Bed Bugs: From Obscurity to Emerging Public Health Issue

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Outline

- Introduction
- Biology
- Impact on Human Health
- Bed Bugs in Michigan
- Inspection, Treatment, and Prevention
- Laws and Regulations
“Good night, sleep tight, and don’t let the bed bugs bite”
Brief History of Bed Bugs

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- In the 1940’s and 50’s, widespread use of DDT nearly eradicated bed bugs in the U.S.
- Recently, we have begun to see a resurgence in bed bugs. Reasons for this may include:
  - Increased international travel
  - Changes in pesticide use
  - Pesticide resistance
$20M bedbug lawsuit filed

Filed under the category "creepy news" comes the story of a Chicago woman who has filed suit against a Catskills resort for more than 500 bedbug bites she alleges she got while staying at the hotel. Leslie Fox and her husband had stayed at the Nevele Grand Resort and Country Club in Ellenville, N.Y. for three nights when she woke with bites all over her body, The Associated Press reports. Fox says she
Bed Bug Working Group

- Get ahead of the problem!
- Build partnerships between agencies with different areas of expertise
- Promote site-specific Integrated Pest Management approaches to effectively manage infestations
- Clarify the existing laws relating to bed bugs, and promote new legislation if necessary.
- Develop a comprehensive manual for the prevention and control of bed bugs
Examples of past MDCH WG efforts...

Michigan Head Lice Manual

A comprehensive guide to identify, treat, manage and prevent head lice
Informational pamphlets, fact-sheets, and contact information for certified pest management companies can be found at:

www.michigan.gov/emergingdiseases
Biology

“Know thine enemy”
Primary Target

**Threat Report**
Name: *Cimex lectularius*
Common Alias: Bed Bug
Last Known Location: Expanding operations into SE Michigan
(see intelligence brief to follow)
Biology of the Bed Bug

- Small - 3/16 inch long, oval, flat, reddish - brown insects
- Obligate human ectoparasite
- Nocturnally active, and feed almost painlessly
- Normally found within 5-20 feet of host
- Give off a distinctive “musty, sweetish” odor
Biology of the Bed Bug

- Undergo metamorphosis through 5 nymphal stages requiring a blood meal at each stage (feed within 3-15 minutes)
- Life cycle takes 4-5 weeks (egg-to-egg) in ‘good’ conditions [75-80% RH; 83-90o F]
- Female may lay 200-500 eggs in her lifetime
- Easily hide in cracks, crevices in bed frames, mattresses, personal electronics, and baseboards, etc.
- Harbor in clusters, but NOT ‘social’
Other Complications!

- Adults can survive >1 yr. without feeding (Nymphs +3-4 mo.)
- Can remain fully active at <45° F
- “Prefer” humans but feed on other hosts, too!

Becoming resistant to many commonly used pesticides
Pest Management Firms/Suppliers Also Capitalize!

BED BUGS ARE BACK!
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*B Independent tests of prototype NightWatch traps by an esteemed state agricultural experiment station in an extremely infested, multi-unit dwelling that had received chemical and steam treatments.

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Impact on Human Health

“Sleep is overrated”
Human Health Concerns?

- Not known to transmit disease although have been found to “carry” several human pathogens (including HIV and hepatitis B) temporarily
- Hypersensitivity to bites, secondary infection, and psychological distress are common symptoms of infestation
- Concern that individuals will use chemical treatments not-labeled for bed bugs, or apply toxins to themselves or others
Social Stigma

- Perceived association with poverty and uncleanliness
- Fear of being stigmatized can prevent victims from admitting that they have a problem

**BUT, REMEMBER:**

- Nobody “invites” bed bug infestation
- Anyone is susceptible
- Bed bug infestations have been documented in most major urban areas in the U.S. (including the Detroit Metro Area and other Midwestern cities)
- Some victims have taken to the Internet with forums and blogs following the spread of infestations and response by officials; **CITIZENS WANT ACTION!**
**Bedbugs in Detroit and Troy, Michigan**

By nbugsbrNm on Mar 31, 2009 in bed bug history, bed bug treatment, bed bug news, bed bugs, heat, how to get rid of bed bugs, mark sheperdigan, michigan, travel, Troy

Neal Rubin writes in a Detroit News Op-Ed column today:

At Rose Pest Solutions in Troy [Michigan], where Sheperdigan reigns as vice president for technical services, the number of bedbug jobs has risen from one to about 160 last year, with continued rapid growth in 2008.

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**The Bedbug Blog**

**WEDNESDAY, MARCH 18, 2009**

**EPA Public Meeting on Bedbugs**

This notice showed up in the comments below and I thought it would be worth posting for those who were interested in attending.

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**Chicago vs. Bed Bugs**

**A Bed Bug Wish List (For Now)**


Our friend Renee Corea at New York vs. Bed Bugs posted this list today. It's wish list, of sorts, for New York City's new Bed Bug Advisory Board. Renee got my wheels turning, as usual, so I decided to post a wish list of my own— a list of the things I'd love to see in our city right now.

Here's what would be included on my wish list, if I were allowed to give one to the city officials who are working to stop the spread of bed bugs here in Chicago:

- Work with a sense of urgency, but work responsibly as well. Get the job done right from the very beginning. Form a committee or board or task force—comprised of health department officials, building inspectors, expert entomologists and pest management professionals, community stakeholders, public housing officials, and city/state legislators— whose sole purpose is to...
Bed Bugs in Michigan

“There’s no place like home”
Goal: Assess the magnitude and scope of the bed bug problem in Michigan, and collect input from local health departments.

- Online survey, emailed to local health department CD and EH personnel.
- 10 questions: 9 multiple-choice, 1 open-ended
- 2/26-3/18/2009
- 205 responses included in the analysis
- 42 out of 45 local health departments/districts responded to the survey
1. In the past year, how often have you been contacted regarding bed bug infestations?
   - I have not been contacted regarding bed bug infestations
   - Less than once a month
   - 1 to 3 times per month
   - 1 to 4 times per week
   - Daily

Submit

Jump to Another Page
Survey Results

1.) “In the past year, how often have you been contacted regarding bed bug infestations?”

- 58% I have not been contacted
- 32% Less than once a month
- 7% 1-3 times per month
- 3% 1-4 times per week

2.) “In the past year, do you perceive that the level of bed bug infestation or activity in your area has:”

- 73% Stayed the same
- 20% Increased
- 1% Decreased
Counties Reporting Bed Bug Activity

Key
- **Red**: 1-4 times per week
- **Orange**: 1-3 times per month (multiple responses)
- **Yellow**: 1-3 times per month
- **Gray**: No response
Infested Locations

3.) “In the past year, have you been contacted about bed bug infestations occurring in:”

47 Hotels/motels
46 Single family dwellings
44 Multi-dwelling units (apartments, condos)
15 Homeless shelters
 7 Nursing homes
 4 Hospitals
 2 Dormitories
 1 Prisons
 0 Schools
Concerns

4.) “If you have received calls regarding bed bugs, which of the following specific concerns have been involved:”

58 Concerns about health effects from bed bug bites.
52 Prevention of bed bug infestation
47 Problems with treatment effectiveness
44 Tenant-landlord issues
25 Home remedies or alternative treatments
16 Concerns about pesticide exposure / safety
Response and Resources

5.) “Does your department investigate and respond to bed bug complaints?”
   - 31% Yes (includes 30/42 LHD’s)
   - 30% No, and I’m not sure where to refer the complaint
   - 17% No, but I know where to refer the complaint

6.) “Do you feel that you have adequate informational resources to address inquiries about bed bugs?”
   - 45% No
   - 25% Yes
   - 23% Not Sure
The Problems

Responses to open-ended question:

“I am in a rural county with few motels. I have not received any complaints regarding bed bugs.”

“Public housing has been by far the largest source of complaints that I have dealt with and getting adequate responses to the problem from the managers/owners.”

“I think the big question is who should regulate the Hotel/Motel industry. Tourists traveling through Michigan are shocked to hear there is no regulatory authority over general sanitation (bed bug control) in Michigan Hotels/Motels.”
Treatment, Prevention and Control

“Live and Let Die”
How Do We Get Bed Bugs?

- Brought into the home on:
  - Luggage
  - Furniture
  - Clothing
  - Used/second hand/rental goods

- In multiple dwelling unit arrangements, they may migrate from infested units above, below, or beside
Checking For Bed Bugs

- Usually found near beds
  - Mattresses
  - Bed frames/headboards
  - Nightstands
- Upholstered furniture
  - Couches
  - Chairs
- Baseboards
- Wall/ceiling junctures
How do you find them?

- Small, difficult to find
- Cracks, crevices, wall plates, baseboards, mattress seams, head-boards
- Prefer wood and fiber to plastic and metal
Inspecting For Bed Bugs

- In their natural environment

Bed Bug!

Blood spots!
Inspecting For Bed Bugs

- Screw holes, recessed bolts, knotholes, and oh, so much more.
Inspecting For Bed Bugs
Inspecting For Bed Bugs
Inspecting For Bed Bugs
How Bad Can It Get?

Photos courtesy of Berend Pannkuk, ACE
How Bad Can It Get?
Treating For Bed Bugs
Treatment Technologies

- Bug-sniffing Dogs?!
- Insecticides
  - Pyrethroids
  - Insect growth regulators (IGR) (hydropene)
- Steam (cracks/furniture) or Dry Heat (can treat entire unit)
- Cold Treatment (liquid CO₂)
- Mattress encasements
“I fought the law, and the law won”
Laws and Regulations

- Pesticide regulation – Michigan Department of Agriculture
- Public Health Code – State and local health departments
- Michigan Housing Law
- Local ordinances
Laws and Regulations – Interesting Note

- The Michigan Mattress Law
- 1917 PA 54, entitled “An act to provide for the branding and labeling of mattresses and comforts, and to provide against the use of insanitary, unhealthy, old or second hand material in the manufacture of mattresses and comforts, and to provide against the sale of mattresses or comforts containing such insanitary, unhealthy, old or second-hand materials,” (MCL 429.301 to 429.311)
- Repealed in 2000 as “outdated”
I Pose a Question...

- How many outlets are there in the state that sell “second-hand” furniture not only from homes, but from hotels?
- Are these items inspected and treated prior to redistribution?
- Will the current economic climate exacerbate the spread of bed bugs through these means without legislation regulating such resale?
We’ll See?!
Welcome Bedbugs!

The thing I love most about Michigan??
The people.

Questions?