

## Questions and Answers from the EPA Region 2 Bed Bug Webinar for Shelter Administrators and Health Care Professionals on 4/10/13.

### Notes:

Links to the presentation and fliers are at the end of this Q&A paper.

**State Departments of Health:** Please contact me for the attendee list from your state for credits that you are providing.

**Answers to Questions are roughly categorized.**

### Diatomaceous Earth (DE)

- Could you discuss potential hazards to using DE indoors? Is diatomaceous earth toxic to pets and children? *DE is a physical abrasive that works well. As with all pesticides, you must follow the directions on the label. DE is a siliceous powder from the shells of diatoms, which are microscopic marine animals. When they die, their shells sink to the bottom of the body of water that they inhabit. Over thousands, or millions of years, beds of them become exposed due to plate tectonics and uplift of the Earth's plates. Then they can be easily mined.*
- There are three main grades of DE: pool, food and pesticidal. Always use the pesticidal grade registered by the EPA. DE is also used in gardens for slugs and grubs. Microscopically, DE dust is very sharp, like broken glass or razor blades (to the pest – not us). The pests crawl over the dust, and it cuts or injures them. These injuries will eventually kill them; however, it may take up to two weeks. Do not inhale the dust; as it can be hazardous to your lungs. Do not apply in places where it can be blown or airborne. It is best applied in areas not accessible to young children or pets. Always use pesticides as directed on label. Read all precautions on the label also. *DE needs to be used very carefully, we suggest a dust mask. It is not to be dusted everywhere, but into crevices and cracks. Professional applicators use power dusters to apply DE. Again, read the label and follow the directions.*
- We were told that salt desiccates the bugs after they are cut with the DE. You did not explain why salt should not be used. We spread table salt with the DE and found it to be effective. What are your thoughts? *We are not aware of any data regarding the use of salt to kill bed bugs.*

### Temperature

- What temperature for a week in the freezer? Will a home freezer be effective to kill eggs adults? How cold does it have to be to kill bed bugs? *According to the EPA web page ([www.epa.gov/bedbugs](http://www.epa.gov/bedbugs)), temperatures below 0°F (-19°C) for at least four days will kill bed bugs. However, there are many variables. If items are thick or densely packed, the temperature must permeate through the core, and be maintained there for four days in order to be killed. Temperatures in a home freezer typically range from -13 to -15 °C (5 to 9 °F), so these freezers are not reliable for killing bed bugs, unless special care is taken. If a home deep freezer is -20 °C, it should work. Many home freezers, especially refrigerator-freezers have too much variability in temperature to be reliable. If you own a deep freezer unit, it may work, but you must check the temperature first.*
- Is 250 degree temperature good enough to kill the bugs? Yes

- Can bed bugs swim? *They can float, so if using water as a barrier, add a little soap to break the surface tension.*
- What temp should the dryer be? Is "High" setting typically hot enough? *Temperature should be at least 220°F.*
- Can you tell us what the name or product there is on the market for the freezing agent product. *Crinite systems use liquid CO<sub>2</sub> which will kill bed bugs on contact. Make sure to use only EPA registered CO<sub>2</sub> systems. Discuss Crinite treatment with your pest management professional.*
- Is dry cleaning effective for killing bed bugs on blankets/drapes? *Putting them in the dryer is a much better option, if the fabric can withstand the heat. Transporting infested materials can spread infestations and many dry cleaning establishments will refuse to accept infested articles.*
- You have said to wash clothes at the highest temperature but how do you know that you will be able to obtain a temperature hot enough to eliminate the bed bugs? *Although washing will get rid of some bed bugs, hot water will stun them, making make more of them release their grips on the fabric, but washing by itself will not kill or dislodge all of the eggs. Drying is most effective for killing the bed bugs and eggs.*
- Is right to put the bedding and other stuffs under the hot sun. *Not usually. The internal temperature of the items left outside must exceed 113°F for at least 1 hour (according to the EPA web page at [www.epa.gov/bedbugs](http://www.epa.gov/bedbugs)). Like freezing, these temperatures must be reached and maintained at the core of the infested items to be effective. While outside heating may work in extremely hot climates, it is not a reliable means of bed bug control.*

## Repellents

- Would like off bug spray work to keep them from getting on your clothes? Does deet prevent bed bugs from attaching to you? Does deet help? Is using DEET as a bed bug repellent a misuse, or is it covered under 2ee? *As long as it is applied according to label directions, then it would be covered under 2ee. However, EPA has no data indicating that DEET will be effective at repelling bed bugs at any site or application rate, so we cannot recommend this use.*
- Are there effective repellants for use prior to an inspection?? I have read that insect repellants are not effective on bed bugs. Please clarify which repellants are effective, and which are not. *EPA is not aware of any data on the efficacy of any insect repellents against bed bugs. Therefore, we cannot recommend this use.*
- What about Wal Mart's NEEM oil treated foam pads being sold as bed bug repellants to put on your bed. Is there a personal repellent, like DEET? What about Cedar Oil? I heard that is very effective? *EPA does not have any data on the efficacy of DEET, similarly, there is no data concerning the efficacy of either NEEM oil or Cedar oil, as these product are exempt from registration under FIFRA 25(b).*
- We conduct hotel inspections, is there a way we can we protect our cars and office when we stumble into a facility with a problem? What is an EPA product that contains alcohol that people can spray on their shoes after leaving an infested area? *There are a number of EPA registered products on the market containing isopropyl alcohol as one of their active ingredients. You may visit the EPA web site for registered bed bug products: <http://www.epa.gov/bedbugs/productsearch/>.*

## ID

- Are there any other bugs that are commonly mistaken as bed bugs? *Yes. Nymphs of wood ticks, or cockroach nymphs. Also effects of pigeon mites, poultry mites, rodent mites, scabies, and carpet beetles, just to name a few. You should NEVER have work done to control bed bugs until you have a confirmed specimen.*
- Should you only rule it beds bugs if you actually see them? *Yes. You need to catch one and have it identified before you treat.*
- What if all you find what seem to be dead bed bugs, but no professional treatment was done? *Again, determine that they are bed bugs. Then if there are dead bed bugs, there may be live ones lurking. You are wise to begin precautionary measures such as installing interceptors and moving the bed away from the wall. Check your mattress, box spring, head board and bed frame carefully.*
- Are there different types of bed bugs within the U.S. or one major type that should be expected to encounter. It's been said that bat bugs and bed bugs look almost identical. Is this true? There is considerable variability in bed bugs throughout the U.S., and there are various species, but the common bed bug, as pictured above, is more of a human pest, as opposed to other species, which may bite humans, but their main hosts are other species, such as birds and bats.

(Right: Bat Bug, Poultry/ bird bug, and swallow bug)



Bed bugs

## Interceptors

- Can a bowl with water be used as an interceptor...placed on bed legs? *Actually yes, however, the water will evaporate, so it needs to be replaced regularly. Also a little bit of detergent should be added to the water to break surface tension.*
- Why use the talc powder, what is it for? What do you place into the bed bug interceptor traps? You mentioned talcum powder, is baby powder using corn starch contain talcum too? *Talcum powder is used in the base of interceptor trays and a small bit vacuumed up after vacuuming for bed bugs. This is not intended as a pesticide, but as a coating, since it makes surfaces slippery and makes it difficult for bed bugs to climb back out of vacuum cleaners, or out of the interceptors. Try to use unscented baby powder only. Interceptors do come with talc powder on them. After cleaning, recharge them with talcum powder by using a q-tip.*
- What type of items from home can be used as interceptors under furniture legs? Any suggestions for low cost, make at home interceptors? Please send everyone instructions on how to make interceptors. *An interceptor is like an upside down dog dish, not multiple containers. It should be a continuous surface, however many have found that they can make their own using different sized plastic deli containers, glue, paper tape and a little talc.*
- Bed bug interceptors can be found on Amazon.com.
- Is there value to use of interceptors or other monitoring devices in cars/vehicles prior to steam cleaning? *No.*

- Can you use Vaseline or double sided tape in place of the interceptors? *Petroleum Jelly or double sided tape could be used in addition to interceptors. Spread the jelly around the leg of a table in a Maginot line – completely around the leg, as a barrier. Bed bugs will get stuck. You will need to reapply the jelly on a regular basis, as it will dry out. Double stick tape will also dry out over time and must be reapplied.*
- What is the attractant in the bedbug interceptor? *It is the CO<sub>2</sub> that you exhale attracts the bed bugs, then they try to find a way up to you. Moving the bed and couch away from the wall and placing interceptors under bed and couch legs will catch the bed bugs while they are attempting to reach you.*
- Can you explain again how the plastic containers are used to detect bed bugs in a residence? What about using dry ice in the interceptor? *Not necessary because you are the attractant, but see below for home-made dry ice monitor.*
- Can dry ice be used as bait for bedbugs (CO<sub>2</sub> liberator)? Can dry ice attract bed bugs? *Dry ice does attract bed bugs, as it puts out even more CO<sub>2</sub> than we exhale. You can even make a home-made bed bug monitor / trap with dry ice in a thermos. Always use extreme caution when handling dry ice since improper handling can lead to severe burns. For directions on creating a dry ice trap using a thermos. See directions at: <http://www.njaes.rutgers.edu/pubs/publication.asp?pid=FS1117>*
- When using moat -style interceptors for monitoring, do you use any type of bait to attract? *No. The CO<sub>2</sub> that is released when you exhale is the most effective lure for attracting bed bugs. Chemical lures can also sometimes be useful to increase trap catches.*

## **Treatment**

- Is there any one method of getting rid of bedbugs that you would recommend over another? *No. The most effective control methods will vary according to the environment (home, office, hospital, etc.), level of infestation, client's expectation and financial capability. Overall, we recommend that you use a combination of IPM methods. Some common methods include encasing the bed, placing interceptors under furniture (sofa, bed, end table) legs, frequent laundering, hand removal, placing infested items in freezer. These can be done without professional services. Professionals can be hired to apply hot steam or pesticides. If a site plans on using steam treatment they should consider getting a combination unit that is continuous fill. very effective tool more expensive than individual steam and vacs, but well worth investment as it makes treatment far more effective. Excellent in multifamily units with frequent recurrent bed bug issues.*
- How often should they be treated if they are in a facility? *After treatment, inspect every 2 to 3 weeks for 3 months.*
- About Vacuuming *It is easy to recommend daily vacuuming, but this is sometimes difficult to undertake due to cost and staff limitations. Vacuuming needs to be incorporated in a carefully planned stratagem ... for cost effective results.*
- Can you discuss the use of the PACKTITE CLOSET OR BOX for shelters? *A shelter with high turnover, might consider investing in creating a small heat chamber by using a storage area, this can accommodate more items and be used for furniture and other items.. These can be created at nominal cost.*
- How effective are bed bug sniffing dogs in locating bed bugs? Is there a certification program for these dogs? *EPA does not require, nor has any dog efficacy data.*

- Any success stories around the country from the creation of local task forces like the Cuyahoga Bed Bug Task Force and the Central Ohio Bed Bug Task Force? *We are not aware of any.*
- Can you discuss the Decision Rule for Shelters? *The Decision Rule concept is applying specific elements based on the knowledge. and the ongoing information collection enables this kind of approach. It helps focus the treatment requirements as well as the appropriate preventive measures (some general, some specific to a type of facility) - e..g intake processes in shelters.*

### **Natural Predators and other Natural Solutions.**

- Is salt effective at killing bed bugs? *We are not aware of any data regarding the use of salt to kill bed bugs.*
- Do Bed bugs have natural predators? *There are natural predators, but not effective in bed bug control. Spiders, masked marauders (nymphs of assassin bugs) , even roaches can devour them... but are not effective in any significant way.*
- With regard to use of home remedies, an article cited the use of bean leaves, because the texture and make-up of the bean leaf served to trap the bed bugs. Have you any information on this alternative control method? If not maybe you can for the next presentation. ? Have you heard about kidney bean leaves working as a natural "bedbug" roach motel? recently we have been hearing about Leafy folk Remedy (bean plants) that has been found in Europe, can you please give us some more about it. *Yes, we have read about it. The concept seems promising, but we are waiting to see new devices developed and efficacy testing.*

### **Bed Bugs and Disease**

- Do bed bugs carry diseases ? I have heard of studies indicating findings that bed bugs are possibly able to transmit disease. *No. They may carry some diseases from infected patients; however numerous tests show that they do not transmit diseases.*
- If someone gets bitten by bed bugs, how can that person treat the bites at home, or should the person seek medical treatment through their doctor? *Every person reacts differently to the bite of a bed bug. Some have no reaction, while others have true hypersensitivity to the anesthetic that the bed bug injects when it inserts its proboscis for the blood meal. So whether you treat yourself or go to a doctor is based on your individual sensitivity, reaction, and personal preference.*

### **Bed Bug Products**

- What specific spray products would you recommend for bedbugs? EPA can not endorse specific brands of products on the market. *.See the attached link to the EPA website of EPA registered pesticide products for bed bug control.*
- How many time can a pesticide be use before the bed bug becomes resistance? *.Resistance is very difficult to measure especially in an uncontrolled environment such as individual residences. There have been many reports of resistance to pyrethroids. However, there are many reasons for a treatment failure other than resistance. Please see the "When treatments Don't Work" section of the EPA web page at. <http://www.epa.gov/bedbugs/productsearch/> .*
- Any movement on the approved use of Propoxur indoors? *No Propoxur is not approved for indoor use due to adverse affects and high levels of toxicity. The EPA has no plans to reverse or give exemptions for the use this product indoors.*

- Do sanitizers kill bb? What role does sanitizing play in prevention if they do not thrive on food or dirt will dry cleaning solutions kill bed bugs on clothing? *Sanitizers do not kill bed bugs. Using soap and water can dislodge some, especially in the washing machine. Using soap and water to clean dirty hiding places can be effective. Cleaning is important, sanitization is not necessary.*

### **Hiding Places**

- Is there type of furniture fabrics that can discourage the bed bugs to hide in. ex: furniture made of leather versus furniture made of velvet or other type of fabrics. *Bed bugs have a harder time crawling up a chair with smooth metal legs as opposed to upholstered legs or wood. Cloth is easy for their hook-like legs to grasp onto. Unfortunately they can harbor deep in cracks in both leather or upholstered fabric furniture.*
- Can bed bugs be passed through a Laundromat? *Yes. They can be carried in via laundry bags or baskets, dropped off, and picked up by the next customer placing their laundry in that general location.*
- Should a property consider replacing carpet with a smooth cleanable flooring to help control bedbugs? *It certainly might help. It makes floors easier to clean and gives bed bugs less places to hide, with the added benefit of better indoor air quality.*

### **BB Habits, Patterns**

- Is there a specific season when the bed bug infestation happen? ex: winter time, summer time? *Any season can be bed bug season, as long as they find a warm place to harbor with a ready source of blood.*
- Do they get on pets, cats or dogs? *They prefer humans. We have less hair to contend with, however, if animals are left abandoned in a residence for a long period of time, and the bed bug cannot find a human meal, the bed bug will resort to pets when really hungry.*
- Do they like head areas like lice? *No. Any place on the body with easy access to blood is just fine. Actually, they avoid hair, as it makes movement more difficult.*
- Can they burrow in wooden furniture? *No, they have no capacity to burrow, like termites. They can squeeze into very tiny places, like knots and screw-holes in wood, or in cracks in framing.*
- Do bedbugs hand around outdoors in the daylight? If they are transported outside, they will survive, and look for dark, tiny places to hide

### **Social Justice and Low Income Properties**

- Does the Federal Government consider bed bugs to be a social justice issue... in Louisville, we see discrimination by infestation? *Sorry. Bed bugs do not discriminate. They love all blood, no matter who the donor is. It is an exposure pest and they will hitchhike on anyone's possessions and come home with them. There is often a lot of work associated with bed bug control, and many are not physically able to take all of the control steps on their own. Hiring a contractor can be costly, and not everyone can afford the added expense.*
- What is your advice for assisting clients who cannot afford professional bed bug treatment? *There are many DIY methods to combat bed bugs that can be combined with diligent monitoring to reduce the cost of control. Affordable Integrated Pest Management (IPM) methods described in the presentation, include: encasements, interceptors, vacuuming,*

*drying on high heat, steam cleanings, clutter removal, pesticidal diatomaceous earth applied in cracks and crevices and moving bed away from the wall. If you cannot control them after 2 or 3 months, then you may need to consult a Pest Management Professional.*

- What are poor people supposed to do about bed bugs? Please address. *(See IPM methods above, plus review the presentation.)*
- What if you contact the landlord/s and management for public housing such as apartment complexes and they continue to do nothing to fix the situation. *Discuss this with your local Board of Health.*
- In the circumstance that the entire complex is bed bug infested what would you suggest then? *Heat treatment for the entire complex. Expensive, but it works. Then have a pest management professional apply pesticidal dust into the walls, to prevent reoccurrence and spread.*
- Are there any funding sources to help with a bed bugs situation at a homeless shelter? *Treatment is very costly and can have huge impact on a budget? Not that we are aware of.*
- Any Workman's Comp cases? *Not that we are aware of.*
- Does the presenters consider bed bug infestation a public health threat? *Yes. Please see the "Joint Statement on Bed Bug Control in the United States from the U.S. Centers for Disease Control and Prevention (CDC) and the U.S. Environmental Protection Agency (EPA)" available at [http://www.cdc.gov/nceh/ehs/Publications/Bed\\_Bugs\\_CDC-EPA\\_Statement.htm](http://www.cdc.gov/nceh/ehs/Publications/Bed_Bugs_CDC-EPA_Statement.htm) for a full discussion of this issue.*

## **Containment**

- Can you explain again how the plastic containers are used to detect bed bugs in a residence? *They are not meant as detection devices, but as a way to contain bed bugs from spreading from one person's belongings to another, especially in a shelter.*
- What do you do when a client comes into your office at work that has bedbugs at home? Into a short-term emergency shelter? *Have them place their belongings in a clear plastic container boxes. Heat- treat any outer clothing in a drier for a half hour. If you have some clean spare garments that the client can change into, while the garments are being heat treated, is the best.*
- What do you recommend as a best practice in terms of containment, treatment, and education of residents? *Maintain a number of clear plastic box containers for incoming client belongings. Reduce wall to wall carpeting. Reduce plush furniture. Regular, daily, maintenance and sanitation of the facility should be preformed. Vacuum daily. Have educational materials available for clients and staff. Have a drier or other heat-treating device on site. Use encasements or wipe down mattresses on a weekly basis. Change and wash and dry all bedding weekly. Fluff pillows in the drier (heat treat) for a half hour also.*
- Are there portable items that field workers can use when they go into homes which may or may not have bed bugs? *Generally, clear zip-lock bags are great for transporting items. Also, you can use a clear, lidded plastic box for transporting your items. Many come with easy carry handles and locking lids. Books, notepads and i-pads can also be placed in the zip-bags, when not being used. Everything is easy to see and BB cannot get in.*
- What is recommended for a local services agency in treatment /prevention in the work area when it is suspected that a client has been exposed to bed bugs? *Dress appropriately. Only bring in equipment that is absolutely necessary. Bring along a large plastic bag or smooth plastic gardening knee pad to kneel on, if needed. Inspect and using an EPA approved*

*pesticide on the exterior of your equipment satchel after leaving the premises, if bed bugs are known to be in the residence. Some care providers bring along their own small folding metal stool or chair, especially if they find no other “safe” place to sit.*

- Can you provide more prevention methods for health care providers who get in contact with infested areas and client? *Review the precaution slides and accompanying fliers. Wear light-colored clothing and brush off when you leave a residence. Do not wear pants with cuffs or cargo pants. A sticky lint roller can also be helpful in your self-inspection between client visitations.*
- Do bed bugs like equipment that might be found in nursing homes like oxygen tanks, walkers, and other medical equipment? *Bed bugs do not ‘like’ medical equipment as there is no nutritional value associated. However they can be places of harborage. You will need to determine the proper cleaning methods of each different type of equipment. You can also place smaller equipment on a large white garbage bag and using compressed air, you can dislodge dust, debris or even tiny critters that may be hiding in the keyboard or in cracks or crevices. Other equipment should be regularly cleaned.*
- Do you have any specific suggestions for health inspectors? *Keep a second set of clothing and shoes in a clear plastic bag. If you find that you have entered an infested location, do a self-inspection as described in the presentation, change clothes ASAP. Place all clothes and items that may have been exposed to the infestation in a sealable plastic bag and treat in hot drier when you get home. Use drum liners to line the vehicle if you need to transport something from the infested unit. FYI - There are suitcases / briefcases available that have the capacity to heat up hot enough to kill bed bugs inside the case.*

## **Added Resources**

- Will the webinar be available on line for future viewing? *Yes. See below.*
- For the recorded presentation go to: <https://www1.gotomeeting.com/register/804303369>
- The actual power point presentation is too large to e-mail, however it is included on a CD for shelters and Health Care providers, FREE of charge. You may request this EPA Region 2 disc from [Gregory.Lynne@EPA.gov](mailto:Gregory.Lynne@EPA.gov) .
- Do you have a pamphlet or separate document with more information for on-the-job precautions? *See below:*
- Flier: EPA Bed Bug Detection and Control: <http://www.epa.gov/pesticides/bedbugs/bed-bug-prevention-detection-control.pdf>
- Flier: Simple, Common Sense Bed Bug Information for Residents and Building Managers. <http://njaes.rutgers.edu/pubs/pdfs/bed-bug-info-for-residents-and-bldg-managers.pdf>
- Flier: Simple, Common Sense Bed Bug Information for Health Care Workers. <http://njaes.rutgers.edu/pubs/pdfs/bed-bug-info-for-health-care-workers.pdf>
- Bed bug poster go to: <http://njaes.rutgers.edu/pubs/pdfs/bed-bug-poster-for-multi-unit-dwellings.pdf>
- Bed Bug tips & identification Card: <http://www.epa.gov/oppfead1/Publications/bedbug-tips.pdf>
- Bed Bug Travelers Card: <http://www.epa.gov/oppfead1/Publications/bedbug-traveler.pdf>
- EPA Bed bug clearinghouse: <http://www.epa.gov/bedbugs/bedbug-clearinghouse.html>
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