Bed Bugs
Extermination for Residential Housing Investigations

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Public Health Investigations
Overview

- The Why of inspections
- Denver Revised Municipal Code Enforcement
- Bed Bug biology
- The How of inspections
- Types of extermination and remedies
Why we do inspections

- Reduce secondary infections
- Reduce stress and anxiety on body and mind due to lack of sleep
- Reduce pronounced immune responses to bites such as allergies and permanent scaring
Denver Revised Municipal Code Chapter 27–Housing Code– provides rules and regulations for insect, rodent and animal control

“Every occupant, operator or owner of a dwelling or dwelling unit shall be responsible as determined by (the Board of Health appointee) for extermination of any insects, rodents or other pests therein or on the premises”
Bed Bugs
Bed Bugs

- Bed bugs (*Cimex lectularius*) are small, flat, parasitic insects that feed solely on the blood of people and animals while they sleep.

- Bed bugs are reddish-brown in color, wingless, range from 1mm to 7mm (roughly the size of a sunflower seed), and can live up to a year without a blood meal in cool temperatures.
Bed bug life cycle

1. Eggs
2. First nymphal instar.
4. Third nymphal instar.
5. Fourth nymphal instar.
6. Fifth nymphal instar.
7. Adult.
Life Cycle of Bed Bugs
5 nymphal instars
Facts About Bed Bugs

- A blood meal is needed each time the bed bug molts and moves to the next instar.

- Female adult bed bugs lay about 5 eggs a day up to 300 eggs in her roughly one year lifespan.

- One may not see bed bugs up to 3 months after introduction into the home due to time it takes for maturity into adulthood.

- A bed bug when biting (about once a week) injects an anti-coagulant and antiseptic which many humans have pronounced immune responses as a result.
Facts About Bed Bugs

- Bed bugs are attracted to carbon dioxide that we breathe out and body heat

- Bed bugs die instantly at heat of 140 deg F

- Bed bugs die at heat of 120 deg F for contact time of 15 to 20 minutes

- Bed bugs die at 0 deg F for contact time of 4 days
Bed Bugs feed 5–10 minutes

UNFED

≈ 2 mm

≈ 5 mm

FED

≈ 6 mm
Signs of Bed Bugs

- Visible bed bugs’ exoskeletons after molting from 5 instar life cycle stages

- Visible bed bugs in the folds of mattresses and sheets and on box spring

- Visible rusty-colored blood spots due to their blood-filled fecal material that they excrete

- A sweet musty odor.
Signs of Bed Bugs
Bed Bug Inspections

- Tuck pants into socks
- Wear shoe booties
- Stay standing during inspection
- Be aware while moving items, lifting items and taking pictures
Bed Bugs after bug bombs were used
Bed Bugs on mattress and box spring
Bed Bugs on box spring
Bed Bugs on mattress
Bed Bugs killed and smeared on bedroom wall
Suspect Bed Bug bites

Bed Bug bites are red marks with white spots in the middle.
Suspect Bed Bug bites
Bed Bugs on wheelchair
Bed Bugs on wheelchair seat
Bed Bugs at filing cabinet
Extermination treatments and remedies for Bed Bugs

- Certified Pest Control Companies using Integrated Pest Management practices. Bed bugs may be resistant to certain pyrethroids
- Heat Treatments—avoid cold pockets
- Dog sniffers for detection
- Homemade CO2 devices using active yeast, straws, silicone and paper towel wrapped shot glass (Williams method)
- Diatomaceous Earth (food grade) suffocating the bed bugs
Detection and holding trap devices
Resources

- https://njaes.rutgers.edu/bed-bug/videos.php#IPM
Reference


- Don-Huan Choe. Bed bug life cycle photo image. Assistant Professor at Department of Entomology, University of California.


Reference


QUESTIONS ??

CEHA website contains reference to this Bed Bug power point and resources
http://www.cehaweb.com/page-18095

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