

# Sample Protocol for Limiting the Spread of Bed Bugs in Tennessee's Schools



Modified from *Sample Protocol for Bed Bugs Found in NC Schools* by the North Carolina School IPM Program, N.C. State University.

# Sample Protocol for Limiting the Spread of Bed Bugs in Tennessee Schools

## I. INTRODUCTION

Bed bugs have been making a comeback in the U.S. and Tennessee is no exception. While these blood-feeding pests do not biologically transmit any disease-causing organisms, they can disrupt the learning environment when discovered. Because they are excellent hitchhikers, students, teachers, support staff, athletic event participants and other school occupants may unknowingly transport bed bugs into a school. This protocol provides school personnel with steps to initiate when bed bugs are found in a school. It is the intent of this document to have a procedure in place to reduce fears and over-reaction to bed bug presence in schools by empowering personnel with a simplified plan.

These guidelines agreed upon by the Tennessee School IPM Advisory Board were modified from the *Sample Protocol for Bed Bugs Found in NC Schools* by the North Carolina School IPM Program, N.C. State University. We would like to thank all of the members of the Tennessee School IPM Advisory Board for their time, expertise and advice provided.

Watch for updates to this document on the UT School IPM website ([schoolipm.utk.edu](http://schoolipm.utk.edu)).

If you have any questions or suggestions about the information in this document, please contact:

Karen M. Vail, Ph.D

Professor and Extension Urban Entomologist

Entomology and Plant Pathology

2431 Joe Johnson Drive

205 Ellington Plant Sciences Bldg.

University of Tennessee

Knoxville, TN 37996-4560

[kvail@utk.edu](mailto:kvail@utk.edu)

[schoolipm.utk.edu](http://schoolipm.utk.edu)

[eppserver.ag.utk.edu/personnel/Vail/vail.htm](http://eppserver.ag.utk.edu/personnel/Vail/vail.htm)

(865)974-7138

(865)974-8868 FAX

Pat Barnwell

Assistant

Entomology and Plant Pathology

2431 Joe Johnson Drive

205 Ellington Plant Sciences Bldg.

University of Tennessee

Knoxville, TN 37996-4560

[pbarnwel@utk.edu](mailto:pbarnwel@utk.edu)

(865)974-2711

(865)974-8868 FAX

## II. Preparing for a Bed Bug Problem:

- A. Suggested Supplies: disposable gloves, trash bags, plastic tarps, plastic storage bins, and tape on hand to hold infested items and for moving infested items (clothing, backpacks, desks and other equipment)
- B. Designate areas where potentially infested items can be held temporarily (several days, if necessary). Large items such as desks or equipment can be moved to a storage room but you must be able to keep them isolated to minimize the chance of infesting other items in the room. Bins can be used for holding personal items, such as backpacks, books, and clothing.
- C. Initiate a policy of keeping all “Lost and Found” clothing, backpacks, etc. in closeable plastic storage bins (rather than in cardboard boxes) preferably in a central location.
- D. Establish a list of primary school personnel who need to be aware of the situation immediately in order to address the problem and to deal with questions from parents, staff, and potentially the news media. The list should include (but does not have to be limited to): designates in central office, an on-site contact, the IPM Coordinator, and nurse). While bed bugs are perceived as a “health issue” similar to head lice, the approach is very different because head lice remain in close association with their hosts and the modes of spread remain very narrow (hair brushes, hats, etc.) and more easily controlled. Additionally, head lice do **not** warrant possible chemical treatments in the facility.

## III. Responding to a Potential Bed Bug Problem: Overview

In the event that bed bugs (or what are presumed to be bed bugs) are reported in a school building or on other school property (e.g., school/activity bus), the priorities should be:

- a) to address the problem as quickly as possible to limit potential spread and with minimal disruption to the learning environment
  - b) to avoid bringing undue attention to any individuals directly involved.
- A. **Verify that the problem is due to bed bugs.** Reports of “bites” or bite-like sensations or marks, should be taken seriously. However, unsubstantiated assertions of “being bitten” or a medical diagnosis of bed bug bites alone should not be considered sufficiently reliable for declaring that there is actually a bed bug infestation in the school.
  - B. **Try to determine the source:**
    - 1. How many bed bugs were found?
    - 2. Were they found associated with one person or more than one person (e.g., on clothing, backpack/bag, desk)?
    - 3. If more than more person is involved, are those individuals related or have something in common such as being classmates, use the same transportation, etc.
    - 4. Where were the bed bugs found in the school (classroom, lockers, office, gym or other facility, or transportation, etc.)?

- C. Determine the extent of any infestation in the school facility. This effort will be based largely on the information gathered in **Section III.B**. Details of your procedure are outlined below in **Section IV**.
- D. Take appropriate corrective measures bearing in mind the safety of all concerned.
- E. Educate parents and staff as to precautions they need to take to reduce the likelihood of accidentally moving bed bugs between the school and their homes.

#### **IV. Responding to a Potential Bed Bug Problem: Implementing Your Plan**

- A. Contact the designated school system personnel as outlined in Section II.D Make sure that it is clearly conveyed whether the problem has been confirmed as involving bed bugs.
- B. Conduct a thorough inspection (visual and/or using a canine) to identify all affected sites. Although school staff can help with the inspection (e.g., with moving or organizing items), all efforts to eliminate the problem must be led by individuals who have some understanding of bed bugs and what signs of bed bug activity to look for: such as actual bed bugs, shed skins, and fecal smears (see the web site at the end of this document.)

The extent of the search should be based on a number of factors including:

1. Where the insects found - e.g., classroom, office & work areas, common area (for students or staff)
2. What they were found on or in - e.g., equipment, desks, lockers/cubbyholes backpack, exterior clothing, shoes, jackets, books, book bags\*\*
3. The nature of the building construction, i.e., can the insects move to/from an adjoining room or area. Make sure any inspections include the entire room and adjoining areas as well.

*\*\* Note: If the situation involves a student, inform the parent as soon as possible. Inspections need to be expedited in order to minimize the risk of spreading bed bugs in the school. However, inspections of students' personal items should adhere to school policies regarding student privacy. The child or individual does not need to be removed from the classroom/office unless it facilitates the inspection process nor do they need to be excluded from school.*

Some schools will utilize the services of pest control companies that use canine detection, i.e., dogs specifically trained to detect bed bugs. While this obviously adds to the cost of any control program, the dogs are more efficient in checking areas, i.e., they can check more areas (including more complicated and cluttered areas like cubby holes) in a shorter amount of time as compared to a pest control technician and are more than 95% accurate. Even if a canine is used for the bed bug inspections, it is still important that the pest control service (contracted or in-house) more closely check the areas to which the dog "alerted" and to look for the specific signs of a bed bug infestation before determining what control measures are needed.

- C. Conduct a thorough inspection (visual and/or using a canine) to identify all affected sites. Although school staff can help with the inspection (e.g., with moving Gather additional information that may help track the source of a problem. Here are some suggested questions to pose (depending on the nature of your specific problem):
1. Does the student/teacher switch rooms over the course of the day? Identify and inspect those rooms as well.
  2. Does the student participate in after-school activities (athletics, band, etc.) where they may have taken potentially-infested personal items with them?
  3. Where does the person keep their personal belongings during the day?
  4. Have any new items been brought into the room/school? (e.g., boxes, bags, “lost and found” items, etc.)
  5. Has the individual (student, staff, etc.) experienced the same problem at home?
  6. Have they done any traveling (particularly involving overnight stays at a hotel or other vacation rental property)?
  7. Have they had any visitors stay at their home recently?
- D. Collect as many bed bug specimens as possible for confirmation. Use tweezers or an index card to pick up specimens. Place specimens in a small alcohol-filled vial (ordinary rubbing alcohol will work) or wrap them in a tissue or paper towel to protect them from damage, and then place them into a plastic zip-lock type bag and seal the bag tightly (and place inside another bag).

Bring specimens to your local county Extension agent to confirm identification. A directory of county Extension offices can be found at <https://utextension.tennessee.edu/Pages/offices.aspx>

- E. Student-related incidents (classrooms, lockers, other student areas): If the problem is noticed early in the day, separate and inspect any items that the student might need for class the remainder of the day and return them to the student; allow the student to return to his/her regular class routine. There is no need to send the child home. Double bag any remaining items, such as book bags or personal items, using plastic zip-lock bags (check seal on bags) or trash bags and seal them tightly. Keep these bagged item(s) in a designated (labeled) sealable plastic storage tub out of site in the classroom or office or other secure area where they will remain undisturbed until the child retrieves them at the end of the day. Instruct the child not to open the bag until they arrive home. After the contents are removed, inspect the storage container for any “stray” bed bugs. Do not treat the storage container with pesticides; simply wash it with detergent or wipe it down with alcohol. If evidence suggests that the problem originated with the student rather than with the school, ask the relevant questions listed above in B-4. Also find out if the student rode on a bus or was driven to school by a parent/guardian. When a bus (or other transportation service) is involved, ask the student where he/she sat in the school bus that morning. The school Transportation Director should contact the operator to bring the bus immediately to the school or maintenance facility for inspection. (Check if the bus was used subsequent to dropping off the student). If the

problem is noticed late in the day, the seat occupied by the student and those in adjacent rows should be inspected before allowing students to board the bus. Do not allow students/staff to use potentially infested items.

F. Faculty-Staff related incidents:

If the problem occurs in an office or other staff area, follow the same procedure outlined above in #3 and have them isolate any unneeded personal items. Any bags or other items which they brought into the building should be placed into a sealable plastic bag (or trash bag) and can remain with them. Do not apply pesticides on bags/backpacks or anywhere else while the room/area is occupied. Ask the room occupant the relevant questions listed in B-4. The answers to these questions can help prioritize inspections (e.g., chairs, clothes closets, etc.) and planning of treatments.

### **V. Education & Notification:**

Administrators should make an effort to educate the school community about being proactive as well as reactive to bed bug problems. The following information is available in this document:

- A. Parent or Guardian notification letter (a sample letter in English and Spanish is attached).
- B. A link to the University of Tennessee's bed bug information (<http://eppserver.ag.utk.edu/personnel/Vail/publications.html>) and other comparable bed bug fact sheets, as well as the UT school IPM web site ([schoolipm.utk.edu](http://schoolipm.utk.edu)).
- C. The school administration should use its discretion in determining who needs to be notified based on the specific circumstances of the problem. However, it is in the best interest of all concerned parties that at least the parents of any child identified as having bed bugs on him/her (or his/her personal property) should be made aware of any problem that involves their child and potentially their home.

### **VI. Preparing For Treatment:**

Bed bug treatments, as with any pest control procedures, should follow the school's IPM Policies as closely as possible. The IPM Coordinator or a designate should contact the school's pest control service (contracted or in-house). Most pest control service contracts cover routine pest control issues (e.g., cockroaches, rodents, ants, etc.) and may exclude or have an addendum for bed bug infestations. Regardless, the bed bug problem must be addressed quickly and efficiently. In-house pest control services should be used only IF the employees have adequate training and knowledge of bed bug control and they are working under the direct supervision of a licensed operator as indicated the Tennessee Code Annotated 62-21-124. Otherwise, the school should contract the services of a licensed pest control company if a bed bug treatment is deemed necessary. Any areas requiring treatment **must** be prepared appropriately. There is a checklist found at the end of this document that serves as a guideline. However, talk to your pest control contractor about any specific issues that need to be addressed before any treatment begins.

When bed bugs are found in a school, steps need to be taken as soon as possible to contain and eliminate the problem. However, pesticide label directions must be adhered to and steps should be taken to reduce pesticide exposure to school occupants (Suggested Guidelines for Managing Pests in Tennessee's Schools: Adopting Integrated Pest Management [http://schoolipm.utk.edu/documents/ipm\\_SCHOOLSmanual\\_pb1603.pdf](http://schoolipm.utk.edu/documents/ipm_SCHOOLSmanual_pb1603.pdf)). Contact parents/staff that are on a chemical application notification list as soon as possible. Perform all necessary control measures (including pesticide applications). In most cases, teachers and staff who are on-site can be notified verbally prior to the application. If there is a concern about a student (or group of students) whose parents may prefer that they not reoccupy any treated area for the remainder of the day, then the principal (or principal's designate) should offer an option that allows the students to remain on-site in an untreated area.

The IPM Coordinator should consult with the pest control service to determine what type of treatment will be done and what preparatory measures the school needs to take prior to any further inspection and/or treatment. The type of site infested and the amount of available funding will dictate what can and needs to be done.

- A. Heat ("thermoremediation") is an effective non-chemical control method when done properly. Place loose items such as carpet mat squares (e.g., mats used in class by small children) into a clothes dryer at the highest setting for approximately 30-40 minutes. You may want to test one first to make sure that it is not damaged. If a dryer is not available at the school, place the items into trash bags, seal the bags, and transport them to a laundry site. Read the label on items before subjecting to dryer temperatures. Thermoremediation of an entire room (including some contents) requires special equipment (such as a heating, plus fans and monitoring equipment). It also requires special training to get the job done correctly, safely, and effectively. Use trained individuals for heat treatments.

**Note:** It may be possible to heat some items in an oven but this can be extremely hazardous, depending on the type of item, and there may be local environmental health regulations about using the oven for non-cooking purposes.

- B. Steam can be used on certain types of surfaces and items but it can also damage some materials. The same is true for freezing. If you use steam or freezing, run a test on one item (or an inconspicuous area of an item) to see if damage occurs.
- C. Use vacuum cleaners to remove bed bugs. HEPA vacuums are the best choice. Place a knee-hi stocking over the end of the vacuum tube prior to placing the attachment. After vacuuming, remove the stocking, tie off and dispose. When finished, place the vacuum cleaner bag into a trash bag before leaving the area and then discard the bag immediately. Never use the vacuum cleaner in another uninfested area without replacing the bag first. Custodial staff need to follow this policy at least until an infestation has been eliminated.

- D. Vinyl or other non-fabric items such as floor mats, desks, and chairs in classrooms can be wiped down with alcohol or a similar product. Make sure that seams, stitching, etc. are inspected and cleaned. Allow surfaces to dry thoroughly before stacking items or allowing students/staff to use them.
- E. Non-residual insecticides (e.g., from EPA's "25b" list) can be used but bear in mind that they provide no post-application protection if bed bugs (eggs, nymphs or adults) were missed during inspection and an infestation may continue.
- F. If necessary for proper treatment, loosen floor carpets along their borders within affected classrooms and offices. Carpets that are glued in place will likely need to be repaired or replaced. Coving/borders may also need to be loosened for proper crevice treatment.
- G. Remove/open items that are not permanently attached to the walls but leave them in the room. This may include posters, clocks, PA speakers, electrical switch and outlet covers, etc. Exercise caution when handling potentially infested items so that you do not get bed bugs on your clothing.
- H. Reduce clutter particularly in storage areas (closets, cubbies, lockers) that will impede any further inspection and/or planned treatment.
- I. Remove (preferably) or cover any food items from areas that may be exposed to pesticides during an application.
- J. In athletic facilities (locker rooms, weight rooms, etc.), make sure that the athletes' personal equipment (mouth guards, helmets, personal clothing, etc.) are not exposed to pesticides. These items can be disinfected with alcohol or another appropriate product.

**Note: Only essential employees should remain in affected areas during any treatment. Follow all label precautions regarding personal protective equipment and/or restrictions or requirements concerning re-entry to the rooms and cleaning of any surfaces potentially contaminated surfaces.**

## **VII. Post-Treatment Evaluation**

Given the life cycle and behavior of bed bugs, post-treatment evaluation of your programs success is essential. The isolation-containment procedures outlined above need to continue until you are certain that the bed bug infestation has been eliminated. For that reason, repeated weekly (minimum) inspections are important. Even after bed bugs are eliminated, there will always be the possibility of a reinfestation from another source. For that reason, educating your key audiences (parents, students, teachers and staff) is important to minimize the likelihood of a new infestation and to improve cooperation in remedying any problems that do arise in the future.

Note: Downloadable MS-Word Versions of this letter are available at [http://schoolipm.utk.edu/success\\_results.html](http://schoolipm.utk.edu/success_results.html)

**\*SAMPLE\***  
**Bed bugs Found in School – Parent Notification Letter**

(Use school letterhead)

Dear Parent or Guardian:

We have recently found a bed bug specimen in your child's classroom. Bed bugs are small insects that live by feeding on human blood, usually at night. The bite is painless and may or may not become swollen and itchy, much like that of a mosquito bite. While bed bugs are a nuisance, they are not known to spread disease. If you have concerns for you or your child, you should call your family doctor.

The source of bed bugs often cannot be determined, as bed bugs may be found in many places. Even though it is unlikely for bed bugs to infest a school, *(fill in your school district here)*, will conduct an inspection and, if necessary, the area the bed bug is found will be treated. *(Fill in your school district here)* will continue to work to identify bed bugs and provide thorough inspections of schools.

If you have any questions regarding bed bugs within your school, please contact Principal *(fill in principal's name and contact information here)*. If you have any questions regarding bed bugs found in your home, please your local county Extension office.

Sincerely,

Principal or IPM Coordinator

*Sample letter adapted from by the Central Ohio Bed Bug Task Force*

# **\*Muestra\***

## **Chinches de cama encontradas en las Escuelas – Notificación al padre de familia**

(Use papel con membrete de la escuela)

Estimado Padre de Familia o apoderado:

Recientemente hemos encontrado chinches de cama en el salón de clase de su niño. Las chinches de cama son pequeños insectos que sobreviven alimentándose de sangre humana, normalmente en las noches. La picadura no causa dolor y puede o no hincharse y picar, es bastante parecida a la picadura de un mosquito. Mientras las chinches de cama causan molestias, no se conoce de que transmitan enfermedades. Si usted está preocupado por su niño, debería llamar a su doctor de familia.

El origen de las chinches de cama no puede ser determinado, porque las chinches pueden ser encontradas en muchos lugares. Aunque es casi imposible de que las chinches infesten completamente la escuela, *(llene aquí el nombre de la escuela)*, conducirá una inspección y, de ser necesario, el área donde se encuentren chinches será tratada. *(Llene el nombre de la escuela aquí)* continuará trabajando para identificar las chinches de cama y proveer inspección rigurosa de las escuelas.

Si tiene preguntas sobre chinches de cama en su escuela, por favor contacte al director de la escuela *(Llene el nombre y la información de contacto del director de la escuela aquí)*. Si usted tiene preguntas sobre chinches de cama que encuentre en su casa, por favor contacte los centros de Extensión.

Attentamente,

Director o Coordinador de Manejo Integrado de Plagas

## CHECKLIST - PREPARING YOUR SCHOOL FOR BED BUG TREATMENT

\_\_\_ IPM Coordinator should facilitate any required parent-staff notification of a pending pesticide application (or notification after the treatment is done).

\_\_\_ Wrap (or place in sealable containers) any infested items that need to be moved.

\_\_\_ Do not move items to another uninfested room without first inspecting them thoroughly. Move infested items only to the designated area/room if necessary.

\_\_\_ Bag items that have been designated for drying (carpet squares, pillows, towels, stuffed animals, etc.) and take to laundry. Do not overload dryer. Use high heat for at least 45 minutes. Double bag all items right after drying and do not return to classroom/office until the room has been treated or otherwise determined to be bed bug free.

\_\_\_ Inspect items that cannot be laundered/dried (books, electronics, picture frames, plastic toys, etc.) should be thoroughly inspected and placed into plastic bags or bins if bed bug free.

\_\_\_ Vacuum and wash all floors. Place a knee-hi stocking over the end of the vacuum tube prior to placing the attachment. After vacuuming, remove the stocking, tie off and dispose. Replace vacuum cleaner bag before using the vacuuming other parts of the school. To prevent bed bugs from escaping, be sure to place the vacuum bag into a plastic bag before disposing of it.

\_\_\_ Disinfect desks and chairs in classrooms. Check carefully for bed bugs in crevices and joints of furniture.

\_\_\_ Vacuum couches and chairs in offices. Bed bugs are often found in couches and upholstered chairs. If possible, turn the furniture over or on its side/back and vacuum underneath as well. If there is a dust cover attached on the underside, pull it back and vacuum areas that will need to be treated. Double-bag and discard the vacuum bags in an outdoor trashcan immediately to avoid reintroducing or spreading any bed bugs caught in the vacuum.

\_\_\_ Empty lockers and cubby holes that require some chemical treatment. Reduce clutter in storage cabinets that require treatment. Do not reuse student storage areas without cleaning them first.

\_\_\_ Provide access to walls, closets, and areas around furniture to allow for a thorough inspection and treatment.

## **Bed Bug Reference Information**

Because we are constantly adding information to our online resources, please refer to the information found in the link to the University of Tennessee's bed bug information (<http://eppserver.ag.utk.edu/personnel/Vail/publications.html>) and other comparable bed bug fact sheets, as well as the UT school IPM web site ([schoolipm.utk.edu](http://schoolipm.utk.edu)).

DRAFT