

Bedbugs in the Intensive Care Unit A Risk You Cannot Afford

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When even one bedbug is discovered in the intensive care unit (ICU), it becomes an environmental emergency for the hospital and may pose an economic threat, since rooms and other support space must be taken out of service to permit appropriate eradication of these unwanted pests. Furthermore, the presence of the pests can create a public relations nightmare for your facility when news headlines alarmingly announce, “bedbugs have been found in a local healthcare facility.” Patients and their families, staff members, and others who visit the hospital suddenly feel threatened by these little pests that actually pose a minimal threat to most individuals other than their bites and the itching which accompanies them. Nurses must be prepared to identify skin conditions associated with bedbug bites and to promptly report any sightings within the ICU to environmental services. An integrated pest management program and vigilance of staff are vital elements for “damage control” related to a bedbug infestation. **Key words:** *bedbugs, environmental services, integrated pest management (IPM), skin lesions*

THE TOPIC of bedbugs has seldom emerged among health care personnel in recent decades. Most nurses admit that they have probably never seen a bedbug and may not recognize one if it appears on the patient’s bed or clothing. It is also unlikely that they would immediately associate itching and skin lesions with bites from this pest. Some have never heard of bedbugs other than the mere mention of them associated with the age-old ritual of putting a child to bed with the words, “sleep tight and don’t let the bedbugs bite.”

There is nothing trivial about bedbugs now. They have reemerged in the United States, probably as a result of their resistance to to-

day’s pesticides. Experts suggest that an increase in the bedbug population is because of a variety of issues, including an increase in both domestic and international travel, increased immigration into the United States, inadequate knowledge on how to control infestations, resistance in pest management control techniques, and finally, a lack of pest management control protocols.¹

The homeless individuals who live in multifamily dwellings and anyone who resides in environmental conditions that are not hygienically maintained may be the vehicles who deliver bedbugs to hospitals. Emergency Departments are often the “port of entry” for the pests. Associated services such as emergency medical services, radiology, and patient transport may also be way stations for the bedbugs, which can be transmitted on linens, clothing, or equipment, moving about the hospital. Eventually, this unwelcome guest arrives in the intensive care unit (ICU) and creates chaos.

It is essential to understand the elements associated with the biology of the bedbug, its living conditions, and how it is transported within the environment.

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UNDERSTANDING THE LIFE OF THE BEDBUG

Bedbugs (*Cimex lectularius*)¹ are the parasites that feed on blood, primarily while the individual is sleeping. Bedbugs are resilient creatures, and even though they prefer human blood, they will also feed on other warm-blooded creatures like birds, cats, dogs, and mice.^{2,3} They have been shown to live everywhere in the world. Commonly, infestations of bedbugs usually occur where people sleep. They may be found in 5-star hotels, apartments, cruise ships, shelters, dorm rooms, trains, buses, and most recently, hospitals and nursing homes. Bedbugs have also found homes in movie theaters, dry cleaners, office buildings, and furniture rental stores.⁴

These parasites are described as flat, reddish-brown in color, and small in size, approximately 1 mm to 7 mm in length (about the size of Lincoln's head on the penny)¹ (Figure 1). Bedbugs can live several months without feeding on blood. As a rule, bedbugs do not fly but they can travel quickly over ceilings, floors, and walls.



Figure 1. Photo courtesy of Dr Harold Harlan, Armed Forces Pest Management Board Image Library. (Published in conjunction with Joint Statement on Bedbug Control in the United States from the US Centers for Disease Control and Prevention (CDC) and the US Environmental Protection Agency (EPA).⁴

If conditions are right, specifically, if the temperature of environment is between 70°F to 80°F, bedbugs can develop complete maturity within a month. During this time, the bedbug produces 3 or more generations of bedbugs.³

Persons who are at high risk for bedbugs are those who frequently travel, share their living and sleeping space, and stay in places where other people have slept.¹

SEARCHING FOR BEDBUGS IN HOSPITALS

Bedbugs are likely to be discovered along mattress seams, on bed frames or side rails, within foam or air-surface overlays, on bedside tables and chairs, and within the patient's clothing or other belonging brought to the hospital. Bedbugs have been known to hide beneath headwalls, wall coverings, and other cracks or crevices around the bed. They hide in these areas during the day and travel during the night. Bedbugs are thought to travel up to 100 ft at night, but during the day, they typically live within 8 ft of the sleeping area. Bedbugs have an affinity for congregating. Although they do not make a nest, they prefer to use the human's nest.

If small, dark stains or spots are detected on a bed, these may be attributed to the dried excrement from the bedbug. In this area, eggs or shells of previously molted bedbugs can also be found.⁴

BEDBUG BITES

Bedbugs are frequently suspected only when the bites appear on the skin. Often, these are thought to be from a mosquito or spider, and therefore, bedbugs are not considered to be the cause. When the diagnosis is eventually confirmed, the bugs will have already multiplied and spread throughout the area. It is important to know that for confirmation of the diagnosis, it is a requirement that one finds and identifies the bedbug.¹

Bedbugs tend to feed at night, taking approximately 3 to 10 minutes. The location of the bite can occur on any skin exposed while sleeping. The back, ankles, face, neck, arms, or legs may be targets. The person who has a bedbug bite may not know that he or she has been bitten until a red, itching welt appears or there is a small swollen lesion noted on the skin. These symptoms usually occur within 1 to 2 days after the bite. Some people may not have a reaction at all, while others may experience a delayed reaction.

Although these pests ordinarily do not spread disease, they may harbor pathogens. Despite their benign nature, they cause anxiety, discomfort, embarrassment, and sleeplessness for those people who have been bitten.

CHALLENGES IN PEST CONTROL

Even though housekeeping personnel are instructed to be on the lookout for the evidence of bedbugs with every room cleaning, it is possible to miss subtle indications that bedbugs are active in the room. Many facilities also do routine preventative spraying in certain areas to reduce the risk of infestations. However, despite these initiatives, bedbugs may arrive unheralded with any newly admitted patient.

If an ICU nurses or other personnel suspect bedbugs, they must notify environmental services at once. The first step for most environmental services departments is to promptly enlist the help of a pest management professional. Few hospitals are prepared to manage this problem without outside assistance.

The room should be promptly isolated from the remainder of the unit, if possible, to minimize inadvertent transport of the pest. The next step is to make sure that the contaminated area is easily accessible and all clutter should be cleared to make room for the pest-control workers. Keep in mind that since bedbugs travel, the inspectors will want to inspect and treat other rooms and common areas as well.³ Housekeeping personnel or pest-

control services will provide definitive guidance for additional actions.

The central challenge to controlling bedbugs is that infestations can be hidden in so many places. Treatment measures for control must be very thorough, even if total elimination of the bedbug is uncertain.

WHAT ARE THE METHODS FOR DECONTAMINATION?

There are chemical and nonchemical treatments that can help to kill bedbugs. The nonchemical treatments can use temperature extremes, either cold or hot, to kill bedbugs.^{3,4}

Linens from the room are bagged and marked as "contaminated." Commercial laundry standards using high heat of at least 120°F is sufficient for eradicating the bedbug from linens. If specialty mattresses or overlay surfaces have been used in the room, the vendor should be contacted for specific instructions in regard to these items.

Medical supplies and small equipment should be bagged and marked as "contaminated." The cleaning and disinfection of these should not be undertaken by nurses in the unit. Items to be discarded must be bagged before placing them into the hospital waste stream. Pest-control companies may use various insecticide aerosols or sprays. They will determine which ones are necessary and take various precautions. Fumigation techniques can be used in selected situations by pest-control experts.

EDUCATION AND TRAINING IMPLICATIONS

All ICU nurses should have a basic knowledge of this emerging hospital pest and should be prepared to take action if a bedbug infestation is suspected. Although it is not "culturally sensitive" to profile new admissions, those individuals who have been living in the streets, who are recent immigrants, or who are known to have been residing in multiple-unit housing areas should "raise a

flag” for increased staff vigilance. An admitting assessment should include observation for skin lesions and evidence of infestation on personal items. If there is a high potential for bedbugs associated with any patient, their clothing or other belongings should be placed in sealed bags and removed from the

room in a secured storage area. They should not be placed into room closets or stored near the bed in a dresser or bedside table. Increased attention during the initial admission processes can reduce and eliminate the chaos that occurs when bedbugs are unleashed into the ICU.

REFERENCES

1. Bed bugs FAQs. Centers for Disease Control and Prevention Web site. <http://www.cdc.gov/parasites/bedbugs/faqs.html>. Accessed January 18, 2011.
2. Biology (of the bed bug). Centers For Disease Control and Prevention Web site. <http://www.cdc.gov/parasites/bedbugs/biology.html>. Accessed January 18, 2011.
3. Potter MF. *Bed Bugs*. Lexington: Cooperative Extension Service, College of Agriculture, University of Kentucky. <http://www.ca.uky.edu/entomology/entfacts/ef636.asp>. Accessed January 18, 2011.
4. Joint statement on bed bug control in the United States from the US Centers for Disease Control and Prevention (CDC) and the US Environmental Protection Agency (EPA). http://www.cdc.gov/nceh/ehs/Publications/bed_bugs_cdc-eps_statement.htm. Accessed February 16, 2011.