

Bed Bugs In Wisconsin

Diagnostic Lab Note

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For most people bed bugs were only known from childhood poems until recently. There has been an explosion of bed bug problems worldwide and in Wisconsin in the last 10 years. The human bed bug has become very difficult to control due to pesticide resistance. People who travel, buy used furniture, or live in dorms, apartments and multiple family buildings have an increase chance of experiencing these blood feeding insects.



Human bed bugs

Bed bugs are flat, oval shaped, up to 3/16 inch long, reddish- brown insects. Nymphs are lighter colored and the size of small sesame seeds- adults about the side of an apple seed. Bed bugs cannot fly and are moderately host specific. In Wisconsin we find four species;



Bat Bug

the human bed bug (*Cimex lectularius*), the eastern bat bug (*C. adjunctus*), and two bird feeding species found on chimney swifts and swallows. The bed bugs associated with birds and bats crawl from nesting and roosting sites through

windows, light fixtures, electrical outlets and other openings. These species will bite humans if given the chance but will not breed from human blood. It is important to know which species is present because controls will differ. The bat bug can be identified by the long bristly hairs (hairs longer than the width of the eye) on the body.

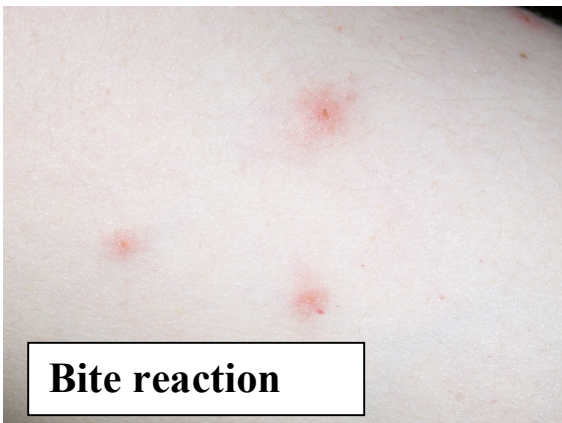
Bed bugs feed at night are attracted to warmth and carbon dioxide. These insects can crawl considerable distances to seek a host. They hide during the day in mattress seams, inside box springs, cracks and crevices on headboards, in tubing and other voids in the bed frame. As populations build they will be found behind the baseboards, picture frames, under electrical plates, around door and window casings, in seams, crevices and inside furniture (ie.. nightstands, dressers, chairs ,etc.), in radios, table lamps, stereo speakers and in the folds of curtains.

Female, eggs and nymphs



Bites are painless and similar to mosquito bites or hives- often with multiple bites in an area. They feed much like a mosquito and suck blood through a straw- like proboscis. Feeding takes 3-10 minutes and bed bugs will try to feed again in 5-10 days. Bites are most often seen on skin that is exposed when sleeping such as arms, neck, shoulder and legs. Many people do not react to the bites and for others the bites may not appear for a day or two after the feeding. In sensitive people the bites become very itchy and may be long lasting. Human bedbugs are transported into homes by hitchhiking on used furniture, or in luggage, backpacks, pillows or

bedding. They can be found while traveling in hotels, motels and youth hostels. Problems are even appearing in hospitals. There are no human diseases that are known to be transmitted by bedbugs.



Bite reaction

Under warm conditions bed bugs can go through a generation in a 5-6 weeks. Bed bugs can go extended periods of time without feeding and will feed on pets if a suitable human host cannot be found. Females glue from 1 to 5 long, pearl colored eggs daily in cracks or rough surfaces. They hatch in 6-10 days. Five molts are required to mature to adults and each molt requires a feeding.

Bed bugs leave blood spots on sheets or black waste spots or smears in areas close to where they hide . These will be seen most commonly on mattress seams and headboards or on wooden surfaces on bed frames or furniture. Eggs and cast skins can be found in cracks or seams where structural elements are joined. Heavy populations have a distinct sweet odor.

Black spots ,eggs and cast skins on infested bed frame



Control

If bed bugs are from birds or bats, nest should be removed and the animals need to be excluded from the home. Residual insecticides can be used in attic spaces and window frames to kill adults and nymphs before they get a chance to migrate. There will be little need to treat the living space within the home. In general the bedbugs associated with animals will be easier to control.

If you are experiencing human bed bug problems it is highly recommended you seek professional help. Treatments need to be very thorough and without experience it is very difficult for a homeowner or renter to control human bedbugs. Two or three follow-up treatments are often required for complete control.

Bed bugs on mattress



Early detection is extremely helpful in control. Learn to check for signs of activity on bedding when you travel. Strip back covers and look for spotting on sheets and mattress seams. Check under the box spring where the wooden frame meets the fabric . Look for fecal spots on headboards and bed frames, Keep

suitcases off the ground and away from beds and other furniture when traveling. Not all indoor bites are caused by bed bugs. Look for cast skins, live insects eggs or blood spots on sheets or mattress to help confirm the problem.

Before treatment remove as much clutter as possible . A thorough vacuuming should be done to remove dust and insects for mattresses, box springs, bed frame and any crack and crevices in the room.. The bag should be discarded after use. Bedding should be laundered and dried at high temperatures.

Mattress covers. – Special “bedbug proof” mattress covers or encasements are being sold. They are thick enough that bed bugs cannot feed through them and the zippers are constructed so small bedbugs cannot escape. This requires fine teeth and a closing mechanism that does not allow the zipper to slip open.

Heat- Both steam and dry heat are being used for control. Temperatures above 115⁰F will kill bed bugs so washing clothes in hot water or drying in a hot dryer is effective. Machines that generate steam or dry heat are now being used by pest control companies as a control tool. Core exposure to 120⁰F for at least two hours should be considered and the longer the high temperature is held, the better chance for control. These treatments are effective in treating bedding, furniture, electronic devices, and other indoor items. Bedbugs that are hiding deep in wall voids will be difficult to kill with heat because of the difficult of achieve the high temperatures throughout the wall so it is important that monitoring equipment is used to assure needed temperatures are reached.

Cold. Bedbugs can tolerate temperatures below freezing but cannot survive extreme cold for long periods of time. Freezing small hard to treat items or furniture will require temperatures around 0⁰F for 3-4 days. Bed bugs that have been exposed to cold prior to putting in the freezer are more tolerant of the cold.

Fumigation is the use of toxic gases to kill insects. Some companies will use special fumigation trailers for treating bedding and furniture. Items need to moved into the trailer, treated and moved back into the home. There is no residual left on treated items to protect them after treatment.

Chemicals Most of the chemicals registered for indoor use are from one group of insecticides. Synthetic pyrethroids such as deltamethrin, ,sumethrin ,permethrin. bifenthrin, lamda-cyhalothrin and others are applied as liquids or dusts and can be used as spot or crack and crevice treatments. Bedbugs have shown major resistance to these chemicals in recent years. There is also a concern that some of these chemicals repel bed bugs and could cause insects to move to deep hiding places that are difficult to treat. Insect growth regulators have shown mixed results and are slow working. Desiccating dusts such as diatomaceous earth, Drione, and Tri-die can be used in voids. Some of these products contain the natural insecticide pyrethrum . Insecticides containing natural oils will kill bedbugs on contact as will isopropyl alcohol but have limited residual affect.

Bed frames should be taken apart and treated. Furniture close to the bed should be turned over and legs, frames, drawers, and undersides treated. Baseboards, window casings, loose fitting wallpaper and even hollow closed doors should not be overlooked.

TREATMENTS MUST BE VERY THOROUGH TO CONTROL BED BUGS. Excess clutter will make it difficult to treat infestations.

Barrier traps have been used to capture bed bugs migrating onto the bed from the floor. The use of double-sided sticky tape around each leg or keeping a dish or mote filled with soapy water, vegetable oil or other liquid on each leg can be used to capture crawling bed bugs.

If an infested unit has been found in an apartment it is important to inspect and likely treat the units above, below and to the side of the infested unit because of the high probability of bedbugs already being present or moving to the other units. The high cost of treatment causes people to cut corners that result in incomplete control and long term infestations.

Prevention Be careful when acquiring used furnishings, especially beds and couches. Mattresses and furniture at curbside should be avoided, and secondhand articles should be examined closely before being brought into the home. Avoiding problems with bed bugs is more difficult in apartments, hotels and other places where there are ongoing opportunities for the bugs to be introduced. Preventative inspection by tenants or housekeeping staff is the best way to uncover infestations early when they are easiest to control.

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