

# **Bed Bugs in Portland, Oregon: Case Study and Best Practices**

## **By New Avenues for Youth, Outside In and Janus Youth Programs**

### **Overview:**

Beginning in the summer of 2006, bed bug infestations began to occur in three organizations that support transitional and residential housing services for homeless youth. New Avenues for Youth, Outside In, and Janus Youth Programs were treating, controlling and attempting to prevent bed bugs. Bed bugs are rust-brown wingless insects that hide in narrow cracks and crevices, making detection difficult. They are great travelers and are readily transported via luggage, clothing, bedding and furniture, and therefore, have worldwide distribution. These organizations convened in early June 2007 in an effort to learn from each other's challenges and successes.

The essential components of bed bug prevention and control are:

1. Identification of bed bug infestations;
2. Utilization of best available treatment strategies and prevention measures;
3. Cooperation between all stakeholders affected by bed bug infestation.

### **Background:**

*Winter 2005:* Janus Youth Program Shelter reported bug bites among residents. Youth were diagnosed with either scabies or spider bites.

*Spring 2006:* Janus Youth Program Shelter received diagnosis from Kaiser Permanente physician that bites were from bed bugs. The organization called a pest control operator (PCO) to spray, which was ineffective. The organization contacted Multnomah County Health Department (MCHD) who determined the chemical to be ineffective. The organization researched other pest control operators, had chemicals approved by MCHD, and removed all wooden furniture from the crisis shelter.

*July 2006:* Outside In discovered bed bugs in a resident's bedroom. Diagnosed by comparison of species on Internet. Contacted PCO to visit and identify. Treatment started within two weeks of discovery and has continued ever since. Treatment spread to other rooms. Initial treatment included a complete fumigation of the entire 5-bedroom apartment complex as well as intensive treatment in the initial room affected.

*Winter 2006:* Janus Youth's bed bug problem resurfaced. The organization got rid of all furniture and began regular spraying of the short-term shelter. Since then, the shelter consistently sprays to keep the problem to a minimum.

*February 2007:* New Avenues for Youth discovered bed bugs in their SW Columbia Boulevard facility. It was first diagnosed when a youth reported bites and found a bug on their clothing.

New Avenues for Youth contacted Multnomah County Vector and Nuisance Control (MCVNC) to ask for assistance in identification. MCVNC identified the species as bed bugs and offered some insight into action planning and next steps. (MCVNC has not historically dealt with bed bugs.)

## **A. Bed Bug Control and Treatment Responses and Recommendations:**

### *New Avenues for Youth:*

- Treatment occurred every 3-4 weeks for a total of 3 times with Demand until we had the bugs down to contamination in just 2 rooms beginning in February. Treatment then switched to using an alcohol-based chemical called Steri-Fab once a week in the 2 rooms and have continued to see a gradual reduction in the number of bed bugs. Steri-Fab was recommended by our pest control company to use not only to kill known bed bugs but also to use weekly as a preventative measure. We spray with the Steri-Fab, wait a day and then thoroughly vacuum the room. Whenever we vacuum for bed bugs, we immediately seal the vacuum bag in a plastic bag and place it in the dumpster in the garage.
- When we treat with Demand, we have the youth bag up all their belongings in their room and they must wash everything on the highest temperature possible before it can be removed from the bags and placed back in the room. This includes all bedding, coats, shoes, backpacks etc. Anything that can be washed is washed. If it cannot be washed, we use Bee cleaners to dry clean things like leather jackets. We place pillows and stuffed animals in the dryer on high for a full cycle. We also make the youth remove all things from their walls so the room is completely empty. We have not been thoroughly checking things like books for bed bugs but as a best practice you should check everything before it is removed from the bags.
- We replaced all of our standard mattresses with bed bug proof mattresses from Derby Industries. [www.derbyindustries.com](http://www.derbyindustries.com). 253-631-9131. These mattresses are ones used in detention facilities and hospitals and can be made to fit any size bed.
- We are in the process of removing all wooden furniture from the room as bed bugs like wood and there are a lot of cracks to hide in. The companies we have looked at for metal beds include:
  - Norix: [furniture@norix.com](mailto:furniture@norix.com). 1-800-234-4900.
  - Pride Industries: [www.pride-enterprises.com](http://www.pride-enterprises.com). 1-800-643-8459.
  - Pen products: [www.in.gov/indcorrection/pernproducts/](http://www.in.gov/indcorrection/pernproducts/). 1-800-PEN-2550.
  - Silver State Industries: [www.bighousechoppers.net/ssi/idx.html](http://www.bighousechoppers.net/ssi/idx.html). 1-775-883-6263.

### *Outside In:*

- Three 5 BR apartments
- Treat one apartment per month and each apartment is treated once every 3 months by NW Pest Control (503-253-5325). Gentrol IGR (insect growth regulator), Dragnet Promethrine (aerosol spray: 90-day residual effect), and Bedlam (baseboard spray). \$60 per month to do preventive treatment on common areas and all bedrooms in a 5-bedroom apartment, totaling approx. 2000 SF.
- Treat specific bedrooms EVERY month if the rooms have had bed bugs before.
- Janitorial service steam-clean carpets in rooms where bed bugs have been sighted.
- Discarded several mattresses and plywood bed platforms from rooms that had bedbugs.
- Replaced them with similar low-cost mattresses and plywood platforms.
- Attempted to locate metal bed frames (are out of state in Kentucky and Nevada) and did not purchase.

### *Janus Youth Programs:*

- Sprague Pest Solutions uses Phantom Insecticide and Gentrol Insect. MSD sheets available.

- Treat every 4 weeks with inspections and extra treatment as needed.
- Discarded all but bed bug-proof mattresses.
- Removed all wooden furniture from shelters and are using metal beds that were purchased from county jail system and purchased plastic/resin furniture.

**B. Recommended actions to minimize bed bug infestations:**

1. Create a Pest Checklist and use consistently (see attached by Outside In)
2. Youth placed in Transitional Housing should be informed of a possible bed bug infestation in the facility and take their belongings directly to the laundry room.
3. All clothing is washed on the highest temperature before it can be taken to their room. Youth choose an outfit to wear in the clothing room so they can also wash the cloths they are wearing.
4. Suitcases are vacuumed and sealed in a plastic bag where it stays sealed for the remainder of their stay in the house.
5. Cardboard boxes are not allowed into the house. The boxes are emptied and items are placed in a plastic bag.
6. Laundry
  - Staff assist new residents in washing all clothing (hot water and hot dryer) before they move into a room in our facility. Washing clothing is NOT required to kill bugs, but can be helpful in dislodging them from clothing. Drying IS required. The washers and dryers in the Outside In Housing and the Day Program will all wash and dry at 120+ degrees on hot (washers) or set to HI (dryers). This dryer temperature is hot enough to kill bugs. Most clothes dryers run at approx. 175 degrees on HI. (see below more info on laundry)
  - Everything that can be laundered *should* be laundered, and laundered in advance of the treatment, then placed in plastic bags. This would include stuffed animals, drapes and so on.
  - The items should be securely tied into plastic bags, and then emptied directly into the machines. The bags should then be immediately disposed of. It is heat, not water that kills any bedbugs residing within the laundered items; therefore items should be washed in hot water, regardless of normal washing directions, and should be dried with medium heat (preferably high heat) for 20 minutes or more. (For those who have the ability to measure the temperature of the water in their washing machine, or of the hot air in their dryer, the target heat range is 120°F (49°C).)
  - If a laundering session such as described is financially prohibitive, some have posited that the items need only be run through the dryer, not the washing machine. However, the extensive water and spinning action associated with washing machines may assist in dislodging bedbugs from where they are residing within clothes. This remains only "optional," as the heat of the cycle of drying will effectively kill *all* stages—eggs, immature stage (nymphs) and adults.
  - For items that require dry cleaning, the dry cleaners should be informed that the items in question are potentially infested, and the items should be bagged. Cleaners may still refuse to accept them. **(source: [http://en.wikipedia.org/wiki/Bed\\_bugs](http://en.wikipedia.org/wiki/Bed_bugs) )**
7. Steaming and vacuuming: Steam cleaning and vacuuming of carpets can be helpful. Although bedbugs will not be in the middle of the floor, they may be under the carpets at the edges of rooms. Pesticide is applied at perimeters and is effective, but the more steps are taken to assist removal, the more thorough the elimination will be.

## **Management of furnishings and materials infested with bed bugs**

1. Do not remove infested materials designated for disposal until after the room is inspected and/or treated by the PCO.
2. Remove clothing, linens, and materials designated for disposal from a bed bug infested room in sealed plastic bags to prevent relocating bed bugs to other areas within the premises.
3. Wash infested linens in hot water and dry using the hottest setting of the dryer to kill bed bugs and bed bug eggs.
4. Dispose of all vacuumed refuse from an infested room in a plastic bag (including the vacuum cleaner bag).
5. Have a PCO service all furniture and mattresses prior to disposal. After treatment, the items marked for disposal should be wrapped in a protective cover such as a sheet or plastic before removal from the infested room to the disposal site. This will prevent bed bugs and eggs from falling off while the items are moved.
6. Clearly label infested items as "bed bug infested" prior to disposal, recycling, or placing infested items curbside.

## **Limitations in effectively treating for bed bug infestations:**

- Due to the nature of transitional housing, a 24-hour facility for youth that have no where else to sleep, made treatment hard since we have to shut the house down to treat.
- The cost to us for treatment as well as replacement of mattresses and wooden beds has been very high. The situation has not been eradicated entirely due to the fact that the chemical treatment does not kill the eggs and we have yet to hit all the life cycles right on to completely kill all the bugs. We have it contained to 2 rooms now.
- Great coordination between staff and residents is essential to combating the problem.
- Ensuring youth are proactive with cleaning, vacuuming and laundering when PCO comes in has been a challenge.
- The constant flow of new youth into the shelters poses an on going challenge to try and keep the shelter as clear of bed bugs as possible.

## **Lessons learned:**

- If you think that you might have a problem, react quickly. Do not wait to confirm that the bug is a bed bug and treat as soon as possible after finding your first bug. If there is one, there are probably many more. Put prevention measures in place--do not wait till you are infected to do this. If we had been using prevention measures, we may not have ever gotten infested.
- Early detection and treatment is essential.

## **How this has affected the clients:**

- It was very hard on the youth. We shut the house down for the day three times and each time the youth had to completely empty their rooms and wash everything. For the rooms that were infected, it initially left the youth feeling like they were unclean and that they had done something wrong. It took a lot of education to get them to feel better about this.
- Clients in the affected bedrooms who had bites were overwhelmed when they actually saw the bed bugs and the extent of the problem (large nest, lots of droppings, etc.)

**Contact Information for Organizations:**

**New Avenues for Youth**

Kari Brenk  
1220 SW Columbia  
Portland, OR 97201

**Outside In**

Bill Aronson  
1132 SW 13th Ave  
Portland OR 97205  
503-535-3827

**Janus Youth Programs**

Streetlight Youth Shelter  
Ken Kerr  
503-807-6574

**Web-based resource List**

Multnomah County Vector and Nuisance Control,  
<http://www.mchealth.org/vector/bedbugs.shtml>

Centers for Disease Control, <http://www.cdc.gov/ncidod/eid/vol11no04/04-1126.htm>

University of Kentucky, <http://www.ca.uky.edu/entomology/entfacts/ef636.asp>

Harvard University, [http://www.uos.harvard.edu/ehs/pes\\_bedbug.shtml](http://www.uos.harvard.edu/ehs/pes_bedbug.shtml)