

- The proposed work should follow the steps of integrated pest management, not just pesticide application.
- Technicians should be straightforward and open when discussing details of their service.
- Understand what guarantees are being offered. Bed bug management may be difficult to guarantee, because reinfestation from an outside source is possible.

## Preventing a Bed Bug Infestation

### Furniture and Room Guidelines

Bed bugs thrive under certain conditions which are enhanced by the availability of hiding spots close to their human hosts. Bed bugs have a strong preference for paper and wood, over metal and plastic. Porous surfaces provide more humidity and egg-laying locations. Furniture choices can greatly contribute to the control of bed bugs.

#### Guidelines for furniture include:

- Replace wood frame beds with metal frame beds to discourage bed bug hiding and egg-laying on beds.
- Eliminate head boards completely. Bed bugs hide and thrive in head boards.
- Replace all plush furniture with metal and plastic, or items easily cleaned with soap and water.
- Adding smaller cushions that can be placed in a dryer is one way to make residents more comfortable. Cushions should be dried on a hot setting if bed bugs are an issue.
- Use only white or light colored sheets.
- Use wooden baby cribs, but choose models that are painted white. Paint existing wood-colored cribs white. Fill gaps in the frames with silicone caulk. This will allow for much better inspection and reduce need for treatment. Avoid using pesticides on baby cribs!
- Vinyl-covered or seamless mattresses are recommended for adult beds and cribs.
- If vinyl mattresses have holes, consider repairing them with tape or discarding them.
- Do not discard regular (non-vinyl) mattresses, only to replace them with other regular mattresses. Bed bugs will reinfest the new bedding quickly. Use mattress encasements (see below).
- If a box spring is being used, be sure to encase it too. The box spring is more likely to harbor bed bugs than the mattress.
- Wooden dressers, wardrobes, tables and other furniture can be painted white for easy inspection. Any crevices where a credit card will fit should first be sealed with silicone caulk to eliminate hiding spots.



A metal bed frame and vinyl mattress will minimize bed bug problems. Photo by Black Widow Pest Control.

- Discard any wicker furniture. Wicker provides infinite harborage to bed bugs and is impossible to treat effectively.

### **Mattress Encasements**

Mattress encasements are zippered enclosures that cover the entire mattress, as if it were bagged. Encasements should always be used for non-vinyl mattresses and box springs in bed bug prevention and management. Special bed bug-proof encasements are made of high quality cloth material, so they do not tear easily, and they have no folds around the zipper for bed bugs to find shelter. Cheaper vinyl encasements are available but need to be installed carefully to avoid tears in the vinyl. If a small hole appears, duct tape can be used to repair it. Holes **MUST** be repaired to prevent bed bugs from either gaining protection on the inside of the cover, or to prevent bed bugs from escaping from the infested bedding. Encasing both mattress and box spring eliminates the need to discard bedding by trapping bed bugs inside and providing a smooth simple outer surface that can be inspected, vacuumed and cleaned easily. **It is highly recommended that mattresses and box springs be encased, to preserve the sleeping area and to make bed bug inspections quick and easy.**

### **Other room guidelines:**

- Moldings and joints around the room perimeter (floor, doors, cabinets, and windows) should be caulked with silicone sealant to eliminate hiding spots for both bed bugs and cockroaches.
- Openings around pipes or other structures that come through walls, floors and ceilings must be sealed. This will help with bed bugs, mice and cockroaches.
- People should keep sleeping in the room to avoid spreading bed bugs to other rooms or apartments, when possible.
- Residents should not store belongings under the bed when dealing with a bed bug infestation. This provides plenty of hiding spots that are difficult to clean.

### **Issues between rooms:**

Often, bed bugs infesting a room or unit will make their way to an adjacent room or unit through electrical, heat and phone line conduits. It is important to identify cases where this happens and approach the spread from both sides of the wall.

Evidence that may suggest room to room movement of bed bugs includes:

- Bed bugs in ceiling light fixtures
- Bed bugs hiding in and coming out of electrical and switch plates on walls and bed bug droppings found on the inside of the switch plates, or near ducts
- Bed bugs frequently found in unusual locations, such as the kitchen or bathroom. In such a case, it may be that the kitchen or bathroom is located adjacent to an infested bedroom or heavily infested unit, and bed bugs are traveling along water pipes.



Bed bug fecal stains near a duct indicate harborage and possible movement. Photo by R. Cooper.

### **Donations of clothing and household items:**

Donations of clothing, shoes, coats, toys and other personal belongings are vital to many programs that help the disadvantaged. But sometimes when people discover bed bugs in their homes, they discard many personal belongings, and it is unclear how much of these discarded personal belongings make it to the donation stream. It is therefore important to be very careful about donated items to avoid the introduction or spread of bed bugs in your facility or home. Suggested precautions for donations include:

- Wash and especially DRY on HOT all clothing, shoes, coats, linens, blankets, and plush toys before distribution.
- Sort donations on a clean linoleum floor. Prevent the escape of bed bugs into your facility by sorting inside a perimeter of carpet (double-sided) tape placed around the working space. This creates a sticky barrier that bed bugs cannot cross.
- Shake out clothing; inspect books and toys carefully using the identifying guide in this manual.
- Ban all cardboard boxes for donations from your facility. Instead use clear plastic bags.
- Keep sorted and laundered items away from items that have not been checked or treated.

### **Policy Statements to Minimize the Spread and Impact of Bed Bugs**

Agencies and facilities managers should have policies in place that will help to prevent the spread of bed bugs. Suggested policy statements and reasoning for bed bug prevention include:

- Your belongings must be free of bed bugs, or you must be willing to work with facility staff to rid your belongings of bed bugs. – *This will prevent the introduction of bed bugs into our facility, and will help the resident to avoid future bed bug issues.*
- You may not bring into this facility items collected from the street, discarded items, donated furniture. – *With the increased number of bed bug cases, items on the streets are much more likely to contain bed bugs (the reason for being discarded). Therefore it is not safe to bring discarded or abandoned items into our facility.*
- If you have possibly been exposed to bed bugs, or suspect that you may have bed bug bites, you must tell the facilities manager. – *Early detection and management is very important for the control of bed bugs. Otherwise the number of bed bugs will increase rapidly.*
- The client must consult with a medical provider or social worker if bed bugs are suspected. – *There is help for clients with mental, physical, and financial needs that limit their ability to deal with bed bugs.*
- You must follow pre-treatment guidelines for a room you occupy. – *Following pre-treatment guidelines will allow management to help get the bed bug infestation under control. Without cooperation control will not be possible.*
- You must not use spray, fog, or dust pesticides on your own to treat for bed bugs or any other pests. – *Foggers cause bed bugs to spread, over-the-counter sprays may be ineffective, and bed bug control requires experience to know where to place*

*insecticides to be effective against bed bugs. Do it yourself pesticides are illegal in city facilities. Similar laws may apply to other residences.*

### **Handling Complaints**

Bed bugs and other pests sometimes elicit fear and panic in people. Most are unwilling to live with pests, especially those that bite. However, some individuals are resigned to living with bed bugs and may be the source of an infestation in an adjacent unit or room.

Complaints about pests or bites must therefore be handled IMMEDIATELY and with concern, but also with a logical approach that relies on science and pest control expertise.

The typical course of events would be complaint, inspection (of one or many units), confirmation, cleaning, treatment, future prevention, and follow up to be sure the problem was handled adequately.

Designation of a pest management coordinator in your organization can streamline the handling of complaints and infestations. There should be one person in charge of overseeing the inspection and treatment process. Often this is the building or facility manager.

**Encourage clients to speak openly about bed bugs and other pests and to ask for help. Be sensitive to their concerns. Use resources available to you, and gather the contact information of experts, such as your pest control company's staff entomologist, to ensure a quick response**

## Intake Procedures and Bed Bugs



Clients of homeless shelters and other emergency housing may bring along bed bugs from their previous living arrangements. It is important that intake counselors understand the nature of bed bug issues and express to clients that help is available. **It is in the best interest of a shelter or group home to know whether a client has been exposed to bed bugs.** Helping a client with bed bugs immediately as a preventative approach can reduce risks to other clients and reduce costs associated with eradication if bed bugs become established. Bed bugs are sometimes referred to as chinchies, chintzes, mahogany flats, red coats, and other nicknames.

Intake interviews may not include a category concerning bed bugs but exposure can be incorporated into medical questions, along with other public health pests, such as exposure to lice, scabies, and presence of cockroach allergies or asthma.

Questions should be phrased compassionately. Some suggestions are:

- Have you stayed in a place where you think you may have been exposed to bed bugs in the past three months?
- Has anyone in your family been bitten by bed bugs or do they have bites or blisters that you're concerned about?
- Bed bugs, lice, scabies and other things can cause medical concerns. Do you need help with a bed bug, or any other pest, issue?

If a potential client indicates that they believe they have been exposed to bed bugs or they know they have bed bugs, immediate help is necessary to avoid spreading them within the shelter or home. Help may be in the form of medical attention, laundering clothes, and isolating their belongings while a control strategy is formed.

- In some cases, bites will be evident, but the client may not know or be concerned that they have been exposed to bed bugs.
- If a client refuses to follow procedures for bed bugs, such as inspecting belongings, laundering, or medical attention, a social worker may need to build this into their case plan.
- Do not refuse shelter to clients with symptoms of bed bug infestations.
- Attempt to provide isolated shelter away from the rooms or beds of other clients.
- Provide large plastic bags for personal belongings. Explain that these must remain sealed.
- Provide literature to the individual or family about bed bugs and their management and prevention.
- When placing an individual or family into a shelter, notify your administration of the bed bug issue.
- Respond to bed bug complaints immediately.

## Personal Protection from Bed Bugs



### How to avoid picking up bed bugs at work:

Workers involved in housekeeping, facilities maintenance, medical and social work will be at risk for picking up bed bugs from an infested room or home or their contents. However, there are steps that can be taken to reduce these risks and workers must be prepared to follow these steps to protect themselves.

Follow these recommendations to reduce the risk:

- Know or ask ahead of time whether the room or space has bed bugs.
- Do not bring bags or personal belongings inside the room, carry as little as possible with you.
- For cleaning and maintenance crews, wear a Tyvek brand suit or similar protective coveralls that will prevent bed bugs from hitching a ride on the clothes or shoes. Discard the coveralls by changing immediately and by sealing the suit in plastic bag.
- Dissolving plastic bags are available that allow the user to isolate infested clothing until it can be placed in the wash. These bags dissolve in the laundry.
- For social and medical service providers, bring a portable stool to sit on and remain in the middle of the room. If this is not possible, be sure to sit on a hard chair, not on plush furniture or beds.
- Carefully shake out your clothes while standing outside before returning to your car or office.
- Bring a change of clothes and shoes for working in the field, change clothes at work and keep the field clothes and shoes in a sealed bag for laundering.
- Be vigilant about what to look for. Bed bugs are visible, but the youngest ones are very small. Inspect your own living and work space on a regular basis.
- There are currently no insect repellents that are labeled for bed bugs.

## Bed Bugs for the Medical Service Provider



The common bed bug, *Cimex lectularius*, has re-emerged as a significant pest of humans in the United States, Canada, Europe, Australia, and other developed countries after a 40 year period of near absence. Other species of Cimicids will bite humans, especially the tropical bed bugs, but the most common pest is *C. lectularius*.

The adult bed bug is a flattened, reddish-brown insect that cannot fly or jump. Juveniles are small and pale. Bed bugs hide in tight spaces close to where the host sleeps. Humans are the main host and blood is the only food source. A blood meal is needed for each stage of growth, including egg-laying, so bed bugs feed often. Their population can increase dramatically in a short period of time if the issue is overlooked or ignored.

Bed bugs have not been shown to vector diseases, despite their evolution as a blood-feeding pest of humans. Medical issues associated with bed bugs include multiple itchy bites and inflammation, secondary skin infection, a minor potential for anemia from blood loss, minor risk of anaphylaxis, stress, anxiety, sleeplessness, and the potential for overexposure to pesticides used in their control.

### **Skin and other reactions:**

Bed bugs have piercing-sucking mouth parts. They inject anticoagulant/anesthetic saliva to the wound, which causes varying degrees of inflammation. For many people bites go unnoticed. For others, bites can be extremely itchy, showing up most commonly upon awakening, since bed bugs mainly feed during the night and early morning hours.

#### **Bed bug bites present as:**

- Pruritic wheals (like mosquito bites);
- Papules;
- Groups of small vesicles with surrounding erythema and induration;
- Bullous lesions which may resemble erythema multiforme;
- Asthma exacerbations, anaphylaxis, or other systemic responses.

Lesions may also have a central punctum or puncture wound. Bites occur in clusters or lines, in open areas of the skin, and where clothing is not tight.

(From: The Health Care of Homeless Persons: A Manual of Communicable Diseases and Common Problems in Shelters and on the Streets– Part I – Bed Bugs. Healthcare for the Homeless Council. 2006. D. Buchanan and C. Cleary)

### **Treatment of bites:**

Bed bug bites are generally self-resolving in 3-10 days but bites may result in scarring. Topical or oral antihistamines can bring relief. Ultimately, effective and long term bed bug control is required to resolve this condition. Mental health support may be required for some sufferers.

### **Delusory parasitosis or mystery bites**

Delusory parasitosis (DP), also known as Ekblom's Syndrome, is the feeling or fear that one is being infested with parasitic organisms, which may be accompanied by an actual physical sensation of itching or crawling on the skin. Sufferers may scratch, injure themselves, apply pesticides to their skin or surroundings, and often compulsively gather evidence of the infestation. Evidence may be in the form of marks on the skin, particles of cloth, fibers, and other debris, and carefully recorded observations of the parasite behaviors. Often, sufferers seek insect or mite related causes, and they may have unshakable beliefs that their bodies or surroundings are infested with bed bugs, mites, fleas, and other real and imaginary organisms.

It is critical to determine whether an insect or mite is present in the living area before considering treatments, especially pesticide use, which may exacerbate itching or other medical conditions. Bed bugs have become common enough to consider as a causal agent, but bed bugs are not the only possibility. Scabies is a condition where mites burrow into the skin resulting in lesions and open sores. This occurs on the hands, wrists and elbows, but can be all over the body. Scabies must be diagnosed through microscopic examination of skin scrapings taken from the edge of the affected area. More information on scabies can be found in medical literature. Bird mites will bite people but do not burrow into the skin or live on people. They are usually present when birds nest in vents, window sills, or air conditioning units of a living space. Rodent mites occasionally bother humans, especially when pet rodents are kept (hamsters,

gerbils) or when pest rodents are present in the home. Fleas can be present when domestic or even wild animals are living in or close to the home or room. Positive and accurate identification of a biting arthropod may require the expertise of an entomologist skilled in diagnostics.

If no arthropod can be identified in the living environment, yet the individual insists that their symptoms are

real, or if they have inflicted damage upon themselves as a result of a perceived infestation, other causes must be explored. Commonly, DP sufferers have medical or psychogenic causes of itching and prickly sensations.

#### **Symptoms of DP may be caused by a wide variety of conditions including, but not limited to:**

Diabetes, hyperthyroidism  
Medications  
Drug abuse  
Hormonal changes  
Mild allergies to environmental stimuli, such as  
detergents  
Dementia  
Anxiety, depression  
Paranoia  
Nutritional deficiencies  
Central nervous system infections

For a more complete treatment of delusional parasitosis see the following references:

- \* Slaughter, J.R., Zanol, K., Rezvani, H., and Flax, J.F. Psychogenic Parasitosis, a case series and literature review. *Psychosomatics*, 39: 491-500. 1998
- \* Hinkle, N. Delusory Parasitosis, *American Entomologist*. 2000, 46(1):17-25

## Social Worker Procedures and Bed Bugs



This information is intended to provide the social worker with facts about how to begin to help a person or family with bed bugs, whether homeless, independent, or living in a group home. Bed bugs may be one of the many challenges they face and a visit with a social worker may be the first compassionate educational experience a person has about bed bugs. The introduction sheet in this manual will give you more information about bed bug biology and habits. Even transient people can be greatly affected by these insects as they are good at hiding in personal belongings when people move. Bed bugs are small wingless insects that feed exclusively on blood and live in close proximity to (not on) people.

People living with bed bugs and their bites may suffer emotional distress, as well as financial burdens of discarding property, buying products and items to control bed bugs, and the costs and stress of possibly being displaced. The elderly are particularly at risk for being displaced as a result of bed bug problems because they may not be physically able to cooperate with pre-treatment requirements, or able to clean their homes as required. **The important thing to communicate is that bed bugs can be controlled, but it takes cooperation.**

Clutter is a major obstacle in bed bug control, and many who suffer with bed bugs are overwhelmed in other ways. However, preparation for bed bug control is very important. Those in need who are suffering with bed bugs will need specific things in order to cooperate in the process of eliminating bed bugs from their room or home.

These include:

- Instructions for preparing their belongings and rooms or apartments for bed bug treatment (provided in this guidebook and available elsewhere in Spanish).
- Plastic bags for storage of belongings and clothes. Bags must be tied tightly or sealed well to prevent transfer of bed bugs into or out of bags.
- Access to laundry, particularly a dryer, to clean clothing, linens, pillows, plush toys, coats, and shoes of bed bugs. Heat will kill all life stages. Access to laundry may require money for use of a laundromat.
- Cleaning supplies or services (may not be supplied by the management or a pest control professional).
- Some may need help in the form of physical labor for cleaning, moving furniture, sorting through personal belongings, organizing their homes, and reducing clutter.
- Emotional support may be required. Many bed bug sufferers describe post-traumatic stress disorder-type symptoms associated with the stress of their infestation.
- Access to basic necessities, such as clothes or children's toys, or even a bed, if the client has discarded their belongings due to bed bugs.
- Bed bug bites may require medical care.
- If displaced as a result of bed bugs, the client may need help, possibly legal help.
- A person or family with bed bugs may require an advocate to help them get fair treatment with housing, schools, and other services.
- Reinfestation may occur if clients are picking up bed bugs in another place.