DEPARTMENT OF VETERANS AFFAIRS
Veterans Health Administration
Washington DC 20420

IL 10-2008-011
In Reply Refer To: 111

August 8, 2008

UNDER SECRETARY FOR HEALTH'S INFORMATION LETTER

BED BUGS

1. Purpose. This Information Letter addresses bed bug issues, and is provided to assist staff at Veterans Health Administration (VHA) facilities in diagnosing patients presenting with bed bug bites, recognizing bed bugs, and preventing and mitigating bed bug infestations at VHA facilities. ***NOTE:*** *Information for use in educating patients on bed bug infestations in community-based residences is provided in Att. A.*

2. Background

a. Bed bugs were essentially eradicated in the United States (U.S.) in the 1940s after the widespread use of broad-spectrum synthetic insecticides. However, in the past 10 years, there has been a resurgence of bed bug infestations in a number of countries, including the United States. Infestations often occur in locations with a high turnover of occupants, such as hotels, motels, apartment complexes, and shelters.

b. Bed bug infestations in the U.S. primarily are caused by the common bed bug, *Cimex lectularius* Linnaeus (L.), although the tropical bed bug, *C. hemipterus*, has occasionally been found in Florida. Adult bed bugs are about 1/4 inch long and wingless, with flat, oval, segmented, brown or reddish-brown bodies (see Att. B).

c. The bed bug only feeds on blood. The main source for blood meals (i.e., "bed bug bites") is humans, although other mammals and birds can serve as a source. The bed bug is attracted to the host by detecting body heat and carbon dioxide. A blood meal is required for the female to produce eggs, and for progression of nymphs to each of the five developmental stages. However, an adult bed bug can survive for a year between feedings.

d. Bed bugs are nocturnal and hide during the day unless extremely hungry. Preferred harborages are relatively close to the host, such as mattress seams and folds. However, bed bugs can travel several feet from a host and have been known to conceal themselves in outlets, window and door frames, bed frames, drapery, baseboards, floor and wall cracks, drawers, electrical boxes, telephones, furniture, wall-to-wall carpeting, loose wallpaper, and behind wall hangings and headboards.

e. Some reports suggest an increasing occurrence of bed bug infestations among socially disadvantaged groups. This may be a result of frequent relocations, lack of funds to mitigate an infestation, or lack of cognitive awareness of a problem. At times, infestations can be extensive. ***NOTE:*** *In general, the sanitary condition of an area is not an indication of whether or not bed bugs are present. Even very clean rooms can be infested. Once bed bugs are introduced to an area, they only require blood meals for sustenance, unlike other pests that may rely on human food, moisture and clutter.*

3. Detection

a. Sightings of live bugs, eggs (very difficult to see), and crushed bugs from sleeping hosts indicate an ongoing infestation. Evidence of a past or present bed bug infestation can include dark reddish-brown fecal or blood spots on linens, in mattress seams, or on walls and ceilings. Egg shells or shed skins can also indicate an infestation, but these signs are hard to see.

b. Bites on patients (see par. 5) at the health care facility that appear the morning after an overnight stay can indicate that bed bugs are present in the room. However, the appearance of bites on some patients may be delayed reactions to bed bug bites received at another location. ***NOTE:*** *Overnight bites do not by themselves confirm the presence of bed bugs; bites could be caused by other insects such as fleas. Inspection of the area for bed bugs or their markings is necessary to verify that bed bugs are the cause of the bites (see par. 4).*

c. Sticky monitors used to trap insects are often not effective at detecting low to moderate numbers of bed bugs in an area. If sticky traps are used, routinely check them for prompt removal of trapped pests.

4. Intervention. If a bed bug infestation is suspected at the health care facility, the following procedures are recommended:

a. Close off the room or area from use, place appropriate signage, and immediately notify the facility office or individual responsible for pest management.

b. If possible, capture a bed bug and place it in a sealable container to assist facilities pest management in their assessment and identification.

c. Leave the room intact without cleaning or removal of items (e.g., linens, furniture) to facilitate determination of the extent of the infestation and to prevent the spread of bugs to other areas.

d. Conduct a detailed inspection of the area involving pest management personnel trained in bed bug control. The inspection needs to:

(1) Verify any detected evidence of a bed bug infestation.

(2) Estimate the magnitude of the infestation by examining all potential harborages. Rooms adjacent (horizontally and vertically) to the affected area need to be examined, as well.

e. A multifaceted integrated pest management approach to exterminate the infestation will be necessary given the variety of bed bug harborages and the varying susceptibility of bed bug life stages to different control measures (see Att. C). The intervention will likely necessitate participation of pest control, facilities management, patient care, and infection control staffs.

f. Once control measures have been implemented, routine follow-up inspections are required to monitor the effectiveness of the treatments. Since bed bugs are well-adapted to hiding, repeated implementation of control measures and inspections are often necessary for complete eradication.

5. Patient Care. While bed bugs are unlikely to cause severe health consequences in patients at a health care facility, patient care is of utmost importance in the event of a suspected bed bug infestation.

a. It is important to recognize symptoms in patients caused by bed bugs in order to provide appropriate care and to be alerted to a possible infestation (either in the health care facility or in the patient's place of residence). Health conditions associated with bed bugs include the following:

(1) **Bed Bug Bites.** Bed bugs typically feed at night. The bites often occur on the arms, shoulders, neck, and legs. The elongated mouthpart of the insect is used to get a blood meal, which takes about 10 minutes. The bed bug injects the site with salivary fluid that has both anesthetic and anticoagulative properties to facilitate feeding. ***NOTE****: The bed bug leaves the host once feeding is complete, so one will not typically see bugs on a person whose environment is infested. This is in contrast to many other arthropod infestations of humans (e.g., lice, scabies, myiasis) in which the pest resides on the host. Therefore, bed bug prevention and intervention strategies, such as those described in this document, are directed at the environment rather than the host.*

(a) Reaction (or no reaction) to the bites is host-specific, depending on the immune response to the injected salivary fluid. Appearance of a bite reaction can be immediate (i.e., within hours) or delayed (i.e., a week later). The bite reaction usually presents as a red bump (wheal) ranging in size from a few millimeters to 1 centimeter, and with the absence of a red puncture mark in the middle. The bites can occur in lines or clusters of three or four. The bites can be extremely itchy and are susceptible to secondary infection with repeated scratching that breaks the skin.

(b) Physical reactions to bed bug bites typically resolve without treatment in 1 to 2 weeks. Topical emollients, topical corticosteroids and oral antihistamines can alleviate itching and discomfort. Oral corticosteroids may be necessary for more severe reactions. Secondary infections may need to be treated with antibiotics.

(c) In some cases, a more severe reaction develops involving hives larger than a centimeter, capillary dilation, pus-filled blisters, severe discomfort and itching, and inflammation. In rare cases, when patients may experience respiratory distress or anaphylaxis, treatment needs to be directed at the alleviation of symptoms.

(2) **Emotional Distress and Insomnia.** Patients, who have experienced bed bug bites or a bed bug infestation, may be emotionally distressed because of prolonged reaction to the bites, discoloration or scarring, discomfort in the presence of insects, or the social stigma associated with infestations. Distress can lead to an inability to fall or remain asleep, agitation and nervousness.

b. If a room at the health care facility is suspected of having bed bugs, the patient is to be removed from the room and reassigned to a new room (see par. 4 for guidance on intervention strategies). The room is not to be used until after any infestation is eliminated. ***NOTE:*** *It is wise to ensure that bed bugs are not present on the patient or in the patient's belongings prior to relocation to a new room.*

c. If a patient is admitted to the hospital (inpatient) and bed bugs are found on the patient or in the patient's belongings, the following actions need to occur:

(1) The patient needs to shower, be issued a hospital-laundered change of clothing, and be moved to a new room. The old room needs to be closed to patient care with appropriate signage until it has been assessed for bed bugs and an intervention strategy is completed, if necessary (see par. 4).

(2) Launder, surface clean, fumigate, or quarantine the patient’s personal belongings. Avoid sending home a patient’s personal belongings that may be harboring bed bugs or bed bug eggs without some form of inspection and treatment to prevent the re-introduction of the insects into the patient’s residence.

(3) Discuss with the patient, information on bed bug detection, prevention, and control (see Att. A).

d. If the patient is in the facility for a clinic appointment or activity (outpatient) and is found to have bed bugs, the following actions need to occur:

(1) After the patient leaves the room or area, close the affected area for use with appropriate signage until the area has been assessed for bed bugs and an intervention strategy is completed. (see par. 4).

(2) Discuss with the patient, information on bed bug detection, prevention, and control (see Att. A).

e. Some reports and web sites suggest that over 25 types of human microbial pathogens have been detected in bed bugs. However, to date, there have been no documented cases of the transmission of disease from bed bugs to humans, including diseases caused by blood-borne pathogens.

6. Prevention of Bed Bug Infestations. Once bed bugs are introduced to an area, eradication can be complex. Therefore, prevention of an infestation is desirable. This too is tricky since bed bugs are often passively introduced into an area, frequently hidden in luggage, clothing, furniture and boxes. Nonetheless, understanding bed bug behavior can allow for preventive measures that can reduce the likelihood of an infestation. Since bed bugs only feed on blood, removal of the food source from patient care areas is not feasible. Rather, prevention is focused on avoiding the transfer of bed bugs to the facility and reducing potential harborages. Considerations for the prevention of an infestation include the following:

a. Conduct a risk assessment of the facility to determine areas that may be particularly susceptible to an infestation. This is especially important for facilities with residential programs (e.g., community living centers, inpatient psychiatric services) where persons arrive for care with their own luggage or belongings. Develop quarantine or inspection plans for luggage and clothing to prevent the transfer of bed bugs from patient belongings to the facility.

b. While bed bugs are not attracted to unsanitary conditions, removal of clutter is essential for eliminating bed bug harborages or obstructed view of other harborages, such as wall cracks.

c. Seal cracks and crevices in rooms and repair torn wall paper.

d. Replace torn furniture.

e. Bed and mattress criteria that may prevent a bed bug infestation include the following:

(1) Avoid the use of headboards, especially those that are attached to the wall.

(2) Avoid the use of mattresses that have excessive piping or seams. ***NOTE:*** *Consider the use of rubber, seamless mattresses or mattress covers on hospital beds to reduce bed bug harborages.*

(3) Replace torn mattresses.

(4) Avoid the use of box springs since bed bugs can easily hide inside them; alternatively, put covers on box springs to prevent access by bed bugs.

(5) Move beds away from direct contact with the wall.

f. Routinely inspect common bed bug harborages such as mattress seams, drawers, and the backs of wall hangings for evidence of bed bugs.

g. Check linens when removing them from beds for dark spots, bugs or other bed bug signs. Early detection can facilitate mitigation activities.

h. Inspect borrowed and “second-hand” equipment and furniture that arrive from other locations for bed bugs.

i. Programs that provide care in the patient's home (e.g., home-based primary care, home care, mental health, physical therapy) must prevent the transfer of bed bugs from any patient homes to the health care facility or employee residences.

(1) Bring only necessary bags or equipment into the patient's home. ***NOTE:*** *Consider using carrying cases that are non-fabric (e.g., plastic storage containers or bags), or those with minimal seams and folds.*

(2) Avoid placing bags, equipment and coats on or next to beds, upholstered furniture, or walls.

(3) Provide information on bed bug prevention and interventions, if there is evidence of an infestation in the patient's home (see Att. A).

7. Education

a. **VHA Staff.** Education of facility employees, including patient care and environment of care staff, on bed bug behaviors and signs of an infestation is critical for bed bug prevention and control. Since bed bugs can be unwittingly introduced to even a very clean room, an appropriately trained workforce that can implement prevention and control measures can minimize the risk of an infestation.

b. **Patients.** If VHA staff suspect a bed bug infestation at the patient's place of residence, inform the patient of bed bug detection, prevention and control issues (see Att. A).

8. Conclusion.

Bed bug infestations have been increasing throughout the United States. Given the high turnover of room occupants, the residential nature of some programs, and the ease with which bed bugs can be transferred to a new area, staff at VHA health care facilities should maintain vigilance for infestations and exercise methods for prevention to avoid or reduce the burden of bed bugs on patients and on facilities.

9. References

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10. Inquiries. For questions related to the clinical aspects of bed bugs, contact the Infectious Diseases Program Office at (513) 475-6398. For questions regarding pest control, sanitation, and linen, contact the Environmental Programs Service at (202) 266-4623 or visit the EPS website at http://vaww.vhaco.va.gov/dushom/eps. This is an internal link for the use of VA staff.

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ATTACHMENT A

INFORMATION FOR USE IN DISCUSSING WITH PATIENTS BED BUG INFESTATIONS IN COMMUNITY-BASED RESIDENCES

1. It would be prudent for health care facility employees to discuss with patients issues relating to the detection, prevention and mitigation of bed bugs if the patient presents at the health care facility with suspected bed bugs and/or bed bug bites, if the patient indicates that there may be an infestation at their place of residence (e.g., single-family home, apartment building, transitional housing), or if an infestation is suspected by an employee when providing care at the patient's place of residence.

2. Many of the activities for the detection, intervention and prevention of bed bug infestations in community-based residences are similar to activities described in this Information Letter for the health care facility. When discussing bed bug home infestations with a patient, provide the following types of information:

a. **Sanitation.** Patients may be reluctant to discuss a possible home infestation because of embarrassment. Inform patients that a bed bug infestation is not necessarily an indication of poor sanitation. Bed bug infestations have become an increasing problem in many places in the United States, including expensive hotels. However, proper sanitation and removal of clutter are good practices as they can eliminate potential bed bug hiding places, facilitate the removal of some bed bugs and eggs, and the application of control measures.

b. **Detection**

(1) Bed bugs are nocturnal and usually hide during the day. Inform patients of common bed bug harborages (e.g., mattress seams and folds, bed frames, drapery, baseboards, furniture).

(2) Inform patients of the signs that indicate that there may be a bed bug infestation in the home (e.g., live bug sightings, dark spots in mattress folds). Heavy infestations may have a sweetish-musty odor, but this may be difficult to ascertain and is not reliable for detection.

(3) Bites that appear after sleeping can indicate that bed bugs may be present.

c. **Intervention**. Bed bugs are difficult to eliminate from a residence because they hide well in hard-to-reach places. It is recommended that a licensed Pest Management Professional (PMP) with experience in treating bed bug infestations is used for mitigation. Consider informing patients that:

(1) It is advisable that patients living in rented spaces or transitional housing inform management if a bed bug infestation is suspected so that pest control can be arranged. Furthermore, areas of the property other than the patient's living space may need to be inspected and possibly treated.

(2) Saving a bug in a sealable container to show to the PMP can facilitate identification of the cause of the infestation.

(3) More than one visit by the PMP will likely be necessary before bed bugs and their eggs are eliminated.

(4) Prior to mitigation treatments, leave items such as furniture in the room(s) to prevent spreading bugs to other areas. Encase items that need to be moved in bags or plastic.

(5) If the patient indicates that they intend to use household pesticides rather than a PMP to mitigate an infestation, reiterate that bed bug eradication is complex. If household pesticides will be used, advise the use of products that are Environmental Protection Agency (EPA)-approved and labeled for use against bed bugs. The products need to be applied only to areas listed on, and as directed by, the label. For example, some pesticides are not labeled for use on mattresses.

(6) Launder linens and clothing in hot water with detergent. Dry items in a clothes dryer set on the hot setting. Transfer items to the laundry area/site in a sealed container or bag. Do not reuse the same container or bag to return laundered items. Consider keeping laundered items in sealed containers or bags until the infestation is eliminated. Do not treat linens and clothing with pesticides. Items that cannot be laundered in water can be placed in a sealable container and stored in a freezer (less than -18 degrees Celsius or 0 degrees Fahrenheit) for four days to kill any bed bugs and/or eggs present. ***NOTE:*** *The freezing temperature is essential; if the temperature is not below -18 degrees Celsius, as is the case for many household freezers, bed bugs will not be killed.*

d. **Prevention.** Preventive activities, such as the following, can reduce the likelihood of introducing bed bugs into the home, or the transfer of bed bugs from an infested home to other locations.

(1) Bed bugs are usually transferred to a new location passively while hiding in items such as luggage and furniture. Inspect items carefully for bed bugs before bringing them into the home (e.g., when returning from travel) or before taking them to other locations.

(2) When staying at other places (e.g., hotels, transitional housing), inspect the bed and surrounding area for evidence of bed bugs. If a bed bug infestation is suspected, inform management and request different accommodations.

(3) Second-hand or discarded curb-side furniture can be infested with bed bugs. Avoid these items, or inspect them carefully before bringing them into the home.

(4) Limit bed bug harborages in the home. Seal cracks and crevices, repair torn wallpaper and furniture, and consider the use of covers to enclose mattresses. Reduce clutter, such as boxes of stored items in the bedroom, so that potential bed bug harborages are minimized.

e. **Resources.** Health care facility employees are not able to arrange for bed bug control for patients' community-based residences. However, providing contact information for community resources (e.g., local health department, housing authorities, and bed bug information hotlines) can assist patients in the elimination of bed bugs in the place of residence.

ATTACHMENT B

IMAGES OF THE COMMON BED BUG (*Cimex lectularius*)

Bed bug nymph, oblique-dorsal view, on human arm while ingesting a blood meal.

Adult bed bug, lateral view, on human arm while ingesting a blood meal.

Source: Centers for Disease Control and Prevention (CDC) Public Health Image Library website (http://phil.cdc.gov/Phil/home.asp). Content Providers: CDC/Harvard University, Dr. Gary Alpert; Dr. Harold Harlan; Richard Pollack. Accessed on 3/20/2008.

ATTACHMENT C

CONTROL MEASURES FOR BED BUG INFESTATIONS IN VETERANS HEALTH ADMINISTRATION HEALTH CARE FACILITIES

1. An uncontrolled bed bug infestation can quickly spread from one area of a health care facility to another. Effective control measures depend on an integrated pest management (IPM) approach that incorporates mechanical and physical methods, as well as chemical methods to rid an area of bed bugs. ***NOTE:*** *Further information on integrated pest management can be found in VHA Program Guide 1850.2 Integrated Pest Management (IPM)* (http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=1093).

2. Bed bug mitigation that involves pest management personnel (PMP) with experience in bed bug control is recommended. Considerations for an IPM approach to bed bug control at the health care facility include, but are not limited to:

a. **Mechanical methods**

(1) **Vacuuming.** Vacuuming is an effective first step in a mitigation plan to remove bed bugs from surfaces such as mattresses. However, vacuuming is less effective at removing bed bugs from other harborages that may be difficult to access with equipment, such as cracks and crevices. Additionally, bed bug eggs are attached to the surface on which they are laid and are very resistant to vacuum removal. Therefore, vacuuming alone is typically not adequate to eliminate an infestation. ***NOTE:*** *Use vacuums with disposable dust bags. Immediately after use for bed bug mitigation, vacuums need to be cleaned and dust bags sealed and discarded to prevent the transfer of bugs to other areas.*

(2) **Removal of Items.** The removal of a mattress or furniture item that is infested with bed bugs and replacement with new items can reduce the immediate infestation. However, if bed bugs are present in other harborages in the area and are not eliminated, the replaced items may subsequently become re-infested. ***NOTE:*** *Remove mattresses and furniture that are torn since complete treatment of these items to rid them of bed bugs is difficult.*

(3) **Cleaning.** Thoroughly clean a room or area determined to be infested with bed bugs, including mattresses, furniture, walls, behind wall hangings, and drawers. Use a firm brush to remove bed bugs and eggs not removed by vacuuming. Items need to be cleaned completely (e.g., pull drawers out entirely to clean the back, turn furniture upside down if possible). Remove clutter. ***NOTE:*** *Sanitation alone is not adequate to mitigate an infestation.*

(4) **Exclusion.** Bed bugs cannot break through even simple barriers, such as sealants, paper, or fabric. Therefore, sealing harborages such as cracks block access to hosts. Mattress covers that enclose a mattress, typically used to prevent exposure to dust mite allergens, can be effective at trapping any unnoticed bed bugs and eggs that remain after vacuuming and cleaning, which prevents the bed bugs from feeding. ***NOTE:*** *Mattress covers used for mitigation of an infestation should not be removed for an extended period of time because bed bugs can survive for many months without a blood meal.*

b. **Physical Methods**

(1) **Heat.** Bed bugs are killed by temperatures above 48 degrees Celsius (°C) or 118 degrees Fahrenheit (°F).

(a) Steam treatment of surfaces, such as mattresses and fabrics has been effective at eliminating bugs and eggs. This method must be implemented by an experienced, licensed pest management professional (PMP) in accordance with manufacturer's instructions and safety precautions. ***NOTE:*** *Excess moisture from the treatment may result in problems with mold or mildew.*

(b) Launder linens and other washable fabrics from infested areas in hot water and detergent; dry these items using the dryer hot cycle for at least 30 minutes to kill bed bugs and eggs. ***NOTE:*** *Some evidence suggests that a water temperature of at least 60°C (140°F) is necessary. Water temperatures less than 48°C (118°F) may not be effective at killing bed bug eggs.* Transport the items to the laundry site in sealed bags or containers. Consider alternative options for non-washable fabrics such as freezing (see Att. C subpar. 2b(2)) or fumigating (see Att. C subpar. 2c(5).

(c) Heat treatment of infested items to a temperature above 48°C using a contained heating system can kill bed bugs on the item. However, if the entire item does not reach at least 48°C (e.g., the inner parts of furniture) then the method may not be effective at killing all bed bugs present. ***NOTE:*** *Increasing the room temperature to above 48°C to eliminate a bed bug infestation in an area is not recommended for the health care facility, since this can potentially affect equipment in the area or distort structures.*

(2) **Cold.** Bed bugs are killed after extended exposure (days) to freezing temperatures (below -18°C or 0°F). While this method of extermination is not feasible for a room or area, it can be useful for eliminating bed bugs from smaller objects, particularly those that cannot withstand other mitigation methods, such as laundering in hot water. Seal objects in a container or bag and store below -18°C for at least 4 days to kill any bed bugs present. It is critical that the temperature be below -18°C or the bed bugs will not be killed in this time period.

c. **Chemical Methods.** An intervention strategy that does not include some sort of chemical treatment is often not successful at eliminating the infestation because of the elusive nature of bed bugs. Treat all areas identified in the inspection as bed bug harborages, especially cracks and crevices, as allowed by the label(s) on the product(s). ***NOTE****: Chemicals used for insect control must be labeled Environmental Protection Agency (EPA)-registered and properly formulated. Applications of these chemicals at the health care facility must be implemented by a licensed, certified PMP in accordance with current laws and manufacturers' instructions, including adherence to locations and types of materials that can be treated.* The following procedures are encouraged:

(1) Close the area or room from use prior to application of chemical treatments. Do not use the area or room for patient care until advised by the PMP that it is safe to do so. Consideration

needs to be given to the patient population before selecting pesticides and before reopening the area or room for use. For example, patients with respiratory ailments may be particularly sensitive to certain chemicals.

(2) Vacuum the area prior to treatment to remove dust and debris that can hinder effectiveness of the product(s) (see Att. C, subpar 2a(1)).

(3) Different chemicals may be required for different treatment locations, application requirements, or jurisdictions. For example, a dust may be more appropriate than a liquid for the treatment of electrical boxes. Selection criteria for pesticides include the least hazardous material, the most precise application technique, the least quantity necessary, and consideration of the patient population.

(4) Pesticides with residual activity are not generally very effective for bed bug control once the compounds dry since bed bugs do not pick up a lethal dose from walking on them. It is unwise to use residual pesticides as a preventive measure for bed bugs, but only apply "as needed." ***NOTE:*** *There is some evidence that populations of* C. lectularius *L. exist in the United States that are resistant to pyrethroid insecticides, a commonly-used residual compound against bed bugs.*

(5) Fumigation of items such as luggage, clothing, or furniture can kill all stages of bed bugs. The fumigation process needs to occur at a separate location from patient and resident care or employee areas. Seal items to be fumigated in bags or containers prior to removal from the infested area to prevent spread of bugs to other areas. Inspect items for bed bug activity prior to re-introduction to the room or area.

(6) Space spraying of an entire room or area with fogging, ultra low volume (ULV), or aerosol compounds has been shown to have little or no effect on bed bug populations. The compounds often do not penetrate into "cryptic" bed bug harborages, and even repeated treatments can be ineffective. Furthermore, fogging a room may drive the bed bugs further away from the area and result in infestations in other rooms.

(7) Inorganic materials such as diatomaceous earth and silica gels (desiccant dusts) or boric acid (a stomach toxicant) can be used to kill bed bugs. These products have residual activity and are useful in sites where liquid products are not recommended. Furthermore, they are available in forms that are non-toxic or have low toxicity to humans. ***NOTE:*** *Since desiccant dusts affect the outer cuticle of the bugs, causing them to dehydrate and die, the mode of action is physical, not chemical. Nonetheless, application of these compounds requires similar considerations as chemical treatments.*