



Health  
Canada

Santé  
Canada

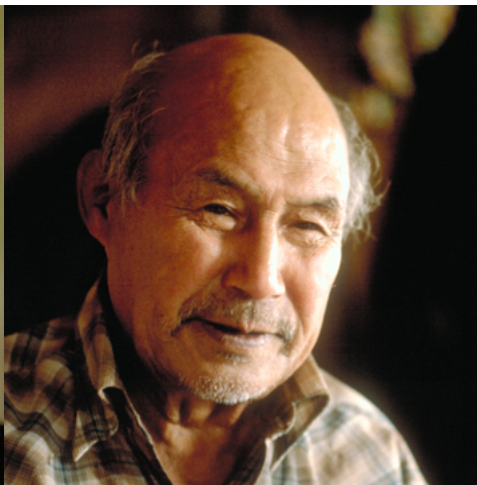
*Your health and  
safety... our priority.*

*Votre santé et votre  
sécurité... notre priorité.*

# Bed Bugs



First Nations and Inuit Health Branch  
Environmental Public Health Services



Canada 

# Presentation Outline

History of Bed Bugs

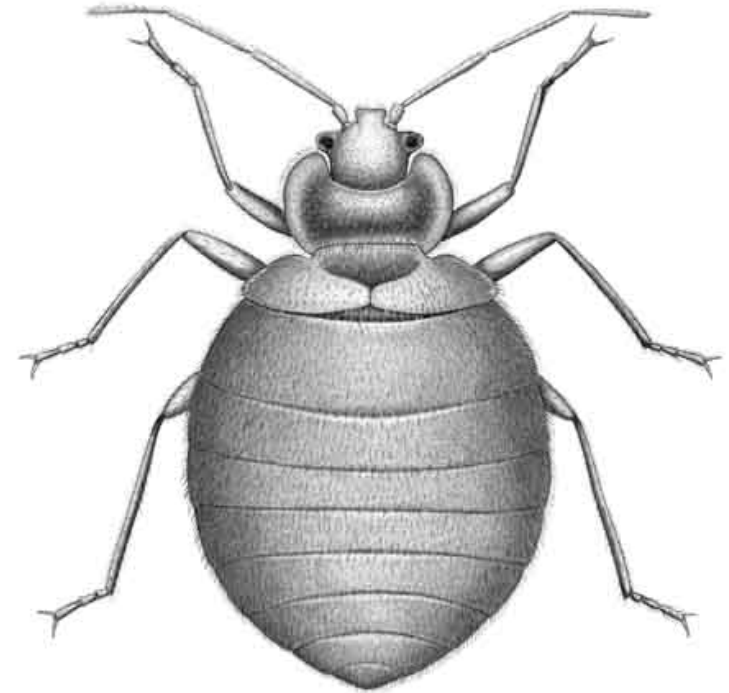
Why are Bed Bugs so popular right now?

Bed Bug Biology

How and where to look for Bed Bugs

Treatment Options

Social Stigma of Bed Bugs



# History

- Around 1950 bedbugs were thought to be eradicated
- The pesticide DDT was very effective at eliminating the bugs (as well as other insects.)
- The decline in bed bug populations was thought to be due to improvements in the way people lived such as personal hygiene and the pesticide DDT



# Resurgence of Bed Bugs ?

Reintroduction via growth of international travel and trade



Bed bug resistance to insecticides

Changes in pest management practices; a shift away from broad spectrum pesticides to pest specific bait products

Now fashionable to buy second-hand items



# Bed Bug Biology

## Identification

- Oval, flattened insects, wingless body – short brown head and reddish brown in colour
- Blood feeding
- Bed bugs cannot fly or jump
- Life cycle contains eggs, nymphs and adults
- Adults are reddish brown and up to 6 mm long
- Nymphs look like adults, but smaller and lighter in colour
- Eggs are 1 mm in diameter and are whitish in colour



# Closely Related Pests



Flea



Book Louse



Immature Cockroach

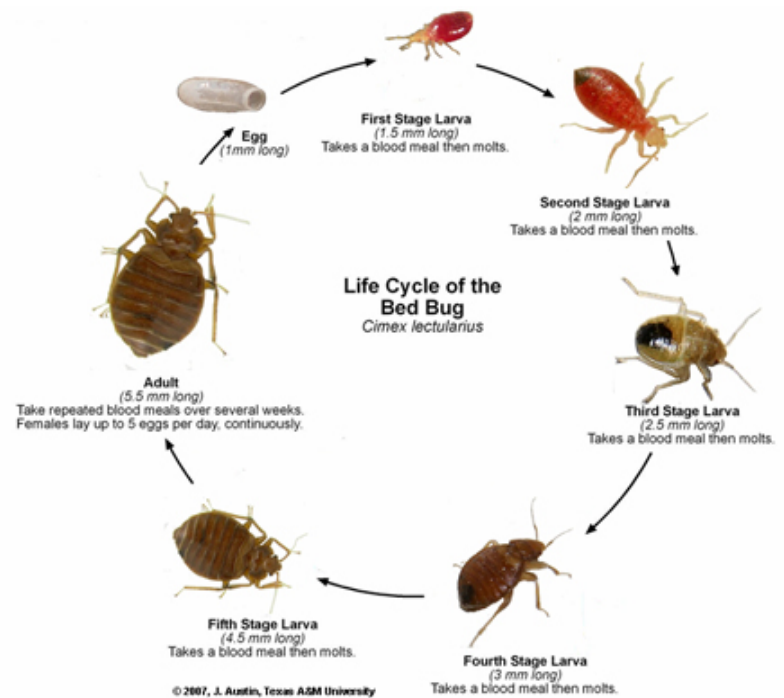


Mites



# Life Cycle

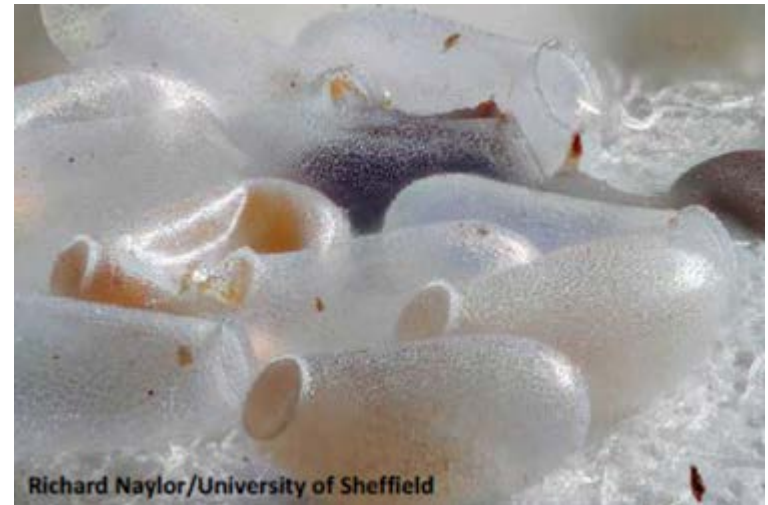
- Bedbugs go through 6 stages (5 nymphal stages and then onto 1 adult stage) and live an average of 10 months.
- They must feed at each stage
- Hardy insects that can live for several months and up to a year without a blood meal





# Bed Bug Development

- 3 Life Stages: egg-nymph-adult
- Bed bugs will feed on pets such as dogs or cats when humans are not available
- Ideal temperature range is 21-27° C
- A female bed bug will lay eggs singly up to 5-7 per day and up to 500 in her lifetime
- Egg to adult development time:
  - @18° C = 180 days
  - @33° C = 37 days



# How do Bed Bugs find You?

Bed bugs can travel up to 6 meters in search of a human host

They are attracted to human carbon dioxide, heat and chemical cues

They are able to smell through their antennae



# Blood Feeding Habits

Bed bugs feed mainly at night as they are nocturnal (avoid light)

Both male and female bed bugs blood feed, they have no other source of nutrition

Inject saliva containing anticoagulants (keeps blood flowing) and anaesthetics (so you do not feel the bite)

Feed for 10-20 minutes and then return to their hiding places

Feed on exposed areas of skin such as arms and neck



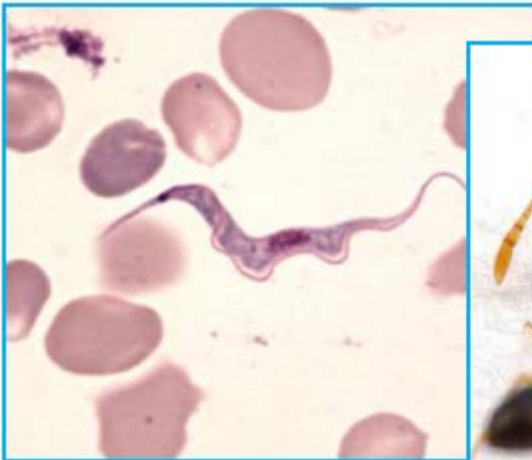
# Bed Bug Enemies

Cockroaches

Assassin Bugs

Ants

Trypanosomes (protozoa)



# Are Bed Bugs Harmful to Humans?

- Bed bugs are a nuisance
- Not considered a health hazard

**\*\*There is no evidence that bed bugs transmit blood-borne infectious diseases e.g., Hepatitis B, Hepatitis C or HIV\*\***

- Secondary infections may result from scratching and bites should be treated by health care professional
- Saliva from the bites may cause a mild or severe allergic reactions in certain individuals



# Bed Bug Bites

Bites are usually painless, despite the small, visible bite marks

Most people do not report a reaction to bed bug bites

Most bites heal within a week, unless they are aggravated by scratching

Bed Bug bites may look like the bites of other insects such as fleas, mosquitoes, or spiders and may also look like a rash from diseases like scabies or chickenpox

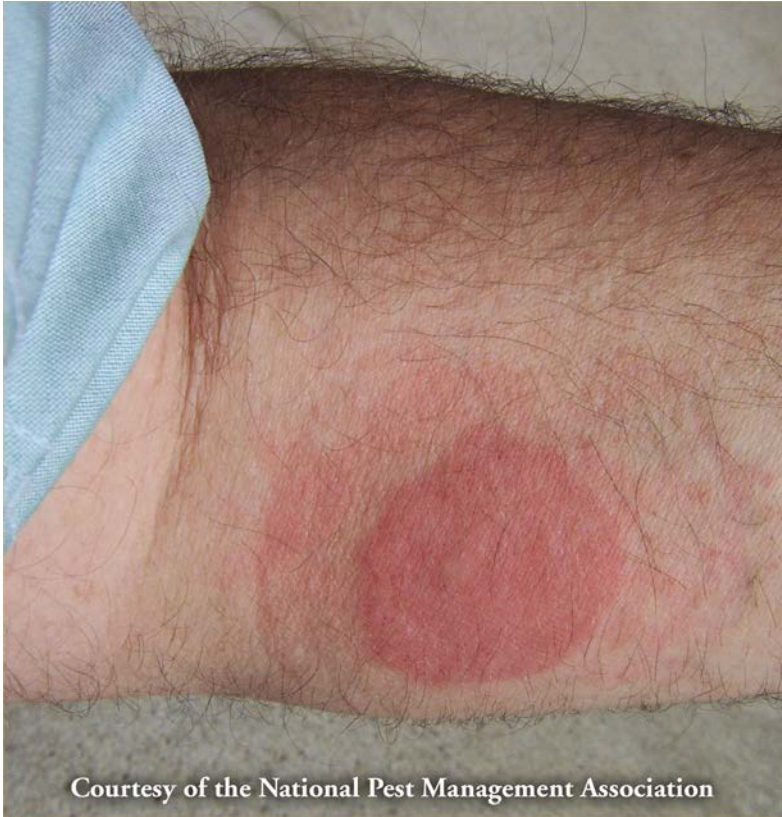


# How can I tell if I have Bed Bug bites?

- Bites are usually along a vein on the body and on exposed body parts such as arms, legs, neck and shoulders
- Multiple bites are present in a row/line, or in triangular shape. Bites may also be random depending on where the bed bugs are hiding on the bed
- Bites are itchy
- Bites do not have a red spot in the centre like flea bites



# Not typical reaction to Bed Bug bites





# Insect Bites are difficult to Diagnose



Black Fly Bites



No-see-um Bites



Fire Ant Stings



Mosquito Bite



## How do Bedbugs infest our homes?

- Bed bugs are hitchhikers...
- Traveler picks up bed bugs in luggage or other bags such as a backpack when staying in a hotel or cruise ship or a visitor in home who picked up bed bugs during their travels
- Bringing used furniture or a mattress into the home
- Rented furniture that has not been inspected
- Used electronics that has bed bugs hiding inside



# How do Bedbugs infest our homes?



## Signs of a Bed Bug infestation in your home

- You can see the actual Bed bugs on furniture, bedding, headboards and mattresses - especially in the seams
- If a bug is found – place them in a jar or Ziploc bag for identification by your community Environmental Health Officer or pest control specialist
- Dark spots are visible on bedding from their excrement (droppings)
- Stains (pale to brown fecal stains) on mattresses, furniture, walls and on bedding





## Signs of a Bed Bug infestation in your home

- They may also leave blood stains on the bed
- May be a sweet, musty odour in your home
- You notice bites or itchy welts on your skin



# Finding Bed Bugs

- Floor Cracks
- Carpets - underneath
- Cracks between walls
- Behind Electrical Plates/Jacks
- Inside vents
- Along mattress seams and folds
- Couch
- Upholstered furniture
- Inside box springs
- Blankets



# Finding Bed Bugs

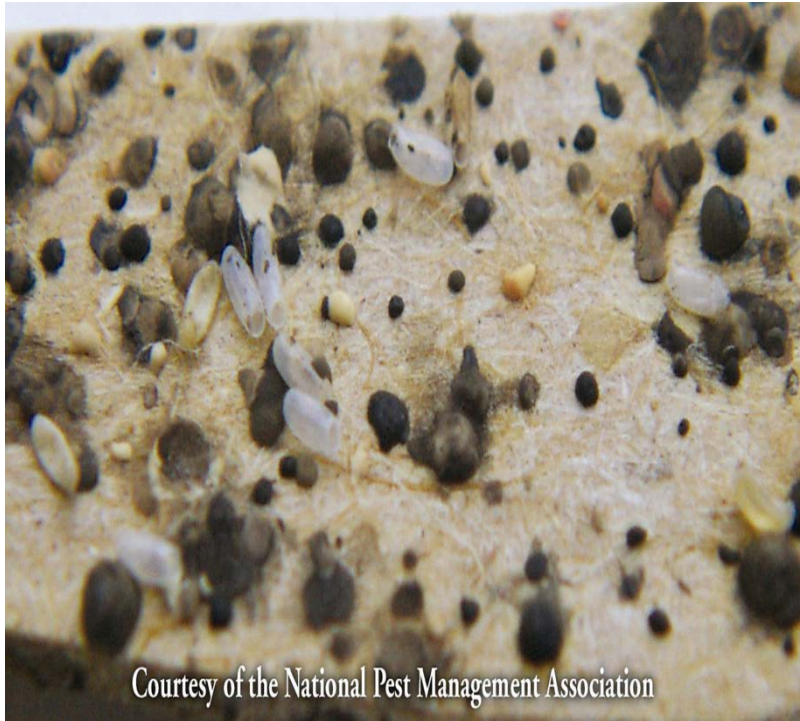
- Bed Frames
- Legs
- Frame Joints Headboards
- Under dust ruffles
- Pet Bedding
- Furniture
- Cracks
- Legs
- Couch/Seat cushions, covers
- Underneath drawers







**85-90 % of bed bugs are found near or on the mattress!**





Courtesy of the National Pest Management Association; PestWorld.org

# Mattresses

Bed bugs on a mattress can be spotted with the naked eye and are usually found hidden in seams and under any labels

Even the **best mattresses** can develop a bed bug problem

Bed bugs can be found in the box spring and the mattress, so both need to be inspected and if necessary treated.



# A close up look at Eggs, Nymphs and Adult Bed Bugs



# Extreme Cases





## What can you do to keep Bed Bugs out of your home?

- Do not bring discarded mattresses, box springs, headboards or other upholstered furniture into your home
- Thoroughly inspect used furniture for bed bugs before accepting and bringing into your home
- If you discard an infested mattress or furniture post a sign on it stating “Caution infested with Bed Bugs”





## What can you do to keep Bed Bugs out of your home?

### *Second Hand Clothing Recommendations*

- If you take in **second hand clothing**, ensure they are brought in sealed plastic bags
- Launder in hot water immediately
- Dry in the drier on the hottest cycle!

**Very important!**

- Heat at 50 C is effective at killing bed bugs and bed bug eggs.





## What can you do to keep Bed Bugs out of your home?

### *Travelling Recommendations*

- Leave luggage bags in the garage or in the bathtub while unpacking after a trip - bed bugs cannot crawl on slippery surfaces
- After traveling and returning from a trip launder your clothing in hot water immediately
- Dry in the drier on the hottest cycle! **Very important!**
- Heat at 50 C is effective at killing bed bugs and bed bug eggs.





## What can you do to keep Bed Bugs out of your home?

- Bed Bugs are NOT an indicator of cleanliness or sanitation, so having a clean home does not mean you cannot get bed bugs
- However, if you do have bed bugs, having a clean and tidy home will make it easier to see bed bugs and control them.
- They do NOT favour fancier homes over modest homes – they are found everywhere people are
- Minimize the clutter in your home and on the floor such as books, boxes, clothing to control bed bug hiding places.



# Keep Bed Bugs from hitchhiking to your communities...

- Prevention is the best measure.
- Messaging within your communities:
  - Education sessions
  - Utilize community websites, newspapers, community newsletters, Facebook, radio stations, etc
  - Providing resources such as information sheets, fact sheets
  - Messages can include...how to look for bed bugs while travelling, etc.



# Keep Bed Bugs from hitchhiking to your communities...

- If you suspect that you have a Bed Bug problem within a community home, the best approach is to capture a bug for identification.
- Contact your community Environmental Health Officer to assess the extent of the bed bug problem and then recommend a treatment plan



# Bed Bug Clean Up and Control within a Community

- Bed bugs are difficult to get rid of
- Infestations are hard to treat
- Housing Departments must be aware and the pest management approach should be all inclusive
- There must be cooperation between the individual/family and the Housing Department



# Treatment Options

Integrated Pest Management Approach

Difference types of treatments:

Chemical

Biological

Extreme Heat

Extreme Cold

In most cases you will need to contact a Licensed Pest Control Operator that has experience with Bed Bugs



## Licensed Pest Control Operator Approach

- Confirm if you have bed bugs in the home
- Find out where bed bugs are hiding in the home
- Treat the home and belongings with steam, heat or chemical pesticides if necessary
- If pesticides are utilized they have licences and training required to handle such chemicals
- Conduct subsequent inspections to make sure bed bugs are gone and conduct repeated treatments as necessary
- If you do hire a licensed pest control operator, ensure that you follow all of their recommendations



**Note:** when using steam ensure that items aren't left damp, as mould can become an issue.



## Strategies that Housing Departments can utilize to help control Bed Bug infestations...

- Use a bright flashlight to help identify and find bed bugs in their hiding spots such as in bedroom furniture or bed frames, behind baseboards, behind pictures or wall hangings, in the seams of mattresses, or clothing on the floor.
- Tidy up all clutter around the home and start by:
  1. Clean your bedding, linens, curtains and rugs. To kill bed bugs, linens and clothing should be washed in hot water and dried in the dryer for 30 minutes on the hottest setting.
  2. After laundering, clothing should be stored in dresser or wardrobes and not on the floor





## Strategies that Housing Departments can utilize to help control Bed Bug infestations...

- Having less clutter around the home will make it easier for wandering bed bugs to be seen and more likely that it will be vacuumed up
- Seal cracks and crevices to reduce bed bug hiding spots
- Place monitoring devices around your home such as sticky glue paper, these can be placed around bed post legs and walls or anywhere you suspect bed bugs
- Climb up interceptors can be purchased from a local hardware store and placed around your bed posts. These are good for preventing bed bugs from climbing onto your bed as well as trapping bed bugs.







## Strategies that Housing Departments can utilize to help control Bed Bug infestations...

- Alternatively you can place Vaseline/petroleum jelly around bed posts to prevent bed bugs from climbing onto your bed
- Use a bagged vacuum with a nozzle attachment. Vacuum the seams of your mattress, and bed frames. Vacuum nearby furniture and along baseboards and floors.
- Place used vacuum bag into a plastic bag, seal and discard right away
- Encase mattresses and boxsprings in zippered mattress cases such as those for allergy dust mite prevention.
- If bed bugs were found on your mattress/boxspring, you may not have to throw it out. Professional pest control operators can safely steam, heat treat and apply chemicals to destroy the bed bugs.



# Social Implications of Bed Bugs

## Social Determinants of Health

Living condition – the social and material circumstances that Canadians are exposed to in their homes, workplaces and communities constitute a primary determinant of the health of the population.

(Dennis Raphael, 2009)



# Social Implications of Bed Bugs

Source of the following research project:

**Dr. Elizabeth Comack**

Department of Sociology, University of Manitoba

\*\*Presented the following at the National Environmental Health Officers Workshop in September 2010

**“BED BUGS ARE A PUBLIC HEALTH THREAT”**

26 interviews conducted in the winter and spring of 2009 in Winnipeg (included 16 residents, 2 landlords, 1 property manager, 5 social workers)



## MAIN QUESTIONS:

- **What are the social impacts of a bed bug infestation on residents of Winnipeg's inner-city communities?**
- **What do bed bugs mean for people who are socially and economically marginalized?**



## HEALTH PROBLEMS:

- “I couldn’t sleep, eat or nothing ... And I **lost weight**. My girlfriend is really worried about my weight now.”
- “I can’t remember the last good night’s sleep I’ve had.”
- “When they bite me I get an **allergic reaction** on my body.”
- “I developed an **infection**. I had to get antibiotics. They were all over me and they were just, like, really infected. Now I’ve got scars all over.”
- “Every time they spray certain people get sick in my building. They get **headaches**, they get **breathing problems**, and they get really sick for about four days.”



## LOSING ALL OF YOUR BELONGINGS

- “It’s just like a **house fire**, you know, where you have to start all over.”
- “I had to **throw everything out**. And it was, like, really hard—and really stressful.”
- “I was down to **no furniture**. I was down to nothing. Nothing in the living room, couple of chairs, coffee table, a lamp. No bed, sleeping on the floor.”
- “The word is out on us, hey, that if I put on there that I’ve been three years in Manitoba Housing, most rental agencies know that we have bed bugs now. So they’ll tell you ‘If you move in here you can’t bring anything with you. **You got to buy totally new stuff.**’”



## SOCIAL STIGMA

- “When I told my friends that I had bed bugs and, like, they didn’t want to come over because of the bed bugs.”
- “I think if a person is to talk to somebody else they’d say ‘Oh, don’t let that guy in the house. He’s got bed bugs. Don’t let him in.’ That’s why I don’t think people are talking. That’s what I fear.”
- “I hate being marked, like, **blacklisted**. Like, people think we’re going to infect you or something.”



## SOCIAL ISOLATION

- “I was always afraid to go somewhere, because what if I drop a bed bug somewhere?”
- “I don’t want people to come to my house, ‘cause I’m scared to get them.”
- “I didn’t realize how much it has an impact on you. It **isolates** you. It **damages relationships.**”
- “Believe it or not, it’s caused **feuds** between people in my building. It’s caused **fights**. Actually there are people that are not talking to each other, that don’t talk to each other anymore.”





## IMPACT ON IDENTITY

- “I felt really, really **dirty** because of those bites all over.”
- “I felt **degraded**. I felt **sick**. I felt just, like, burn everything. Just burn it and get rid of it.”
- “I’m becoming **obsessed** too. Like, I’m washing, continually washing clothes—with money I don’t have—all the time, over and over.”
- “People ask me, ‘Do you got AIDs or something? Do you got bugs?’ You got bites and you got marks all over you. Think about that. All the **stigma** that comes with that. I’ll tell you the truth. It really bothers me.”
- “The way I see it, it looks, it seems like there is no light at the end of the tunnel. I just feel so **beat**. ... I just feel, like, **cornered**.”



## PUBLIC EDUCATION:

- More accurate knowledge on how bed bugs behave will help to dispel **myths** (cleanliness is not the issue) and reduce the **social stigma** that both tenants and rental agencies experience
- More accurate knowledge about effective **treatment** and **prevention** strategies will assist in reducing the incidence of bed bug infestations



## NAMING AND FRAMING THE PROBLEM:

Encountering Bed Bugs



Social stigma, Social  
isolation, Stress



**Compromised Health**



**Social and  
Economic  
Marginalization**  
(lack of resources  
and control over  
living conditions)



Night Night.....Sleep tight

**THANK YOU!**

