



**Indiana**  
**Department**  
**of**  
**Health**

# Scabies and Bed Bugs

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OUR MISSION:

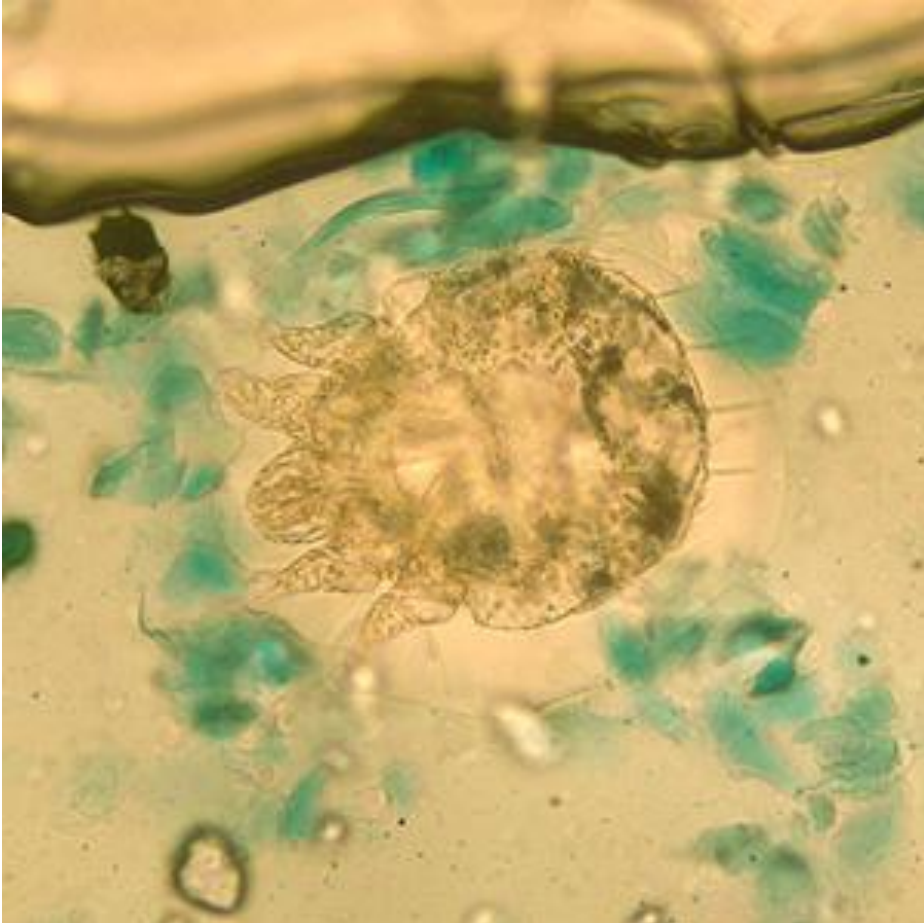
**To promote, protect, and improve  
the health and safety of all Hoosiers.**

OUR VISION:

**Every Hoosier reaches optimal health  
regardless of where they live, learn,  
work, or play.**



# What are scabies?



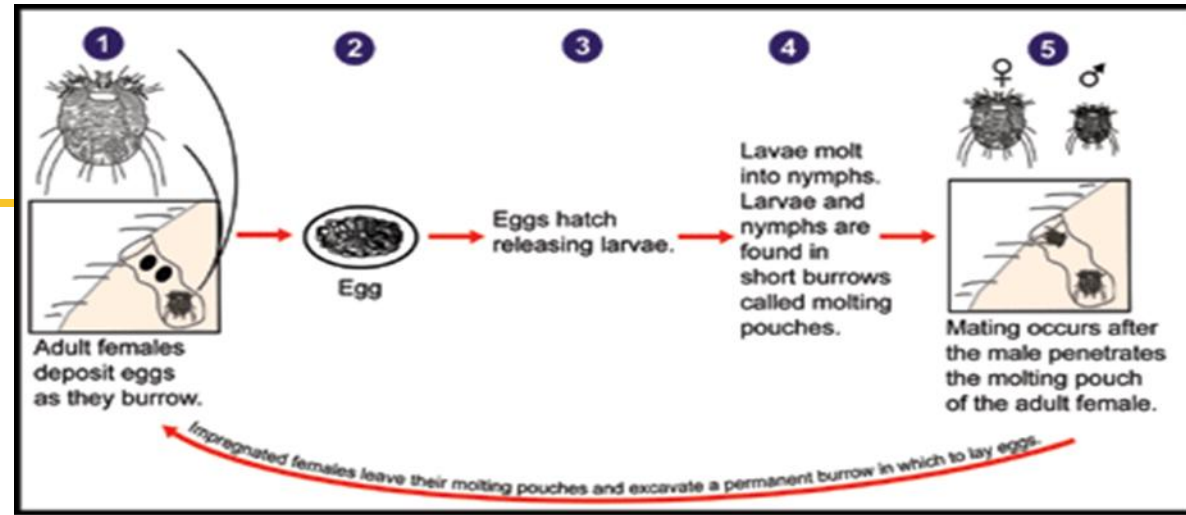
Microscopic skin mite:  
*Sarcoptes scabiei* (var *hominis*)

Females: 0.30-0.45 mm long by  
0.25-0.35 mm wide

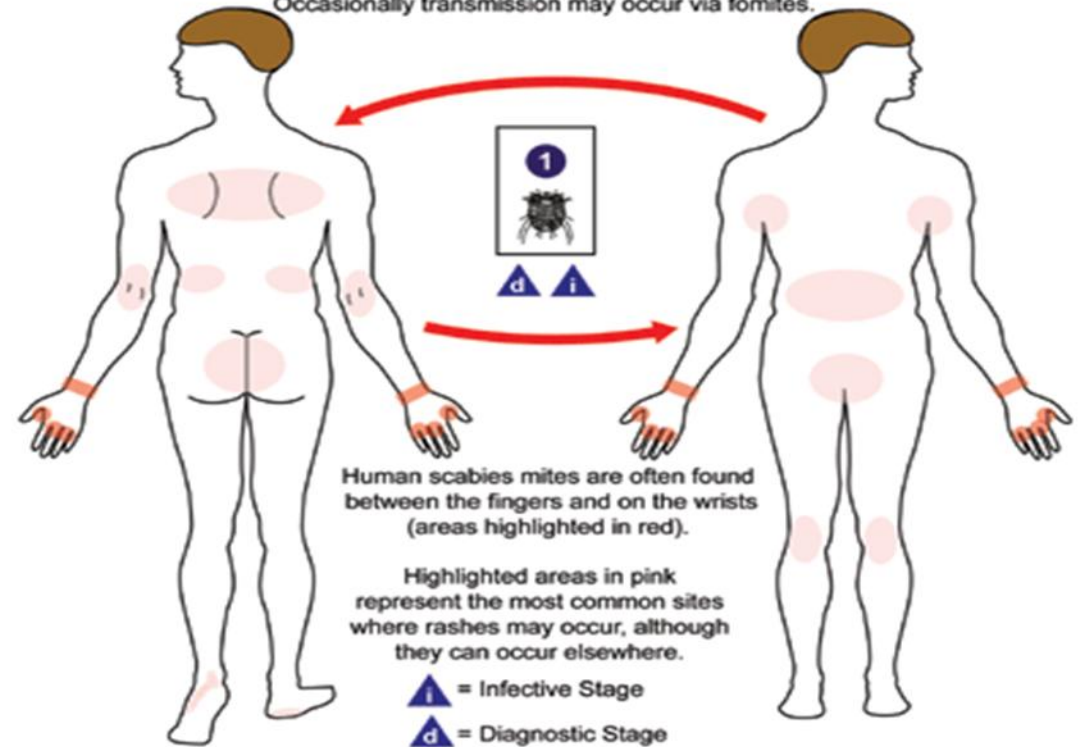
Males: 0.20-0.24 mm long by  
0.15-0.20 mm wide

# Biology of the Pest

- Adult mites burrow into the upper layer of the epidermis. Females lay eggs in the burrows. 2-3 per day.
- Eggs hatch after 3-4 days into larvae, which dig new burrows closer to the skin surface.
- Larvae mature into nymphs in about 4 days.
- 2 nymphal stages. 3-4 days each
- Males enter female molting pouch and only mate once.

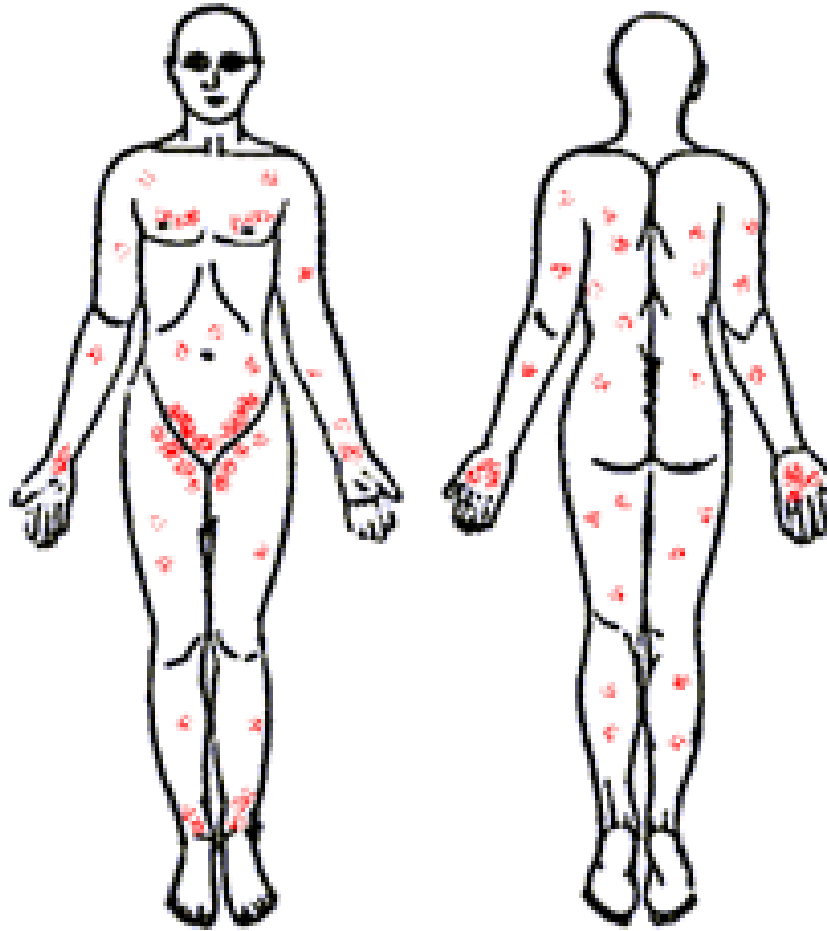


Transmission occurs primarily during person-to-person, skin-to-skin contact. Occasionally transmission may occur via fomites.



# Identification of Pest

- Preferred areas of the body: interdigital and popliteal folds (between the fingers and behind the knee), the groin, inframammary folds.



# Identification of Pest

## Symptoms:

- a vesicular rash
- visible burrows in the skin, intense itching of infected areas—caused by allergic reaction to activities and secretions of the mites.
- Intense itching, especially at night



# Identification of Pest

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Immunocompromised individuals may experience crusted scabies, which involves extensive scaling and crusting.



# Identification of Pest

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Scabies can only be positively identified by a skin scraping and microscopic analysis

- These should be performed on multiple sites on the patient to get a good diagnosis



# Controlling Scabies

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## The Bad news:

- When a person is infested with scabies mites the first time, symptoms usually do not appear for up to two months (4-8 weeks) after being infested; however, an infested person still can spread scabies during this time even though he/she does not have symptoms.

## Because of the bad news:

An infested person can transmit scabies for 4-8 weeks before they show symptoms until they are successfully treated and the mites and eggs are destroyed.

# Controlling Scabies

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- Prevention
  - Early detection is essential.
  - Maintain high index of suspicion of undiagnosed skin rashes.
  - Screen new patients and workers
  - When scabies is suspected, obtain skin scrapings
  - ISOLATION AND INFECTION CONTROL PRACTICES with hands-on care
  - Maintain records of confirmed and suspected scabies.

# Controlling Scabies

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- Prescription scabicides – lotion or cream
- Complete medication as prescribed
- Wash and dry bedding, clothing, towels on high. 122° for 10 min
- Non-washable items can be sealed in a bag for 1 week
- Avoid direct skin-to-skin contact until treatment is finished.
- Notify people you had direct skin-to-skin contact during previous 2 months.
- Scabies generally don't survive off host more than 2-3 days.

# Scabies Prevention

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Avoid direct skin-to-skin contact with an infested person or with items such as clothing or bedding used by an infested person.

Treatment is recommended for members of the same household, particularly for those who have had prolonged skin-to-skin contact.

# Bed Bugs



# Bed Bug Action Plan for Facilities

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- **Educate Patient and Staff**
- ID and Response
- Patient Inspections
- Utilize Monitors
- Limit Personal Belongings
- Isolate
- Heating Box
- Regular inspections
  - Waiting room, common areas, laundry rooms, equipment (wheelchairs)
- Limited Treatment
- Staff Protection

# Educating Staff

- Dealing with bed bugs is now a part of the job.
- Blood suckers, but not as threatening as mosquitoes or ticks
- Schedule a training program for staff.
- Be able to engage in open dialogue with patients.





Mental

Physical

Well-being is impacted by lack of sleep; social stigma; potential risks from misused pesticides; and costs of treatment.

As bed bugs infestations spread to more people, these impacts affect the health of entire communities.

Societal

Economic

Bed Bugs are a Public Health Pest

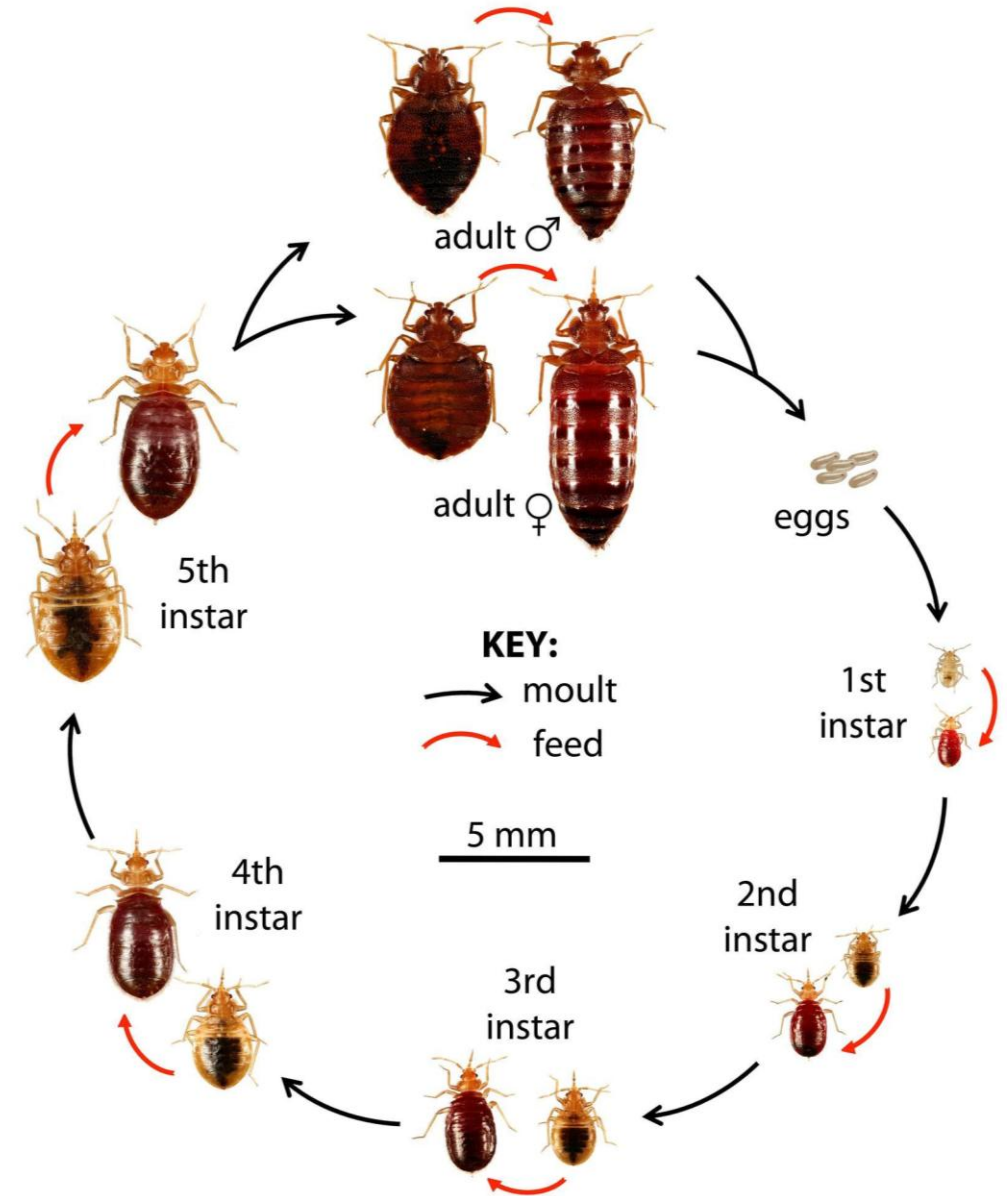
# Bed Bug Biology

- True Bug
  - 6 legs, piercing mouthparts
  - Family of blood feeding insects
- Adults 3-4 mm in length
- Common worldwide
- Simple metamorphosis: egg, nymphs, adult
- Crack/crevice harborage; furniture, bedding



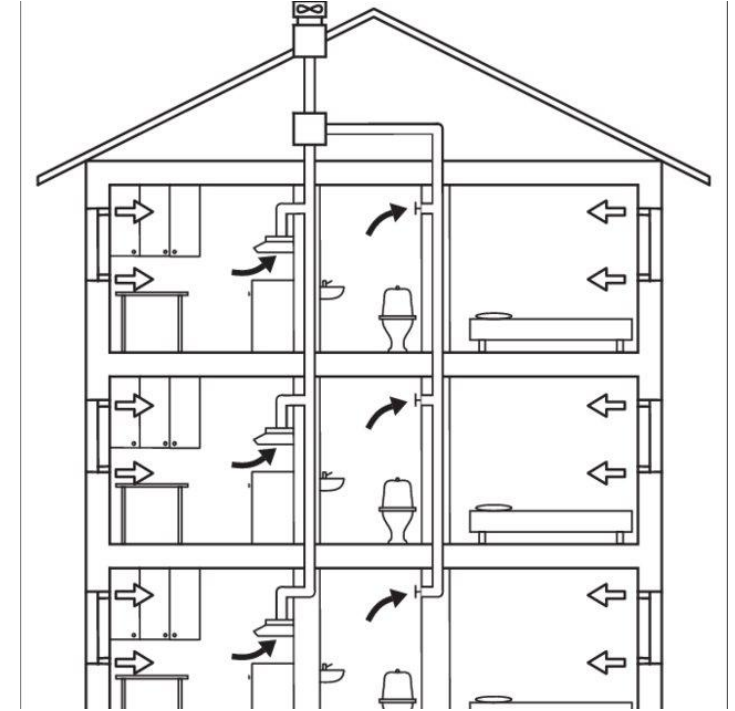
# Bed Bug Biology

- Both males and females feed on blood
- Peak feeding time before dawn
  - adaptable
- Take blood meal every 5-10 days
- May survive 18 months without blood meal
- May feed on non-human hosts
- Lay 2-3 eggs daily, glued in place (250/lifetime)



# Bed Bug Biology

- Introduced via luggage, furniture, bedding  
-2008
- Resurgence as a result of increased travel and changes in cockroach treatment techniques
- May move to adjacent rooms/units to feed



# Mahogany Flats



# Fed Bed Bug



CDC

# Eggs, Nymphs and Adults

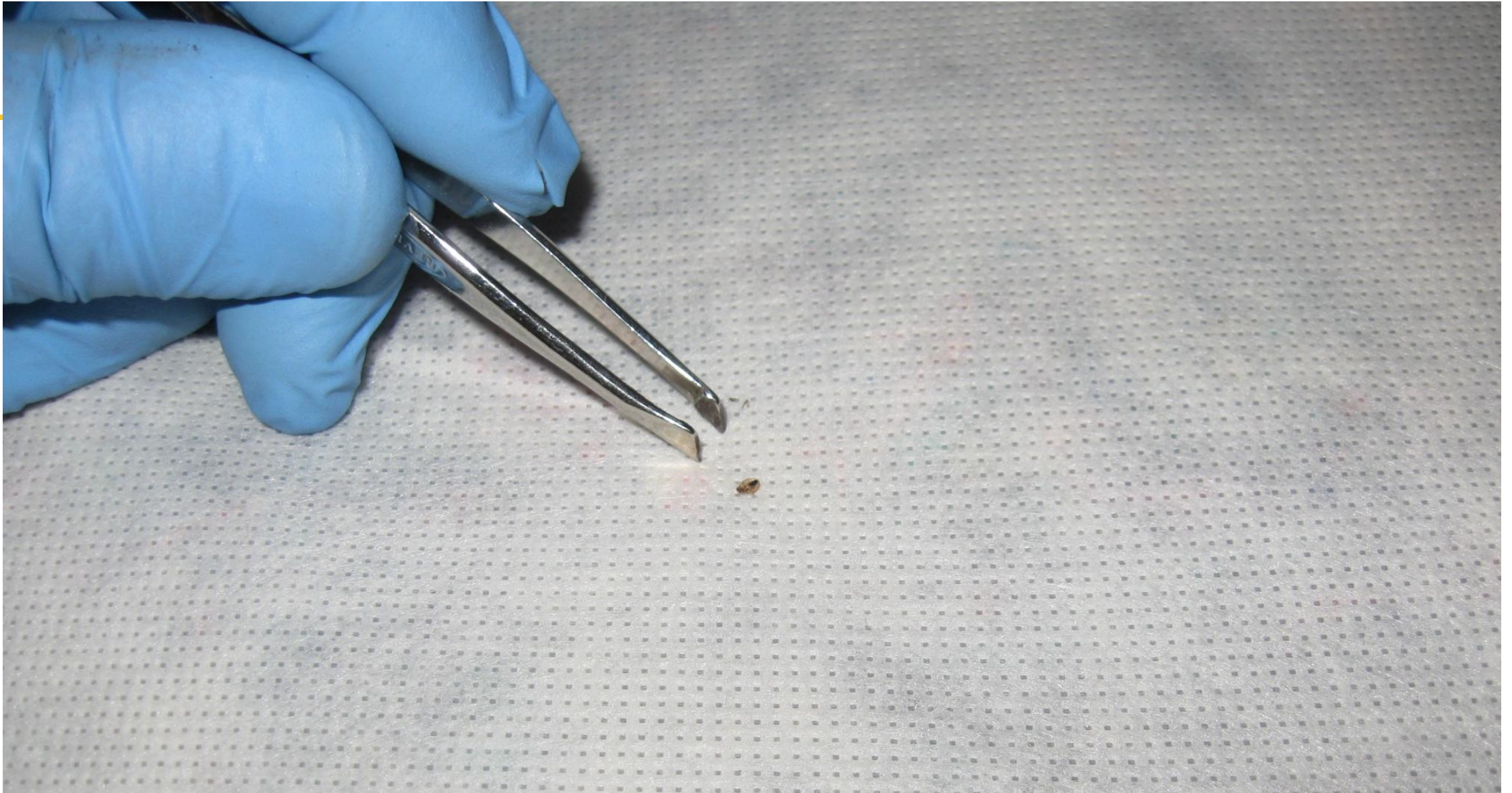


University of New Hampshire



LG, IDOH





# Size and Identification



# Medical Symptoms

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- Bites in rows of three
- Welts, Itchiness, Swelling
- Inflammation, sensitivity over time
- Anxiety, Annoyance, Insomnia, entomophobia
- Overuse of skin care/pesticide products

**Fortunately, there is no disease threat  
From bed bug infestation**

# Bed Bug Research



# Immediate Bite Reaction



# Delayed Reaction (>24 hours)

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# Signs of an Infestation

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- Fecal spots
- Exuviae (shed skins) in cracks and crevices
- Blood spots on bedding
- Sweet, musty “bug” smell in heavy infestations
- Appearance of the bugs themselves



# Fecal Spots



# Adults, Nymphs and Exuviae



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# Fecal spots and bed bugs in box spring



# Overlooked Spot



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# Other Hiding Spots



Photo by B. Ogg, UNL Extension in Lancaster County



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# Habitat and Harborage Areas

- Crevices behind mouldings
- Curtain folds
- Behind picture frames
- Joints in bed-frames, furniture
- Behind loose wallpaper
- Behind paneling or joinery
- Mattress seams
- Pillows
- Electrical outlets
- Inside equipment



# Identification and Response

- Know how to visually identify bed bugs.
- Have a written bed bug action plan.
- Notify immediately.
- Discuss protocol with patient for bed bug prevention.
- Elderly and immune-compromised are known to experience lesser reactions.



# Utilize Monitors

- Place monitors around facility to determine if bed bug infestation is present in facility.
  - Place in both treatment areas and waiting areas.
- Bugs that are captured can be evaluated.



# Heating Box

- Consider investing in heating box for facility.
- 120°F
  - Wheelchairs, belongings
  - Facility equipment and furniture.



Morgan Wilson, Virginia Tech



# Regular Professional Inspections

- Schedule regular PMP inspections.
- Waiting rooms, visitor lounges, common areas, laundry rooms, treatment rooms, and equipment.
- Follow your PMP inspector to ensure that all at risk locations are inspected.



# Limited Staff Treatment

- 91% isopropyl alcohol
- Sterifab®
- Dusts?



# Staff Protection

- Washer and Dryer is your best friend!
- Keep work uniforms as simple as possible.



# Questions?

## CONTACT:

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