



B184 The Contamination of Homes With Methamphetamine: Are Current Assessment and Remediation Approaches Adequate?

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Learning Overview: The goal of this presentation is to inform attendees on the effectiveness of the current assessment of risk from living in homes contaminated with methamphetamine and the effectiveness of different remediation processes over time.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by improving understanding of the effectiveness of different remediation processes for removing, or covering up, methamphetamine contamination in a variety of materials found in domestic homes, including walls, ceilings, soft fabrics, blinds, and toys.

Contamination of domestic dwellings from methamphetamine cooking or smoking is an increasing public health problem in many countries.^{1,2} To evaluate the extent of contamination, sampling generally focuses on collection of surface-wipe samples from walls and other surfaces of a potentially contaminated home and analysis by established methods. However, the concentration of methamphetamine on surfaces may not give a true representation of the extent of contamination. The contamination levels of many household materials may depend on the material, the porosity, absorptivity, and the room in which the material was located with respect to the room where the drugs were synthesized or smoked. Results in this presentation come from a long-term study of contamination in a home (Rural Victoria, Australia) that had been used to cook methamphetamine, then sold, lived in for 18 months by the new owners until it was deemed to be unfit for human habitation, then left unattended (since March 2015).³ Although the time since the cooking had taken place was significant (more than six years), the levels of contamination were still extremely high in items that were part of the house when the cooking of drugs was taking place (blinds, carpets, walls). In addition, levels were also high in articles brought to the house post-cooking (rugs, toys, beds, etc.). Both wipe sampling and analysis of bulk samples indicate that the methamphetamine is not breaking down or being removed and is being transferred from contaminated to non-contaminated objects.

Furthermore, the concentration of methamphetamine inside the boards (plasterboard—a building material made from calcium sulfate dehydrate sandwiched between paper) of the ceiling were found, in places, to be around three times higher than the concentration on the external surface, indicating that the methamphetamine had soaked in.

A study of several remediation processes was also carried out in this property with “fogging,” “ozone,” “washing,” and painting over with oil-based and water-based paints applied to large sections of the wall. Initial results indicated a reduction in the level of methamphetamine detected; however, in all cases, methamphetamine was still detected over time in subsequent analysis. If the level of methamphetamine inside the wall is not reduced by these surface remediation treatments, then it may seep out over time, leading to “recontamination” and exposure to people living in the “treated” house. The same applies to methamphetamine absorbed into materials, rugs, toys, beds, etc.

These results raise questions about the adequacy of characterizing contamination and making decisions about the extent of remediation required, based just on surface-wipe samples. Without fully understanding the extent of contamination that is present, not only on surfaces, but within the building materials, it is difficult to ensure that the correct and most effective remedial approaches are taken to appropriately address the risks to inhabitants.

Reference(s):

1. Wright, J.L., Edwards, J.W., and Walker G.S. Exposures associated with clandestine methamphetamine drug laboratories in Australia, *Reviews on Environmental Health*, 2016, 1 31 (3) 329-352.
2. Gluckman, P. 2018. *Methamphetamine contamination in residential properties: Exposures, risk levels, and interpretation of standards*. New Zealand: Office of the Prime Minister's Chief Science Advisor. (Available from <https://www.pmcas.org.nz/wp-content/uploads/Methamphetamine-contamination-in-residential-properties.pdf>).
3. Wright, J.L., Kenneally, M., Edwards, J.W., and Walker G.S. Adverse Health Effects Associated with Living in a Former Methamphetamine Laboratory—Victoria, Australia, 2015. *MMWR—Morbidity and Mortality Weekly Report*, 2017, Vol 65 Issue 52 1470-1473.

Methamphetamine, Contamination, Remediation