

Bed Bug Prevention for Emergency Facilities and Patient Transport

Dini M. Miller, Ph.D., Department of Entomology, Virginia Tech



Introduction

When a team of paramedics or medical technicians respond to a call requesting emergency assistance at someone's home, their focus is on the patient's safety and survival. They are not thinking about bed bugs. However, as bed bug infestations continue to spread throughout the county, emergency response teams are becoming more at risk of encountering bed bugs while in the process of caring for and transporting patients to the hospital. In an infested home, emergency response personnel run the risk of picking up bed bugs on their clothing and equipment.

Patient transport vehicles, like ambulances and even helicopters, may also become contaminated with bed bugs if the patients have bed bugs on their clothing, linens or in their personal belongings. Once arriving at the emergency room, bed bugs have the potential to spread within the facilities if they are not immediately contained. So what can be done? How can we focus on patient care and still protect emergency medical personnel from picking up bed bugs? How do we keep emergency medical facilities and transport vehicles from becoming infested with bed bugs? The information presented below is intended to raise bed bug awareness among emergency personnel so that they can better protect themselves and their workplace from bed bugs.

Bed Bug Training for all Emergency Response Employees, Volunteers, and Other Medical Personnel

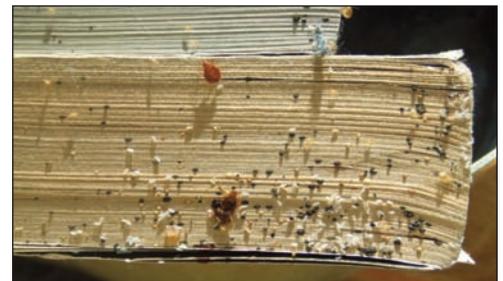
You must be educated about bed bugs to avoid them. Contact your local extension agent and ask them who can provide you with the very best bed bug identification training. The agent may recommend an experienced pest management company or some other local authority. Once you have located a bed bug expert, schedule a training program for all employees and volunteers. The training should include the identification of live bed bugs (all life stages) and bed bug evidence (including fecal stains and molted skins). Be aware that bites on the patient are inconclusive evidence. Immune responses vary so much from person to person the bites may not be bed bugs at all.

It is essential that the trainer provide color photographs of bed bug evidence inside a home, such as smashed bed bugs on the wall, fecal stains (see image of bed bug feces on the electrical outlet), bed bug eggs on a couch and bed bug evidence on the bed and bedding. Seeing bed bug evidence in place will help everyone to recognize the signs of bed bug infestation in someone's home, even if they do not see live bugs. Keep in mind that a case of bug bombs in the kitchen or a gallon of insecticide spray sitting next to the bed, the couch or front door are also signs of an active infestation.



Other topics that your bed bug training might include are:

- **Where bed bugs can hide**
- **How to inspect yourself for bed bugs**
- **Containment and isolation procedures for infested items**



Be Prepared for Encountering Bed Bugs (protect your clothing and equipment)

As an emergency first responder, bed bugs are part of your future. It is important that the presence of bed bugs does not distract you from your work and yet, you need to avoid picking them up and transporting them with you. Make sure that your uniform is as simple as possible. Avoid shirts with buttons and pockets. Avoid pants with cuffs, cargo pockets and multiple zippers. Simple shoes that can be thrown in a hot dryer and that have minimal tread are also recommended. Wear paper shoe covers when entering a home and place them into a sealed plastic bag before you enter your transport vehicle.



The simple act of bringing three or four first responders into a small, infested bedroom greatly increases the probability that someone will pick up bed bugs on their clothing or equipment. When entering a home have a team member be on bed bug alert, looking for the signs of infestation. If bed bug evidence is found, have a code word to warn your colleagues. Have plastic bags (hazardous materials bags will work) available that you can lay on the floor before you kneel down to work on a patient. Set your equipment down on the plastic bags. Always avoid placing canvas bags (see illustration) containing medical supplies or oxygen on upholstered furniture, bedding, or on carpeted floors. If you have any reason to suspect that your equipment has become infested, you can bag it on the way out for later cleaning.

Sometimes the patient needs to be moved from their bed onto the portable cot or backboard. It is never recommended that the patient's own sheet be used to as a sling to move them onto the cot (due to a number of pathogens that may be in the patient's bed). However, if the use of the patient's linens is unavoidable, care should be taken to make sure that the linens are not infested. If they are, you can partially contain the patient and their sheets in a body bag or some other plastic sheeting to prevent them from infesting your cot and transport vehicle. If infested linens are transported, they should be transferred into a marked (bed bugs), sealed plastic bag upon arrival at the emergency room. Dispose of the body bag or plastic sheeting you used for wrapping the infested patient in a sealed container, and warn the ER nurses about the bed bugs.

Bed bug preparations:

- **Wear simple clothing**
- **Wear paper shoe covers**
- **Have a team member on bed bug alert**
- **Have plastic bags on hand (e.g. Haz Mat bags)**
- **Have plastic sheeting or body bags in the vehicle**
- **Do not transport the patient's bed linens**



Bed Bugs in the Ambulance Even with all of your precautions bed bugs may still get into the ambulance. In most cases only one or two bed bugs will escape off of your patient, unless you are transporting a heavily infested individual or an infested bag of the patient's belongings. While it is possible for the bed bugs to drop onto the ambulance floor, the floor has relatively few hiding places for bed bugs (see photo at left). It is more likely that they will crawl off of the patient's clothes onto the cot (at right), where they will hide in the linens or on the cot itself.



If you have just completed transporting an infested patient, conduct the following inspection procedures before entering your living quarters at the station house or returning to your home:

- Do not take your field jacket, boots, equipment or other clothing into the station living space until it has been thoroughly inspected by you or one of your team mates.
- If bed bugs are found on a team member's clothing, bag and seal everyone's clothing before entering the station house.
- Bagged clothing (including shoes) must be placed in a clothes dryer set on high heat for 30 minutes.
- Remove the patient transport cot from the ambulance and wipe it down using germicidal disinfecting wipes.
- While wiping down the cot, inspect the mattress, all straps, wheels and other components of the cot for bed bugs.
- If one or two bed bugs are found on the cot, smash them. If several are found, bag the cot in plastic sheeting and call a pest control company with bed bug expertise to treat the cot.
- If bed bugs are suspected to have dropped off the patient inside the ambulance, inspect all cracks, crevices and surfaces for bed bugs. A labeled insecticidal cleaning product like Steri-Fab (isopropyl and sumithrin) can be used on upholstered and other surfaces as a contact bed bug killer.
- A vacuum can also be used to remove bed bugs from cracks and crevices but be sure that the vacuum bag is sealed and taken outside to the garbage immediately after use.
- Wash down the inside of the ambulance with soapy water.



- Open any equipment that you bagged at the patient's home, wipe it down and inspect it for bed bugs. If bugs are found, smash them!

Note: It is a very good practice to be responsible for your own field jacket. How do you know that the community jackets hanging together at the station (and washed irregularly) are bed bug free?

It is very important to inspect all potentially infested items before they enter the station so that you do not infest the station or take bed bugs home. If by chance bed bugs do infest the station, don't panic. Take a couple of days to find a pest management company with extensive bed bug experience. Ask them for references.

The Emergency Room

In the emergency room bed bugs have the potential to arrive with every new patient. Bed bugs are excellent hitchhikers on the patient's clothing, wheel chairs and personal belongings. Therefore careful management and containment of each patient's personal items goes a long way toward preventing an infestation from developing.

Walk-in Patients:

- The number of personal belongings that a patient is allowed to bring into the facility (computer bags, knap sacks, fanny packs and purses) should be limited to one or two.
- Patients must not be allowed to bring in personal bedding or pillows from home to use in the hospital.
- Cold weather outer wear (gloves, hats and coats) should be placed in specified locations or lockers, not laid on sitting or sleeping surfaces, window sills or on counter tops.
- Items belonging to patients suspected to have bed bugs at home should be placed immediately into sealed plastic bags. Drawstring bags will not prevent bed bug escape and should not be used for any belongings.
- Patients who have bed bugs on their clothing at their time of arrival should be bathed immediately and provided with a change of clothes.
- The infested clothes should be placed inside a sealed bag and given to a family member with instructions to place the clothes in the hot dryer for 30 minutes.

Patients Brought in by Ambulance:

If a patient is brought in by ambulance, typically a nurse or two nurses will undress or cut off the patients' clothes. If these clothes have bed bugs, they must be placed in a sealed plastic bag immediately and either disposed of or given to a family member with instructions to place the clothes in a hot dryer for 30 minutes.

The nurses that undressed the patient may have had bed bugs transferred to their clothing. Therefore, the nurses should change into clean scrubs and place the old scrubs into a hot dryer. Shoes can also be put into the hot dryer on a shelf if they cannot be tumbled. The linen on the patient's transport cot should also be bagged and sealed immediately. Linens should never be left on the cot, floor or on a wheel chair.

- **If bed bugs are found on any patient or in their belongings, the Environmental Services manager, charge nurse and infection control personnel should be notified immediately.**
- **The patient should be bathed or showered then dressed and moved into another room without their personal belongings**
- **Personal belonging should be placed in a sealed bag and sent home with a family member.**
- **Infested linens should be placed in a marked sealed container, not in the hamper with other soiled linens**
- **The potentially infested room should remain closed and unoccupied until it can be inspected by a pest management professional.**
- **No furniture should be removed from the room or the room reused until the pest management company declares that it is safe for reuse.**
- **An experienced bed bug management company (ask for references) should be contacted for an inspection and /or treatment of any potentially infested room.**

Air Transportation

In trauma and other life threatening situations, a patient may have to be moved rapidly from one hospital to another using air transportation. Helicopters are typically used for this purpose. Similar to an ambulance, the



medical helicopter is a complicated environment with many places for bed bugs to hide. However, because the request for helicopter transport is only made by other emergency medical agencies, the helicopter personnel can be made aware of a bed bug situation by the referring agency. Because treating a helicopter for bed bugs would be very expensive, it makes more sense for the patient to be stabilized and decontaminated at the current facility prior to being transported in the helicopter. However, if the bed bugs are only discovered en route, the helicopter cabin must be inspected and cleaned, and the cot decontaminated (as described for the ambulances) immediately after the patient has been delivered.