

OREGON PUBLIC HEALTH DIVISION • OREGON HEALTH AUTHORITY

DON'T LET THE BED BUGS BITE

“Good night, sleep tight; don't let the bed bugs bite.” This old adage, while familiar to most, made sense to few, especially among the younger generation of clinicians. What exactly is a bed bug? Until recently, many people didn't know because bed bugs simply weren't around. Bed bugs, however, have annoyed and pestered humans since cave-dwelling times. They were a common problem in the U.S. until the 1950's when pesticides, such as DDT, were introduced and the population of bed bugs plummeted. However, there is widespread agreement now that they are most certainly back with a vengeance.

The resurgence is suspected to be due to four factors: increased resistance of bed bugs to available pesticides; greater international and domestic travel; lack of current knowledge of bed bugs and how to control them (because they were gone for so long); and the decline or elimination of vector and pest control programs within public health agencies.¹

Whatever the reason, bed bugs are back and people are concerned about them. This *CD Summary* will help you identify and address your patients' concerns about these little suckers.

WHAT IS A BED BUG?

The primary species of bed bug in the U.S. and Oregon is *Cimex lectularius*. They are reddish brown bugs with flat, oval bodies and no wings, ranging from 1–7mm in length, and are often compared in size and appearance to an apple seed (see picture). They are blood-sucking ectoparasites (external parasites) similar to head or body lice. Blood is their only food source, and a blood meal is necessary for each of their five stages of development and for reproduction. Although they love humans, pets can be hosts as well.²

Bed bugs are very adept at hiding out in nooks, crannies, and cracks, coming out only to feed, usually between midnight and 5 AM. They like

to have a blood meal every 3–7 days, but can live for two months without one.³ This makes them ideal travellers on luggage and clothes, and makes infestations very difficult to control.

WHAT ARE THE RISKS?

Luckily, bed bugs are not known to transmit any disease. This is the main public health message regarding bed bugs. They are a nuisance, and certainly a pest, but NOT A VECTOR. That being said, there are two public health concerns worth mentioning: bed bug bite reactions, and pesticide exposures.

Cimex lectularius ingesting a blood meal.
(Source: CDC)



First, the bites can be bothersome, and are likely to be the primary reason your patients will talk to you about bed bugs. Not everyone will react to bed bug bites. It's estimated that about 20% of people will show no reaction, and many will show only a purpuric macule without irritation. Larger reactions are allergy mediated, ranging from erythematous to urticarial papules, to bullae in sensitized individuals, and rarely asthma exacerbations and anaphylaxis. It can be up to 10 days between the bite and the appearance of a reaction. Often, these bites will be difficult to differentiate from mosquito or flea bites (see below for suggestions). In addition, due to the

pruritic nature of the bites, secondary infection may occur.⁴

The second public health concern regarding bed bugs focuses on how people are responding to bed bugs. They are a nuisance, can lead to fitful sleep, and can have serious stigma and mental health consequences. Understandably, people want to get rid of them ASAP! However, ridding a home of bed bugs is not easy. Current recommendations are to use an integrated pest management (IPM) approach focusing on several issues at the same time (see below under “treatment”). The main concern to human health relates to exposure to chemical pesticides. Because of resistance, the number of chemical pesticides that are effective against bed bugs is limited. This may tempt people to use stronger or larger amounts of pesticides when the home is infested with bed bugs, but this is not the answer: stronger or more pesticides will not get rid of the bugs and may cause health effects from pesticide exposure. Please remember that pesticide poisoning is a reportable disease in Oregon, and if your patients have adverse health effects from trying to rid their homes of bed bugs, that may be more concerning to their health than the bugs themselves.

WHAT IS PUBLIC HEALTH DOING?

Despite the fact that bed bugs are not vectors, they are a public health concern for the above reasons, and there is a movement around the U.S. to learn more about bed bug trends and treatments. In response to an increase in the number of community complaints of bed bugs over the last several years, Multnomah County Health Department has formed a Bedbug Workgroup and is developing a surveillance system to better quantify the problem and identify strategies to control bedbugs. In the meantime, the state Public Health Division and Multnomah County web sites (see below) provide resources on identifying and treating bed bug infestations. If a patient has a sample of a bug, Multnomah County's



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vector control will identify it to confirm whether it is a bed bug or not.

THE BED BUG OFFICE VISIT

Diagnosing bed bug bites can be tricky, but worthwhile. Differentiating bites from those of other bugs may not change patient management, but can affect what your patient must do to treat their home or business, and to prevent further exposure.

HISTORY: Recent travel history is helpful, since bed bugs are notorious for hitchhiking on luggage. They also hitchhike on clothing and other belongings, and they can be found almost anywhere, including department stores, schools, offices, movie theaters, etc. However, the biggest risk for picking up bed bugs comes from sleeping in an infested motel or hotel, or at a friend's infested apartment.³

Another important clue to ask in your history is whether bed bugs have been seen in the home. Being up to the size of an apple seed, they typically can be seen around the seams of mattresses or behind headboards, or other small spaces around where people sleep. Bed bug droppings can also be seen on mattresses, etc. As they only eat blood, think small spots of melena...Ugh!

PHYSICAL: Bed bugs usually bite on exposed areas of skin. For people while sleeping, this would most likely include face, neck, hands or arms. Some may have heard of bed bugs biting in a line, what has been termed the 'breakfast, lunch, and dinner' spots.⁵ This, however, is a myth, as there is actually no consistent pattern to bed bug bites.

Bites have a range of appearances (see 'risks' above). Due to a large dif-

ferential for bed bug bites (including other bites, scabies, food allergies and more), diagnosis of bed bug infestations from only the bite reactions are unreliable.⁴

TREATMENT: Treatment of the bites themselves is symptomatic; preventing the bites in the first place is worth a pound of cure. If bed bugs are suspected from history and physical, confirmation should be made by submitting a bug to vector control, enlisting services of pest management professionals, or by very careful inspection after otherwise educating yourself on typical appearance of bed bugs and their droppings. The recommended integrated pest management (IPM) approach includes the following.

- **Monitoring:** looking for bed bugs in home (particularly the sleeping area), or in traveler's clothing and luggage; checking all used furniture before bringing it into the home.
- **Prevention:** removing clutter where bed bugs can hide; sealing floor board cracks and crevices; not setting luggage on or near the bed when traveling.
- **Sanitation:** laundering bedding and clothing on the hottest settings (high heat above 120°F for at least 20 minutes); vacuuming frequently and immediately sealing vacuum bags and discarding in an outdoor trash container; sealing mattresses, pillows, and box springs in bug proof covers; bagging clothes in plastic until laundered; scrubbing mattress seams and bed frames to remove bugs and their eggs.
- **Careful use of pesticides:** individuals should only use pesticides that are labelled for use in treating bed bugs. They must follow label instructions carefully and should only use chemi-

cal pesticides in addition to other management techniques above. Due to the complexity of effective treatment for bed bugs, it is recommended that people consult a pest management professional if possible rather than applying chemical pesticides in their home.

Taking these steps should help your patients to again sleep "as snug as a bug in a rug."

FOR MORE INFORMATION

- Oregon Public Health Division: <http://public.health.oregon.gov/HealthyEnvironments/HealthyNeighborhoods/HealthyHomes/Pesticides/Pages/bedbugs.aspx>.
- Multnomah County Health Department: <http://web.multco.us/health/bed-bugs>
- CDC: www.cdc.gov/nceh/ehs/Topics/bedbugs.htm
- EPA: www.epa.gov/opp00001/bed-bugs/index.html

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