

From: "Morrison, Glenn"

Date: Wednesday, 28 March 2018 at 9:05 AM

To: Anne Bardsley <a.bardsley@auckland.ac.nz>

Subject: RE: Residual methamphetamine surface contamination and risks from third-hand exposure

Anne,

See attached. An example that focuses on homeowners and simple cleanup is the state of Missouri. North Carolina has more detailed rules about cleanup, but also takes "practical" approach that does not require testing.

Glenn

Glenn Morrison, Research Professor
Environmental Sciences and Engineering
Gillings School of Global Public Health
University of North Carolina at Chapel Hill
135 Dauer Drive
163A Rosenau Hall, CB #7431
Chapel Hill, NC 27599-7431

From: Anne Bardsley [<mailto:a.bardsley@auckland.ac.nz>]

Sent: Tuesday, March 27, 2018 3:29 PM

To: Morrison, Glenn

Subject: Re: Residual methamphetamine surface contamination and risks from third-hand exposure

Hi Glenn, thanks for the prompt response. I don't see a phone # other than the cell – is there a landline?

Anne

From: "Morrison, Glenn"

Date: Wednesday, 28 March 2018 at 8:11 AM

To: Anne Bardsley <a.bardsley@auckland.ac.nz>

Subject: RE: Residual methamphetamine surface contamination and risks from third-hand exposure

Anne,

We can certainly chat although I'm not sure I can help you much on risk other than what I've reported in my publications. I'll be in my office for another hour before I have another meeting at 4pm. I can be reached on the phone below, although for some reason I'm not able to access my voicemail at the moment. glenn

Glenn Morrison, Research Professor
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135 Dauer Drive
163A Rosenau Hall, CB #7431
Chapel Hill, NC 27599-7431

From: Anne Bardsley [<mailto:a.bardsley@auckland.ac.nz>]

Sent: Tuesday, March 27, 2018 2:32 PM

To: Morrison, Glenn

Cc: Felicia Low

Subject: Residual methamphetamine surface contamination and risks from third-hand exposure

Importance: High

Dear Dr Morrison,

I am a researcher working with the Chief Science Advisor to the Prime Minister of New Zealand. I found your name while researching the issue of health risks from exposure to methamphetamine residues in dwellings where the drug has been manufactured or smoked. I understand that you have considerable expertise in the area of chemical transport in building environments, including some specifically around methamphetamine.

Our office has been asked to produce a report to help explain the actual risks, and the basis for a new standard that was recently developed (based mainly on the California health-based risk assessment for methamphetamine contamination), to help inform various stakeholders on how and when the standard should be operationalised.

We are seeking some international perspectives on this issue.

I would greatly appreciate the opportunity to speak with you if at all possible. Unfortunately, our timeline is extremely tight. If you are available and amenable to a phone call in the next few days or early next week, please can you provide a phone number and the best time to call you? The time difference between NZ and US EST is effectively 7 hours – i.e. it is now 7:30am here (Wednesday morning) and 2:30pm in NC (Tuesday afternoon).

Thanks very much in advance.

Kind regards,

Anne

Anne Bardsley, PhD
Research Analyst

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Phone 09 923 6346 | Mobile 027 630 2296 | www.pmesa.org.nz

* Attachment From
Dr Glenn Morrison
email 28 March 18

What if a methamphetamine laboratory is found on my property?

FAQ for N.C. Property Owners

Illegal methamphetamine (meth) labs have been found in many North Carolina counties. Law enforcement officers have discovered meth labs in homes, apartments, hotels, cars and outdoor locations. These labs pose multiple dangers to both public health and the environment. In many cases, children are found living in homes where meth is made. Children, especially the very young, are at particular risk from exposure to the chemicals in those labs.

As of April 1, 2005, all newly discovered and former meth lab properties must be cleaned prior to re-occupancy in accordance with North Carolina General Statute 130A-284. The provisions of this law provide a reasonable and practical approach to the cleanup of a meth lab to protect human health and the environment.

Here are answers to some common questions about meth labs and their cleanup.

Q. What kinds of chemicals and equipment are used to make meth?

- A.** Meth can be easily made using several different chemical "recipes," but all require one of three chemicals: ephedrine, pseudoephedrine or phenylpropanolamine. Other ingredients that may be used in the manufacturing process include iodine, red phosphorous, hydrochloric acid, ether, camp fuel, paint thinner, drain cleaner, acetone, battery acid, lithium batteries and anhydrous ammonia.

Meth lab "cooks" combine common household items to use in place of real laboratory equipment, including jars, coffee filters, hot plates, plastic bottles, blenders, pillowcases, tubing, funnels, large plastic storage containers, coolers, and gas cans.

Q. Is a meth lab dangerous?

- A.** The greatest risk surrounding these labs is the dangerous nature of the persons making and using this illegal drug. ***Individuals who believe they have discovered a drug lab should immediately notify law enforcement and should not enter the suspected area.***

The making of methamphetamine creates many hazards. Toxic chemical vapors, spills, explosions, and fires make meth labs dangerous places. Meth cooks, their families, and first responders are often the ones who are injured. Waste dumped from meth labs can expose people to toxic chemicals. Even people picking up litter on the side of a road have been injured from meth lab waste dumps.

After the lab has been busted, many of the hazards are removed by law enforcement. However, chemical and drug residues remain, contaminating the property. If the property is not cleaned up properly, these residues can cause adverse health effects in future residents, particularly babies and young children who are in close contact with the

floor and other contaminated surfaces. Infants and children may be harmed by exposure to these residues through ingestion, inhalation and direct skin exposure.

Q. Can I still use my building?

- A.** The property cannot be used unless it has been cleaned according to the North Carolina law.

No one should enter a facility that has been used as a meth lab unless they are wearing appropriate personal protection equipment. Symptoms such as headache, nausea, dizziness, and fatigue have occurred in people who entered a meth lab after the bust was completed, but before the property was properly cleaned and ventilated. If you experience any of these symptoms, contact your health care provider.

Q. Who is responsible for cleaning up the property?

- A.** The owner of the property is ultimately responsible for the cleanup.

Q. As the owner, what do I have to do?

- A.** North Carolina rules require decontamination of properties prior to re-occupancy. The bulk of any lab-related debris such as chemicals and containers found at a meth lab will be removed in accordance with the Drug Enforcement Administration requirements as directed by the North Carolina State Bureau of Investigation (NC SBI). However, smaller amounts of methamphetamine and hazardous chemical residues may remain and may have contaminated surfaces, drains, sinks, ventilation systems and absorbent materials (couches, carpets, beds, etc.).

Preparing the property for re-occupancy includes cleaning to remove chemical residues, debris, and possibly furnishings and appliances. Although the property owner can conduct this decontamination process, consider using a trained cleanup contractor. Also, in many cases, it may be more cost-effective to dispose of items rather than to clean (decontaminate) them. Complete structure demolition may also be an option.

Q. What are specific requirements of the law?

- A.** North Carolina General Statute 130A-284

[\[http://www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/BySection/Chapter_130A/GS_130A-284.html\]](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/BySection/Chapter_130A/GS_130A-284.html) and Administrative Rules 10A NCAC 41D.0101-.0105

[\[http://reports.oah.state.nc.us/ncac/title%2010a%20-%20health%20and%20human%20services/chapter%2041%20-%20epidemiology%20health/subchapter%20d/subchapter%20d%20rules.doc\]](http://reports.oah.state.nc.us/ncac/title%2010a%20-%20health%20and%20human%20services/chapter%2041%20-%20epidemiology%20health/subchapter%20d/subchapter%20d%20rules.doc) require:

- Submittal of a Pre-Decontamination Assessment to the local health department [\[http://www.ncalhd.org/county.htm\]](http://www.ncalhd.org/county.htm);
- Disposal of appliances (such as refrigerators, stoves, hot plates, microwaves, toaster ovens, and coffee makers, etc.) used in the manufacture of methamphetamine or storage of associated chemicals;
- Disposal of non-machine-washable porous materials, such as upholstered furniture and mattresses;
- Removal of all carpet and padding;

- Cleaning, painting and/or removal of non-porous materials (walls, ceiling, floors);
- Removal of excessively stained plumbing fixtures; and
- Provision of written documentation to the local health department.

Q. What does the local health department do?

A. The N.C. State Bureau of Investigation (SBI) notifies the local health department (LHD) of a meth lab seizure in that county. The LHD notifies the property owner of the N.C. rules, which require decontamination of properties prior to re-occupancy. The LHD receives and reviews the decontamination documents provided to them by the property owner, and retains the documents for three years. The LHD may inspect the property, although it is not required to do so.

Q. Is sampling / testing the property necessary? Who should do it?

A. North Carolina recommends a practical approach to decontamination, based on cleanup and disposal of contaminated items. North Carolina regulations do not require sampling or testing for methamphetamine contamination at former meth labs, as there is not a national standard for determining safe or unsafe levels of meth residue present at a site. However, depending on which methamphetamine manufacturing method was used, it may be necessary to test for contaminants such as mercury and lead. Also, any portions of the structure (walls, floors or ceilings) damaged or removed need to be evaluated for asbestos and lead-based paint prior to disturbing the property. If any testing is conducted, it should be done by an experienced and licensed private environmental consulting firm. See websites below for additional information about testing.

Q. Is it possible to find out if a property has been used as a meth lab?

A. Your local law enforcement agency should have the most complete record of former meth labs seized in the area. Each county health department maintains a list of properties in their county from information received from the N.C. SBI. In addition, the U.S. Drug Enforcement Administration (DEA) maintains a National Clandestine Laboratory Register (<http://www.justice.gov/dea/clan-lab/clan-lab.shtml>) of meth lab properties in each state on their website.

Q. Where can I get more information?

A. More information concerning methamphetamine labs can be found at the following websites:

- N.C. DPH: Methamphetamine Labs (http://epi.ncpublichealth.info/epi_test/oe_test/a_z/meth.html)
- U.S. EPA: Voluntary Guidelines for Methamphetamine Cleanup (<http://www.epa.gov/oem/methlab.htm>)
- N.C. Department of Justice: STOP METH (<http://www.ncdoj.gov/getdoc/9bcd8a04-b119-480c-82ae-2ac1bf700ae6/Stop-Meth.aspx>)

* Attachment from
Dr Glenn Morrison
email 28 March 18

Guidelines for
Cleaning up Former
Methamphetamine
Labs



Missouri Department of Health and Senior Services
Bureau of Environmental Epidemiology

Why are we producing these guidelines?

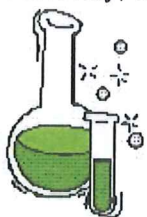
Meth labs, used to make the illegal drug methamphetamine, are discovered in houses, apartments, motel rooms, sheds, and even motor vehicles. In 1999, federal, state and local authorities were involved in the seizure of more than 900 labs in Missouri alone, and the number of meth labs seized by law enforcement agencies increases each year.

As agencies seek to restrict the products needed to make methamphetamine, the methods and the locations of its production are changing. This adds to the difficulty health and environmental agencies face in assessing meth related health risks.

The Missouri Department of Health and Senior Services' (DHSS) Bureau of Environmental Epidemiology has created these basic guidelines to assist property owners and the general public in cleaning up former meth lab properties.

How can you find out if a property has been used to make meth?

Currently, there is no comprehensive method for tracking or listing properties that were used as meth labs. You should call your local law enforcement agency to confirm that a seizure of chemicals took place on the property, and to obtain the name of any hazardous materials contractor who may have removed materials. The contractor should have information on what chemicals were present on the property. Additional information may be obtained from your county health department, fire department, or the owner of the property.



Why the concern about cleaning up illegal meth labs?

Properties used to produce meth will usually be found with a lab-like setting; including containers of chemicals, heat sources, and various types of lab equipment. Typically, after a lab is discovered by law enforcement, the bulk of any lab-related debris, such as chemicals and containers, is removed. However, it is possible a small amount of contamination is left on surfaces and in absorbent materials (carpets, furniture), sinks, drains, and ventilation systems. Though found in small amounts, meth lab contaminants may pose health threats to persons exposed to them.



What are the meth lab contaminants?

The Environmental Protection Agency (EPA), working with DHSS, has been seeking to identify contaminants found at former meth lab properties throughout Missouri. There are different “recipes” for making meth, each using different ingredients. The making of meth can also be performed in different stages at different locations. EPA has collected environmental samples from properties after meth labs were seized. EPA concentrated its sampling efforts on areas to which a resident would most likely come in contact with contamination, such as a property’s surfaces and indoor air – but EPA also collected samples from containers, soil, drains, filters, ductwork, etc.



DHSS has examined sampling results and found many chemicals, not related to meth labs, that can be found in most homes. The more common household chemicals can be found in carpet, household cleaners, and paints. These chemicals include: benzene, methylene chloride, trichloroethane, and toluene. It is suspected that meth-related chemicals include solvents such as paint thinners, phosphorous from matches and road flares, lithium strips from lithium batteries, sodium metal, and anhydrous ammonia which is often found in insulated coolers and small propane cylinders.

What are possible health effects from exposure to meth lab contaminants?



Many of the contaminants present during meth’s cooking process can be harmful if someone is exposed to them. These contaminants can cause health problems including respiratory (breathing) problems, skin and eye irritation, headaches, nausea, and dizziness. Acute (short-term) exposures to high concentrations of some of these chemicals, such as those law enforcement officers face when they first enter a lab, can cause severe health problems including lung damage and burns to different parts of the body.

There is little known about the health effects from chronic (long-term) exposure to contaminants left behind after a meth lab is dismantled. Until the contaminants have been identified, their quantities measured, and their health effects known, DHSS advises property owners to exercise caution and use the safest possible cleaning practices in dealing with a former meth lab property and any possible remaining contamination.

How can the property be cleaned up?

There is currently no official guidance or regulations on how to clean up a former meth lab property for reoccupation. DHSS is working to find an answer that will protect the public and be practical for property owners. Responses across the country to the cleanup of these properties have ranged from doing nothing to complete demolition. Until a cleanup standard is determined, DHSS advises owners to do their best to thoroughly clean up these properties.

DHSS believes the safest way to clean up a former meth lab is to hire environmental companies trained in hazardous substance removal and cleanup. Owners who clean their own properties should be aware that household building materials and furniture can absorb contaminants and give off fumes. Use caution and wear clothing to protect your skin, such as gloves, long sleeves, and eye protection during cleaning.

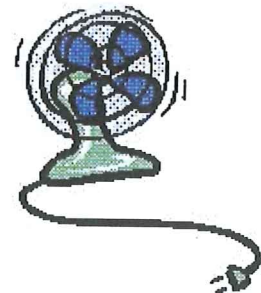


Some general guidelines include:

• Airing out the property

After a lab is seized by law enforcement officials, professionals trained to handle hazardous materials are generally called in to remove lab waste and any bulk chemicals. During this removal, every effort is made to air out the property for the safety of the removal crew. For security reasons, the property is usually closed upon their departure. However, this short-term airing-out may not be sufficient to clear out all contaminants from the air inside the home. Be sure the property has been aired out for several days before cleaning. After the initial airing out, good ventilation should be continued throughout the property's cleanup.

To promote the volatilization (dissolving into the air) of some types of chemicals, windows and doors may be closed and the temperature inside the properties increased to approximately 90 degrees Fahrenheit for a few days. After cleaning and heating is complete, the property should be aired out for three to five days to allow for any volatiles to disperse from the house. Open all the windows and set up exhaust fans to circulate air out of the building. During this time, the property should remain off limits unless it is necessary to make short visits to the property.



After the cleaning and final three to five days of airing-out, the property should be checked for re-staining and odors, which would indicate that the initial cleaning was not successful, and further, more extensive steps should be taken.

CAUTION

• Contamination removal and disposal

During the meth cooking process, vapors are given off that can spread and be absorbed by nearby materials. Spilled chemicals, supplies and equipment can further contaminate non-lab items. It is a good idea to remove unnecessary items from the property and dispose of them properly. Items that are visibly contaminated should be removed from the property and may be disposed of in a local landfill.

If you find suspicious containers or lab equipment at the property, do not handle them yourself. Leave the area and contact your local law enforcement agency or fire department. It is possible that some items may have been left behind after a seizure. If the property has been searched by a hazardous materials cleanup team, the items have most likely been identified and are not dangerous. However, some properties may not have been searched or some items may have been overlooked in the debris or confusion of a seizure.

Absorbent materials, such as carpeting, drapes, clothing, etc. can accumulate vapors that are dispersed through the air during the cooking process. They also may collect dust and powder from the chemicals involved in the manufacturing process. It is recommended that these materials be disposed of properly, especially if an odor or discoloration is present.

• Surfaces

Surfaces, such as walls, counters, floors, ceilings, etc. are porous and can hold contamination from the meth cooking process, especially in those areas where the cooking and preparation were performed. Cleaning these areas is very important as people may come in frequent contact with these surfaces through skin, food preparation, etc.

If a surface has visible contamination or staining, complete removal and replacement of that surface section is recommended. This could include removal and replacement of wallboard, floor coverings and counters. If this is not possible, intensive cleaning followed by the application of a physical barrier such as paint or epoxy is recommended. These areas should be monitored and the barrier maintained to assure that the contamination is contained.

Normal household cleaning methods and products should remove any remaining contamination. Don't forget to wear gloves, protective clothing, such as long sleeves, and eye protection. Again, ventilation of the property should be continued throughout the cleaning process.



• **Ventilation system**

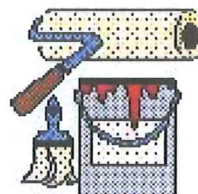
Ventilation systems (heating, air conditioning) tend to collect fumes and dust and redistribute them throughout a home. The vents, ductwork, filters, and even the walls and ceilings near ventilation ducts can become contaminated. Replace all of the air filters in the system, remove and clean vents, clean the surfaces near system inlets and outlets, and clean the system's ductwork.

• **Plumbing**

While some of the waste products generated during meth manufacture may be thrown along the sides of roads or in yards, most are dumped down sinks, drains, and toilets. These waste products can collect in drains, traps, and septic tanks and give off fumes. If a strong chemical odor is coming from household plumbing, do not attempt to address the problem yourself; rather, contact a plumbing contractor for professional advice or assistance. If you suspect the septic tank or yard may be contaminated, contact the local health department.

• **Repainting**

When a surface has been cleaned, painting that surface should be considered, especially in areas where contamination was found or suspected. If there is any remaining contamination that cleaning did not remove, painting the surface puts a barrier between the contamination and anyone who may come in contact with those surfaces. Even on those areas that people do not normally touch, painting will cover up and "lock" the contamination onto the surface, reducing the chances that it would be released into the air.



Should testing be done after cleanup?

If, after cleaning your residence using these guidelines, you are concerned about any remaining contamination, or if your property still has an odor, visible staining, or causes physical irritation to those exposed, it is advisable to have the property evaluated and tested. Also, if you are concerned with liability issues, you should consider having the property tested. Sampling is an expensive option, but may provide peace of mind for property owners and families. You may want to contact your insurance carrier for advice and assistance.

Remember these steps to cleaning a former meth property:

- 1 Determine if the property was used for meth production.
- 2 Air out the property before and during cleanup.
- 3 Remove all unnecessary items and dispose of them.
- 4 Remove visibly contaminated items or items that have an odor.
- 5 Clean all surfaces using household cleaning methods and proper personal protection.
- 6 Clean the ventilation system.
- 7 Leave plumbing cleanup to the experts.
- 8 Air out the property for three to five days.
- 9 If odor or staining remains, have your home evaluated by a professional.

If, after reading this brochure, you have questions, please call **DHSS** at **573-751-6102** or **1-866-628-9891**.

For more information contact:

**Missouri Department of Health and Senior Services
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www.dhss.mo.gov**



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