

Guidelines for Prevention and Management of Bed Bugs in Shelters and Group Living Facilities

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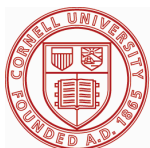
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Summary

This publication covers bed bug prevention, management and control, education and awareness, and is specifically geared toward public agencies and private or public housing administrators and their facilities management teams. It is applicable to other types of living situations, though techniques and recommendations may need to be adapted. Fact sheets listed at the end are intended to be used as stand-alone educational document for residents, housekeepers, medical and social service providers, and others as needed. Detailed information about the use of pesticides for managing bed bugs is not covered in this book, but can be found in *The Bed Bug Handbook* (Pinto, Cooper and Kraft 2008).

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Introduction

What are bed bugs?

Bed bugs are insects of the Order Hemiptera and Family Cimicidae, which has over 90 species around the world and 15 in North America. Bed bugs and their relatives are wingless, blood-feeding parasites of animals. The common bed bug (*Cimex lectularius*) is a pest of humans this species has recently become a problem in the United States and countries all over the world.



Bed bug adult and egg. Photo by J. Gangloff-Kaufmann.

Bed bugs have three basic life stages; egg, nymph, and adult. They begin as a very small but visible egg, hatch to become a first instar nymph or juvenile, which is 1 millimeter long or about the size of a poppy seed. There are five juvenile stages, which feed on blood, molt and grow over time. The adult is about the size of an apple seed.

Bed bugs tend to gather together in hidden and undisturbed places where a person sleeps, or sits for an extended period of time. They are usually found in the bed, along the seams and sides of the mattress and box spring, the headboard, and bed frame, creating clusters of live bed bugs, shed skins, dark-colored fecal spots, and eggs. In heavily infested locations bed bugs can be found anywhere in the room. As bed bugs grow they shed their amber-colored, transparent skins, leaving behind what look like hollow bed bugs.

A fecal spot, the result of bed bug digestion, may look like a brownish-black bump on a hard surface, or a dark stain (like a magic marker dot) on fabric. Eggs are cemented to fabric, wood, paper, and most other surfaces as the female hides or wanders in search of a host.

Bed bugs, cast skins, eggs and fecal matter on the wood under a bed. Photo by P. Stravino.



Where did bed bugs come from?

It is unclear exactly why and from where bed bugs re-emerged as a pest in our homes, dormitories, hotels, and shelters, but the resurgence was noticed throughout the world in the late 1990's. During pre-World War II times, it was estimated that nearly 30% of American homes had bed bugs. After World War II, many long-lasting pesticides were commonly used

indoors. Bed bugs were nearly absent for 50 years in America. However, stories and reports indicate that bed bugs may never have truly disappeared in America but they were very uncommon, until recently.

What is the risk of having bed bugs?

Bed bugs must bite to feed on blood. They have pointed mouth parts, like mosquitoes, and feed for just a few minutes at a time. They must feed to grow and although they primarily feed at night, bed bugs will bite during the day if necessary. Bed bugs have never been shown to transmit disease to humans. The most common symptom of bed bug bites are itchy welts on the skin of most but not all sufferers. Reactions vary widely from person to person and bites alone cannot be used to confirm bed bugs. Bites may develop secondary infections through scratching. Anemia has been reported in the elderly and very young in cases where homes are heavily infested. Asthma has also been linked to the presence of bed bugs in homes, though not yet in the United States.



Bed bug bites. Photo by L. Sorkin.

More risks can arise with the use of insecticides to treat bed bug problems in the home, particularly when individuals attempt to eradicate bed bugs without the help or advice of a professional pest manager. People with no pesticide application experience are using total release aerosol foggers (“bug bombs”), professional products, and sometimes illegal products to attempt to control bed bugs in their homes. The impact on public health from overexposure to pesticides used to control bed bugs is unknown. The New York City Department of Health and Mental Hygiene strongly discourages the use of “bug bombs” and foggers because of the potential of human exposure to insecticides and the risk of device explosions.

Bed bugs can be transferred among people, and that places a great deal of social, emotional and financial stress on sufferers. Control is challenging and costly, and there is still a certain amount of social stigma attached to living with bed bugs. Having bed bugs may restrict the social lives of people. Sufferers avoid visiting friends and family and often throw away belongings, at great cost, and minimal benefit. Tenant-landlord disputes over who is responsible continue to take place and these battles can be damaging to both parties.

How can we get rid of them?

Pesticides alone, or the use of any single method, will not eliminate bed bugs. A strategy that includes a number of methods is absolutely necessary, especially in multiple unit facilities like apartments, shelters, dormitories, group homes, and hotels. The following are needed for effective bed bug control:

- Cooperation of landlord, management, and resident to focus on the problem
- Accurate identification to be sure it is a bed bug and not another pest
- Identification of the source (especially if bed bugs are moving from an adjacent room or apartment unit)
- Thorough inspection of the facility and identification of all possible hiding spots
- Cleaning and organization of the living area