ALASKA LEGISLATURE COMMITTEE FILES, 2003-2006 8672
11758 SENATE HEALTH,EDUCATION & SOCIAL SERVICES

SB

68

ALASKA STATE LEGISLATURE

Senate
Labor & Commerce
Committee
•
Senate
State Affairs
Committee

While in Session
State Capitol
Juneau, Alaska 99801
(907) 465-3822
Fax: (907) 465-3756
•
While in Anchorage
716 West 4th Avenue
Anchorage, Alaska 99501
(907) 269-0144
Fax: (907) 269-0148

SENATOR BETTYE DAVIS

Senator_Bettye_Davis@legis.state.ak.us
www.akdemocrats.org

Senator Fred Dyson, Chairperson
Health, Education and Social Services
State Capitol Building
Juneau, Alaska 99801

Dear Senator Dyson,

This is a request for a HESS committee hearing on SB 68, an act relating to newborn hearing screening. I have attached a bill packet for this purpose.

Please, feel free to contact me if you or your staff needs any further information.

Sincerely,

Bettye Davis

Senator Bettye Davis

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SENATOR BETTYE DAVIS

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Sponsor Statement for SB 68
Sponsored by Senator Bettye Davis

SB 68 will make infancy hearing testing mandatory for all babies born at a medical facility or as soon after birth as they see a physician.

Alaska has 10,000 births each year. Statistically, 30-40 of these births will have some form of congenital hearing loss. However, statewide, only 80% of the infants born each year are being tested for hearing loss. The children born with congenital hearing loss who are not detected at birth are usually not detected until they are 18 months to three years of age. The cost for treating a child who does not have their hearing loss detected early is an estimated $420,000 per child. The cost of doing the screening at birth is $20-$60.

When hearing loss is not detected until the child is 18 months to 3 years of age, irreparable harms occur. There is significant impact not only on language and speech abilities, but also on cognitive and psychosocial behaviors. Recent studies have shown that upon entering kindergarten, children who have their hearing loss detected before 6 months of age are 1-2 years ahead of children who have their hearing loss detected after 6 months of age.

SB 68 would require that all infants have their hearing tested at birth or as soon as possible thereafter. In addition, if the infant has a negative result for the hearing screening, they are required to be given a follow-up test, and the parents are to be notified of the results.

I urge your support of SB 68.

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SENATOR BETTYE DAVIS

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www.akdemocrats.org

Sectional Analysis SB 68
Sponsored by Senator Bettye Davis

Section 1. 47.20.095 (a). The physician at the birth of the child, or the person attending to the newborn child, shall perform a hearing test on the child.unless there is a medical reason to not test the child.

47.20.095 (b). If the hearing test indicates that there may be hearing loss, the child shall be referred to get follow up tests done and the parents shall be notified of the results and the implications of that.

47.20.095 (c). The department shall determine the protocols for administering the hearing tests.

Why is Mandatory Newborn Hearing Screening and Reporting So Important?

1. Everyday, 33 babies (or 12,000 each year) are born in the United States with permanent hearing loss, or 3 in every 1,000 births. In Alaska, approximately 10,000 babies are born each year and according to statistics 30-40 will likely have some type of congenital hearing loss.

2. The evidence for the benefits, practicability, and cost-efficiency of universal newborn hearing screening is so compelling that 38 other states have passed legislative mandates requiring that newborns be screened for hearing loss.

3. Hearing impairment is the most common disability in newborns, with a higher incidence than Cerebral Palsy, Down Syndrome, and severe metal retardation.

4. Hearing impairment is approximately 30 times more prevalent than PKU and hypothyroidism, screened through the metabolic disorder screening programs, and mandated by law in all 50 states.

5. The cost of identifying a newborn with hearing loss is less than 1/10th the cost of identifying newborns with metabolic disorders such as PKU and hypothyroidism, for which screenings are required in every state. For most birthing hospitals, the cost for newborn hearing screening per child is between $20-$60 and continues to decrease. Many birthing facilities in Alaska, implementing newborn hearing screening voluntarily, include the cost in the total labor and delivery package cost.

6. Children not detected at birth or soon after, will not be detected, on average, until 2-3 years of age, and the most critical period for speech and language development is from birth to three years of age.

7. When children are not identified and served early, special education for a child with hearing loss may cost an additional $420,000, and deafness has an estimated lifetime cost of approximately $1 million per individual. These savings in special education costs will pay for universal newborn hearing screening many times over.

8. If left undetected, hearing loss can impair a child's language, speech, psychosocial and cognitive development. Recent research has compared children with hearing loss who receive early intervention and amplification (i.e. hearing aids) before 6

months of age versus after 6 months of age. By the time they enter first grade, children identified earlier (prior to 6 months of age) are 1-2 years ahead of their later-identified peers in language, cognitive, and social skills.

9. If it remains undetected, even mild hearing loss or hearing loss in only one ear has substantial detrimental consequences. For example, research sho that children with hearing loss in one ear are ten times as likely to be held back at least one grade compared to a matched group of children with normal hearing.

10. The American Academy of Pediatrics, the National Institutes of Health, the American Academy of Audiology, the Joint Committee on Infant Hearing, and the National Association of the Deaf have recommended that all babies be screened for hearing loss before they leave the hospital.

11. To date, 23 of 23 communities in alaska with birthing hospitals have voluntarily implemented universal newborn hearing screening programs. The majority of the screenings are performed in hospitals by nurses prior to discharge. However, in some smaller communities, public health nurses perform the screenings during home visits after hospital discharge. As of December 2003, the total number of newborns in Alaska that received hearing screening was approximately 80%.

12. Even though 80% sounds like a large number of Alaska's newborns, because newborn hearing screening is not mandated and the screening, reporting and follow-up is not institutionalized in facilities across the state, Alaska remains in the "unsatisfactory" category when rated nationally.

13. Due to Alaska's large geographic size, high staff turnover occurs as well as difficulty recruiting and keeping healthcare providers in many of it's more rural communities. And because the screening and reporting is not mandated, it is often times not a priority at birthing facilities and among providers. As a result, it is increasingly difficult to keep nurses and other providers with the knowledge necessary to maintain a newborn hearing screening program. Gaps in screening occur in hospitals, thus babies miss their screening and are not followed for high risk factors.

State Summary Statistics: Universal Newborn Hearing Screening		
(Numbers as of January 2004)		
State	Total # of annual births	Percent Screened
AK	9,938	81.1%
AL	58,967	95.0%
AR	37,437	91.3%
AZ	87,837	95.0%
CA	529,357	66.0%
CO	68,418	97.0%
CT	42,001	99.8%
DC	,498	98.0%
DE	11,090	98.0%
FL	205,579	98.0%
GA	133,300	98.0%
HI	17,477	98.0%
IA	37,559	80.0%
ID	20,970	97.0%
IL	180,622	98.0%
IN	85,081	99.9%
KS	39,412	95.0%
KY	54,233	99.5%
LA	64,872	93.2%
MA	80,645	99.7%
MD	72,323	85.2%
ME	13,559	98.0%
MI	129,967	95.0%
MN	68,025	92.0%
MO	75,251	97.7%
MS	41,518	98.0%
MT	11,049	95.0%
NC	117,335	98.0%
ND	7,757	92.0%
NE	25,383	97.0%
NH	14,442	90.0%
NJ	114,751	98.3%

NM	27,753	94.0%
NV	32,571	97.0%
NY	251,415	96.7%
OH	148,720	33.0%
OK	50,387	94.0%
OR	45,192	94.0%
PA	142,850	95.7%
RI	12,894	99.6%
SC	54,570	98.1%
SD	10,698	85.6%
TN	77,482	90.0%
TX	372,450	99.0%
UT	49,182	98.2%
VA	99,672	99.7%
VT	6,387	95.0%
WA	79,028	85.0%
WI	68,560	95.0%
WV	20,712	95.0%
WY	6,550	98.0%
Data collected by NCHAM from State EHDI Coordinators in April 2004.		

Last Modifed: 06/29/2004

SB

70

STATE OF ALASKA

DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

Frank H. Murkowski, Governor

P.O. BOX 110300
DIMOND COURT HOUSE, 6TH FLOOR
JUNEAU, ALASKA 99811-0300
PHONE: (907)465-3600
FAX: (907)465-6735

February 1, 2005

The Honorable Fred Dyson
Chair, Senate Health, Education,
& Social Services Committee
State Capitol, Room 121
Juneau, AK 99801-1182

Dear Chairman Dyson:

The Department of Law respectfully requests that SB 70 ("An Act relating to controlled substances regarding the crime of manslaughter; endangering the welfare of a child; misconduct involving a controlled substance; and providing for an effective date") be scheduled for a hearing in the Senate Health, Education, and Social Services Committee. A copy of the bill and fiscal notes are attached.

Attached to this letter are several documents related to the health and safety hazards presented by chemicals commonly used to manufacture methamphetamine and methamphetamine itself.

Annie Carpeneti, AAG with the Department of Law in Juneau will present the bill. We anticipate telephonic testimony from Detective Kornchuck, Anchorage Police Department. Captain Al Storey or a representative from the Alaska State Troopers may testify live. A special agent for the DEA may also be available to testify telephonically.

Sincerely,

GREGG D. RENKES
ATTORNEY GENERAL

By: Randy Ruaro (for)
David Marquez
Chief Assistant Attorney General

Cc: w/attachments
DPS / DOA / DOC / DHSS

SB70

FRANK H. MURKOWSKI
GOVERNOR
GOVERNOR@GOV.STATE.AK.US

P.O. BOX 110001
JUNEAU, ALASKA 99811-0001
(907) 465-3500
FAX (907) 465-3532
WWW.GOV.STATE.AK.US

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

January 20, 2005

The Honorable Ben Stevens
President of the Senate
Alaska State Legislature
State Capitol, Room 111
Juneau, AK 99801-1182

Dear President Stevens:

Under the authority of art. III, sec. 18, of the Alaska Constitution, I am transmitting a bill that would make it manslaughter for a person to manufacture or deliver a controlled substance in violation of Alaska's drug laws if a person dies from ingesting the substance. The bill also would make it a class C felony to manufacture or attempt to manufacture methamphetamine in building where one or more children reside. It also would raise the penalty for possessing methamphetamine in solution with intent to extract methamphetamine salts from it.

In *Whitesides v. State,* 88 P. 3d 147 (Alaska App. 2004), the court held that the sentence for a person convicted of selling a controlled substance to another, when the other person dies as a result of ingesting the illegal substance, should not be enhanced by the occurrence of death. The court found that death caused by the controlled substance is not an aggravating factor under current law. This bill would provide that if a person manufactures or delivers a controlled substance that causes death, the person may be prosecuted for manslaughter.

According to the Alaska State Troopers Bureau of Alcohol and Drug Enforcement, the manufacture and distribution of methamphetamine in Alaska has reached alarming proportions. In 2003, a total of 66 clandestine labs were discovered in Alaska. Manufacturing methamphetamine is very dangerous and involves the use of ignitable, reactive, and toxic chemicals at the sites, which can result in explosions, fires, and toxic fumes. Children are particularly susceptible to the harmful effects of the chemicals used in the manufacture of methamphetamine.

COMMITTEE COPY

This bill would make it a class C felony to manufacture or attempt to manufacture methamphetamine in a building with reckless disregard that the building is a dwelling for one or more children. This prohibition would apply to apartment units and other rooms or offices that are a part of the building.

An offender who manufactures methamphetamine may possess the methamphetamine in an organic solution and extract from the solution powdered methamphetamine for distribution. This extraction may occur several times from the same solution. Under current law, possession of methamphetamine is misconduct involving a controlled substance in the fourth degree, a class C felony. This bill would increase the penalty for possession of methamphetamine in organic solution with the intent to extract powdered methamphetamine to the same level as that for possession of a precursor with the intent to manufacture methamphetamine, a class A felony. The extraction from methamphetamine in solution of the powdered form that it is commonly ingested is as dangerous as possession of a precursor to methamphetamine with the intent to manufacture methamphetamine. It should have the same penalty.

Increasing the consequences for dangerous behavior with controlled substances will provide a potent tool to discourage the sale and abuse of dangerous drugs such as methamphetamine.

I urge your prompt and favorable consideration of this proposal.

Sincerely yours,

Frank H. Murkowski
Governor

Enclosure

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 1
Bill Version: SB 70
(S) Publish Date: 1/21/05

Revision Date/Time (Note if correction):
Dept Affected: Public Safety

Title: Act relating to controlled substance; crimes of manslaughter and endandering welfare of a child
RDU: Alaska State Troopers
Component: AST Detachments

Sponsor: Rules Committee
Requester: Governor
Component No.: 2325

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimate of any current year (FY2005) cost: 0.0

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

Passage of this Act will have no fiscal impact on the Department of Public Safety. This Act addresses issues relating to the extreme dangers that surround the unlawful manufacture of methamphetamine. It makes it a crime of manslaughter for a person to manufacture or deliver a controlled substance in violation of Alaska law if a person dies as a result of ingesting the substance. It will make it a class C felony to manufacture or attempt to manufacture methamphetamine in a building where one or more children are present, and will increase penalties for processing methamphetamine in solution with the intent to extract.

Prepared by: Lieutenant Todd Sharp
Phone 907-269-4532
Division: Alaska State Troopers
Date/Time 1/20/05 2:01 PM
Approved by: Commissioner William Tandeske
Date 1/20/2005
Agency: Department of Public Safety

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 2
Bill Version: SB 70
(S) Publish Date: 1/21/05

Revision Date/Time (Note if correction):
Dept. Affected: Administration
Title: An Act relating to controlled substances
RDU: Legal and Advocacy Services
Component: Public Defender Agency
Sponsor: Rules Committee
Requester: Governor
Component No.: 1631

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services	0.0	0.0	0.0	0.0	0.0	0.0
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	0.0	0.0	0.0	0.0	0.0	0.0
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimate of any current year (FY2005) cost: 0.0
Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time	1	1	1	1	1	1
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

This proposed bill amends the crime of manslaughter to include deaths that are the direct result of ingesting drugs knowingly manufactured or delivered illegally. It also amends the crime of child endangerment to include a C felony for manufacturing methamphetamine in a building where children reside. It also raises to an A felony possession of methamphetamine in an organic solution. While the agency has seen a recent increase in appointments concerning methamphetmine cases, this proposed legislation is not expected to have a noticeable fiscal impact on the operations of the Agency.

Prepared by: Linda K. Wilson, Deputy Director
Phone: (907)334-4416
Division: Public Defender Agency
Date/Time: 1/20/05 1:18 PM
Approved by: Michael Tibbles, Deputy Commissioner
Date: 1/20/2005
Agency: Department of Administration

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 3
Bill Version: SB 70
(S) Publish Date: 1/21/05

Revision Date/Time (Note if correction):
Dept. Affected: LAW
Title: Methamphetamine / Drug Crimes Bill
RDU: CRIMINAL
Component: CDCO
Sponsor: Possible Governor
Requester:
Component No.:

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimate of any current year (FY2005) cost: 0.0
Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

This bill would make it manslaughter for a person to manufacture or deliver a controlled substance in violation of Alaska's drug laws if a person dies from ingesting the substance. The bill also would make it a class C felony to manufacture or attempt to manufacture methamphetamine in a building where children reside. It also would raise the penalty for possessing methamphetamine in solution with intent to extract methamphetamine salts from it. The Department of Law does not anticipate a significant fiscal impact from passage of this legislation.

Prepared by: Robert Meiners, Dep. Director
Phone: 465-5427
Division: Administrative Services
Date/Time: 12/22/04 2:55 PM
Approved by: Robert Meiners for Gregg D. Renkes, Attorney General
Date: 12/22/2004
Agency: Department of Law

(Revised 9/23/2004 OMB)

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: SB 70
() Publish Date:

Revision Date/Time (Note if correction):
Dept. Affected: Corrections
Title: "Act relating to controlled substance; crimes of manslaughter and endangering welfare of a child....."
RDU: Institutional Facilities
Component: Institution Director's Office
Sponsor: Rules Committee
Requester: Governor
Component No.: 524

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services	•	•	•	•	•	•
Travel	•	•	•	•	•	•
Contractual	•	•	•	•	•	•
Supplies	•	•	•	•	•	•
Equipment	•	•	•	•	•	•
Land & Structures	•	•	•	•	•	•
Grants & Claims	•	•	•	•	•	•
Miscellaneous	•	•	•	•	•	•
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts	•	•	•	•	•	•
1003 GF Match	•	•	•	•	•	•
1004 GF	•	•	•	•	•	•
1005 GF/Program Receipts	•	•	•	•	•	•
1037 GF/Mental Health	•	•	•	•	•	•
Other (Specify Type--Do not abbreviate)	•	•	•	•	•	•
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimate of any current year (FY2006) cost: 0.0
Check this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time	•	•	•	•	•	•
Part-time	•	•	•	•	•	•
Temporary	•	•	•	•	•	•

ANALYSIS: *(Attach a separate page if necessary)*

This bill addresses issues relating to the extreme dangers that surround the unlawful manufacture and distribution of methamphetamine. It makes it a crime of manslaughter for a person to manufacture or deliver a controlled substance in violation of Alaska law if a person dies as a result of ingesting the substance. The bill makes it a class C felony to manufacture or attempt to manufacture methamphetamine in a building where children reside. And makes it a class A felony to possess methamphetamine in an organic solution. The Alaska State Troopers (AST) report that there is no data readily available regarding the number of individuals who have died as a direct result of ingesting methamphetamine. In addition, there is no centrally recorded data available regarding the quantity of methamphetamine in an organic solution seized by law enforcement from around the state. (continued)

Prepared by: Sharleen Griffin, Acting Director
Phone: 465-4641
Division: Administrative Services
Date/Time: 2/15/05 10:49 AM
Approved by: Portia Parker, Deputy Commissioner
Date: 2/15/2005
Agency: Department of Corrections

ANALYSIS CONTINUATION

The AST estimates that children were present in a building where the manufacture of methamphetamine was occurring about 30% to 40% of the time. The AST recorded 55 manufacture of methamphetamine arrests and 62 methamphetamine labs in 2004; these statistics do not include local or municipal law enforcement seizures and arrests, or the potential for enhanced law enforcement efforts in this area. The department believes that the bill will have the effect of lengthening sentences for offenders convicted of unlawful activity covered by this legislation, but without better data, the direct fiscal impact to corrections is difficult to project. Thus, the fiscal impact to the Department of Corrections is indeterminate.

Chemical Exposures Associated with Clandestine Methamphetamine Laboratories

By

John W. Martyny, Ph.D., CIH
Associate Professor, National Jewish Medical and Research Center

Shawn L. Arbuckle
Industrial Hygiene Program Coordinator, National Jewish Medical and Research Center

Charles S. McCammon, Jr., Ph.D., CIH
Senior Industrial Hygienist, Tri-County Health Department

E. J. Esswein, MSPH, CIH, CIAQP
Senior Industrial Hygienist, National Institute For Occupational Safety and Health

Nicola Erb
Epidemiologist, National Jewish Medical and Research Center

Acknowledgements:

This project was sponsored, in part, by a grant from the Colorado Department of Public Safety and the United States Department of Justice through the Colorado Methamphetamine Program. In addition, the National Institute for Occupational Safety and Health provided a substantial amount of the laboratory analysis. The North Metro Task Force allowed us to sample at a number of their clandestine laboratory investigations and assisted in the Colorado Springs Police Department Sampling and the controlled manufacturing sampling. The Tri-County Health Department provided personnel and assistance during the sampling efforts and the Denver Police Department and Trinidad Police Department allowed us to conduct sampling at suspected methamphetamine laboratories within their jurisdictions. The Colorado Springs Police Department allowed us to conduct sampling during a controlled methamphetamine manufacture in their crime laboratory enabling us to test our sampling methodologies and to determine maximum chemical concentrations. Assistance was also provided by the Colorado Alliance for Drug Endangered Children and many of the emergency service agencies (police, fire, and EMS) in the Denver Metropolitan Area. The project personnel also wish to thank Lt. Lori Moriarty, Sgt. Jim Gerhardt, and Lynn Riemer for their help throughout the study.

Table of Contents

Introduction:

The State of Colorado as well as the nation face an unprecedented epidemic of clandestine methamphetamine drug manufacturing. Seizures of methamphetamine drug laboratories continue to rise putting police and fire first responders at risk for a variety of hazards. The number of seizures in Colorado has risen dramatically from 31 laboratories in 1998 to 455 laboratories in 2001. First responders and susceptible third parties, such as children, are at risk for exposures to the chemical hazards and the fire, explosion, and safety hazards inherent with clandestine manufacture of methamphetamine.

Unfortunately, very little is known regarding the specific exposure hazards faced by first responders and bystanders associated with illegal methamphetamine manufacture and lab seizure. As a result there is very poor information on which to establish appropriate medical treatment plans and healthcare providers are forced to provide generic, often expensive, and probably to some extent unnecessary medical testing.

The use of personal protective equipment (PPE) by emergency services and law enforcement personnel also vary widely by jurisdiction due to the lack of information regarding chemical exposures at the sites and the necessity for protection. Some jurisdictions use self-contained breathing apparatus and chemical-protective suits while other neighboring jurisdictions use no respiratory protection or chemical-protective suits at all. Other agencies switch from self-contained breathing apparatus to air-purifying respirators after the initial assessment while other agencies remain in the highest levels of protection. These variations are due to a lack of information from scientifically-based studies, relating to exposure risks while conducting these operations.

Even though many agencies use some form of PPE, there are increasing reports of emergency service and law enforcement personnel being injured while conducting investigations at clandestine methamphetamine laboratories. The Centers for Disease Control reported 59 events associated with methamphetamine labs where emergency services personnel were injured during the investigation between 1996 and 1999. The number of injured responders was 155 with most reporting respiratory irritation.[1]

Studies conducted by Dr. Jefferey Burgess[2,3] at the University of Washington investigated the symptoms reported by emergency responders during illegal methamphetamine laboratory seizures. Responders predominately reported general irritant symptoms, but least one case of phosphine gas exposure was reported. In a questionnaire study of emergency responders, 53.8% reported at least one illness while conducting laboratory seizures with most symptoms appearing to be related to chemical exposure at the laboratory site. The primary symptoms reported were headache and mucous membrane irritation.

Although the predominant symptoms were irritant symptoms, a number of responders were found to have an accelerated drop in one second forced expiratory volume (FEV_1) that may have been related to work in drug laboratories. The majority of symptoms reported by officers occurred during the processing phase of the laboratory seizures but

this phase was also the phase in which the most time was spent in the laboratory area. The use of respiratory protection did seem to reduce the incidence of symptoms while investigating these laboratories. There has also been anecdotal evidence of exposure to methamphetamine causing permanent lung damage but the actual cases have not been reported in the literature.

This increase in illegal laboratory seizures and reported health effects has resulted in health concerns by the emergency services and law enforcement personnel responding to these incidents. Typical concerns expressed by first responders regarding exposures at clandestine methamphetamine laboratory seizures include:

- Was I exposed to something that can harm me?
- Could my exposures cause me health concerns?
- What personal protective equipment should I have been wearing during the lab seizure?
- When was it safe for me to remove my personal protective equipment?

Although the chemicals used in the production of methamphetamine are well known, first responders do not know which of these chemicals by themselves or in combination may be harmful and what routes of exposure present the most severe risks. Industrial hygienists commonly approach such problems by quantifying the actual exposures using air sampling, modeling, and in some cases teamed with occupational environmental medical specialists using biological markers (chemical traces in urine or blood, for example) to determine what the exposure has been. Major exposure assessment issues include individual chemical characteristics as well as potentially complex interactions of chemicals that might result in unusual and potentially very toxic mixtures.

This project was designed to determine the potential chemical exposures to law enforcement and emergency services personnel responding to clandestine methamphetamine laboratory seizures. The results of the project would be utilized to inform decisions regarding PPE, containment, and medical treatment of individuals involved with these responses.

The six goals of the study were to:

- Determine the primary chemical exposures of concern at clandestine drug laboratory seizures for both the responders and the children present at the laboratory site.

- Determine which phase of the response poses the highest risk for responders, what chemicals responders are exposed to, and to what concentrations they are exposed.

- Investigate the relationship between symptoms reported by the responders and the actual exposures measured at the site.

- Investigate how symptoms observed or reported in children that are present in clandestine drug laboratories, relate to the chemical exposures within the laboratory.

- Determine the appropriate types of personal protective equipment required for the various phases of drug lab seizures based on exposure assessments.

- Dete.mine the appropriate components of a medical monitoring program for first responders based on exposure assessments at illegal drug lab sites.

Project Methodology:

Laboratory Methods

To perform the exposure-monitoring component of this project, it was necessary to:

1. Obtain the samples quickly since there would be a limited time for sampling.
2. Hold samples without loosing information until they could be shipped to the laboratory for analysis.
3. Obtain enough sample so that the laboratory limit of detection for the chemicals of interest were lower than the levels of concern for that chemical.
4. Collect the samples with a minimum of personnel effort.

Based on these criteria, air samples were collected for general hydrocarbons, phosphine, inorganic acids, iodine, and metals. In addition, surface samples were collected for methamphetamine and its precursors. The samples for general hydrocarbons were collected using two different approaches. The first approach involved the use of a summa canister, which is a stainless steel evacuated cylinder that can be used to obtain a volume of air immediately from the area in question. The canister was taken into the clandestine lab area and the valve opened allowing the tank to fill with the air present within the suspected laboratory. After the tank had filled, the valve was shut and the canister sent to Data Chem Laboratories in Salt Lake City for analysis. The samples were analyzed using a gas chromatograph combined with a mass spectrometer (GC/MS) by the United States Environmental Protection Agency (EPA) Method T0-15.

The second general hydrocarbon sampling method was conducted using a carbotrap tubes supplied by Data Chem Laboratories. Thermal desorption tubes consist of multi-layer charcoal sorbents through which a known volume of air is drawn using a flow-calibrated personal sampling pump. These samples were collected at a rate of approximately 50 cubic centimeters (cc) per minute. After sampling, the tubes were packaged in air-tight containers and shipped to Data Chem Laboratories for analysis. At Data Chem, the samples were thermally desorbed and analyzed using a GC/MS according to the EPA method T0-17.

Initial phosphine samples were collected on specially treated silica gel tubes using a personal sampling pump that had been calibrated to an approximate flow rate of 100 cc

per minute. The sample tubes were capped and sent to Data Chem Laboratories for analysis using the NIOSH Manual of Analytical Methods (NMAM) 6002. This analysis method uses a manual visible spectrophotometry method of analysis. Phosphine samples obtained during the hotel cook were collected using a 37 mm filter cassette containing a glass fiber filter and a mercuric chloride-treated filter. These samples were capped and sent to Data Chem Laboratories for analysis using OSHA Method 1003 which uses an ICP-AES analysis method.

Samples were collected for airborne iodine using standard charcoal tubes combined with a personal sampling pump calibrated to a flow rate of approximately 1.0 liters per minute (lpm). After sampling, these tubes were capped and sent to Data Chem Laboratories where they were analyzed by ion chromatography using NMAM 6005.

The inorganic acids samples were collected using a silica gel tube and a personal sampling pump calibrated to an approximate flow rate of 200 cc per minute. After sampling, the tubes were capped and sent to Data Chem Laboratories for ion chromatography analysis using NMAN 7903.

Samples for metals were collected using a 0.8 um, cellulose ester membrane filter and a personal sampling pump calibrated to a flow of approximately 2.0 lpm. After sampling, the filters were packaged and sent to Data Chem Laboratories where they were analyzed by inductively coupled argon plasma using NMAM 7300.

Wipe samples for methamphetamine were collected by wiping a specific area with a sterile four inch by four inch (4x4) gauze wipe. Prior to entering the suspected laboratory, the 4x4 wipes were individually placed into plastic centrifuge tubes. After entering the laboratory, the wipes were taken out of the tubes and wetted with several milliliters of isopropanol prior to sampling. An attempt was made to minimize cross contamination by using separate pairs of gloves or by wiping the gloves with isopropanol between sampling efforts. After sampling, the wipes were put back into the centrifuge tubes and sent to Data Chem Laboratories for analysis. The samples were analyzed using a NIOSH method under development at the laboratory, which enabled the analysis of the samples using GC/MS.

Sampling Scenarios

Four sampling scenarios were conducted during the investigation. An initial sampling scenario was conducted at the Colorado Springs Police Laboratory in order to determine the potential levels of chemicals that might be encountered in the field and to determine the effectiveness of the sampling methodology. In this instance, three different methods of methamphetamine manufacture were conducted using the facilities and laboratory hoods present in the police laboratory. Two variations of the red phosphorous method and one hypo-phosphorous cook were conducted. In each case, the sampling devices were installed into the hood where the cook was taking place and positioned so that the highest concentrations of chemicals would be collected.

For each type of cook, samples were taken for inorganic acids, phosphine, metals, and iodine. Summa canisters and thermal desorption tubes for organics were taken in one hood at the end of the cook when the methamphetamine was being dissolved in solvent. Wipe samples for methamphetamine were taken in all of the hoods prior to performing the cooks and after conducting the cooks in order to see if methamphetamine was released during the cook. It was expected that prior contamination did exist since methamphetamine had been manufactured in the laboratory prior to this event.

The second sampling scenario occurred during the investigation of individual clandestine methamphetamine laboratories by law enforcement officers. In these situations sample collection devices were brought into the suspected laboratory immediately after entry by law enforcement officials. Initially samples were taken for organics using both the summa canisters and the thermal desorption tubes. After the first several labs, the use of the summa canister was eliminated since the thermal desorption tubes provided adequate information. Initially samples for airborne iodine, phosphine, inorganic acids, and metals were collected at all of the sites. As the investigation progressed, sampling for elements (metals) was discontinued because sampling results were consistently below the limits of detection for the method. Later, sampling focused on acids, iodine, and phosphine in those laboratories that appeared to have been in operation in the recent past. Because environmental surface samples consistently showed positive results, wipe samples were always collected in each suspected laboratory.

The third sampling scenario involved controlled methamphetamine manufacture conducted in an abandoned house scheduled to be burned by the local fire department. This scenario was intended to simulate exposures during illegal methamphetamine manufacture in a residence. Two areas of the house were designated in which to conduct cooks. In one area, a red phosphorous method was utilized and in the other a hypo-phosphorous method was utilized. Samples were collected both in the area of the cook and at a distance from the cook in order to determine the movement of chemical exposures. Samples for phosphine, inorganic acids, iodine, and organics were taken at all sampling locations. In addition, real-time data for hydrochloric acid and phosphine were also obtained using an ITX Multi-Gas Monitor (Industrial Scientific Corporation) This meter provides real-time monitoring and data logging that can be used to determine chemical concentrations during the cook. Methamphetamine wipe samples were collected from specific locations that were measured to be 100 square centimeters. The samples were taken at three intervals; prior to starting the cooks, after the cooks, and after the salting out process.

The fourth scenario was conducted in a three-story hotel that was being demolished. This scenario was again intended to simulate exposures during an illegal methamphetamine cook using the red phosphorous method of manufacture. The cook was conducted in one room of the hotel and samples were collected in that room, in the bathroom, in the hallway, and in an adjacent room. The sampling methodologies utilized were the same as those used in the house during the third scenario with the exception of the phosphine sampling and the use of a real-time methamphetamine sampler called a Cozart RapiScan (manufactured by Dominion Diagnostics) that was employed during the cook.

Questionnaires

We initially planned to give questionnaires to all of the individuals present at each of the clandestine laboratory investigations as well as at training classes put on by the North Metro Task Force. The two questionnaires were developed and submitted to the National Jewish Institutional Review Board for approval. This approval was obtained but not until a large number of the clandestine laboratories had already been investigated. For this reason, the questionnaires were only given to participants at North Metro Task Force training sessions. They were handed out by North Metro staff and self-administered by participants in the training class. The questionnaires were collected at the end of the class and returned to National Jewish Staff.

Data Collection

All of the data collected during the study was put into Microsoft Excel Spread Sheets. The spread sheets and the raw data were kept on the computer of the Principal Investigator.

Project Results:

This study was initiated on January 1, 2003 and the research team was ready to respond to any methamphetamine labs by the second week of January, 2003. We purchased all necessary respiratory protection, personal protective equipment, sampling equipment, and established the necessary sampling protocols. The team collected samples at the Colorado Springs Police Laboratory where methamphetamine was manufactured under controlled conditions (laboratory hoods) to evaluate potential exposures. The team responded to a total of 16 suspected clandestine methamphetamine laboratories between January 14, 2003 and May 17, 2003. Samples were also collected at two controlled methamphetamine cooks conducted in an abandoned house prior to being destroyed by the Fire Department and at a hotel prior to demolition.

Current Occupational Health Criteria for Sampled Substances

The concentration results for the three primary chemicals for which we sampled were compared to the following standards for occupational exposures:

Compound	OSHA PEL	ACGIH TLV	NIOSH REL
Iodine	Ceiling 1.0 mg/m^3	Ceiling 1.0 mg/m^3	Ceiling 1.0 mg/m^3
Phosphine	0.4 mg/m^3	0.4 mg/m^3	0.4 mg/m^3
Hydrogen Chloride	Ceiling 7.0 mg/m^3	STEL Ceiling 3.0 mg/m^3	Ceiling 7.0 mg/m^3

OSHA PEL – Occupational Safety and Health Admin. Permissible Exposure Level
ACGIH TLV – American Conference of Governmental Industrial Hygienists Threshold Limit Value

NIOSH REL – National Institute of Safety and Occupational Health Recommended Exposure Level
STEL – Short Term Exposure Level

Clandestine Laboratories Sampled

The first sampling effort at a clandestine laboratory was conducted on January 14, 2003 at a local hotel in Westminster, CO. This laboratory was in a hotel room that had likely been used for several days. Chemicals were present but no cook was in progress during our sampling. The drug manufacturers were out of the room at the time of law enforcement entry.

The second sampling effort was conducted on January 15, 2003 in a private residence. According to law enforcement officers, this home had been used as a drug lab until December 2002. The Health Department had ordered the home vacated and the residence had been closed for some time.

A third sampling effort was conducted on January 16, 2003 in an apartment. This apartment had been identified, by law enforcement officers, as a methamphetamine laboratory and was reportedly remediated.

The fourth sampling effort was conducted on January 17, 2003 in a mobile home. This facility also had some chemicals but the laboratory was not in operation at the time of law enforcement entry.

The fifth sampling effort was conducted at a residence where the methamphetamine laboratory was in a bedroom on the 2nd floor. An area in the bedroom had been used for cooking as evidenced by glassware and stains in the area.

The sixth and seventh sampling efforts were conducted at a trailer park and a motel room. The two laboratories were related since a cook had apparently been conducted at the motel room and then the chemicals moved to the trailer park. The cooking area at the motel had significant iodine staining and it was reported, by law enforcement officers, that there had been an associated explosion.

The eighth sampling effort was conducted in another trailer park. The laboratory was located in the kitchen where a number of chemicals were found as well as significant iodine staining. It was reported that the cook had occurred on the Friday before the Monday raid.

The ninth sampling effort was conducted in a house. There was no evidence of cooking at this house but chemicals and glassware were present. It appeared that the house may have been entered prior to the cook actually occurring.

The tenth site that was sampled was a home. It appeared that a cook had occurred in this home since there were many coffee filters with residues that appeared to be related to

methamphetamine manufacture at the location. Upon entry, there was a smoky haze inside of the house but no iodine stains were observed.

Suspected laboratory number twelve was located in at home. Iodine stains and burns were evident in the basement bedroom of the home. Iodine staining was not visible on the walls or ceiling, making it difficult to determine if the home was used to cook methamphetamine. This home may have been used as a small day care facility for family members.

The thirteenth laboratory sampling effort was located in a trailer. Glassware and chemicals to manufacture methamphetamine, and drug paraphernalia were discovered on scene, but no signs of iodine stains or a cook were visible.

The fourteenth site was a trailer. Although no visible smoke or discernable smell was present, officers reported having headaches after removing the suspects from the home. Additionally, officers did not wear any personal protective equipment while in the trailer. Although chemicals to manufacture methamphetamine and drug paraphernalia were present, it is unclear if methamphetamine was manufactured in this residence.

Laboratory number fifteen was located in a residence. This laboratory was unique in this study because the lab was discovered after firefighters extinguished a fire in the residence. Chemicals and glassware used to manufacture methamphetamine were discovered throughout the home.

The sixteenth laboratory was a vehicle that was acquired by the Trinidad Police Department. Officers frequently reported headaches and rashes on the arms and forehead after riding in the vehicle.

In general, none of the suspected clandestine methamphetamine laboratories sampled were active laboratories at the time of sampling. In no case did we enter a structure where chemical agents used for the illegal manufacture of methamphetamine were actually being used at the time of entry. In fact, in most cases there was no evidence that a cook had taken place within the last few hours. This was not totally unexpected since some effort is made by North Metro Task Force officials to conduct law enforcement operations at a time where exposure to chemicals is minimized. However, due to the status of the suspected laboratories during our sampling effort, the chemical exposure results that we have obtained from these laboratories should be considered to be the minimum exposures expected during these operations. Chemical exposures at an operational laboratory would be expected to be much higher as our results from the Colorado Springs Police Department and the controlled cooks have shown.

Colorado Springs Police Department Results:

The sampling scenario conducted at the Colorado Springs Police Department was designed to test the sampling methodologies that had been developed and to determine the order of magnitude of the maximum exposures expected at an operating methamphetamine laboratory. Samples were taken for phosphine, metals, inorganic acids, iodine, organic compounds and methamphetamine.

This sampling was conducted on January 10, 2003 in the criminology laboratory located at the police station. Three methamphetamine cooks were conducted at the facility using a street variation of the Red "P" Method, a DEA laboratory variation of the Red "P" Method, and a hypophosphorous acid method. All of these cooks were conducted in laboratory hoods and samples were taken so as to obtain worst-case samples. Since the hoods were in operation for much of the time during sampling, the results may not be actual worst-case for the process but, rather worst-case under those conditions.

Inorganic Acid Results

The acid scan that was conducted determined the presence of hydrofluoric acid, hydrochloric acid, hydrobromic acid, phosphoric acid, nitric acid, and sulfuric acid. One concern regarding the methodology used was that the blanks submitted with the actual samples were found to contain low levels of nitric and sulfuric acids. In addition, all of the acids, except hydrobromic, for which we tested were found to be present at the Colorado Springs cooks, even though these acids were not utilized in the cooking process and even though they would not be expected to be present. This may not be a surprise since these tests were conducted in laboratory hoods that have likely been used to contain acids in past experiments. During this cook hydrofluoric acid was found in high concentrations in the laboratory variation of the Red"P" Method but so was phosphoric, nitric, and sulfuric. That particular sample appears to have been contaminated either by acids in the hood or as a background artifact in the silica gel tube. In addition, no phosphoric acid was found in the hypophosphorous acid method, which was somewhat of a surprise.

The primary acid concentrations found at the Colorado Springs Police Department were as follows:

Inorganic Acid Results from the Colorado Springs Police Dept. Methamphetamine Cook

Manufacturing Process	Sulfuric (mg/m^3)	Hydrochloric (mg/m^3)	Phosphoric (mg/m^3)
Street method hood cook	0.02	16.9	ND
Street method hood extraction	ND	ND	ND
Lab Method	0.07	4.5	ND
Hypophosphorous method	0.04	0.12	ND
Street Method salting out	0.04	2.36	ND
Blank	ND	ND	ND
Blank	0.021	ND	ND

The highest acid levels were found during the Street Red "P" Cook. The primary acid found was hydrochloric acid. This is no surprise since hydrochloric acid is used during the salting out portion of the process. It was somewhat of a surprise that hydrochloric acid was found during the cooking phase of both the red phosphorous cook and the hypophosphorous cook. It is believed that the production of hydrochloric acid was likely due to the use of ephedrine chloride for the cook.

The salting out phase was found to generate high levels of hydrogen chloride even though the use of the hydrogen chloride was much more controlled that it would have been in a home laboratory. The current American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Level Value (TLV) for hydrochloric acid is approximately 3.0 mg/m^3 and is a ceiling value meaning that it can't be exceeded for any amount of time. Levels measured at the controlled cooks ranged from slightly below the current allowable level to approximately five times the allowable level. During an actual cook in a house where poor ventilation is present and generation methods are not as controlled, it is likely that acid levels will be significantly higher than those observed in this experiment.

Phosphine Sampling Results

The results of the samples taken for phosphine were as follows:

Phosphine Samples Collected at the Colorado Springs Police Dept. Cooks

Manufacturing Process	Phosphine (ug/m^3)
Street Cook	433.6
Street Extraction	489.4
Lab Cook	4842
Hypophosphorous Cook	ND
Blank	170

The phosphine concentrations ranged from a non-detect in the hypophosphorous cook to 4842 ug/m^3 during the laboratory red phosphorous cook. However, the blank for the laboratory samples was found to contain 170 ug/m^3 suggesting that actual phosphine levels were approximately 200 ug/m^3 lower than the levels reported by the laboratory. The ACGIH TLV for phosphine is approximately 420 ug/m^3 which is approximately what the laboratory is reporting in the samples, however the samples may have been at ½ of that concentration.

Iodine Sampling Results

The results of the iodine samples taken at the Colorado Springs Police Department were as follows:

Iodine Sampling Results at the Colorado Springs P.D. Laboratory	
Sample Location	**Iodine (mg/m^3)**
Street method hood	2.3
Lab method hood	37

The levels of iodine found in the air ranged from 2.3 mg/m^3 to 37 mg/m^3 during the actual cooks. The current TLV for iodine is a ceiling value of 1 mg/m^3 indicating that the levels of iodine found in the controlled cook would have exceeded the current standards by almost an order of magnitude. This was not a surprise since the color of the gases coming off of the cook suggested that iodine was being released at high levels.

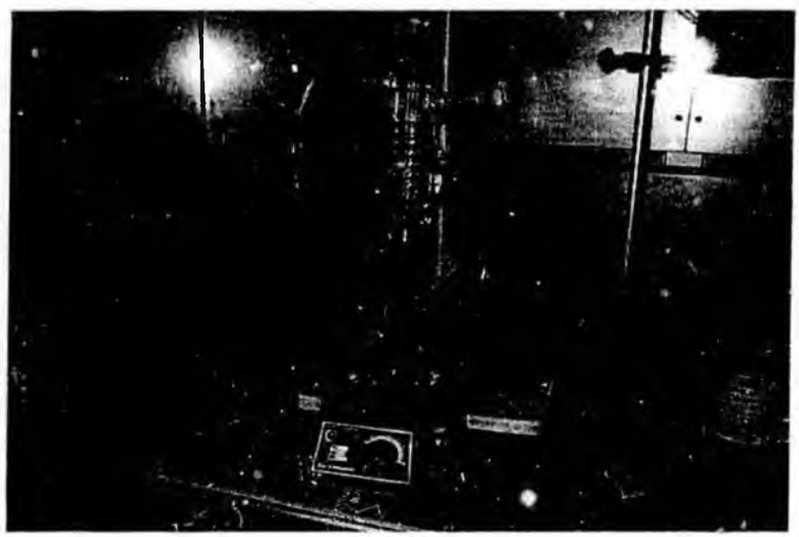

Figure 1: Iodine staining on condenser tube in laboratory hood.

Total Hydrocarbon Results

It was expected that the GC/MS results from this sampling effort would be difficult to interpret due to the fact that the sampling was conducted in a laboratory where a large number of solvents were routinely utilized. Large peaks were found for methyl chloride, isopropanol, chloroform, heptane, methanol, pentane, and a number of aliphatic hydrocarbons. Ethanol, acetone, benzene, toluene, and perchloroethylene were also found to be present in moderate amounts. These compounds would be expected to be common in a chemistry laboratory and none were considered unique to the

methamphetamine manufacturing. Chloroform was the solvent that was used to collect the methamphetamine and it was found at high levels in the sampling effort.

Methamphetamine Wipe Sample Results

A number of methamphetamine wipe samples were taken at the Colorado Springs Police Department laboratory cooks. The samples were taken in the upper portion of the hoods and were intended to determine the amount of drug that was liberated during the cook. The levels were influenced by the flow rate of the hood and, in fact, may have been lower than the levels actually produced. All of the hoods had prior methamphetamine levels due to previous cooks in this laboratory. The levels of methamphetamine measured after the cook ranged from 0.78 ug/100 cm^2 to 16 ug/100cm^2. These levels are well over the 0.5 or 0.1 ug/100 cm^2 levels that are currently being used as a standard by many states. The levels are lower, however, than we expected since the cook was confined to the hood. The lowest methamphetamine levels were found in the hood where the hypophosphorous method was utilized.

We also took wipes of the beaker used to manufacture the methamphetamine and the stirring rod for the cook. The stirring rod had 5200 ug of methamphetamine present and the beaker had 7900 ug of methamphetamine present. Both of these items would be expected to be high.

The results of the wipe samples were as follows:

Methamphetamine Wipe Sample Results from Colorado Springs Police Dept. Cooks

		Analytes in ug/wipe		
Sample Location	**Amphetamine**	**Methamphetamine**	**Ephedrine**	**Pseudoephedrine**
Street Hood Pre Cook	ND	5.4	0.7	2.8
Street Hood Post Cook	3.2	16	0.5	2.4
Lab Method Pre Cook	ND	0.3	0.2	0.3
Lab Method Post Cook	ND	0.8	ND	ND
Hypophosphorous Pre	0.4	7	0.2	1.6
Hypophosphorous Post	0.5	15	0.4	2.6

Drug Lab Response Results:

We responded to a total of 16 suspected clandestine methamphetamine drug laboratories. As previously mentioned, none of these clandestine drug laboratories were in operation at the time of our response. In fact, most of the labs to which we responded were small labs with limited amounts of chemicals present. In only one instance was it reported by law enforcement that a cook had occurred that day. Due to the type of laboratories sampled, it is expected that the levels of chemical exposure that were found would be at the minimum levels that would be expected. For this reason, the exposures that we documented during the laboratory response phase are not applicable to the exposures that should be expected at clandestine laboratories where cooks are in progress or have recently been conducted.

Inorganic Acid Scan Results

Samples for acids were taken in six of the sixteen laboratories. After the first few laboratories were sampled, it was determined that we would not expect airborne acid to be present unless an actual cook was in progress or had recently been in progress. Initially samples were taken at all of the laboratories but when sample results were consistently below the level of detection, the collection of acid samples was discontinued unless an actual cook was encountered.

Hydrogen chloride was detected in only two of the clandestine labs sampled. In both cases, these were mobile homes. It is not clear that a laboratory had been recently in operation at either of these locations and the levels of acid found were very low (0.007 mg/m^3 and 0.2 mg/m^3). These low levels may suggest that a cook had occurred recently within the suspected laboratory. These results may also represent the lower level of detection for this method. The current ACGIH TLV for hydrogen chloride is a ceiling value of 3 mg/m^3 (2 ppm).

Phosphine Sampling Results

Phosphine is a gas that is liberated during the cooking phase. It is an extremely reactive gas and would not be expected to be present unless a cook was actually occurring. We sampled for phosphine at three of the suspected laboratories and did obtain a positive sample from one lab. The sample result was 358.6 ug/m^3 which we considered to be relatively high. Since a previous blank had come back with a result of 170 ug/m^3, it is possible that this method of measuring phosphine is not accurate and that this sample was, indeed, a false positive. It is also possible that somehow an accumulation of phosphine was present within the laboratory.

Iodine Sampling Results

Samples for airborne iodine were taken at 10 of the suspected laboratories. In many of the laboratories, iodine stains were observed on carpeting and on the walls as illustrated below:

Figure 2: Iodine stains on carpet of suspected methamphetamine laboratory.

It was expected, therefore, that iodine exposures might be high in some of these facilities. The results of the sampling were as follows:

Iodine Sample Results	
Sample Location	**Iodine (mg/m^3)**
Hotel room	ND
Upstairs closet	ND
Main room	ND
Upstairs Bedroom	0.015
Main room	ND
Blank	ND
Hotel room	ND
Main room	0.023
Main room	0.007
Upstairs	0.0079
Main room	ND
Downstairs	ND

Although iodine stains were readily apparent in many of the suspected laboratories, elevated levels of airborne iodine were not present in all of the locations. The levels of airborne iodine that were found were well below the current ACGIH TLV of 1.0 mg/m^3 (0.1 ppm) as a ceiling value.

Total Hydrocarbon Results

GC/MS samples taken at the suspected laboratories were difficult to interpret due to the fact that hydrocarbons are commonly utilized in most homes. Peaks were found for isopropanol, methanol, pentane, propene, toluene, heptane and a number of aliphatic hydrocarbons. These compounds are commonly used and would be expected to be found in many homes. Many of the common solvents utilized by clandestine methamphetamine cooks do contain the compounds that were found, however, none of these compounds can

be considered to be unique to the production of methamphetamine. In addition, we did not observe any peaks that were exceptionally high except for the isopropanol that we used for a solvent for our methamphetamine wipe samples.

Methamphetamine Wipe Sample Results

Methamphetamine wipe samples were taken at all of the suspected clandestine laboratories. An attempt was made to take all samples in a 100 cm^2 area but in many cases that was not possible. For this reason, the wipe samples should be considered to be in ug/sample results. The results of the sampling efforts are as follows:

Wipe Samples Taken in Methamphetamine Labs

	Analytes in ug/wipe			
Sample Location	**Amphetamine**	**Methamphetamine**	**Ephedrine**	**Pseudoephedrine**
Blind in bedroom	1	120	ND	5.6
Closet Wall	0.36	160	ND	20
Blank	ND	0.2	ND	ND
Unknown	ND	5.9	ND	11
Unknown	2.9	370	ND	290
Unknown	0.14	12	ND	5.5
Counter top by sink	0.1	28	15	1300
Bathroom floor	0.2	9.2	ND	3.7
Floor by kitchen	0.2	39	0.84	150
Red box	0.2	9.1	ND	3.7
Wood table	1.3	920	ND	11
Window blinds	ND	2.1	ND	ND
Ceiling fan	2	94	0.22	0.47
Wall by sink	ND	1.1	ND	ND
Light above sink	0.41	49	15	26
Behind stove	ND	2	ND	0.96
Inside microwave	2	150	ND	0.86
Unknown	3	0.95	ND	ND
Unknown	ND	3.7	ND	ND
Unknown	ND	ND	ND	ND
Unknown	ND	ND	ND	ND
Unknown	0.11	7.4	ND	ND
Unknown	ND	3.4	ND	ND
Table on floor by pumps	0.92	520	0.72	81
Table on floor with splashs	0.31	29	1.6	150
Table in bedroom	ND	1.6	ND	0.5
Post in bedroom	ND	1.1	ND	4
Chandelier in stairwell	0.55	32	0.86	9
TV screen	ND	2.9	ND	4
Sofa	ND	0.84	ND	0.9
Air return	ND	4.1	0.2	0.5
Range hood	0.2	16	ND	0.8
Microwave inside	ND	0.4	0.71	52
Ruined microwave	0.2	9.5	ND	1

Banister	ND	0.8	ND	1.1
Kitchen stove	ND	1.8	6.6	520
Bath exhaust grill	8.6	1600	75	390
Burner in bedroom	0.5	16000	65	670
Ceiling fan	7.1	2500	34	1400
Bedroom dresser	ND	71	2	99
Microwave oven	33	1700	54	4300
Range hood	1	100	2	31
Ceiling fan	4.1	250	2	30
Return air grill	0.9	85	1	48
Night stand	ND	2800	9.3	37
TV table	ND	25	ND	12
Ceiling stain	ND	10000	37	20
Microwave oven	ND	2400	7.2	21
Night stand by bed	ND	62	ND	8
Blank	ND	ND	ND	ND
Bedroom desk	ND	13	5	390
Cold air return	0.5	37	ND	1
Glass pan in bedroom	ND	64	1200	51000
Microwave	ND	37	520	30000
Television screen	0.7	44	ND	4.4
Livingroom table	ND	85	ND	12
Bedroom blinds	ND	13	ND	2
Bedroom dresser	ND	17	ND	3.2
Stained kitchen ceiling	ND	14	ND	5.1
Kitchen counter top	ND	0.91	ND	2.1
Kitchen vent	1.2	24	2	8.4
Microwave	ND	33	7.3	690
Furnace return grill	2.7	320	22	38
Livingroom table	1.4	430	2	14
Inside refrigerator	ND	11	ND	2.8
kitchen stove	ND	12	ND	19
Sink counter	ND	180	120	5700
Return air vent	0.67	450	6.6	99
Recording studio table	ND	250	7.7	120
Kitchen stove	ND	790	280	4000
Livingroom table	ND	120	74	170
Microwave	ND	330	65	4000
Bedroom table	ND	64	2.9	130
Blank	ND	5.7	ND	45
Coffee table	2.4	14	ND	5.8
TV screen	34	300	96	170
Dresser top	ND	3.6	ND	ND
Heater	ND	1.2	ND	ND
Kitchen table	ND	ND	ND	ND
Inside Refrigerator	ND	ND	ND	ND
Kitchen counter	ND	ND	ND	ND
Floor stains	ND	ND	ND	ND
Shelf under window	23	94	17	73
Field Blank	ND	ND	ND	ND

N. Metro Ca:	ND	ND	ND	ND
Stove	ND	ND	ND	ND
Furnace return grill	ND	10	ND	ND
Bedroom Table	0.43	63	ND	ND
Field Blank	ND	ND	ND	ND
Stove	ND	4	ND	ND
Microwave	1.3	660	ND	8.2
Bedroom Table	ND	650	ND	ND
John's Car	ND	ND	ND	ND
Unknown	ND	14	ND	4.4
Unknown	0.96	78	ND	20
Unknown	ND	8.3	ND	23
Unknown	ND	ND	ND	ND
Drug Car	ND	ND	ND	ND
Drug Car	ND	ND	ND	ND
Drug Car	ND	ND	ND	ND
Drug Car	ND	ND	ND	ND
Drug Car	ND	ND	ND	ND
Drug Car	ND	ND	ND	ND

A total of 97 methamphetamine wipe samples were taken in the suspected methamphetamine laboratories. Six of the samples were blanks and only one of the blanks was positive (5.7 ug/wipe). Eighty three samples were positive with a range from 0.4 ug/sample to 16,000 ug/sample. The 16,000 ug/sample was taken in a hotel room where there had been an explosion that coated the ceiling with material. The wipe was of the material on the ceiling. It was apparent from the results that the drug car seized by the Trinidad Police Department had not been used as a methamphetamine laboratory and data from it was removed from analysis. The mean of the samples, assuming a non-detect to be 0.01 ug/sample, was 499 ug/sample. The median for all of the samples was 25 ug/sample. It should also be noted that in 10 out of the 14 labs tested, all of the samples taken in the suspected laboratory were positive.

Many of the locations where methamphetamine was found could not have been contaminated by material falling on a surface. Methamphetamine residue was found not only on tables, but also on air return grates and on ceiling fans. High levels of methamphetamine were also found in refrigerators, microwaves, and kitchen appliances, suggesting that food contamination is likely to occur. In general, all of the suspected clandestine methamphetamine laboratories had widespread, high levels of methamphetamine in many areas of the house or structure.

Results of the Controlled Methamphetamine Cook in a House:

This controlled methamphetamine cook was conducted in order to determine the likely exposures present during the cook itself. These exposures represent the potential exposures to the cook and family residing in the building where the manufacturing was conducted as well as the potential exposures to law enforcement officers entering a suspected lab, during an actual cook. It was expected that these results would generally

fall between the worst-case exposures generated in the Colorado Springs Police Department Laboratory and the results found during our sampling of the suspected labs that were not in operation at the time of the investigation.

The building was set up to utilize cooking components that a clandestine cook would be expected to use. The amount of methamphetamine made was, however, less that the amount normally made by cooks, possibly resulting in lower exposure levels. A general cook set-up is shown below:

Figure 3: Methamphetamine lab setup in abandon house.

Three separate controlled cooks were conducted during this portion of the project. A cook using the red phosphorous method was conducted in the kitchen of the abandoned house and two hypophosphorous cooks were conducted in the bedroom. The salting out operations for all of the cooks were conducted in the kitchen. Samples were taken for phosphine, iodine, and hydrogen chloride for all of the operations. Samples were taken in close proximity to the cook (generally immediately above the cook), at a distance away from the cook (10 feet to 15 feet distant), and in the breathing zone of the individuals conducting the cook.

Red Phosphorous Method Results

The results of the chemical sampling during the red phosphorous cook were as follows:

Location	Phosphine (mg/m^3)	Iodine (mg/m^3)	Hydrogen Chloride (mg/m^3)
Above Cook	> 1.32	1.6	14.6
Distant from Cook	0.37	0.29	0.17
Personal Sample	0.2	0.42	0.65

These results indicate that the red phosphorous method of cooking methamphetamine generated a significant amount of chemical contamination. The current ACGIH TLV for phosphine is 0.4 mg/m^3 (with a short term exposure limit (STEL) of 1 mg/m^3). The TLV for Iodine is a ceiling value of 1.0 mg/m^3 and the TLV for hydrogen chloride is a ceiling value of 3.0 mg/m^3. As the table above illustrates, the TLV was exceeded for all three chemical substances at the location of the cook and produced significant levels at some distance from the cook. Although the personal samples obtained from the cook were lower than the levels generated at the cook, it should be recognized that the cooks spent a minimal time in the cook area in order to limit exposure. This would not necessarily occur in an actual clandestine laboratory.

In addition, we believe that the hydrogen chloride exposure at this stage of the cooking process is the result of the use of ephedrine chloride in the cook. It is possible that if other substances were used, the hydrogen chloride content would be much less or missing.

The samples obtained using the above sampling methods resulted in a time-weighted average of the concentration of those chemicals during the entire time of the cook. The samples are therefore an average for a period of approximately two hours. The real-time equipment provided information on the peak exposures during that time. The results were as follows:

Location	Peak Phosphine (mg/m^3)	Peak Hydrogen Chloride (mg/m^3)
Close to Cook	4.6	56.2
Distant from Cook	0.67	1.52

In the vicinity of the cook, both the phosphine and the hydrogen chloride are above the current standards, with hydrogen chloride being significantly above the current ACGIH allowable ceiling value. Even at a distance from the cook, the levels measured were significant and approaching current occupational standards.

Hypophosphorous Method Results

The results of the chemical sampling conducted during the initial hypophosphorous cook were as follows:

Location	Phosphine (mg/m^3)	Iodine (mg/m^3)	Hydrogen Chloride (mg/m^3)
Above 1st Cook	0.2	0.19	3.4
Distant from 1st Cook	ND	NA	0.15
Personal Sample	0.28	ND	0.53
Above 2nd Cook	0.5	0.04	Trace
Distant from 2nd Cook	ND	0.03	0.27

ND = Not Detected
NA = Not Available

During this sampling period, the levels of phosphine, iodine and hydrogen chloride were generally less than the levels measured during the red phosphorous cook. Detectable levels of phosphine, iodine, and hydrogen chloride were, however, measured for each of the trials using this method. The exposure levels were generally below the current ACGIH TLV's although the hydrogen chloride concentration was slightly above the proposed ceiling TLV ceiling of 2.8 mg/m^3. This elevated hydrogen chloride level may also be due to the use of the ephedrine chloride during the process since no hydrogen chloride was present in the chemicals combined for the cook.

The peak levels of phosphine and hydrogen chloride were also as follows:

Location	Peak Phosphine (mg/m^3)	Peak Hydrogen Chloride (mg/m^3)
Close to Cook	1.19	9.9
Distant from Cook	0.56	5.3

These results again indicate that using the methods that we used, both phosphine and hydrogen chloride do exceed current occupational standards for a period of time. Since the hydrogen chloride is a ceiling PEL, this becomes very important to those exposed.

Hydrogen Chloride Results During Salting Out

During the salting out phase of the process, hydrogen chloride was found to be present at high levels. The time-weighted sample results from the laboratory samples revealed hydrogen chloride levels ranging from 1.2 mg/m^3 to 30.4 mg/m^3 in the areas of the process. The real-time monitor measured a peak hydrogen chloride level of 228 mg/m^3 which is orders of magnitude above the ACGIH ceiling TLV of 7.5 mg/m^3. These levels, even if existing for only a short period of time, could result in significant medical concerns for the individuals exposed to these levels.

Methamphetamine Wipe Sample Results

In order to determine the amount of methamphetamine contamination due to cooking methamphetamine, we took a number of wipe samples for methamphetamine. These samples were taken on both vertical and horizontal surfaces within the house. Samples were taken before and after the cook in order to determine the contribution of the cooks. Samples were taken in the area of both cooks. The following results were obtained from our sampling:

Cook Type	Location	Pre-Cook (ug/100 cm^2)	Post-Cook (ug/100 cm^2)
Red-P	Vertical wall 113" from cook	ND	10
Red-P	Horiz. Counter 6" from cook	ND	87
Red-P	Horiz. Counter 72" from cook	ND	28
Red-P	Floor 40" from cook	ND	15
Red-P	Wall 63" from cook	ND	20
Red-P	Floor 106" from cook	ND	14
Red-P	Horiz. Cupboard 72" from cook	ND	8.8
Red-P	Cabinet door in bathroom 15 ft. from cook	ND	1.5
Red-P	Cabinet shelf in above	ND	1.7
Hypo	Wall 34" from cook	ND	ND
Hypo	Wall 58 " from cook	ND	ND
Hypo	Wall 44 " from cook	ND	ND
Hypo	Floor 104" from cook	ND	ND
Hypo	Wall 128" from cook	ND	ND
Hypo	Floor in next room 124" from cook	ND	0.05
Hypo	Wall 69" from cook	ND	ND

ND = Not Detectable

As this table indicates, methamphetamine was not detected in any of the samples taken prior to conducting any of the cooks. The area was cleaned and sampled before any of the cooks and a 100 cm^2 area marked off for each area. The areas were sampled before the cook and after the cook. Figure 4 shows a typical vertical surface marked for sampling.

Figure 4: Marked wipe locations taken during controlled cooks.

Based on the information obtained, no methamphetamine was released during the hypophosphorous cook but substantial amounts were released during the red phosphorous cook. Levels were dramatically increased at significant distances from the process. It should also be mentioned that these increases in detectable methamphetamine were also due to only one small cook. It is significant that the increases were observed not only on horizontal surfaces but also on vertical surfaces. These data suggest that the

methamphetamine is generated as an aerosol that quickly is dispersed throughout the area of the cook. We believe that this may be the reason for the high levels of methamphetamine that have been found throughout all of the suspected clandestine laboratories that were sampled during this project.

In addition to the area wipes, we also obtained methamphetamine wipe samples from a number of the participants in the project. Wipe samples were taken from the front and head region of the protective suits worn by the cooks and the samplers. The samples were taken in the morning after the cook itself and then in the afternoon after the salting out process. The results of the sampling were as follows:

Time of Sample	Job Description	Methamphetamine (ug/sample)
AM	Hypo Cook	0.04
AM	Red P Cook	0.14
AM	Sampler	ND
AM	Red P Cook (second time)	ND
PM	Sampler	16
PM	Sampler	8.1
PM	Salting Out Cook	18
PM	Blank	0.12

These results indicate that exposure to methamphetamine while sampling and cooking in a methamphetamine lab may result in significant methamphetamine contamination on clothes and skin. The samples were not taken on hands or feet and, therefore, the levels of contamination are not due to touching or walking on spilled product but rather are due to contamination generated during the cook and sampling.

Results of a Controlled Methamphetamine Cook in a Motel:

This controlled methamphetamine cook was conducted in order to verify the data obtained in the previous controlled cook as well as to determine how the chemicals involved would spread in a hotel environment. This cook was conducted by chemists employed by the United States Drug Enforcement Agency who are well versed on the production of methamphetamine and conducted the cook in controlled manner. Therefore, the exposures during this cook were expected to be lower than the previous controlled cooks (Colorado Springs Police Department Laboratory and the controlled cook in the house).

Time weighted average sampling for airborne hydrochloric acid, phosphine, and iodine was conducted in four locations: the cook area, a nightstand across the room from the cook area, the bathroom, and outside the room in the hallway (Figure 5). Personal pumps were used to sample hydrochloric acid, phosphine, and iodine in the breathing zone of the 'cook'. The sampling was divided into two phases consisting of the 'cooking' phase, and the 'filtering/salting out' phase. New sampling media were provided at each location during each phase of the cook in order to better understand what concentrations of

compounds were present during each phase of the cook. Air sampling methods for hydrochloric acid and iodine were the same as used during the previous cooks. However, sampling for phosphine was conducted using the OSHA 1003 method, which was thought to provide both a lower detection limit and more accurate analytical results than the previously used NMAM 6005 method.

Airborne methamphetamine samples were also taken in the area of the cook and on the nightstand across the room using a sampling cassette containing a sulfuric acid treated glass fiber filter. Samples were taken in both locations during the 'cooking' phase and during the 'filtering/salting out' phases of the cook.

Real time sampling using the Industrial Scientific Corporation's ITX instruments was conducted in five locations including the cook area, a nightstand across the room from the cook area, the bathroom, the hallway by the door to the room of the cook, and approximately 10 feet down the hallway from the room where the cook occurred.

Wipe samples for methamphetamine were collected using 3 methods. The first method used to collect methamphetamine from surfaces by wiping a 4"x4" area with a sterile gauze wipe. Prior to entering the lab, the wipes were individually placed into plastic centrifuge tubes. After entering the laboratory, wipes were removed from the centrifuge tubes, wetted with a small amount of isopropanol alcohol and the area wiped. Samples were then placed back into the centrifuge tube. In order to minimize cross contamination, separate pairs of gloves were used between sample locations.

The second type of methamphetamine sampling was conducted using the Cozart RapiScan (manufactured by Dominion Diagnostics) immunoassay instrument. Although originally designed for detecting methamphetamine in saliva samples, this instrument provides a semi-quantitative screening analysis for the presence of methamphetamine in the field. The sampling pad was wetted with deionized water until the colorimetric indicator turned blue (an indication that the wipe has become saturated). Sampling was conducted by wiping the pad on a 1"x1" area adjacent to surface samples collected in the methamphetamine lab. Samples were then placed in the buffer solution tube and placed in a plastic bag for analysis at a later time.

The third methamphetamine wipe method was conducted using specially treated sampling paper to wipe 4"x 4" areas of the surface (also adjacent to the other wipe locations) which were then analyzed with the Barringer Sabre 2000 Ion Mobility Scanner. This instrument provides semi-quantitative screening analysis for the presence of multiple drugs including methamphetamine, marijuana, cocaine, and opiates.

Chemical Results During Cooking Phase

The results of the chemical sampling conducted during the 'cooking' phase were as follows:

Location	Phosphine (mg/m^3)	Iodine (mg/m^3)	Hydrochloric Acid (mg/m^3)
Close – On Cook Table	ND	0.008	0.43
Far Wall in Cook Room	ND	0.007	0.22
Bathroom	ND	0.011	0.36
Hallway	ND	ND	0.01
Personal Sample on Cook	ND	0.029	0.07

These results indicate that the concentrations of phosphine, iodine, and hydrochloric acid were well below the current ACGIH TLV levels. The results are presented as a time-weighted average of the concentration of those chemicals during the cooking phase of the meth cook. The sampling period was approximately 160 minutes. These levels were lower than the levels found during the previous methamphetamine cooks. The cook was also closely monitored by the DEA Cooks and more water was added to the reaction. These factors may have resulted in lower exposures.

Salting/Filtering Phase Chemical Results

The results of the chemical sampling during the salting/filtering phase of the cook were as follows:

Location	Phosphine (mg/m^3)	Iodine (mg/m^3)	Hydrochloric Acid (mg/m^3)
Close – On cook Table	ND	0.025	1.8
Far Wall in Cook Room	ND	0.021	1.5
Bathroom	ND	0.025	7.2
Hallway	ND	0.001	0.22
Personal Sample on Cook	ND	Pump Failed	0.32

These time-weighted-average results (192 minutes average sampling time) indicate that the concentrations of phosphine and iodine were well below the ACGIH TLV levels. Hydrochloric acid was, for the most part, slightly below the TLV levels in all locations except in the bathroom where it was more than two times the STEL Ceiling of 3 mg/m^3. This increase of concentration may be due to indoor currents moving air from the window towards the bathroom.

The peak levels of phosphine and hydrochloric acid as measured using the Industrial Scientific ITX real-time sampler occurred during the salting out phase of the cook. The following peak levels were found:

Location	Phosphine (ppm)	Hydrochloric Acid (ppm)
Close – On Cook Table	0.55	62.3
Far Wall in Cook Room	0.15	4.1
Bathroom	0.41	23.4
Table by Bathroom	0.38	38.0
Hallway	ND	0.4
Far Hallway Location	ND	0.2

These results indicate that phosphine concentrations can meet or exceed the ACGIH TLV of 0.3 ppm. Hydrochloric acid may also reach or significantly exceed the ACGIH Ceiling TLV of 2.0 ppm during the salting out phase of the cook. Additionally, the maximum concentration of hydrochloric acid can exceed the NIOSH IDLH (Immediately Dangerous to Life and Health) criteria of 50 ppm.

Figure 6: Hydrochloric acid fumes during the salting out phase of the cook

Methamphetamine Wipe Sample Results

Methamphetamine wipe samples were taken in 17 locations throughout the hotel room, the adjacent hallway, and in a separate room next door to the cook room. Samples were collected prior to conducting the meth cook, after the cooking phase, and again after filtering and salting out the methamphetamine. The following table summarizes the surface wipe sample results:

Location	Pre Cook (ug/100 cm^2)	Post Cook (ug/100 cm^2)	Post Salting Out (ug/100 cm^2)
60	0.12	0.05	130
61	0.15	0.1	ND
62	ND	ND	14.2
63	0.15	0.11	34.2
64	0.12	ND	30
65	0.13	0.07	31.6
66	0.17	0.09	50.7
67	ND	ND	41.5
68	ND	0.06	11.6
69	0.09	ND	120
70	1.36	0.27	7.97
71	ND	0.07	860
72	0.23	0.18	4.5
73	ND	0.11	180
74	ND	ND	16.6
75	ND	ND	16.2
76	ND	ND	1.94

These results indicate that methamphetamine was not present prior to the cook or, to any great extent, after the cooking phase. Significant amounts of methamphetamine were found after the salting-out phase of the cook in the room where the cook occurred – especially in the immediate area surrounding the cook.

Methamphetamine Wipe Sample Results Using Cozart Rapiscan and Sabre 2000 Instrumentation

Methamphetamine wipe samples were also taken using the Cozart and Sabre 2000 analyzers in most sampling locations in the meth lab, the adjacent hallway, and a wall opposite the cook in a separate room. We compared the results obtained from these instruments with those obtained using GC/MS analysis. The results were as follows:

Location	Post Cook GC/MS ug/100 cm^2	Post Cook Cozart Rapiscan Units	Post Cook Sabre 2000 (Bars)
60	130		6
61	ND	84	9
62	14	89	10
63	34		10
64	30	89	10
65	32		ND
66	51	85	7
67	42		6
68	12	88	7
69	120		ND
70	8	83	2
71	860	72	1
72	5	83	1
73	180	65	1
74	17		ND
75	16		ND
76	2	91	1

Blank data fields indicate that no sample was taken

These data show very little correlation between the three methods of measurement. Both the Cozart Rapiscan and the Sabre 2000 are direct reading instruments that are used primarily to determine the presence or absence of methamphetamine. There was not good agreement between the three methods which may be due to different concentrations at the exact location tested (each of the three methods were taken at different sites a few inches away from each other) or to inaccuracy problems with the direct –reading methods.

Methamphetamine Wipe Samples on PPE

In addition to sampling hard surfaces in the meth lab, we also sampled various locations on the personal protective equipment worn by DEA, law enforcement, and other personnel during each phase of the cook. The following table presents results of this testing:

Cooking Phase

Sample ID	Location	Result (ug/sample)
Person A	Upper torso (front)	ND
Person B	Upper torso (front)	ND
	Head	ND
Person C	Upper torso (front)	ND
	Head	ND
Person D	Upper torso (front)	ND
	Head	ND
Person E	Upper torso (front)	ND
	Head	ND
Person F	Upper torso (front)	ND
	Head	ND
Person G	Upper torso (front)	ND
	Head	ND
Person H	Hands	19.3
Person I	Hands	ND

Filtering Phase

Sample ID	Location	Result (ug/sample)
Person A	Upper torso (front)	43.6
	Hands	580
Person C	Upper torso (front)	16.7
Person D	Upper torso (front)	10.3
Person E	Upper torso (front)	6.43
Person I	Upper torso (front)	ND

Filtering Phase (After Decontamination)

Sample ID	Location	Result (ug/sample)
Person J	Upper torso (front)	10.2
	Hands	0.48
Person H	Upper torso (front)	0.81

Salting Out Phase

Sample ID	Location	Result (ug/sample)
Person A	Upper torso (front)	8.13
Person I	Upper torso (back)	4.91
	Arm (Post Decon)	ND
Person J	Upper torso (front)	14.5
	Upper torso (back)	2.54
Person K	Upper torso (front)	10.3
	Upper torso (back)	6
Person L	Upper torso (front)	9.01

These results suggest that methamphetamine is not aerosolized during the cooking phase of the process but becomes airborne during the filtering phase of the manufacturing process. Most of the samples taken after filtering were positive for methamphetamine. This may be due to the volatility of the methamphetamine in its base form. We also found that the wet decontamination procedure may move contamination onto the individual's body. Samples taken after the personnel were decontaminated revealed that levels of methamphetamine were still present on the personal protective equipment and on their hands.

Methamphetamine Results of Carpet Samples

Prior to the cook, a 20 foot long (2 foot wide) carpet was placed along the hallway from the meth lab door towards the exit of the building. After the meth cook, 4"x 4" carpet samples were cut from the carpeting and sent to Data Chem Laboratories for methamphetamine analysis. The amount of methamphetamine contained in the carpeting samples was as follows:

Distance from meth lab door	**Result ($ug/100cm^2$)**
0 feet	6.49
5 feet	12.4
10 feet	13
15 feet	3.93
20 feet	6.02

These results indicate that methamphetamine may be tracked out of the methamphetamine laboratory and down the hallway. This suggests that persons coming into a meth lab can spread methamphetamine contamination outside of the cooking area for a significant distance.

Airborne Methamphetamine Results

Four samples were taken to determine the amount of airborne methamphetamine released during the cook. These samples were taken at two locations in the hotel room. The results of this sampling effort were as follows:

Location	**During Cook (ug/m^3)**	**Filtering/Salting (ug/m^3)**
Close to cook	ND	5500
Far wall	ND	4200

These results indicate that the methamphetamine is not aerosolized during the cook itself but rather during the filtering and salting out phases. The amount of methamphetamine

reported is an average concentration for the period of 200 minutes during the last portion of the cook. It is possible that peak levels were substantially higher for specific periods during the cook.

Miscellaneous Clothing Sample Results for Methamphetamine

We also placed a stuffed bear approximately 12 inches from the cook area. After the cook was completed, the bear was sealed in a plastic bag and returned to the National Jewish laboratory. The pH of the bear was taken by pressing a piece of pH paper on the torso of the bear and then compared to the colorimetric chart. Results indicate that the bear had an extremely acid pH of 1.

Figure 2: A teddy bear was placed in the methamphetamine lab

Additionally, 100 cm^2 of the bear's front sweater and underlying 'fur' were removed and sent to Data Chem Laboratories for methamphetamine analysis. Results from the lab indicate that the sweater contained 3,100 ug/100cm^2 and the underlying fur had 2,100 ug/100cm^2 of methamphetamine. Children playing with such toys may be exposed to strong acids contained within the toy, causing severe burns to the skin and mucus membranes (such as the mouth or eyes), and also be exposed to significant concentrations of methamphetamine – particularly if the toy is placed in the mouth.

Questionnaire Results:

A total of 62 questionnaires were returned from participants in North Metro Task Force Training sessions. Forty-nine (79%) of the questionnaires were completed by law enforcement personnel, 8 (13%) by fire fighters, and the rest by public health, social services, and other groups. Fifty (81%) of the respondents were male and 19% were female. The average employee had worked in the current job description for 9.5 years and had been involved with an average of 11 clandestine laboratory investigations.

Sixty-six percent of the respondents had smelled odors they associated with the methamphetamine laboratory on at least one occasion, suggesting that there had been a potential for exposure at those laboratory investigations. Although a great number of personnel had smelled odors, only 26% of the respondents reported wearing respirators at laboratory investigations. Since not all of the respondents went into the laboratory areas,

it was expected that those that went into the laboratories would have a higher percentage of respirator users. Since 2 respondents did not say if they went into that actual laboratory areas, the total number of respondents for whom we have data was actually 60. Of those, 34 (57%) said that they entered the laboratory area and only 12 (35%) reported wearing respirators. Of the 26 (43%) individuals that stated that they did not enter the laboratory area, only 4 (15%) wore respirators.

Based on the information that we have regarding the possibility of becoming contaminated at a clandestine methamphetamine site, we might expect all individuals to be decontaminated at the site. Of the respondents that entered the laboratories, only 13 (38%) reported being decontaminated at the scene of the investigation. This would suggest that a number of individuals probably leave the site with some contamination.

Thirty-two (52%) of the 62 respondents reported at least one symptom associated with the investigation of clandestine methamphetamine laboratories. Thirty-eight percent (6) of the individuals wearing respirators reported at least one symptom and 59% (27) of the individuals not wearing respirators reported some symptoms. Of the 34 individuals that reported that they entered the laboratories, 20 (59%) reported at least one symptom. Eleven (42%) of the 26 individuals that reported that they did not enter the laboratory areas also reported at least one symptom. The primary symptoms were eye irritation, sore throat, cough, dizziness, and headache. These symptoms are suggestive of the irritational properties of the chemicals involved.

Project Discussion:

This project was conducted with the objective of answering the following questions:

- What are the primary chemical exposures of concern at clandestine drug laboratory seizures for both the responders and the children present at the laboratory site?

- During which phase of emergency services intervention are the responders exposed to the most chemicals and what are the levels of chemicals to which they are exposed?

- How do the symptoms reported by the responders relate to the exposures measured at the site?

- How do the symptoms observed in children present at clandestine drug laboratories relate to the chemical exposures within the laboratory?

- Based on the potential exposures at clandestine drug laboratory seizures, what personal protective equipment should be worn and during what phases should it be worn?

- How do the symptoms observed in children present at clandestine drug laboratories relate to the chemical exposures within the laboratory?

- Based on the potential exposures at clandestine drug laboratory seizures, what personal protective equipment should be worn and during what phases should it be worn?

- Based upon the potential exposures at the laboratory sites, what components should the medical screening program for responding personnel contain?

Although not all of these questions have been completely answered by this report, we do have a significant start on answering many of the questions. We have obtained valuable information on the types and magnitude of chemical exposures associated with cooks involving the red phosphorous method of methamphetamine manufacturing. We have also begun to determine how widespread the contamination during these cooks can become and how it may effect the persons conducting the cook, bystanders (including children and spouses) in the same building, and law enforcement personnel responding to the clandestine laboratory. Based on the information that has been gained from this project, we can shed light on a number of areas such as chemical exposures, expected symptoms, suggested personal protective equipment, and concerns regarding children exposed to these environments.

Chemical Exposures Associated with Clandestine Methamphetamine Laboratories:

Based on our sampling results, the chemical exposures of greatest concern produced during the manufacture of methamphetamine (especially using the red phosphorous method) consist of phosphine, iodine, hydrogen chloride, solvents, and the drug or its precursors. During the cooking phase, exposure levels of all of these compounds may meet or exceed current occupational exposure guidelines. This is especially true of exposures to phosphine, iodine, and hydrogen chloride. Each of these compounds may exceed the occupational exposure guidelines as set by the Occupational Safety and Health Administration (OSHA) and by the American Conference of Governmental Industrial Hygienists (ACGIH).

Phosphine:

During our sampling efforts at the Colorado Springs Police Department and at our own controlled cook, phosphine was generated during the red phosphorous methamphetamine cooks. Phosphine was produced at levels ranging from less than 0.17 mg/m^3 to 4.84 mg/m^3 during the cooking phase of the process. It was produced on all occasions during the cook and not just during an overheating event, as has been suggested in the past. No detectable levels (<0.17 mg/m^3) of phosphine were produced during the hotel cook suggesting that phosphine may be contained by sealing the cooking vessel and providing more water in the cook. The current ACGIH TLV for phosphine is 0.42 mg/m^3 on an

eight-hour time weighted basis with a STEL of 1.4 mg/m^3. The highest level observed was four times the STEL, suggesting that overexposure to phosphine is highly likely.

Phosphine is a severe pulmonary irritant that may cause dyspnea, headache, paresthesia, diplopia, tremor, jaundice, and pulmonary edema. Death from exposure to phosphine has occurred to persons exposed as it was being used as an insecticide.[4] Fatalities thought to be due to phosphine exposure were also linked to a methamphetamine laboratory in Los Angeles, CA where three persons were found dead in a motel room.[5] A laboratory investigator was also reported by Burgess [6] to have developed dizziness, dry cough, headache, and diarrhea, with a delayed onset of cough and dyspnea, after investigating a clandestine laboratory. The exposure was measured at 2.7 ppm phosphine and the duration of exposure was approximately 20 – 30 minutes. These levels are in the same range as the levels measured during our investigation. In workers, phosphine exposure has been shown to cause gastrointestinal, respiratory, and central nervous symptoms at concentrations that are less than 10 ppm.[7]

There are a number of reasons why phosphine intoxication may be more common than reported. Phosphine does have a detectable odor but it may be less readily identified with the presence of the more odorous hydrocarbons present during the cook. In addition, the pulmonary toxicity of phosphine may occur shortly after exposure or it may be delayed for 18 hours or more. These factors may result in fewer reported symptoms, although pulmonary irritation is a common complaint after a clandestine laboratory investigation.

Children and adults that are especially susceptible to pulmonary problems, such as asthmatics, individuals with chronic obstructive pulmonary disease, emphysema, etc. may show significantly greater effects to exposure levels of phosphine that are well below the concentrations allowed in the occupational environment. Unfortunately, at this time, there are no published data regarding acceptable levels of exposure for the general population to phosphine. The effects to these sensitive individuals are, therefore, not known at this time.

Iodine:

Airborne iodine concentrations during the Colorado Springs Police Department cooks were found to be very high, ranging from 2.3 to 37 mg/m^3. The levels produced during the controlled cooks ranged from 0.07 mg/m^3 to 1.6 mg/m^3. These levels are close to or exceeding the current ACGIH Ceiling TLV of 1.0 mg/m^3. The release of iodine during the red phosphorous cook becomes very obvious when the dark brown effluent is observed. In addition, the walls in many of the cook areas appear to have a brownish yellow stain that is reactive with spray starch forming a dark blue color indicating the presence of iodine.

Airborne iodine is a very heavy halogen vapor that is considered to be more irritating and corrosive than bromine or chlorine gases. In animal studies, iodine vapor has been found to be intensely irritating to mucous membranes, causing damage in both the upper and lower portions of the respiratory tract. Iodine vapors can be an intense irritant to the

eyes, mucous membranes and skin. It has a steep effects curve in that concentrations of 1 mg/m^3 may cause very little effect while levels of 3 mg/m^3 cause severe irritation.[8]

Although there have been no documented cases of over-exposure to iodine vapor in clandestine methamphetamine laboratories reported in the literature, iodine would be a plausible cause of mucous membrane and eye irritation reported at many of these investigations. Iodine may persist for some time in the walls, carpeting, draperies, etc. present in many of these clandestine laboratories. The fact that it is commonly observed on the walls, even after months of no cooking, suggests that it can be very persistent.

The fact that the iodine is persistent in the environment of the cook is very important to the children that are present in the clandestine laboratories as well as children who inadvertently become residents in a building previously used as a methamphetamine laboratory. Children crawling on contaminated carpeting may pick up high levels of iodine. In addition, based on an evaluation by the Colorado Department of Public Health and Environment, the population-based exposure concentration should be less than 0.001 mg/m^3, three orders of magnitude below the occupational exposure level.[9]

Hydrogen Chloride:

Hydrogen chloride levels were measured during all methamphetamine cooks, including periods where hydrogen chloride was not expected. The levels ranged from less than detectable to a time-weighted average of 14.6 mg/m^3. Peak levels measured during the controlled cook ranged as high as 56.2 mg/m^3. The most recent change to the current ACGIH TLV for hydrogen chloride was proposed in 2003 and is a ceiling value of 3.0 mg/m^3, much lower than the levels that have been found during the controlled cooks that we have conducted. In fact, the Immediately Dangerous to Life and Health (IDLH) level for hydrogen chloride is 74.5 mg/m^3 which is being approached by the levels generated during the salting-out phase conducted during the controlled cooks.[10]

Exposure to high levels of hydrogen chloride have been known to cause both acute and chronic effects. One individual exposed during a swimming pool cleaning effort developed severe bronchospasm and asthma. Workers exposed to as little as 15 mg/m^3 of hydrogen chloride experienced work impairment. Hydrogen chloride is a strong irritant of the eyes, mucous membranes, and skin at levels that are well below the levels that we have measured during our controlled cooks. It would seem likely that individuals exposed to the measured concentrations that we have found would have acute symptoms from the exposure.[10]

Young persons and individuals with pulmonary problems may show much greater effects from a hydrogen chloride exposure than would an individual with an occupational exposure. The reference level proposed by the Colorado Department of Public Health and Environment for hydrogen chloride was set at 0.02 mg/m^3, a level that is one hundred times lower that the proposed ACGIH TLV.[9] It is important to realize that this level is likely exceeded during production at all clandestine methamphetamine laboratories.

Methamphetamine Exposures:

Methamphetamine contamination of buildings used to cook metha nphetamine was a common finding in all of the labs tested. Even labs that had been busted several months prior to testing still had high contamination levels of methamphetamine present on many surfaces within the building. Samples as high as16,000 ug/sample were found with most samples over 25 ug/100 cm^2.

Although the effects of methamphetamine are well known on individuals using the drug, the effects of low level exposures to emergency personnel or other associated individuals are not as well known. It is known that methamphetamine may cause some teratogenic effects and may change behavior in exposed infants. Prenatal exposure to methamphetamine has been shown to cause an increase in pre-term labor, placental abruption, fetal distress, and postpartum hemorrhage. Infants exposed to methamphetamine are generally smaller, have feeding difficulties, and are described as "very slow". Infants born to mothers that have used methamphetamine during pregnancy may have abnormal sleep patterns, poor feeding, tremors, and hypertionia. In some reports, subtle neurological abnormalities have also been found.[11]

Currently, allowable levels for a residence that has been used as a clandestine laboratory to be re-occupied range from 0.1 ug/ft^2 to 5 ug/ft^2. Most states and local jurisdictions have adopted 0.5 ug/ft^2 or 0.5 ug/100 cm^2. These levels have been set primarily at the limit of detection for the compound since, at this time, no safe level has been established. Since the drug appears to settle out on all porous surfaces in the area in which the cook is conducted, it is difficult to determine the actual dose of individuals working within that atmosphere. It is logical to assume that hand contamination will result in oral ingestion, especially in the case of children, but it may also be possible for the drug to penetrate the skin of adults involved in the investigation. The State of California has recently begun to study the possibility of skin absorption and its role in methamphetamine exposure.

We have also found that police officers handling suspects or children at the scene, for very short periods of time, can become contaminated with methamphetamine. It is possible, therefore, for these individuals to carry this material off of the scene and to their own families. Since there has not been a no-effect level established for this drug at this time, it would seem prudent to minimize exposure to as low as possible.

Suggested Personal Protective Equipment Requirements:

Our study has shown that exposures to a variety of chemical compounds may occur during the investigation of clandestine methamphetamine laboratories. During a cook, the exposures at the lab may approach IDLH levels, which by definition may be extremely dangerous to the lives and health of investigating officers. Recent studies have shown that individuals responding to clandestine methamphetamine laboratory investigations have a good chance of being injured. Of 112 methamphetamine-associated hazardous materials events reported to the Centers for Disease Control, 53% resulted in

injuries with 155 persons injured. The primary symptoms were respiratory and eye irritation.

During our time responding with law enforcement officers we did not enter an active laboratory and we did not receive any substantive complaints regarding symptoms at any of these investigations. We did, however, hear complaints regarding metallic taste and odors at least two of these investigations. It should be realized, however, that all of the laboratories to which we responded had extremely low chemical exposure levels compared to the levels that we found during our controlled cook. In fact, our testing would suggest that anyone entering an active laboratory without adequate personal protection is likely to be overexposed to phosphine, hydrogen chloride, iodine, and methamphetamine.

Based on our testing, we would suggest that unless a suspected laboratory is assured to be inactive, that the minimum PPE should include total skin protection and the highest level of respiratory protection available. This would mean that all individuals entering a suspected laboratory should wear a positive pressure self-contained breathing apparatus over chemical resistant clothing with chemically resistant gloves and boots. This PPE should be worn in such a manner so as to protect all open skin areas, eyes, and other areas of the body.

If it is known that the laboratory is not in operation and has not been in operation in the recent past, then a lesser degree of respiratory protection may be used. We suggest a minimum of full-face air purifying respirators be used to protect against splash during the investigation. We would also suggest that the respirators be provided with canisters that are protective against acid gases, particulate, and hydrocarbons and that these canisters be discarded after each investigation. All individuals should wear Chemical resistant clothing since methamphetamine contamination in these laboratories is almost assured. Individuals not wearing chemically resistant clothing should be decontaminated after leaving the laboratory site. Investigators should also be cautioned not to open sealed bags due to the potential of phosphine release from a "death bag" used to collect the phosphine.

Based on our testing, law enforcement officers should assume that anything present within a suspected methamphetamine laboratory is contaminated with methamphetamine and possibly iodine and hydrogen chloride. Therefore, anything taken from the lab should be decontaminated, as should anyone who has entered the laboratory, including law enforcement officers. Special care and consideration should be taken for proper handling of documents or evidence removed. Training should be provided to assure that officers are aware of the possibilities of contamination, the potential health effects, and the potential to carry exposures out of the laboratory and back to their own families.

Questionnaire Discussion:

The results of the questionnaires handed out at the training sessions were of interest. With only 26% of the individuals involved with clandestine methamphetamine

laboratories wearing respirators, there is a great concern that personnel may not be protected adequately. Many of the respondents were at their first training class and subsequent use of respiratory protection after the class may have been much greater. It is still a concern, however, that many individuals do not wear respiratory protection during these investigations. As our data have shown, exposure to chemicals that may cause severe irritation to mucous membranes are likely at these sites. This is especially true for those individuals actually going into the laboratory area. Since only 35% of the individuals reporting that they entered the laboratory area wore respirators, it is not a surprise that so many individuals reported some symptoms.
Similar studies have suggested that 56% of the individuals involved in clandestine methamphetamine laboratory investigations report symptoms from at least one laboratory. Our data suggests that a similar number (52%) of Colorado emergency services personnel also report symptoms associated with these investigations. The use of a respirator seems to reduce this percentage to a degree, but even 38% of the respirator users reported some symptoms. Some of these individuals indicated that the symptoms were experienced when they did not wear respirators but more attention needs to be put upon the use of adequate PPE when responding to these incidents.

Another concern is the number of individuals that report that they enter the laboratory area but are not decontaminated at the scene. Only 38% of the individuals that reported that they entered the laboratory area were decontaminated. Since our data shows that most individuals entering the laboratory area become contaminated, it is likely that methamphetamine contamination makes it out of the laboratory and into personal vehicles, homes, etc. This may result in a widening circle of contamination.

Study Conclusions:

This study was designed to identify and measure potential chemical exposures associated with the investigation of clandestine methamphetamine laboratories. During the study we conducted several tests in laboratory hoods at the Colorado Springs Police Department, sampled 16 suspected drug lab locations, and conducted controlled cooks in a home and a hotel under realistic cook conditions. Based on our findings, we make the following conclusions:

- Based on our questionnaire, over 50% of the officers involved in the investigation of clandestine methamphetamine laboratories have experienced symptoms involved with those investigations. Chemical irritation is the cause of most of the reported symptoms, which seem to decline after the exposure.

- If an actual methamphetamine cook is being conducted and the red phosphorous method is being used, then exposure to levels of phosphine, hydrogen chloride and iodine that exceed current occupational levels are likely.

- If the cook is in process and the salting-out phase is being conducted, hydrogen chloride levels within the area may approach IDLH levels.

- Regardless of whether a cook is being conducted at the time of entry, it is likely that most items and individuals that were in the vicinity of the cook are highly contaminated with methamphetamine.

- If a methamphetamine cook has been conducted within a building, chemicals from the cook will have spread not only in the specific area of the cook but throughout the building. This is especially true of iodine, hydrogen chloride and methamphetamine.

- If a methamphetamine cook has been conducted within a building, all children within that building are likely to have been exposed to methamphetamine and other chemicals and therefore should be considered as exposed and contaminated.

- If any law enforcement or emergency services personnel are to be entering a building suspected of being a clandestine methamphetamine laboratory, they should enter only with self-contained breathing apparatus and complete skin protection unless it is known that the lab has not been in recent operation and that all of the chemicals are under control. In the opinion of the authors, it is not likely that these conditions will be known prior to entry in most cases. We therefore suggest that all initial entries be made with the PPE previously mentioned.

- After the suspected laboratory is known to be out of operation and the chemicals are in a stable condition, then investigators could reduce the respiratory protection portion of the PPE to a full-face air purifying respirator with organic vapor, acid gas, and P100 combination cartridges.

- Based on our questionnaire, the use of adequate respiratory protection by personnel entering the laboratory sites is not as high as it should be. Further training is necessary to assure the use of adequate PPE with the hope that the reported symptom rate will decline.

- Currently, a low percentage of the personnel involved in clandestine laboratory investigations is decontaminated on site. This is likely to result in methamphetamine contamination spreading outside of the laboratory area and exposing co-workers and family members.

- All law enforcement officers and emergency services personnel should be made aware of the high potential for exposure to methamphetamine contamination and trained in methods to reduce the "take home" levels of methamphetamine. Testing at the scene on a periodic basis should be used to verify that personnel are not being contaminated on-scene.

- Decontamination of all items taken out of the suspected laboratory should be conducted. Efforts should be made to reduce contamination transfer outside of the laboratory and periodic testing should be conducted to assure that personnel and items are being adequately decontaminated. The most likely compound of concern is the methamphetamine, but iodine and other chemicals may also be transferred.

Study Limitations:

This study was conducted primarily under uncontrolled conditions in the field, frequently while wearing PPE under potentially dangerous conditions. Under these conditions, sampling can be difficult, equipment can malfunction, and exposures can change. The sampling that we conducted at the suspected clandestine methamphetamine laboratories indicated relatively low exposure conditions but these conditions may not always be present. Exposures at any investigation will likely depend upon laboratory activity, building ventilation, manufacturing methodology used, equipment utilized, and amounts and types of precursors utilized.

The sampling results obtained at the Colorado Springs Police Department are expected to represent ...gh exposures but some manufacturing methodologies combined with a closed-in space may result in significantly higher exposures in some cases. The results obtained at the controlled cooks are expected to be similar to "normal" exposures at a "typical" clandestine methamphetamine laboratory but, in fact, there may not be a "normal" or "typical" laboratory since many manufacturers may use significantly higher amounts of precursors in areas with very low ventilation rates. Readers should understand that exposure concentrations under actual conditions may be lower but they may also be much higher.

Although our best methodology and laboratory analysis techniques were utilized during this study, some of the results may have been less accurate than we had hoped. The results of the phosphine sampling were plagued with high phosphine levels on the control samples suggesting that the analysis results were not accurate. In addition, real-time instruments, such as those used for phosphine and hydrogen chloride in the controlled cook may also give results that are less accurate than are laboratory methods.

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What is the Drug Endangered Children program (DEC)?

The DEC program is a multi-agency approach to assist and protect drug-endangered children whose lives are jeopardized by their families' illegal manufacturing, sales, and possession of drugs in the home. The purpose of the Riverside County Drug Endangered Children's Response team is to intervene on the behalf of children who have been exposed to Methamphetamine or toxic chemicals as a result of residing in a home-based illicit clandestine drug laboratory and to vigorously prosecute the offending adults. The DEC response team will provide a comprehensive county response by coordinating Law Enforcement, Child Protective Services, District Attorney's Office, Riverside County Regional Medical Center, and Public Health Nursing agencies.

Drug Endangered Children key services:

- Removal of child from toxic chemical exposure and drug environments
- Comprehensive medical screening & follow-up
- Drug screening
- Mental care evaluation & follow-up services
- Dental care treatment
- Background checks and home-evaluation for possible placement

How to spot a Meth lab in your neighborhood?

- Strong chemical odors like cat urine, ether, ammonia, acetone.
- Unusual amounts of activity in and out of the residence or unusual late night activity.
- Paranoid or unusual behaviors.
- Trash including camping fuel containers, starter fluid cans, drain cleaners, numerous over-the counter-cold medicine containers, plastic tubing, and red stained coffee filters.
- People bringing things to trade.
- Children noticed unattended or neglected.
- Children repeatedly kept home from school.
- Children in dirty cloths or inappropriate clothing
- Unreported tires.
- Reinforced doors and windows; attempts to cover/blacken out windows.

If you suspect methamphetamine abuse especially where children are involved, please call:

911

or

(909) 955-METH

(Hot Line)

Specially prepared for all ONDCP High Intensity Drug Trafficking Area Programs

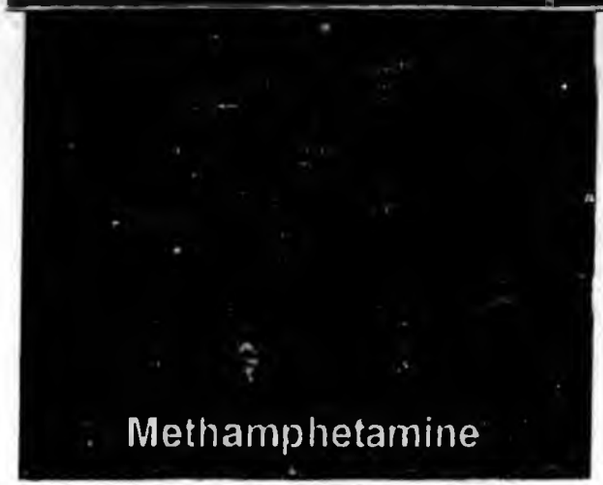
Inland Narcotic Clearing House Riverside Ca.
909 328-6270 Los Angeles HIDTA 6/26/03

Riverside County

"Because, in America, it shouldn't be dangerous to be a kid"

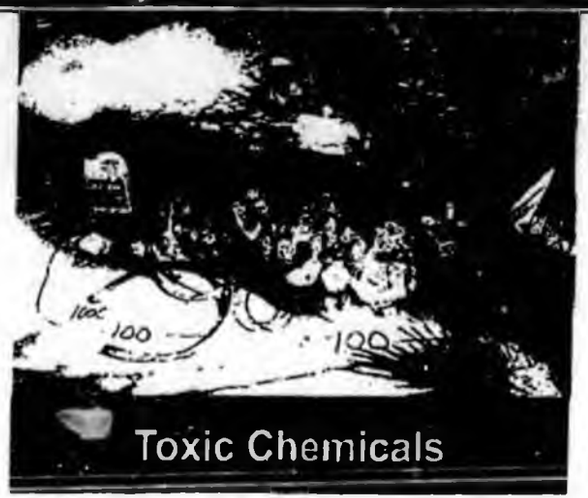
Drug Endangered Children Program (DEC)

Methamphetamine Lab Dangers to Children



Methamphetamine

Methamphetamine, or "Meth", is a clandestinely manufactured, long-lasting nervous system stimulant. It is the product of a witch's brew of common household cleaners, flammable solvents, corrosive acids and over-the-counter cold medicines. Methamphetamine is also known locally as meth, speed, crystal, glass, crank, go fast, or ice. Methamphetamine is a extremely destructive and debilitating addiction.



Toxic Chemicals

Toxic hazardous waste from meth production is often left in the house or dumped in the back-yard where kids play. Every 1 lb of meth made results in 7 lbs of toxic chemical waste. Some of these poisonous chemicals include acids, solvents, drain cleaners, camping fuels and carcinogen items. Meth-abusing parents often use the same household glassware to cook meth and dinner.

Fire and Explosions

Cooking methamphetamine is a dangerous proposition due to the extreme risk of fires, explosions, and exposure to toxic fumes. Current local lab statistics reveal that 50% of all lab fires had children present at or near the incident with 18% of suspects reported injured. Seeking care for children injured in a lab fire may be delayed or denied for fear of arrest.

Child Neglect and Sexual Abuse

In Riverside County, 70% of child abuse cases are related to Meth. Due to their parents' drug addiction, these young children are regularly neglected, and left unattended for long periods of time. Meth abuse in the home increases parent aggression, sexual drive, and can lead to violent psychotic behaviors, which are often perpetrated on their own children by the very persons who are supposed to protect them. Meth is probably the single greatest cause for increases in child sexual abuse cases.

Horrendous Living Conditions

Meth abuse forces once-caring parents to forgo personnel and family hygiene. This creates unimaginable filth and unhealthful living conditions for the children. Meth induced paranoia often leads the parents to booby-trap the home and leave firearms unsecured to the detriments of small children. The parents' self-induced paranoia and child neglect also keep the children from attending school regularly.

Medical Complications

Lack of pediatric medical and dental care is commonplace in homes where meth is being produced or used. Preventable prenatal complications include premature birth, congenital deformities, and drug addiction. Children also face learning disabilities such as Language Delay Development, and Attention Deficit Disorder (ADD). Children found at lab sites also show signs of liver damage, malnutrition, dehydration, and breathing problems which can cause further medical complications.

"In Riverside County 70% of child abuse cases are Methamphetamine related."

Hazards of Methamphetamine Production:

Typical Chemicals Found in Lab Sites	Common Legitimate Uses	Poison	Flammable	Toxic Vapors	Explosive	Corrosive	Skin Absorption	Common Health Hazard
Acetone	Fingernail polish remover, solvents	X	X	X			X	Reproductive disorders
Methonol	Brake Cleaner fluid, fuel	X	X	X			X	Blindness, eye damage
Ammonia	Disinfectants	X		X		X	X	Blistering, lung damage
Benzene	Dye, varnishes, lacquers	X	X		X	X	X	Carcinogen, Leukemia
Ether	Starters fluid, anesthetic	X	X		X			Respiratory Failure
Freon	Refrigerant, propellants	X		X		X		Frostbite, Lung damage
Hydriodic Acid	Driveway cleaner	X		X		X	X	Burns, Thyroid Damage
Hydrochloric Acid (HCL Gas)	Iron ore processing, mining	X		X		X	X	Respiratory, Liver Damage
Iodine Crystals	Antiseptic, Catalyst	X	X		X	X		Birth Defects, Kidney Failure
Lithium Metal	Lithium batteries	X				X	X	Burns, Pulmonary Edema
Muriatic Acid	Swimming pool cleaners	X		X		X		Burns, Toxic Vapors
Phosophine Gas	Pesticides	X		X			X	Respiratory Failure
Pseudosphedrine	Cold medicines	X						Abuse: Heart Damage
Red Phosphorus	Matches, fireworks	X	X	X	X			Unstable, Flammable
Sodium Hydroxide	Drain cleaners, lye	X		X		X	X	Burns, Skin Ulcers
Sulfuric Acid	Battery Acid	X		X		X	X	Burns, Thyroid Damage
Toluene	Paint, thinners, solvents	X	X	X	X		X	Fetal Damage, Pneumonia
Liquid Lab Waste	None	X	X	X	X	X	X	Unknown long term effects

Dangers to Children Living at Meth Labs:

Children Found in Meth Lab Homes

Description of two cases as sited in a NDIC Report, stating the living areas and physical condition of the children found in meth lab homes.

The five children ranged in age from 1 to 7 years old. The one-bedroom home had no electricity or heat other than a gas stove with the oven door opened. Used hypodermic needles and dog feces littered areas of the residence where the children were found playing. Because there were no beds for the children, they slept with blankets underneath a small card table in the front room. The bathroom had sewage backed up in the tub, leaving no place for the children to bathe. A subsequent hospital exam revealed that all the children were infected with hepatitis C. The youngest was very ill. His liver was enlarged to the size of an adult's. The children had needle marks on their feet, legs, hands, and arms from accidental contact with syringes.

At another lab site, a 2-year-old child was discovered during a lab seizure. Her parents both abused and manufactured methamphetamine. She was found with open, seeping sores around her eyes and on her forehead that resembled a severe burn. The condition was diagnosed as repeated, untreated cockroach bites.

Used hypodermic needles, razor blades and methamphetamine laying within reach of inquisitive children.

This is an poisoning waiting to happen. Plastic soda bottles are frequently used to store

methamphetamine in solution, acids, or even urine which can be recycled later.

Source: Text based on NDIC Report
Photos: Riverside Sheriff Dept Special Investigative Bureau

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Frontiersman

Tuesday, November 23, 2004

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Spun out: Methamphetamine epidemic hits Mat-Su

By JOHN

Mike Anderson, a toxicologist who works for the ECC, examines chemical waste from a meth lab. Waste products from methamphetamine include highly toxic chemicals that must be disposed of by trained professionals. Photo courtesy of Environmental Compliance Consultants.

DAVIDSON/Frontiersman reporter

Imagine staying awake for weeks on end, mostly indoors, peering out curtained windows and closed blinds when the paranoia sets in. Imagine not eating, or eating very little, feeding your body a chemical soup of cleaning products and cold medicines cooked down to crystals in someone else's basement. Imagine five or six people huddled in a dark apartment for days and days, talking excitedly, cleaning, planning, taking things apart, pacing, itching, going nowhere,

wasting away.

Imagine you are addicted to methamphetamine.

For a growing number of Valley residents, meth addiction is anything but imaginary. As local police and Alaska State Troopers continue to discover more meth labs every year and arrest more Valley 20-somethings for meth production and possession

Maps/Directions
Horoscope
Greeting Cards

than ever before, a meth epidemic in the Mat-Su is fast becoming a grim reality.

In recent years Mat-Su's problem with methamphetamine has become increasingly apparent. In 2003, nearly half the meth labs seized statewide were found in the Valley. This year, with 39 labs discovered already, the Mat-Su Drug Unit expects its share will be well over half the state's total.

"There's been an explosion in the number of labs we've found over the last five years," Sgt. Patrick Davis said. "The trend is climbing at an alarming rate."

Davis describes Mat-Su's meth underworld as a cancer -- a loose network of cells consisting of small groups scattered throughout the Valley. The groups make, use and sell methamphetamine, Davis said, but they only make and sell enough to sustain their addiction and perpetuate the process.

A "family" of tweakers

Jennifer first tried methamphetamine when she was 16. She began taking it occasionally, whenever she was hired to clean someone's house; she says it helped her work faster, it helped her make more money.

But meth gradually became a habit, and then, much more quickly, it became a way of life.

Over the last seven years Jennifer has used meth on and off, going through periods of heavy, prolonged use. She is 23 now and says she will never do meth again; she feels lucky to be alive.

Jennifer, who requested her last name not be used, is trying to regain custody of her son and set her life in order. She has been clean and sober since March 28, 2004 -- the day the state took her son away.

"When the troopers came and took him, everyone felt really bad and they wanted to do some [meth]," Jennifer said. "But that's when I realized I had to stop. I realized it had gone way too far."

Losing her 2-year-old son jolted Jennifer out of a meth underworld in which she had been deeply involved for seven months.

She describes being part of a group of "tweakers" who stayed in or near a certain meth cook's house in Anchorage. About a half-dozen people were there at any given time, sitting around with the windows and doors locked, the shades drawn tight, first cooking and then smoking or snorting meth.

was gone for two weeks.

Nowadays Jennifer has no contact with her former "meth family." She says she wants to leave behind that world forever, including the paranoid ways of thinking and behaving associated with it.

"To this day I can't just peek out the blinds, I have to open them up all the way," Jennifer said. "I don't want to do things the way I did them when I was tweaking. I know where I am in my life now and I know I'll never do [meth] again."

Paranoia is a near-constant state of mind for a chronic meth user. Jennifer said her friends would sometimes freak out and imagine there were cops in the woods with sniper rifles trained on them, or they would see a plane flying over the flats and think it was tracking them while they drove back to the Valley from Anchorage.

Some of her friends suffered from the delusional sensation of bugs crawling under their skin -- "crank bugs," they called them -- which causes people to scratch their skin raw. Jennifer, although she never felt crank bugs under her skin, would pick at her fingers until she had sores.

But Jennifer is in the process of turning her life around. For the past five months she has been in a recovery program. After completing her treatment, she will have a hearing about regaining custody of her son, who now lives with his grandmother.

Still, for Jennifer, there are occasional reminders of the meth life. She gets phone calls every now and then from friends who are still users. She says they don't make sense anymore; now that she is sober she can't really talk to them about anything, there is no common ground.

Four out of every 10 people Jennifer knows have "spun out," or used meth regularly in the past. Six out of 10 people she knows have tried it at least once.

Off the top of her head, Jennifer can think of at least eight meth labs in her corner of the Valley. Every one of those labs has about a dozen people connected to it, sometimes more. Jennifer thinks those numbers have been steadily growing since she first tried meth seven years ago, and first-time users are getting younger.

"I had a 13-year-old ask for it one time and I just about flipped out," Jennifer said. "But how could I tell him not to do it when I was doing it? You can't say you're not old enough, because no one's old enough."

Jones left the car in the middle of a road with the lights on, his driver's license on the driver's seat and Shane Rogers' wallet and identification on the passenger seat, on top of broken glass and blood.

During questioning, Jones seemed disoriented and said several times, "Shane is not dead." Jones told police the meth was making him hallucinate and he thought there was someone else in the car with them at the time.

At one point in the questioning, Jones wondered out loud why they were asking him questions, saying, "You were there, weren't you?"

In a telephone interview from Spring Creek Correctional Center, a maximum-security state prison in Seward where he is serving a 25-year sentence for second-degree murder, Jones set Rogers' death in a broader context.

Jones said he and Rogers had spent nearly two weeks cooking meth in a small room in Anchorage before they set out for Palmer that day. They were awake, on meth, the entire time.

"We were so high we should've been dead from overexposure to the chemicals," Jones said. "When you're in the same room where that stuff is being cooked, you have no idea how intense it is, it's just a cloud of gas, it attacks your body from every direction."

Jones said he was "tripping out," hallucinating and seeing things that day. He said Rogers was flicking red phosphorus at his eyes, he didn't know why, and things got out of control.

"I didn't realize I was so out of it," Jones said. "I didn't think I had that much in my system."

Although Jones says he had taken meth for 15 years, on and off, the weeks before the shooting when he and Rogers were cooking up meth in a small room together were the first time he had ever been around when meth was being cooked. Jones says they were not making a lot of meth, just enough to keep them high.

"The whole thing was crazy. My life is a living hell now," Jones said. "Meth was the only drug I ever really did, and the only reason I did it was because I worked a lot of hours driving trucks. I was an addict, and when you're an addict you find your sources and keep them close."

In Jones' case, his source was Rogers, and like the

Frontiersman

Tuesday, November 30, 2004

Methamphetamine waste out of control

JOHN DAVIDSON/Frontiersman reporter

MAT-SU -- It's not exposure to deadly chemicals that frightens them; nor is it the possibility of toxic vapors igniting and blowing up their house. It's that knock at the door they fear most of all.

Methamphetamine cooks are perhaps the most paranoid and unstable of all drug criminals. Most meth cooks are also meth addicts, and in heavy users the drug can cause extreme paranoia, psychotic behavior and, often, violence.

"We've had quite a few cases where we've seized weapons at a lab," said Sgt. Patrick Davis of the Mat-Su Drug Team. "When these people are tweaking, they are ultra-paranoid, they don't want to go to jail and they can become violent. One aspect of their paranoia is violence."

But the five officers who make up the Mat-Su Drug Team have more than paranoid meth addicts to deal with when they seize a lab. Sometimes the greatest danger to officers is the mix of chemicals and toxic vapors in an active meth lab.

Depending on what kind of intelligence they have about a lab, members of the team go in wearing masks and full chem suits. Two members of the team have attended a tactical clan-lab school in California -- a week of scenario-based training in which officers learn how to seize active meth labs while wearing chem suits, respirators and oxygen tanks.

The extra training has been valuable, since most of the team's work now centers on clandestine meth labs.

Four years ago, when Davis was assigned to the drug team, almost all the team's work dealt with marijuana and cocaine; now Davis says 80 to 85 percent of the team's time and resources are spent chasing down meth labs and cooks.

"An overwhelming number of the tips we get now are about meth labs," Davis said. "That doesn't mean other drugs aren't out there, we just have to prioritize our time."

The public-safety aspect is critical when it comes to meth labs, Davis said. Cooks tend to dump waste chemicals in the woods or in Dumpsters of apartment complexes; they also cook meth in hotel rooms. At least two Valley hotels unwittingly have played host to meth labs this year.

The fact that in 2003, more than half of all meth labs seized statewide were operating in the Valley -- Davis predicts an even higher percentage by the end of 2004 -- means the Mat-Su has a veritable meth epidemic on its hands.

"If we were to double the size of this team and just work on meth, we'd still be working around the clock," Davis said. "My guys spend a lot of hours away from home, and even in the face of overwhelming odds and adversity, they come to work every day and go after the bad guys."

Davis describes meth as a cancer that is eating away at society. In terms of public health and safety, Davis and his team consider meth labs public enemy number one.

And there are more than ever these days. The proliferation of labs in the Valley may have something to do with Mat-Su being one of the fastest-growing communities in the state and the country; Davis says meth production and addiction are part of a larger, national problem.

"We're seeing a trend that started in the late '80s and early '90s, where meth would come into an area and explode," Davis said. "We're experiencing that now."

The proliferation of meth

Small-scale, clandestine labs are a relatively recent development in the history of methamphetamine. A Japanese pharmacologist is believed to have developed the drug in 1919, and during World War II, meth was reportedly given to both Allied and Axis troops to sustain them on long flights or marches.

In the 1950s, versions of meth called "pep pills" or "bennies" were sold in the U.S. for nonmedical purposes, and meth was marketed to treat obesity, narcolepsy and sinus inflammation.

Meth became regulated under the Controlled Substances Act of 1970, but in the late 1980s new

methods of cooking more potent versions of meth began to appear. These methods used ephedrine or pseudoephedrine as the precursor to meth, and made it possible for addicts to produce meth on their own -- if they didn't blow up their houses in the process.

Nowadays, there are three main methods used to produce the drug: The red phosphorus, birch and amalgam methods. The two methods used in Alaska are the red phosphorus method and the birch method.

The birch, also known as the "ammonia" or "Nazi" method, relies on a plentiful supply of anhydrous ammonia that is most commonly found in commercial freezers and agricultural applications in the Lower 48. Farmers have lost large stores of ammonia fertilizer to raids by meth cooks who use this method throughout the Midwest.

In Alaska, meth labs using the "Nazi" method would likely be found near shore-based fish-processing plants or fish-processing vessels.

In Alaska, most meth cooks use the red phosphorus method. According to the ADEC, wastes generated from the red phosphorus method include flammable extraction-process sludge, phosphine gas, iodine, hydriodic acid, hydrogen chloride gas, phosphoric acid and yellow or white phosphorus.

But none of these chemicals or gases are active ingredients in the final product.

Meth's only active ingredient is ephedrine, which is also the only active ingredient in many over-the-counter cold remedies; it's the caffeine in the tea bag. All the other chemicals used are there to bind up the ephedrine, convert and crystallize it into a usable product. Pure ephedrine is actually extremely dangerous; in its pure form, it is a controlled substance.

But converting ephedrine to meth produces volatile and toxic chemical waste. A 2003 University of Washington study of chemical exposures at meth labs found the chemical exposures of greatest concern were those produced using the red phosphorus method -- specifically those consisting of phosphine, iodine and hydrogen chloride

The study highlighted iodine as a likely cause of mucus membrane and eye irritation reported at many lab seizures, and stated that the persistence of iodine in the environment of the cook, "is very important to the children that are present in clandestine laboratories as well as children who inadvertently become residents in a building previously used as a meth lab. Children crawling on contaminated carpet

may pick up high levels of iodine."

Aside from waste chemicals produced from cooking, meth contamination was found in every one of the 16 buildings tested in the study, all of which housed meth labs at some point.

"Even labs that had been busted several months prior to testing still had contamination levels of methamphetamine present on many surfaces within the building," the report stated.

In one controlled meth cook, researchers placed a teddy bear 12 inches from the cook area and afterward checked the bear's pH level and tested the bear's "fur" for meth contamination. The teddy bear had an extremely acidic pH of 1, and was highly contaminated with meth.

According to the study, "Children playing with such toys may be exposed to strong acids contained within the toy, causing severe burns to the skin and mucus membranes, and also be exposed to significant concentrations of methamphetamine -- particularly if the toy is placed in the mouth."

Fit for use?

In July 2003, House Bill 59 was signed into law. The bill directed the ADEC to adopt regulations "for the evaluation and cleanup of sites where methamphetamine was manufactured or stored."

HB 59

The bill was meant to address a relatively new problem: As the number of clandestine labs seized in Alaska continues to skyrocket, more landlords are faced with contaminated houses and apartments. Often the costs associated with properly testing and cleaning a former meth lab exceed the value of the property itself.

Although HB 59 requires property owners to clean up hazardous materials and provide test results that show contamination levels below ADEC limits before the property can be used again, it does not require third-party verification that a former lab is "fit for use."

While the ADEC recommends landlords hire a professional contractor to clean and test contaminated homes, the proposed regulations do not mandate it.

Some experts think this is a problem.

Mike Anderson, a toxicologist with Environmental Compliance Consultants, the company contracted to clean up meth labs statewide, thinks HB 59 is a good idea, but without requiring expert testing and cleaning

of a lab site, it leaves the door open for landlords to cheat -- and save thousands on cleanup costs.

"It's woefully inadequate to have people test their own homes," Anderson said. "It's inadequate to have them clean their own homes, and especially to have them test their own homes."

The ADEC regulations do require samples of former labs to be tested by professionals before the property can be certified "fit for use," but Anderson says it would be easy for a homeowner to cheat. By sending in a sample from a different home, or sending a clean piece of drywall in for lab analysis, a landlord could have a property certified "fit for use" without ever cleaning or testing it.

Although the ADEC has offered to provide property owners with the guidelines for cleaning a site and a list of laboratories that can test the site, there is no requirement for them to verify their work through a third party.

State Rep. Jim Holm, R-Fairbanks, and state Sen. Gretchen Guess, D-Anchorage, sponsored the bill and worked together to ensure passage of the new regulations.

Neither Holm nor Guess returned phone calls for this article, but minutes of a 2003 House Judiciary Committee discussion of the bill shed some light on why DEC officials and legislators made key changes to the bill that shifted responsibility for verification of lab cleanup from the state to the property owner.

The minutes state that Larry Dietrick, acting director of the Division of Spill Prevention and Response for the DEC, said the intent was to make the bill "self-implementing" in order to protect public health without developing a new government service. The minutes state, "The department won't review the work and the cleanup, but rather the owner will do so."

The minutes also state Dietrick said laboratory certification is quite costly.

The proposed ADEC regulations outline 29 substances that are potentially harmful wastes associated with meth labs, but advises against "unwarranted sampling," which may "place an excessive and pointless financial burden upon home owners to demonstrate 'fit for use' compliance."

Because homemade meth labs are such a recent phenomena, no one really knows the long-term effects of meth contamination.

Anderson thinks meth residue, which gets in and on

the walls of a lab site, can affect people who inhabit a house or apartment even after the lab itself has been removed. Because of the molecular structure of methamphetamine, it can be extremely difficult to get it off walls and out of carpet.

"This is a great problem," Anderson said. "People don't have the means to test for fumes, which adhere to drywall and paint. Meth comes out in a gas form, and it's so persistent and soluble, a wet rag just smears it across the wall. If you keep using the same rag, you're not cleaning it, you're just smearing it around."

Cutting off supply

For every meth lab law-enforcement officials seize, more crop up. This is because meth cooks teach as many as a dozen other tweakers how to make it.

Assistant District Attorney Paul Roetman, who handles narcotics cases for the Palmer DA's office, says he has three to four times as many meth cases this year as his predecessor had in 2003.

The Palmer DA's office handled only 10 meth-related cases last year; this year Roetman has 40 meth cases, to date, out of a total caseload of 200.

Almost all of those meth cases involved two to four co-defendants.

"People can't do it alone," Roetman said. "But we're taking a hard line on meth, it's a huge problem."

The charge ~~for manufacturing meth~~ is second-degree misconduct involving a controlled substance -- a class-A felony. Five years is the presumptive term for class-A felonies, but a judge can reduce that to two and a half years.

Even though the normal term of sentence is five years, Sgt. Davis says he and his team often arrest the same people more than once.

"I'm starting to see guys we arrested in 2000," Davis said. "They get out and hit the street again and their names are popping up. They're at it again."

Davis thinks the key to keeping meth addicts off the streets is to impose stiffer penalties. Sentencing guidelines often don't allow a judge to hand down more than a five-year sentence, and after two years they're out on the street again.

Investigator Mike Ingram, another Mat-Su Drug Team member, agrees. The only treatment for meth addicts is to get away from the scene completely.

"They need isolation, by which I mean they need to be incarcerated," Ingram said. "They need to get out of the cooking scene and get away from the people who cook it and get a rush off it."

But some say the costs associated with longer prison terms and heavier prosecution do little to curb the number of labs being set up.

One strategy used in Oklahoma was to cut off the supply of ephedrine and pseudoephedrine by allowing only licensed pharmacists to sell it. Although customers don't need a prescription, they do have to show photo identification and sign a registry when they purchase ephedrine or pseudoephedrine products.

Ephedrine, after all, is the key ingredient needed to make meth. By restricting the free flow of ephedrine over countertops at supermarkets and convenience stores, the ability to make meth would be greatly reduced. After Oklahoma's law had been in effect for just one month, the state was claiming a 25-percent decrease in lab busts for the year to date.

And there seems to be a correlation between meth production and ephedrine consumption. According to the federal Drug Enforcement Agency, consumption of raw pseudoephedrine by U.S. drug firms climbed 178 percent between 1990 and 2003, the very years that saw meth rise from obscurity to epidemic proportions.

In 1998, a year before meth use really exploded in the U.S., the amount of raw ephedrine sold nationwide was nine tons; the next year it rose to 14 tons.

State Rep. Carl Gatto, R-Palmer, says there hasn't been any discussion in the state Legislature about reclassifying ephedrine-based products as controlled substances, but he admits the meth problem is getting out of control and such restrictions might help.

"It's fairly inexpensive to restrict products, much more so than adding units and personnel to law enforcement," Gatto said. "All you have to do is interfere with one major ingredient and you can disrupt production."

ECC toxicologist Mike Anderson thinks the effect would be profound.

"It's a great idea to make cold tablets a schedule-five drug," Anderson said. "For the types of labs we have in Alaska, I think it would have a substantial effect. It would make [ephedrine] more difficult to get and easier to track."

For Gatto, much of the issue is a question of ever-increasing costs associated with the rising meth epidemic in Alaska.

"How much are the savings from overcrowded prisons and court fees and law enforcement compared to the costs of running a program that will reduce the need for these things?" Gatto said. "These are the types of things we have to look at in greater detail."

But for Anderson, something as simple as making a controlled substance controlled should be a first step in fighting meth production in Alaska.

"Getting meth out of ephedrine would be like extracting crack cocaine from old-fashioned Coca-Cola," Anderson said. "I guess no one ever thought people would be able to extract ephedrine from cold tablets and make methamphetamine."

Contact John Davidson at john.davidson@frontiersman.com.

Medical waste permit passed

MAT-SU -- With construction of the new Valley Hospital facility progressing rapidly, the Mat-Su Borough Assembly passed an ordinance at its Nov. 16 meeting aimed at one type of business that often accompanies growth in the medical field.

Hospital 'topping off' party planned

MAT-SU -- Valley Hospital will mark off a milestone next Friday when it hosts a "topping off" ceremony to celebrate the highest beam being swung into place on its new hospital.

Methamphetamine waste out of control

JOHN DAVIDSON/Frontiersman reporter

Palmer Ice Arena solidifies its place

JOEL DAVIDSON/Frontiersman reporter

Illegal moose kills: An increasing problem in the Valley?

HOWARD DELO/For Frontiersman

New traffic light brings relief

JOEL DAVIDSON/Frontiersman reporter

Troopers to crack down during holidays

24-GS1049\A.1
Luckhaupt
2/23/05

AMENDMENT

OFFERED IN THE SENATE BY SENATOR FRENCH

TO: SB 70

Page 1, line 2, following "**substance;**":

Insert "**relating to listing certain anabolic steroids as controlled substances;**"

Page 3, following line 28:

Insert a new bill section to read:

"*** Sec. 6.** AS 11.71.180 is amended by adding a new subsection to read:

(f) Schedule VA includes, unless specifically excepted or unless listed in another schedule, any material, compound, mixture, or preparation that contains any quantity of the following substances, including their salts, esters, isomers, and salts of esters and isomers if those salts, esters, or isomers promote muscle growth, whenever the existence of these salts, esters, and isomers is possible within the specific chemical designation: anabolic steroids. In this subsection, "anabolic steroids" means any drug or hormonal substance that is chemically and pharmacologically related to testosterone (other than estrogens, progestins, and corticosteroids) and that promotes muscle growth; "anabolic steroids" does not include an anabolic steroid that is expressly intended for administration through implants to cattle or other nonhuman species and that has been approved by the United States Secretary of Health and Human Services for that administration, unless a person prescribes, dispenses, or distributes that type of anabolic steroid for human use; "anabolic steroids" includes the following:

(1) boldenone;

(2) chlorotestosterone (4-chlorotestosterone);

(3) clostebol;

(4) dehydrochlormethyltestosterone;