

Bed Bugs FAQs from CDC.gov

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What are bed bugs?

Bed bugs (*Cimex lectularius*) are small, flat, parasitic insects that feed solely on the blood of people and animals while they sleep. Bed bugs are reddish-brown in color, wingless, range from 1mm to 7mm (roughly the size of Lincoln's head on a penny), and can live several months without a blood meal.

Where are bed bugs found?

Bed bugs are found across the globe from North and South America, to Africa, Asia and Europe. Although the presence of bed bugs has traditionally been seen as a problem in developing countries, it has recently been spreading rapidly in parts of the United States, Canada, the United Kingdom, and other parts of Europe. Bed bugs have been found in five-star hotels and resorts and their presence is not determined by the cleanliness of the living conditions where they are found.

Bed bug infestations usually occur around or near the areas where people sleep. These areas include apartments, shelters, rooming houses, hotels, cruise ships, buses, trains, and dorm rooms. They hide during the day in places such as seams of mattresses, box springs, bed frames, headboards, dresser tables, inside cracks or crevices, behind wallpaper, or any other clutter or objects around a bed. Bed bugs have been shown to be able to travel over 100 feet in a night but tend to live within 8 feet of where people sleep.

Do bed bugs spread disease?

Bed bugs should not be considered as a medical or public health hazard. Bed bugs are not known to spread disease. Bed bugs can be an annoyance because their presence may cause itching and loss of sleep. Sometimes the itching can lead to excessive scratching that can sometimes increase the chance of a secondary skin infection.

What health risks do bed bugs pose?

A bed bug bite affects each person differently. Bite responses can range from an absence of any physical signs of the bite, to a small bite mark, to a serious allergic reaction. Bed bugs are not considered to be dangerous; however, an allergic reaction to several bites may need medical attention.

What are the signs and symptoms of a bed bug infestation?

One of the easiest ways to identify a bed bug infestation is by the tell-tale bite marks on the face, neck, arms, hands, or any other body parts while sleeping. However, these bite marks may take as long as 14 days to

develop in some people so it is important to look for other clues when determining if bed bugs have infested an area. These signs include:

- the bed bugs' exoskeletons after molting,
- bed bugs in the fold of mattresses and sheets,
- rusty-colored blood spots due to their blood-filled fecal material that they excrete on the mattress or nearby furniture, and
- a sweet musty odor.

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How do I know if I've been bitten by a bed bug?

It is hard to tell if you've been bitten by a bed bug unless you find bed bugs or signs of infestation. When bed bugs bite, they inject an anesthetic and an anticoagulant that prevents a person from realizing they are being bitten. Most people do not realize they have been bitten until bite marks appear anywhere from one to several days after the initial bite. The bite marks are similar to that of a mosquito or a flea -- a slightly swollen and red area that may itch and be irritating. The bite marks may be random or appear in a straight line. Other symptoms of bed bug bites include insomnia, anxiety, and skin problems that arise from profuse scratching of the bites.

Because bed bug bites affect everyone differently, some people may have no reaction and will not develop bite marks or any other visible signs of being bitten. Other people may be allergic to the bed bugs and can react adversely to the bites. These allergic symptoms can include enlarged bite marks, painful swellings at the bite site, and, on rare occasions, anaphylaxis.

How did I get bed bugs?

Bed bugs are experts at hiding. Their slim flat bodies allow them to fit into the smallest of spaces and stay there for long periods of time, even without a blood meal. Bed bugs are usually transported from place to place as people travel. The bed bugs travel in the seams and folds of luggage, overnight bags, folded clothes, bedding, furniture, and anywhere else where they can hide. Most people do not realize they are transporting stow-away bed bugs as they travel from location to location, infecting areas as they travel.

Who is at risk for getting bed bugs?

Everyone is at risk for getting bed bugs when visiting an infected area. However, anyone who travels frequently and shares living and sleeping quarters where other people have previously slept has a higher risk of being bitten and or spreading a bed bug infestation.

How are bed bugs treated and prevented?

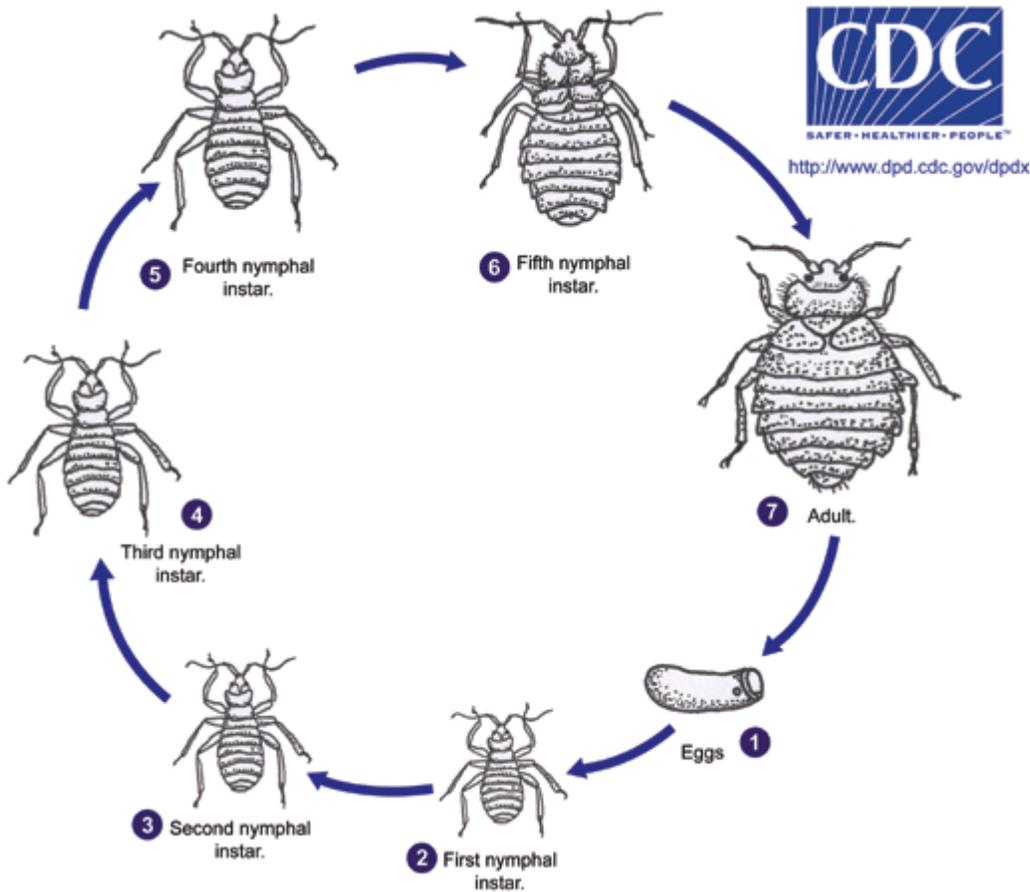
Bed bug bites usually do not pose a serious medical threat. The best way to treat a bite is to avoid scratching the area and apply antiseptic creams or lotions and take an antihistamine. Bed bug infestations are commonly treated by insecticide spraying. If you suspect that you have an infestation, contact your landlord or professional pest control company that is experienced with treating bed bugs. The best way to prevent bed bugs is regular inspection for the signs of an infestation.

Biology

Causal Agent:

The two species of bed bugs (Insecta: Hemiptera: Cimicidae) usually implicated in human infestations are *Cimex lectularius* and *C. hemipterus*. Although rare, humans may become incidental hosts of *Cimex* species of bats and birds.

Life Cycle:



Adults and all nymphal stages of *Cimex* spp. need to take blood meals from warm-blooded hosts, which are typically humans for *C. lectularius* and *C. hemipterus*, although other mammals and birds can be utilized in the absence of a human host. Female bed bugs lay about five eggs (1) daily throughout their adult lives in a sheltered location (mattress seams, crevices in box springs, spaces under baseboards, etc). Eggs hatch in about 4-12 days into first instar nymphs (2) which must take a blood meal before molting to the next stage. The bugs will undergo five nymphal stages (2, 3, 4, 5, 6), each one requiring a blood meal before molting to the next stage, with the fifth stage molting into an adult (7). Nymphs, although lacking wing buds, resemble smaller versions of the adults. Nymphs and adults take about 5-10 minutes to obtain a full blood meal. The adults may take several blood meals over several weeks, assuming a warm-blooded host is available. Mating occurs off the host and involves a unique form of copulation called 'traumatic insemination' whereby the male penetrates the female's abdominal wall with his external genitalia and inseminates into her body cavity. Adults live 6-12 months and may survive for long periods of time without feeding.

Life cycle image and information courtesy of DPDx.

Resources for Health Professionals

Treatment

Minimal symptomatic treatment and good hygiene to prevent itching and secondary infections are usually sufficient treatment for most cases of bed bug bites.

A wide range of empirical treatments, including antibiotics, antihistamines, topical and oral corticosteroids, and epinephrine have been used for bite reactions with varying results. Treatment options for cutaneous and systemic reactions from bed bug bites have not been evaluated in clinical trials and there is no evidence that outcomes differ significantly from those receiving no treatment.

In more extensive or severe cases, topical steroid creams with or without systemic anti-H1 receptor antihistaminics may be given. Topical antiseptics or antibiotics as well as systemic antibiotics may be needed in the case of secondary infection.

References

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- Burnett JW, Calton GJ, Morgan RJ. Bedbugs. Cutis 1986;38:20.
- Honig PJ. Arthropod bites, stings, and infestations: their prevention and treatment. Dermatol Pediatr 1986;3:189-97.

Additional Resources

- [Bed Bugs](#) - CDC Environmental Health Services
- [Joint Statement on Bed Bug Control](#) - CDC Environmental Health Services
- [Bed Bug Information](#) - EPA.gov
- [Bed Bugs in Schools](#) - EPA.gov
- [Bed Bugs \(*Cimex lectularius*\) and Clinical Consequences of Their Bites](#) - The Journal of the American Medical Association (JAMA)
- [How to Inspect a Bed for Bed Bugs \[Video\]](#) - Bed Bug Central TV
- [Bat Bugs and Bed Bugs](#) - Colorado State University
- [Guidelines for Prevention and Management of Bed Bugs in Shelters and Group Living Facilities](#) - Cornell University
- [Technical Guide No. 44: Bed Bugs - Importance, Biology, and Control Strategies](#) - United States Department of Defense
- [Don't Let the Bed Bugs Bite!](#) - Michigan.gov