STRANGE BEDFELLOWS
also known as BEDBUGS

Tim McGonegal M.S.
Environmental Health Biologist
ALEXANDRIA HEALTH DEPARTMENT
VECTOR-BORNE ILLNESS PREVENTION PROGRAM
Why Discuss Bedbugs?

- Re-Emerging Public Health Nuisance Problem, rising complaints throughout the US
- Can harbor pathogens but are **NOT** known to transmit diseases to humans
- Medical symptoms limited to itching and inflammation of bites
Where do they come from?

- Recently have made a comeback through international trade, travel and commerce.

- Insect hitchhikers, since eggs, young and adult bedbugs are readily transported by luggage, clothing, bedding and furniture.

- Known to infest trains, airplanes and buses.

- Found in dwellings with a high rate of occupant turnover ex. hotels, motels, hostels, apartment complexes, shelters.
Biology

- **Nocturnal**
  - Active at night, which means that they feed during this time

- **Feeding Habits**
  - Feed on blood of warm-blooded mammals including humans
  - Adults can survive >1 yr. w/o feeding, nymphs 3-4 months

- **Infestation can be detected by**
  - Bite marks
  - Offensive odor associated with them, caused by oily secretion produced from special glands
    - Smell resembles offensive sweet, musty odor
  - Blood or fecal spots on bedding with large infestations
Note: Bed bugs take 3-10 minutes to complete feeding.

**Egg**
- (1 mm long)
- Takes a blood meal then molts.

**First Stage Larva**
- (1.5 mm long)
- Takes a blood meal then molts.

**Second Stage Larva**
- (2 mm long)
- Takes a blood meal then molts.

**Third Stage Larva**
- (2.5 mm long)
- Takes a blood meal then molts.

**Fourth Stage Larva**
- (3 mm long)
- Takes a blood meal then molts.

**Fifth Stage Larva**
- (4.5 mm long)
- Takes a blood meal then molts.

**Adult**
- (5.5 mm long)
- Take repeated blood meals over several weeks. Females lay up to 5 eggs per day, continuously.

**Life Cycle of the Bed Bug**
*Cimex lectularius*
Eggs

- Females lay 1 – 10 eggs a day and 200-500 eggs in a lifetime
- Eggs are coated with a sticky substance
- Eggs hatch in 6-20 days into nymphs
Nymph

- Nymphs begin to feed soon after hatching mostly at night (nocturnal) and feed within 3 mins.
- They molt through 5 nymphal instars before reaching maturity.
- Developmental time is affected by temperature and availability of food (blood meals).
Adults

- Lifespan for well-fed bedbugs is about 6 – 10 months but they can survive 12-18 months when dormant.
- Developmental time from egg to adult is 21 days at 86°F and 120 days at 65°F, 3 or more generations occur each year.
- Feeding takes place at night (nocturnal) and lasts for 3-12 minutes after which they crawl to a hiding place to digest their meal.
- Can survive several months without a blood meal (food).
Where do they hide?

- Seams in mattresses
- Crevices in box springs
- In between cushions
- Cracks in walls
- Spaces under baseboards
- Loose wallpaper
- Behind pictures
- Any space between cracks
Control of Active Infestations

The major steps that should be taken when developing a bed bug management program include:

- Proper identification of the cimicid species present
- Education and cooperation of the client/owner of the infested facility
- Thorough inspection of the infested area and all adjacent areas
- Implementation of control measures (both chemical and non-chemical)
- Follow-up visits to evaluate the success of the program and to provide additional control measures if necessary
Education and Cooperation

- Pest management professionals should be:
  - well-trained in bed bug biology, behavior and control before implementing control plans.
  - Familiar with chemicals they use, resistance awareness

- Clients and managers of multiple unit dwellings should understand, and take precautions against, the ways in which bed bugs are introduced into new environments.
  - These include the use of leased furniture and the purchase of pre-owned items at garage sales, thrift stores, etc.
Non-chemical Measures

- Reducing or eliminating bed bug infestations:
  - Frequently vacuuming the premise (dispose of bag immediately)
  - Temperature modification (heat and cold). Beds can be steamed. Bedding, clothing and upholstery can be treated with deep freezing
  - Physical barriers – plastic mattress covers
  - Laundering of clothes and bedding in hot water
  - Discarding of infested items
  - Elimination of harborages – fill and caulk holes and gaps

- Discard the mattress if the infestation is severe, although a new mattress can become infested if bedbugs are still in the premises.
Insecticide Treatment

Tenants need to prepare the home before any insecticide treatment

- Clean and brush surfaces. Discard vacuum bags after use.
- Discard mattresses (if infestation is severe) or enclose mattresses, at least a year (if infestation is mild).
- Move beds away from the walls.
- Clean and treat furniture.
- Discard and remove trash and in and around the home.
- Repair cracks in walls.

Tenants need to re-inspect premises after treatment as a follow up.

Prevention and Sanitation should continue after a insecticide treatment.

FOLLOW UP TREATMENTS MUST BE DONE.
Questions?

Thank You

For more Information Please Call

703-746-4910