U.S. Department of Justice
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Problem-Oriented Guides for Police Series
Problem-Specific Guide Series
No. 16

Clandestine Methamphetamine Labs
2nd Edition

by
Michael S. Scott
Kelly Dedel

www.cops.usdoj.gov

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About the Problem-Specific Guides Series

The *Problem-Specific Guides* summarize knowledge about how police can reduce the harm caused by specific crime and disorder problems. They are guides to prevention and to improving the overall response to incidents, not to investigating offenses or handling specific incidents. Neither do they cover all of the technical details about how to implement specific responses. The guides are written for police—of whatever rank or assignment—who must address the specific problem the guides cover. The guides will be most useful to officers who:

- **Understand basic problem-oriented policing principles and methods**. The guides are not primers in problem-oriented policing. They deal only briefly with the initial decision to focus on a particular problem, methods to analyze the problem, and means to assess the results of a problem-oriented policing project. They are designed to help police decide how best to analyze and address a problem they have already identified. (A companion series of *Problem-Solving Tools* guides has been produced to aid in various aspects of problem analysis and assessment.)

- **Can look at a problem in depth**. Depending on the complexity of the problem, you should be prepared to spend perhaps weeks, or even months, analyzing and responding to it. Carefully studying a problem before responding helps you design the right strategy, one that is most likely to work in your community. You should not blindly adopt the responses others have used; you must decide whether they are appropriate to your local situation. What is true in one place may not be true elsewhere; what works in one place may not work everywhere.

- **Are willing to consider new ways of doing police business**. The guides describe responses that other police departments have used or that researchers have tested. While not all of these responses will be appropriate to your particular problem, they should help give a broader view of the kinds of things you could do. You may think you cannot implement some of these responses in your jurisdiction, but perhaps you can. In many places, when police have discovered a more effective response, they have succeeded in having laws and policies changed, improving the response to the problem. (A companion series of *Response Guides* has been produced to help you understand how commonly-used police responses work on a variety of problems.)

- **Understand the value and the limits of research knowledge**. For some types of problems, a lot of useful research is available to the police; for other problems, little is available. Accordingly, some guides in this series summarize existing research whereas other guides illustrate the need for more research on that particular problem. Regardless, research has not provided definitive answers to all the questions you might have about the problem. The research may help get you started in designing your own responses, but it cannot tell you exactly what to do. This will depend greatly on the particular nature of your local problem. In the interest of keeping the guides readable, not every piece of relevant research has been cited, nor has every point been attributed to its sources. To have done so would have overwhelmed and distracted the reader. The references listed at the end of each guide are those drawn on most heavily; they are not a complete bibliography of research on the subject.

- **Are willing to work with others to find effective solutions to the problem**. The police alone cannot implement many of the responses discussed in the guides. They must frequently implement them in partnership with other responsible private and public bodies including other government agencies, non-governmental organizations, private businesses, public utilities, community groups, and individual citizens. An effective problem-solver must know how to forge genuine partnerships with others and be prepared to invest considerable effort in making these partnerships work. Each guide identifies particular individuals or groups in the community with whom police might work to improve the overall response to that problem. Thorough analysis of problems often reveals that individuals and groups other than the police are in a stronger position to address problems and that police ought to shift some greater responsibility to them to do so. Response Guide No. 3, *Shifting and Sharing Responsibility for Public Safety Problems*, provides further discussion of this topic.

The COPS Office defines community policing as "a policing philosophy that promotes and supports organizational strategies to address the causes and reduce the fear of crime and social disorder through problem-solving tactics and police-community partnerships." These guides emphasize problem-solving and police-community partnerships in the context of addressing specific public safety problems. For the most part, the organizational strategies that can facilitate *problem-solving* and *police-community partnerships* vary considerably and discussion of them is beyond the scope of these guides.

These guides have drawn on research findings and police practices in the United States, the United Kingdom, Canada, Australia, New Zealand, the Netherlands, and Scandinavia.

Even though laws, customs and police practices vary from country to country, it is apparent that the police everywhere experience common problems. In a world that is becoming increasingly interconnected, it is important that police be aware of research and successful practices beyond the borders of their own countries.

Each guide is informed by a thorough review of the research literature and reported police practice and is anonymously peer-reviewed by line police officers, police executives and researchers prior to publication.

The COPS Office and the authors encourage you to provide feedback on this guide and to report on your own agency's experiences dealing with a similar problem. Your agency may have effectively addressed a problem using responses not considered in these guides and your experiences and knowledge could benefit others. This information will be used to update the guides. If you wish to provide feedback and share your experiences it should be sent via e-mail to cops_pubs@usdoj.gov.

For more information about problem-oriented policing, visit the Center for Problem-Oriented Policing online at www.popcenter.org. This website offers free online access to:

- the Problem-Specific Guides series
- the companion *Response Guides* and *Problem-Solving Tools series*
- instructional information about problem-oriented policing and related topics
- an interactive problem-oriented policing training exercise
- an interactive *Problem Analysis Module*
- a manual for crime analysts
- online access to important police research and practices
- information about problem-oriented policing conferences and award programs.

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Contents

The Problem of Clandestine Methamphetamine Labs

What This Guide Does and Does Not Cover

This guide addresses the problem of clandestine methamphetamine[§] labs. U.S. state and local police report that methamphetamine trafficking and abuse has become their most pressing illegal drug problem in recent years, surpassing even crack cocaine.[1]

Although offenders manufacture a variety of illicit drugs in clandestine labs [e.g., amphetamines, MDMA (ecstasy), methcathinone, PCP, LSD, and fentanyl], methamphetamine accounts for 80 to 90 percent of the clandestine labs' total drug production.[2] Many of the responses to methamphetamine labs also may be appropriate to other types of drug labs.

This guide does not provide technical details on all the aspects of clandestine methamphetamine labs.[§§] Rather, it provides a general overview of the problem and of responses to it. It begins by describing the problem and reviewing factors that increase the risks of it. It then identifies a series of questions to help you analyze your local problem. Finally, it reviews responses to the problem and what is known about them from evaluative research and practice.

Clandestine methamphetamine labs are but one aspect of the larger set of problems related to illegal drug manufacturing, trafficking, abuse, and associated crime, and a coherent strategy, whether at the international, national, regional, state, or local level, should address all aspects of these problems.[§§§] This guide is limited to

[§] The drug commonly known as "ice" is a smokable form of crystal methamphetamine.

[§§] See Bureau of Justice Assistance (1998) and Sevick (1993) for more technical guidance.

[§§§] For comprehensive discussions of pharmacological effects, use patterns, user characteristics, legal status, appearance, ingestion methods, availability, production, and methamphetamine trafficking patterns, see the websites of the U.S. Drug Enforcement Administration at www.dea.gov/concern/amphetamines.html, the National Drug Intelligence Center at www.usdoj.gov/ndic/topics/drgrpt2.htm#Methamphetamine, and the U.S. Office of National Drug Control Policy at www.whitehousedrugpolicy.gov/drugfact/methamphetamine/index.html, as well as Pennell et al. (1999) and Eng (1999).

addressing the particular harms created by clandestine methamphetamine labs. Related problems not directly addressed in this guide include:

- violent offenses (such as domestic violence and child abuse) committed by drug users, and property offenses to get money to buy drugs or the chemicals to produce them
- sale and distribution of drugs manufactured in clandestine drug labs
- abuse of drugs manufactured in clandestine drug labs
- marijuana grow houses
- rave parties.

Harms Caused by Clandestine Methamphetamine Labs

Clandestine methamphetamine labs cause three main types of harm: (1) physical injury from explosions, fires, chemical burns, and toxic fumes; (2) environmental hazards; and (3) child endangerment.

Physical Injury From Explosions, Fires, Chemical Burns, and Toxic Fumes

Mixing chemicals in clandestine methamphetamine labs creates substantial risks of explosions, fires, chemical burns, and toxic fume inhalation.[3] Those who mix the chemicals (known as "cooks" or "cookers") and their assistants, emergency responders, hazardous material cleanup crews, neighbors, and future property occupants are all at risk from chemical exposure. The long-term health risks such exposure poses are not yet fully known, but one must assume they are significant.

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Chemicals in clandestine drug labs can burn the skin, as happened to this meth lab cook.

Many lab cooks do not take basic lab safety precautions. Using heat to process chemicals poses a higher risk of explosion, although indirect heat in the processing area—such as from smoking, electrical switches or even equipment-generated friction—can also trigger explosions. In addition, police forced entry into labs can cause explosions—some accidental, and some triggered by booby traps set by lab operators.[4] (The published literature commonly reports that lab operators are often well-armed, but how many shootings occur during lab seizures is unknown.) Despite a decrease in the number of reported fires and explosions over the past few years, the number of police injured when responding to methamphetamine labs increased during that time.[5] Poor lab ventilation increases the risks both of explosions and of toxic fume inhalation. On the other hand, good ventilation spreads toxic fumes outside, where they put other people at risk. Heating the chemical red phosphorous can create phosphine, a deadly gas.

About three to six people working in clandestine U.S. methamphetamine labs die each year from explosions, fires or toxic fumes.[6] One out of every five or six labs discovered is found because of an explosion or fire.[7] A survey of those who cook methamphetamine revealed one-quarter had experienced a fire while cooking and, in one-fifth of these, no emergency services were called.[8] Those present tended to leave the premises without warning others, which is particularly dangerous in multiunit buildings.

Environmental Hazards

Each pound of manufactured methamphetamine produces about 5 to 6 pounds of hazardous waste.[9] Clandestine drug lab operators commonly bury or burn the waste on or near the site, or dump the waste along the road or into streams or rivers.[10] Others pour waste down the drain, place it in household or commercial trash, or store it on the property. Dumping toxic waste into trashcans and commercial dumpsters puts sanitation workers at risk. The water used to put out lab fires can also wash toxic chemicals into sewers. In addition, toxic waste can be transferred from surfaces and equipment onto the body and clothing of those in contact with the lab, and can subsequently contaminate other locations.[11] More research is needed to understand this toxic dumping's long-term environmental effects.[12] Residual contamination of the ground, water supplies, buildings, and furniture may last for years.

Child Endangerment

Many jurisdictions are now finding that children are commonly exposed to the hazards of clandestine methamphetamine labs.[13] In 2003, police found more than 3,000 children at methamphetamine lab sites.[14] Young children frequently put their hands in their mouths, have higher metabolic and respiratory rates than adults, and have developing central nervous systems, all leaving them vulnerable to harm from inhaling, absorbing, or ingesting toxins from chemicals.[15] About two-thirds of children found at labs seized by police tested positive for toxic levels of chemicals in their bodies.[16] Others suffer burns to their lungs or skin from chemicals or fire. Some have died in explosions and fires. Many are badly neglected or abused by parents suffering from drug abuse's effects. (Senior citizens whose caretakers are lab operators are similarly vulnerable. Pets, including guard dogs, can also be harmed.) When police agencies start targeting labs for investigation and seizure, social service agencies and family courts should be prepared for increased workloads, as well.[17]

Drug Endangered Children Program, Learn Associates Inc.

Food that is accessible to children is often contaminated with methamphetamine. Some of the food in this refrigerator tested positive for methamphetamine. The three containers of liquid are methamphetamine in solution.

Types of Clandestine Methamphetamine Labs

There are two main types of clandestine methamphetamine labs. One is the "super" lab—a large, highly organized lab that can manufacture 10 or more pounds of methamphetamine per production cycle. To date, super labs are concentrated in southern California and Mexico.[18] The other type is small-scale labs, often referred to as "mom and pop" or "Beavis and Butthead"[§] labs. These labs can manufacture only 1 to 4 ounces of methamphetamine per production cycle. Their operators typically produce enough drugs for their own and close associates' use, and just enough extra to sell to others to finance the purchase of production chemicals. A third, though far less common, type of lab called a "dirt lab" has emerged in recent years. Small-scale lab cooks seek out areas where super labs dump their toxic waste, dig up the soil, and try to extract the residual methamphetamine.[19]

[§] For readers not of the MTV generation, Beavis and Butthead are portrayed as two moronic teenage television cartoon characters. The characters are not connected to illicit drug manufacturing in the program. Their personalities simply remind some drug enforcement officials of the personality profiles of clandestine drug lab operators and illicit drug users.

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Smaller labs can be set up with basic lab equipment and household appliances.

Generally speaking, the two lab types present different challenges for police. Although perhaps 90 percent of all labs are of the small-scale type,[20] the super labs account for up to 80 percent of all methamphetamine produced.[21] So, from a supply-control perspective, they are of far greater concern. However, the small labs account for far more explosions, fires, uncontrolled hazardous waste dumping, and child endangerment. This is largely because less-skilled cooks operate the small labs, using more-primitive equipment and facilities. Many small-lab cooks are parents and methamphetamine abusers themselves, and their drug dependency leads them to neglect their children's welfare. So, if the challenge is to reduce explosions, fires, environmental damage, and child endangerment, then the small labs are of greater concern.

Emergence and Spread of Clandestine Methamphetamine Labs

Clandestine labs have manufactured illicit drugs since at least the 1960s, but the problem has become much more widespread in the past 15 years or so, largely because of methamphetamine's growing popularity.[22] Perhaps the main reason methamphetamine has become so popular is that it is now simpler to produce: detailed instructions for doing so are readily accessible on the Internet, and new manufacturing methods allow production from an assortment of reasonably easy-to-acquire chemicals.[23] Consequently, an increasing number of people have set up labs to produce methamphetamine for their own use. Because methamphetamine is very addictive, the more people who experiment with it, the more people who become dependent on it, and the more demand there is.

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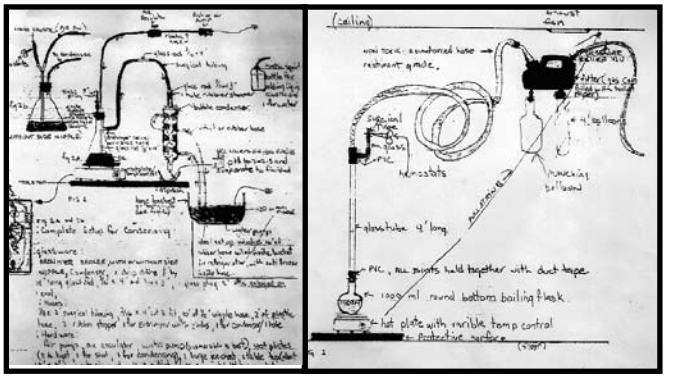

Instructions for manufacturing illegal drugs are now readily accessible on the Internet.

Methamphetamine production in clandestine drug labs was prevalent in California, and in and around Philadelphia, in the 1980s.[24] Southern California remains the predominant manufacturing region, but production has since spread to many other areas in the United States. Both Mexico and California have "super labs". Some drug organizations prefer to manufacture methamphetamine in California because they then have to smuggle only the production chemicals across the border, rather than the finished product (the penalties for smuggling methamphetamine are more severe).[25] Methamphetamine manufacturing and abuse are now considered serious problems in nearly all parts of the United States. Police have now seized labs in all 50 states.[26] The National Clandestine Drug Laboratory Database was established in 1999 to monitor lab-related trends.[27,§]

§ The El Paso (Texas) Intelligence Center houses the database, which federal, state and local police agencies can access.

Labs are now routinely found in all sorts of environments—from rural farms and fields to suburbs, to urban centers.[28] Operators often set up labs in rental property, including farmhouses, apartments, hotels and motels, and self-storage units. Thus, they can move quickly, avoid the risk of losing property to asset forfeiture, and avoid the risk of being held liable for hazardous material cleanup costs.[29] Small labs are even found in vehicles. Small labs are highly mobile; operators can set up and dismantle them with relative ease.

Outlaw motorcycle gangs dominated methamphetamine production until Mexican drug trafficking organizations began to use their cocaine and marijuana production, smuggling and distribution networks to expand into the methamphetamine trade.[30] Although some motorcycle gangs still produce methamphetamine, many others now serve as distributors for the Mexican organizations. These organizations can acquire some of the production chemicals—notably, ephedrine and pseudoephedrine—in bulk quantities on the international market because, until recently, Mexico has not sought to effectively control the importation of these chemicals, unlike the United States and other countries.[31]

Factors Contributing to Clandestine Methamphetamine Labs

Understanding the factors that contribute to your problem will help you frame your own local analysis questions, determine good effectiveness measures, recognize key intervention points, identify key stakeholders, and select appropriate responses.

Commonly Used Chemicals and Cooking Methods

Drugs manufactured in clandestine labs are the product of mixing chemicals. Lab operators must either procure or manufacture those chemicals—be they essential or precursor.[§] An estimated 34 different chemicals can be used to produce methamphetamine.[§§] Among the most common are ephedrine, pseudoephedrine, phenylpropanolamine, red phosphorous,[§§§] iodine, hydrochloric acid, ether, hydriodic acid, and anhydrous ammonia. Some of these chemicals are also used to produce other illicit drugs. The United States does not manufacture ephedrine, pseudoephedrine, and phenylpropanolamine; all supplies of these chemicals originate in other countries.[§§§§]

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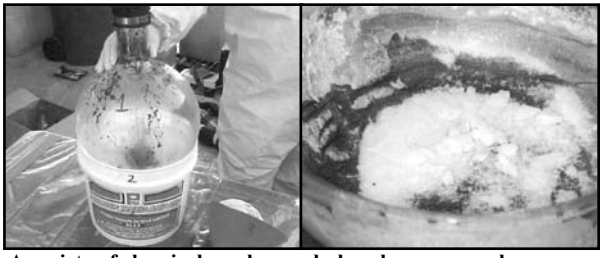

A variety of chemicals such as red phosphorous, seen here on the left, can be used to produce the methamphetamine, seen here on the right.

The essential and precursor chemicals can be diverted into the illicit drug market in various ways, among which are the following:

- stealing the chemicals
- smuggling the chemicals across international borders
- labeling chemicals fraudulently
- bribing or coercing government officials, chemical manufacturers and distributors, or deliverers
- creating complex transaction chains that make it difficult to track the chemicals

[§] Essential chemicals do not remain part of the final product's chemical structure, whereas precursor chemicals do (Sevick 1993).

[§§] See Sevick (1993) for a comprehensive list of essential and precursor chemicals, and Bureau of Justice Assistance (1998) for descriptions of the chemicals' toxic effects. See Manning (1999) for detailed descriptions of the stages of the methamphetamine production process, the chemicals required, the chemical processes, and the respective hazards of each chemical and process.

[§§§] Recently, hypophosphorous acid has been used as an alternative to red phosphorous. The use of hypophosphorous acid significantly increases the risk of fire (Valle, Ikegami and Crisp, 2003).

[§§§§] Germany is the largest producer of ephedrine; China and India are major exporters of ephedrine and pseudoephedrine; and Taiwan and Japan are major exporters of phenylpropanolamine. Most of the ephedrine smuggled into the United States comes through Mexico (U.S. Office of National Drug Control Policy 1998).

- buying the chemicals from legitimate chemical suppliers who, for various reasons, sell indiscriminately
- buying chemicals through undocumented cash transactions
- converting similar, unregulated chemicals into the desired, regulated chemicals
- storing chemicals in warehouses long enough for police and regulators to give up trying to track them
- trading in amounts just below the thresholds that trigger reporting and recordkeeping requirements (a practice known to regulators as "smurfing").[32]

Police and other regulators should be alert to suspicious business practices that might indicate attempts to divert chemicals to clandestine methamphetamine labs.[§] Chemical manufacturers, wholesale and retail distributors, freight handlers, agents, and brokers are all potential sources from which chemicals can be diverted. They can be diverted from factories, import and export points, transportation systems, and disposal and recycling plants.

Lab cooks can derive some of the chemicals needed to produce methamphetamine from materials available for purchase without regulation at retail outlets.[§§] Among these materials are cold and allergy medications,[§§§] lye, rock salt, battery acid, lithium batteries, pool acid, iodine,[§§§§] lighter fluid, matches, fireworks, road flares, antifreeze, propane, paint thinner, and drain cleaner. (Commonly used equipment includes glass jars, rubber tubing, sports drink bottles, coffee filters, gasoline cans, hotplates, and pillow cases.)

[§] See Sevick (1993) for a description of some indicators.

[§§] Curiously, retailers with no history of catering to the needs of cold sufferers, such as tobacco stores, arcades, clothing stores or pet stores, may carry products containing pseudoephedrine (Minton 2005).

[§§§] Some jurisdictions are starting to impose—and some vendors are voluntarily adopting—quantity restrictions on purchases of these medications (see response 6 below).

[§§§§] Iodine solution is commonly used in the shoeing of horses.

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Some of the chemicals needed to produce methamphetamine can be derived from products available for purchase without regulation at retail outlets.

There are three main cooking methods for producing methamphetamine:

- the phenyl-2-propanone (or P2P) method
- the red phosphorous (or red P) method[§]
- the Nazi dope[§§] (or lithium or sodium reduction) method.

The phenyl-2-propanone method is less common today, largely because its main precursor chemical, phenyl acetic acid, has been strictly regulated and is hard to obtain; it takes longer to produce methamphetamine;[§§§] and it produces a less pure and less potent form of the drug, a form with worse side effects.[33] Most methamphetamine cooks now use the latter two methods, in which ephedrine or pseudoephedrine is the main precursor chemical.[34] Ephedrine and pseudoephedrine are comparatively easier to obtain: they are commonly found in cold and allergy medications. The red phosphorous method also uses iodine. In addition, the Nazi dope method also uses lithium or sodium metal strips and anhydrous ammonia, an agricultural fertilizer, to synthesize the ephedrine or pseudoephedrine. Thefts of anhydrous ammonia from farmers' storage tanks are almost always connected to methamphetamine production.[35] The terms for these various methods can be confusing; they are sometimes confused even in the published literature. Police will

[§] The red phosphorous method used to be termed the "cold cook" method, but this can be misleading: cooks may or may not use heat to speed up the cooking process.

[§§] This reference is to the use of ephedrine and pseudoephedrine to stimulate German troops in World War II (Snell 2001).

[§§§] Lab cooks using ephedrine or pseudoephedrine can make a batch of methamphetamine in anywhere from two to 12 hours (depending on the batch's size and whether the cooks use heat to speed up the process); it takes about twice as long using phenyl-2-propanone (Institute for Law and Justice and 21st Century Solutions 2000; Campbell Resources Inc. n.d.).

need in-depth training in the chemical processes to fully understand the different ways methamphetamine is produced.

Offenders

Although many people can learn to produce small batches of methamphetamine, relatively few develop the skills necessary to manufacture large, high-quality batches. Few clandestine methamphetamine lab cooks have much, if any, formal chemistry training.[36] Most learn from other offenders, including family members, or by following instructions obtained from underground sources.[37,§] Some lab operators do their own cooking; others hire cooks. Some cooks hire themselves out to several drug trafficking organizations, getting paid in either cash or a portion of the drugs they produce. The average cook in a study of small-scale labs made about four to six batches of methamphetamine per month, producing about 12 pounds of the drug and 77 pounds of toxic waste per year.[38] Most cooks are male, in their 30s, and of middle and lower socioeconomic statuses.[39] Methamphetamine users who also produce or sell the drug are likely to seriously abuse it.[40]

In addition to the lab operators and cooks, other people may be employed to buy and store chemicals, lease property, procure and set up equipment, and perform other production tasks. The four main lab roles are those of the operator (or foreman), the cook, the workers who perform many of the menial and dangerous tasks, and the security staff.[41] Operators commonly target low-income people, often immigrants, to lease their property for temporary use as a lab or to work in a lab.[42] Some loose, informal networking exists among lab operators and cooks, who share information and employees.[43]

§ Within three years, an estimated 250,000 people were taught to cook methamphetamine in the Los Angeles area. The internet plays a relatively minor role; most cooks learn from a friend or relative. The average cook teaches someone else to cook methamphetamine about once every 90 days (Valle, Ikegami, and Crisp 2003).

Time and Day Patterns

As with most crime problems, methamphetamine production has peak periods. Although there are no national data, one jurisdiction found that approximately two-thirds of the methamphetamine produced was cooked between 6 p.m. and 6 a.m.[44] Most cooks said they preferred to cook on the weekdays, not on the weekends, a pattern which was consistent with police lab-seizure data showing a spike on Tuesdays and Wednesdays. Identifying temporal trends can help to identify days and times with higher risks of lab fires and explosions.

Profitability of Clandestine Methamphetamine Labs

By most accounts, clandestine methamphetamine labs can be highly profitable.[45] A modest investment in chemicals, equipment, and labor can yield substantial profits in wholesale or retail methamphetamine sales, although profit estimates vary considerably.[46] Some of this variation depends on the availability of chemicals, the purity of the methamphetamine, the regions of the country where the drug is manufactured and sold, and the size and sophistication of the lab.

Methamphetamine's wholesale and retail costs likewise vary, with official estimates as follows:

- $20 to $300 for 1 gram
- $270 to $5,000 for 1 ounce
- $1,600 to $45,000 for 1 pound.[47]

However, most cooks in small-scale labs manufacture methamphetamine for their own personal use, rather than for street sales.[48]

Cleaning Up Clandestine Methamphetamine Labs

Cleaning up clandestine methamphetamine labs is an enormously complex, time-consuming and costly undertaking.[§] Seizing a lab potentially makes a police agency liable for some of the costs of cleaning up on-site hazardous materials.[49] If the lab is operating when police find it, it must first be safely neutralized so that it does not explode or chemically contaminate the environment. Then, the immediate and apparent hazardous-materials must be cleaned up and disposed of safely. Police usually contract with certified hazardous-material disposal companies for this task. Seizing even a small lab can take four or more hours. Storing evidence and conducting laboratory analysis of chemicals are similarly time-consuming and costly. Many jurisdictions are finding that the demands of processing evidence are straining their forensic laboratory resources.[50] Finally, there is the question of a more permanent cleanup (or remediation) of the site to eliminate the long-term hazards posed by residual chemicals. Much is still unknown about such hazards, so we do not fully know how serious the risks of exposure to contamination are. Consequently, many issues regarding the costs and responsibility for cleanup remain unsettled. There are few, if any, established standards for acceptable contamination levels.[51] Complete remediation is seldom done because of the cost, and owners abandon some property rather than undertake that task.[52] Public health and environmental officials, rather than police, will likely have to take the lead on remediation. New legislation or regulations may be required to establish and enforce remediation standards.

[§] Among the useful publications on the technical aspects of lab clean up are Hannan (2005) and Vandeveld (2004).

All emergency responders to clandestine methamphetamine labs, police included, must be properly trained and equipped.[§] The costs of training and equipment are substantial. Many police agencies remain ill-prepared to seize the labs.

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Disposing of chemicals at clandestine drug labs requires special training and equipment.

The average cost of cleaning up the immediate and apparent hazardous materials in an average-sized clandestine methamphetamine lab ranges from $2,500 to $10,000.[53] It can cost up to $150,000 to clean up hazardous materials in the larger super labs. Thorough decontamination of even an average-sized site has been estimated to cost around $50,000.[54] Some statutes allow prosecutors to try to recover the cleanup costs from convicted defendants.[55] Federal and state funding that might be available to help local jurisdictions with immediate cleanup costs typically does not cover long-term remediation costs.

[§] In the United States, the Occupational Safety and Health Administration has established guidelines and requirements that govern exposure to clandestine drug labs (see the Code of Federal Regulations at 29 C.F.R. 1910.120). The Drug Enforcement Administration, Environmental Protection Agency, and Coast Guard have jointly published a document titled *Guidelines for the Cleanup of Clandestine Drug Laboratories*, available to police agencies.

Understanding Your Local Problem

The information provided above is only a generalized description of clandestine methamphetamine labs. You must combine the basic facts with a more specific understanding of your local problem. Analyzing the local problem carefully will help you design a more effective response strategy.

Stakeholders

In addition to criminal justice agencies, the following groups have an interest in the clandestine methamphetamine lab problem and ought to be considered for the contribution they might make to gathering information about the problem and responding to it:

- environmental protection agencies
- fire and emergency medical service agencies
- medical providers
- public health agencies
- child protective services agencies
- school officials
- business associations (particularly those including retailers who sell products that are commonly used to produce methamphetamine)
- drug treatment providers
- chemical manufacturers and distributors
- chemical manufacturing and distribution regulators
- juvenile and family courts (including guardians ad litem)
- city and county attorneys' offices.

Asking the Right Questions

The following are some critical questions you should ask in analyzing your particular problem of clandestine drug labs, even if the answers are not always readily available. Your answers to these and other questions will help you choose the most appropriate set of responses later on.

Characteristics of Clandestine Methamphetamine Labs

- Which type of clandestine drug lab is the major concern in your jurisdiction: super labs or small labs? What quantity of drugs do the labs manufacture per production cycle? What is the overall production quantity?
- How many labs have been booby-trapped?
- Are weapons commonly found at the labs? Have lab workers used any weapons against responders?
- How have the labs been located? Through fire officials responding to explosions and fires? Through citizen informants detecting suspicious indicators? Through confidential criminal informants? Through routine patrol activities?
- What chemical production methods are lab workers using?
- How sophisticated or primitive are the labs?
- What, specifically, is causing lab explosions, fires, and the release of toxic fumes?
- How profitable do the labs appear to be?
- Where have the labs been located? Rural, suburban, urban locations?
- On or in what types of property are the labs being located? Open fields, houses, apartments, self-storage units, farm buildings, hotels/motels, vehicles?
- Are the drugs sold near where they are produced, or are they sold and produced at separate locations?

Victims

- How many people have been injured or killed by explosions, fires, chemical burns, or toxic fumes at clandestine drug labs in your jurisdiction? How many operators, cooks, or other lab employees? How many first responders? How many innocent third parties?
- How many children have been found at the labs? What harms have they suffered? Chemical exposure? Neglect? Physical abuse?
- How much environmental contamination has been documented from the labs?

Offenders[§]

- In your jurisdiction, do clandestine drug lab operators cook, or do they hire cooks?
- How many people are involved in each lab operation? What specific roles do they play?
- What is known about the people involved in lab operations? Residence? Immigrant status? Regular employment status? Drug use? Criminal history?
- How sophisticated and well-trained are the lab cooks?
- How often do they teach others to cook methamphetamine?
- Do the labs produce drugs primarily for the operators' and their associates' personal use, or for wider distribution?
- Are the labs being run by independent operators or by drug organizations?

[§] See Pennell et al. (1999) for the protocol used to interview methamphetamine arrestees.

Chemical Supplies

- What essential and precursor chemicals are being used to supply clandestine drug labs in your jurisdiction?
- From where are lab operators obtaining the chemicals?
- How do lab operators circumvent existing chemical controls?
- What is the level of awareness and cooperation among chemical suppliers and law enforcement agencies?
- What education and training programs have been developed for chemical suppliers?
- What chemical reporting requirements apply? Are they adequately enforced?

Current Responses

- Is there an organized partnership of responders to clandestine drug labs in your jurisdiction? If so, which agencies participate? Are any agencies missing from the collaboration?
- Have the responsibilities of the various responders been determined? Are the responders meeting their responsibilities?
- What responses have been implemented to address the labs? Which do you believe have been productive? Which have not, and why?
- What is the level of public awareness and concern about the labs?
- Have responders been trained adequately to recognize and deal with the labs?
- Are lab sites being cleaned up adequately? Who is incurring the cleanup costs?
- How, if at all, do neighboring jurisdictions' responses affect your jurisdiction's lab problem? (For example, do weaker laws and enforcement in neighboring

jurisdictions tend to displace the problem *away* from your jurisdiction, or do stronger laws and enforcement in neighboring jurisdictions tend to displace the problem to your jurisdiction?)

Measuring Your Effectiveness

Measurement allows you to determine to what degree your efforts have succeeded, and suggests how you might modify your responses if they are not producing the intended results. You should take measures of your problem *before* you implement responses, to determine how serious the problem is, and *after* you implement them, to determine whether they have been effective. All measures should be taken in both the target area and the surrounding area. (For more detailed guidance on measuring effectiveness, see the Problem-Solving Tools guide, *Assessing Responses to Problems: An Introductory Guide for Police Problem-Solvers*.)

The following are potentially useful measures of the effectiveness of responses to clandestine methamphetamine labs:

- Reduced number of labs. Admittedly, this measure is nearly impossible to determine with any accuracy, but it remains a primary goal. If detection and enforcement levels are constant over time, and the number of labs found and seized declines, this could suggest that the actual number of labs is, in fact, declining. In most jurisdictions, though, increased numbers of labs detected and seized correspond to increased levels of training, awareness campaigns and enforcement resources; that is, up to a point, the more effort you put into finding the labs, the more labs you are likely to find. Counting the number of labs seized can be misleading. You learn little about the quantity of drugs being manufactured because most labs produce only small quantities.[56]

- Reduced number of explosions and fires at labs.
- Reduced number and/or severity of injuries suffered at labs.
- Reduced number of children found at labs in need of medical and social welfare services (although this figure might well rise initially as responders become more alert to the hazards posed to children, and services are made available to treat them).
- Reduced number of toxic dump sites.
- Absence of displacement of labs from one area to another.
- Reduced purity of drugs. This is an indicator that chemicals are harder to obtain, as lab operators seek to maximize their profits from the limited supply of drugs they can produce.
- Increased price of drugs. This is an indicator that chemicals are harder to obtain or that the risk of apprehension has increased.

Responses to the Problem of Clandestine Methamphetamine Labs

Your analysis of your local problem should give you a better understanding of the factors contributing to it. Once you have analyzed your local problem and established a baseline for measuring effectiveness, you should consider possible responses to address the problem.

The following response strategies provide a foundation of ideas for addressing your particular problem. These strategies are drawn from a variety of research studies and police reports. (To date, there are no known evaluation studies of responses to the clandestine drug-lab problem; there are only practitioner experiences and impressions.) Several of these strategies may apply to your community's problem. It is critical that you tailor responses to local circumstances, and that you can justify each response based on reliable analysis. In most cases, an effective strategy will involve implementing several different responses. Law enforcement responses alone are seldom effective in reducing or solving the problem. Do not limit yourself to considering what police can do: carefully consider who else in your community shares responsibility for the problem and can help police better respond to it.

General Considerations for an Effective Response Strategy

Dealing with clandestine methamphetamine labs requires an extraordinarily high level of technical expertise. Responders must understand illicit drug chemistry; how to neutralize the risks of explosions, fires, chemical burns, and toxic fumes; how to handle, store, and dispose of hazardous materials; and how to treat medical conditions

caused by chemical exposure. They must also have a detailed knowledge of the numerous federal, state, and local laws governing chemical manufacturing and distribution, hazardous materials, occupational safety, and environmental and child protection. Police agencies cannot be expected to have all this expertise in-house. They must collaborate with fire officials, hazardous materials experts, chemists, public health officials, social service providers, and environmental protection officials.

Because methamphetamine production, trafficking, use, and incidental exposure potentially affect so many dimensions of community life, multiagency task forces are recommended for addressing community-wide methamphetamine problems. See the "Stakeholders" section above for a listing of agencies that should be considered for inclusion, in addition to criminal justice agencies. Developing and following multiagency protocols for responding to reports of clandestine meth labs helps ensure that all the dimensions of the problem are addressed appropriately.[57,§]

Specific Responses to Clandestine Methamphetamine Labs

Monitoring Chemicals

1. **Controlling the sale and distribution of essential and precursor chemicals used in clandestine methamphetamine labs.** Controlling the sale and distribution of essential and precursor chemicals is widely considered one of the most effective responses to clandestine methamphetamine labs and drug trafficking.[58] Doing so requires effort at the local, state, national, and international levels.[§§] Because the chemicals also have

§ The Bureau of Justice Assistance (1998) has published a guide to establishing clandestine drug–lab enforcement programs that addresses many organizational, planning, and resource issues.

§§ See International Narcotics Control Board (2006) for a description of some international efforts to control chemical sales and distribution. In the United States, the Chemical Diversion and Trafficking Act of 1988, the Chemical Diversion Control Act of 1993, the Methamphetamine Control Act of 1996, the Methamphetamine Anti-Proliferation Act of 2000, and the Combat Methamphetamine Epidemic Act of 2005 all govern chemical transactions.

many legal uses, government regulators must balance the need to thwart their diversion for illicit use with the need to permit legitimate trade in them.

Distribution Controls

Educating police, chemical manufacturers and distributors, deliverers, and other regulators about the potential for and methods of chemical diversion can help prevent it, as can improved recordkeeping, container labeling, and customer identification practices.[59]

Federal and parallel state laws play an important role in controlling chemical diversion.[60] States with weak chemical diversion laws are susceptible to trafficking in illicit synthetic drugs.[61,§] Targeting rogue chemical companies for investigation and prosecution for diverting chemicals for illicit drug production is a key component of the federal law enforcement strategy.[62,§§] Police and prosecutors might develop criminal conspiracy cases against chemical and lab equipment companies that have knowingly supplied clandestine drug lab operators.[63] Federal law now provides for civil fines up to $250,000 for illegal chemical diversion or lab equipment sales for illicit drug production.[64,§§§] First responders to labs are well advised to save all chemical packages and containers to help investigators identify the chemical manufacturers and suppliers.

An unintended consequence of restricting sales of large amounts of chemicals is that it promotes the operation of smaller clandestine drug labs that require smaller amounts of chemicals to produce small batches of drugs.[65] As chemicals for methamphetamine production become harder to obtain, some lab operators may shift production to other drugs, like amphetamines.[66]

§ The National Institute of Justice and the Drug Enforcement Administration developed the Model State Chemical Control Act, which includes provisions for the following: state authority to regulate chemicals, registration and permitting systems, reporting requirements, purchaser identification requirements, permit suspension and revocation and applicant screening, investigative and enforcement powers, and legitimate commerce protection (Sevick 1993). The National Alliance for Model State Drug Laws (www.natlalliance.org/publications.asp) frequently updates a roster of legislation in each state designed to control the distribution of precursor chemicals.

§§ Some chemical companies reportedly derive up to half their revenue from diverting chemicals for illicit drug production (Saleem 1996).

§§§ The Methamphetamine Control Act of 1996 establishes a "reckless disregard" standard of proof for a civil action, which is easier to meet than the more stringent intent standard for a criminal prosecution.

Retail Controls

Controlling pseudoephedrine diversion from over-the-counter sales, wholesale and mail-order sales, and internet-based sales is also an important objective.[§] The retail sale of precursor chemicals can be restricted in a number of ways:[§§]

- Placing limits on the quantity of products containing pseudoephedrine that can be purchased. Some jurisdictions limit the amount that can be purchased in a single transaction (for example, sixty 30mg tablets) or over a period of time (for example, 9 grams in a 30-day period).[67,§§§] Responses involving purchase limits require retailers to implement a system to track the purchases of individual customers. In most states, customers must show identification and sign a log when purchasing regulated products. To be effective, regulating agencies must be able to cross-reference sales across retail venues to prevent lab operators from simply patronizing multiple stores.
- Programming cash registers to detect suspicious purchases and alert sales clerks.
- Reducing the available chemical stock (employees sometimes steal products for diversion).[68]
- Requiring products containing pseudoephedrine to be placed behind sales counters, in locked display cases, or behind pharmacy counters. Making products containing pseudoephedrine more difficult for lab operators to obtain must be balanced with the legitimate consumer needs of cold-sufferers. Further, requiring these products to be displayed behind pharmacy counters can cause convenience stores and some grocery stores to lose sales revenue.[69]

[§] In 2005, the online auction, portal eBay, banned the sale of pseudoephedrine and ephedrine in all transactions between users. Using filtering tools to search for keywords and encouraging registered users to report violations allowed eBay to prevent some pseudoephedrine sales (Herzog, 2005).

[§§] State legislation to combat methamphetamine production is constantly changing and therefore is not discussed specifically in this guide. Refer to Arledge (2005) and Sanchez and Harrison (2004) for the most recent summary of state legislation.

[§§§] Thousands of common pseudoephedrine or ephedrine tablets are required to produce a single pound of methamphetamine. Among others, Oklahoma, Iowa, and Oregon have reported reductions in lab seizures after enacting various retail-level controls (Interagency Working Group on Synthetic Drugs 2005; Glover 2005).

- Requiring consumers to have a prescription to obtain products containing pseudoephedrine. Although it may indeed reduce the illicit use of these products, it may also reduce their legitimate use among those without prescription coverage or health insurance.[70]
- Preventing the theft of anhydrous ammonia from farms.[§]

Controlling chemical sales and distribution requires vigilance because clandestine drug lab operators are constantly looking to circumvent and exploit loopholes in the various laws and regulations, and adapt by using alternative supply sources, chemicals, or production processes.[71]

2. **Altering the chemical composition of products used to produce methamphetamine.** The DEA and other federal agencies have been working with manufacturers to reformulate pharmaceutical products that are used to produce methamphetamine.[72,§§] Such efforts would make key precursor chemicals ineffective for the production of methamphetamine. However, the decreasing availability of precursor chemicals may cause lab operators to experiment with substitute materials that may be even more hazardous.

   Researchers are also exploring ways to render certain precursor chemicals, such as anhydrous ammonia, useless for methamphetamine production; the chemicals would still be useful for their lawful purposes.[73] Much of the anhydrous ammonia used in methamphetamine production is stolen from farmers' storage tanks; mechanical devices can be installed on storage tanks to make theft more difficult, and some jurisdictions have enacted laws requiring that anhydrous ammonia be stored and transported only in approved containers.[74,§§§]

[§] See King (n.d.) for detailed recommendations on preventing anhydrous ammonia theft.

[§§] Pharmaceutical companies are developing new lines of over-the-counter decongestants that contain phenylephrine instead of pseudoephedrine (Leinwand, 2005).

[§§§] The transfer of anhydrous ammonia from one storage container to another leaves a telltale blue coloring on the valves.

Providing Training

3. **Training citizens to report suspected clandestine methamphetamine labs**. Many citizens are unfamiliar with the indicators of clandestine methamphetamine labs, yet with some training, can learn these indicators and be encouraged to report suspected labs to authorities.[§] Some jurisdictions have initiated billboard, poster, hotline, website, and other publicity campaigns to encourage reporting.[75] Workers who routinely approach private residences, such as postal carriers, garbage collectors, and utility personnel, are well positioned to notice suspicious odors,[§§] items or activity indicative of labs.[76] Hotel and motel employees, especially desk attendants and maids, can be trained to look for suspicious indicators of labs set up in rooms.[§§§] Rental property managers are also a key group to target for training.[77] Others who routinely enter people's homes, such as maintenance and repair workers, might also benefit from training.

Washington County (Oregon) Sheriff's Office

Posters and billboards with specific contact information can encourage residents to report suspected clandestine labs.

[§] A neighborhood-based effort, www.Leadonamerica.org, developed pamphlets with instructions for citizens to collect information police need to obtain search warrants for suspected methamphetamine labs (for example, license plate numbers, vehicle descriptions.) and includes a neighborhood activity log ("ABC News" 2005). Hanson (2005) discusses the outward signs of clandestine labs in detail.

[§§] Various chemicals that are used in or are by-products of methamphetamine production, such as phosphine, ether, ammonia, battery acid, and acetone, have distinctive smells. For example, phosphine smells like garlic, sulfur smells like rotten eggs, ammonia smells like cat urine, and acetone smells like nail polish remover.

[§§§] The Portland (Oregon) Police Bureau, in collaboration with Campbell Resources Inc., produced tip booklets for hotel and motel operators, rental property owners, and ministorage unit managers on preventing their properties from being used as clandestine drug labs, and decontaminating property used as such (Campbell Resources Inc. n.d.; Oregon Drug Lab Cleanup Program 2004). Sandy City, Utah, police similarly trained hotel and motel managers and employees in the common suspicious indicators that people may be using rooms as labs (Thompson 1999).

4. **Training sales clerks to detect and report suspicious chemical and equipment purchases**. Clerks at certain types of wholesale and retail businesses (for example, chemical supply companies, pharmacies, and home supply stores) can be trained to detect and report purchases of unusual amounts of materials commonly used to manufacture methamphetamine, such as cold and allergy medications containing ephedrine or pseudoephedrine.[§] In some jurisdictions, printed information is posted at cash registers to remind clerks what to look for.[78] Customers with the appearance of a methamphetamine addict (with rotting teeth and open sores, emitting chemical odors) might also raise suspicions.

5. **Training police and other responders to identify potential clandestine methamphetamine labs**. Police, firefighters, emergency medical personnel, probation and parole officers, and other personnel who routinely enter private property should be trained to recognize indicators of clandestine methamphetamine labs so enforcement action can be initiated.[79] This response is especially important in communities not currently experiencing a high number of labs, as early recognition of and response to the problem is critical to preventing it from becoming entrenched. You should not assume that all police officers and other responders will recognize lab indicators without some specialized education.

[§] A Missouri-based organization, Companies Helping Eliminate Meth, developed training kits for retail stores that include both video and printed materials (Pruneau 2005). Similarly, the Florida Retail Federation developed a sales training program for retailers who sell products containing pseudoephedrine. The program discusses key facts about methamphetamine, the applicable laws, retailers' responsibility to deny sales, and penalties for failing to follow the law (Florida Retail Federation n.d.).

Protecting Those Exposed to Clandestine Methamphetamine Labs

6. **Providing protective services to children exposed to clandestine methamphetamine labs**. Police often find children at clandestine methamphetamine lab sites, but because their resources are consumed seizing and processing the lab, they may not attend to the children's long-term needs, especially if child protection workers cannot respond immediately. Placing the children with the arrestees' friends, family or neighbors usually just results in the children's returning to the hazardous environment. The family reunification rates for children of parents addicted to methamphetamine are low.[80]

   Several jurisdictions have created special protocols and programs to address the needs of children exposed to clandestine methamphetamine labs.[81] Child endangerment protocols and programs require cooperation and collaboration among police, prosecutors, and social workers.[§] These protocols and programs typically involve medical screening of the children for toxicity and malnourishment, emergency and long-term foster care, and psychological treatment. Parents are prosecuted for child endangerment, if appropriate. Some states have enacted penalty enhancements for operating the labs with children present. (Similar protocols might be warranted for treating elderly or infirm people, or pets exposed to the labs).

7. **Protecting first responders and others who come into contact with contaminated lab sites**. When police and other first responders enter locations where methamphetamine has been produced, they are at risk of injury from the various toxic and potentially flammable chemicals at the scene. The most common injuries are respiratory and eye irritation, headaches, dizziness,

[§] Swetlow (2003) provides guidance for developing multidisciplinary teams for protecting the interests of children discovered at methamphetamine labs.

nausea and shortness of breath.[82] The risk of injury can be minimized by encouraging first responders to decontaminate themselves at the scene by showering and changing their clothing, and wearing appropriate personal protective equipment.[83,§] In addition, police can develop joint protocols with fire departments for responding to the scenes of suspected labs. If on scene with police, firefighters can minimize damage from inadvertent fires and explosions, monitor the air quality, and assist with identifying and handling toxic chemicals.[84]

§ Even though local Missouri police seize a large number of labs each year, very few officers are injured. Investigating officers must attend a 40-hour certification course patterned after the DEA's clandestine lab course. In a joint effort by the Missouri Highway Patrol and the Department of Natural Resources, nearly 700 officers have been certified (Schanlaub 2005).

Some jurisdictions also recognize the risks faced by prospective home buyers who may unknowingly purchase a residence previously used as a clandestine lab. Real estate laws can require the seller to disclose this information. A list of contaminated properties maintained by a state agency can connect this information to all title searches of properties for sale. Laws can restrict the sale, use, or lease of a property until it is properly decontaminated.[85]

Treating Drug Addiction

8. **Providing adequate resources to treat methamphetamine addiction**. Although this guide is primarily concerned with clandestine methamphetamine labs, and not with methamphetamine abuse, it is important to acknowledge that treating addiction—and thereby reducing the demand for methamphetamine—is an important aspect of a comprehensive strategy to address the problem.[86] The state of Wyoming reportedly has dramatically shifted resources toward treatment as a primary means of addressing its methamphetamine problem, of which labs are a part.[87] Specialized drug courts hold promise as a more effective means of ensuring that methamphetamine abusers receive and comply with treatment requirements.[88]

Enforcing Laws Prohibiting Clandestine Methamphetamine Lab-Operations

9. **Finding and seizing clandestine methamphetamine labs**. There is an obvious and understandable tendency among police agencies to focus much of their resources on finding and seizing clandestine methamphetamine labs. But it is not yet clear whether this is, in the long run, the most effective or efficient strategy for dealing with the problem. The labs, especially the smaller ones, are so easy to set up that it seems nearly impossible to find and seize all or even most of them. And because seizing the labs is so time-consuming and costly, police agencies run the risk of exhausting their resources on this single response, leaving little or no resources for other responses.[89]

   Some enforcement is nonetheless necessary to maintain a credible deterrent and to monitor the conditions and prevalence of labs. A good enforcement effort requires considerable resources and planning.[§] Some police agencies conduct "knock and talk" campaigns whereby officers ask for consent to search properties for evidence of labs.[90] As surprising as it might seem, this response does occasionally yield results. Police may also get tips from sanitation workers, firefighters, health care workers, or other public service workers who suspect they have discovered a lab during the course of their duties.[91]

10. **Arresting and prosecuting clandestine methamphetamine lab operators and cooks**. Federal or state organized crime and racketeering statutes can prove useful toward dismantling more-sophisticated clandestine methamphetamine lab syndicates. Many lab operators are on conditional release (either probation or parole) and, consequently, are liable to having their

[§] The Stanislaus County (California) Sheriff's Department equipped a van with an infrared sensor that detects changes in the atmosphere caused by the vapors released from methamphetamine labs. The sensor can detect vapors in an open space from a three-mile distance. The van cost approximately $750,000 (Giblin, 2005).

homes and vehicles searched regularly for evidence that they have resumed operating a lab.[92] Searches of discarded trash often yield evidence sufficient to obtain a search warrant for a particular premise. Wholesale and retail chemical and lab equipment suppliers might be willing to identify suspicious customers; police might then serve search warrants on, and build criminal cases against, those customers. Because methamphetamine markets tend to be closed (dealers sell only to people they know), undercover infiltration of production and distribution organizations is difficult. The use of criminal informants, covert surveillance and wiretaps is often necessary to make good criminal cases against organized methamphetamine production organizations.[93]

Criminal statutes that provide penalty enhancements for distributing large amounts of illicit drugs are not likely to be as effective in responding to the methamphetamine problem as they might be for addressing the marijuana, cocaine, and heroin problems, because methamphetamine is so easily manufactured in small batches for personal use.[94] There appear to be relatively few drug kingpins in the methamphetamine trade. However, some states have enacted new criminal statutes or enhanced penalties to more directly address some of the particular activities associated with operating methamphetamine labs.[§] Of course, new criminal statutes and penalty enhancements are not particularly effective if enforcement resources, including crime lab resources, are inadequate.[95]

Similarly, arresting and prosecuting methamphetamine cooks has limited potential to effectively address the problem. Because methamphetamine is relatively easy to produce, the supply of potential cooks seems nearly inexhaustible. Enough methamphetamine abusers are eager to learn to cook, if only to ensure their own drug supply.[§§] Methamphetamine abusers who cook are

[§] In 2005, Illinois created new offenses targeting those serving as look-outs for methamphetamine labs and those who dispose of toxic waste from methamphetamine labs. Those operating labs in motels, hotels, apartments, and condominiums also face mandatory prison time (Illinois, Office of the Governor, 2005).

[§§] Nearly 10 percent of one sample of arrested methamphetamine users said they cooked methamphetamine for themselves (Pennell et al. 1999).

almost certain to resume cooking given any opportunity to do so, including while on bail pending trial for drug charges.[96]

11. **Seizing and filing for forfeiture of clandestine methamphetamine lab operators' assets**. Federal and state asset forfeiture laws can be applied to the problem of clandestine methamphetamine labs.[97] While this response might prove effective in controlling some of the larger drug organizations, it is unlikely to prove very effective at controlling the smaller labs. Because they usually only produce enough product for personal consumption, small-lab operators often have few valuable assets to forfeit.[98] Again, the seizing agency may incur significant liability for cleaning up the property.

12. **Enforcing environmental protection laws against clandestine methamphetamine lab operators**. Federal[§] and state environmental protection laws will often be applicable to the hazards created by clandestine methamphetamine labs.[99] The burden of proof under these environmental laws is typically less than that required for criminal convictions. You should consult with federal or state environmental attorneys to proceed under these laws.

13. **Filing civil actions against properties used for clandestine methamphetamine labs.** Police and prosecutors can initiate asset forfeiture proceedings against property owners who knowingly allow their properties to be used as clandestine methamphetamine labs.[100] Police can also encourage owners to file eviction actions against tenants who use their property to house such labs. Nuisance abatement actions can be filed against properties recurrently used as labs,[101] but since smaller labs are so mobile, and since lab operators are typically only lessees, not owners, this response would most likely have only limited effectiveness.

[§] Among the most relevant federal statutes are the Resource Conservation and Recovery Act of 1980, and the Comprehensive Environmental Response, Compensation, and Liability Act (also known as the Superfund Act). The Clean Air Act; Water Pollution Control Act; Ocean Dumping Act; Safe Drinking Water Act; Federal Insecticide, Fungicide, and Rodenticide Act; Toxic Substances and Control Act; and National Environmental Policy Act may also apply in certain circumstances.

Appendix: Summary of Responses to Clandestine Methamphetamine Labs

The table below summarizes the responses to clandestine methamphetamine labs, the mechanism by which they are intended to work, the conditions under which they ought to work best, and some factors you should consider before implementing a particular response. It is critical that you tailor responses to local circumstances, and that you can justify each response based on reliable analysis. In most cases, an effective strategy will involve implementing several different responses. Law enforcement responses alone are seldom effective in reducing or solving the problem.

Response No.	Page No.	Response	How It Works	Works Best If…	Considerations
Monitoring Chemicals					
1.	24	Controlling the sale and distribution of essential and precursor chemicals used in clandestine methamphetamine labs	Makes getting the necessary chemicals more difficult, thereby driving up drug production costs and potentially reducing demand	…enough of the avenues through which offenders obtain chemicals can be restricted or closed; efforts are made to ensure that retailers are aware of restrictions	Requires international, federal, state, and sometimes local legislation and enforcement; must balance restrictions with legitimate commerce needs; the cooperation of wholesale and retail chemical distributors is essential; restrictions on large amounts of chemicals may inadvertently promote small labs that require smaller amounts; may cause lab operators to improvise with even more-dangerous chemical alternatives; requires constant attention to react to offenders' adaptations to restrictions; may unfairly limit legitimate access to consumer products

Response No.	Page No.	Response	How It Works	Works Best If…	Considerations
2.	27	Altering the chemical composition of products used to produce methamphetamine	Renders existing source of precursor chemicals unusable	…remaining products containing precursor chemicals are tightly controlled	Requires cooperation and significant investment from pharmaceutical and chemical companies; may cause lab operators to improvise with even more-dangerous chemical alternatives; requires constant attention to react to offenders' adaptations
Providing Training					
3.	28	Training citizens to report suspected clandestine methamphetamine labs	Increases the probability that labs will be detected	…labs are operating in places subject to routine natural surveillance	Small labs are highly mobile, so reporting and enforcement must be quick
4.	29	Training sales clerks to detect and report suspicious chemical and equipment purchases	Increases the probability that offenders will be prevented from procuring chemicals and equipment	…sales clerks' employers put a high priority on preventing illicit sales	Some rogue wholesale and retail companies make a lot of money from illicit sales, and may not cooperate fully
5.	29	Training police and other responders to identify potential clandestine methamphetamine labs	Increases the probability that labs will be detected	…labs are being operated in places subject to responders' routine surveillance	Requires specialized education
Protecting Those Exposed to Clandestine Methamphetamine Labs					
6.	30	Providing protective services to children exposed to clandestine methamphetamine labs	Removes endangered children from lab hazards	…there are adequate child protective services in the jurisdiction, and established protocols to coordinate responses	Requires interagency cooperation and collaboration; may substantially increase the workload of child-protection services agencies and strain resources

Response No.	Page No.	Response	How It Works	Works Best If…	Considerations
7.	30	Protecting first responders and others who come into contact with contaminated lab sites	Reduces risk of transfer contamination	…first responders are aware of labs' existence before entering location; records of contaminated properties are kept current and accessible to the public	Requires significant investment in training and equipment; poses an administrative burden to maintain current properties list
Treating Drug Addiction					
8.	31	Providing adequate resources to treat methamphetamine addiction	Reduces the demand for illicit drugs, thereby potentially reducing the output and/or number of clandestine drug labs	…effective treatment programs can be identified or implemented	Requires a lot of resources to make adequate treatment readily available
Enforcing Laws Prohibiting Clandestine Methamphetamine Lab Operations					
9.	32	Finding and seizing clandestine methamphetamine labs	Removes labs, thereby reducing the harms they cause	…there are a limited number of labs and/or labs are difficult to replace	Seizing labs is costly and time-consuming, drawing resources away from other response strategies; small labs are highly mobile and difficult to detect; the costs of setting up small labs are low, so they are easy to replace; requires a lot of planning, coordination and resources

Response No.	Page No.	Response	How It Works	Works Best If…	Considerations
10.	32	Arresting and prosecuting clandestine methamphetamine lab operators and cooks	Deters offenders through the threat of fines and imprisonment	…the risk of apprehension is sufficiently high	Many offenders are subject to conditional release restrictions, making surveillance of their activities relatively easy; there are many potential replacement offenders; offenders who are drug abusers are extremely difficult to deter from reoffending
11.	34	Seizing and filing for forfeiture of clandestine methamphetamine lab operators' assets	Deters offenders through the potential loss of assets	…offenders have sufficient assets they want to avoid losing	Many offenders have few assets worth seizing
12.	34	Enforcing environmental protection laws against clandestine methamphetamine lab operators	Deters offenders through the threat of fines and other civil sanctions; potentially shifts the costs of cleaning up labs to the offenders	…offenders have sufficient assets to pay fines and costs	Many offenders have too few assets to pay large fines or cleanup costs; the standard of proof under environmental laws is usually less than that for criminal offenses
13.	34	Filing civil actions against properties used for clandestine methamphetamine labs	Closes, forfeits or restricts the use of properties on which labs have been set up	…labs are operating at least semipermanently at targeted locations	Most labs are small and highly mobile; property owners often are unaware of illicit activity

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Recommended Readings

- **A Police Guide to Surveying Citizens and Their Environments**, Bureau of Justice Assistance, 1993. This guide offers a practical introduction for police practitioners to two types of surveys that police find useful: surveying public opinion and surveying the physical environment. It provides guidance on whether and how to conduct cost-effective surveys.

- **Assessing Responses to Problems: An Introductory Guide for Police Problem-Solvers**, by John E. Eck (U.S. Department of Justice, Office of Community Oriented Policing Services, 2001). This guide is a companion to the *Problem-Oriented Guides for Police* series. It provides basic guidance to measuring and assessing problem-oriented policing efforts.

- **Conducting Community Surveys**, by Deborah Weisel (Bureau of Justice Statistics and Office of Community Oriented Policing Services, 1999). This guide, along with accompanying computer software, provides practical, basic pointers for police in conducting community surveys. The document is also available at www.ojp.usdoj.gov/bjs.

- **Crime Prevention Studies**, edited by Ronald V. Clarke (Criminal Justice Press, 1993, et seq.). This is a series of volumes of applied and theoretical research on reducing opportunities for crime. Many chapters are evaluations of initiatives to reduce specific crime and disorder problems.

- **Excellence in Problem-Oriented Policing: The 1999 Herman Goldstein Award Winners.** This document produced by the National Institute of Justice in collaboration with the Office of Community Oriented Policing Services and the Police Executive Research Forum provides detailed reports of the best submissions to the annual award program that recognizes exemplary problem-oriented responses to various community problems. A similar publication is available for the award winners from subsequent years. The documents are also available at www.ojp.usdoj.gov/nij.

- **Not Rocket Science? Problem-Solving and Crime Reduction**, by Tim Read and Nick Tilley (Home Office Crime Reduction Research Series, 2000). Identifies and describes the factors that make problem-solving effective or ineffective as it is being practiced in police forces in England and Wales.

- **Opportunity Makes the Thief: Practical Theory for Crime Prevention**, by Marcus Felson and Ronald V. Clarke (Home Office Police Research Series, Paper No. 98, 1998). Explains how crime theories such as routine activity theory, rational choice theory and crime pattern theory have practical implications for the police in their efforts to prevent crime.

- **Problem Analysis in Policing**, by Rachel Boba (Police Foundation, 2003). Introduces and defines problem analysis and provides guidance on how problem analysis can be integrated and institutionalized into modern policing practices.

- **Problem-Oriented Policing**, by Herman Goldstein (McGraw-Hill, 1990, and Temple University Press, 1990). Explains the principles and methods of problem-oriented policing, provides examples of it in practice, and discusses how a police agency can implement the concept.

- **Problem-Oriented Policing and Crime Prevention**, by Anthony A. Braga (Criminal Justice Press, 2003). Provides a thorough review of significant policing research about problem places, high-activity offenders, and repeat victims, with a focus on the applicability of those findings to problem-oriented policing. Explains how police departments can facilitate problem-oriented policing by improving crime analysis, measuring performance, and securing productive partnerships.

- **Problem-Oriented Policing: Reflections on the First 20 Years**, by Michael S. Scott (U.S. Department of Justice, Office of Community Oriented Policing Services, 2000). Describes how the most critical elements of Herman Goldstein's problem-oriented policing model have developed in practice over its 20-year history, and proposes future directions for problem-oriented policing. The report is also available at www.cops.usdoj.gov.

- **Problem-Solving: Problem-Oriented Policing in Newport News,** by John E. Eck and William Spelman (Police Executive Research Forum, 1987). Explains the rationale behind problem-oriented policing and the problem-solving process, and provides examples of effective problem-solving in one agency.

- **Problem-Solving Tips: A Guide to Reducing Crime and Disorder Through Problem-Solving Partnerships** by Karin Schmerler, Matt Perkins, Scott Phillips, Tammy Rinehart and Meg Townsend. (U.S. Department of Justice, Office of Community Oriented Policing Services, 1998) (also available at www.cops.usdoj.gov). Provides a brief introduction to problem-solving, basic information on the SARA model and detailed suggestions about the problem-solving process.

- **Situational Crime Prevention: Successful Case Studies**, Second Edition, edited by Ronald V. Clarke (Harrow and Heston, 1997). Explains the principles and methods of situational crime prevention, and presents over 20 case studies of effective crime prevention initiatives.

- **Tackling Crime and Other Public-Safety Problems: Case Studies in Problem-Solving**, by Rana Sampson and Michael S. Scott (U.S. Department of Justice, Office of Community Oriented Policing Services, 2000) (also available at www.cops.usdoj.gov). Presents case studies of effective police problem-solving on 18 types of crime and disorder problems.

- **Using Analysis for Problem-Solving: A Guidebook for Law Enforcement**, by Timothy S. Bynum (U.S. Department of Justice, Office of Community Oriented Policing Services, 2001). Provides an introduction for police to analyzing problems within the context of problem-oriented policing.

- **Using Research: A Primer for Law Enforcement Managers**, Second Edition, by John E. Eck and Nancy G. LaVigne (Police Executive Research Forum, 1994). Explains many of the basics of research as it applies to police management and problem-solving.

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