

Clandestine drug laboratories—public and environmental health aspects

Much concern has recently been voiced about an increase in the number of clandestine drug labs. The drugs typically synthesized in these clandestine labs include methamphetamine and related substances. The activities occurring in these labs have resulted in reactions of fear and concern about the potential health and safety impacts.

Clandestine labs are essentially small-scale chemical manufacturing facilities that do not have the benefit of sophisticated process control, adequate ventilation, or safety systems. Proper waste disposal methods are rarely employed and contamination of sewers, local waterways, and soils may result in adverse effects on the environment.

Reports have been published documenting both acute inhalational injury¹ and long-term decline in lung function² in law enforcement personnel dealing with clandestine labs. Exposures to individuals involved in the cooking process are even higher, and fatalities from phosphine exposure have been reported.³ Because of the potential for very high exposures in the lab during the cooking process, first responders are advised to use appropriate respiratory protective equipment when entering these facilities.

Exposures to those outside the building will be much lower. However, fire or explosion present a risk to those in the neighborhood of clandestine labs.

A process frequently found in clandestine labs in BC uses red phosphorus and hydroiodic acid to reduce ephedrine or pseudoephedrine to methamphetamine. In a controlled experiment conducted in a house in the US, this method has been found to produce air concentrations of phos-

phine, hydrogen chloride, and iodine above workplace limits.⁴ Although the volume of product may not be large, the relatively small size of the room and lack of ventilation can result in significantly elevated concentrations of process chemicals. Operators of clandestine labs may deliberately reduce ventilation of these facilities to avoid detection.

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While the highest exposures to chemicals in clandestine labs occur to occupants of the building and to first responders entering an active lab, there are also concerns about exposure to subsequent occupants of buildings that have been used as clandestine labs.

Research on clandestine labs in the US has shown clear evidence that methamphetamine residues can be deposited on surfaces and objects in buildings that have been used as clandestine labs; in some cases well beyond the actual area used for cooking. To prevent harmful exposures to people occupying the building after the clandestine lab is shut down, suitable cleanup and remediation measures should be employed. The BCCDC has prepared interim cleanup guidelines for clandestine methamphetamine labs.⁵ The guidelines have been prepared using best available information. However, as no data were available documenting the results of cleaning techniques on methamphetamine and related residues in buildings

used as clandestine labs, the guidelines should be viewed as interim until documentation of effectiveness can be obtained. These guidelines may be useful to those with responsibility for managing and remediating clandestine lab facilities. The interim guidelines focus on proper removal and disposal of any bulk chemicals left at the site and the assessment, ventilation, and cleanup of the building and contents.

Clandestine labs represent an unusual but potentially significant setting for indoor exposure to high levels of chemicals with significant toxicity to the respiratory tract. With the growing number of these labs in BC, physicians should consider this as possible explanation when patients present with symptoms compatible with exposure to chemicals commonly used in methamphetamine manufacture.

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References

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