INTRO TO
BED BUGS IN APARTMENTS AND SHELTERS
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TODAY’S PROGRAM

- Welcome
- Intro to bed bugs
  - Myths about bed bugs
  - Biology of bed bugs
  - Health issues
  - Avoiding bed bug transport
- Control options
- Resources
MYTHS ABOUT BED BUGS

Bed bugs are too small to see
ADULT BED BUG

- Range in size from size of pin head to apple seed
- Flattened, oval to pear-shaped body
- Reddish brown
Bed bugs weren’t a problem until they were brought from ________.
A LITTLE HISTORY...

BED BUGS IN WWII

WWII Army educational flier for soldiers
MYTHS ABOUT BED BUGS

You get rid of bed bugs by discarding infested mattresses.
7% Other harborages

70% on bed
23% within 5 ft
MYTHS ABOUT BED BUGS

You can get rid of bed bugs by setting off foggers (the more the better)
MYTHS ABOUT BED BUGS

It's best to wait until guests complain.
PEOPLE AND BED BUG BITES

- Prefer feeding during darkness
- Bites painless
- More than 50% of people in multifamily housing with bed bug infestations will not report a problem
- Perhaps 1 in 20 people react obviously to bed bug bites
MYTHS ABOUT BED BUGS

Dirty, messy people get bed bugs
CLUTTER DOES NOT BREED BED BUGS

- But clutter makes bed bugs harder to control
A LITTLE BED BUG BIOLOGY
BED BUG LIFE CYCLE

- Life cycle as short as 50 days
- Feed every 3-7 days
- Five nymphal life stages last 4-24 days each
- Adults live 3-12 months
- Females lay 3 to 5 eggs per day, up to 500 over lifetime.

Note:
Bed bug takes 3-10 minutes to complete feeding. Must feed on blood to develop.

Illustration by: Scott Charlesworth (Purdue University), based in part on R. L. Usinger (1966) Monograph of Cimicidae
NYMPHS
THE FEEDING PROCESS

Start

3 mins

9 mins

12 mins
Bed bug feet lack pads for smooth surfaces.

Cockroach feet adapted for smooth or rough surfaces.

Photo by Adam Nadel/Polaris and http://content.time.com

Clemente and Federle 2008 Proc Roy Soc B
FECAL SPOTS ON WOOD
NOT BED BUGS

Dermestid beetle larva

Brown banded cockroach nymph
SOME FACTS ABOUT BED BUG BEHAVIOR

- Attracted to humans by body odor, body heat, carbon dioxide
- May hide in different locations each day
- Excellent hitchhikers in luggage, used furniture, bedding, clothing
- Adults and large nymphs may walk out door of one apartment and into another
- May enter adjoining rooms via wall voids or cracks in wall
BED BUG BITES

- Not all people react
- May bite multiple times
- Some people react severely
BED BUGS AND INFECTION

- Blood sucking ectoparasites
  - Like head lice
- BBs *postulated* in transmission of more than 40 human diseases--no scientific evidence that transmission has ever occurred (Goddard & deShazo 2009)
- Recently shown capable of harboring and transmitting Chagas disease
OTHER HEALTH EFFECTS

- Anemia in severe cases
- Secondary infections
  - Impetigo
  - Ecthyma
  - Lymphangitis
- Other pathogens?
MENTAL HEALTH IMPACTS

- Anxiety and stress
- Insomnia
- Delusions of parasitosis

Kevin and Marcos chose the cold Chicago streets over bed bug-infested shelters last winter.
TIPS FOR AVOIDING BED BUGS AT WORK

- Avoid embarrassing client or neighbor
- Risk is low
- Choose kitchen chair over upholstered furniture or beds for sitting or placing work tools
TIPS FOR AVOIDING BED BUGS AT WORK

- Bring work in smooth sided tote or bag
- Don’t bring work home, or quarantine and treat first
WHAT IS INTEGRATED PEST MANAGEMENT (IPM)?

- An environmentally sound approach to pest control
- Inspection based
- Quality pest control using the least hazardous chemicals and techniques
- “best management practice” for pests
INTEGRATED PEST MANAGEMENT FOR BED BUGS

- Pesticides
- Mechanical controls (barriers)
- Physical controls (heat, cold)
- Pest proofing / Sanitation
- Education and Awareness
IT'S ALWAYS BEST TO HIRE A PROFESSIONAL

- Licensed and trained to safely apply pesticides
- Knows how to locate and identify pests
- Experienced in what works and what doesn’t
AND THE LEGAL ISSUE

- Laws vary from state to state
- Check to see if it is legal for managers to apply pesticides or control pests without a license
- Illegal in Texas and other states.
MONITORING: THE KEY TO EARLY DETECTION
WHY YOU CANNOT RELY ON COMPLAINTS TO MANAGE BED BUGS

- Some may be embarrassed to complain
- Many will not know signs of bed bugs
- Most people do not react to bed bug bites
  - In apartments less than half of infested units knew (or admitted they knew) they had bed bugs
  - Perhaps as few as 5% of individuals react strongly to bed bug bites initially
Early infestations of bed bugs usually confined to bed or within 5 feet of bed.

Advanced infestations spread away from bed, spreading problem.

Small infestations of bed bugs stay together.
Skill and thoroughness of technician inspectors highly variable

Extremely time consuming when done right (at least 10-15 minutes per bed)

Disruptive of resident’s privacy

Limitation of even best inspector to always find low level infestations
MONITORING TRAPS

- Verifi, Climbup, Blackout and BDS system
HOW A CLIMBUP/BLACKOUT TRAP WORKS

Bb drawn to bed climbs rough outside of cup, falls into moat.

Smooth, (sometimes talcum powdered) plastic unclimbable for bbs

Fabric tape or roughened plastic outside cup
CLIMBUPS

- Can be both monitor and barrier if installed under feet of bed
WHAT TO DO IF YOU LIVE IN AN APARTMENT?

- Report suspected bed bugs to landlord
- Landlord is responsible to keep apartments free of pests
- Do necessary prep work asked for by pest control
WHAT ABOUT MY NEIGHBORS? SHOULD THEY BE TREATED?

- All surrounding units should be inspected (monitored) and treated if necessary.
PESTICIDES FOR BED BUGS

- Bed bugs are tolerant of many insecticides
  - Pyrethroid resistance well documented
  - Few effective, residual treatments

- Types of formulations
  - Aerosols
  - Dusts
  - Fumigants
  - sprays
AEROSOLS

- **Contact sprays**
  - Pyrethrins (several Trade names)
  - EcoRaider and Bed Bug Patrol*
  - Pyrethroid sprays (Zenprox, others)

- **Residual sprays**
  - Aerosols with Phantom (chlorfenapyr), dinofeturan (Alpine) or imidacloprid
  - Combination sprays:
    - Temprid, Tandem, Transport
BEST BOTANICAL BASED PRODUCTS

- EcoRaider™ – equivalent in direct kill, egg kill, to top professional sprays according to Rutgers University studies
  - 1% geraniol, 1% cedar extract, and 2% sodium lauryl sulfate
- Bed Bug Patrol™ – good contact killer
  - 0.003% clove oil, 1% peppermint oil, and 1.3% sodium lauryl sulfate
- Sterifab, rubbing alcohol provides some control (but is flammable)
DUSTS

- Limited where they can be used
  - Most for VOID areas only
- Dessicants
  - Diatomaceous earth (pest control grade)
  - Silica aerogel (TriDie, Cimexa)
- Pyrethroid dusts
  - Tempo
  - Deltadust
- Other dusts
  - Alpine
RESOURCES

http://citybugs.tamu.edu/factsheets/biting-stinging/bed-bugs/
HOW TO SELECT A BED BUG CONTROL PROVIDER

• What questions to ask a pest control company
• How to make sure you find an experienced professional
• Advice for apartment managers on bed bugs
BED BUGS AND YOUR APARTMENT

• FAQs for renters
• What to expect from a pest control company

Bed bugs and your apartment

Bed bug problems are becoming more common in apartment communities. More than ever, it’s important for tenants and landlords to understand these insects and what it takes to eliminate them from apartments.

What are bed bugs?

Bed bugs are tiny insects that live by feeding on human blood, usually at night. They are secretive, hiding in cracks and crevices during the day, and coming out at night to feed. The bite of the bed bug is painless and may or may not leave a red mark or itchiness.

How do I know whether I have bed bugs?

Because of their small size and painless bite, bed bugs may initially go unnoticed. If you notice that you are waking up with itchy welts, see tiny red spots on bedding, or think you have seen the bugs, you may have a problem. Bed bugs do not have nests, but will congregate in choice hiding places. These areas may be marked by tiny dark spots and stains, and may have a sweetish odor.

Will bed bugs hurt me?

Fortunately bed bugs are not known to carry any diseases to humans, although some people may experience irritation or allergic reactions to bed bug bites. Mostly bed bugs are considered disgusting and can be a source of stress and concern for people living in infested apartments.

How do bed bugs get into my apartment?

Bed bugs are no longer an unusual pest in apartments. Since approximately 2000, bed bugs have reemerged as an important pest in the United States. Bed bugs are...
QUESTIONS?