate's capacity as a stimulant for the central nervous system that he patented it in 1932.

In the early years of the 1930s, Alles gave samples of his new drug to a number of colleagues working in fields as diverse as narcolepsy, psychiatry, and

gynecology, hoping that someone would find a medically beneficial use. In 1934, he approached the large pharmaceutical firms Merck and Smith, Kline & French to assess their interest in purchasing his patent. Smith, Kline & French had released their Benzedrine inhaler that very year, which used a volatile version of Alles' same amphetamine sulfate to promote nasal decongestion. Seeing value in a pill version of their inhalers, and perhaps hoping to avoid a lawsuit for patent infringement, they purchased the patent and hired Alles as a consultant (Rasmussen 2008).

Backed by the company's large R&D budget, clinical trials were soon underway to test the drug's safety and to identify other, potentially more profitable usages. It is important to bear in mind that these studies were funded by Smith, Kline & French, and researchers were usually under contract to publish results only after the company had approved them. Any negative results in this early stage therefore went unpublished and have been lost to history.

Though negative results may have been lost, the clinical trials did produce the first documented cases of amphetamine misuse. At the University of Minnesota in 1937, medical personnel were surprised by a large number of students coming to them with heightened pulse rates, insomnia, stomach cramps, and confusion. They soon discovered that these students had been abusing samples of Benzedrine that were being tested at the medical school. Apparently, some of the student subjects had noticed the energizing side effects of the drug and had stolen them from the lab to use as "pep pills" to help with final exams. Similar reports also came from the universities of Chicago and Wisconsin that same year (*Time* 1937; *Journal of the*

American Medical Association 1937). The term “pep pill,” would forever stick with the amphetamines.

Despite these early examples of abuse, clinical trials gave fruit in 1937, when the FDA approved Benzedrine as a viable treatment for narcolepsy, Parkinson’s disease, and mild depression. Studies in mental hospitals had shown that the drug’s mood-altering effects were highly useful for the mildly depressed, but were ineffective or even harmful for the severely depressed or deranged. Early studies had also shown Benzedrine’s promise in the treatment of hyperkinetic children (an early term for ADHD), where it actually appeared to calm the children down, rather than make their hyperactivity more acute, as one might expect from a pep pill. Medical journals and physicians’ mailboxes were soon filled with advertisements proclaiming amphetamine’s utility for each of these ailments. Specific attention was given to the treatment of depression, as narcolepsy and Parkinson’s disease affect relatively few people.

The early press coverage of Benzedrine’s introduction was breathless in its excitement. A 1936 headline in the *Chicago Daily Tribune* claimed the drug “ends [the] urge to suicide” (*Daily Tribune* 1936). Reporting on a presentation with one of Smith, Kline & French’s researchers, Dr. Abraham Myerson, to the American Psychological Association, the article read like an advertising pamphlet, stating that Benzedrine had been “found useful in the treatment of nervous disease caused by the swift tempo of modern living.” This article, and others like it, put more emphasis on Benzedrine’s power as a pick-me-up, than it did its approved indications. Dr. Irving Cutter, also writing in the *Chicago Tribune*, saw, perhaps before others, where

the drug would go, stating that: “Benzedrine in small doses will undoubtedly come into use as a psychological stimulant” (Cutter 1937).

The *Tribune* was not alone in its praise of Benzedrine’s potential. A 1937 *Washington Post* article on yet another Benzedrine presentation led with this sentence: “A potent, yet seemingly harmless drug that turns grouchy husbands into cooing angels, reduces body punishment of long grueling motor drives and helps students obtain better grades was described here yesterday to a group of incredulous physicians.” Years later, the persistent abuse of the amphetamine family of drugs by these same truck drivers and students bring about its eventual removal from the market. The article concluded, “Benzedrine sulfate, the drug in question, can provide in some persons, a new and more pleasing personality for 2 cents a day” (*Washington Post* 1937).

In an editorial, the *Journal of the American Medical Association (JAMA)* bemoaned the press coverage of Benzedrine, and implicated such articles in any past and future abuse, stating that, “During the past year a nonvolatile salt of Benzedrine—the sulfate—has been introduced and has been extensively exploited as a stimulant for the brain and producer of sleeplessness. This promotion follows exaggeration in newspaper accounts of the results of experiments made with the drug in psychological investigations.” The editorial went on to say that the side effects of Benzedrine (euphoria and increased energy) meant that it was more likely to be abused than other sympathomimetic amines, and called on university doctors to issue warnings to their students to steer them away from abusing amphetamines during the coming exam period. The authors also accused drug stores in university

cities of seeking profit over the safety of students by selling the drugs, which were available without prescription. The editorial concluded with a lamentation over the drug's fate:

Benzedrine sulfate thus becomes one more example of a drug which is useful in a limited field of therapeutics but which has been diverted to uncontrolled use by the public for related, but not similar, purposes. If the situation is to be remedied, it certainly must be as soon as possible, the manufacturer, the druggist, the student health authorities, the college officials and the physicians must cooperate in preventing the use of the drug by students, who through ignorance may be harming themselves (*JAMA* 1937).

Though at the time this editorial may have seemed reactionary given the paucity of cases of abuse, one wonders if the authors knew how prescient their concerns were.

Despite a deluge of favorable press and marketing material, as early as 1938, narcolepsy researchers in New England were warning of the potential for Benzedrine to induce psychosis in the treatment of their patients (Young and Scoville 1938), and two early articles in the *Journal of the American Medical Association* called attention to the potentially habit-forming qualities of amphetamine. One went so far as to remind readers that both heroin and cocaine were once deemed medically beneficial before their addictive qualities had been discovered (Friedenberg 1940; Tainter 1941). Such early warnings were generally disregarded, however, because the reigning definition of addiction took into account only the physical dependence brought on by heavy narcotics, such as heroin. Stimulants were seen as nonaddictive because the medical community disregarded psychological dependence (Iversen 2006).

A 1939 entry in Dr. William Brady's "Here's To Health" series in the *Los Angeles Times* sounded a similar alarm. Using fictional characters, Brady sketched

an image of a housewife addicted to Benzedrine. Said the imaginary housewife, “I am ordinarily inactive and without ambition to things, that day I painted the porch furniture, caught up on garden work long neglected, rearranged the furniture in living room . . . altogether feeling for the first time in years like a colt. I even tried some of the somersaults you are always mentioning . . .” She later describes feeling 39 instead of 55. “I shall be 40—going on 30.” In another portrait, Brady told the apocryphal story of a student who died during final exams because of amphetamine abuse (Brady 1939).

Because Smith, Kline & French controlled the patent for Benzedrine Sulfate, competing firms had to look for other forms of amphetamines in order to enter the growing market for inhalers, pills, and antidepressants. Those who did not blatantly violate the patent on Benzedrine Sulfate resorted to using methamphetamine-based products because no company had a claim on its patent.⁷ By the mid 1940s both amphetamine and methamphetamine-based products were available over the counter throughout the U. S.

World War II: The Watershed Moment for Amphetamine Abuse

A number of researchers have argued that widespread amphetamine abuse received its impetus from the drug’s heavy use during World War II (Rawlin 1968; Grinspoon and Hedblom 1975; Rasmussen 2008). It is true that the military forces on all sides of that war administered amphetamines to their troops, not for

⁷ It is important to note here that methamphetamine’s effects are not significantly different or more powerful than those of other amphetamines, and most users cannot tell the difference between meth and other amphetamines when taken blindly (Iversen 2006).

depression, narcolepsy, or Parkinson's disease, but for the energy increase and mood lift they created. The German Blitzkrieg was fueled at least partially by methamphetamine administered to the Panzer troops. Rasmussen (2008) has stated that the German military consumed 35 million methamphetamine tablets per month between April and June of 1940. However, by December of that year, German officials had become fearful of the drug's habit-forming potential, and began reducing the amount of methamphetamine available to troops. By 1941, they ceased supplying the drug altogether without special prescription.

In Japan, amphetamines entered the medical market in 1941. During the war, methamphetamine was administered to troops and factory workers to increase energy, morale, and productivity. Afterwards, massive military stockpiles of the drug entered the black market. This was coupled with heavily marketed licit amphetamine produced by pharmaceutical companies. Japanese officials soon had an intravenous methamphetamine epidemic on their hands. The introduction in 1950 of prescription requirements did not stem the abuse. By 1954, there were an estimated 500,000 users (Yoshida 1997). When the legal supply was cut off by regulation, people purchased the drug from what were probably the world's first clandestine meth labs. Lab crackdowns and police harassment of users finally ended the epidemic in 1955 (Yoshida 1997, Lemere 1963).

The allies also gave amphetamines to their armed forces. The British did so largely based on the drug's mood-altering effects, believing that amphetamine use improved general morale and fought fatigue among the troops. In the U. S., Ivy and Krasno (1941) released an extensive summary of the effects of amphetamine in the

journal *War Medicine*, and the U. S. ran a number of experiments on the potential benefits of amphetamine use by the troops throughout the early years of the war. According to Rasmussen (2008), the primary goal was to determine if amphetamines could improve performance along with fighting fatigue. While the results did not indicate great performance enhancement, Benzedrine was made part of every first aid kit in 1943, primarily due to its ability to raise morale through mood alteration.

Grinspoon and Hedblom (1975) have estimated that between 160 and 180 million amphetamine tablets were administered to American troops during the war. Rasmussen (2008) put the estimate even higher, at between 250 and 500 million. Although the actual number of Benzedrine or other amphetamine pills administered to U. S. troops either by British or American medics is not known, Grinspoon and Hedblom persuasively argued that, “if only 10 percent of American soldiers ever used amphetamines during the war, over 1.5 million men would have returned to this country in 1945 with some firsthand knowledge of their effects” (28).

Even before the end of the war, Americans in general were aware of the energizing and even euphoric effects of amphetamine. Again, according to Grinspoon and Hedblom (1978), “by 1943, over half of Smith, Kline & French’s Benzedrine sales went to fill a prescription for people who wanted to lose weight, obtain a temporary ‘lift,’ or stay awake for extended periods” (45). None of these uses had been officially approved by the American Medical Association or the Food and Drug Administration. The drug’s rising popularity led to a production rate in

1945 that Rasmussen (2008) estimated as sufficient to supply two pills daily for every single American man, woman, and child.

Harry “the Hipster” Gibson made the private knowledge of amphetamine’s popularity public in 1947 when he recorded the song, “Who put the Benzedrine in Mrs. Murphy's Ovaltine?” In which he told how, “now she wants to swing, the Highland Fling/She says that Benzedrine's the thing that makes her spring.”

Despite, or perhaps because of this song’s success, he was blacklisted for promoting drug abuse, and never again received the fame and adulation he had in the 1940s.

Inhalers: The First Wave of Amphetamine Abuse

In addition to 1947 being the year of Harry “The Hipster” Gibson’s hit, it also marked the first carefully documented case of amphetamine abuse. Writing in the *Journal of the American Medical Association*, army physicians Monroe and Drell (1947) described the persistent abuse of Benzedrine inhalers in a military prison at Fort Benjamin Harrison in Indiana. That this abuse occurred among military personnel certainly lent credence to Grinspoon and Hedblom’s argument for the impact of World War II. All amphetamine inhalers were available over-the-counter and without prescription at the time, and prison doctors found that inmates were buying the inhalers from guards and then breaking open the canister to extract the amphetamine-soaked paper inside. The prisoners would then soak the paper in a liquid to extract the stimulant, or simply ingest the paper in order to get a buzz from the large (250 mg) dosage of amphetamine it contained.⁸

⁸ A Benzedrine pill, by contrast, contains 10 mg of amphetamine.

The authors found that 25 percent of prisoners had used inhalers in that abusive manner, and that 14 percent had done so during their civilian lives before joining the army. Sixty-five percent of respondents had been aware that the practice existed before arriving at the post. If these results are accurate, and there is no reason to believe they are not, they show that amphetamine abuse was not confined to the military.

A number of the soldiers caught abusing inhalers reported severe withdrawal symptoms upon stopping use, causing the authors to join a growing chorus of experts calling for a reassessment of the addictive potential of amphetamines. The authors also reported the onset of what would later be labeled “amphetamine psychosis”—bouts of paranoia and hallucinations associated with extensive amphetamine abuse. However, they disregarded this side effect, saying that the victims must have had some sort of latent mental disorder that the amphetamines merely tapped into, rather than the drug having directly created the psychosis.

Although the Fort Benjamin Harrison study was the first documented case of amphetamine inhaler abuse, it was certainly not the first incident. Jazz great Charlie Parker’s biography states that he began abusing such inhalers in Kansas City as early as 1937 (Rasmussen 2008), and it appears that a large number of other jazz musicians also abused Benzedrine. Other people did so too. Jack Kerouac wrote *On the Road* in 1951 on an amphetamine binge, but he and several of the other beats (including William H. Burroughs) had been using the drugs since the mid 1940s while they were living in New York. The friend who introduced the beats to inhaler

abuse, Joan Vollmer, would eventually become the first female case of amphetamine psychosis treated at Bellevue Hospital in New York City in 1946 (Rasmussen 2008).

Reacting to growing abuse among students and others, the State of California sought to make amphetamine inhalers available only by prescription in 1944.

Smith, Kline & French, believing that such regulation would destroy the market for their product, combined forces with state pharmacist organizations to fight the proposed legislation. After the manufacturer acquiesced to include a dye and a chemical that would promote nausea if ingested, the California legislature agreed not to restrict the inhalers availability. This victory was short-lived.

Monroe and Drell's 1947 report was followed by others highlighting inhaler abuse. The University of Maryland student newspaper estimated in 1948 that at least three percent of the student body there used Benzedrine regularly as either a study aid or for thrills, and that a larger percentage had at least tried the drug (*Washington Post* 1948). A year later, Alabama Congressman George Grant commissioned a study of inhaler abuse among prisoners and found the practice to be rampant nationwide. Wardens from Arizona, Florida, Georgia, Maryland, New York, Washington, and Wyoming all reported inhaler abuse. Washington Penitentiary Superintendent O. M. Smith was quoted as follows:

It is definitely established here that the use of Benzedrine contributes to the development of perverted practices. The use of Benzedrine as a stimulant by thousands of persons not confined in institutions is also becoming a growing national menace. It is a well-known fact that many college students use the drug as a stimulant during periods of examination. It is further established that many persons in the entertainment world who are required to be wide awake and vivacious during all hours of the night have become addicted to the use of Benzedrine (Pearson 1949)

With pressure mounting from states demanding an alternate version of the asthma inhaler, Smith, Kline & French was forced to introduce a new product, the Benzedrex inhaler, which contained no amphetamine-based compounds. By 1949, they had replaced all Benzedrine inhalers nationwide with the amphetamine-free version.

Despite Smith, Kline & French's decision, many amphetamine-based inhalers remained on the market (and prescription-free in many states). Inhaler abuse thus remained a problem. One popular brand was the Valo inhaler made by the Pfeiffer Company of St. Louis. Widespread abuse of this particular inhaler, particularly in Kansas City, Missouri, finally led to all amphetamine-based inhalers being removed from the market. Ironically, the nauseating chemicals that were designed to prevent inhaler abuse and appease state legislators had led some users to inject the liquefied contents of the inhalers rather than suffer the stomach discomfort caused by eating the medicated paper. The FDA finally banned amphetamine inhalers from over-the-counter sale nationwide in 1959 (Jackson 1971, *Time* 1959). As the *Wall Street Journal* reported: "FDA officials said they decided to insist on prescriptions for amphetamine inhalers because the drug is being used 'for non-medical purposes.' Evidence indicates that many persons, particularly teenagers are removing the amphetamine-soaked wick from the plastic capsules and using the drug as a substitute for amphetamine tablets, which can be bought only by prescription" (*Wall Street Journal* 1959). Even then, methamphetamine-based inhalers were not banned, and some manufacturers, like those of the Valo inhaler, continued to produce a product they knew was largely abused.

Diet Pills and Speeding Truckers

Smith, Kline & French and other manufactures of amphetamine-based products were undeterred by the loss of the inhaler market. By the late 1940s they had begun to exploit another burgeoning outlet for their products: diet pills. Although the appetite-suppressing qualities of amphetamines had been acknowledged from the moment of their introduction, Smith, Kline & French had not immediately sought the drugs' approval as an appetite suppressant. However, with inhalers under attack, and with Alles' original patent set to expire at the end of the decade, they set now about seeking official approval of amphetamines as a diet pill. Testing began in 1945, and by 1947, they had won American Medical Association (AMA)⁹ approval to market the drugs for the new purpose. It was also at this time that the company began to market Dexedrine (dextroamphetamine) intensely, the right-handed isomer of an amphetamine molecule, which they directed explicitly at the diet-pill market.¹⁰ In 1947 Smith, Kline & French sold \$2.2 million worth of Benzedrine, and \$3.6 million worth of Dexedrine. By 1948, fueled by diet-pill sales, Dexedrine sales rose to \$5.2 million (Rasmussen 2008).

With the expiration of the Alles patent and an explosion in diet-pill demand created largely through advertising, the 1950s was a boom time for amphetamine

⁹ It was the AMA, and not the FDA that controlled the acceptance of drugs and their appropriate uses until 1962.

¹⁰ Amphetamine sulfate is a racemic molecule, meaning that it comes in right-handed and left-handed versions called isomers. A Benzedrine capsule contains relatively equal parts of both molecules. However, Smith, Kline & French researchers found that, if they were able to separate the right-handed isomers from the left, their drug lost the negative side effects (anxiety and nausea) associated with regular Benzedrine, resulting in a more user (and abuser) friendly pill.

sales. Between 1949 and 1952, U. S. production of the drugs quadrupled (Rasmussen 2008). It would appear, given sales and prescription rates, that anyone who wanted a prescription for amphetamines beginning in the late 1940s and early 1950s could get one by claiming some ailment.

It is not surprising then, that it was at this time that the World Health Organization became concerned with prescription amphetamine abuse on a global scale. Their 1953 report called for careful monitoring of amphetamine abuse, recommending that preparations should be dispensed only by prescription, that each prescription should specify the number of times it may be refilled, and that a careful record should be kept of each prescription (WHO 1953). The American Medical Association and the U. S. Food and Drug Agency did not jump to meet those recommendations.

The popular press slowly began to turn on amphetamine-based products in the early 1950s. Dr. William Alvarez, in his weekly article in the *Los Angeles Times*, gave insight into the drug's popularity even as he warned of the potential for abuse:

Today, more and more people are taking amphetamine, Dexedrine, Desoxyn [methamphetamine], or ephedrine or some similar drug, either to pep them up and keep them awake, or to clear away gloom, or destroy appetite so that living on a reduction diet will be easier. For some years now these 'pep-pills' have been taken by college students who want to stay up half the night cramming for an examination.

Though he avoided saying that the pills were addictive, and still clung to the idea that only those predisposed to drug abuse will abuse them, Dr. Alvarez did suggest that no one should use them continuously without taking "a short vacation [from them] every so often" (Alvarez 1953). The medical editor of the *Los Angeles Times*

expressed similar concern, stating that, “housewives are becoming addicted to these drugs because of the ease in obtaining them from physicians who prescribe indiscriminately.” He also worried that use by parents had removed the stigma of drugs for their children, noting that in the first four months of 1961, 59 percent of all juvenile arrests in California had involved amphetamines (Nelson 1961).

The 1950s also marked the beginning of governmental crackdowns on the widespread diversion and abuse of prescription amphetamines. Between 1955 and 1959, the Los Angeles Police Department saw a 1,679 percent increase in amphetamine seizures, going from 6,987 to 117,325 tablets (Rawlin 1968). In October 1955 the government issued 42 warrants covering six states (Georgia, Illinois, Indiana, North Carolina, South Carolina, and Virginia) resulting from an FDA investigation of illegal amphetamine sales to truck drivers and minors. Cafes, truck stops, service stations and drug stores were targets. It was the first of many governmental interventions in the use of amphetamines by truckers. FDA Director George P. Larrick explained the focus: “Use of these drugs by truck-drivers is particularly dangerous because they so stimulate the driver that he stays on the job beyond the point of normal physical endurance. His brain tires, his driving judgment and his vision are finally impaired and a tragic accident sometimes follows” (*NYT* 1955).

Rawlin (1968) believed that most amphetamine diversion in the 1950s centered on the trucking industry. Arthur S. Flemming, Secretary of Health Education and Welfare (HEW) concurred: “The prevention of desire for sleep is the basis for a large illegal trade in amphetamine among long-haul truck drivers.” The

FDA launched an investigation at the end of the decade that found some two hundred truck stops illegally selling the drugs (Flemming 1959).

Long-haul truck drivers called the drugs “‘cartwheels, ‘coast-to-coasts,’ ‘West Coast turn-arounds,’ ‘truck drivers,’ and ‘copilots,’” and used them to meet the harsh demands of their largely unregulated industry (Grinspoon and Hedblom 1978, 21).

In a 1971 hearing before the Subcommittee on Alcoholism and Narcotics of the Congressional Committee on Labor and Public Welfare, three truck-driver witnesses estimated that between 50 and 90 percent of long haulers used amphetamines at least occasionally. One witness, Robert Lyons, when asked where he got his pills on the road, said that he would not name specific places, but that if he wanted to, he could easily “get it between here [DC] and Cincinnati on my way home” (House of Representatives 1971, 65).

The pep pills circulating throughout the trucking industry had been diverted from a large number of sources and are probably indicative of diversion at large during the 1950s. Some were stolen from shipments. Others had been purchased illegally in bulk from drug wholesalers. Still others came from shady doctors and pharmacists. Clandestine production of pills was also a source (Rawlin 1968).

Two themes emerge from truckers’ abuse of amphetamines. One is that, since the onset of the pills’ use and distribution, amphetamines have been associated with mobility and migratory groups: truckers and bikers early in their history, smugglers and illegal immigrants later on. Second, amphetamines and methamphetamine are frequently tied to the rise in postwar America of ever increasing demands upon the worker. A prominent economist described the

economic recovery of the 1940s as a “supersonic . . . Benzedrine-stimulated economy” (NYT 1952a). It is almost impossible to read an account of the abuse of amphetamines that does not include reference to the many people who use it as a work aid. Edison (1971), in no way a proponent of amphetamines, summed this sentiment well:

It is possible that amphetamine popularity reflects American culture . . . The amphetamine user is a caricature of many widely admired America traits: intense activity, efficiency, persistence and drive, and the desire to excel, to break records, and to move with ever-greater speed (609).

The Department of Health, Education and Welfare estimated in 1959 that amphetamine production was approximately 75,000 pounds (Flemming 1959). By 1962, according to the FDA, that number had climbed to 100,000, enough to supply 250 mg (20 to 50 doses) to every citizen (*JAMA* 1965). It is important to note that any numbers on amphetamine production before 1971 are estimates. Companies were not required to disclose how many amphetamines they were producing, and frequently refused to do so. Furthermore, no complete list exists of who was even producing the drugs, and those lists would not include illegal or clandestine producers who frequently shipped in knock-offs from Mexico and other locales (McGlothlin 1973). We do know that in 1967, 31 million prescriptions for stimulant-based diet pills were written, meaning that as much as 8 percent of the population was legally using amphetamines (Spotts and Spotts 1980).

The Rise of High-Dosage Methamphetamine Injection

In the late 1950s, medical professionals began to prescribe amphetamine injection for some medical issues. Methedrine (Burroughs Wellcome) and Desoxyn (Abbott Pharmaceuticals) were the brand names for methamphetamine ampoules for this purpose. Obviously, having methamphetamine available in renewable, injection-ready preparations was a situation ripe for abuse. Though a few people had injected methamphetamine extracted from inhalers in the 1950s, the early 1960s saw the first rampant intravenous abuse of the drug. As is often the case, this particular abuse began with addicts and abusers replacing one drug with another, in this case heroin by methamphetamine. During the Korean War a number of heroin-addicted GIs learned to inject methamphetamine while on leave in Japan when heroin was scarce. After the war, many of them came back to the West Coast looking for meth.

At least initially, it appears that intravenous meth abuse in this country began with the best of intentions. According to Kramer et al. (1967), physicians in San Francisco began prescribing large quantities of injectible methamphetamine to heroin addicts in 1960 and 1961. These doctors were apparently operating under the assumption that Methedrine would work like methadone as a means of breaking addiction. At the same time, more unscrupulous doctors in the Bay Area appear to have begun selling methamphetamine prescriptions to junkies for profit. Robert C. Smith (1969) quoted an ex-Methedrine user who described the process:

There were three doctors at the time; the first was on Sutter Street. He was the first one that really went strong. He used to charge \$7 a visit. You go in, sit down, you say—Doctor, I used to be a heroin addict. I can't stand the prices, I can't stand being busted, I can't stand

kicking, I can't stand being sick. I need drugs. I have a physical dependence on drugs, I don't want to use heroin—please, give me a prescription for meth For every person that went and got a prescription, there were ten people who bought from the guy who had the prescription. It was very easy. You take the ampoules and you'd soak them and the labels would fall off and the identifying mark was gone, the drug store identifying mark, the registry mark, the date and everything was gone, so you can just sell the bottle. And there was no way they can trace it back to you once it was out of your hands (20).

Methedrine sales reflect the increase in abuse. In 1959 only a few hundred ampoules were sold in the Bay Area. However, in 1960 that number rose to 280,000. In 1961, it rose again to almost 580,000, and nearly that number again, 550,000, were distributed in the first half of 1962. The estimated street value of all those ampoules approached one million dollars (Rawlin 1968). When the police began to crack down on these doctors and other sources of diversion around 1962, the first clandestine methamphetamine laboratories in the U. S. appeared beginning in San Francisco¹¹ (Morgan et al. 1997; Smith 1969). The voluntary removal of injectible ampoules of Methedrine and other similar injectible versions of methamphetamine from the market in 1963 then rapidly bolstered the number of such labs in operation.

Former hospital orderly Nick Ford was the first person arrested for making methamphetamine in 1963. Operating before the crackdown on drug wholesalers, he was able to purchase 200 grams of powdered Methedrine, which he then combined with water and packaged into ampoules for resale (Turner 1963).

Clandestine production was not confined to the Bay Area. Between 1966 and 1968 the Bureau of Narcotics and Dangerous Drugs seized 21 methamphetamine

¹¹ There is some debate to the exact date. Smith (1969) dates the first labs to 1963 rather than 1962.

labs and 7 amphetamine labs nationwide (Gunn et al. 1970). Though the majority of those seized (12) were in California, they were also found in Maryland, New York, Oregon, Pennsylvania, Rhode Island, Washington and Wisconsin (Figure 2.1).

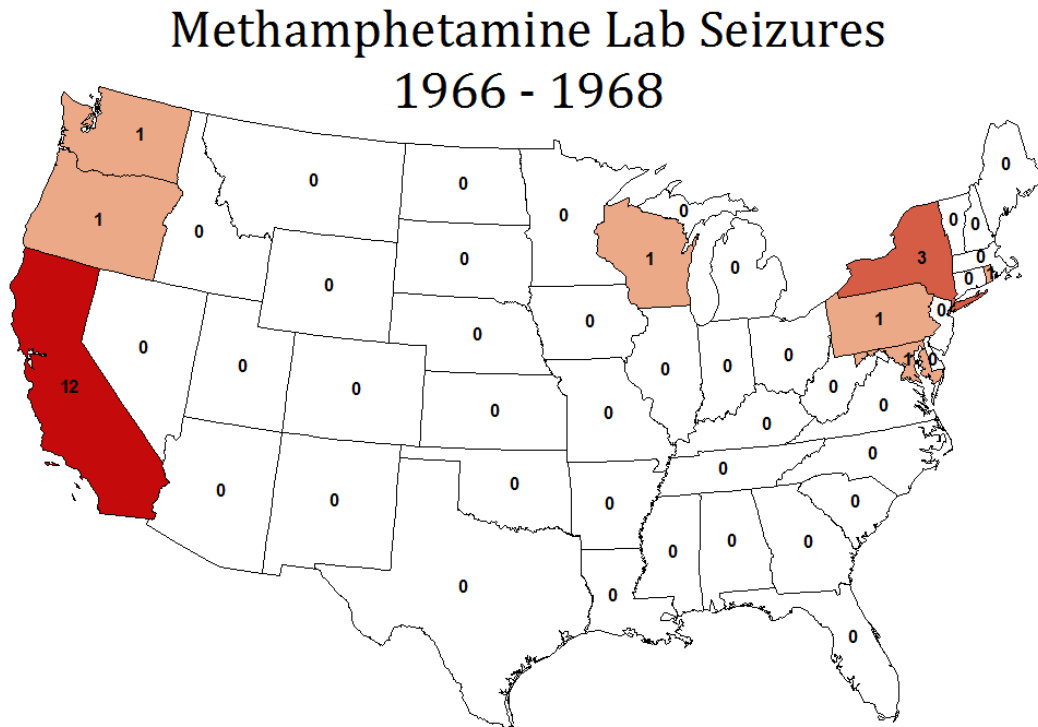


Figure 2.1: Methamphetamine lab seizures by the BNDD 1966 -1968 (Gunn et al. 1970).

In December 1967, the New York City police raided a lab operating within a few blocks of city hall. The attorney general of New York estimated that the lab had cost \$50,000 to set up, implying the involvement of organized crime. A year later, in 1968, the *Los Angeles Times* reported that a lab had been raided in nearby Tarzana. That lab was described as “a methedrine factory,” where the police found two 10-gallon containers of methamphetamine “cooking,” and eighteen ounces of already-processed Methedrine. They estimated the value of the drugs at \$25,000 (*Hansen*

1968). In 1969, the *Washington Post* reported that a “still” capable of producing seven million dollars worth of amphetamines was raided in Arizona.

Roger C. Smith (1969), former director of the Amphetamine Research Project at the University of California Medical Center, described how these early labs operated. The first ones, like that of Nick Ford, were based on the purchase of legally produced amphetamine base from wholesalers, usually under the pretense of medical research and with forged credentials. These amphetamine bases were then neutralized with an acid and sold in crystallized salt form, to be combined with water for injection. After the police effectively cut off diversion from wholesalers, chemists focused on other means of production, which begat the labs we are familiar with today.

Most labs in the early 1960s were operated by drug users themselves and fit the freelance model of distribution networks. These mom-and-pop labs were sometimes described as making “bathtub speed.” Small-scale production required little outlay for equipment and little training. Cooks would deal directly to users or small-scale freelance distributors. The key for the proliferation of these labs was the spread of recipes. One “cook” described how she learned to make meth:

I moved to this house with a friend of mine in Seattle and this guy was making it in the bathroom, and I’m very interested. I like to learn things, so I just stayed with him on three different nights and would go through all the steps and I would write down how to do it. And he taught me and the next time I helped him do it. We did this around five times and I learned a lot. I can do it now, and I know most of the chemicals. I have all of it written down and I have to go by it, the temperature and everything. I couldn’t remember it all, it’s too complicated (C. Smith 1969, 21).

Gunn et al., (1970) of the Bureau of Narcotics and Dangerous Drugs' Laboratory Operations Division, believed that better-educated chemists were able to get the recipes for amphetamines via the Patent Office. "Many of these clandestine manufacturers are as well aware as any graduate student of chemistry how to use scientific research as a resource" (Gunn et al. 1970, 55). They claimed that some raided labs had extensive collections of files on the production of various drugs. In a fascinating aside, they noted that "great advances made in copying machines [had] also assisted the illegal operator in obtaining the scientific information he needs," just as the Internet helps today's would-be cooks (55).

As the decade wore on, the market for injectible methamphetamine matured. Many of the labs that emerged after the early 1960s would qualify today as super labs, ones that produce greater than ten pounds of finished product. These larger labs were found in rural areas outside the central cities of the Bay Area. Smith (1969) estimated in 1969 that six-to-eight such labs provided the majority of the methamphetamine used in Northern California and Hawaii, with the rest supplied by small-scale, mom-and-pop labs.

The large-scale labs fit the corporate model of drug distribution networks. They required a significant outlay of start-up money, which usually came from "straight investors" who sought a return on their investment but had no involvement in the day-to-day operation of the lab or market. The chemists in these labs would supply several wholesale dealers, who would then supply down the chain to small-time (ounce-level) dealers who frequently sold the drug to fund their own use. Chemists and the larger dealers realized sizable profits and isolated

themselves from risk by relying on ounce-level dealers to work at the street level. Small-scale dealers, in contrast, realized very little profit and faced serious risk of violence or arrest. They sometimes increased that risk by cutting the drug with adulterants to increase its volume, a process known on the street as “burning.”

The chemicals needed to operate a large lab were not easy to come by. Though rumors exist of mafia involvement in this part of the production chain, the midlevel trafficking of precursor chemicals described by Smith fits into the cottage industry model. He characterized the people who handled this segment of the commodity chain as “individual entrepreneurs,” who created front businesses in order to buy chemicals and then sold them to chemists at a markup of 25 percent.

Meth Heads and Speed Freaks: High Dosage Amphetamine Injectors

High-dosage amphetamine injectors represented an entirely new phenomenon to observers in the police and medical communities. Coming as it did at a time of increasing drug use nationwide, and during a period when drug use was moving from the societal underground into the middle and upper classes, concern over any “new” form of drug abuse was elevated. Users were quickly labeled as “speed freaks” and “meth heads” (Carey and Mandel 1968, Cox and Smart 1970). Meth head, a term in use as early as 1967, comes not from methamphetamine, but from its most common commercial name, Burroughs Wellcome’s Methedrine. A number of studies were produced to document the new speed-freak “scene” (Carey and Mandel 1968; Griffith 1966; Kramer et al. 1967; Rawlin 1968; Angrist and Gershon 1969). The authors of one particular study of intravenous users

demonstrated that, while this new type of use was dangerous and growing, certain other forms of amphetamine abuse had become generally acknowledged if not acceptable in society by the 1960s. In defining the population of their study, they offered the following clarification:

[High-dosage users] excludes dieters, students who are cramming, people who take amphetamines to improve their work (i.e. pilots, truckers, Madison Avenue executives, prostitutes), even when the pills are obtained illegally and regularly taken at several times the normal dosage (Carey and Mandel 1968, 165).

Amphetamine injectors definitely represented a form of abuse far different from the more mundane examples listed by Carey and Mandel. Intravenous meth injectors usually took 100 to 300 mg of amphetamine per dose, compared to 5 to 10 mg doses in pill form, a quantity much closer to the amount contained in an amphetamine inhaler (250 mg). As tolerance to the drug increased, users were prone to increase their dosages as high as 1,000 mg. Kramer et al. (1967) described one user whose tolerance had grown so high that he used more than one gram per dose, and consumed as much as 15,000 mg per day. Also, intravenous users were no longer trying to make themselves more efficient at work or productive at home. They now were dropping out of society. Amphetamine injectors used the drug in "runs," which consisted of two-to-three-day binges, lasting until the supply ran out. Unlike heroin injectors, who become lethargic after use, amphetamine injectors become hyperactive and excitable. During binges, users often would distract themselves by performing simple, repeated tasks such as stringing beads, cleaning house, or taking apart electronics. They also generally did not eat, causing a weight loss of ten to thirty pounds over the course of the binge and creating an emaciated

appearance in frequent users. After a run, users usually slept for anywhere from 12 to 24 hours. This was referred to as the crash.

High-dosage, intravenous use frequently leads to amphetamine psychosis after several months. Resulting paranoia and hallucinations would sometimes lead to violence, but more often users simply isolated themselves from the outside world until they came down off the drug.

Runs were usually group affairs, as the drug made users talkative. Runs often occurred in houses or apartments rented by users or producers. Sometimes these houses contained runs that lasted for weeks or even months at a time, with users dropping in and out. Mandel and Carey (1968) described how such houses and their temporary tribes of users would inevitably fall apart in time. Perhaps they would become too popular and the police would become aware of them, or the occupants would fall behind on rent and get kicked out. At other times, the users would turn on each other as the need for additional drug money arose and psychosis paranoia became an issue.

It is not entirely clear who the typical meth injectors were at this time. Roger C. Smith (1969) said that they tended to be from middle-class backgrounds, lacking in the “hustling” or petty criminal skills associated with lower-class heroin users. Davis and Munoz (1968), however, came away from their study of “hippies” in San Francisco’s Haight-Ashbury district with the opposite assessment. They concluded that: “‘heads’ [here meaning users of LSD] are by and large persons of middle and upper-class social origins whereas ‘freaks’ [speed freaks, Methedrine injectors] are much more likely to be of working class background.” They may have shown their

own biases when they went on to state that: “LSD equals self-exploration/self-improvement equals middle class, while Methedrine equals body stimulation/release of aggressive impulses equals working class” (161). Davis and Munoz went on to characterize speed use as more frequent among transient, quasicriminal members of the population such as the Hell’s Angels, rather than traditional Haight-Ashbury hippies. They also stated that outlaw motorcycle gangs on the West Coast were among the first groups to abuse amphetamines in general. Carey and Mandel (1969) did not make class distinctions among Methedrine injectors, though they did note that these people tended to become transient once they were living in the Haight. Finally, Kramer et al. (1967) described their sample of amphetamine injectors as coming from such diverse groups as “hippies,’ middle class ‘neurotic’ drug takers, and former heroin addicts. ‘Outlaw’ motorcycle groups are said to be large purchasers of amphetamines for injection” (309).

Black (1970) noted that “it becomes more and more difficult to characterize the typical amphetamine abuser.” Though he found that use was more common among petty criminals, truckers, medical personnel, and homosexuals (whom he noted were vastly overrepresented given their population), he posited that “any harassed ‘outcast’ group might turn to speed with its promise of confidence and power.” It seems safe to say that, whatever their background, a large number of the members of this new class of Methedrine injectors fell rather quickly into a quasitransient lifestyle once they started to use.

Perhaps not surprisingly, the hyperactivity, paranoia, and propensity for thieving of “speed freaks” led to their being generally disliked, even among other

drug users. In San Francisco, particularly in the Haight-Ashbury neighborhood, tensions ran high between amphetamine injectors and the other, mellower members of the counterculture scene. David E. Smith, director of the Haight-Ashbury Medical Clinic, described the Haight as the speed capital of the world in 1968. He lamented how “the speed freak” had replaced or driven away the “acid head,” and as a result, Haight-Ashbury has been converted from an acid subculture to a speed subculture:

The “acid head” community cannot live with the “speed freak” community because of the violent characteristics of the latter. As a result, the “hippies” have left the Haight-Ashbury district, moving to the country where they can establish small rural communes which tolerate and reinforce their beliefs. Unfortunately, in the conflict of “speed freaks” against “acid heads,” speed always drives out acid just as in the broader society the philosophy of violence always dominates the higher aspiration of non-violence, peace, and love (E. Smith 1969, 156).

The conflict between hippies and meth heads led in 1968 to the “Speed Kills” campaign. Though no documentation existed of amphetamine overdoses resulting in deaths and most researchers have not associated amphetamine abuse with consistently violent behavior (any more so than any other drug), the Do It Now Foundation started the campaign to rid the Haight of amphetamines and return it to the more favorable (to them) scene of the hippies. This organization released a compilation album called “First Vibration,” which featured Bay Area rock groups singing songs about the dangers of amphetamine abuse (i.e. Canned Heat’s “Amphetamine Annie”). The group also produced a booklet called “A 19-Year-old Girl and Poet Allen Ginsberg Talk About Speed.” In the pamphlet, the poet and

former Benzedrine-abuse advocate railed against the effects of speed on individuals and the community:

Since 1958 it's been a plague around my house. People that I liked or who were good artists have gotten all screwed up on it, and come around burning down the door, stealing. All the stuff I brought back from India was stolen by speed freaks (Do it Now 1969)

As surreal as having Allen Ginsburg talk to a teenager about speed was, it was nothing compared to the group's radio campaign, which featured such drug-addled rockers as Steven Stills and Grace Slick (of "White Rabbit" fame) warning listeners to avoid speed. This multifaceted campaign gained a lot of publicity, but it is difficult to assess its impact on actual speed usage.

At least initially, speed's popularity continued to grow in the Haight to the point that in 1970, the *Los Angeles Times* was calling the district a disaster zone. Former "summer of love" shops were boarded up. The streets once full of peace-and-love hippies were now occupied by "knots of hard-eyed drug pushers and motorcycle toughs" (*Los Angeles Times* 1970).

Though most research and press coverage focused on the Bay Area, methamphetamine injection was in no way confined there. Writing in the *New York Times*, Jonathan Black (1970) claimed that the FDA had found meth for injection "readily available" in New York, Dallas, Minneapolis-St. Paul, and Seattle in addition to California. Denver was referred to as Crystal City by its drug-using residents. On the East Coast, the East Village of Manhattan was considered the speed capital. There, much like in San Francisco, the drug-using population turned against their speed-using brethren. *The Village Voice* described meth injectors as "a distinct

subgroup, semi-quarantined, and often regarded with apprehension by their fellow hippies” (Angrist and Gershon 1969).

Not every user was shooting up. As one *New York Times* article put it, “thousands and probably millions use amphetamines without becoming wild-eyed ‘speed freaks.’ They drop pills to finish papers, wax floors, lose weight, write songs, sing songs, have conferences, sculpt, wake up and think more clearly” (Black 1970). The 1960s saw studies on amphetamine abuse in Oklahoma (Griffith 1966), St. Louis (Rawlin 1968), New York (Angrist and Gershon 1969), Washington state (Greenberg and Lustig 1966), and Wisconsin (Jackson and Reed 1970).

A Chain Made for Diversion

The diversion of amphetamines from legal to illegal uses continued in relatively unabated fashion during the 1960s. This was easy to do because the links of this commodity chain for legally produced amphetamines allowed numerous points of diversion. In 1966, seven manufacturers in the U. S. produced amphetamines. These seven did not produce pills themselves. Rather, they shipped amphetamine in powder form to either dosage-form manufacturers or chemical brokerage firms that acted as middlemen between chemical manufacturers and the big drug firms. Dosage-form manufacturers then shipped the drugs in usable form to pharmacists, researchers, hospitals and doctors (Sadusk 1966).

Any one of these points of intersection represented a moment when diversion could potentially occur. For example, the FDA prosecuted two firms in 1966 for shipping amphetamines to unlicensed drug manufacturers. This was

diversion from the point of initial manufacture. Others took advantage of dosage-form manufacturers. In 1962, a single individual was able to obtain 13,500,000 amphetamine pills from firms all over the East Coast by forging thousands of prescriptions. A person diverting pills from the dosage-form manufacturer could buy a thousand tablets for a dollar and then sell those same pills for approximately \$40, or if they had the time, at five to ten cents per pill (Sadusk 1966).

Many pill manufacturers would ship their product to Mexico without doing any background checks on the “pharmacies” that ordered the drugs there. Bates Laboratories of Chicago reportedly shipped millions of amphetamine pills to a man who was referred to as “The Pep Pill King of Tijuana” over the course of the 1960s. Federal agents became suspicious only when they found the delivery address to be the eleventh hole of the Tijuana Country Club (*Wall Street Journal* 1969). Donald Rice, testifying before the House Select Committee on Crime, reported that he would spend \$4,500 on 300,000 Benzedrine tablets in Tijuana and then sell them to workers at the Ford Motor Company and General Motors plants in the Bay Area for \$12,000 (Lembke 1969).

Illegal drug diversion had reached a total of four billion tablets per year by 1965 (half of all estimated production), when the federal government passed the Drug Abuse Control Amendments. The goal was to force each link in the amphetamine commodity chain to document where their product ended up, and to be able to produce that documentation at will for inspectors. These amendments were part of Senator Thomas Dodd of Connecticut’s long fight against the pharmaceutical industry over amphetamine abuse. It appeared at first that the

amendment would greatly increase the ability of the FDA to control drug production and levy fines, but the law was vigorously protested by drug companies and pharmacist associations and actually had little effect. Prescriptions, for example, rather than being nonrefillable as the World Health Organization had long recommended, could be refilled up to five times before a patient had to revisit the doctor. Although record keeping provisions were maintained in the final law, the FDA was severely understaffed for checking the paperwork.

In another strike at amphetamine abuse in 1965, the FDA finally removed methamphetamine inhalers from the over-the-counter market. Commissioner George P. Larrick, in issuing the order, cited the growing abuse of the products. The FDA had received 153 reports of cases involving methamphetamine-based inhalers in 1964 from states throughout the Midwest including Colorado, Illinois, Iowa, Kansas, Kentucky, Missouri, Nebraska, Oklahoma, and Texas. Those 153 were up from 54 cases in 1963, and only 5 each for 1962 and 1961 (*Chicago Tribune* 1965).

The Medical Community Responds

While most of the effort in Senator Dodd's 1965 amendments was aimed at stopping diversion and the public was primarily distracted by the growth of intravenous meth abuse, the medical community was becoming keenly aware of two other aspects of the problem: the potential of amphetamines to cause addiction and the growing rates of abuse among people who were receiving the drugs legally by prescription. Connell (1966), writing in a *Journal of the American Medical Association* special edition on non-narcotic addiction (specifically barbiturates and

amphetamines), stated that “these drugs, which are prescribed so widely, are not as safe as had been previously suggested, and . . . a new look into their real value in clinical medicine is needed” (719). He further noted that most amphetamine abusers were not doing so at the street level, but had been introduced to the drug by their physicians.

Cox and Smart (1970) commented that patients receiving amphetamine prescriptions were rarely warned of their addictive potential. Edison (1971), writing in the *Annals of Internal Medicine*, described amphetamines as “perhaps the most serious drug of abuse in the United States” (608). The American Medical Association’s Committee on Alcohol and Addiction and Council on Mental Health, in a statement on amphetamine dependence released shortly after the new laws were put into effect, listed eight common reasons for amphetamine prescription, and judged all but the treatment of narcolepsy and hyperkinetic children as being of dubious value. The crux of their argument and that of others (Edison 1971, Connell 1966, Ellenwood 1971, *JAMA* 1965, Committee on Alcoholism and Addiction and Council on Mental Health 1966) was that amphetamines prescribed in any long-term treatment produced tolerance and, if continued, dependence. One writer, describing amphetamine treatment for the obese stated: “obese patients may use the drug in the same way the ‘speed freak’ does—to obtain a ‘high’” (Edison 1971, 607).

Despite these mid-decade warnings in the medical literature, doctors continued to prescribe amphetamines for as many as thirty-six different indications. Grinspoon and Hedblom (1975) and Rasmussen (2008) both attributed this

primarily to massive advertising budgets of the drug companies. Others have suggested more nuanced reasons. Edison (1971) posited six reasons why a physician might still be prescribing amphetamines. According to his logic: 1) most physicians had not seen the effects of high-dose amphetamine addiction; 2) many physicians felt pressed to offer a solution to obesity when they, in fact, knew there was none; 3) the economic value of amphetamine sales had encouraged an effective advertising campaign (the Grinspoon and Hedblom argument); 4) addicted patients are effective at coercing their doctors into refilling prescriptions; 5) physicians, who abuse drugs more often than the general public, may have difficulty thinking objectively about their utility; and 6) amphetamines reflect American culture (the drive to succeed, to get more hours out of the day, to work ever-harder). Edison ended his editorial with a call to arms: “We must begin taking steps now to end the epidemic overuse and misuse of amphetamines” (609). His hope (which reflected the stance of most physicians and the AMA) was that the medical community could avoid legislation that would limit potentially useful drugs by policing themselves.

The 1970 Comprehensive Drug Abuse Prevention and Control Act

By 1969 it was apparent that the 1965 Drug Control Amendments had been ineffective and that self-policing was not going to reduce the rate of amphetamine prescription. It fell once again to Congress to attempt to draw the reins. Beginning in September of that year, the Senate, again led by Thomas Dodd, began debating a new bill, The Controlled and Dangerous Substances Act, that would limit access to and production of drugs based upon a scheduling system. Schedule I drugs would be

deemed dangerous and without medical benefit. Schedule II drugs were recognized as addictive but with limited medical benefits. These drugs would have firm production quotas and their prescriptions could not be refilled. Schedule III drugs would have less restrictive rules regarding production and prescriptions. The bill (as proposed by Nixon's attorney general, John Mitchell) would put amphetamines into the schedule III category, creating no quotas on their production, and limiting penalties for possession and abuse. Dodd, in the Senate, and others in the House sought to change that designation.

John Ingersoll, head of the Bureau of Narcotics and Dangerous Drugs (BNDD), backed the schedule III designation for amphetamines despite the fact that, according to his own sources, 92 percent of the amphetamines abused in the U. S. had been produced legally, not by clandestine laboratories. Expert medical testimony also called for stiffer controls while it affirmed the widespread abuse of amphetamines in many diverse subgroups of the population. Though the medical community universally recognized only two indications for amphetamines—narcolepsy and hyperkinetic disorder—Dr. Sydney Cohen of the National Institute of Mental Health said that 99 percent of prescriptions for amphetamines were for diet control. Amphetamine researcher and Vanderbilt University School of Medicine doctor John D. Griffith argued that “a few thousand tablets (of amphetamines) would supply the whole medical needs of the country” (Graham 1972, 19). Not surprisingly, the National Association of Retail Druggists, the American Pharmaceutical Association, the Pharmaceutical Manufacturers Association, and the National Wholesale Druggists Association all testified in favor of the schedule III

classification for amphetamines, though they said it would be a burden on their constituents, the cost of which they threatened to pass on to the consumer.

In an excoriating summary of the law's debate and passage in the journal *Society*, James M. Graham (1972) noted how the executive branch and pharmaceutical companies guided all discussion of amphetamine abuse towards usage by high-dose injectors and away from the large numbers of people who abused their prescriptions or diverted pills. As a result, the debate largely overlooked the largest section of abusers and, not coincidentally, the largest source of the pharmaceutical companies' profits. The goal, according to Graham, was "a national policy which declares an all-out war on drugs which are *not* [author's emphasis] a source of corporate income" (15).

As debate continued in the Senate and House, the FDA began to publicly threaten action of its own on amphetamines. In May 1970, they told the *Wall Street Journal* that they planned to demand proof of efficacy on all amphetamine-based drugs. This would be the first step in plans to eliminate its use for all indications but narcolepsy and hyperkinetic disorder. Even though any move by the FDA was bound to be challenged in court, they formally passed strict regulations on the claims that amphetamine producers could make in their advertisements, allowing only indications for the treatment of narcolepsy and hyperkinetic disorder.

Meanwhile, the Comprehensive Drug Abuse Prevention and Control Act was signed into law in October 1970. Only liquid injectible methamphetamine was classified as schedule II, establishing serious quotas on its production and prescription. All amphetamine pills (methamphetamine included) were placed in

schedule III, with little or no regulation. Many observers noted that the new law would have limited impact. Since 1963, liquid meth had been sold only to hospitals, so its scheduling would have little effect on misuse (it was the least abused member of the licitly produced amphetamine family). Congressman Charles Wiggins asked rhetorically why liquid amphetamines were restricted but easily dissolved and injected pills were not. Antiamphetamine crusader Representative Claude Pepper of Florida called the act “virtually meaningless.” Missouri Senator Thomas Eagleton, in assessing the end result of the debate and vote, noted that: “When the chips were down, the power of the drug companies was simply more compelling” than the public good (Graham 1972, 53).

Fortunately for the public weal, members of Congress were not entirely accurate in their assessment of the law. Though it had failed in an effort to curb amphetamine production, it had given the Bureau of Narcotics and Dangerous Drugs the power to reschedule drugs if the attorney general found evidence of street abuse, or if an interested party, such as the Department of Health, Education and Welfare, requested it. The medical community denounced the new drug laws and the new power of the BNDD (Maddock 1972, Edison 1971), but these new powers would prove to be vital in the reduction of amphetamine abuse in the United States.

In May 1971, Attorney General John N. Mitchell, based on the recommendation of Health Education and Welfare Secretary Elliot Richardson, among others, cited the “high potential for abuse,” of the amphetamine family of drugs, and moved to restrict the production of amphetamines. The Justice Department stated that it intended to reclassify all amphetamines as schedule II

drugs, establishing production quotas and nonrefillable prescriptions. This would be the first reclassification under the Comprehensive Drug Abuse and Control Act. The department set 1971 production at 40 percent of 1970 levels. In February 1972, they made even more draconian restrictions, setting amphetamine production for that year at 20 percent of 1971 levels. The actual reductions were 83 percent for amphetamines (1,564 kilograms from 9,356), and 80 percent for methamphetamine (969 kilograms from 4,928).

The laws would prove remarkably effective in removing licitly produced amphetamines from the streets. However, the experiences of clandestine cooks in the 1960s could not be erased from public memory. Though Benzedrine, Dexedrine, Methedrine and Desoxyn were no longer available for diversion, a generation of amateur chemists still existed who knew how to make methamphetamine given the proper chemicals. Simultaneously, a generation of drug users had developed a taste for central nervous system stimulants, not just the much-publicized, high-dosage injectors, but also students, professionals, and housewives who had been abusing pill dosages. Networks would soon develop to meet the demand left behind by the FDA's production restrictions.

Chapter 3
West Coast Booms and East Coast Busts:
The Evolving Geography of Methamphetamine Between The Controlled
Substances Act and 1989

At the time the Bureau of Narcotics and Dangerous Drugs' (BNDD) made the amphetamines schedule II substances in 1970, abuse of the drugs was diffuse. Methamphetamine injection received public attention in the Bay Area and New York, but studies revealed it also to be present in small percentages of the population in intermediate locations such as Minneapolis, St. Louis, and Oklahoma City. Prescription amphetamine abuse in the late 1960s and early 1970s potentially could occur anywhere there were doctors to prescribe them and pharmacies to dole them out. Still, by the end of the 1980s, amphetamine abuse was almost nonexistent and methamphetamine abuse was primarily a phenomenon of the western United States, with DEA agents in San Diego referring to that city as "the meth capital of the world" (Wiedrich 1987).

That title, "meth capital of the world," is one that changed hands frequently between 1971 and 1989. In 1980, Philadelphia earned that status according to witnesses at a government hearing on illicit methamphetamine laboratories in the Delaware Valley area (House of Representatives 1980). Later in the decade, Portland (Oregon), Dallas, and of course, San Diego, would all claim the moniker as methamphetamine abuse and production became increasingly concentrated.

How did the formerly diffuse phenomenon of methamphetamine abuse come to focus in the West? Why did abuse of amphetamines largely disappear? The answers to these questions lie in the push and pull between government actions

against the various forms of amphetamines and the way that drug supply networks responded to those actions.

Stopping Diversion

After passage of the Comprehensive Drug Abuse Prevention and Control Act of 1970, the BNDD and the Food and Drug Administration (FDA) dramatically reduced legal production of amphetamines in 1971 and 1972. In April of 1973 they went even further, sending notification to some three hundred amphetamine manufacturers that they were recalling all diet pills that contained amphetamines. The goal of the recall, according to a spokesperson, was to “end the use of injectible amphetamines and closely related chemicals, and all combination diet pills that include amphetamine and other ingredients such as vitamins or sedatives” (Schmeck 1973a, 1). Combination diet pills, particularly those that mixed barbiturates with amphetamines, had been the fuel that powered the amphetamine boom of the 1950s and 1960s,¹² and were estimated to make up 72 percent of the diet pill market (480 million doses per year) in 1972.

Also in 1973, the FDA lowered production of amphetamines yet again, setting quotas at 40 percent of 1972 levels, or a 90 percent reduction from the peak production year of 1971. The new allowable amounts would be 561 kilograms of amphetamine, and 342 of methamphetamine. In a statement, the FDA said that the new levels were “intended to reduce inventories to a minimum during the current

¹² Along with the introduction of nonracemic, dextroamphetamine-based products (Rasmussen 2008).

year and thus lessen the chance of theft from drugstores, wholesalers, and manufacturers” (Schmeck 1973b, 26).

In addition to granting the power to restrict production of controlled substances, the Comprehensive Drug Abuse and Control Act of 1970 established firm record-keeping laws designed to track the substances from production to retail. By immediately identifying the sources of the abused drugs, these regulations allowed law enforcement to quickly squash several outbreaks of amphetamine abuse. The case of Washington DC in 1972 is exemplary of the process.

Amphetamines had been abused at the street level in DC since the early 1960s, but had never displaced heroin as the drug of choice for most of the city’s estimated 18,000 addicts. However, in the spring of 1972, the city experienced a severe heroin shortage that resulted in higher prices and lower quality. Concomitant to this decline in heroin availability, amphetamine abuse soared. The number of urine samples testing positive for amphetamines among patients entering the city’s Narcotics Treatment Administration rose almost 500 percent between June and September. Positive samples in the court system increased 267 percent over the same time period. In July, amphetamines were found in the blood of four of the seven victims of acute opiate overdose in the DC coroner’s office. Between February and September, the number of amphetamine seizures per month rose from seven to fifty-six (Greene and DuPont 1973).

Police and health officials in the District determined that regular heroin users had begun supplementing the degraded heroin available on the street with amphetamines in order to extend and improve their high. Standard practice was to

grind up two 15 mg tablets (methamphetamine was the most common amphetamine used), dissolve them in water, and then inject them along with the heroin. The pills that were being ground up and injected were not clandestinely manufactured, but had been diverted to the black market after being purchased through prescriptions obtained from corrupt physicians.

In order to curtail the epidemic, police began to monitor amphetamine shipments and prescriptions during the summer of 1972. They found that, while most pharmacies in the District received only modest amounts of amphetamines from wholesalers each month, a group of seventeen pharmacies had ordered an average of 1,900 tablets per month over the summer. In August these orders increased to 14,000 doses per store. Similar monitoring revealed that six area doctors were responsible for 12,602 amphetamine prescriptions between June and August. One physician alone was responsible for nearly half that total, and had been selling printed prescriptions for 60 pills at \$25 a pop to whomever could afford them. The police estimated that the doctor had made \$115,000 by selling the prescriptions.

In cooperation with the police, the District of Columbia Medical Society requested that medical manufacturers reduce the number of amphetamine tablets being sent to the District and established rigorous guidelines for the prescription of amphetamines. Simultaneously, the district attorney used the prescription data along with the Medical Society's guidelines to build a criminal case against the offending physicians. Then, within three months of the removal of these sources, the indicators of amphetamine abuse all returned to pre-epidemic levels. Without

the record-keeping statutes included in the Comprehensive Drug Abuse and Control Act of 1970 and the drug-use-monitoring data available in Washington, this epidemic may well have grown out of control. Similar outbreaks around licit sources were discovered and squashed in Wisconsin (Treffert and Joranson 1981) and Texas (Tempest 1983).

In 1974 the federal government effectively squashed another amphetamine supply chain when it unsealed 102 indictments involving an international conspiracy to import illegally produced amphetamine pills from Mexico. The head of the Drug Enforcement Administration (DEA),¹³ John R. Bartels Jr., said that the indictments targeted a network of “interlocking conspiracies” that was responsible for putting three billion illegal amphetamines on the street. These pills, called “mini-bennies,” had an estimated value of \$1.6 billion per year. The bust was described as the “the broadest single attack against such a nationwide series of trafficking rings in history”(Farber 1974, 25).

Mini-bennies, which are ten-milligram illegally produced knock-off amphetamine pills produced in Mexico, had begun to appear on the illicit drug market in the American West around 1971. They had been the primary source for amphetamines in states that had effectively stopped black-market diversion. According to Smith (1973), several different supply networks developed around the illegally produced pills. Major distributors would go directly to Mexican producers, purchase large quantities, and arrange for the manufacturer to smuggle the pills to a predetermined location within the United States. Los Angeles, San Diego, and

¹³ The BNDD was folded into the DEA in 1973.

Nogales, Arizona, were popular drop-off points. Some midlevel distributors, to keep up with the larger operators, were known to pool their resources in order to hire professional smugglers to bring in the pills. Lower-level distributors, who lacked the connections or finances to make large purchases, had to buy their pills from the large distributors who imported the drugs rather than the Mexican producers themselves. This meant paying a higher price.

However they were imported, mini-bennies were sold to distributors in groups of a thousand. If an operation was purchasing more than fifty thousand pills, they could expect to pay between \$25 and \$30 per thousand. If they were buying less, the price would rise to \$35 or more. Wholesalers would then sell to street dealers at prices approaching \$10 per hundred pills. On the street, prices varied depending on availability. In well-supplied areas, a person might get ten pills for a dollar. In less well-supplied areas, a dollar might only buy three or five pills. Mini-bennies were big business, and the federal government was right to crow about its 1970 indictments.

By reducing legal production steadily over time and attacking illicit production such as the smuggling ring described above, government officials were able to dramatically reduce the amount of the drugs available to users. Morgan and Kagan (1978) conducted a study of the quality of amphetamines available on the street after the passage of the Controlled Substances Act, and found that the legislation had “forever altered the market” (309). Using the results of street drugs sent in to nineteen analysis laboratories throughout the United States, they found that, between 1970 and 1972, samples sold as amphetamine were relatively pure,

with 55-60 percent containing the alleged amphetamines. This relatively high purity rate reflected the lingering presence of diverted, legally produced pills as well as illegally imported “Mexican bennies.”

By 1973, the market began to feel the effect of drug shortages. Prices went up and quality down. The percentage of drugs sold as amphetamines that actually contained them dropped significantly by 1975, and held steady between twelve and fifteen percent for the years 1975-1977. The authors concluded that smuggling and clandestine labs were not able to meet demand for amphetamines. Instead, the market became unreliable, with users more likely to receive caffeine, ephedrine, or any other number of chemicals rather than the amphetamines they sought.

The decline in quality of street amphetamines contained a corollary, however. The same authors who described the fall in purity noted that the quality of methamphetamine available on the streets had actually risen in 1975 and 1976. The reason had to do with experience. Meth cooks had been making the drug since the mid 1960s, when liquid meth was pulled from the market, and thus had a decade to perfect their craft before federal action forced the other amphetamines into a similar situation.

Newmeyer (1978), in an assessment of the epidemiology of amphetamines, described the family of drugs as “a fading favorite” for which the cohort of users was aging and the number of new users diminishing (293). He attributed the declining popularity to problems of quality within the amphetamine marketplace. However, he was not convinced that these drugs would stay in decline: “The intrinsically attractive qualities of amphetamines argue for their continued popularity. Also,

their psychoactive effects are well-suited to the Zeitgeist of the late 1970s-- increased competitiveness, Disco-dance energy and a certain spirit of narcissism and assertive pleasure seeking” (301). If amphetamines did not make a comeback, Newmeyer posited that another stimulant, cocaine, might fill the void left by the amphetamines because it had none of the “degenerate street quality and ‘meth’-tarnished reputation” of amphetamines (301).

The typical American street user of amphetamines in the 1970s was likely to be from the Western states, male, and living in a city. They were generally young and poorly educated. The cohort that abused prescription amphetamine had a much larger percentage of females and appeared to be more evenly dispersed throughout the country. Most people who reported using amphetamines were not hardcore addicts, but rather experimented with the drugs or used them in a “quasi-medical” manner (301). Continuous usage usually resulted in the need to seek treatment within 3.5 years. Drug Abuse Warning Network (DAWN) data on emergency room admissions mentions and Medical Examiner records found higher rates in the Midwest (Minneapolis, Kansas City, Oklahoma City, and Cleveland) than on the East or West Coasts. However, this phenomenon may have been due to less experienced users in the Midwest rather than a higher rate of usage (Newmeyer 1978).

The Client-Oriented Data Acquisition Process (CODAP) system tracked substance-abuse admissions for federally funded treatment programs during the 1970s. Figure 3.1 shows amphetamine admissions as a percentage of all drug

treatment admissions for 1976 and 1980. Neither reflects a particular geographic concentration, indicating that amphetamine abuse was widespread.

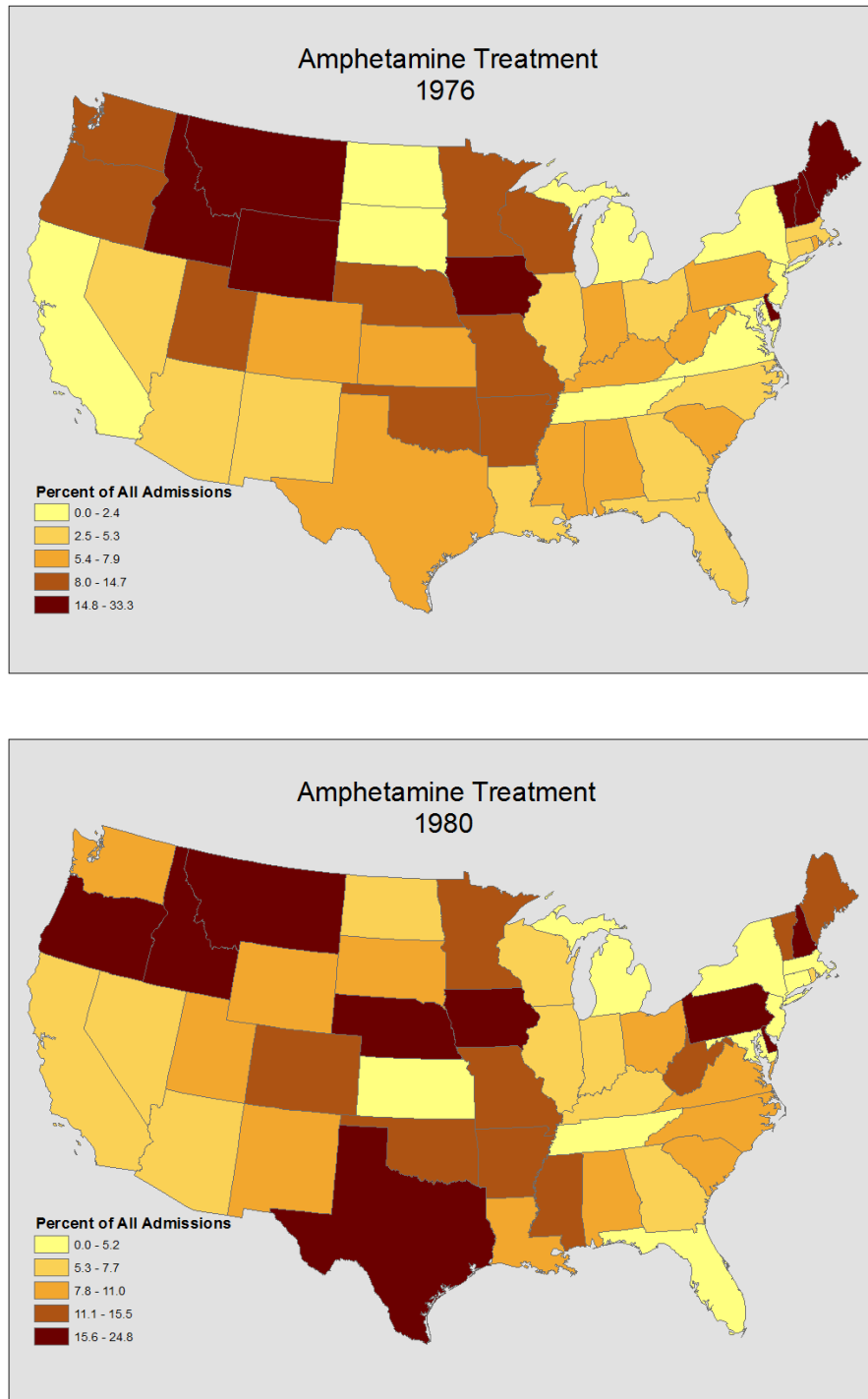


Figure 3.1: The percentage of substance-abuse patients seeking treatment for amphetamine abuse in 1976 and 1980 according to the Client Oriented Data Acquisition Program (NIDA 1977, 1981)

Methamphetamine Production in the 1970s

Methamphetamine producers did not immediately swoop into the void left by the government's crackdown on amphetamines. Many of the speed injectors in former epicenters of abuse had moved on to other drugs, particularly heroin and barbiturates. The Speed Kills campaign had also tarnished meth's reputation among drug users so that fewer individuals were trying it for the first time. In 1975, only eleven meth labs were seized by the DEA nationwide. In short, it was a drug in decline (Smith 1973; Newmyer 1978).

Still, even at its national nadir, meth continued to be made in certain regions of the country. In 1975 the *Los Angeles Times* ran an article asking if Southern California had become the illicit drug production capital of the United States. The writer began with the story of a police raid on a janitorial supply company that had the necessary precursors to make nine pounds of methamphetamine per day. The paper claimed that it was the fifth such raid in the region between July and September. If this is accurate, and the author meant methamphetamine labs, and not simply illicit drug labs (which could include PCP, then the more common lab type, as well as LSD, MDMA, and several other drugs), then Southern California most certainly was the methamphetamine seizure capital of the country. Agent Lloyd Sinclair of the DEA's Clandestine Lab group in Southern California told the paper that, "When a major amount of some dangerous drug like PCP or methamphetamine is seized elsewhere in the country, chances are that it can be traced back here" (Maxwell 1975a, D1).

Sinclair attributed the agglomeration of illegal drug labs in Southern California to two factors. The first was the large number of chemical firms (some 400-plus) that operated in the region and supplied the precursors necessary for drug production. The second was the large number of capable cooks, which dated back to the 1960s period of early manufacture and epidemic usage. On why users became cooks and how knowledge of cooking methods spread within the region, Sinclair offered this assessment:

People who are into dope kind of gravitate toward manufacturing it. One doper can teach another how to make the simplest drug, PCP, rather easily, and there is a kind of network of underground chemists who have no trouble with the more sophisticated drugs. Hell, there are even recipes for some of the drugs in underground books you can buy at nearly any head shop (D1).

Because of the dearth of methamphetamine labs, the street price of the drug increased tenfold between 1965 and 1975. This rise in price served as an incentive for more individuals to enter the market, and as the decade wore on, the number of labs seized began to climb steadily. By 1979 the annual total had risen to 137, a 1,200 percent increase from 1975. Between 1975 and 1978, more of the seized labs were making PCP than meth, but in 1979, the numbers reversed. In fact, meth accounted for more than 50 percent of all illicit drug labs seizures (House of Representatives 1980).

Whether it was being made in Southern California, East Texas, or rural Maryland, the method used to make methamphetamine in the 1970s involved phenyl-2-propanone (P2P). That particular family of production methods is characterized by a noxious smell from two of the chemicals involved, phenyl-2-propanone and phenylacetic acid. It is a smell often compared to cat urine, and was

the reason that early chemists set up shop in remote places to avoid detection.¹⁴ The most common P2P-based production method combined phenyl-2-propanone with methylamine, mercuric chloride and aluminum metal in alcohol (Frank 1983). This procedure took eighteen to twenty-four hours, and produced a final product sometimes referred to as “prope” or “prope dope.”

The P2P family of production methods produces racemic methamphetamine (EPA 2009; Skinner 1990; Miller and Heischober 1991). Methamphetamine, like amphetamine, is a chiral compound. In chemistry terms, a chiral compound is one that has left-handed and right-handed isomers. In the case of methamphetamine, this means that there are levorotatory (l) and dextrorotatory (d) molecules, and that these two types behave in different ways. The levorotary-methamphetamine molecule has sympathomimetic qualities (raises the heart rate and blood pressure, causes smooth muscle contraction, etc.), but is not a strong central nervous system stimulant. Dextrorotary-methamphetamine is the molecule that provides methamphetamine with the stimulant and euphoriant qualities that make it a drug of abuse (Mendelson et al. 2006). A racemic mixture contains equal parts of levorotary- and dextrorotary-methamphetamine.

Though the amphetamines themselves were regulated beginning in 1971, in the 1970s all of the chemicals necessary to make methamphetamine were unregulated and available through chemical wholesalers. To track these unregulated precursor chemicals, the DEA sought the cooperation of chemical sellers in what they called the “Precursor Liaison Program.” Largely educational,

¹⁴ This early production is probably what gives the drug the connection to rurality that it carries to this day.

this program taught chemical companies to look for businesses or individuals that were buying the necessary combination of chemicals to make illicit drugs, and then asked them to report those people to the DEA. Participation was voluntary. Norton J. Wilder, the DEA agent in charge of Philadelphia, estimated that 40 percent of the labs seized nationwide in 1979 had been detected via the liaison program and the diligence of the chemical companies (House of Representatives 1980, 24).

Meeting Demand with New Supply Networks

The networks behind the rising number of methamphetamine labs in the 1970s varied significantly in their levels of sophistication and organization. Some were individual entrepreneurs like Kent Rianda, a high school chemistry teacher who was arrested for operating a large meth lab in the mountains of Southern California. Mr. Rianda had purchased the necessary chemicals for his lab, which was purportedly capable of producing twenty-five pounds of meth every three days, through the high school where he worked (Maxwell 1974). A Wycoff, New Jersey, druggist was similarly arrested for manufacturing pill dosages of methamphetamine in his basement where police found 14,000 individual doses and a chemist employee (*New York Times* 1973).

Other networks were maintained by small, well-organized groups that best fit the cottage industry model of drug-trafficking organizations. One such group was arrested in Brooklyn in June 1974. Brooklyn District Attorney Eugene Gold estimated that the group had sold as much as \$3 million a year in amphetamines and methamphetamine to white, middle-class areas of Brooklyn and Staten Island. The

group included a postal employee who used her position to ship drugs to customers. In the months preceding the bust, the group sold undercover agents fifteen pounds of methamphetamine with an estimated value of more than \$1 million (Perlmutter 1974).

The network most often associated with methamphetamine production and distribution in the 1970s and 1980s was the outlaw motorcycle gang (OMG). In fact, one of the drug's street names, "crank," purportedly comes from it frequently being hidden for shipment in the crankcases of the Harley Davidsons that gang members rode. Of the numerous outlaw motorcycle gangs that have operated in the U. S. since the 1950s, most have been composed simply of enthusiasts with an antisocial bent and an affinity for the "saloon society milieu" offered by life in a rebellious motorcycle "club" (Quinn 2001). However, four major motorcycle gangs operating at the time – the Pagans, Outlaws, Bandidos, and Hell's Angels – were definitely involved in methamphetamine supply networks.

Each of these "Big Four" gangs was formed in a different part of the country, and each played a prominent role in production and distribution within its home turf (Figure 3.2). The Outlaws started in Chicago and had a strong presence in both the Upper Midwest and Florida. The Pagans dominated markets on the East Coast, particularly in the Mid-Atlantic region. The Bandidos were formed in Corpus Christi, Texas, in 1966, and were heavily involved in the drug trade in Texas and Oklahoma. The Hell's Angels controlled the West Coast (Barker 2005; Quinn 2001; Thornburgh 1989).

and they know it. Unlike the campus rebels who with a minimum amount of effort will emerge from their struggle with a validated ticket to status, the outlaw motorcyclist views the future with the baleful eye of a man with no upward mobility at all . . . the Hell's Angels are obvious losers and it bugs them. But instead of accepting their fate, they have made it the basis of a full-time vendetta (quoted in Thornton 1982).

Though apparently not organized originally with the intention of interstate drug distribution, outlaw motorcycle gangs were (and are) ideally suited for that purpose. Their organizations, though extremely dispersed, are hierarchical with a mother club and a central government that control the activities of all other chapters. Regional chapters pay dues to the mother club and are at its beck and call. New chapters can be added either through an application process or a "patching over," in which rival clubs are either peacefully or forcefully converted. Clubs measure success in terms of how much territory they control, and they define territory, not in the blocks or neighborhoods of more traditional street gangs, but in terms of entire cities, states, and regions (Quinn 2001).

The 1960s and 1970s were a time of great expansion for the Big Four, and as they expanded, they came into contact with rival gangs. The resulting conflict, in turn, caused the Big Four to move towards organized crime (Quinn 2001). OMGs needed money to buy the weaponry necessary to protect and expand their territory, and so entered into drug dealing, prostitution, money laundering, and other forms of racketeering. Then, as chapters became sources of illicit profit, the need to control territory became associated not just with prestige, but also with income. The stakes were raised higher still.

Meth distribution was a natural choice for the gangs. First, it was already popular among club members. Second, its price per ounce made it profitable even in small amounts. One member of the DEA explained the drug's appeal for OMGs as follows:

It is very concealable. There is a high profit margin in it where they can control it from the lab clear on down through the distribution networks. They have their own chapters throughout the country, their own clubs that they can ship it back and forth to. . . . They have no boundaries; it is not like a regionalized gang of methamphetamine traffickers. These people go across the country (House of Representatives 1980, 56).

A member of the Bandidos explained the importance in less sophisticated terms. "Everything in the whole club revolves around crack. You can't ride a \$10,000 motorcycle, have a big gun collection, and take care of three 19-year-old ladies working in no body shop" (Isikoff 1989, A22).

A regionalized network of chapters, a hierarchical governance, and a propensity towards crime and secrecy made OMGs an ideal system of organization for the distribution of drugs. Their levels of organization fit the corporate model of drug trafficking, while the intense interpersonal connections between members and chapters matched a socially bonded one. The end result is a powerful blend: corporate efficiency with higher levels of loyalty than one might expect in a large drug-trafficking organization. Furthermore, the mobility of OMGS, their very *raison d'être*, made them nearly impossible to police because their activities fell within no single jurisdiction. As Gil Amoroso, a DEA agent in Philadelphia, explained: "They have no boundaries. It's nothing for them to get on a motorcycle, a car, a van, and

drive to Florida at the spur of a moment, whereas your local officials can't go outside their jurisdictional boundaries" (House of Representatives 1980, 52).

Billie A. Rosen, the special assistant to the United States Attorney in Northern California elaborated on the government's frustration in trying to stop such gangs. He testified that "The fact that virtually every such gang has chapters in more than one state (and the Hell's Angels have chapters in various foreign countries), and share their criminal ventures with their fellow chapters compounds the difficulties local law enforcement faces. State laws are frequently inadequate to lead to successful prosecutions" (17). More often than not, police action in one city or state simply caused OMGs to move their illicit activity into another portion of their territory. Frank Hazel, the district attorney of Delaware County, Pennsylvania, believed that the Pagan Motorcycle Club actively monitored the law enforcement capabilities of different portions of Philadelphia and its surrounding counties, and moved their operations to locations where the police presence was weakest.

In 1980, federal officials estimated that OMGs controlled fifty percent of the methamphetamine trade nationwide (House of Representatives 1980). However, the ways they engaged the methamphetamine market differed by gang and region. On the West Coast, where little traditional organized crime existed, the Hell's Angels appear to have controlled of a large portion of the industry at every level of the supply chain, from material acquisition through production and on to distribution (*Los Angeles Times* 1979). On the East Coast, the Pagans and Warlocks operated in cooperation with traditional organized crime around New York and Philadelphia. Philadelphia DEA agent Gil Amoroso explained the reason for the regional

differences in OMG prominence. “I don’t think any motorcycle club [on the East Coast] . . . is in a position to argue with organized crime” (*Washington Post* 1982, A2)

Quinn (2001) has argued that most trends within the world of outlaw motorcycle gangs follow a progression from the West Coast to the industrial Midwest and Northeast, with eventual diffusion to the South. Meth appears to fit this description. It is believed that the Hell’s Angels were the first club to manufacture and distribute methamphetamine. They were certainly well positioned for it. The modern-day Hell’s Angels were born out of a collection of young delinquents who came together in Oakland in 1957. They grew in prominence and power in the early 1960s just as the injectible methamphetamine epidemic hit in the Haight-Ashbury district of San Francisco (Barker 2005; Barker 2007; Barger 2001). Davis and Munoz (1968) described bikers as among the first groups to take up meth injecting. The Angels actually started their drug production and distribution with LSD, but moved into the meth business in the early 1970s (Thornburgh 1989). In 1977, a former gang-member-turned-government-informant, Richard LaFrentz, said that the Angels had rules regarding meth dealing built into their bylaws. Violators of the rules were expelled from the club (Coakley 1977).

Newspaper stories from the mid 1970s show that smaller motorcycle gangs also got into the act. In Chicago, four members of the Elgin Old Stylers were arrested after selling \$3,000 worth of methamphetamine to undercover agents (*Chicago Tribune* 1973). On the East Coast, members of the Warlocks and Confederate Angels, in addition to the Pagans, were arrested on meth charges (*Washington Post* 1980, *New York Times* 1977).

By the 1980s, the Bandidos were heavily involved in Texas and elsewhere. In 1985 they were the object of a massive FBI bust that took in over 80 Bandidos (Sawyer 1985). A rundown of the states in which they were arrested gives a sense of the size and dispersion of their methamphetamine network. Bandidos were arrested in Arkansas, Colorado, Louisiana, Missouri, South Carolina, South Dakota, Texas, and Washington. A similar 1985 crackdown on the Hell's Angels, dubbed "Operation Rough Rider," resulted in a similarly widespread zone of arrests: Albany, Boston, Charlotte, Cleveland, Newark, New Haven, New Orleans, Omaha, Phoenix, Richmond, Sacramento, San Diego, and San Francisco (Werner 1985).

Scheduling Precursors and the Response to P2P Scarcity

On February 11, 1980, the DEA made phenyl-2-propanone a Schedule II substance. It was a move that would have a profound effect on methamphetamine networks across the country. After that date, the options available to meth producers who wanted to stay in business were limited to three possibilities. The first was to make their own P2P. Frank (1982) reported that the DEA had seized only two P2P labs in 1978, and nine in 1979. In 1980, however, after the scheduling, they seized 26, and in 1981, 38. Moreover, of the 38 P2P labs seized in 1981, 25 also made meth and six made amphetamines. Only six made P2P alone. The fact that 25 of the total of 73 meth labs seized in the first three quarters of 1981 were producing their own P2P indicates that this was a fairly popular solution to the problem. Still, fully two thirds of the seized labs were not making their own precursors. Some might have been purchasing P2P from other labs, but the small number that

produced only P2P indicates that very few underground cooks were creating product to sell to other drug manufacturers.

The second option available to producers was obtaining legally produced P2P through illegal means. The methods used here harken back to the time of amphetamine diversion, and involved either finding disreputable local chemical dealers or buying it from international chemical producers and smuggling it into the country.

It should not be surprising that the scheduling of the P2P precursor in the increasingly lucrative methamphetamine industry resulted in a significant black market. In fact, even before this scheduling (perhaps because of measures like the Precursor Liaison Program), producers had begun to consider alternative sources for the chemical. For example, a small meth-making operation run by members of the Los Angeles Hell's Angels was infiltrated by an undercover agent in 1979 after he claimed to be a burglar who could steal P2P for their lab (Maxwell 1975). The *Richmond Times Dispatch* reported that the Confederate Angels (a smaller motorcycle gang operating in the Mid-Atlantic region) sent one of their members across the country to Los Angeles to purchase four cases of P2P for \$10,850 well before it was scheduled (House of Representatives 1980).

After February 11, many more producers turned to unscrupulous chemical dealers to obtain legally produced P2P, and whenever a viable source of the precursor was found, word spread quickly. The success of a 1981 DEA sting operation illustrates the high demand for P2P sources created by the scheduling. In 1981, they set up an undercover operation around a front supply store called

“Precision Organic Chemicals” in a southern Chicago suburb. The original plan was to keep the shop open for only a few weeks to entice a few suspected cooks into purchasing precursors. However, word of a shop that was willing to sell P2P spread quickly and attracted producers from all over the country; the DEA kept the operation running for months. Among those ensnared was a couple from Arlington, Texas, who were convicted of manufacturing P2P after one of their employees called the store to get advice on how to make the precursor. The same employee later tried to trade an ounce of meth and \$35,000 for a 55-gallon drum of P2P from the company (Emmerman 1981).

In April 1986 the DEA arrested 58 year-old Bud Farrell, owner and operator of Chemical Shed, Inc. of Southern California. Farrell had been a DEA informant since 1977, but had begun to stray after 1983, preferring to sell glassware, essential chemicals, and precursors to clandestine cooks at inflated prices. Federal officials estimated that seventy to eighty percent of Chemical Shed’s business went to illicit drug makers. The company also was the largest national purchaser of ether, a volatile liquid used in production of meth and several other synthetic drugs. Between 1983 and July 1985, 41 of the 85 illegal drug labs raided in Los Angeles contained chemicals from Chemical Shed. In the indictment, one producer testified that he drove from Minneapolis to LA to buy chemicals from Farrell because it was so much easier than trying to get them in Minnesota (Palermo 1986).

In Oregon, where meth lab seizures rose from 10 in 1983 to 131 in 1987, the assistant U. S. attorney in Eugene, Thomas Coffin, began prosecuting chemical companies that wittingly sold drug precursors to methamphetamine dealers as

coconspirators in drug production. In one particular case, Eugene Scientific reportedly saw such a significant uptick in their sales related to methamphetamine precursors in 1984 or 1985 that almost their entire clientele (95 percent according to Coffin) were cooks (House of Representatives 1988).

As was the case with the Chemical Shed investigation, all of the chemicals involved in meth production were significantly marked up in price at Eugene Scientific. One of the company's most popular chemicals was phenylacetic acid. Used primarily as a precursor for the production of P2P, phenylacetic acid has few other applications, none of which could be found in the industries of Oregon in the mid to late 1980s. However, in 1985 and 1986 Eugene Scientific sold 5,000 lbs. of the chemical, enough to produce 2,000 lbs. of meth with a wholesale value of \$20,000,000. By comparison, California, which had a reporting law in place during those years, sold a total of 10 lbs. of phenylacetic acid for legitimate purposes in the same time span (House of Representatives 1988).

If one were operating at the wholesale level, P2P was an expensive proposition. On the black market, a 55-gallon drum of the oily substance sold for between \$200,000 and \$500,000. With that 55-gallon drum, an experienced cook could expect to produce 400 pounds of methamphetamine. At the wholesale level, on the East Coast in 1980, a single pound of meth sold for roughly \$10,000. So, for an investment of \$500,000, an enterprise capable of moving 400 pounds of meth could extract a profit of \$3,500,000 minus the other lab-related costs. However, this calculation presumes an organization with the wherewithal to acquire such a drum and the money to make the purchase. On the East Coast, the Pagans Motorcycle Club

looked to traditional organized crime in Philadelphia to help bankroll their investment and coordinate the smuggling of such drums into the country (House of Representatives 1980; Lyman 1989; Jenkins 1992).

The third option available for methamphetamine producers to obtain precursors involved innovation. The P2P method of methamphetamine manufacture is not the only way to make the drug, and the foundations for other methods have been explained in academic chemical literature since the 1920s (Skinner 1990). Enterprising criminals with a sound knowledge of chemical processes and access to pertinent literature soon found new ways to make meth. Some of these methods were in use even before P2P was scheduled, but they represented a very small percentage of all labs seized (Frank 1982). After 1980, however, two “new” methods appeared with increasing frequency. The first was the Red-Phosphorous (Red-P) method, which first appeared in 1981. The second method was observed for the first time in Vacaville, California, in 1989, and would come to be known as the “Nazi Method” (Ely and McGrath 1990).

From its introduction to today, methamphetamine has proven difficult to control. Seemingly every act of regulation by the government has been met by a response from users and producers that results in the opposite of the desired effect. Just as the removal of methamphetamine ampoules from the market in the early 1960s resulted in the first methamphetamine labs, the scheduling of P2P had similarly unforeseen consequences. On the West Coast, it led to innovation in the supply chain, the loosening of the Hell’s Angels’ control of the market, and a boom in the clandestine methamphetamine production business. On the East Coast the

scheduling further entrenched the relationship between the Pagans and traditional organized crime, and eventually led to the drug's fall from favor among eastern drug users. The spatial variation in those responses rewrote the drug's geography, leading to the agglomeration of methamphetamine production in the West and Southwest and setting the stage for the eastward-moving epidemic of the 1990s and 2000s.

West Coast Boom

Meth producers on the West Coast responded nimbly to the loss of P2P, and the region became the center of methamphetamine innovation in the 1980s. In 1981, producers there began to adopt the Red-Phosphorous method of methamphetamine production. This new recipe, which required no P2P or any other scheduled substances, and relied instead on ephedrine and later, pseudoephedrine, as a precursor, proved to be incredibly popular. Today, we associate ephedrine and pseudoephedrine with cold pills, but in the 1980s cooks could easily buy such chemicals in bulk from wholesalers like Chemical Shed and Eugene Scientific. Most other necessary ingredients could be purchased from hardware stores.

As the decade wore on, more and more meth producers adopted the Red-P method. A 1990 report on the procedure by a DEA chemist described it as "the most common method of manufacture of methamphetamine in the United States" (Skinner 1990). This was true, but only by a slim margin nationally. Of the 416 labs seized in 1989 for which the manner of production was determined, 53 percent

used the Red-P method and 47 percent used P2P (Irvine and Chin 1990).

Regionality was strong, however. In Southern California, the percentage of labs using Red-P was as high as 90 percent in 1988 (Derlet and Heischober 1990).

Using 1988 seizure data from Irvine and Chin (1990), we can derive just how significant Red-P production in Southern California was to the national total. In 1988 the DEA seized 315 labs in California and 629 nationwide. If we assume, based on comments from California Attorney General John Van De Camp, that meth-lab seizures in San Diego made up approximately one quarter of the national total (Weintraub 1987a), we can estimate that San Diego was responsible for 157 labs in 1988, roughly half of California's total. Using the 90 percent guideline, approximate 142 of those labs would have employed the Red-P procedure. Assuming that use of the Red-P method grew between 1988 and 1989, one can estimate that the division between the two methods was 50/50 (rather than the 53/47 total given for 1989) and that nationwide, 315 Red-P labs were seized. This means that in 1988, 45 percent of all the Red-P labs seized nationally were found in San Diego.

The new method caught on for a number of reasons. First, it circumvented the need for P2P. Not only did this eliminate much of the telltale odor of the cooking process, but it also democratized meth production. Before scheduling, only large criminal organizations such as the Hell's Angels or traditional mafia could find black-market sources of P2P and avoid being detected by the DEA. That option was not readily available to small-scale producers. However, in the early 1980s, ephedrine and pseudoephedrine were not even on the government's radar, meaning any individual could purchase them and their sales were not monitored.

The *Los Angeles Times* ran a story in 1985 that illustrates the increasing diversity of meth producers. It was about a teenager who made meth in his suburban garage using the Red-P method (Omundson 1985) and offered insight into how rapidly the Red-P technique spread. The young cook, Duane, then 17, described how he learned to make meth by knowing “older guys who were really into it, and they let me watch them do it. I watched very, very carefully, and after three or four times I knew how to do it.” This is significant because Duane learned to make meth when he was thirteen, meaning that he was using the Red Phosphorus recipe just as it was appearing in 1981.

Duane is indicative of the freelance producers who entered the market after the Red-P method took hold. Small-scale cooks operating in groups of two or three appeared in large numbers, each producing a small amount of product for personal use and resale. This type of network was a far cry from the vast, vertically integrated, interstate drug-trafficking organizations that previously had controlled production (Morgan and Beck 1997). DEA agent Ron D’Ulisse lamented how the new method had changed the drug market in San Diego: “Everyone and anyone can do it. We were dealing with the motorcycle gangs, but now we find it’s amateur hour, with people who don’t belong in the business cooking methamphetamine” (Lait 1988, A14).

The *Los Angeles Times* associated the transition with increased volatility in the city. “Virtually unlimited access to precursor chemicals drew a new breed of unsophisticated criminals into the methamphetamine business. It was these entrepreneurs, cooking drugs in their suburban garages and city homes, who were

largely responsible for making the explosions, fires, and other dangers of drug manufacture virtually an everyday part of life in San Diego” (Schachter 1987, A5).

The transition away from P2P also meant that the drug could be produced in increasingly varied locations. Whereas prope dope had to be made in remote areas where fumes could disperse without being smelled, the Red-P method allowed production to occur wherever there was enough privacy to set up a lab. In the 1980s labs were found in places as varied as private residences, garages, storage facilities, vehicles, houseboats, and horse trailers (Irvine and Chin 1990).

Quality was another reason for the increasing popularity of the new Red-P method. The Red Phosphorous method produces meth that is entirely d-methamphetamine, rather than the 50/50 racemic mixture found in prope dope. Meth that is made entirely of dextrorotary isomers is significantly more psychoactive than racemic methamphetamine, meaning that users get much more of the desired central nervous system stimulation with each dose (Taylor and Snyder 1970; Lukas 1970; Skinner 1990; Miller and Heischober 1990).

The Red-P recipe also produces a purer end product. To producers, this meant that the meth coming out of the newer labs could be “stepped on,” or degraded with other products, at a higher rate than P2P meth. This translates into higher yields and profits. To users, the purity meant that the meth being made in Southern California after 1981 was a significantly more appealing stimulant than anything that had come before or was still being made in other locations.

It does not seem coincidental then, that Southern California and the rest of the West Coast experienced a methamphetamine boom after the introduction of the

Red-P method. Nationally, the DEA seized 88 labs in 1981. By 1989 that number had jumped to 652, with the West Coast making up a disproportionate segment of that number. In 1987 California and Oregon accounted for 61.7 percent of all meth labs seized in the U. S. In 1988 that number grew to 66 percent (69 percent if Washington state were included in the calculation) (House of Representatives 1988; Irvine and Chin 1990) (Figure 3.3).

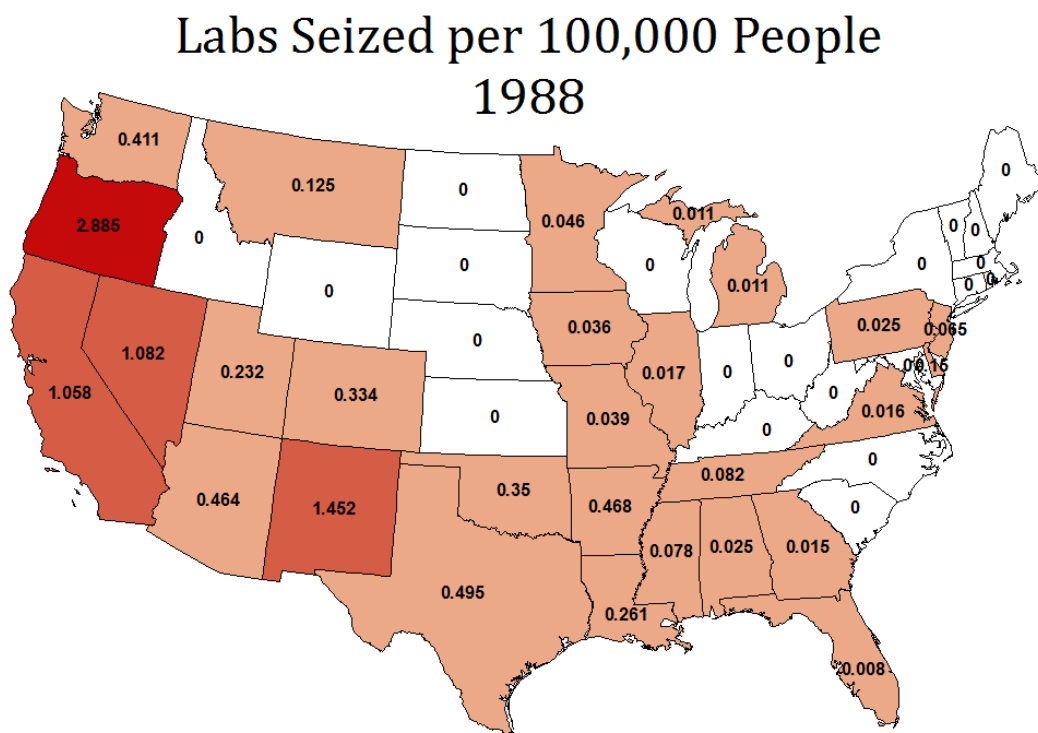


Figure 3.3: The rate of labs seized per 100,000 people in 1988 using 1990 census data (Irvine and Chin 1990).

The percentage of all labs seized that were making methamphetamine also grew throughout the 1980s. In 1981, methamphetamine labs made up 48 percent of the drug labs seized by the DEA. In 1987 that number was 80 percent (Puder et al.

1988; Irvine and Chin 1990). On the streets in the 1980s methamphetamine emerged as the best bet among street stimulants (not including cocaine) to contain what it claimed. Puder et al. (1988) found that drugs purporting to contain methamphetamine did so 93 percent of the time in 1983, up from roughly 23 percent in 1972.

Many drug researchers agree that Americans have a predilection for stimulant drugs (Newmyer 1977; Edison 1971; Grinspoon and Hedblom 1975). We have had a series of epidemics on this front over the years, and the 1980s saw a rise in stimulant abuse nationwide (Musto 1997). In many places this was cocaine or crack. However, “among marginalized working-class residents of economically declining suburban communities” on the West Coast, methamphetamine began to gain in popularity (Morgan and Beck 1997).

In San Diego, where purely d-methamphetamine was introduced, meth was certainly the drug of choice. As the number of labs using the Red-P technique increased, so too did methamphetamine use. In 1979 methamphetamine mentions in the Drug Abuse Warning Network system in San Diego were statistically insignificant (Figure 3.4). In 1984 they represented 3.6 percent of emergency room drug mentions, but by 1989, it was the drug mentioned second most frequently in local ERs, and represented 12 percent of all drug mentions for the metropolitan area (NIDA 1980b; 1985; 1990a). This is not surprising given that, in 1988, the National Institute on Drug Abuse concluded that the most important factor in the spread of methamphetamine abuse was the presence of methamphetamine labs within a community (NIDA 1988).

Based on its usage rates and a steadily increasing number of lab seizures, San Diego soon began to attract national attention as “the meth capital of the United

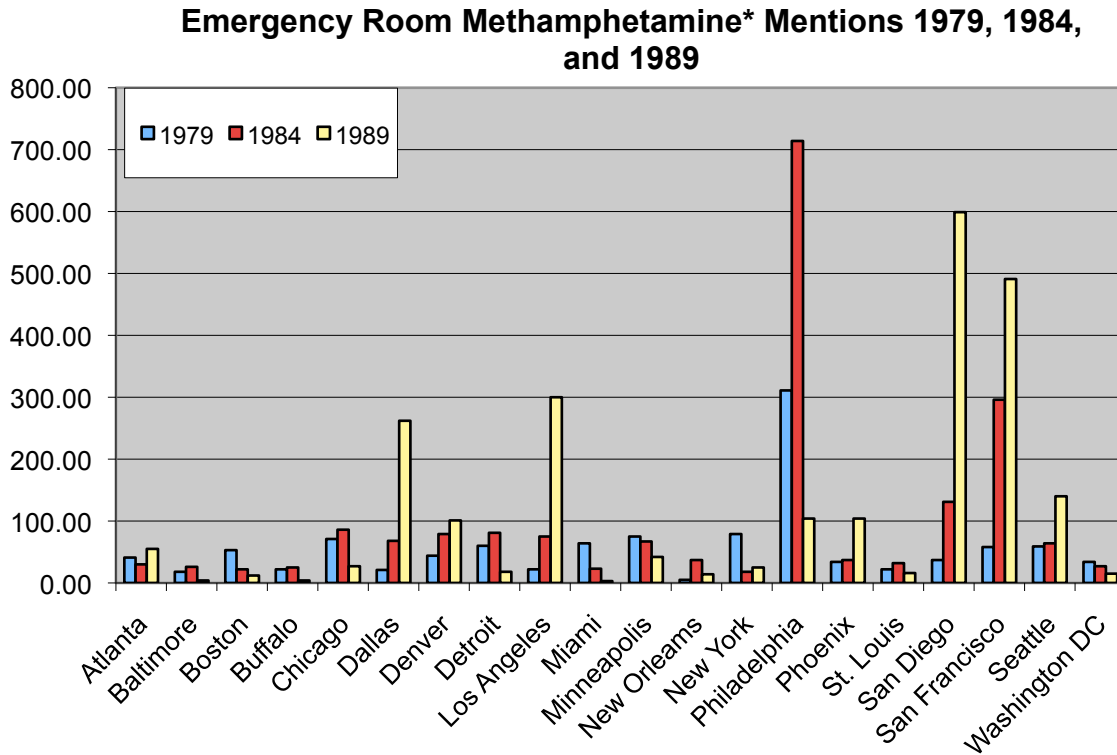


Figure 3.4: Emergency room mentions for methamphetamine in the DAWN system (NIDA 1980b, 1985, 1990a)¹⁵

States.” DEA operatives in the area did much to encourage that reputation. One in particular, Ron D’Ulisse, was quoted in newspapers throughout the 1980s. It was agent D’Ulisse who compared San Diego to Bogota in a conversation with the *Chicago Tribune* in 1987 (Wiedrich 1987). In 1988, he estimated to the *Washington Post* that San Diego produced 20,000 pounds of methamphetamine per year, or as he put it, enough to keep every man woman and child in the city high for six months

¹⁵ For 1979 and 1984, methamphetamine mentions in the graph represent the combination of specific methamphetamine mentions (prescription form) as well as mentions of “speed,” which was a street term that probably included both methamphetamine and some street amphetamines.

(Lait 1988).¹⁶ Later in that same year, he repeated those statistics to the *New York Times* in an article that warned that meth was going to spread across the country (Gross 1988).

Usage rates rose spectacularly but not evenly across California. Between 1982-1983 and 1987-1988 the California Drug Abuse Data System (which monitored admissions in publicly supported treatment programs) showed consistently low usage rates for most of the state, but two poles of abuse: San Diego and San Francisco. In San Diego County, methamphetamine was the most frequently represented drug in the treatment population between 1986 and 1990. The typical user there was white (74 percent) and age 21-30 (62 percent) (Miller and Heischober 1990).

In the counties of the San Francisco MSA, where amphetamine abuse had been endemic since the 1960s, methamphetamine ranked third among treatment admissions between 1986 and 1990, behind cocaine and heroin but increasing steadily. The typical user there was white (84 percent) and male (73 percent), with homosexual males disproportionately represented. A similar demographic characterized West Hollywood in Los Angeles County. Nationally, the typical user at this time was white and from a lower middle-class income group. He/she had a high school education and was between 20 and 35 years old. Among Californians,

¹⁶ This comment was repeated frequently in the press and is almost certainly hyperbole. Just the year before, Representative Bill Lowry had testified before Congress that San Diego produced between eight and ten thousand pounds of methamphetamine in 1987, and described how that could keep every man woman and child in the city high for three months. D'Ulisse was claiming this total doubled in a year (Voreacos 1987).

the most common method of methamphetamine use was inhalation (snorting),¹⁷ followed by injection. Nationally, the typical user injected their meth (NIDA 1985, 1990b; Miller and Heischober 1990).

As the number of meth labs grew in California, the business of supplying precursor chemicals and equipment to cooks became a big business. In Southern California, ephedrine was being sold for \$20 a pound wholesale and \$150-\$230 a pound retail, a markup that yielded profits from \$10,000 wholesale to \$50,000 retail (Wiedrich 1987). The DEA estimated that wholesalers were selling more than 10,000 pounds of ephedrine per year in Southern California, enough to make 8,000 to 10,000 pounds of meth. In 1986, the California Legislature sought to end this business and the clandestine labs themselves by scheduling the chemicals involved. Chemical companies (in this case wholesalers and retailers rather than producers) were quick to fight the new law.

One chemical supply storeowner, Robert J Miskinis, hired a lobbyist to successfully delay the implementation of the law from 1986 until October 1987. However, when it was revealed that this lobbyist had been hired by a man whose company, RJM Laboratories, had sold all of the essential ingredients to cook meth on at least 142 separate occasions between 1982 and 1984, the law's implementation was pushed up to April 1, 1987 (Weintraub 1987b). The new law required that chemical sellers report all sales of meth precursors to the state justice department. It also installed a 21-day waiting period between reporting the purchase and

¹⁷ This snorting technique may have contributed to the drug's popularity. The need to inject drugs often serves as a barrier to recreational users.

delivering the chemicals. Over-the-counter cold medicine preparations were excluded from the new law.

The California law was tough, but of course West Coast methamphetamine production was not confined California (Figure 3.3). In the late 1980s, predictably, Oregon and Washington experienced major upsurges in meth activity. Between 1983 and 1987 lab seizures in Oregon grew from 10 to 131, while in Washington they grew from zero to 27 (House of Representatives 1988). Observers saw such growth as a direct result of producers fleeing persecution in California, and in 1987 both states passed chemical reporting laws almost identical to those of California in an effort to push production out of their states.¹⁸

The chemicals listed in the new laws included anthranilic acid, ephedrine, methylamine, phenylacetic acid, pseudoephedrine, lead acetate, and methyl formamide. As was the case in California, the laws scheduled ephedrine and pseudoephedrine except in the form of cold pills, a loophole that was quickly discovered by cooks. San Diego Police reported that lab seizures dipped for only three months after the law's implementation in California before they saw production return to its previous levels (Schachter 1987). Nationally, law enforcement people feared that the new laws would simply push producers into states east of the West Coast that had not yet implemented precursor-tracking laws (Farney 1989). These fears were allayed when the federal government passed the Chemical Diversion and Trafficking Act of 1988. Though that law was primarily

¹⁸ It is possible that the new reporting laws contributed to the increase in lab seizures on the West Coast by improving the ability of police to catch cooks, and that the new numbers do not reflect an actual increase in production. However, given the actual growth in labs in San Diego before the 1987 law, I do not believe this to be the case.

aimed at stopping American companies from selling the chemicals necessary to process cocaine, it also regulated the importing, exporting, and sales of the chemicals included in the California, Oregon, and Washington laws (DEA 2012).

East Coast Busts

Before the scheduling of P2P, methamphetamine use and production on the East Coast was most prominent in the Delaware Valley, in the counties surrounding Philadelphia. As was the case in the rest of the country, clandestine production had begun there in the 1960s as the police cut down on diversion of legally produced meth. Also following national trends, methamphetamine declined in most former East Coast hot spots during the 1970s, including the East Village of New York. Most drug users in this section of the country turned to heroin or cocaine and did not return to meth as the decade wore on. Eastern Pennsylvania was the exception. Philadelphia, in fact, was the only city in the entire DAWN system to have a significant number of mentions for prescription methamphetamine in 1979 (Figure 3.4). It was also the only metropolitan area for which mentions of “speed” (the term used for nonprescription methamphetamine) ranked in the top ten of drugs mentioned at admission (NIDA 1980b). Meth’s popularity in Philadelphia makes sense given the drug’s demographics. In the 1980s it had a large, white, working-class population. As Jenkins (1992) explained: “It was almost inevitable that any city with a history of well-entrenched labor racketeering [like Philadelphia] would also have a thriving business in the manufacture and distribution of stimulant drugs” (22).

By 1980 clandestine meth production had become enough of a problem locally that the House Select Committee on Narcotics Abuse and Control held a meeting in Philadelphia to assess the impact of the labs. Much of the testimony focused on the Pagans Motorcycle Club and the partnership it had formed with traditional organized crime. Robert Walker, the congressman from the area, described the Pagans as simply hired muscle for the mob. Although it is true that some members of Pagans had acted as paid assassins for members of the Scarfo-Testa Mob, the overall relationship was far more complicated (Lyman 1989; Jenkins 1992). Sergeant Robert Collison of the Delaware State Police argued that the Pagans had cornered the market on meth in the area, testifying that: “the street word is if you do not sell Pagan dope, or Pagan methamphetamine or crank, you do not sell it” (House of Representatives 1980, 95).

The head of the intelligence division of the DEA, Frank Wickes, testified that traditional organized crime partnered with the Pagans to finance methamphetamine operations, obtain the necessary precursors, and find chemists to do the cooking. The Pagans handled lab setup, security, and distribution of the final product. The Special Agent in Charge of the DEA in Philadelphia, Norton Wilder, predicted that the scheduling of P2P would only entrench that relationship as the market for P2P became increasingly lucrative and precarious (Hazlett 1979; House of Representatives 1980).

Wilder’s prediction proved prescient. As the 1980s wore on, the Pagans formed partnerships with various organized crime units within Philadelphia. The groups involved included not only members of the traditional Cosa Nostra Italian

Mafia, but also ones from the Greek Mob, a Jewish and Irish group known as the “K&A” gang, and African-American groups (Jenkins 1992, Lyman 1989). The associations these mob members formed with the Pagans were not top-down, corporate models one might expect from traditional organized crime, but rather reflected an opportunistic and temporary coming together of motivated parties described by Natarajan (2006). The mob members who interacted with the Pagans did so of their own accord, rather than at the instruction of higher-ups within the organizations, indicating that the market had a cottage-industry organization (Eck and Gersh 2000). Interactions were fluid and temporary and almost always dealt with the smuggling and trade of P2P.¹⁹

Because of the relationships formed between the Pagans and various members of organized crime, methamphetamine production and distribution on the East Coast remained dependent on P2P and in the hands of very few individuals in the 1980s. This lack of diversity directly contributed to the decline of the East Coast methamphetamine market because police could more easily identify and target important operators. Federal officials had been monitoring the activities of traditional (that is to say ethnically based) organized crime since the 1920s. In 1970, they passed the Racketeer Influenced and Corrupt Organizations Act (RICO) as a tool for prosecution. At approximately the same time, the government also began to view Outlaw Motorcycle Gangs as an organized criminal threat. With all groups involved the market already under government investigation in the 1980s,

¹⁹ Well into the early 1990s, arrests involving methamphetamine in Philadelphia still involved the precursor P2P, a stark contrast to the West Coast. In the pre-Internet era, it appears that knowledge of new methods simply did not travel across the country like they do today. This also indicates that East Coast meth did not improve like it did on in the West.

the methamphetamine networks around Philadelphia felt the full brunt of governmental scrutiny.

Government officials were unsuccessful at prosecuting mob bosses such as Nicodemo Scarfo for drug dealing under the Kingpin provisions of RICO because the members of their organizations who entered the methamphetamine market did so on their own accord, seizing an opportunity for quick profit. However prosecutors proved adept at convicting smugglers of P2P. Throughout the 1980s members of the Greek Mob, the K&A gang, and key Italian-American P2P suppliers from within the Bruno and Scarfo organizations were all successfully prosecuted (Jenkins 1992).

The Pagans faced a similar fate. In 1984-1985, government officials arrested over fifty members of the gang in the Philadelphia, Delaware, and Virginia region. Prosecutors focused on the group's mother club, and by 1985, had successfully convicted the group's president, Paul "Ooch" Ferry to eighteen years in prison. The vice president, sergeant at arms, and treasurer along with about half of the mother club also received sentences of at least fifteen years. Because their national organization was perhaps the most centralized and hierarchical of the Big Four, these arrests were particularly crippling to the organization. Some members of the police even predicted that the group might not recover (O'Neill 1985; Barker 2005).

While predictions of the Pagans' demise proved premature, the successful actions against methamphetamine on the East Coast had a rapid and permanent effect on the market. By 1989 the government had eliminated the body that controlled most methamphetamine distribution there as well most sources for the precursor. Seizures declined in stepwise fashion. Philadelphia Police seized 105

pounds of meth in 1987, but only 14 pounds in 1988. In 1989 that number grew again to 77 pounds, all but two of which originating in one high profile bust. With a low-grade product in limited supply, drug users moved on to other stimulants. In testimony before the House Select Committee on Narcotics Abuse and Control, Robert F. Armstrong, the special assistant to the mayor for drug control, stated that crack had replaced methamphetamine as the drug of choice in Philadelphia (House of Representatives 1990).

Data from the National Institute of Drug Abuse's Drug Abuse Warning Network (DAWN) reflected the West Coast agglomeration and East Coast decline of methamphetamine at the end of the 1980s (Figures 3.4, 3.5). Among the cities included in the DAWN system, six had significant rates of methamphetamine reporting between 1985 and 1988: Dallas, Los Angeles, Philadelphia, Phoenix, San Diego, and San Francisco. Between 1985 and 1989 the number of emergency mentions of methamphetamine rose from 726 to 2,336 nationally. Three cities, Dallas, Philadelphia, and San Diego, accounted for 74 percent of those mentions in 1985, 63 percent in 1986, and 68 percent in 1987. However, as the number of mentions increased for San Diego (+501 percent) and Dallas (+271 percent), the number of mentions in Philadelphia declined by 41.5 percent (NIDA 1988). Philadelphia's portion of national emergency room mentions dropped from 53 percent in 1985 to 4.5 percent in 1989 (NIDA 1990b).

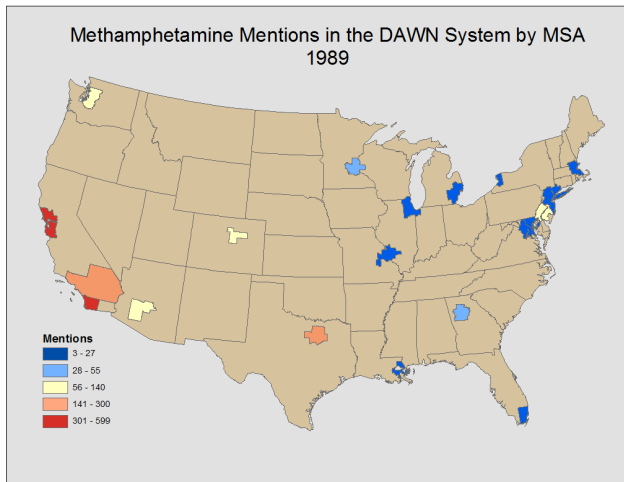
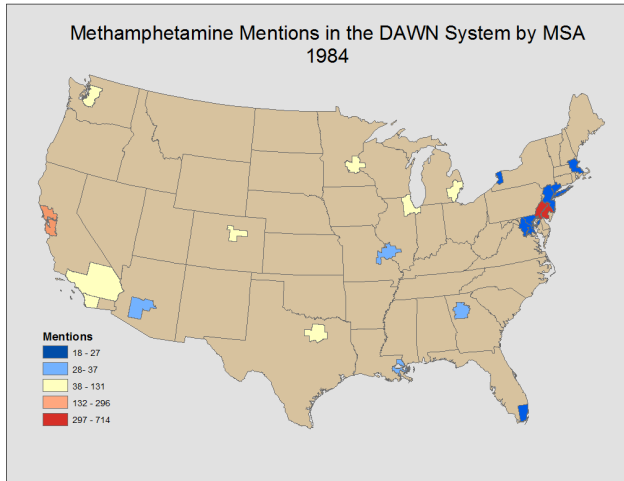
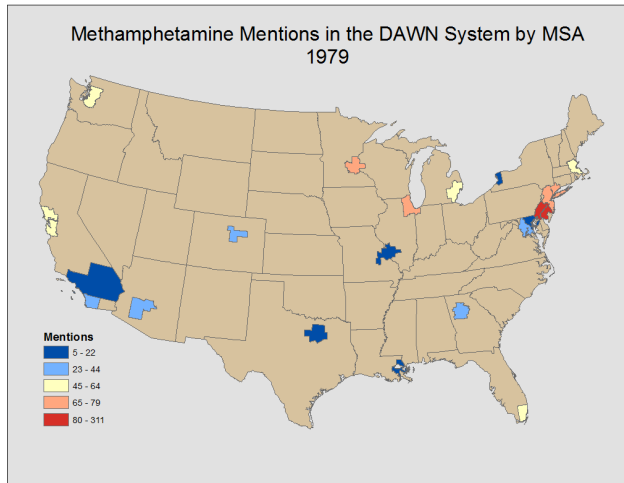


Figure 3.5: The changing geography of methamphetamine abuse according to the Drug Abuse Warning Network (NIDA 1980b, 1985, 1990a)

The Epidemic to Come

At the end of 1980s methamphetamine was only beginning to emerge as a national concern. In the entire DAWN system it ranked eleventh in emergency room mentions, appearing in only 1.77 percent of drug-related ER visits. This put it behind not only the big three of alcohol,²⁰ cocaine, and heroin, but also the much less infamous morphine, PCP, diazepam (Valium), aprizolam (Xanax), acetaminophen, and ibuprofen. NIDA described meth abuse in 1988 as a “regional phenomenon,” but one with the potential of “expanding to the entire nation” (NIDA 1990b, 1).

Stories in the national media, too, began to express concern over the drug’s spread (Gross 1988; Isikoff 1989; Thompson 1989). Much of this concern came from the way Red-P meth had exploded on the West Coast. Another factor was the emergence of “ice,” the smokable form of methamphetamine, in Hawaii. Coming as it did on the heels of the crack cocaine epidemic of the 1980s, the idea of a smokable form of methamphetamine that was cheaper and longer acting than cocaine was terrifying. Many thought its eastward diffusion was inevitable. Daniel Akaka, the representative from Hawaii, warned the House Select Committee on Narcotics Abuse and Control that if ice’s spread was not stopped in Honolulu, the mainland would experience an epidemic he called an “ice age.” James Hall, the Director of the Up Front Drug Information Center, testified that meth was the logical replacement drug for crack that would soon be taken up by the four million users who had moved away from that drug (House of Representatives 1989). Although these dire predictions did not come to pass, the emergence of ice in Hawaii did presage the

²⁰ In the DAWN system, alcohol is only included if it is mentioned in combination with other drugs.

involvement of international drug-trafficking organizations in U. S.
methamphetamine distribution.

Chapter 4

From “Made in America” to “Hecho in Sinaloa”: Meth Networks Go International

The 1980s were characterized by two important trends in methamphetamine. The first, discussed in chapter 3, was the increasing concentration of its domestic production, distribution, and use in the western United States. The second was market penetration by international drug-trafficking organizations from Asia and later Mexico. This new trend should not have been a surprise. Heroin, cocaine, and marijuana have long been controlled by international organized crime, and the problem of methamphetamine abuse in the U. S. has always had international roots. Methamphetamine was first synthesized in Japan, and abused there and in Germany during World War II. In fact, it was Japan that suffered the world’s first methamphetamine abuse epidemic and housed the world’s first clandestine labs. America’s intravenous speed injection outbreak of the 1960s began after veterans of the Korean War brought home this practice that they had learned while on R-and-R in Tokyo. With endemic usage in Japan creating a vibrant illicit market, it was only matter of time before Asian drug-trafficking organizations (DTOs) began to expand their operations into the U. S.

Hawaiian Ice

Given the strong cultural and economic connections of Hawaii to Asia, it is not surprising that this was the initial American market penetrated by their drug-trafficking organizations. Asian DTOs in the 1980s introduced a new form of methamphetamine made of large, rock-candy-like crystals of methamphetamine

called ice. Like the West Coast meth of the 1980s, ice is derived from ephedrine or pseudoephedrine, and as the product of an ephedrine reduction method, it is highly pure (greater than 90 percent) dextrorotary-methamphetamine. However, rather than snorting or injecting, users of ice smoke the substance.

Historically, Hawaii did not have a significant methamphetamine problem. In the early 1980s, the drugs of choice there were marijuana and cocaine. What little meth existed was primarily imported from the mainland and used by whites, where it earned the reputation as the “poor man’s cocaine.” In fact, evidence suggests that, when ice first became available, many of its users did not associate it with the methamphetamine from the mainland, but rather perceived it as a new drug altogether (House of Representatives 1989; Laidler and Morgan 1997).

Drug rehabilitation centers in Hawaii had seen people seeking treatment for smoking methamphetamine only sporadically before the mid 1980s (Miller 1991). However, the number of cases began to rise significantly in 1987. Concurrently, authorities at the Honolulu International Airport saw a 60 percent rise in ice seizures, and ice-related arrests by the Honolulu Police Department doubled between 1987 and 1988. In a hearing before the House Select Committee on Narcotics Abuse and Control, the U. S. attorney in Honolulu, Daniel Bent, testified about the new problem: “It descended on us very, very suddenly. It was in the community and established well before we had a real grasp on the magnitude of the problem” (House of Representatives 1989, 6).

In the wake of the crack epidemics of the 1980s, the introduction of any new smokable drug was bound to attract attention. National news stories on the subject

were rife with hyperbole, predicting that this new form of meth would sweep the nation, penetrating even more communities than had crack cocaine. A headline from *USA Today* was typical, warning that the “‘Ice Age’ May Dwarf Crack Crisis” (Kelley 1989). Government officials stoked these fears by emphasizing two aspects of ice, neither of which were new or unique to smokable meth. The first was that the high from smoking ice lasted significantly longer than that from smoking crack. This was true; the high from ice could last as long as fourteen hours. However, this was also true of every other form of methamphetamine when taken in high dosages. The second concern was based on the assertion that a smokable form of meth would be significantly more popular with users than injecting the drug had been (Bishop 1989; House of Representatives 1989; Kelley 1989; Thomson 1989). This, too, was true. However, intranasal inhalation had been the preferred method of use on the West Coast since the introduction of ephedrine-based d-methamphetamine in the early 1980s (Miller and Heischober 1991). There was no reason to suspect that smoking would be more appealing than snorting to most users, particularly after the storm of negative press that crack had received throughout the 1980s.

A 1991 National Institute on Drug Abuse study by Cook did indeed find that smoking methamphetamine was a remarkably efficient manner of taking the drug. Ice volatilizes at between 200° and 400° Celsius, but 98 percent of the product is recoverable, meaning that it is made volatile but does not burn off. The study showed that smoking ice was far more efficient than smoking heroin, PCP, or cocaine, and the author warned that the introduction of a smokable version of methamphetamine might increase its adoption in the public by removing the barrier

of intravenous use. Contrary to coverage in the press at the time, however, the study did not find that smoking ice produced a more powerful effect than traditional injection (House of Representatives 1989; Cook 1991).

Ice Networks

Ice came to Hawaii from production centers in Japan, Korea, the Philippines, and Hong Kong. At the international trafficking level, highly organized enterprises like Japan's Yakuza or similar such organizations from Korea controlled the market. Once on the islands, midlevel and retail sales were controlled by socially bonded networks, typically those of ethnic gangs. Laidler and Morgan's (1997) informants stated that such networks were aggressive in marketing the new drug, encouraging its use to fill a void in the Hawaiian drug market that had been created by successful governmental marijuana eradication programs in the 1980s. One of their informants described an early meeting that was called to introduce ice:

They had gatherings to advertise the ice. It was mostly Filipino immigrants who spoke bad English and you had to smoke ice. . . . It started with a few guys and then it became bigger. Nationalities stick together, so everybody was solid at the time (Laidler and Morgan 1997, 172).

The story of Paciano "Sonny" Guerero, is illustrative of how these socially bonded ice networks operated. A native Hawaiian of Filipino origins, Guerero began distributing ice in late 1986. Before that he had installed tires on cars. At the outset, he had no network working with him, but within two years he had developed a multimillion dollar business. Guerero purchased his ice from Asian criminal organizations at a cost of \$90,000 per kilo. He then resold the drug to fifteen

Filipino associates for between five and nine thousand dollars per ounce. These associates, whom federal agents referred to as “lieutenants,” would then use members of Filipino youth gangs to sell the ice on the streets at \$950 to \$1,400 per eighth of an ounce, and \$50 per “paper,” which is a tenth-of-a-gram dosage unit. Between June 1987 and December 1988, Guerero’s business tripled. Over that time, he purchased \$4,933,600 of ice that he then sold for \$7,440,985, giving him a three-year profit of \$2,507,385. At the time of his arrest in March 1989, Guerero’s network was estimated to have sold fifty-five kilograms of pure ice over the course of its operation (House of Representatives 1989).

Other types of dealer networks existed outside of these socially bonded networks. Laidler and Morgan’s (1997) informants helped to identify their typologies. “Hotel dealers” were similar to Guerero. They had steady supply sources and sold ounce quantities through ethnic ties. “Neighborhood dealers” operated within a social-network typology, selling small quantities to family and friends. They were most often Native Hawaiians, Samoans, or Filipinos. These neighborhood dealers operated at a freelance level, hoping simply to sell enough to keep themselves in free drugs. “Hustler dealers” operated in open markets and sold to anyone. Their activity in the market represented just one of many ways they were trying to make money through illicit means.

Abuse in Hawaii was concentrated on Oahu. Since the distribution networks were largely Filipino, it is not surprising that this ethnic group was over-represented in the treatment population. Hawaiian islanders were also disproportionately present in this population, while Japanese and whites showed

the opposite trend (Table 4.1). Compared to all Hawaiian drug treatment patients, ice users had a higher percentage of females, were significantly younger, and were more ethnically diverse (Morgan 1991).

	Ice Smokers	General Population
N	172	803,135
Mean Age	20.5	29.6
Percent Younger than 20	59	30
Percent Male	58	51
Ethnicity		
Filipino	23	12.6
Hawaiian/Part Hawaiian	35	10.7
Japanese	13	24.9
Mixed	5	-
Caucasian	10	34.4
Chinese	2	6.9
Hispanic	2	7.2
Black	1	2.3
Korean	1	2.2
Other	4	2.2
Missing	4	-

Table 4.1: Demographics of people seeing treatment for ice addiction in Hawaii between 1986 and 1990 (Miller 1991).

Ice-induced Panic

While the racial demographics of ice were different from meth users on the mainland, the groups were similar socioeconomically. Laidler and Morgan (1997) described their ice-using informants as “the most disenfranchised groups on the islands” (171). According to Honolulu Chief of Police Daniel Gibbs, most users on Oahu were blue-collar workers who began taking meth to help increase productivity, especially for menial, repetitive tasks. The fact that ice was odorless allowed them to smoke out in the open and then return to work. Gibbs feared that the trend would move up the corporate ladder. U. S. attorney Daniel Bent testified

before Congress that ice was likely to become more popular than crack because of its popularity among the working class, forgetting or ignoring the then forty-year-old connection between amphetamine abuse and the working class (House of Representatives 1989)²¹.

Though residents of Hawaii had reasons to be concerned at the introduction of ice, the mainland was little threatened. News reports at the time, however, exaggerated the extent of ice's prevalence and created a panic. Even though David Westrate, the assistant administrator for operations of the DEA, testified before Congress that a 1989 study had shown that ice was not available anywhere in the U. S. outside of Hawaii, articles in the *New York Times* and *USA Today* both made exaggerated claims about its presence that were later parroted in other publications (House of Representatives 1989; Bishop 1989; Kelley 1989). Fortunately, some media outlets maintained their composure. The *Washington Post* noted that most of the actual activity surrounding ice was "in newspaper reports heralding its arrival" (Thompson 1989, F11). The *Philadelphia Daily News* compared the coverage of ice to the overwrought furor drummed up by the movie "Reefer Madness," and quoted several police officers who were skeptical of all the attention. One undercover investigator in Philadelphia had this to say:

I think (addicts) will stick with the drug they're already using. . . . Ice isn't going to have any major impact. I don't think everybody is going to go nuts. It will be the new thing on the block, then it will die out. . . .

²¹ Gibbs and Bent were right to worry for Hawaii. Ice abuse there is common today. The number of people seeking treatment for its abuse rose 140% between 1994 and 2000, and since 2004, methamphetamine has been the most frequently cited drug for which people seek treatment on the Islands (NDIC 2002a, 2011b). Abuse there continues to be concentrated on Oahu in the same areas that were most affected by the original epidemic.

Look at heroin. There's tons of it out there, and you don't hear that much about it. It's just as bad as ever (Brennan 1989, 8).

Roger E. Smith of the Haight-Ashbury Free Clinic was also clear-headed, predicting that smokable meth would not replace crack so much as increase the number of people who chose to smoke their drugs (Thompson 1989).

All of this hand-wringing over the fact that ice was a smokable form of methamphetamine missed the true significance of its appearance. Ice did not displace crack in Hawaii, so there was never a reason to believe it would do so on the mainland. It also never led directly to an increase in the number of people using the drug in the contiguous states. Smoking did slowly emerge as the preferred method of administration in the 2000s, but preferences in that regard are highly regionalized to this day. The true significance of the existence of ice in Hawaii is that it marked the first penetration of the U. S. methamphetamine market by international drug-trafficking organizations.

However, the situation in Hawaii was unique for a number of reasons. First, the actors in that network created a market where none had existed, taking advantage of the ignorance of the population regarding the dangers of methamphetamine and filling a void left by successful policing of marijuana. Second, the overwhelmingly Asian population of the islands allowed the Asian DTOs to rely on close ethnic ties to move their product. Outside of the West Coast and a few other regionalized pockets, such opportunities did not exist on the mainland, and Asian groups were never able to seize a significant market share there. In fact, Asian DTOs were eventually displaced even in Hawaii. In the early 1990s, individuals excluded from the Asian networks began traveling to the West Coast to

buy methamphetamine, bring it back to Hawaii, and convert it into ice to be sold. The source of that methamphetamine was Mexican drug-trafficking organizations who, in the course of only a few years, had come to dominate the U. S.'s methamphetamine market (Laidler and Morgan 1997; DEA 1996, NDIC 2002a).

A Brief History of Mexican Drug Trafficking

Mexico has long history as a source country for U. S. drugs. The extended border between the two countries, marking differentiated wealth and opportunity, has for decades inspired organizations to its south to take advantage of illicit demand to its north. In the 1920s alcohol produced in Mexico slaked the thirst of many Americans suffering through prohibition. Drug production and smuggling in Mexico began even before that, in the early twentieth century, when the country's growing Chinese immigrant population began cultivating poppies to produce opium for both domestic demand and that of Chinese Americans living in California (Castillo and Unsinger 2000; Sadler 2000).

By the 1920s, Mexican producers began to use the same poppy plants to make a low-quality heroin known as "Mexican Brown." When World War II disrupted the heroin trade from Asia, U. S. organized criminal groups from the East Coast came to Mexico to make large heroin purchases. This was a watershed event in Mexico's drug-trafficking history. In order to meet demand, production had to be increased (primarily in Sinaloa and Baja California) and efficient smuggling routes established. Early smuggling occurred primarily at the crossings between Mexicali and Calexico, Tijuana and San Diego, and Juarez and El Paso. The increase in

business also led to increased profits and power for these proto-DTOs. After World War II they continued to produce heroin and marijuana for U. S. consumption, their market share waxing and waning with the fortunes of other international drug producers and smugglers (Castillo and Unsinger 2000).

In the fall of 1975, the Mexican government, under pressure from the U. S, stepped up its “Campaña Permanente” against illicit drugs by targeting domestic cultivation (Craig 1978; Smith 1999). The result of that campaign, according to Smith (1999), was mixed. There was a significant reduction in the number of groups controlling the drug supply in Mexico, but the ones that remained were “stronger in resources, and more dangerous to society and government” (195). The DTOs²² that had formed around heroin and marijuana had been primarily small organizations dealing and smuggling locally grown and processed drugs, but the groups that survived the campaña began to look to expand their operations and influence.

Two processes in the 1980s further empowered the DTOs. The first was the decline of the Mexican economy and the devaluation of the peso by President José López Portillo in 1982 (Sadler 2000). The decline of the peso (to as low as one thousand per dollar at its nadir) not only brought financial hardship to many, but it also put a damper on what had been a lucrative border industry of smuggling legally purchased American products into Mexico to avoid taxes. Such contraband had been a major source of income for both smugglers and Mexican customs officials,

²² There is a certain temptation to use the term “cartel” when discussing Mexican drug-trafficking organizations. Both Beittel (2011) and Smith (1999) argue against it, however, because the term implies a certain level of collusion and cooperation that Mexican DTOs do not consistently exhibit.

who had built a cottage industry around getting paid to look the other way. The loss of that business meant that numerous individuals along the border were looking for a way to create new income. DTOs were well positioned to replace that loss

Concomitant to the dramatic dip in the Mexican economy was an important shift in the activity of Columbian cocaine cartels. Prior to the early 1980s these groups had shipped nearly all of the cocaine destined for the U. S. through the Caribbean to Florida. However, as the 1980s began, the DEA and Coast Guard effectively shut down that point of entry. Sitting on an enormous amount of lucrative product, the Columbians looked to Mexican organized crime for help, and after a brief proving period, they began to rely solely on the Mexicans for smuggling. At the height of their success, the cartels reportedly sent entire Boeing 727s filled with cocaine into central Mexico for transshipment to the U. S. (Smith 1999).

The Columbians brought a level of entrepreneurship to their operation that the DTOs of Mexico had never before seen. Every step in the supply chain from production to distribution to money laundering was highly regimented no matter the country in which it took place. Each link in the chain was organized into individual cells, and each cell had a manager. Furthermore, these cells were each kept ignorant of the operations of others so that, in the event that one of them got caught, they could not testify against any of the cartel's other operations. The Columbians also taught the Mexicans to divide their shipments into small loads so that any single intercepted shipment had little impact on the overall trade.

The Mexican traffickers initially were paid in cash. However, as time moved on, they began to think bigger and to request payment in cocaine (House of

Representatives 1994). The Mexican DTOs then used that cocaine to enlarge their own drug distribution networks, which they modeled after those of the Columbians.

The Rise of Mexican Meth

Drug traffickers along the border have long known the appeal that amphetamines hold for Americans. In the 1960s, licitly produced amphetamines and bootleg versions of Benzedrine both were shipped from U. S. producers to Mexico, where they were smuggled back across the border or sold in Mexican pharmacies (*Wall Street Journal* 1969; McGlothlin 1973). Mexican producers responded to the Controlled Substances Act of 1970 by ramping up production of Mexican Bennies and selling them throughout the western United States (Smith 1973; Farber 1974). When the next generation of Mexican drug-trafficking organizations was presented with an opportunity to enter the burgeoning U. S. meth market, it is not surprising that they took almost immediate advantage.

The opportunity to reenter the market came in 1988 when Congress passed the Chemical Diversion and Trafficking Act (CDTA). Although the primary goal of the CDTA was to stop U. S. companies from exporting the chemicals necessary for cocaine processing, the law also put restrictions on the sale of powdered ephedrine and pseudoephedrine in an attempt to curb domestic methamphetamine production (DEA 2012). Initially, it was quite successful. Labs seizures dropped steadily after the bill's implementation in 1989, and stayed low well into the 1990s (House of Representatives 1994, Figure 4.1).

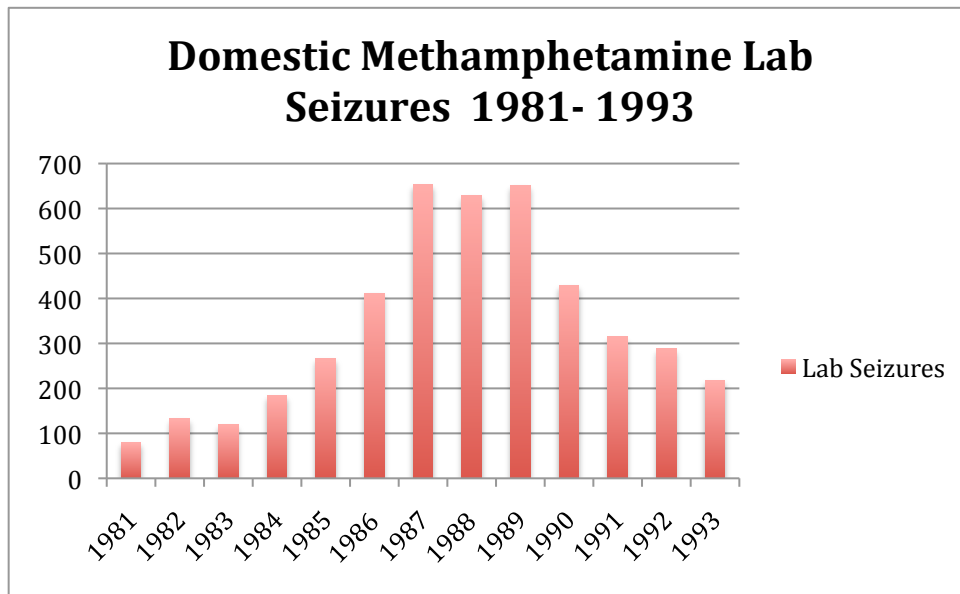


Figure 4.1: Labs seized nationally between 1981 and 1993 (House of Representatives 1994).

As the 1990s progressed, however, law enforcement officials noticed that the amount of methamphetamine available on the streets rebounded much more quickly than the number of labs being seized (DEA 1996). They also noticed increasing methamphetamine seizures along the border that indicated that the source of this new meth was Mexican drug-trafficking organizations that had moved in to take advantage of the dip in the market.

Other indicators existed as well. At a 1994 hearing before a subcommittee of the House of Representatives, DEA administrator Thomas Constantine testified that indicators of ephedrine smuggling from Mexico had begun to rise shortly after the CDTA went into effect in late 1989. In 1990 225 lbs. of ephedrine were seized nationwide, but in 1992 this rose to 2,648 lbs. In 1993 the number was 1,546, and an additional 1,014 lbs. had been seized in the first quarter of 1994 (House of Representatives 1994)(Figure 4.2).

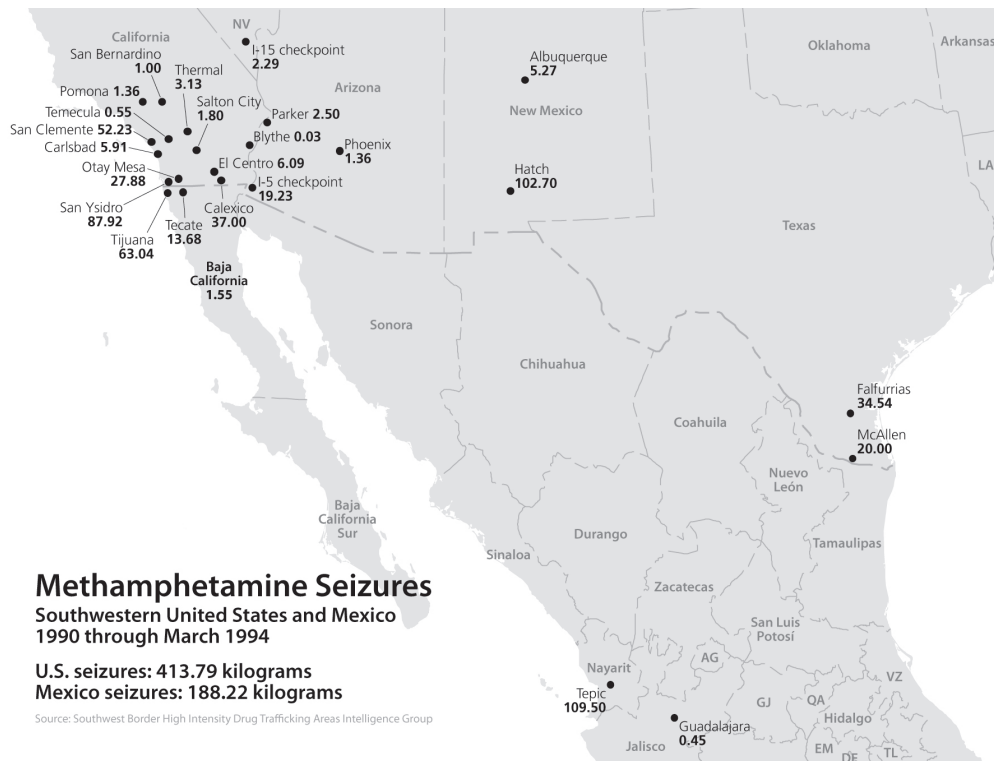
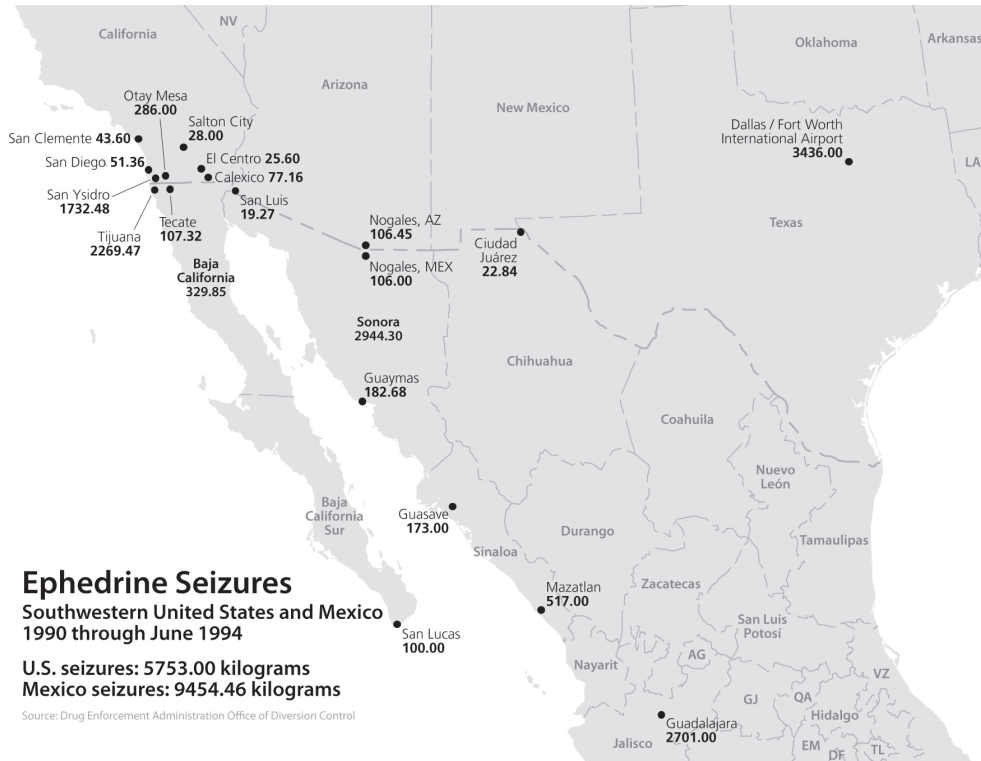


Figure 4.2: Methamphetamine and ephedrine seizures along the Southwest border (House of Representatives 1994).

The full extent of Mexican involvement in precursor smuggling and methamphetamine production, however, did not become apparent until March 1994, when customs officials intercepted 120 barrels containing 3.4 metric-tons of ephedrine at the Dallas-Fort Worth International Airport (DFW). That ephedrine had been manufactured by Malladi Drugs, a firm in Madras, India, and shipped by an intermediary chemical broker in Frankfurt. Its destination was Mexico. In October customs officials at DFW seized an additional eighty barrels containing 2.3 tons of the precursor that were again headed for Mexico (House of Representatives 1995; Dillon 1995; Suo 2004g). Further investigation revealed that the seized ephedrine had been merely part of a seventy-ton shipment purchased by the DTOs and sent to Mexico for production there (DEA 1996). Reflecting on the significance of the seizure, the former deputy director of the DEA's office of diversion control, Terry Woodworth, admitted: "We were, to be candid, not as aware of that situation as we should have been until the Dallas-Forth Worth seizure" (Suo 2004a).

From the onset, Mexican DTOs have been polydrug operations. They began smuggling heroin and marijuana and then incorporated cocaine into the mix. The ephedrine seized in Dallas was attributed to a single drug-trafficking operation run by the Amezcua brothers of Guadalajara, Jalisco. These brothers had been prominent in cocaine trafficking and were indicted on such charges in California in 1993. However, by the early 1990s, they had diversified their drug empire. In this context, the move to include methamphetamine in their suite of products made perfect sense. The Amezcua brothers got ahead of the game by establishing a

worldwide network of ephedrine suppliers and importing it directly into Mexico (Suo 2004a, 2004g).

In the 1990s the few global ephedrine producers that existed were located in China, the Czech Republic, Germany, India, and Japan (UNODC 1996). The enterprising Amezcua brothers, Luis and Jesus, found ways to establish trade with several of those producers either directly or through middlemen. Their relationship with Malladi Drugs began in January 1994, when Jesus Amezcua visited the firm as part of a global trip to establish ephedrine sources (Suo 2004g). To avoid detection by an increasingly vigilant international community, they used intermediary chemical purchasers in Western Europe to buy the product and arrange shipment. It was an error on the part of a German firm in Frankfurt that had led to the first DFW seizure. Normally, the precursors were shipped to Honduras or Guatemala rather than through the U. S. and then smuggled into Mexico for production in Michoacán and along the Sierra Madres.

By being the single large-scale source for methamphetamine precursors in North America, the Amezcuas cornered the market. As one police official noted at the time: ““They control the ephedrine coming into Mexico—which means that even if they don’t produce all the methamphetamine, they get a piece of the action from anybody else who is, because they have to go to (the Amezcuas) for ephedrine”” (Gross 1996). The Amezcua organization remained in control of precursors until Luis and Jesus were arrested in Mexico in 1998 and their operation began to unravel.

Although the Amezcuas had the largest share of the precursor market, several other important Mexican drug-trafficking organizations were purported to be involved in the methamphetamine business in the 1990s. In western Mexico, the Arrellano-Felix organizations, which controlled most smuggling along the California border, was rumored to be heavily involved. They reportedly moved anywhere from 50 to 100 lbs. of meth through the San Ysidro border crossing every month (DEA 1996). The Amado Carrillo-Fuentes Organization, also known as the Juarez Cartel, controlled smuggling in and around Jaurez and also had a significant presence in Arizona and New Mexico. In 1995 a shipment of 315 kilograms of 98 percent pure meth attributed to their operation was intercepted in Las Cruces, New Mexico. These drugs were intended for distribution as far afield as Georgia, Illinois, Oklahoma, and Washington (DEA 1996).

Mexican Methamphetamine Networks

Mexican DTOs did much more than simply smuggle meth through their territory. They controlled the supply chain from acquisition of precursors all the way to wholesale distribution. Interestingly, retail distribution in the U. S. (the least profitable portion of any drug supply chain) remained with many of the groups who had controlled the market before the Mexicans got involved. Many outlaw motorcycle gangs, for example, began to buy meth from Mexican wholesalers during the 1990s when they realized that those organizations produced a product significantly better and less expensive than the one they themselves were capable of manufacturing (Weaver 1997; House of Representatives 2003). In general, the

transition was a bloodless one. The effect on the methamphetamine market however, was profound, as Mexican DTOs flooded the system with high-purity, ephedrine-based d-methamphetamine in industrial quantities.

Like the Columbian cartels before them, Mexican DTOs divide their organizations into cells where roles and knowledge of the operation are compartmentalized. Recruitment for cells focuses on families, increasing loyalty through both kinship bonds and the threat to harm family in Mexico. Multiple independent cells exist for each link in the commodity chain. Meth produced on the Mexican side of the border comes from labs that produce on a continuous cycle, rather than waiting for wholesalers to request more shipments. Production cells then pass the product off to ones that control transportation. These groups store product in stash houses along the border to await transshipment. Evidence exists that some of the smuggling cells may be their own smaller organizations that contract out to numerous different DTOs (Castillo and Unsinger 2000). If this is the case, they still operate under the auspices of whichever large organization's territory they work in (House of Representatives 2000c).

Most meth smuggling occurs in small quantities hidden within secret compartments built into privately owned vehicles. In this way, the traffickers hedge their bets. Rather than send a single trailer filled with hundreds of pounds of methamphetamine across the border, they send hundreds of pound-size shipments individually, thus hiding the shipment among the throng of drivers who cross every day. In 1998, the head of customs at the San Ysidro port of entry testified that 45,000 passenger cars entered the U. S. through that point daily (U. S. Senate

1998a). Even if an occasional courier were stopped, many more would make it through.

Once on the American side of the border, meth travels to one of several transportation hubs for further distribution to wholesalers in smaller cities in the national urban hierarchy. Since 2001, the major hubs have been Los Angeles, the Central Valley of California, and Phoenix, Arizona (NDIC 2002b; 2005a). These distribution centers serve as collection points where the relatively small packages of methamphetamine that have been smuggled into the country are reaggregated, then divided into bunches of differing sizes, and delivered to one of many cells that control wholesale distribution. Such trafficking cells can be easily hidden among the various agricultural workers of Mexican descent who make up a significant portion of that work force in the western U. S.

According to Castillo and Unsinger (2000) drug wholesalers, once established, often work on credit, repaying the trafficker after they have sold the delivered drugs, rather than having to front the cash. The threat of violence is enough to ensure repayment. Wholesalers have *carte blanche* to recruit retailers as they see fit. They simply request larger quantities of the drug in their next delivery. Though these wholesale cells often appear to the police or media as “kingpins,” they are but small cogs in the overall operations. Their relative independence means that, if one of them is eliminated, the impact is little felt by the DTO, because numerous other midlevel cells exist that are constantly recruiting other retailers. Furthermore, because the wholesale operator is ignorant of the activities of any

other cell, he can provide little useful information to police. Some are even unaware of which DTO they work for.

Some Mexican traffickers choose to produce their meth on the American side of the border. This process involves the smuggling of precursors, but limits the risk of any finished product being intercepted while crossing the border. Organizations choosing this option in the 1990s most frequently established their labs in California, generally in remote parts of San Bernardino and Riverside counties, but also as far north as Sacramento. These labs were easily distinguished from those of the networks that came before them for two reasons: first, illegal Mexican immigrants rather than whites operated the labs, and second, they produced methamphetamine in quantities theretofore unseen in the U. S. The DEA defines a “superlab” as any capable of producing 10 lbs. of methamphetamine in a single production cycle (DEA 2005). The labs associated with Mexican DTOS are often capable of producing ten times that amount in a single batch (DEA 1996).

Superlabs run by Mexican DTOs began to appear in southern California in the early 1990s. By July 1992, they had arrived in the Central Valley (Suo 2004b). These labs were characterized by the presence of “22s,” round 22-liter flasks that were used to combine the ephedrine (and later pseudoephedrine) with red phosphorus and hydroiodic acid. The largest labs would string together as many as twelve of these flasks, each surrounded by a copper heating coil. Each coil and flask has combined value of roughly \$3,500. The total output of such a superlab could be as much as 144 pounds of pure meth per batch. One such lab seized in Sutter County, California, used eight 22s, and had 110 pounds of iodine crystals, ninety

five-gallon cans of denatured alcohol, thirty pounds of processed ephedrine pills, three five-foot-tall hydrogen chloride gas cylinders, and two 75-gallon separatory funnels (House of Representatives 2000b). Jerry Massetti, a chemist with the California Bureau of Forensic Sciences at the time, recalled thinking that the superlabs were probably just rumors: “You’d wonder if it was an exaggeration. Then you’d hear similar stories of labs in Riverside, Orange County, Los Angeles” (Suo 2004b). Uniformity among labs, down to the quality and brand of sheet used to screen solid meth from its surrounding liquids, indicated that all the operations were related to each other.

Though related, each lab operating in the U. S. did so as a single cell. Frequently, only one or two persons involved in its operation would have any connection to the sponsoring organization. Mexican workers arrested at lab sites have testified that they were picked up at day-laborer recruitment corners by people associated with the DTOs and told on the way to a production site that they were going to make \$500 a day (as opposed to the usual \$40) working at a drug lab. When they arrived on site, they were shown chemicals and given instructions by an overseer who was also the DTO’s chemist. These chemists were in high demand. National Drug intelligence Center analyst Randy Weaver stated that very few chemists were skilled enough to make batches of fifty pounds or more. As such, these chemists would work for multiple DTOs, traveling from site to site to oversee production on both sides of the border (Weaver 1997). The migrant laborers at the labs, in contrast, were expendable, and as such, were given no safety equipment and made to sleep close to their isolated lab locations. In some cases, police have found

detailed instructions and presorted, color-coded bags of chemicals designed to facilitate the production of methamphetamine by these untrained workers (Castillo and Unsinger 2000, Suo 2004b).

In general, the DTOs maintained all their chemicals in centrally located stash houses, so that at each site, only the supplies necessary for that particular batch were available, once again limiting their potential losses should a lab be discovered (DEA 1996). Some of these labs produce upwards of 100 lbs. over 4-5 days. Laborers made \$2,500 for their time.

Mexican lab operators in the U. S. often rent out remote farm property through migrant laborers. They set up an individual operation for only a short amount of time, usually over the weekend when farm workers are not present, and then shut it down and move to a new location. Reportedly, a cottage industry grew up in the 1990s around people who specialized in grooming permanent sites for labs and then renting them out to various groups needing a place to cook (DEA 1996). Ed Mayer, a taskforce commander for Jackson County, Oregon's narcotics enforcement team, testified before Congress about that system:

An organized Hispanic group, whether it's by blood or by their criminal association, can come in and rent a methamphetamine lab for a period of time. It's kind of like a condo, you can rent it with or without sheets. In this case you rent it with or without chemicals. It is so sophisticated that it has reached this level (House of Representatives 1995, 33).

Mexican superlabs in the U. S. were small in number, but disproportionately significant in their output. In 1994, the California Bureau of Narcotics Enforcement seized 419 clandestine labs. Of those 419, 52 were superlabs. The output from those 52 surpassed the output for the other 367 labs combined (DEA 1996). The

flood of high-purity methamphetamine that they produced caused prices in California to be half of what they were in the rest of the United States (House of Representatives 1995). Such industrial production levels also severed the tie between meth use and local production. With meth made for export, markets began to emerge far from the sites of production.

By 1998, the impact of Mexican-produced meth was being felt almost anywhere the drug was used. The DEA's *Methamphetamine Situation Report for 1996* stated that Mexican DTOs had made methamphetamine widely available in the Pacific Northwest, the Midwest, and the Southeast (particularly in Georgia), thereby significantly increasing the size and expanse of the U. S. methamphetamine market. This, in turn, led to an increase in domestic production (discussed in the next chapter) across the country as entrepreneurs who operated on the periphery of established Mexican methamphetamine market sought "to exploit the expanding demand for the drug" (DEA 1996).

In 1998 testimony, Ken Carter, the director of the Iowa Division of Narcotics Enforcement, estimated that 90 percent of the meth in Iowa was of Mexican origin. The head of the Des Moines office of the DEA agreed, adding that small-scale independent operations, which had dominated the market between the decline of outlaw motorcycle gangs and the rise of Mexican DTOs, now existed only to "feed the habits of customers typically found outside the Mexican trafficking organizations' predominant areas of influence" (U. S. Senate 1998a, 23). The detectives in the Independence, Missouri, Drug Taskforce placed the transition

between domestically produced and Mexican meth for their city at the mid 2000s (Storey 2010).

Procuring Precursors

Since at least 1995, federal government officials have been trying to cut off precursor supplies from Mexican methamphetamine producers both north and south of the border. Unfortunately, just as was the case during the previous fifty years of clandestine methamphetamine production by their American counterparts, Mexican DTOs have proven to be remarkably adaptive in the face of restrictions. When the Mexicans first entered the market, precursors were not particularly difficult to acquire on either side of the border. The U. S. had restricted bulk ephedrine and pseudoephedrine products, but the same chemicals stamped into pill form were unregulated. Unscrupulous chemical suppliers such as Nationwide Purveyors, of Pittsburgh, Pennsylvania, responded to the loophole by producing massive amounts of ephedrine-based pills, and making them available Mexican superlab operators in the United States in 55-pound barrels (Suo 2004c). When the Domestic Chemical Diversion and Control Act of 1993 closed this pill loophole for ephedrine, the DTOs then moved to international suppliers.

In early 1995 representatives from the DEA requested that the International Narcotics Control Board monitor ephedrine producers and report strange shipments. This step was effective. By the end of that year, the DEA and its international counterparts had successfully intervened in the transshipment of between 170 and 200 tons of ephedrine (Suo 2004a). In response to the closure of

that avenue, Mexican DTOs switched to pseudoephedrine as a precursor. In 1994, pseudoephedrine was found in only 11 percent of all labs seized. By 1995, that percentage had doubled to 22 (Suo 2004c). Over-the-counter pseudoephedrine could be acquired easily within the United States for labs operating within its borders.

In 1996, the Comprehensive Methamphetamine Control Act required all vendors of over-the-counter pseudoephedrine pills to register with the DEA. However, the agency was ill-prepared for the rush of applications and understaffed for monitoring all of the vendors they approved. Many of the vendors who registered did so with the express purpose of selling pseudoephedrine to the DTOs at marked-up prices. It was not difficult to discern the intentions of pill producers. Companies that made cold pills containing pseudoephedrine typically sold them in blister packs of 30 pills each. Those producing for meth manufacturers sold their products in bottles containing 120 pills each, packed into crates of 140 bottles or more. In 1997, five such relatively unknown chemical companies had sales that rivaled those of Sudafed, the leading brand of cold pill containing pseudoephedrine. From 1994 to 1997, imports of pseudoephedrine to the United States jumped 41 percent to 160 metric tons per year (Suo 2004c).

The DEA moved to attack the suspect companies in 2000 through a series of operations known as Mountain Express I and II. These operations specifically targeted the sales of pseudoephedrine to Mexican DTOs operating California. Investigators found that wholesalers in Arkansas, Colorado, Florida, Illinois, Kentucky, Michigan, New York, and Ohio were shipping multiton quantities of

tablets to California, where they could get a \$3,000 profit per pound. The list of cities in which arrests took place provides further definition of this “loosely structured national network” that had developed to sell. Arrests occurred in Denver, Fort Lauderdale, Houston, Lodi (California), Los Angeles, Orlando, and San Diego.

The success of the DEA’s crackdown on domestic pseudoephedrine producers caused the Mexican DTOs that operated labs within the U. S. to seek other precursor sources. Their solution became apparent on April 11 2001, when customs inspectors in Detroit found 43 million pseudoephedrine pills (roughly twelve tons) in the back of a semi-trailer that purported to be empty. Apparently, representatives from either the Mexican DTOs or middlemen operating in the U. S. had become aware that Canada did not regulate pseudoephedrine once it was stamped into pill form. They therefore established contact with several Canadian companies, which in turn, ramped up production to supply the illicit demand to their south. Between 1997 and 2001 the amount of unprocessed pseudoephedrine imported into Canada quadrupled to 140 tons (Suo 2004g).

In the year following that initial seizure of Canadian pills, a new DEA operation, Mountain Express III, intercepted 127 million tablets of pseudoephedrine as they were being smuggled into the U. S. in semi-trailers (House of Representatives 2004b). In a second operation, called Northern Star, the DEA along with the Royal Canadian Mounted Police arrested six executives from three Canadian companies who were knowingly exporting pseudoephedrine to meth producers in the United States. Some 108 million pills from one of those companies,

Frega, Inc., were found at meth labs in the U. S. (House of Representatives 2004b). Canada eventually closed this source by enacting much stricter regulations on pseudoephedrine-based products in 2003.

Without a consistent supply of precursors within the United States, Mexican DTOS began to move production of methamphetamine south of the border. In March and April of 2003, 22 million pseudoephedrine tablets intended for Mexico were intercepted in Laredo, Texas, and Panama. From 2001 to 2009, the number of superlabs seized in the United States dipped from 244 to 14. Concurrent to the reduction in Mexican-sponsored lab production in the U. S., Mexican importation of pseudoephedrine rose from 66 to 224 tons between 1999 and 2004. In 2003 alone, the DEA knew of at least 85 pseudoephedrine shipments totaling 420 million tablets going from the Far East to fictitious companies in Mexico (House of Representatives 2004b)

The few Mexican-sponsored superlabs still operating in the United States today currently use cold pills packed in blister packs for individual sales. This is not efficient, because ever since the Combat Methamphetamine Epidemic Act of 2005, the sale of such pills has been strictly monitored and regulated. To get around sales limits and customer registries, superlab operators in California have established large-scale smurfing networks (NDIC 2009b). "Smurfing," a term that comes from money laundering, in the world of methamphetamine, means the repeated purchasing of small amounts of precursors to avoid detection. It is believed that the turn to smurfing for superlab production began in 2007 when precursors became scarce both in the United States and Mexico. The first known example of large-scale

smurfing was found in Fresno in October 2007. An investigation there revealed that a single couple had created an operation in which they paid homeless people \$30 to travel from store to store making the maximum allowable purchase of cold pills in each. Police found multiple cell phones, pseudoephedrine, and pharmacy listings torn from a phonebook in the couple's car (NDIC 2009B).

Officers at lab sites in California report finding "pseudoephedrine product price lists, store receipts, coupons for pseudoephedrine products, pseudoephedrine product packaging, paper shredders, gallon-size freezer bags, and five-gallon plastic buckets filled with various commercial brands of pseudoephedrine tablets" (NDIC 2009b, 4). The National Drug Intelligence Center reports that these smurfing operations have become so efficient that some have begun shipping pseudoephedrine into Mexico to supply labs there.

Mexican Meth Today

The significance of Mexican methamphetamine in the U. S. has only increased over the course of the last decade. Despite increasing numbers of domestic lab seizures plus police action and turf wars on the Mexican side of the border that have created turmoil within the Mexican DTOs, that country is still responsible for the vast majority of the drug on the American market (greater than 80 percent in 2007 (U. S. Senate 2007)). The trafficking patterns Mexican DTOs have created reflect both the 1980s hearth of methamphetamine production and the significant markets that have grown up in the Midwest and Southeast over the last twenty years (Figure 4.3).

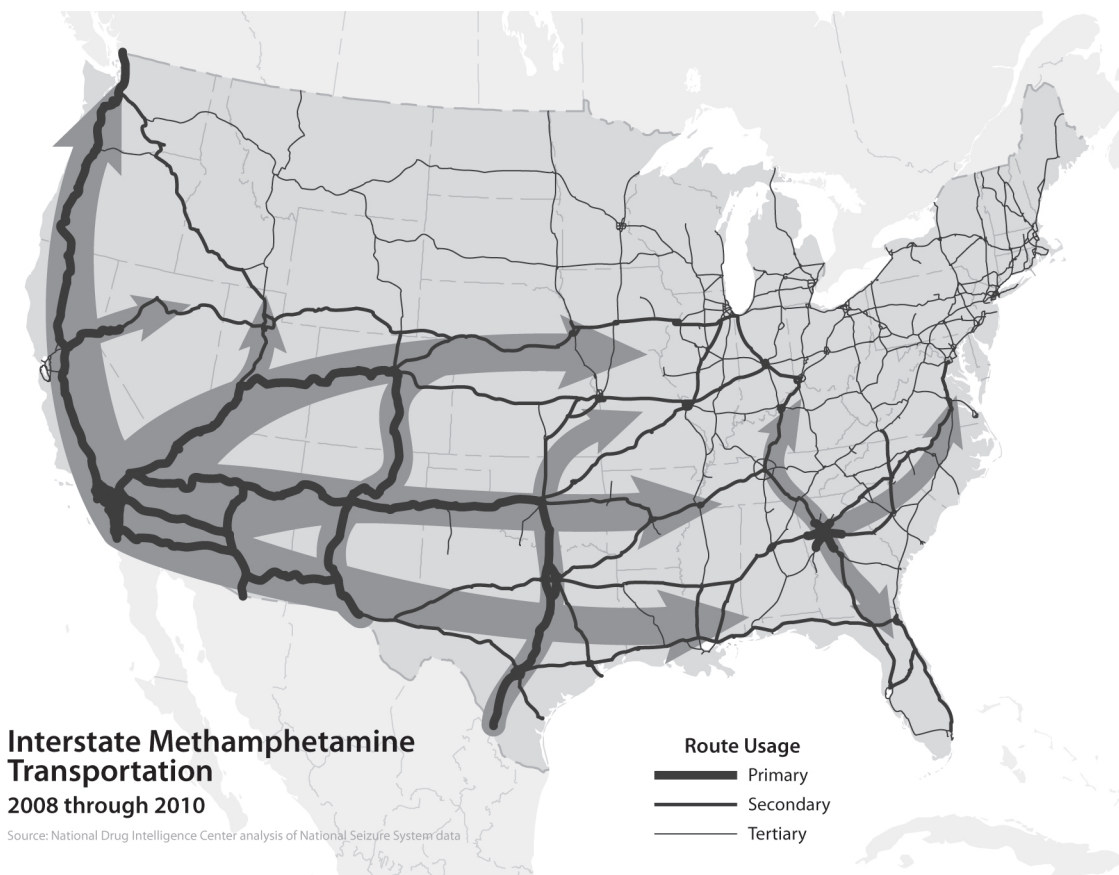


Figure 4.3: Methamphetamine trafficking routes identified in the *National Drug Threat Assessment: 2011* (NDIC 2011). The thickness of lines represents the estimated volume traveling along those particular highways as assessed through seizures.

Faced with rising violence and drug use, particularly in the border provinces, the Mexican government has taken significant steps to reduce methamphetamine production (Brouwer et al. 2006; NDIC 2010; Biettel 2011). After two years of increasing restrictions on ephedrine and pseudoephedrine importation, they totally prohibited their importation beginning in 2008. Any products containing those chemicals were removed from shelves entirely in 2009. Mexican authorities have also increased their efforts to shut down active labs, as demonstrated by the increasing number of methamphetamine lab seizures there (Figure 4.4, NDIC 2010, 2011a).

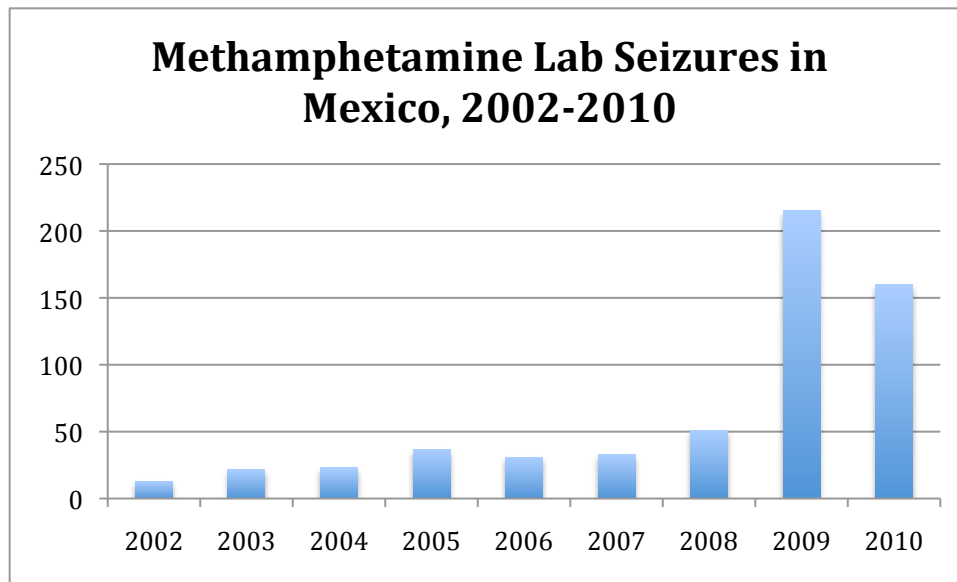


Figure 4.4: Methamphetamine lab seizures in Mexico (NDIC 2010; 2011a)

Faced with precursor scarcity at home, Mexican DTOs recently have also turned to a modification of an old recipe. Both the *National Methamphetamine Threat Assessment* (NDIC 2010) and the Community Epidemiology Work group (CEWG 2011) report that Mexican DTOs are increasingly producing methamphetamine using the P2P method. Because production with this set of precursors makes racemic meth, cooks there now include an additional production step that uses tartaric acid to isolate the dextrorotary isomers in the final product. This makes a version of P2P meth that is comparable in power to that from the ephedrine-reduction methods. That this modified P2P process was first observed in samples seized in Guadalajara in 2006 demonstrates the forward-thinking nature of the Mexican DTOs. They were clearly testing new processes and planning for the scarcity of precursors at least three years before the chemicals were scheduled to go off the Mexican market (DEA 2007).

Since finding that initial sample of modified P2P meth in 2006, Mexican authorities have seen a consistent increase in the number of nonephedrine superlabs. In a one-week period in April 2010, they seized four such P2P facilities, two in Jalisco and two in Sinaloa. Seizures of tartaric acid and phenyl acetic acid (a P2P precursor) within Mexico have also skyrocketed (NDIC 2010). Perhaps because of these new production techniques, seizures of methamphetamine along the border have shown no significant decline, and the National Drug Intelligence Center predicts that Mexican methamphetamine will remain widely available in the United States (Figure 4.5)(NDIC 2011a).

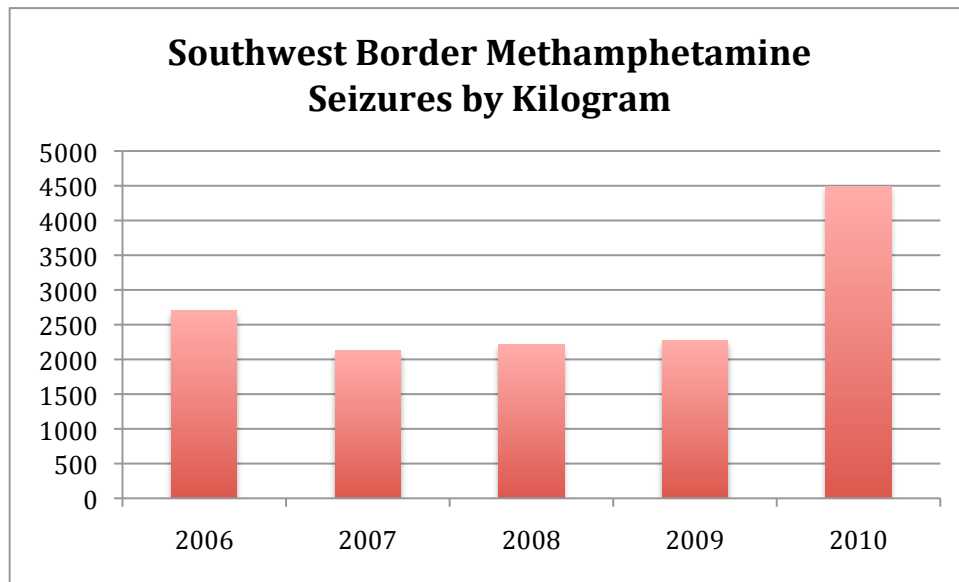


Figure 4.5: Seizures by kilogram of methamphetamine along the Southwest Border for fiscal years 2006-2010 (NDIC 2011a).

The geography of methamphetamine that was established in the 1980s is reflected in the location of the Mexican DTOs involved in methamphetamine production today. The organizations that control the western edge of the border are also those that are the involved with methamphetamine production and distribution. The National Drug Intelligence Center (2011a) identifies three DTOs as

significant methamphetamine traffickers: the Tijuana DTO made up of the remnants of the Arellano-Felix organization, the Sinaloa DTO, and La Familia Michoacána²³ (Beittel 2011; NDIC 2011a)(Figure 4.6).



Figure 4.6: Mexican DTOs most prominently involved in methamphetamine production and distribution as of 2010 (Beittel 2011).

In 2009, La Familia Michoacána (LFM) was thought to be responsible for half of the estimated 200 tons of methamphetamine that entered the U. S. from Mexico every year. They smuggle precursors into Mexico through the large Michoacán port of Lázaro Cárdenas, where police seized nineteen tons of pseudoephedrine in 2006.

²³ La Familia Michoacána, with no physical connection to the border, occupies terrain previously held by the Amezcua Brothers organization.

In addition to being the lone “narco-evangelical” group among the Mexican DTOs, the LFM has a reputation for starting distribution cells in suburban areas on the periphery of large urban centers in the United States (DEA 2009; Grillo 2009).

The recent seizure of fifteen tons of finished methamphetamine at a ranch outside of Guadalajara was attributed to the Sinaloa group (Cave 2012). That seizure demonstrated the scale of production that still occurs south of the border. Beittel (2011) characterizes the Sinaloa DTO as the dominant drug-trafficking organization in Mexico in 2011. The group combines the geographic advantage of controlling the agricultural territory for poppy and marijuana cultivation with a willingness to exert “brutal force” in order to acquire and maintain territory (Beittel 2011). Composed of numerous smaller organizations, it is estimated to control forty-five percent of the entire Mexican drug trade. Its portion of the methamphetamine trade is unknown. The Tijuana DTO has remained relevant because it controls access to the lucrative California markets.

Chapter 5

Eastward the Course of Empire: Small Toxic Labs and the Eastward Spread of Methamphetamine

One time we were sitting on a box lab in a Rubbermaid container out in a rural area. And we had an informant that had given us information about whose lab it was and when they were coming to pick it up. And so we were sitting there, greened up, waiting for this person to show up all in our camouflage, so that we couldn't be seen. While we were there, this vehicle pulls up to the intersection where we were at, stops, takes something out of the car, lays it out on a rock down in a ditch beside us in the sun. And all of a sudden we smell ether, which is a very characteristic odor. Well, it's not the car we're expecting, so I call the sheriff's office to come stop them. They come stop them, and it turns out they had just manufactured methamphetamine, and wanted to smoke while it dried. So they laid it out in the sun, so they could smoke in the car. Had nothing to do with the lab that we were sitting on. There were that many labs in southeast Kansas, that you could just pick a random intersection and happen to have someone come by and do something stupid in front of you. They happened to pick the most policed intersection in rural Kansas that day. But that gives you an idea of how many folks were involved in it at that time. –David Hutchings, Special Agent in Charge, Special Operations Division, Kansas Bureau of Investigation (2010)

In 1989, at the peak of the Southern California methamphetamine lab boom, and before the effects of either Mexican Drug Trafficking Organizations (DTOs) or the Chemical Diversion and Trafficking Act had been felt, the DEA seized 652 labs nationwide. Eleven years later, despite new legislations to limit the availability of precursors and almost total market domination by Mexican DTOs, the number of labs seized by the DEA had grown to 1,832, an increase of 280 percent (Figure 5.1). The total of reported lab seizures by all policing agencies for 2000 was much larger

still, totaling 6,891 (NCLSS 2011).²⁴ At their peak in 2003 and 2004, domestic lab seizures were over 10,200 per year (Figure 5.2).

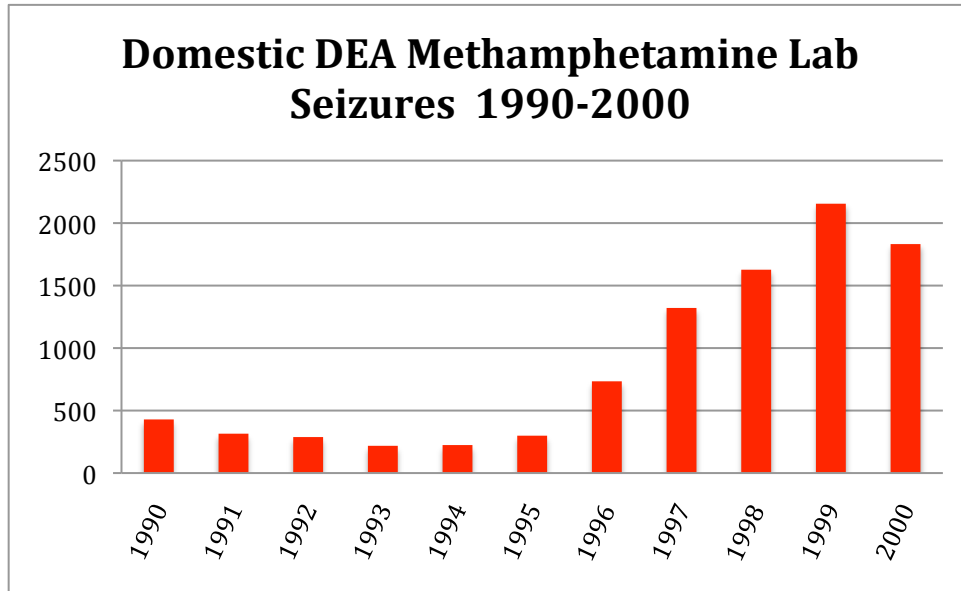


Figure 5.1: DEA methamphetamine lab seizures (House of Representatives 1994; NDIC 2002b)

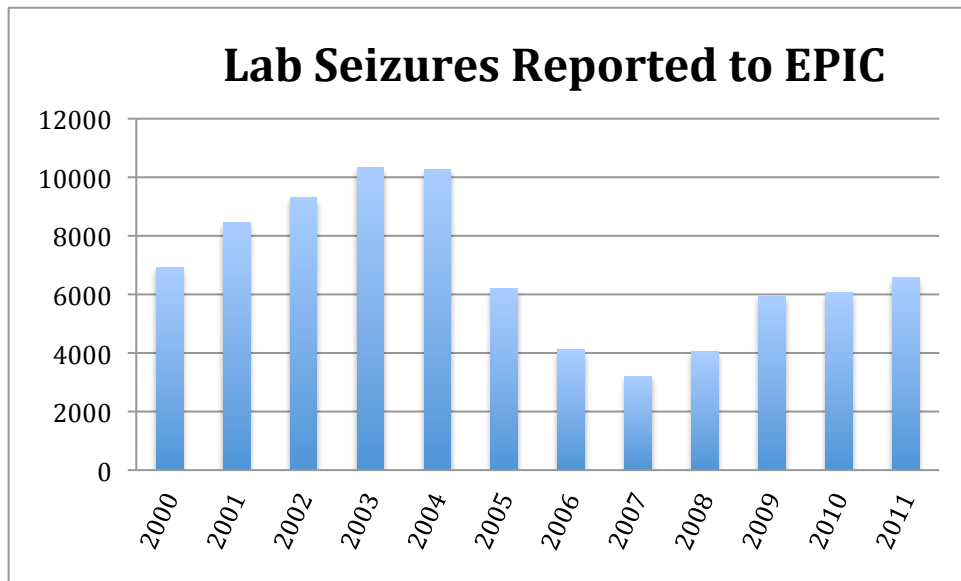


Figure 5.2: Lab seizures reported to the El Paso Intelligence Center (NCLSS 2011)

²⁴ Because no good data source exists for labs seized by all police agencies prior to 2000, we cannot compare the number in 2000 to a comparable one for 1990.

The vast majority of the seized labs were small, producing less than eight ounces of final product for cooks and a small network of users operating on the fringes of the larger markets created by the Mexican DTOs. Since those drug traffickers established market dominance in the mid-1990s, domestic labs²⁵ have never accounted for more than 20 percent of the meth available on American streets (House of Representatives 2004a, U. S. Senate 2007). However, to many observers, the epidemic growth in the number of domestic meth labs (as exemplified by Agent Hutchings' anecdote at the start of this chapter) has been the enduring legacy of America's eighty-year experience with the drug. The impact on the communities in which these labs proliferate has been profound, exacting incredible social and economic tolls (Reding 2009; Garriott 2011). The clean-up of small toxic labs (STLs) is estimated to have cost the U. S. \$61 million in 2005 alone (Nicosia et al. 2009).

The proliferation of small domestic methamphetamine labs in the 1990s and 2000s is confounding on a number of levels. The first is that lab production persisted in the face of a seemingly inexhaustible stream of methamphetamine coming into this country from Mexico. Why would a person risk imprisonment and forfeiture of property to cook meth when they can simply buy it? Furthermore, and flying in the face of most criminological understanding of the evolution of drug markets, it appears that small-scale independent production using one of several ephedrine-based²⁶ methods of methamphetamine cooking actually appeared in

²⁵ In this chapter, I use the term "domestic labs" to refer, not to any lab operating within the United States (which would include superlabs operated by Mexican DTOs), but to labs operated by independent operators (presumably citizens) within the U. S. Governmental literature refers to these independent operations as small toxic labs or STLs.

²⁶ Or pseudoephedrine-based methods.

many places after more advanced drug-trafficking organizations had established a market for the d-methamphetamine. In most cases, drug markets evolve in the exact opposite manner. Finally, the number of methamphetamine labs has skyrocketed despite at least five attempts by the federal government since 1981 to curb production by reducing the availability of precursors.

The Red-P and Nazi Methods

The epidemic growth in domestic methamphetamine production was spurred by the introduction of ephedrine-based methamphetamine recipes, first the red phosphorus (Red-P) family of methods, and later the Birch reduction, or Nazi Method. These production techniques, the first of which appeared in Southern California in the early 1980s, had been of increasing importance in domestic meth manufacture since the scheduling of phenyl-2-propanone in 1981. Among labs for which the method of production was known, ephedrine-based methods passed P2P in percentage of labs seized nationwide in the late 1980s, and by 1993 they made up 82 percent of all labs seized (House of Representatives 1994). In that same year, California accounted for 80 percent of all meth labs seized in the United States (House of Representatives 1994). That ratio would soon change, as d-methamphetamine, and the various recipes to make it, began to spread.

A number of reasons exist why ephedrine-based production methods might spark an increase in domestic production. First, they are much easier to execute than P2P methods, meaning high quality meth could be cooked by someone without any real chemical skill. The Red-P methods also require less time. Whereas a P2P

cook would need several days and sophisticated equipment, a Red-P manufacturer could finish in just a few hours. Red-P cooks also produced pure d-methamphetamine, which is a significantly better product than racemic methamphetamine. But, perhaps most important of all, the Red-P method was preferred by Mexican DTOs. Suo (2004b) credited the Mexicans with deliberately expanding the market for d-methamphetamine. “The cartels’ prodigious supply of methamphetamine sent out across the Plains as far east as North Carolina, created demand where none existed before” (A12).

Others corroborated this notion, and explained its connection to the increase in labs. In testimony before the House of Representatives in 2003, the chief of operations for the DEA, Rogelio E. Guevara, testified that the boom in Midwestern methamphetamine production, which occurred in the latter half of the 1990s, came after the market for d-methamphetamine had been established by Mexican DTOs, when users discovered that they could produce their own meth rather than buy it (House of Representatives 2003).²⁷ A 2005 report by the Committee on Government Reform made a similar claim, stating that STL production began to grow in response to increasing methamphetamine addiction, which was initially created by the appearance of Mexican meth (Committee on Government Reform 2005).

Agent David Hutchings of the Kansas Bureau of Investigation (KBI) noted a similar process. Before the arrival of Red-P methods, the state of Kansas had been generally unconcerned with methamphetamine. The primary drug foci for the KBI

²⁷ Recall that prior to the ephedrine-based recipes, all meth was racemic. Therefore, even experienced meth users in older markets had to be introduced to d-methamphetamine.

in the early 1990s were cocaine and marijuana. What little meth there had been in the state in the early 1990s was P2P meth sold by bikers. However, according to Hutchings, the arrival of Mexican DTOs and the introduction of ephedrine-based cooking methods occurred nearly simultaneously around 1995 (Hutchings 2010). Meth lab seizures began to boom shortly after that introduction. David Waller, a special agent for the Florida Department of Law Enforcement, testified before Congress that the same process had occurred in Florida, where DTOs first shipped in meth from superlabs in California, and then local labs began to appear (House of Representatives 1995).

The second family of ephedrine-based recipes, which would not arrive in areas outside of the West Coast until the end of the 1990s, was discovered in northern California in the late 1980s. It was there, in Vacaville, northeast of San Francisco, that members of the DEA's Western Regional Laboratory, along with representatives from the San Francisco Clandestine Laboratory Task Force, raided a trailer where they suspected people were making methamphetamine. Inside the trailer they found the usual chemical glassware and ephedrine, but in addition, other chemicals that did not match any known recipe for methamphetamine. Instead of red phosphorus and iodine, they found a large canister of anhydrous ammonia and 25 pounds of lithium metal wire. Further exploration uncovered numerous recipes, both typed and handwritten, for the manufacturing processes. Included among them was one involving anhydrous ammonia and lithium.

Though the anhydrous ammonia/lithium method of methamphetamine synthesis had never been seen in a clandestine lab before, it was based on a

chemical reaction, the Birch reduction, commonly used in organic chemistry. The Drug Enforcement Administration's forensic scientists found that they were able to create high purity d-methamphetamine easily from the instructions (Ely and McGrath 1990). A possibly apocryphal story that one of the early labs using this method had been run by a neo-Nazi biker spawned a nickname for the new recipe: "Nazi method." Initially regarded simply as a curiosity to be tested by DEA scientists, this new recipe and nickname quickly rose in prominence. Today, it is the most common form of lab seized by police (NDIC 2011a).

The Birch reduction, or Nazi method, offers several advantages over even Red-P methods, particularly for small-scale producers. First, it is a more compact means of production than that of red phosphorus. Birch labs are frequently referred to as box labs because they are often small enough to fit into a cooler or suitcase. A second advantage is that the reaction process requires no open flame. The combination of small size and "cold cooking" make the method incredibly mobile. Rather than being stuck in homes or outbuildings, cooks can pack all the necessary ingredients into a suitcase and set up in a hotel room or the trunk of a car with only the pungent smell of the anhydrous ammonia to give them away (U. S. Senate 1999). In the early 2000s, Birch reduction labs were found in cooler chests so often that members of the Missouri Highway Patrol joked that the presence of a Rubbermaid cooler in the bed of a truck was sufficient probable cause to pull that truck over (Hutchings 2010).

A final advantage of the Nazi method is the availability of ingredients. Lithium can be easily extracted from batteries. Anhydrous ammonia has a number

of commercial uses, but is most often found in fertilizers. Farm supply stores will often have large tanks of this chemical on site, and farmers maintain supplies as well. The fertilizer connection has made the Birch reduction method particularly attractive in rural areas where the precursor is available to be stolen. Anhydrous theft became such an issue in Iowa that the state began supplying farmers with locks for their supply tanks while Iowa State scientists looked for ways to create a similar compound that did not react in Birch reductions (U. S. Senate 2007). In the absence of anhydrous to steal, the chemical can be synthesized easily.

Another advantage inherent to both the Red-P and Nazi methods is that they are cheap. For a small outlaying of cash, a cook could make a sizeable profit. Table 5.1 reflects the best estimate of the costs of producing 3 ounces of meth with the Red-P and Nazi methods in the year 2000 (House of Representatives 2000a).

Nazi Method		
Pseudoephedrine	20 boxes	\$60.00
Lithium batteries	5 packages	\$50.00
Ammonia	1 qt.	\$300.00
Denatured alcohol*	1 gallon	\$16.00
Starting fluid (ether)	5 cans	\$10.00
	Manufacturing cost	\$426.00
	Retail price**	\$7,200.00
	Profit	\$6,774.00
Red-P Method		
Pseudoephedrine	20 boxes	\$60.00
Denatured alcohol*	1 gallon	\$16.00
7% Iodine tincture solution***	1 gallon	\$38.00
Hydrogen peroxide***	1 bottle	\$2.00
Red phosphorus powder	25 grams	\$55.00
Coleman fuel	1 gallon	\$2.50
Red Devil lye (sodium hydroxide)	1 can	\$1.50
	Manufacturing cost	\$175.00

	Retail Price**	\$7,200.00
	Profit	\$7,125.00
* Used in extraction of precursor		
** (72 grams at 40% purity) (\$100/gram)		

Table 5.1: The cost of making a single batch of methamphetamine using the Nazi and Red-P methods (House of Representatives (2000a)).

Eastward the Course of Methamphetamine

The first region to be hit by the diffusion of ephedrine-based STLs was the Midwest. Owen (2007) argued that diffusion began when a number of Californians moved to Missouri in the 1990s and brought the ephedrine-based methods with them. One person in particular, Willi Olsen, came to the city of Independence and began to ship in meth from California in pound quantities. As he was establishing demand, he also recruited cook friends to join the operation. One of these friends, Hugh Escobar, reportedly then split with Olsen and began to teach the Red-P method to others in the area. Detective Bill Sweeney of the Independence Drug Task Force corroborated this story as he recalled when the Red-P method took off in Kansas City:

We were told, and it might just be tweaker talk, but there was a dude who came from California, and that's where all the meth labs came from, with the Hell's Angels and all that. And he came from California and he kind of got things started. Well, he'd sell his recipes, and they just went like wildfire, and in a matter of months, everyone was trying to cook dope (Sweeney 2010).

The spread was so rapid that by 1998, *Rolling Stone Magazine* was calling Independence "tweakville," and dubbing it "Meth Capital of the World" (Wilkinson 1998).

Methamphetamine production boomed in the lower Midwest in the latter half of the 1990s. Even from a distance, the numbers are staggering. Missouri had two labs seized in 1992, fourteen in 1994, and 421 in 1997 (U. S. Senate 1999). In 1993, three labs were seized in Iowa, but the numbers rose to 103 in 1997, and 320 in 1998 (U. S. Senate 1998a). In Arkansas, the number of labs taken down by police rose from three in 1992 to 244 by 1997 (House of Representatives 2000a). In Kansas, there were 4 labs discovered in 1994, 99 in 1997, and 189 in 1998 (U. S. Senate 1999). In all cases, it appears that demand was established before local production began.

In the Midwest, the methamphetamine market progressed first from small-scale P2P dealing to a rapid influx of d-methamphetamine and the appearance of Red-P labs. This was followed by a lab boom spurred by the spread of the Nazi method. Detective Terry Story, of the Independence, Missouri, Police Department described the transition in terms of changes in the labs themselves: “We had big labs when we first started. We had mad scientist labs. And they were beautiful to look at. Now it’s all small. They went from labs as big as this room to something you could set on this notebook” (Storey 2010).

The Midwest was at the forefront of the diffusion of methamphetamine markets and STLs, but the processes that occurred there were soon repeated in other regions of the country. In the initial stage of recipe diffusion, information exchange was dependent upon personal contact. In the absence of the Internet, cooks had to learn from other cooks. Kirk Thompson of the KBI compared this networking process to the mythical Hydra: “Our investigations reveal that these

meth cooks come into our state and establish contact with our resident violators. They pass along knowledge of their trade and move on and establish contact in another area. It's like a nightmarish chain letter. The problem is increasing geometrically just like the heads of the Hydra" (U. S. Senate 1999 16).

With the proliferation of the Internet, aspiring cooks no longer had to rely on direct contact with producers. They could order a book such as Uncle Fester's *Secrets of Methamphetamine Manufacture* (Fester 2009), watch instructional videos on YouTube, or engage in a conversation on a list serve. As a result, the pace of diffusion quickened. In 2000, the first year for which the El Paso Intelligence Center (EPIC)²⁸ has data, there were 6,918 labs seized. By 2003, there were 10,332 (Figure 5.2). If we divide the numbers by region as designated by the Organized Crime Drug Enforcement Task Force (OCDETF, Figure 5.3), we can see that, as the decade of the 2000s progressed, the proportion of lab seizures in areas further from the methamphetamine hearth of the West Coast grew significantly (Figures 5.4).

²⁸ EPIC is the national clearinghouse for clandestine laboratory seizure data.

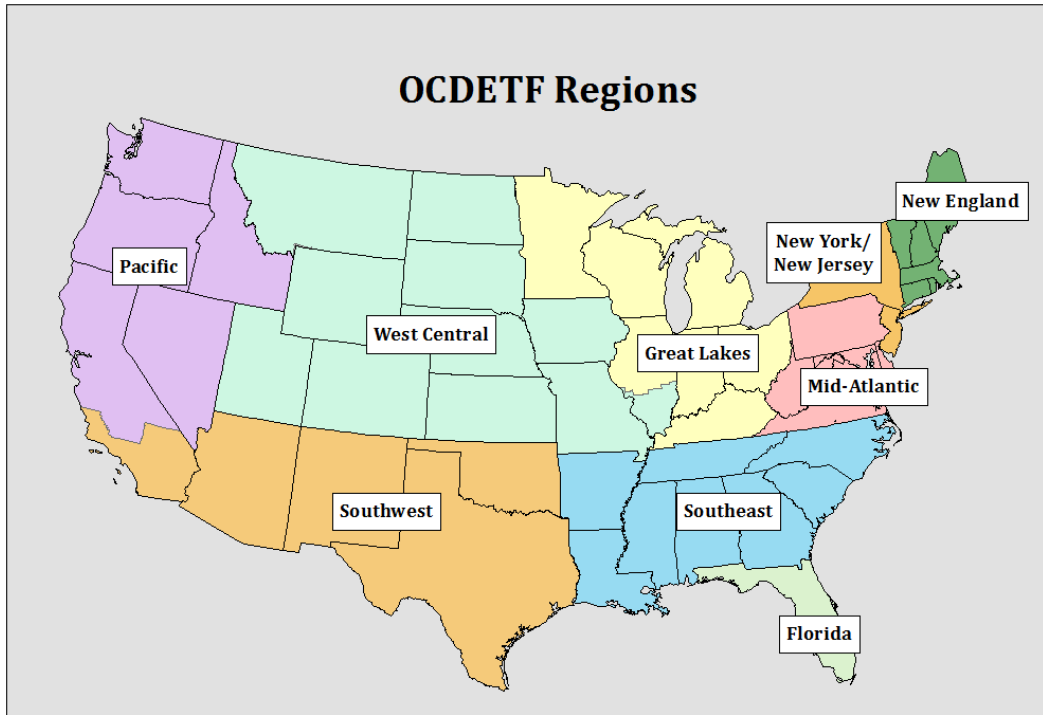


Figure 5.3: OCDETF Regions

By the year 2000, methamphetamine markets in the West Central Region were already well established. However, STL production was still diffusing to other regions, and, over the course of the decade, the proportion of lab seizures belonging to the Southeast and Great Lakes regions grew significantly as methamphetamine markets in those regions grew (Figures 5.4 and 5.5). By 2005, a survey of law enforcement officials nationwide reported that methamphetamine ranked as either the first or second greatest drug threat for every region of the country but the Northeast²⁹ (NDIC 2005a).

²⁹ The National Drug Threat Assessment: 2005 uses a different region system than the OCDETF. In this case, the region that did not list methamphetamine as a serious threat (it ranked fourth out of five) was comprised of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia (NDIC 2005).

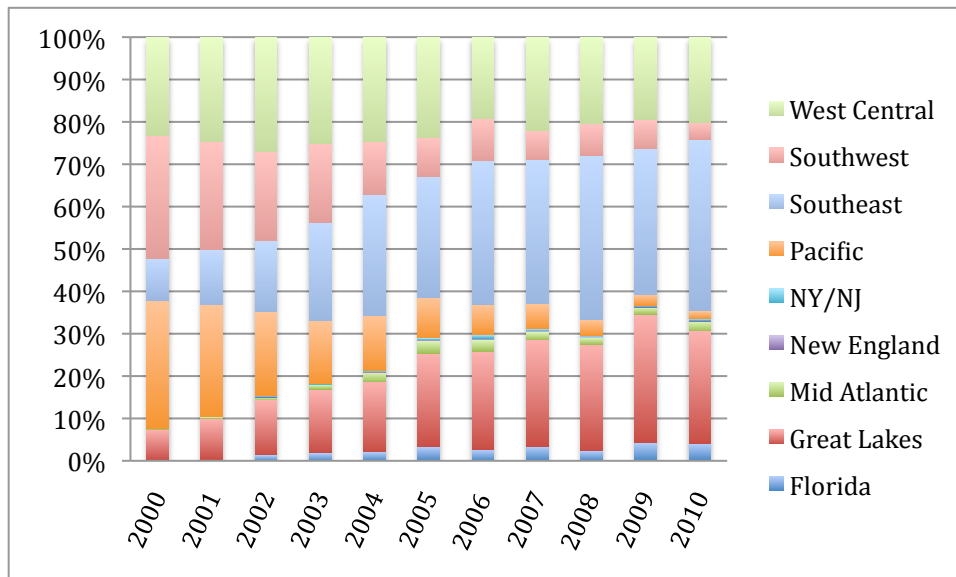


Figure 5.4: Proportion of all labs seized for the contiguous 48 states displayed by OCDETF region (NCLSS 2011).

Reports by the National Institute on Drug Abuse’s Community Epidemiology Working Group (CEWG) confirmed the spread. In 1999 that body saw only negligible indications of a meth market in Chicago, Minneapolis/St. Paul, and Atlanta. Five years later, the situation had changed. In 2005, the CEWG reported significant increases in usage indicators for the Midwest, South, and East. Admissions for methamphetamine treatment in Atlanta were growing faster than for any other drug, and enforcement officials in suburban Fulton and Dekalb counties described methamphetamine as the biggest threat to their populations. Informants in South Florida reported that meth prices there were the highest in the country. They claimed that the drug was being imported from Georgia and North Carolina.

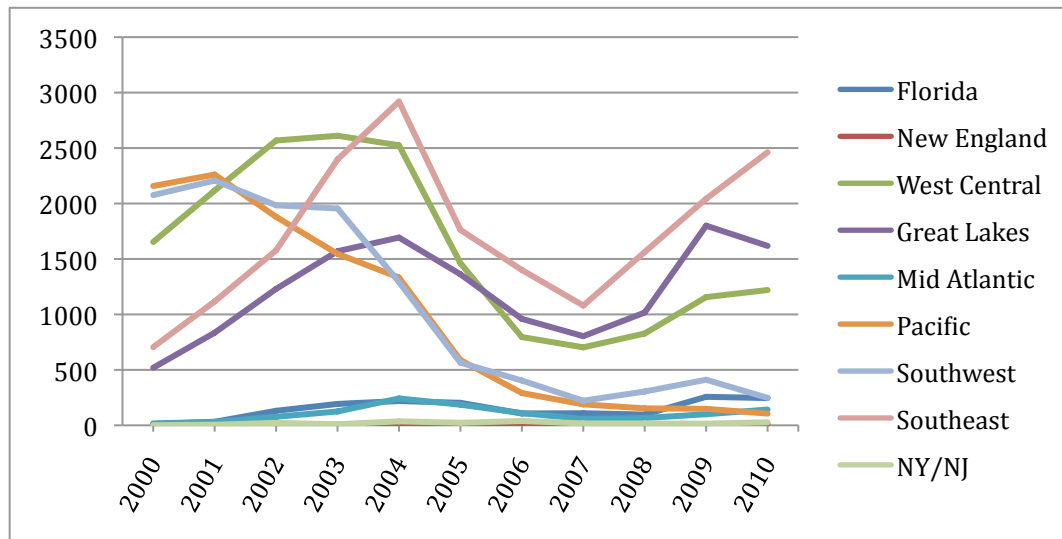


Figure 5.5. Lab seizures by OCDETF region (NCLSS 2011).

In the Great Lakes Region, methamphetamine was not of significant concern in Chicago itself, but 50 percent of Illinois counties were reporting increased seizures of the drug. In Minneapolis/St. Paul treatment rates for methamphetamine surpassed 10 percent of all admissions for the first time in 2004. The CEWG attributed most of the increase in labs (if not usage) to the spread of the Nazi method to the upper Midwest and rural South (CEWG 1999a; 2005).³⁰

Another way to document the spread of methamphetamine markets over the course of the 2000s is to map the mean center of methamphetamine lab seizures. There is no way to know the actual number of labs operating in an area, but lab seizures offer an often-used proxy (Weisheit and Wells 2010). By weighting the center coordinates of every county in the United States by the number of labs seized within its borders, and then averaging those weighted values, we can track the mean

³⁰ Methamphetamine markets never again successfully penetrated the Northeast after the drug's brief heyday in the 1960s. The CEWG has attributed this lack of penetration to "the entrenched tradition of cocaine and heroin trafficking, as well as a lack local manufacture" (CEWG 1999b). Only in 2011 did government documents begin to warn of possible market expansion into the region by Mexican DTOs (NDIC 2011a).

center of domestic production in the United States. In the year 2000, that center was located in central Colorado, already pulled eastward from the West Coast by surging production in Midwest (Figure 5.6). By 2010, it had migrated all the way to western Kentucky, as a result of growing numbers of seizures in the Southeast and Great Lakes regions.

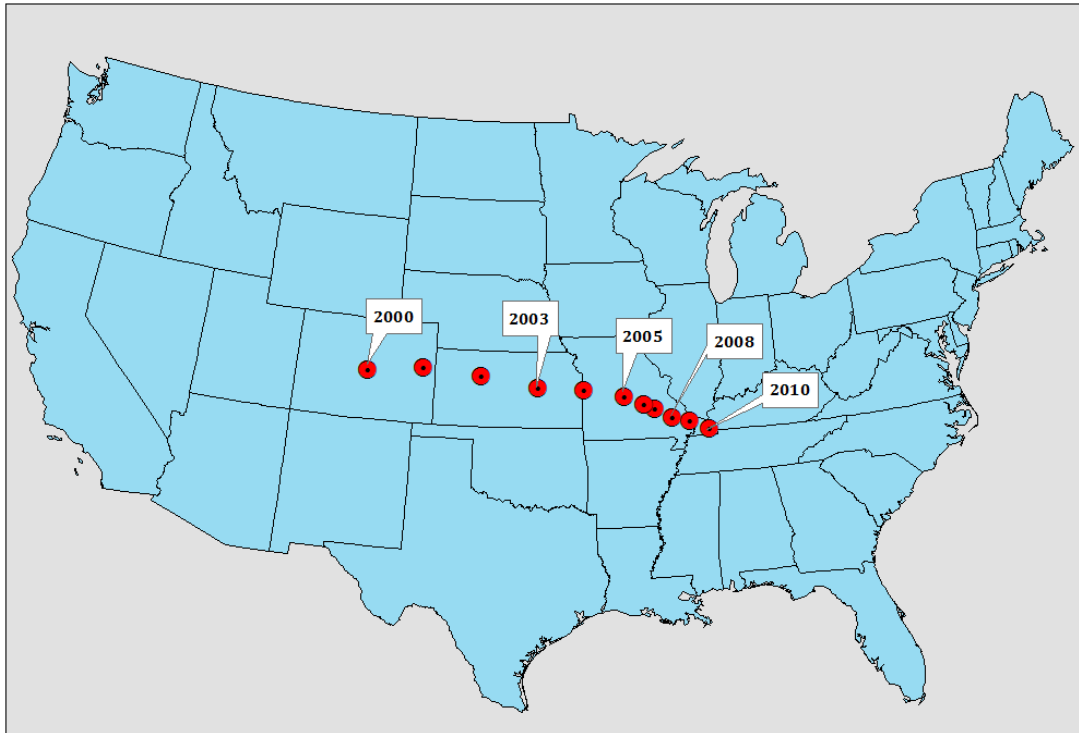


Figure 5.6: The migration of the mean center of methamphetamine lab seizures from 2000 to 2010. The centers begin with the year 2000 in central Colorado, and migrate eastward.

The eastward expansion of methamphetamine markets was also reflected in usage and treatment statistics. Emergency department visits in the DAWN system involving methamphetamine grew by 54 percent from 1995 to 2002 (SAMHSA 2004a). Figure 5.7 shows MSAs with statistically significant increases in methamphetamine mentions at admission to emergency departments. Admittedly,

many of these percentages are exaggerated because the MSAs had extremely low rates in 1995, but the increase east of the Mississippi is still significant.

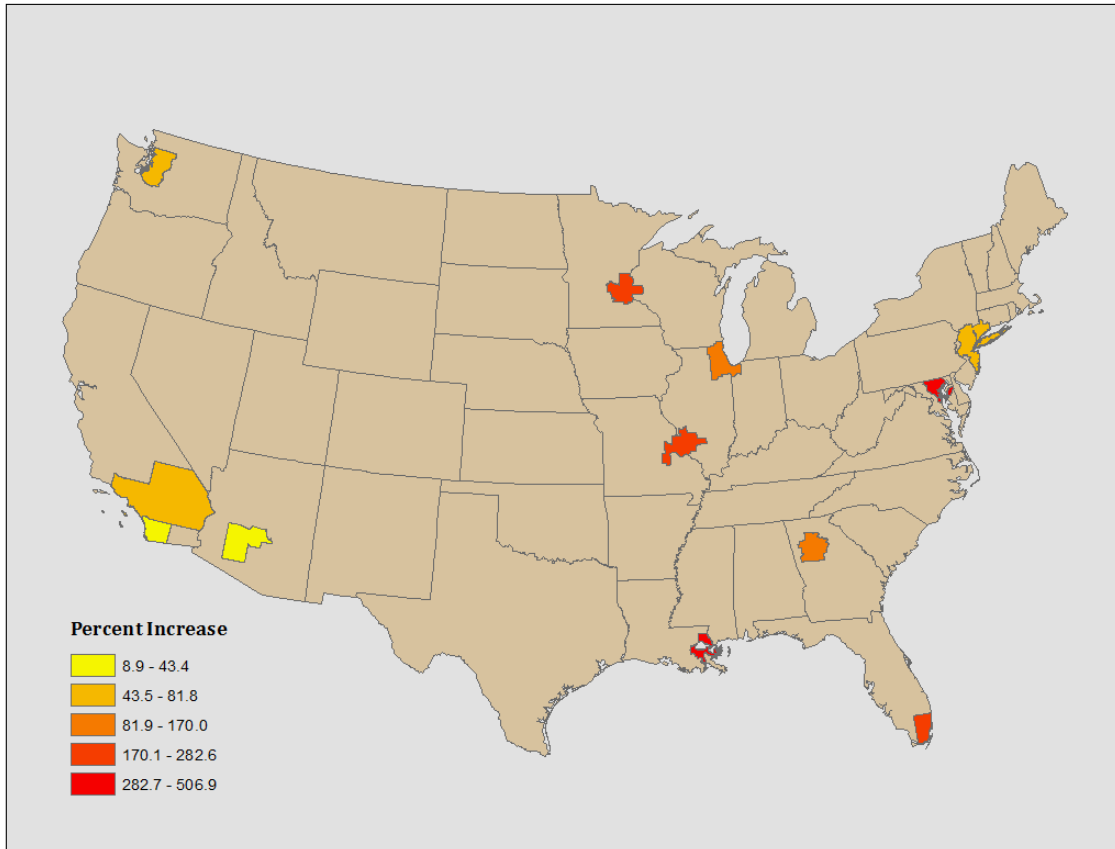


Figure 5.7: Statistically significant increases in methamphetamine mentions for emergency department visits in the DAWN system from 1995 to 2002 (SAMHSA 2004a).

Primary admission rates for methamphetamine in the Treatment Episode Data Sets also showed significant increases (Figure 5.8). Between 1993 and 2005 the proportion of people seeking treatment for methamphetamine as their primary drug of abuse increased from two percent of all admissions in 1993 to nine in 2005. The majority of these admissions (64-76 percent) were still located in the West. Much of this increase is because of court-mandated treatment. The percentage of people referred to treatment by the criminal justice system increased from 38 in

1997 to 56 in 2007 as drug courts became more prevalent (SAMHSA 2009a). Over this time period the Northeast never accounted for more than a single percent of methamphetamine treatment admissions.

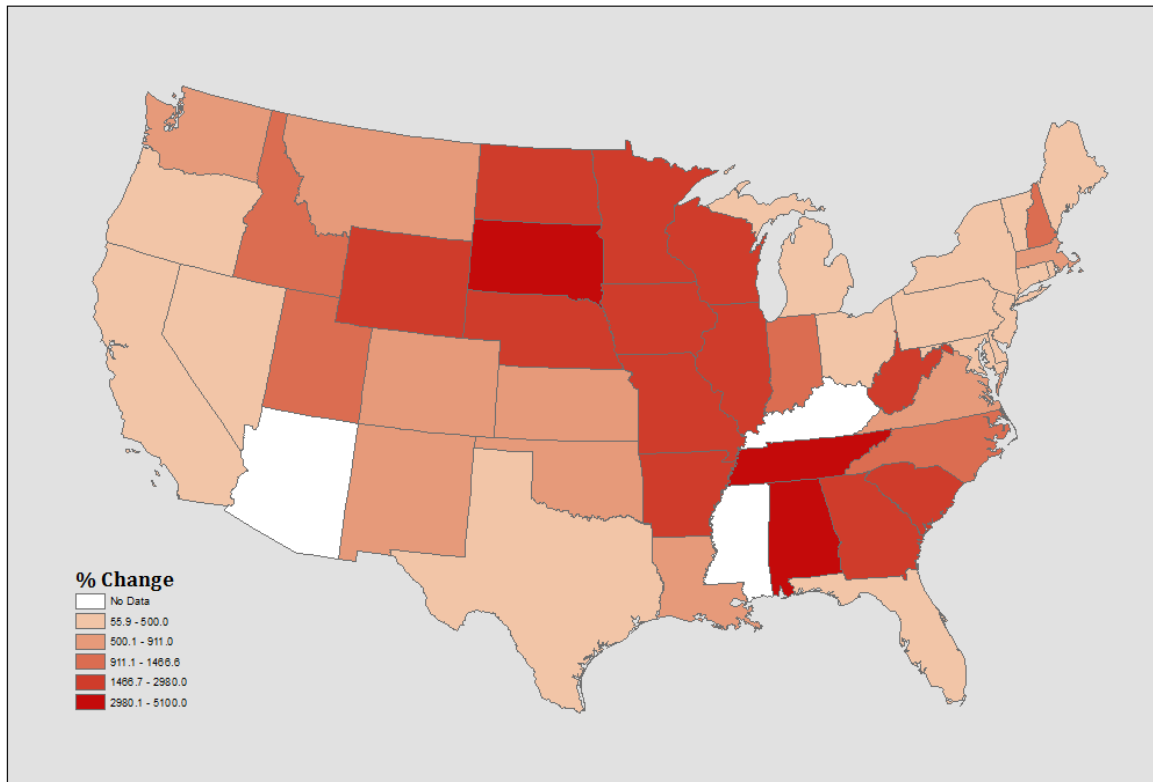


Figure 5.8: Percentage change in primary treatment admissions for methamphetamine in the TEDS system between 1993 and 2005 (SAMHSA 2006d, 2011a).

User demographics for methamphetamine over the past decade have remained much as they had been earlier. The drug’s consumers were predominantly white, though that percentage decreased from 83 in 1993 to 65 in 2007. The percentage of Hispanics who sought treatment, on the other hand, expanded from 9 to 21 over the same time span. This probably reflected the increasing prevalence of Mexican meth. The method of administration for the drug

experienced a significant change as well, with smoking replacing injection and inhalation as the preferred method by 1998 (Figure 5.9).

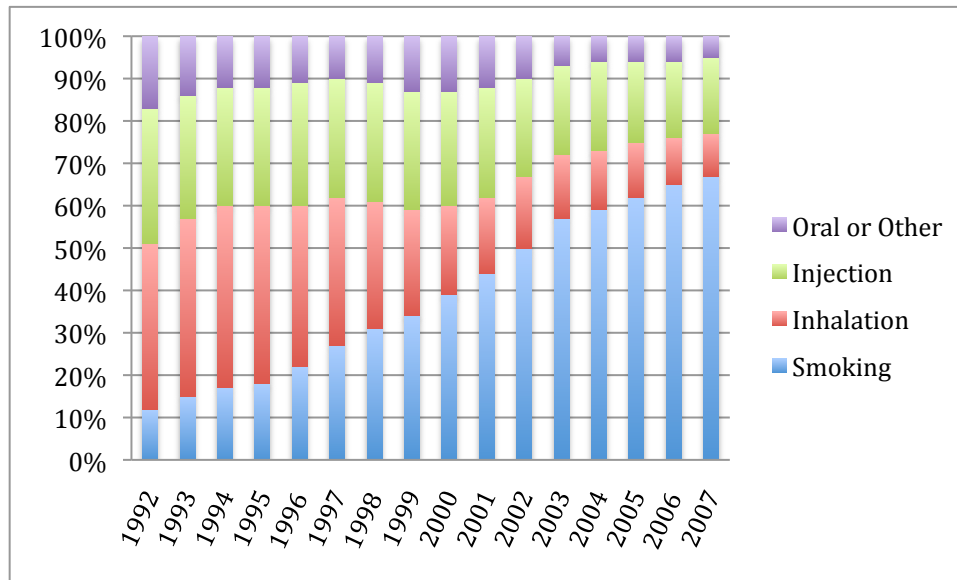


Figure 5.9: Changes in the method of administration for people seeking treatment for methamphetamine abuse (SAMHSA 2005; 2009a).

Small Labs, Big Problems

No matter where they were found, the proliferation of STLs presented an array of problems to the communities that had to deal with them. On the one hand, the actual proportion of the methamphetamine market that they supplied was fairly small, estimated at roughly 20 percent on a national level. On the other hand, such labs garnered a lot of public attention and demanded action. Joseph Corcoran, the special agent in charge of the St. Louis DEA office identified three problems created by the small labs. First was that the chemicals used in the production process were highly volatile and could potentially result in explosions or fires.³¹ Second was that the chemicals used in production, whether they exploded or not, were highly toxic,

³¹ This fear is often overstated. According to DEA statistics for 2002, 1.4 percent of labs exploded and 2.3 percent resulted in fires (House of Representatives 2003).

and resulted in significant environmental damage when disposed of improperly. These two factors combined to make meth labs expensive to clean up. Corcoran put the cost of disposing of the chemicals at \$2,500 per lab. According to him, “the amount of drugs that these labs produce” was “perhaps the least significant” problem associated with STLs (U. S. Senate 1999, 35).

Corcoran’s concern, although presented in a flippant way, was important: the public’s desire to close down domestic meth labs took attention and funding away from the more significant methamphetamine problem, which was the distribution of methamphetamine by Mexican DTOs. As my informant in the KBI explained it:

The meth lab is kind of like the fire for firemen. When we get a meth lab, law enforcement has to respond. And so, all the time we spend on that methamphetamine lab crime scene is time we can’t spend on cases that would be interdiction cases for methamphetamine, so that we could maybe try to get some of those other sources of supply under control (Hutchings 2010).

This meant that the existence of small toxic labs might actually help rather than hurt the business of DTOs, as it diverts attention and funds away from their persecution without significantly reducing their market share.

Indiana Representative Mark Souder spent much of the early 2000s holding hearings regarding methamphetamine as part of the Subcommittee on Criminal Justice, Drug Policy, and Human Resources of the House of Representatives’ Committee on Government Reform. He viewed the visibility of methamphetamine labs in a similar light to that of Agent Corcoran: “It’s a political problem, because if you see the number of headlines, the community starts to think that they have a bigger meth problem proportionately than it is actually there, and you could also misallocate funds chasing the smaller [lab seizure] numbers” (House of

Representatives 2003, 82). In a report submitted to the rest of the House, his committee warned that targeting STLs alone was futile: “Merely tackling the small clandestine labs is like squeezing a balloon—the meth supply will expand elsewhere to meet demand. Mexican meth will more than replace the supply from small labs, unless Congress addresses the problem in a comprehensive way” (Committee on Government Reform 2005, 6).

The explosion in small meth labs was a strain not just on field operatives and legislators, but also on the forensic scientists whose duty it was to identify the chemicals and drugs found at lab sites. As an example, in 1998 the Indiana State Police lab handled 400 meth cases. By 2002 their number was 2,800, surpassing the total of even cocaine (House of Representatives 2004a). The director of the Kansas City crime lab estimated that the processing of meth labs required ten to twenty times the man-hours of a traditional drug arrest. The explosion in the number of labs seized meant that state forensic labs had to reduce the time spent on drug, rape, homicide, and robbery cases they would normally have worked. The seizures also created massive backlogs of lab work, which meant that prosecutors had to put off trials as they waited for analyses to come in.

Small toxic labs differ from their super brethren in a number of important ways that impact the communities in which they are found. Superlabs are an industrial affair. They tend to be hidden away in remote areas because their size makes them both difficult to move and easy to identify. In the U. S. they are frequently found on public lands or in remote agricultural land in the Central Valley of California. Their operation harms only the land, the cooks (potentially), and the

people who use the meth they produce. Small toxic labs, in contrast, have the potential to inflict far more harm. Their mobility increases the probability of an innocent bystander coming into contact with them. Often, this is a police officer accustomed to standard traffic stops and generally unprepared to deal with the operational meth lab he finds in the trunk of a car. At other times it is park rangers or regular citizens out for a stroll.

Small size also means that the domestic labs are temporary affairs. In more densely populated areas they have often been set up in hotel rooms. Although some hotel operators knowingly lease rooms to meth cooks, others do so unsuspectingly, and are then stuck with the significant cost of decontamination while they lose income as these rooms sit idle. The price of such decontamination is significantly more than the chemical disposal cost incurred by the DEA or local police.

Perhaps no group suffers more from the existence of small toxic labs than the children of meth cooks or meth-addicted parents. In 2002, some 2,000 children were present during meth lab seizures and 69 percent of them had been exposed to hazardous chemicals (House of Representatives 2003). The knowledge these kids were exposed to is probably even more damaging. Terry Williams, the director of the North Central (Missouri) Drug Task Force, testified before Congress about a time in the mid 1990s that she was contacted by school officials in Ray County because there was a nine year-old in the school who claimed to know how to make meth:

Now we could barely pronounce it at the time, let alone spell it . . . [But] this child sat and began talking to us. He told us how the process worked, and "Make sure you get the heat right here, and turn it down here, because if it gets too hot you may have a fire." This was a child who knew what he was talking about, because he had watched (U.S. Senate 1999 21).

Later, when the task force raided that child's home, he reportedly asked the police what had taken them so long.

Small Toxic Networks

Though not affiliated with specific organized crime groups in the way that the superlabs of California were directly connected to Mexican drug-trafficking organizations, the independent cooks and users that coalesced around small labs still formed a network of sorts. First, there was the information exchange that occurred in the early years of meth market diffusion. Kirk Thompson, the director of the KBI in 1999, described the network of methamphetamine cooks in his region as the most troublesome development to have occurred around the drug. He argued that the spread of techniques and expertise relating to methamphetamine made the prosecution of individual cooks pointless in terms of market disruption. A new cook would simply rise to take their place. To Thompson, the only effective way to stop methamphetamine was the removal of precursors from the market.

The Missouri Highway Patrol reported similar interaction between cooks: "While these local producers do not maintain an organized hierarchy, it has been found through various investigations that these local producers have friendships or other criminal ties to individuals within their immediate or adjoining states" (U. S. Senate 1999, 56). Rogelio Guevara of the DEA believed the Internet increased the scope of meth cook networks: "While in the past methamphetamine 'chemists' closely guarded their 'recipes,' today's age of modern computer technology has made 'chemists' more willing to share their 'recipes' of death. This form of

information sharing allows wide dissemination of the techniques to anyone with computer access” (House of Representatives 2003, 55).

In addition to the loosely affiliated web of recipe sharing, smaller networks coalesce around individual cooks. Lab operation has never been a solitary activity. Sergeant John Sanchez of the Arizona Department of Public Safety described the division of labor associated with the operation of even a small lab: “You have ten or twelve people involved. One that’s supplying the money, one that’s supplying the chemicals, one that’s supplying the glassware, one that’s supplying the place, one that’s supplying the recipe, and on and on and on” (House of Representatives 1995, 42). Cooking then, becomes a social activity and a culture evolves around it. John C. Horton of the ONDCP described that society to the House of Representatives in 2003:

For users and dealers, cooking methamphetamine has developed into a social activity where methamphetamine users can share information on methods of cooking and using methamphetamine, who in the “meth world” may be working undercover for police, and what sort of criminal enterprise, such as identity theft, may be feasible to criminally enable the acquisitions of the ingredients used in methamphetamine (House of Representatives 2003, 71).

Detective Gary Tucker of the Independence Police Drug Task Force told me of the pride the early ephedrine cooks took in their work and the networks that formed around them:

Guys initially that were in it, they were perfectionists. They had a product that they were proud of. Because they would tell us. We would talk to them in interviews and they would tell us, “Yeah man, I’ve got the best stuff here. Mine’s about 99, 98 percent pure. You’re not gonna find anything better here, so I can pretty much dictate my price. And my customers are repeat customers.” So they had a *business*, and they were proud *business owners* (Tucker 2010).

Generally speaking, the networks that form around a small lab are not profit-driven entities. The group goal is to produce enough meth for their own personal use and to have just enough to sell to fund the next cook. The limited sales that occur do so through a social network model, meaning that the cook or other members of the small lab network sell only to personal acquaintances. These sales occur off the street in private residences. All of these factors combine to make small lab operations difficult to penetrate and disrupt. Undercover operations or traditional buy and busts simply do not work. More often than not, labs are discovered via the vigilance of neighbors or merchants who sell the known ingredients necessary for a cook. Other times, the erratic behavior of meth cooks and users brings attention to themselves and their activities.

Correlates of Methamphetamine Lab Seizures

As Figure 5.2 shows, the peak years of methamphetamine lab seizures in the United States were from 2000 to 2004. In order to understand lab location better, I conducted a spatial regression analysis of seizures during this time period (Figure 5.10). Tables 5.2 and 5.3 show the covariates associated with such seizures at the peak of STL production for the contiguous United States at the county level. The method used to determine the covariates was a zero-inflated negative binomial spatial regression, and the results are presented in two separate tables.³²

³² For an in-depth explanation of the data for these analyses, methods used, and complete results, see Appendix.

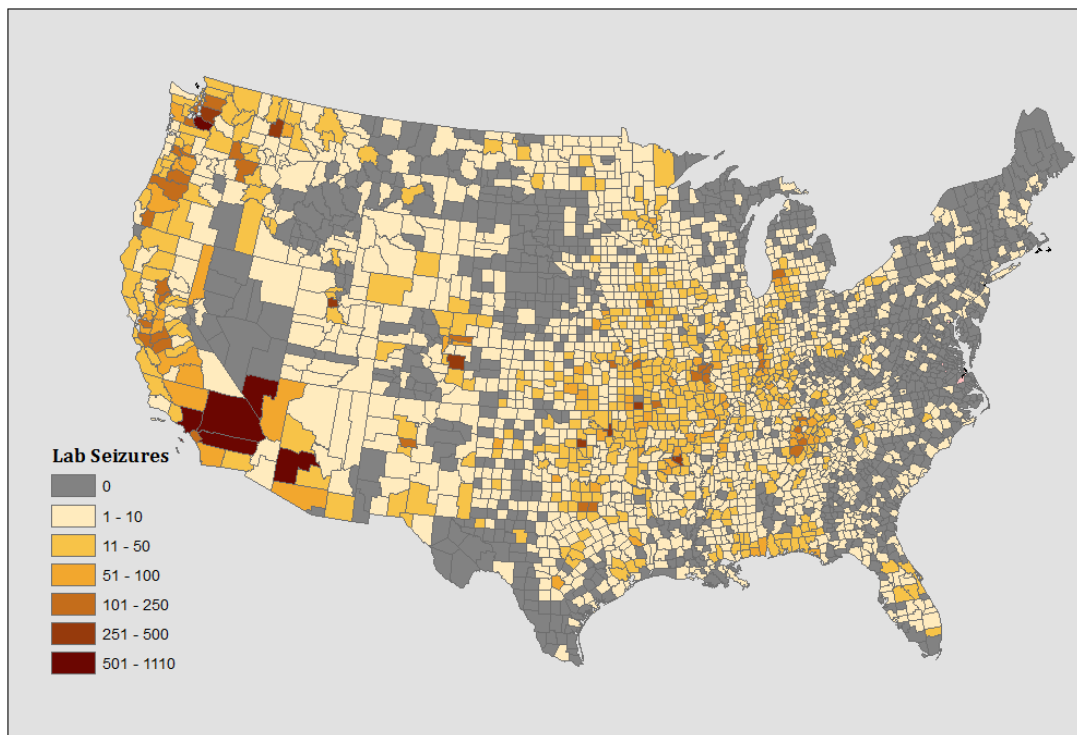


Figure 5.10: Cumulative methamphetamine lab seizures for 2000-2003 by county (NCLSS 2011).

The first table (Table 5.2) displays the logistic zero-inflation portion of the model. Covariates in this table help to determine the probability of a county having zero labs seized within its borders. A negative value of the coefficient of these variables indicates that they increase the likelihood of labs being present in a county. Nationally, the most significant predictor of meth labs being seized within a county was their presence within neighboring counties. High dissimilarity indexes for a county's white population (DisSim), high property crime rates (Prop), and population turnover since 1995 (DIFCTY95) were also correlated with the presence of meth labs. In contradiction to the frequently repeated assertion that meth use and production are predominantly rural, a higher percentage of population living in rural areas (RurPCT) increased the likelihood that no labs would be found within a county's borders.

Zero-inflation Model				
	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	4.210	0.935	4.502	0.000
LAG	-1.262	0.117	-10.780	0.000
Prop	-0.084	0.033	-2.542	0.011
RurPCT	0.016	0.004	4.433	0.000
DIFCTY95	-0.028	0.015	-1.889	0.059
DisSim	-0.039	0.010	-3.819	0.000

Table 5.2: Covariates associated with the probability that no labs will be seized within a county.

Count Model Coefficients				
Variables	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	1.029	0.682	1.509	0.131
LAG	0.028	0.002	16.661	0.000
WhtPCT	0.034	0.004	9.569	0.000
Vacant	-0.018	0.004	-4.168	0.000
SingMom	0.141	0.030	4.745	0.000
Prop	0.040	0.012	3.253	0.001
farm	-0.434	0.095	-4.558	0.000
manf	-0.179	0.063	-2.845	0.004
PCTBACH	-0.030	0.006	-4.800	0.000
RurPCT	-0.005	0.002	-2.660	0.008
SpanPCT	-0.023	0.004	-6.049	0.000
DIFCTY95	-0.013	0.006	-2.022	0.043
RentOcc	0.018	0.006	3.062	0.002
DisSim	-0.030	0.005	-6.365	0.000
PDZ	-0.108	0.051	-2.125	0.034
Interstate	0.001	0.001	1.650	0.099
PopZ	0.286	0.046	6.177	0.000
Log(theta)	-0.196	0.036	-5.389	0.000

Table 5.3: Covariates associated with increasing numbers of meth labs being found within a county.

Table 5.3 shows the factors that are associated with changes in the quantity of labs seized within a county once the hurdle of having zero labs within it has been overcome. In this table, a positive value indicates the variable has positive impact on meth lab seizures. Once again, the presence of labs in neighboring counties (LAG) is positively associated with increasing meth lab seizures. This may be evidence of the diffusion of labs or of increased policing in the face of nearby meth

problems. More probably, it is a combination of both factors. Increasing lab seizures were also positively associated with counties where a high percentage of the population was white (WHTPCT), a high percentage of families had a single mother as the head of household (SINGMOM), property crime rates were higher, and a larger number of homes were occupied by renters (RentOcc). Most of these correlates are associated with social disorganization, a condition common to high-crime areas containing drug markets. The lone exception, a high percentage of white residents, reflects the fact that white people make up a disproportionately large percentage of meth users (SAMHSA 2009). Interestingly, a higher population (PopZ) is correlated with increasing meth lab seizures. Perhaps the relationship indicates that a sufficient market needs to exist in order for cooks to bother producing.

The negative relationships between education levels (PCTBACH) and percentage of the population that speaks Spanish at home (PCTSPN) were expected. Meth users (and cooks) tend to be undereducated. Spanish speaking was included in the model as an indicator for the possibility of market penetration by Mexican DTOs. Its significance and negative correlation would seem to validate this assumption, and to suggest that meth production is more likely to occur when demand is not met by importation.

Several of the other negative correlates were surprising. Rural counties, ones dependent upon farms (farm), and ones with large numbers of vacant properties were all associated with decreasing meth labs, once again arguing against a connection between meth production and rural areas. However, population density

(PDZ) was also negatively correlated. This would appear to be the opposite of the relationship demonstrated by the previously mentioned variables. Perhaps a fine line between population density and highly rural population must be met for meth labs to occur. Finally, the relationship between the increasing segregation of whites from other ethnicities and the meth lab count is opposite from what it was for the zero-inflation portion of the model. That is to say that segregation of whites increases the probability that a county will have at least one meth lab seized within its borders, but decreases the probability of the number of labs seized being high. In both cases, the impact of the variable, while significant, was small.³³

Precursor Legislation, Smurfs, and the Advent of One-Pot Meth

By the end of 2004, the federal government was well aware of the explosion in domestic methamphetamine. In the previous six years officials had held at least fifteen hearings on the topic. However, the best way to attack the problem was not entirely clear. Since 1981, state and federal agencies had attempted to stop methamphetamine by restricting access to precursor chemicals on a number of occasions. In 1981 they restricted sales of phenyl-2-propanone, sparking the switch to ephedrine-based recipes, and thereby laying the groundwork for the explosion in production and usage that continues today. In 1988 they passed the Chemical Diversion and Trafficking Act (CDTA), another attempt to limit access to precursors. Unfortunately, after heavy lobbying by pharmaceutical companies, exceptions were made in this law to allow unlimited sales of ephedrine and pseudoephedrine as long

³³ See Appendix for the full tables and discussion of the results for the individual OCDETF regions.

as they were in pill form (Suo 2004c). Also, of course, dips in production caused by such restrictions opened the market to penetration by Mexican DTOs and, within a year, producers on both sides of the border had begun using pills rather than bulk ephedrine to make their meth. Moreover, unscrupulous chemical suppliers were making ephedrine pills with the sole purpose of selling them to meth producers.

In 1993 the federal government tried to close the pill exception loophole by passing the Domestic Chemical Diversion and Control Act (DCDCA). However, additional lobbying by the pharmaceutical corporations thwarted the original intent and the pill exception for pseudoephedrine was maintained in the new law (Suo 2004c). At the time, meth cooks had not yet made the switch from ephedrine to pseudoephedrine, so pharmaceutical companies could reasonably argue that there was no need to cover that particular chemical, which was the key ingredient in their \$3 billion cold medicine business. It would not take producers long to make the switch.

In 1995, the DEA raided the warehouses of Clifton Pharmaceuticals, a company they believed had sold over 70 tons of ephedrine pills to methamphetamine manufacturers. Examination of Clifton's records showed that, after the ban on ephedrine pill sales, the company purchased 110 tons of pseudoephedrine, which they then stamped into unregulated pills and sold to meth manufacturers. Other suppliers followed suit. In 1995, pseudoephedrine labs made up 22 percent of all labs seized by the DEA. By 1997, they accounted for over 57 percent (Suo 2004c)

Legislators thought they had finally closed the pseudoephedrine loophole in 1996 when they passed the Comprehensive Methamphetamine Control Act. Still another exception, however, this time for pills in blister packs³⁴ meant that producers (particularly those operating small labs) could still easily acquire sufficient product for their needs. Blister packs were found at 47 percent of meth labs seized in 1999 and 2000 (Suo 2004c).

Although methamphetamine producers have shown themselves to be incredibly resourceful over time, each of these legislative attempts at curbing meth production, and therefore abuse, was at least temporarily successful. The government's report on "The Price and Purity of Illicit Drugs: 1981-2007," noted peaks in price and drops in purity "coincident with the introductions of methamphetamine precursor chemical regulations" (Fries et al. 2008, 10). Cunningham and Liu (2003) found that the laws directed at ephedrine and pseudoephedrine caused serious drops in the number of methamphetamine-related hospital visits in California, Arizona, and Nevada for the three months after their implementation (35 percent after DCDCA, and 71 percent MCA). A follow-up study of methamphetamine arrests in California, which included 1988s CDTA as well, produced similar results. In all three cases, arrests declined after implementation, and took several years to rebound (Cunningham and Liu 2005).

Dobkin and Nicosia (2009) looked at the impact of the DCDCA on a broad number of variables related to methamphetamine in California. After the

³⁴ For reasons that were never made clear, legislators believed that, by putting pills into blister packs (foil sheets with plastic bubbles on them to contain individual pills), they could somehow deter meth producers from using them. In fact, the repetitive task of popping pills from a blister pack is perfectly suited for a meth user on a run.

implementation of the legislation and the closure of two significant West Coast ephedrine suppliers, methamphetamine prices per gram increased threefold in a four-month period, but returned to previous levels within an additional four months. Methamphetamine street purity dropped 77 percent and treatment center admissions dropped 35. The number of arrestees testing positive for meth dropped by 55 percent, and the number of arrests for possessing and selling meth dropped 50 percent. Purity, treatment admissions, arrestee positives, and meth-related arrests all took roughly eighteen months to rebound. That number of months is roughly the amount of time Suo (2004c) estimated that it took for producers to switch almost entirely from ephedrine to pseudoephedrine in their production techniques.

By 2005 it had been eight years since the last significant federal effort to regulate precursors had taken effect. Perhaps fed up with the lack of action, 29 states had enacted laws limiting the retail sale of pseudoephedrine either by weight or number of packages that could be purchased at a time (Figure 5.11), and 15 had done so for ephedrine (McBride et al. 2008). McBride et al. (2008) found that the implementation of those state precursor laws produced an immediate significant decline in STL seizures. However, cooks quickly adapted. Shortly after precursor legislation passed in Missouri, for example, Jefferson County officials reported that cooks in their county had begun traveling as far as Chicago to buy the cold pills they needed for a cook (Hathaway 2005).

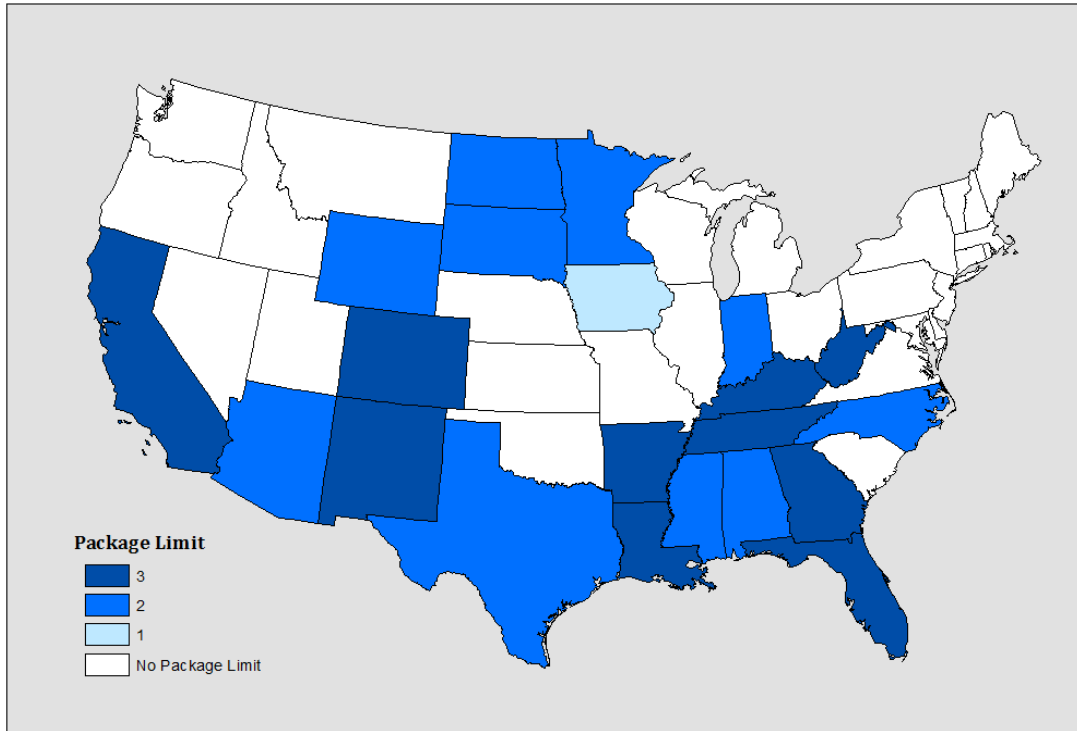


Figure 5.11: States with pseudoephedrine package purchase limits as of October 1, 2005 (O'Connor et al. 2007).

In December 2005, despite serious infighting between the Food and Drug Administration and the DEA over the necessity of the legislation, the federal government followed the example of the states and passed the Combat Methamphetamine Epidemic Act (CMEA) (Harris 2005). This law, which was actually an addendum to legislation renewing the Patriot Act, required that any products containing pseudoephedrine be removed from public access and placed under lock and key behind the counter. Furthermore, those products could only be packaged in blister packs containing no more than two sheets of pills, and customers were limited to 3.6 grams of product per day and a maximum of 7.5 grams per month. To track sales, each purchase had to be entered into a logbook along with the purchaser's name, address, the quantity and product purchased, and the date and time of the sale. The law was written so that it would not preempt

more stringent state legislation, but still closed the possibility of cooks simply traveling out of state to get the pills they needed (DEA 2006, McBride et al. 2008).

When looking at the raw numbers of labs seized, it would appear that the impact of the CMEA was temporary (Figure 5.2). Although lab seizures began to dip with the implementation of state precursor laws in 2004, and did so even more dramatically with the enactment of the federal legislation, the total number of lab seizures in 2011 was 95 percent of year 2000 totals. Clearly the market has rebounded. Still, the numbers of labs seized do not reflect the types of labs found or the quantity of methamphetamine produced. Other indicators suggest that the CMEA dramatically and permanently altered the domestic methamphetamine market.

The various provisions of the CMEA greatly limited cooks' access to pseudoephedrine. But, as had been the case for every other piece of precursor legislation before it, producers found a way to adapt. In this instance, they quickly realized that most of the logbooks they were required to sign were not centrally monitored. A CVS pharmacy, for example, might (at best) know if a person had already reached their limit on pseudoephedrine purchases at other CVS stores, but they had no record of whether those limits had already been met at Walgreen's, Wal-Mart, or any other of the myriad of stores from gas stations to Dollar Generals that sold pseudoephedrine products. This loophole gave rise to "smurfing."

Smurfing is the process of going from store to store and buying from each the permissible 3.6 grams of pseudoephedrine. In this way, producers could evade the sales limit. In some parts of the country, particularly in California, smurfing has

become a highly organized cottage industry and produces enough product to operate superlabs. Elsewhere, a cook might rely on just the small network of people associated with the lab in order to get the precursors he or she needs. Often, cooks will trade precursors for some portion of final product (NDIC 2009b; 2011a). Though effective, smurfing from shop to shop takes a significant amount of time, particularly in areas of low population. For many cooks such a restraint has greatly reduced their production capacity.

The limitations created by the necessity of smurfing can be seen in the types of labs that are being seized. Since the implementation of CMEA, police officials have seen an increase in “one-pot,” or “shake and bake” meth production. This type of production does not rely on a new recipe. The ingredients are the same as in the Birch reduction method. However, rather than going through a sequence of steps from the breakdown of pills to careful crystallization of the final product, cooks using the one-pot method simply place a small amount of all ingredients into a single vessel (usually a 2-liter soda bottle) and shake it until a tiny amount of methamphetamine precipitates out.

The NDIC attributes the increase in meth lab seizures since 2007 to an increase in this particular type of lab, seizures of which have grown from 1,538 in 2007 to 4,089 in 2009 (roughly 69 percent of all labs seized in that latter year) (NDIC 2011a). In fact, at least 81 percent of all the labs taken down by police since 2006 have produced less than two ounces at a time, while most of the remaining labs had capacities of less than eight ounces (Figure 5.12).

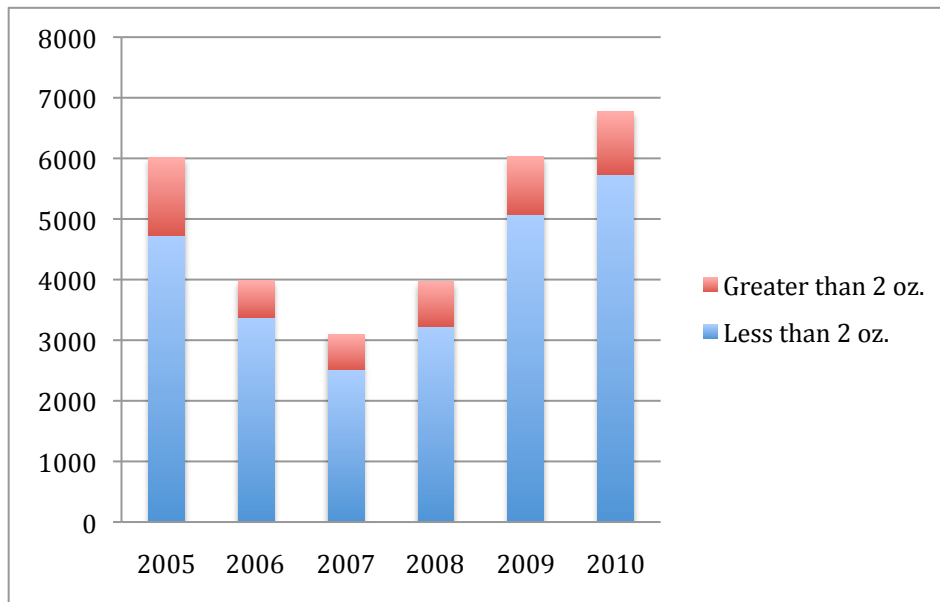


Figure 5.12: Methamphetamine labs seizures by production capacity. Most of the labs capable of producing greater than 2 oz. were still producing less than 8 oz. (NDIC 2011a)

Other methamphetamine indicators have declined along with the size of labs. Street purity of the drug has decreased by almost 40 percent (Fries et al. 2008). The number of people reporting usage in the past month in National Survey of Drug Use and Health also declined steadily from 2006 to 2010, from 731,000 to 353,000, and the rate of new initiates similarly dropped from pre-CMEA levels (Figure 5.13).

Data from the Dawn system reflected decline as well, where the number of methamphetamine mentions in emergency department visits declined from 132,576 in 2004 to 64,117 in 2009 (SAMHSA 2011a). Treatment data were slower to catch up, climbing to ten percent of all admissions by 2009. It is possible that, as the drug became scarce, more individuals were seeking treatment to break their addiction (SAMHSA 2011b).

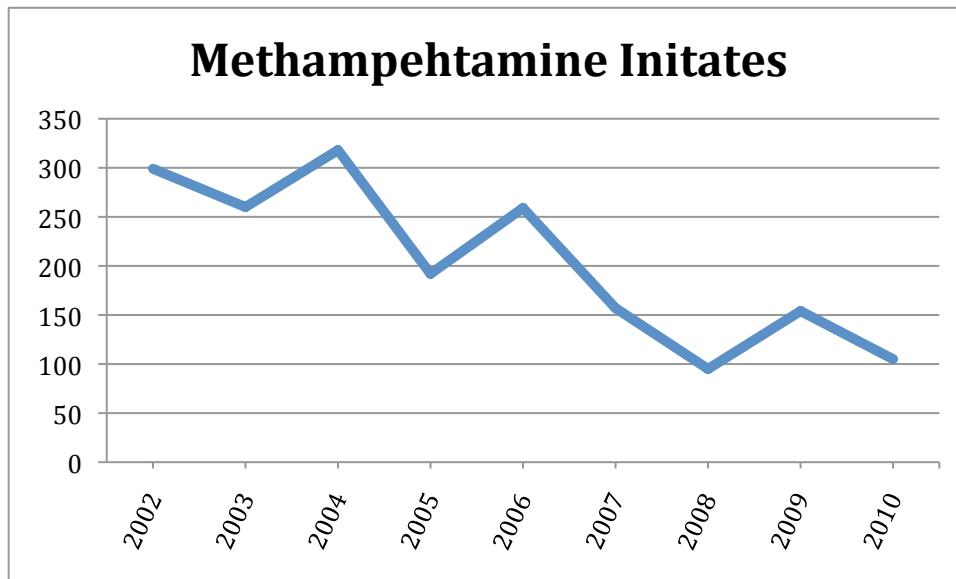


Figure 5.13: Past year methamphetamine initiates in thousands.

Although the CMEA did not end small clandestine methamphetamine production in the United States, it certainly slowed its epidemic growth. Still, as the previous two chapters have discussed, domestic production now makes up only a small portion of the national meth marketplace. Despite the decline in volume of production from domestic labs, the *National Drug Threat Assessment: 2011* recently described the availability of methamphetamine as increasing in every region of the country (NDIC 2011a).

Conclusion

The Methamphetamine Palimpsest

This project has explained the present uneven geography of methamphetamine through an exploration of the various types of networks that have formed around the drug's production and distribution over its eighty-year history. It has done so by following the tenets of Actor-Network Theory (ANT); tracing associations, jumping scales, and respecting the crucial role of non-human actors (in this case that of precursors). With ANT guiding the analysis, I have demonstrated that radically different commodity network types have formed around the drug. Changes in network dominance, that is the translation of actors from one network into another, usually occurred as a result of government action. The relatively rigid (though clearly susceptible to diversion) network of legal pharmaceutical production of methamphetamine gave way to clandestine production as a result of the Controlled Substances Act of 1971. Users were forced to become part of the networks established by outlaw motorcycle gangs (OMGs), or smaller, less organized producers.

The networks controlled by OMGs were characterized by inter-gang warfare and strict market control through the use of their hierarchical gang structure. The gangs maintained dominance as long as they controlled access to the precursor P2P. When that control was disrupted by governmental action, the market dominance of the OMG network waned as ephedrine-based methods became popular, allowing other producers to enter the market and compete.

Laws restricting ephedrine sales in the United States allowed for market penetration by drug-trafficking organizations from Mexico and Asia. The most successful of these networks, those of the various Mexican DTOs, are highly organized and cellular in their structure. Much like a car manufacturer might subcontract with many different parts producers, the Mexican drug-trafficking organizations rely on numerous small groups or operators to produce, smuggle, and distribute their products. Their organization, learned from the Columbian drug cartels for whom they once worked, has allowed them to dominate and expand North American methamphetamine markets. Their deliberate effort to expand their networks has resulted in a steady eastward shift in methamphetamine's geography.

Deliberate market expansion by the Mexicans resulted in the development of still another methamphetamine network. As demand for dextrorotary methamphetamine grew, tiny individual networks began to form around meth production in small toxic labs (STLs). These STL networks individually rarely exceed more than a dozen people, but taken together account for a significant portion of the national methamphetamine market (approximately 20 percent). Loose affiliations between individual networks have produced a subculture of methamphetamine information exchange in the states that have been hardest hit by the spread of these small toxic labs.

Without an understanding of these networks, the geography of methamphetamine cannot be explained. Had this study focused on usage rather than production and distribution, it would have been descriptive at best. The explosive growth in methamphetamine use in the West, for example, would have

been obvious, but not the dependency of this expansion upon the introduction of non-racemic, purely dextrorotary methamphetamine. Similarly, declines in usage in the East might have been attributed solely to questions of preference rather than to the production decisions made by the networks that controlled manufacture and distribution there, which prompted their own demise. Without knowledge of the long history of drug smuggling from Mexico to the United States, and the particular history of amphetamine diversion through Mexico, the reasons for Mexican penetration of the methamphetamine market might have been lost to this analysis. The diffusion of methamphetamine from west to east could have easily been misattributed to growth in small toxic methamphetamine labs, rather than to deliberate market expansion by drug-trafficking organizations. Clearly, the present geography of methamphetamine is the product of the actions of the various networks that have controlled its markets.

In tracking the rise and decline of the various methamphetamine networks, it becomes clear that, despite the best efforts of law enforcement, none of the different forms discussed have been entirely eliminated. Historian Samuel Truett (2006) has used the metaphor of a palimpsest, a document that has been written over but which still shows traces of what was written before, as a metaphor for the landscapes of the Arizona/Sonora borderlands. This metaphor is apt for methamphetamine networks as well. Though various systems of production and distribution have achieved prominence in either the market or the public imagination, no network has been erased from the land.

Brownstein et al.'s (2010) recent study reflects the diversity of methamphetamine markets today. In a survey of 1,367 police agencies from communities of varying size across the U. S., investigators asked about the source of methamphetamine in communities and whether changes in sourcing had occurred in the respondent's regional markets. Sixty-seven percent said that more meth was imported into their districts and 65 percent said that fewer labs existed. Regarding the origin of meth, 52 percent of informants said that the meth they saw was imported from Mexico, while 64 percent said it was produced locally in labs. The authors argued that these numbers are not mutually exclusive. Instead, they "demonstrate that jurisdictions with meth markets are likely to have more than one type of market based on the source of the drug" (11). This argument was buttressed by a cluster analysis (data clusters, not spatial clusters) that showed 16.4 percent of respondents reported Mexican and local production together, and 19.3 percent reported local production and importation from both Mexico and other locales.

Indeed, the networks operating around methamphetamine today are even more diverse than the broad categories presented by Brownstein et al. The very first methamphetamine market, for example, that of legal production and medical distribution, still exists. The drug is available for prescription under the brand name Desoxyn. Similarly, outlaw motorcycle gangs still produce and traffic in methamphetamine. As late as 2005, some of these groups in the Philadelphia region persisted in making P2P dope even though recipes for d-methamphetamine were widely available (NDIC 2005a). Their own preferences and that of their clientele still leaned towards the racemic mixture.

The preferred production method of the OMGs has shown a resurgence recently in Mexico as well. A crackdown by the government there on the smuggling of ephedrine and pseudoephedrine has caused DTOs to shift production to a new version of the P2P recipe that incorporates a final step to increase the effects of the racemic mixture, making it nearly as potent as d-methamphetamine. The persistence of small-scale producers in the face of effective legislation and market saturation by meth produced by Mexican DTOs suggests the extent to which the act of cooking has become a part of the subculture of some users.

If any of the networks shows the potential for total elimination, it is that of STL production, but the necessary steps require political will. Oregon showed the requisite steel in 2006 when legislators there made all cold pills available only by prescription. The effect of this move was immediate and profound. Between 2000 and 2004, that state had averaged 360 lab seizures per year. Since 2007, they have averaged less than 12. Unfortunately, little reason supports the belief that eliminating or drastically reducing domestic production nationwide would significantly reduce availability of the drug. At best, it would eliminate many of the strains that local production places on communities.

A recurring theme in the history of methamphetamine has been the ability for producers to adapt in the face of government efforts to stop production through supply-side interventions. Every piece of precursor legislation has been met by an adept move by drug networks that significantly altered the market in ways that the government did not envision, be it transitioning to the recipes that produced pure d-methamphetamine or opening the market to penetration by Mexican DTOs and

thereby contributing to the continuing destabilization of that country. Given these results, one major conclusion from this work should be that methamphetamine networks will persist as long as there are people willing to pay for the drug. The only real solution to the problem has got to be on the demand side of the drug market equation.

In the absence of any significant reduction in demand, it is difficult to say whether the future geography of methamphetamine will change significantly from its current distribution. On the one hand, the distribution of markets has shown a remarkable propensity to evolve over time. In the last forty years, it has mushroomed, contracted, and expanded again. Figure 5.5 demonstrates just how far methamphetamine markets have diffused since the year 2000. However, that illustration also suggests that the rate of their spread has declined. The *National Drug Threat Assessment 2011* (NDIC 2011a) predicted increasing availability throughout the country, but given that the drug has been available for eighty years and has yet to significantly penetrate the drug markets of the Northeast, is there any reason to assume that that reality will change? The answer, since it depends on many variables of various scales, from the evolution of upper-level drug trafficking patterns to the localized preferences of drug using subcultures, is virtually impossible to answer. However, given the drug's persistence, I would not bet against it.

Appendix

Spatial Regressions of Amphetamine Lab Seizures in the Contiguous United States: 2000-2003

This appendix discusses spatial analyses of methamphetamine lab seizures within the United States. As mentioned in the introduction and in chapter 5, methamphetamine labs have the potential to be found anywhere. However, as this dissertation has demonstrated, ubiquitous methamphetamine production has never occurred. Figure A.1 shows cumulative methamphetamine lab seizures for the each county in the contiguous United States for the years 2000 to 2010. 593 of 3,078 counties (19.3%) had zero labs seized within their borders. 1,990 counties (64.7%) seized less than one lab per year over the decade. Given the myriad of problems created by methamphetamine labs, it is critical that we improve our understanding of the factors that influence meth lab location.

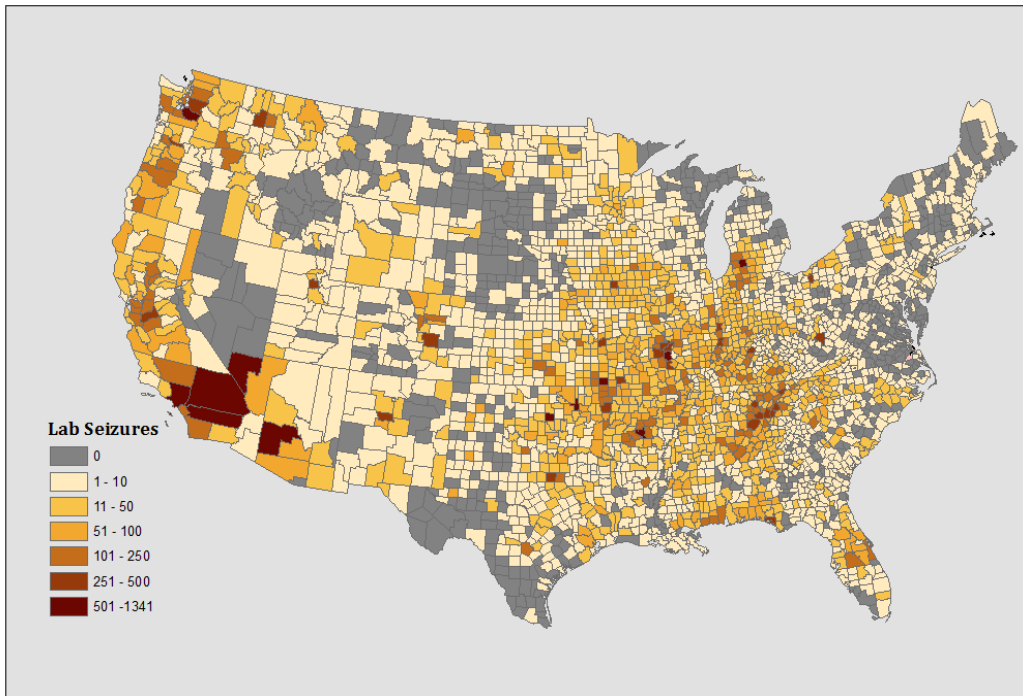


Figure A.1: Total lab seizures 2000-2010(NLCSS 2011).

This appendix is another step towards that understanding. Because the actual number and location of all methamphetamine labs is unknown and unknowable, I use lab seizures as a proxy. Obviously, no proxy is perfect, but seizures are the best measure available for domestic production and precedent exists in the literature for using such data to assess the spatial correlates of such production. Unfortunately, previous attempts at such spatial analyses have not been satisfactory. Lu and Burnum (2008) analyzed lab seizures in Colorado Springs, using a Poisson regression model, but did not account for spatial effects in their model. As will be made clear below, any analysis of spatial data that does not explicitly assess and account for spatial effects within its model is inherently flawed. Weisheit and Wells (2010) attempted a regression analysis of lab seizures for the entire United States, but similarly failed to incorporate spatial effects in the regression portion of their analysis. Smaller regional studies, such as that of Gilbreath (2012), which did account for spatial effects are a good first step, but more analysis is required.

Spatial Regression Models

To assess the covariates associated with lab seizures, this study uses a modified version of spatial regression models developed by Anselin (1988) and outlined in Ward and Gleditsche (2008). Such regression techniques are necessary because spatial data frequently exhibit what Getis (2008) has called *the* fundamental concept of spatial analysis: spatial autocorrelation. Spatial autocorrelation is the clustering of similar values in space. It is frequently present

in spatial data because collection units such as census tracts or neighborhoods have porous borders or exist only on maps. Human beings, biological vectors, economic forces, information and infrastructure all cross them at will. Actors in one area thus frequently have an impact on their neighbors. This impact is referred to in the literature as spatial dependence. The presence of spatial dependence, indicated by the significant clustering of similar values (significant spatial autocorrelation), is a sign of the violation of the independence assumptions inherent in most parametric inferential statistics. If significant spatial autocorrelation exists and is not taken into account within a multivariate analysis, then “false indications of significance, biased parameter estimates, and misleading suggestions of fit” can result (Messner et al. 1999, 427). All of the dependent variables in this study exhibited significant global and local autocorrelation.

Fortunately, several ways exist to account for spatial dependence within a model. If an investigator believes such spatial dependence is a result of actual interaction between observations, then he/she should consider using a *spatial lag* model. In such a model, a new independent variable is added to the regression equation to account for the existing spatial dependence. The lag variable, created using a spatial weights matrix, is usually some combination of the value of the dependent variable for all nearby units to each observation. Depending on the understanding one has of the process being modeled, the weights matrix can be based on some order of contiguous neighbors or on a distance-decay threshold.

It makes sense to use a lagged variable when one thinks of a dependent variable as continuous and potentially influenced by its neighbors. Baller et al.

(2001) have associated a significant lag variable in the study of homicide with processes of diffusion, while Mennis et al. (2011) considered it evidence of spatial spillover in their study of juvenile delinquent recidivism. In the case of drug markets, Rengert et al. (2005) associated a significant lag variable with agglomeration.

On the other hand, if one assumed that the spatial effects in their model derive not from actual evidence of interaction between observations, but rather from model misspecification, missing independent variables, or some other statistical nuisance, then he/she might consider a *spatial error model*, in which the spatial dependence is accounted for in the error term.

In the case of the present study, spatial effects almost certainly result from interaction between counties because producers, suppliers, and information all travel across borders. As such, a spatial lag model is most appropriate, and so I included such a variable (based on first-order queen contiguity). For each county, the spatial lag variable is the average value of labs seized in all the neighboring counties it touches. This type of analysis has a long history in the study of crime, and was recommended by Anselin et al. (2000). A recent special issue of *The Professional Geographer* on the spatial analysis of crime also contains several good examples (e.g. Mennis et al. 2011, Andresen 2011). Baller et al. (2001) produced a spatial regression analysis of nationwide homicide rates that used county-level data much as this study does.

Zero-Inflated Regression Models

Most of the studies cited above used ordinary least squares regression (OLS) for their analyses. However, count data (such as the number of labs seized) have several characteristics that make them ill-suited for OLS techniques. They often contain a large number of zeros (areas with no observations of the dependent variable) and exhibit a severe positive skew. The independent variable included here is no exception. When data have a disproportionate number of zeroes, a zero-inflated model should be substituted for the OLS one (McDonald and Lattimore 2010). Generally, either a zero-inflated Poisson regression or a zero-inflated negative binomial regression is necessary.

One chooses between these two regression models based upon whether the distribution of the dependent variable is overdispersed or not. In order to use a zero-inflated Poisson regression, the dependent variable's mean should be close in value to its variance. If this is not the case, and the variance is significantly larger than the mean, then the distribution is said to be overdispersed, and a zero-inflated negative binomial model should be used (Atkins and Gallop 2007). In this study, lab seizures in most regions were over-dispersed, making a zero-inflated negative binomial model the appropriate tool.

A zero-inflated regression model produces two different equations. For this reason it is often referred to as a mixed model. The first equation, sometimes referred to as the hurdle function, is essentially a logistic regression that determines the covariates associated with the probability of finding zero labs within a county. A negative relationship in the zero-inflation model indicates that the probability of

zero labs being seized within a region goes down as values of the independent variable increase. The second model, which is similar to a traditional OLS model (or a Poisson regression), determines which independent variables account for increasing lab seizures within those counties that have passed the hurdle of having no labs within them. It is entirely permissible to include different predictors in the two different models, although in this case I did not. A spatially lagged variable can be included in either side of the equation to account for spatial autocorrelation within the data. McCord and Ratcliffe (2007) and Rengert et al. (2005) have used zero-inflated models with a spatial lag variable in their analyses of crime-count data.

For this study, I used *Open GeoDa* (Anselin et al. 2006) to create a spatial weights matrix based on first-order county contiguity, and then used this weights matrix to calculate a spatial lag variable for each county (mean labs seized in neighboring counties), which I then included in the zero-inflated regression models. The zero-inflated models were conducted using *R*. I ran regressions for the contiguous United States³⁵ as a whole, as well as for the individual Organized Crime Drug Enforcement Task Force Regions (Figure A.2), to determine whether covariates differed by region.³⁶ Not all regions could be modeled. New England and New York/New Jersey had too few seizures for such work, and Florida had no county-level crime data available.

³⁵ Florida, Illinois, and Wyoming were not included in the models because crime data were not available.

³⁶ Ideally, a geographically weighted regression would be used to test for spatial heterogeneity. Unfortunately, the distribution of the data did not allow it to be incorporated into the existing GWR software. Analysis of separate regions represents the best possible compromise.

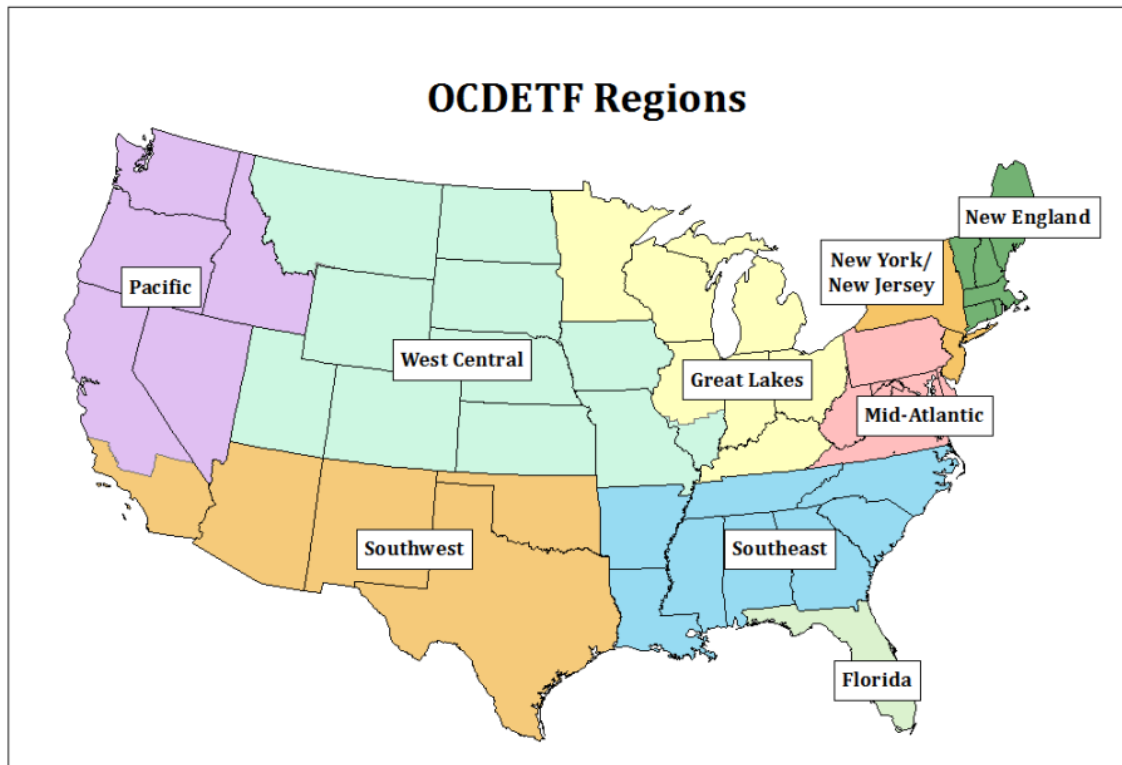


Figure A.2: OCDETF regions.

Variables

Variables to explain lab location can come from number of different criminological perspectives (Shaw and McKay 1942; Cohen and Felson 1973; Clarke 1980; Clarke and Felson 1993). But, given the scale of operation here (that of entire counties), variables associated with routine activity and rational-choice perspectives are not easily incorporated. We can, however, assess the efficacy of traditional social disorganization variables in predicting lab seizure locations.

Higher crime rates and drug markets tend to cluster in areas where a community has little ability to organize against them. Such lack of neighborhood efficacy is termed social disorganization. It frequently occurs in areas with high population turnover, a large number of renters, and high percentages of poverty, minorities, and single mothers (Shaw and McKay 1942; Sampson and Groves 1989;

Kubrin and Weitzer 2003; Rengert et al. 2005, McCord and Ratcliffe 2007; Banerjee et al. 2008; Grattet 2009).

For these models, I selected potential variables that reflected social disorganization, known methamphetamine user characteristics, or other environmental traits commonly associated with methamphetamine production (i.e. percent rural). The variables selected for inclusion and my rationale for selecting them were as follows: Median Age (MedAge), the percentage of a county that is white (Wht PCT), and the percentage with a bachelor's degree (PCTBACH) were included as user characteristics. Methamphetamine users tend to be white, undereducated, and young (though this is changing). The percentage of properties that are vacant (Vacant), percentage of households with a single mother (SingMom), percentage of people living below the poverty level (PocPCT), violent crime rate per 1,000 people (Viol), property crime rate per 1,000 people (Prop), percentage of households occupied by renters (RentOcc), Dissimilarity Index (DisSim),³⁷ and the percentage of the population who lived in a different county in 1995 (DIFCTY95) were all included as indicators of social disorganization. Farm dependence (farm), manufacturing dependence (manf), and services dependence (serv) as measured by the Department of Agriculture's Economic Research Services 2004 County Typology Codes (USDA 2004) were included to test a connection between lab location and deindustrialization. Total Population (PopZ) and Population Density (PDZ) were included to control for different sizes between counties. The percentage of a county living in a rural area (RurPCT) was included to test the frequently asserted

³⁷ In this instance, the Dissimilarity Index value is the mean of the values for whites with other ethnicities.

connection between methamphetamine production and rural areas, as was the distance from the county's center to the nearest interstate highway (Interstate). The percentage of the county's population that speaks Spanish at home was included as a potential indicator of market penetration by Mexican DTOs, which might eliminate the need to local methamphetamine production. The lagged variable (LAG) represented the average value of labs seized for all of a county's contiguous neighbors. All demographic data were retrieved from the Decennial Census or USDA Economic Research Service. Crime data came from the FBI's Uniform Crime Reporting Program (USDOJ 2006). Data for the year 2000 were used.

All of these potential covariates were regressed against the dependent variable of total labs seized between 2000 and 2003 (Figure A.3).³⁸ As the results for the contiguous United States have already been discussed within the body of this text, the content of this appendix focuses on the separate OCDETF regions.

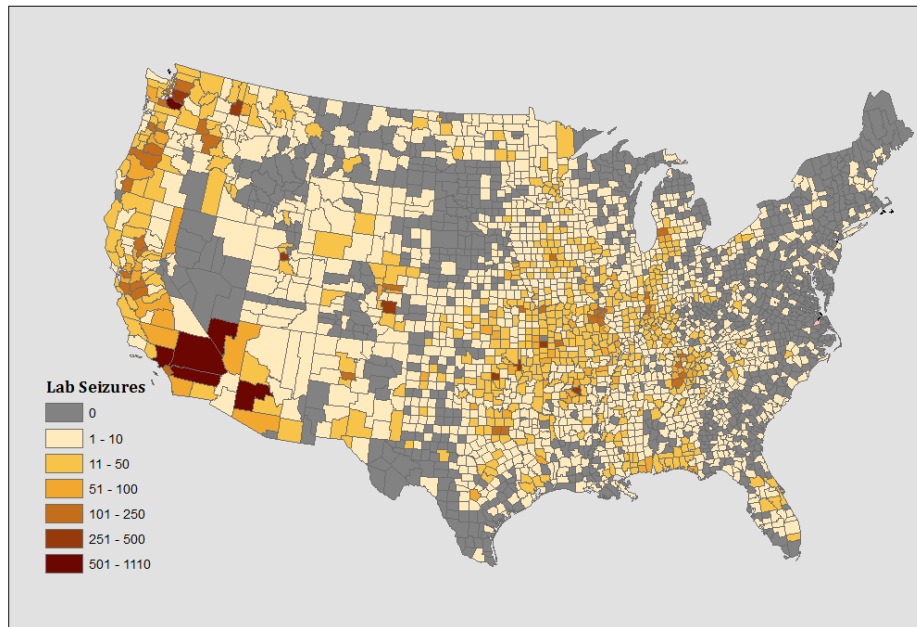


Figure A.3: Total lab seizures by county 2000-2003.

³⁸ 2003 was the last year before states began to implement precursor laws.

Results by Region with Discussion

Great Lakes Region

The Great Lakes Region experienced the methamphetamine boom later than the regions to the west of it, and the model for the region appears to reflect the diffusion effect that brought methamphetamine to it (Figure A.4). The only significant covariate for the presence of a methamphetamine lab within a county (zero-inflation model) was the lag variable, which is associated with methamphetamine lab diffusion (Table A.1a). Once the hurdle of a lab being discovered within the county has been passed, several variables encouraged increasing lab numbers. Increasing methamphetamine seizures were associated with young populations with higher percentages of single mothers and high property crime rates. The lag variable also contributed to increasing methamphetamine lab seizures (Table A.1b).

Table A.1a: Great Lakes region zero-inflation model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	0.936	0.859	1.090	0.276
LAG	-1.162	0.294	-3.957	0.000
Vacant	-0.015	0.019	-0.767	0.443
PCTBACH	-0.076	0.044	-1.720	0.086
DIFCTY95	0.068	0.041	1.630	0.103

Table A.1b: Great Lakes region count model

	Estimate	Std. Error	Z Value	Pr(> z)
(Intercept)	2.789	0.904	3.086	0.002
LAG	0.083	0.006	12.981	0.000
MedAge	-0.076	0.021	-3.602	0.000
SingMom	0.089	0.046	1.946	0.052
Prop	0.110	0.026	4.167	0.000
Log(theta)	0.243	0.100	2.429	0.015

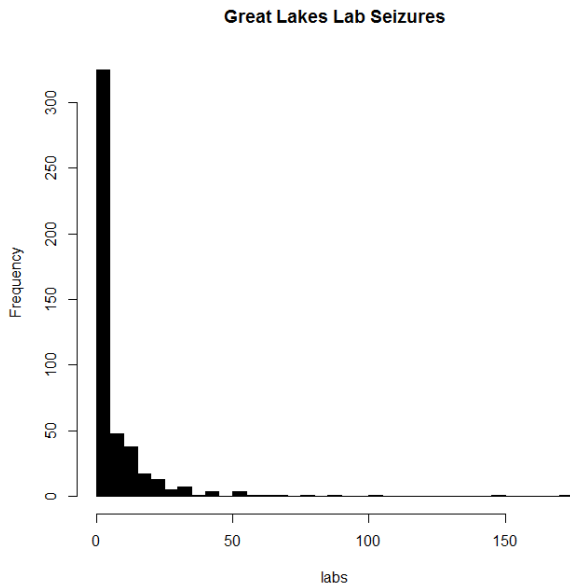


Figure A.4: Lab seizures in the Great Lakes region, 2000 - 2003. The data showed significant spatial autocorrelation (Moran's I =.434; $p < .000$).

Mid-Atlantic

The data for the Mid-Atlantic were not over dispersed, and as such, a zero-inflated Poission regression was used (Figure A.5). Results are reported in the same manner. This region has yet to be completely penetrated by modern methamphetamine markets. However, the lag variable was still the most significant predictor of any lab being found within the region. High percentages of renters and large populations were associated with the presence of at least one lab as well. On the other hand, the higher the percentage of single mothers in a county, the greater the probability that no labs would be found (Table A.2a,).

Curiously, renters had the opposite effect on counties in which at least one lab was seized. The number of labs seized also showed a negative relationship with population turnover, the percentage of people speaking Spanish at home, and

violent crime. Perhaps meth cooks looked for a stable environment in which to produce their product. Increasing lab counts were associated with diffusion processes, counties that were highly white, dependence on manufacturing and services jobs, and population density. All of these relationships are as one would expect (Table A.2b).

Table A.2a: Mid-Atlantic region zero-inflation model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	0.202	1.790	0.113	0.910
LAG	-0.536	0.145	-3.706	0.000
SingMom	0.801	0.323	2.481	0.013
serv	1.185	0.812	1.460	0.144
PCTBACH	0.161	0.089	1.802	0.072
DIFCTY95	-0.103	0.090	-1.150	0.250
RentOcc	-0.208	0.090	-2.323	0.020
PopZ	-2.010	0.776	-2.590	0.010

Table A.2b: Mid-Atlantic region count model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	-4.643	2.517	-1.845	0.065
LAG	0.066	0.027	2.465	0.014
WhtPCT	0.054	0.022	2.441	0.015
SingMom	0.866	0.136	6.385	0.000
Viol	-0.909	0.145	-6.251	0.000
manf	0.699	0.189	3.692	0.000
serv	1.518	0.269	5.650	0.000
PCTBACH	0.030	0.016	1.951	0.051
SpanPCT	-0.217	0.091	-2.376	0.017
DIFCTY95	-0.090	0.023	-3.897	0.000
RentOcc	-0.104	0.027	-3.827	0.000
PDZ	0.415	0.121	3.425	0.001

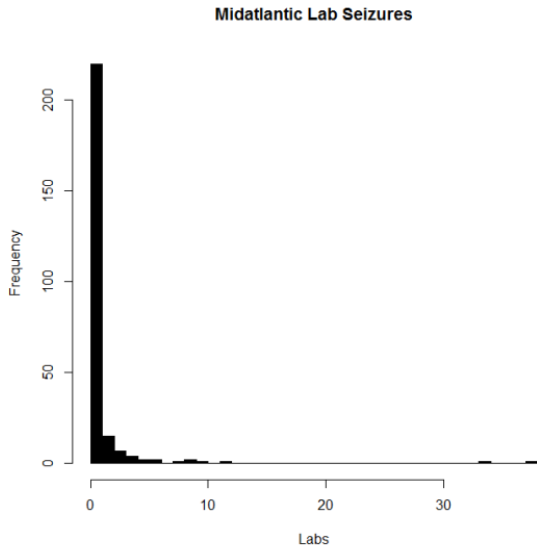


Figure A.5: Lab seizures in the Mid-Atlantic region, 2000-2003. The data showed significant spatial autocorrelation (Moran's I = .168; $p < .001$)

Pacific Region

The Pacific region has the longest history with methamphetamine in the country. As such, we would expect for the covariates for this model to accurately reflect those for well-established methamphetamine markets, and the variables that significantly increase the probability of a methamphetamine lab being found within a county are exactly what we might expect. A county was more likely to have a lab if it had a high percentage of white residents and high poverty rates, along with large numbers of neighboring meth lab seizures (Figure A.6, Table A.3.a).

The variables associated with increasing lab seizure counts were different from those for the zero-inflation model. The Pacific region is where the largest meth labs are found, so it makes sense for superlabs to locate in counties with high vacancy rates, but still be located close to interstate highways so that product can be shipped easily. Social disorganization indicators of single mothers, poverty and

property crime were also as we would expect. Once again, the violent crime rate was a negative covariate. It would appear that cooks do indeed seek relatively safe places to cook. The positive relationship between lab counts and population would seem to indicate that a certain level of potential market must exist for production to be worthwhile (Table A.3b).

Table A.3a: Pacific region zero-inflation model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	11.412	4.488	2.543	0.011
LAG	-0.261	0.080	-3.281	0.001
WhtPCT	-0.090	0.043	-2.116	0.034
PovPCT	-0.211	0.117	-1.801	0.072

Table A.3b: Pacific region count model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	7.354	1.026	7.170	0.000
Vacant	0.062	0.012	4.934	0.000
SingMom	0.396	0.074	5.327	0.000
PovPCT	0.033	0.024	1.357	0.175
Viol	-0.266	0.056	-4.704	0.000
Prop	0.134	0.031	4.265	0.000
manf	0.432	0.198	2.178	0.029
DIFCTY95	-0.049	0.015	-3.301	0.001
DisSim	-0.099	0.010	-9.678	0.000
Interstate	-0.005	0.002	-2.892	0.004
PopZ	0.378	0.079	4.757	0.000
Log(theta)	0.680	0.131	5.174	0.000

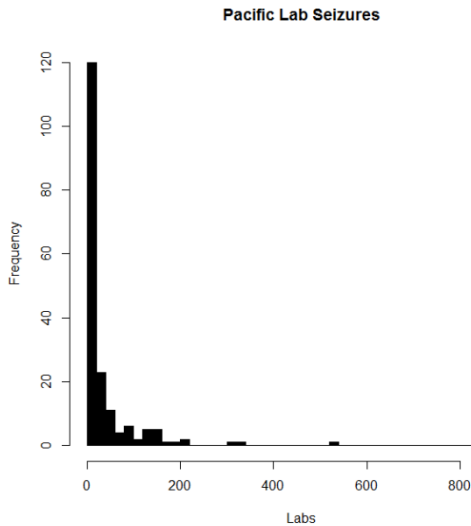


Figure A.6: Lab seizures in the Pacific region, 2000 – 2003. The data showed significant spatial autocorrelation (Moran’s I = 0.156; $p < .000$).

Southeast Region

No region has experienced more rapid growth in domestic methamphetamine production in the last ten years than the Southeast (Figure A.7). Tennessee is the only state in the union to have rivaled Missouri in total labs seized since 2006 (NCLSS 2011). The covariates for the region are fascinating. In the Southeast, Lag, once again, is the most significant indicator of any lab being seized within the county. The percentage of people who speak Spanish at home is also significant (Table A.4a). If we assume that high percentages of Spanish speakers is concomitant with the potential presence of Mexican DTOs, then this relationship confirms the argument that meth markets are often established by DTOs either before or simultaneously with lab production.

The count variables are also interesting. The relationships between lab seizure count and both vacancy and population seem to indicate that lab production requires a potential market, but the population density value argues that the market

need not be too crowded together. Once the hurdle of having no labs seized has been passed, the percentage of a county that speaks Spanish is a negative covariate. This is not necessarily a contradiction. Though markets need DTOs to be established, perhaps an overabundance of DTO presence discourages production in STLs. Once again, the potential for violence is a deterrent to lab production (Table A.4b).

Table A.4a: Southeast region zero-inflation model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	0.645	0.757	0.852	0.394
LAG	-1.413	0.312	-4.532	0.000
RurPCT	0.020	0.008	2.548	0.011
SpanPCT	-0.273	0.123	-2.218	0.027

Table A.4b: Southeast region count model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	0.883	0.267	3.305	0.001
LAG	0.050	0.004	12.096	0.000
WhtPCT	0.018	0.003	5.966	0.000
Vacant	-0.038	0.008	-4.677	0.000
Viol	-0.010	0.037	-0.275	0.784
SpanPCT	-0.064	0.024	-2.668	0.008
DIFCTY95	-0.012	0.008	-1.509	0.131
PDZ	-0.436	0.104	-4.175	0.000
PopZ	0.581	0.097	6.011	0.000

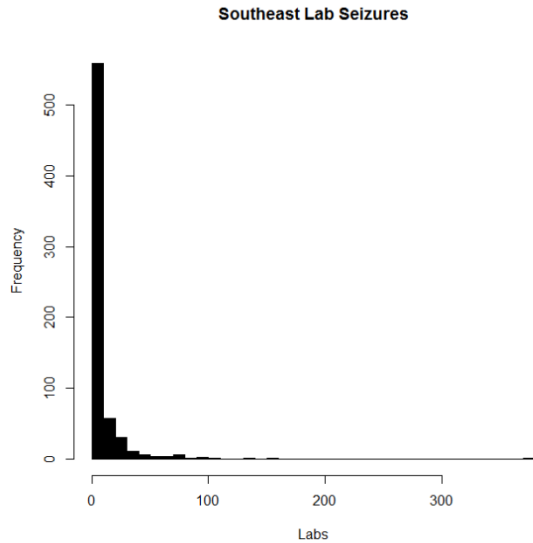


Figure A.7: Lab seizures in the Southeast region, 2000 - 2003. The data exhibited significant spatial autocorrelation (Moran's I = 0.374; $p < .000$).

Southwest

Like the Pacific, the Southwest has a long history with methamphetamine, and was the epicenter of both the introduction of d-methamphetamine and market penetration by Mexican DTOs (Figure A.8). Perhaps the maturity of market is reflected in the positive relationship with the probability of a lab being seized within a county and counties with high median ages (Table A.5a). In the diverse Southwest, high percentages of white people decreased the probability of a lab seizure. High vacancy rates also decreased that eventuality.

Meth lab seizures showed a negative relationship to rural areas, high rates of Spanish speaking, poverty rates, housing segregation and educational attainment in the Southwest. The positive covariates were whiteness, percentage of single mothers, Lag, and population, which have been fairly consistent in all models (Table A.5b).

Table A.5a: Southwest region zero-inflation model³⁹

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	14.952	12.261	1.220	0.223
LAG	-0.522	0.180	-2.902	0.004
MedAge	-0.284	0.124	-2.287	0.022
WhtPCT	0.005	0.073	0.065	0.948
Vacant	0.171	0.072	2.377	0.017
SingMom	-0.858	0.551	-1.557	0.119
PovPCT	-0.283	0.135	-2.095	0.036
Viol	-1.055	0.635	-1.661	0.097
Prop	0.050	0.387	0.128	0.898
RurPCT	-0.022	0.031	-0.712	0.476
SpanPCT	0.109	0.045	2.451	0.014
DIFCTY95	0.082	0.086	0.953	0.341
DisSim	-0.004	0.081	-0.051	0.960
PDZ	-1.271	1.555	-0.818	0.414

Table A.5b: Southwest region count model

	Estimate	Std. Error	Z value	Pr(> z)
LAG	0.006	0.001	3.820	0.000
MedAge	-0.018	0.031	-0.583	0.560
WhtPCT	0.022	0.011	2.033	0.042
Vacant	0.011	0.014	0.748	0.455
SingMom	0.255	0.104	2.448	0.014
PovPCT	-0.049	0.023	-2.112	0.035
Viol	0.007	0.073	0.096	0.923
Prop	0.015	0.036	0.410	0.682
farm	-0.021	0.231	-0.090	0.928
manf	-0.195	0.190	-1.025	0.306
serv	0.231	0.236	0.978	0.328
PCTBACH	-0.032	0.017	-1.828	0.068
RurPCT	-0.008	0.004	-1.989	0.047
SpanPCT	-0.046	0.006	-7.250	0.000
DIFCTY95	-0.024	0.017	-1.438	0.151
RentOcc	0.003	0.016	0.178	0.859
DisSim	-0.074	0.015	-5.113	0.000
PDZ	-0.020	0.092	-0.221	0.825
Interstate	-0.002	0.002	-0.921	0.357
PopZ	0.325	0.110	2.946	0.003
Log(theta)	0.182	0.099	1.841	0.066

³⁹ In this instance, the model with all variables included (whether significant or not) tested significantly better than the model using just the variables that had a significant impact. For that reason, all variables are included in these tables.

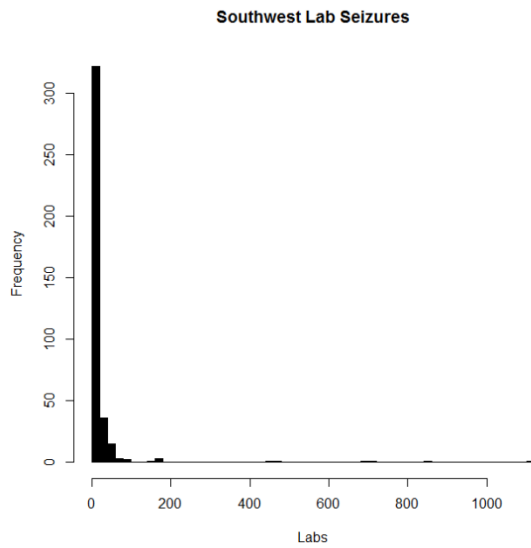


Figure A.8: Lab seizures in the Southwest region, 2000 - 2003. The data showed significant spatial autocorrelation (Moran's I = 0.332; $p < .000$).

West Central Region

The results for the West Central Region are slightly different from the other regions (Figure A.9). Once again, the presence of labs in neighboring counties is the most significant predictor of a county having at least one lab seized within its borders. However, in the West Central Region, a high population is also extremely significant. This may indicate that meth markets cluster in populace counties in this part of the country. The relationship exhibited between vacancy rates and the presence of a meth lab reflects this as well (Table A.6a).

The covariates for the count model offer few surprises, particularly if meth markets for the region focus in urban or suburban areas. Meth lab seizures were likely to be higher in counties with largely white populations, neighboring lab seizures, large populations, and high numbers of renters and single mothers (Table

A.6b). This urban market type is also reflected in the negative relationship with economies that are dependent on farming. The relationship to Spanish speaking once again reflects the possibility that DTO penetration lessens the necessity of lab production (but does not preclude it). Population turnover and segregation continued to behave in a manner contrary to what I would have predicted, though perhaps people are more comfortable taking the risk of cooking if they know their neighbors.

Table A.6a: West Central region zero-inflation model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	2.445	2.560	0.955	0.340
LAG	-0.970	0.186	-5.210	0.000
Vacant	0.055	0.023	2.338	0.019
DisSim	-0.078	0.032	-2.429	0.015
PopZ	-16.567	3.919	-4.227	0.000

Table A.6b: West Central count model

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	-1.222	1.280	-0.954	0.340
LAG	0.024	0.003	8.008	0.000
WhtPCT	0.050	0.007	6.993	0.000
SingMom	0.295	0.049	6.085	0.000
farm	-0.657	0.125	-5.265	0.000
PCTBACH	-0.034	0.009	-3.816	0.000
SpanPCT	-0.024	0.010	-2.355	0.019
DIFCTY95	-0.029	0.009	-3.367	0.001
RentOcc	0.028	0.010	2.692	0.007
DisSim	-0.030	0.008	-3.831	0.000
PopDens	-0.001	0.000	-3.722	0.000
PopZ	0.438	0.063	6.923	0.000
Log(theta)	0.426	0.074	5.745	0.000

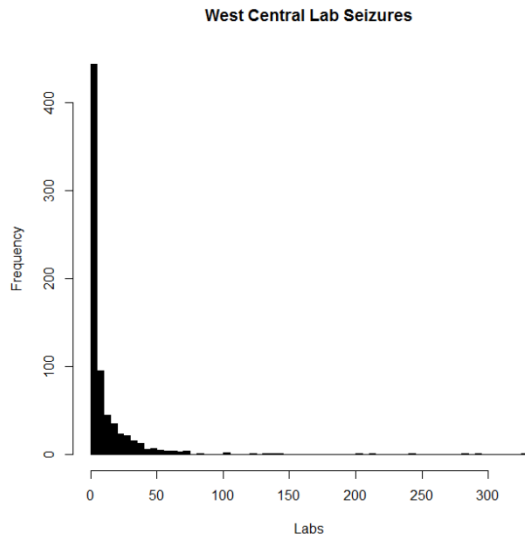


Figure A.9: Lab Seizures in the West Central region, 2000 - 2003. The data showed significant spatial autocorrelation (Moran's $I = 0.229$; $p < .000$).

There is certainly more work to be done with this dataset. The list of potential covariates is endless, and as more studies on meth producers appear, better variables may become evident. A more regionalized approach, with smaller area of study than the OCDETF regions might also allow for a more nuanced interpretation of the results. These models represent a first attempt at an accurate, properly executed model of lab seizures.

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