

Methamphetamine exposure and remediation in housing.

Concerns about methamphetamine contamination of residential properties have recently been highlighted in both the international and Australian media.¹⁻³ These concerns relate to the contamination of properties from both the manufacturing and consumption of methamphetamines. However, information regarding what kind of remediation (if any) is appropriate in these contexts is confusing and unclear.

In this bulletin, we take a look at the evidence, providing an outline of the key issues relating to methamphetamine contamination of housing, including:

- What is methamphetamine?
- Impact of residue from methamphetamine – recreational use versus manufacture
- Impact of residue arising from methamphetamine manufacture
- Testing methods
- Levels posing a health risk
- Guidelines for safe levels of methamphetamine
- Remediation of previous clandestine labs
- Cleaning companies offering remediation
- Stigma associated with previous use
- What should be done if manufacture is suspected?
- Further drug information.

Key points

- Remediation of properties where methamphetamine has only been used recreationally is not required, as the research does not demonstrate a health risk.
- Properties where methamphetamine has been manufactured pose a health risk to people living in those properties, with the highest health risk amongst children.
- Where methamphetamine has been manufactured, and following testing for residue, remediation may be required depending on the test findings.
- There is considerable debate about the level of residue warranting remediation in properties where methamphetamine manufacture has occurred.
- Australian guidelines recommend remediation where levels are 0.5 micrograms per 100 square centimetres of remediated surface. However, a recent review in New Zealand suggests this low 'safe level' has previously resulted in unnecessary remediation.
- Unnecessary remediation has associated costs and can increase stigma amongst people living in houses where methamphetamine use has occurred.

What is methamphetamine?

Methamphetamine is a stimulant drug that is one of the most commonly used recreational drugs in Australia and around the world. Stimulants speed up the messages travelling between the body and the brain⁴, giving a person common effects such as confidence, energy, reduced appetite and increased heart rate.⁴⁻⁶

Illegally produced methamphetamines have street names such as 'speed' and 'ice'. The key difference between speed and ice is the purity: ice is generally in the form of crystals or crystalline powder and has a higher purity than speed, meaning the effects of ice are much stronger. Due to the way in which illegal drugs are produced, it is highly likely that methamphetamines also contain fillers such as binding agents, caffeine and sugar.⁴

The form of methamphetamine that is most commonly used in Australia is crystal methamphetamine ('ice'), though this use has been declining since 2013.⁷

Impact of residue from methamphetamine – recreational use versus manufacture

Some media reports have claimed that the smoking of methamphetamine in residential properties results in environmental contamination of surfaces within the home, such as benches, carpets, and curtains. However, the impact of residue from methamphetamine varies depending on whether it arises from recreational use versus manufacture of methamphetamine at the property.

Numerous studies now clearly indicate that recreational use of methamphetamine does not result in the build-up of residue that would harm future residents.^{8, 9} In fact, the New Zealand Chief Scientist has stated that: "...there are no published (or robust, unpublished) data relating to health risks of residing in a dwelling formerly used *only for smoking* methamphetamine".⁸

Methamphetamine contamination of residential properties is only considered a health risk where manufacturing has occurred.^{8, 10}



Impact of residue arising from methamphetamine manufacture

Methamphetamine is often manufactured in clandestine laboratories (known as clan labs or meth labs). Clandestine laboratories can be built in commercial buildings, factories, sheds and residential dwellings. In Australia, most clandestine laboratories that are detected are in, or adjacent to, domestic dwellings (68.4%). Others are found in vehicles such as caravans (9.9%); public places (6.8%); rural areas, usually vehicles (6.0%); commercial/ industrial buildings (4.2%); and other facilities (4.7%).¹⁰

The health risks associated with methamphetamine manufacturing are highest for children who live in these environments, when compared to adults.^{11,12} Children's metabolic processes are more susceptible to the effects of chemicals/ drugs than adults. The most commonly reported symptoms to methamphetamine exposure include headache, nausea/ vomiting, respiratory difficulty and eye irritation.¹³

Whilst residue arising from methamphetamine manufacturing is considered to be associated with health risks, the level of methamphetamine residue that is considered to pose that risk varies around the world.

Testing methods

As noted above, there is currently no robust evidence to demonstrate the need for remediation of properties where methamphetamines have been consumed and not manufactured.⁸ This means that testing of properties should only be conducted if methamphetamine manufacture is suspected or confirmed, and even then, the level of remediation depends on the level of residue.

If a property is suspected or confirmed to have been a clandestine laboratory, there are a number of ways that testing can be conducted. One of the most common types of testing in Australia includes the use of wipes, which collect surface particles which are then tested in a professional laboratory environment.¹⁴ However, some recent research has identified the limitations of this approach to testing, particularly with respect to porous surfaces (such as wood) and soft furnishings (such as cloth-covered furniture and curtains).¹⁴ If a property is confirmed to have been a clandestine laboratory, it may be appropriate to complete detailed testing of different surfaces to enable adequate remediation.

Reference levels posing a health risk

Guidelines for safe levels of methamphetamine

There are currently a number of approaches to defining the ‘safe level’ of methamphetamine contamination in a dwelling/space where a clandestine laboratory has been confirmed.^{8, 15-17}

A ‘safe level’ is considered to be a level of methamphetamine presence where no health risks are posed.⁸

A safe level is determined by a ‘reference value’, which represents a volumetric amount of a substance that can be present without posing any risk to health. Usually, a reference value is represented

by an amount of a substance for every measure of surface area tested. For example, in Australia, the currently accepted reference value is 0.5 µg/100 cm². What this means is that for every 100 cm x 100 cm of tested surface, it would be considered safe for 0.5 micrograms (0.00000005 grams) of methamphetamine to be present.

There are different ways in which reference values are calculated, which means that it may be difficult to compare them. For example, some areas of the world use different units, as shown in Table 1 below. How each country/region calculates a reference value varies based on what factors they take into account when completing their risk assessments.

TABLE 1:

Safe levels of methamphetamine detection following remediation of past clandestine laboratories

Country/City	Reference value indicating acceptable safe level	Unit definition
Australia, national ¹⁰	0.5 µg/100 cm ²	Micrograms per 100 square centimetres of surface tested on the property
USA, California ¹⁵	0.3 µg/kg body weight/day	Micrograms per kilogram body weight per day (equivalent to 1.5 µg/100 cm ²)
USA, Colorado ¹⁶	0.5 µg/100 cm ²	Micrograms per 100 square centimetres of surface tested on the property
New Zealand, national ⁸	1.5 µg/100 cm ²	Micrograms per 100 square centimetres of surface tested on the property

Most existing approaches to calculating the reference value take into account a significant margin for risk (safety factor). For example, the Californian acceptable reference value of exposure is based on a study which showed that 80 µg/kg body weight/day was the lowest dose to show any effect on health.⁸ However, the adopted reference level of 0.3 µg/kg body weight/day was implemented due to a safety factor to protect sensitive members of society such as children. A similar conservative approach has been taken in Australia and Colorado, taking a safety factor approximately 300 times higher than the amount found to have an effect on health in research studies.

An important point to consider is that these existing conservative approaches are based on the worst-case scenario. There is little research to demonstrate that exceeding these levels, even by a small amount, increases the risk of harmful outcomes.⁸ Further research is needed to demonstrate exactly how much exposure to methamphetamine residue in dwellings would elicit negative health outcomes and therefore establish well informed and appropriate guidelines for future remediation work.

New Zealand guidelines were originally the same as Australia's. However, the New Zealand Institute of Environmental Science and Research completed its own risk assessment to determine the appropriate reference level following the remediation of a dwelling where manufacturing occurred.¹⁸ This report found that reference levels up to 2 µg/100 cm² pose no health risks to people, including those most vulnerable such as children.¹⁸ Following this recommendation, the New Zealand Government decided to take 1.5 µg/100 cm² as the preferred reference level, in line with more conservative risk management approaches.⁸

Remediation of previous clandestine laboratories

The Australian Government has developed Clandestine Drug Laboratory Remediation Guidelines.¹⁹ The Guidelines recommend four phases of remediation, including:

1. Trigger for assessment
2. Preliminary assessment and action
3. Site assessment and remediation
4. Validation.

It is important that any remediation work is done in a way that follows scientific best practice and considers contributing factors, alongside an assessment of potential health risks. For example, furniture that was moved into a property following methamphetamine exposure may require different assessment when compared to furniture that was present during exposure.

Cleaning companies offering remediation

Due to a lack of clear health and scientific information regarding methamphetamine contamination in residential properties, public concerns regarding health effects in recent years have been high. Commercial companies who offer specialised cleaning services have therefore been able to gain a steady stream of clients, even when there is no evidence of methamphetamine manufacture or need for remediation work.

Specialised remediation services may be unnecessary, particularly when methamphetamine has only been used recreationally and methamphetamine manufacture has not occurred.

Stigma associated with previous use

In 2017/18 hundreds of New Zealand public housing tenants were evicted from their homes due to suspected methamphetamine contamination. The Board of Housing New Zealand later acknowledged that significant harm was done in the process due to improper application of the policies and procedures associated with the methamphetamine exposure guidelines.²⁰ The harms included displacement of people, destruction of personal property and substantial financial stress on families.

There is a significant potential for misinformation with respect to methamphetamine contamination in Australia, which could result in harm and discrimination. This is particularly true for people who may experience accusations and property evictions and may be subjected to costs associated with potentially unnecessary remediation work.

What should be done if manufacture is suspected?

If it is suspected that methamphetamine manufacture has occurred, the first step should be to engage a local government Environmental Health Officer to arrange an assessment. This may trigger remediation if manufacturing is confirmed and will be determined case by case. Testing of homes should not be conducted prior to consultation with an Environmental Health Officer who will be following Australian Guidelines and scientific process.

The list below provides information regarding both the Federal Government and state-based government regulations regarding clandestine laboratory remediation.

- Australian Government Department of Health: [enHealth Guidance on Clandestine Drug Laboratories and Public Health Risks \(2017\)](#)
- NSW Ministry of Health: [Remediation Guidelines for Clandestine Drug Laboratories and Hydroponic Drug Plantation: A Report to Health Protection NSW](#)
- Northern Territory: refer to Australian Department of Health document above.
- Queensland Health: [Clandestine laboratory remediation](#)
- SA Health: [Practice Guideline for the Management of Clandestine Drug Laboratories under the South Australian Public Health Act 2011](#)
- Victorian Department of Health: [Clandestine laboratory remediation](#)
- Tasmanian Government Department of Health: [Guide for the Management of Clandestine Drug Laboratories](#)
- Government of Western Australia Department of Health: [Clandestine drug laboratories](#)

Further Drug Information

DrugInfo druginfo@adf.org.au

Free information regarding alcohol and other drugs.

ADF Drug Facts: adf.org.au/drug-facts/

Comprehensive information on alcohol and other drugs.

Cracks in the Ice: cracksintheice.org.au

Evidence-based information for the community about crystal methamphetamine.



Alcohol
and Drug
Foundation

The Alcohol and Drug Foundation is Australia's leading source of alcohol and other drugs (AOD) information.

Find up-to-date information, articles and resources and access the Drug Information Directory.

Visit adf.org.au

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