

# Bed Bug Invasion



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# What are bedbugs?



- Small, brown, flattened insects
- Feed on blood of people while they sleep
- Hide during the day
- Can hitchhike on backpacks, clothing, books, and other items



# Bed Bug Resurgence



- Increasing in incidence and severity in the US
- Bed bugs are a socially transmitted pest
- Bed bugs are being found in schools and other workplaces
- Treatment can cost a lot of money especially if delayed
- They are pesticide tolerant
- Spread easily, adept at hiding from us
- Increase in human travel
- Changes in pest mgt. practices
- Used furniture/mattresses

# NPMA Survey



- 1 in 5 Americans have come into contact with bed bugs
- 46% of Americans have changed at least one behavior because of bed bugs
- 27% of respondents inspect or washed all clothing after returning from a trip
- 25% of respondents have checked their hotel room for bed bugs
- 12% have altered or cancelled travel plans because of concerns about bed bugs
- 37% incorrectly believe that bed bugs are attracted to dirty homes

# Biology



- Blood meal required for each molt
- Life cycle can take 4-5 weeks
- Adults can live 6-12 months and nymphs up to 3 months without a meal
- Feed by piercing skin with a stylet-type mouth
- Bite is nearly painless, saliva injected produces inflammatory reaction (like mosquitos)
- Reaction time may be delayed by 2 days (not everyone reacts to bites)











# Identifying Bites



- Bite does not hurt immediately
- May develop into itchy welts
- Do not transmit disease





Bed bugs are attracted to humans through heat and CO<sub>2</sub>



## Bites are like mosquito bites

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- Bed bugs cannot be confirmed by bites alone.
- Live bed bugs must be found.



# Mosquito bites are familiar



Flea bites tend to be smaller, round, and red



## If a bed bug is found on a student



- The student may have bed bugs at home.
- Nurses – look for bites on arms, face, hands, or legs.
- Skin exposed while sleeping.
- Ask questions.





## Bites may occur in lines

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# Methods of bed bug introduction

## Passive

- Bed bug is introduced from another infested location, but not by its own locomotion.
- Furniture
- Mattress
- Things we carry or wear (purse, coat, shoes, backpacks)

## Active

- Bed bug migrates by walking from an infested area.
- From one room to another
- From one apartment to another via pipes, telephone or cable wires.
- Down a hallway after dropping of an item being discarded.



## MYTH:

- Bed bugs are associated with poverty and unsanitary conditions.

## TRUTH:



- Bed bugs prefer to be warm and safe.
- Buildings and bedding of all qualities can become infested.
- Bed bugs do not discriminate.
- The host must be reliable.
- However, bed bugs are fast becoming an issue of those who cannot afford proper treatment.

# Today...



- Bed bugs are showing up in k-12 schools.
- They can show up in child care facilities.
- They have been found in movie theaters, retail stores, taxis, trains.
- Do they reproduce in these places? So far...there is no strong evidence.
- Introduction vs. infestation...

# Clutter inhibits control



Nothing is better for bed bugs than millions of places to hide!





It is nearly impossible to determine where  
bed bugs originated.

Laying blame is pointless.

Quick action is essential to prevent further  
spread.

# Health effects of bed bugs



- They do not transmit disease, but scratching bites can cause secondary infections.
- They may trigger asthma.
- Infestation causes stress, anxiety, loss of sleep, loss of work, financial burden, poor quality of life, pesticide misuse.





# Fear and anxiety



- The only way for a bed bug sufferer to know whether their infestation is eliminated is to WAIT to be bitten again.
- Anticipation of being bitten again causes anxiety and stress, and even the delusion that every itch is a bed bug bite.
- This may trigger delusory parasitosis and other psychological issues.

# Bed bugs in schools



- Coming from the homes of students or staff.
- Introductions, not infestations.
- Bed bugs may fall off backpacks or bags, belongings, coats, shoes.
- They do not infest the skin or hair, but may hitch a ride on clothing.

# Bed bugs in schools



- The school classroom or offices may be areas of transfer from person to person.
- Preventing spread is the challenge.
- Prevention requires awareness and participation of the school community.
- Changes in or adoption of policies.
- The development of a plan for when a bed bug is introduced into the school.

# Be proactive – Make a plan!



- Who will do bug ID quickly?
- Procedures for:
  - Dealing with a student with a bed bug
  - Inspecting the office or classroom
  - Treatment
  - Prevention
  - Parent and community education
- Also you should have materials to hand out

## First step – Correct identification



- Specimen found in a school – get it to a pest management pro or a diagnostic lab.
  - WVDA Insect Lab, Barry Crutchfield – (304) 558-2212
- Keep it in good shape – don't crush it.
- Female, male or nymph? Important
- There should then be a thorough inspection of the office or classroom where the insect was discovered.

# Bed bugs?



## Bed bugs vs. other pests



- Though you may never see an arthropod you may see the symptom of bites on a student.
- Bites are difficult (impossible) to diagnose without knowing the circumstances.
- Each type of biting pest has circumstances in which it will be present.
- Understand the circumstances.

# If a bed bug is found on a student



- The stigma exists, and gets reinforced, be sensitive to the child's privacy.
- They don't want classmates to know.
- Kids may come to school tired or anxious because of this issue.
- Parents may deny there is a problem.



# If a bed bug is found on a student



- DISCREETLY bring the student and their belongings into the nurse's office and inspect their clothing, shoes, bags.
- Look in seams:
  - Fecal stains
  - Live bugs
  - Eggs
  - Shed skins



# Evidence may be difficult to see



Univ. Minnesota – Dr. S. Kells

## If a bed bug is found on a student



- Any insects found should be kept for ID.
- Talk openly with the student.
- If bed bugs at home are confirmed, the principal should contact the parents.
- Have good information on hand to give to parents (ID, inspection, safe treatment).
- Emphasize that people are responsible for preventing transmission.

# If a bed bug is found on a student



- Recognize that kids might be stressed or tired as a result of this.
- Children of families dealing with bed bugs at home should not be barred from attending school.
- Unlike lice, bed bugs can take months to eradicate.
- Steps should be taken to prevent the spread or transmission.

# Bed bug prevention in school



- School community should be notified about the bed bug sighting and offered resources (website or handout).
- Schools should NEVER close due to bed bugs
- Belongings of students (class, grade, wing, whole building?) should be separated as a matter of policy.
- Ziplocked bags, storage containers for bags, coats.
- This is reality.

# Don't Panic



- Bed bugs do not transmit disease
- They are not invisible
- It is possible to get rid of them
- Pro-active approach is best

# Finding Bed Bugs



- Easy to “spot”! Look for smash & drags
- Baseboards for exoskeletons
- Phillips Screws in furniture
- Mattress Seams
- Behind headboard
- Crown of walls
- Black droppings



# Aggregations Make Them Predictable



- Tendency to live in groups combined with dependency on blood and nocturnal habits tend to limit areas
- Infested apartments
  - 70% beds
  - 23% upholstered furniture
  - 7% less predictable
    - ✦ Within books, coffee maker, deodorant dispenser
  - (Potter et al. 2006)
- May be an indication of the size of the infestation



# Keys to Bed Bug Management



- Introduction or Infestation?
- Determine viability of infestation
- Select a pest control company with experience NOW if a school/housing complex
- Vigilance – Routine Inspections, Follow UP
- Simplify (PC for Declutter)
- A clothes dryer and vacuum work wonders regarding introductions

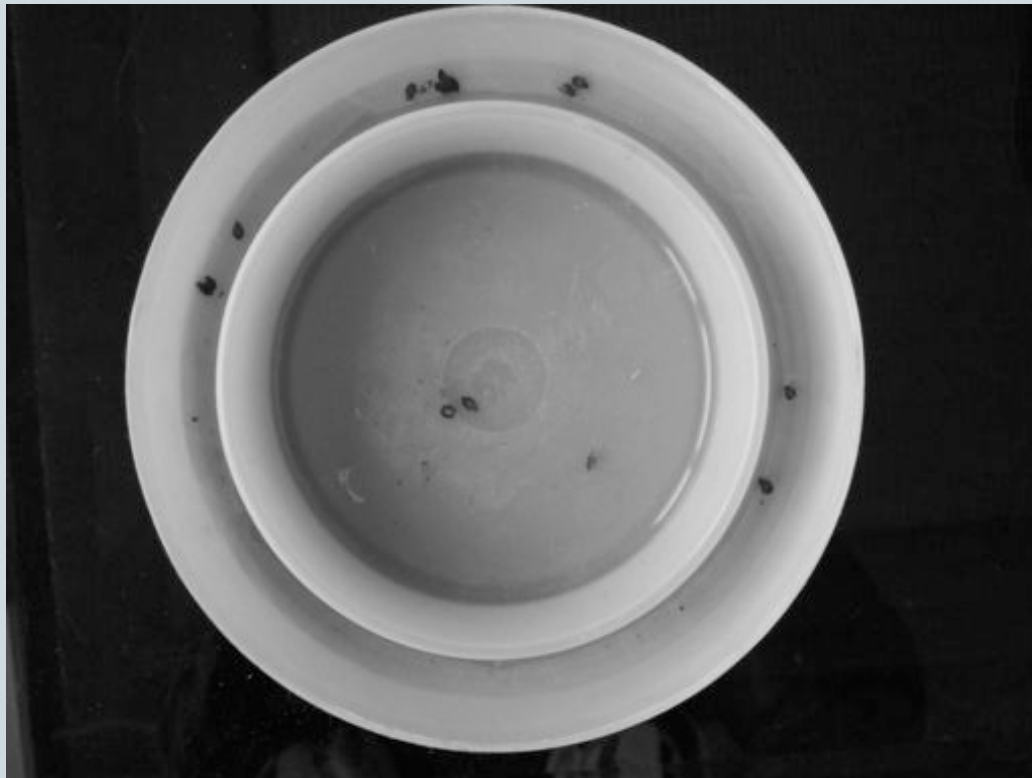
# Bed Bug Treatment Options



- IPM: Must clean clutter
- Freezing
- Steam
- Heat Treatments
- Insect Growth Regulators
- Insecticides (multiple – today's bugs are resistant to pyrethroids)
- Monitoring devices critical
- Preventative: bed encasements



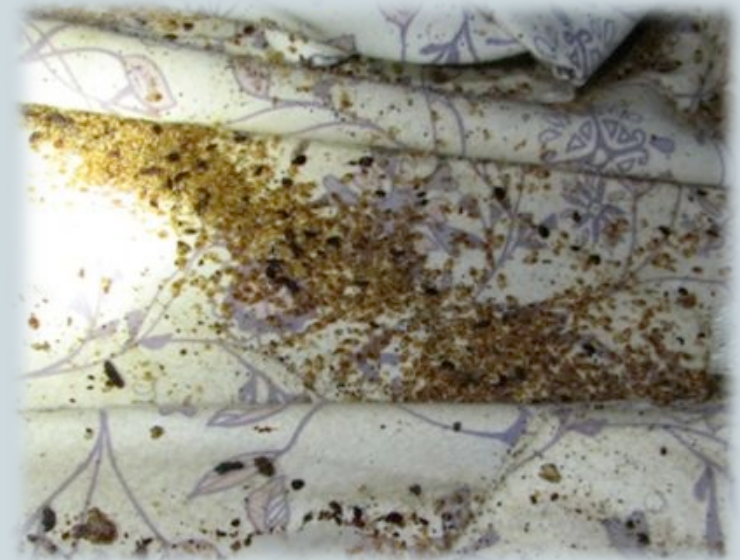
# Monitoring



# Understand that not everyone can afford pest control at home



- No ready answers for “do it yourself”
- Experienced pest control is logistically better than going it on your own (and safer)
- Snake Oils – They’re everywhere!
- SIMPLIFY, Vacuum, Clean, encase, monitor!



# How to eliminate bed bugs from classrooms



- Do not allow unlicensed staff to apply pesticides
- Backpacks and other items can be inspected daily or even placed in sealed containers in some circumstances. (Avoid piling bookbags on top of each other)
- Install monitoring devices in classroom
- Are children sleeping in classroom?

# Be Prepared



- Do not panic!!!
- Use your role as Public Health Official to minimize hysteria.
- This is a difficult problem, but not an impossible one.
- Leave pest control advice to a PMP with bed bug control experience

(Consider flowchart for schools from Michigan)

# Develop a Bed Bug Response Plan



- **Schools**

- Training for employees/students on biology/behavior/identification
- Determine competent PMP's for contract
- Discuss what treatment options contracted PMP will/can use and how it will fit your school
- Strategy for inspections of classrooms (frequency, extensiveness, notification/education of class and/or parents)
- Evacuation of rooms for treatments – Where to put displaced students?
- Incident Command – Who, What, Where, When, Why
- Notifications – The way you word it is as important as the message

# Developing a Media Response Plan



- How do we respond?
- What are we communicating?
  - “Bed bugs are real”
  - “Bed bugs are back – explain why they are back”
    - ✦ Increased travel
    - ✦ More clutter/trading of used items
    - ✦ More targeted pest practices
  - “Bed bugs can infest anywhere”
    - ✦ No socioeconomic attraction
    - ✦ Not just homes/hotels – retail stores and theaters even have had issues



# Media Response Plan Continued



- **Prevention = Vigilance**
  - We have been proactive – show bed bug response and inspection plan
  - Give tips on inspections
- **Bed Bugs are hard to control**
  - Elusive, quick breeding, no silver bullet
  - Consumers should inquire about a PMP's experience in bed bug control

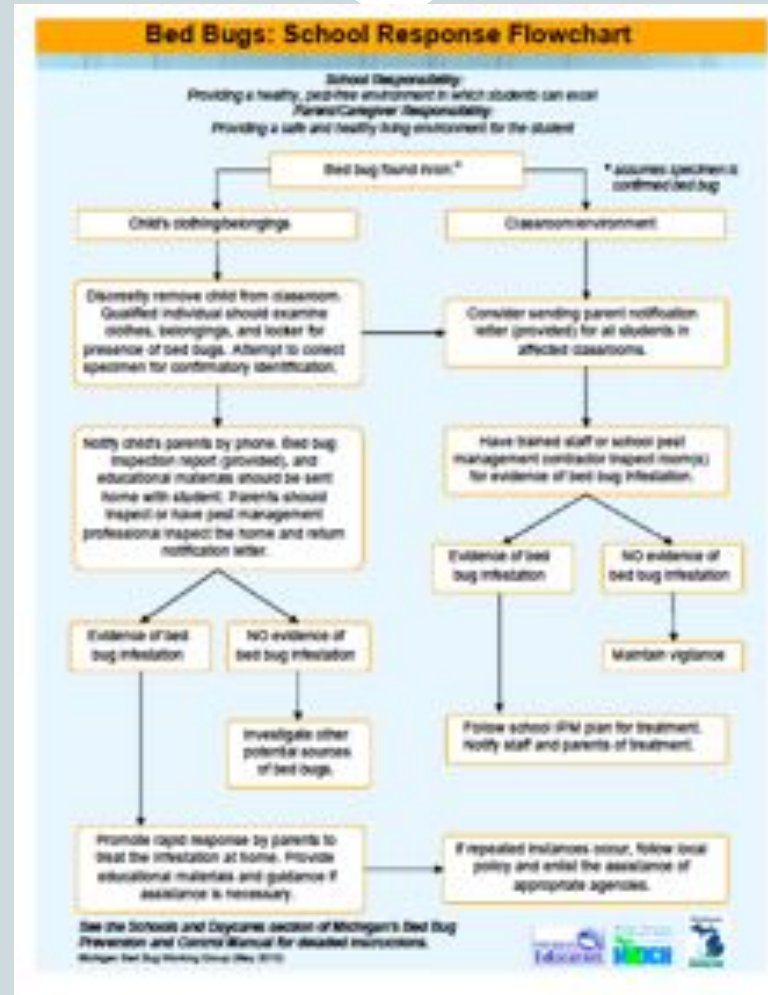
**Your work with the media shapes the story told and influences the opinion of the public**

# Pesticide law

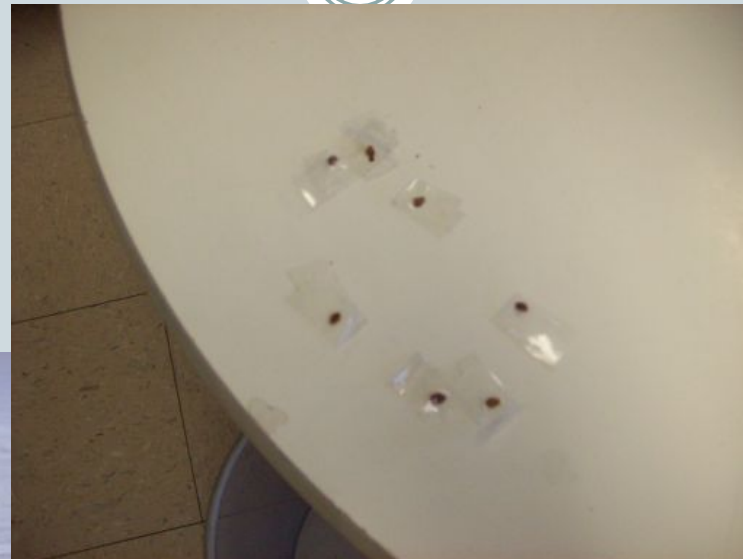


- No unlicensed person can legally use a pesticide in a school.
- Only hire a licensed pest management professional.
- Restrictions cover baits, sprays, insect repellent.
- Does not include traps, vacuums, or other cleaning methods.
- Bleach does not kill bed bugs.

# Flow Chart & Sample Letters



# WV School Bed Bugs?



*The End*

