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Bed Bug Epi Brief



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Bed Bugs as an Evolving Public Health Threat



Bed bugs (*Cimex lectularius*) are small, flat, reddish-brown, wingless parasitic insects that feed solely on the blood of people and animals while they sleep. Adult bed bugs can live several months without a blood meal but nymph bed bugs require a blood meal in order to molt to the next stage. Bed bugs, a problem worldwide, are resurging, causing fear, considerable inconvenience and expense due to property loss and pest management.

Bed bug outbreaks have become much more prevalent. Causes for the rise in bed bug outbreaks, other than a change in vector control strategies, are increased travel and the popularity of second hand furniture and clothing. The good news is that bed bugs are not known to transmit disease at this time.

These insects have been able to covertly hitchhike on the belongings of unknowing travelers from country to country, enabling them to successfully infest new environments. Since bed bugs “feed” on the blood extracted during a bite to a warm-blooded animal, high numbers of bed bug bites over a prolonged time can contribute to anemia in extreme situations. Additionally, when bed bugs become prominent in a living space and their allergens become airborne, those with asthma can experience symptoms of airway disease more frequently. Poor sanitation does not attract bed bugs to a dwelling. However, improperly stored household items can have an impact on controlling and eliminating the infestation.

Though not classified as disease vectors, bed bugs can cause physical and psychological discomfort and distress. Bed bug bites can cause an allergic reaction to the saliva injected at the site, causing raised, inflamed welts and possibly intense itching. Often these bites occur as “three in a row” lending this pattern to be described as “Breakfast, Lunch, and Dinner Sign”. The best way to treat a bite is to avoid scratching the area and apply antiseptic and steroid creams or lotions. Open wounds can lead to secondary infection of bite sites by opportunistic pathogens.

Bed bugs tend to live within 8 feet of where people sleep. Some common facilities in which bed bugs are found include apartment complexes, hotels and motels, dormitories, day care centers, public transportation vehicles (buses, taxis, and trains) and even movie theaters. Bed bugs hide in places such as seams of mattresses, box springs, bed frames, headboards, dresser tables, inside cracks or crevices, behind wallpaper, or any other clutter or objects around a bed. The best way to prevent bed bug bites and bringing bed bugs home is to avoid places in which bed bugs are found frequently. If avoidance is not practical, it is important to learn how to inspect for signs of an infestation. If bed bugs are found, it is prudent to leave the area or perform eradication efforts without delay. Bed bug infestations are commonly treated by high heat laundering, removal of infested items and integrated pest management by licensed professional exterminators.

The City of St. Louis Department of Health (DOH) responds to complaints about bed bugs by performing inspections, providing prevention and control education, and enforcing code violations. DOH staff are trained in identifying the pest and recognizing signs of an infestation. DOH only confirms a bed bug complaint with live bed bugs seen. DOH inspectors are also trained to look for multiple stages of the bed bug life cycle (nymph vs. adult) to characterize the extent of the infestation. If a complaint is confirmed, DOH staff monitor each case until a resolution or enforcement outcome is reached. Challenges to confirming bed bug infestations includes inability of health inspector to coordinate an inspection, lack of knowledge and confusion on behalf of complainants with exposure to other biological organisms or chemical agents that cause similar irritation. Likewise, a long-term challenge that residential areas face with eliminating bed bug infestations circles back to knowledge of preventing infestations and the transient nature of some City residents. DOH staff advise residents to mark infested belongings that will get thrown out to prevent another person from picking up infested furniture.

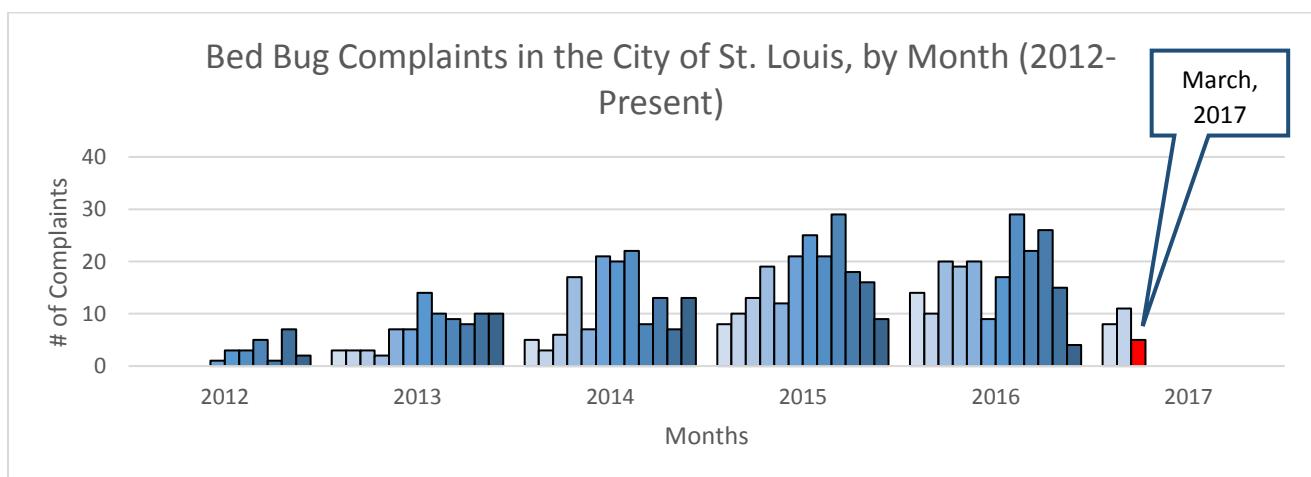
Frequency of Reports

The City of St. Louis has seen an increase in the number of bed bug complaints over the past 3 years. In 2014, DOH responded to 141 complaints about bed bugs, but only confirmed 17% (24) of those complaints. In 2016, DOH confirmed 26% (53) of the bed bug complaints received. In 2017, to-date, 25% of the bed bug complaints received have been confirmed.

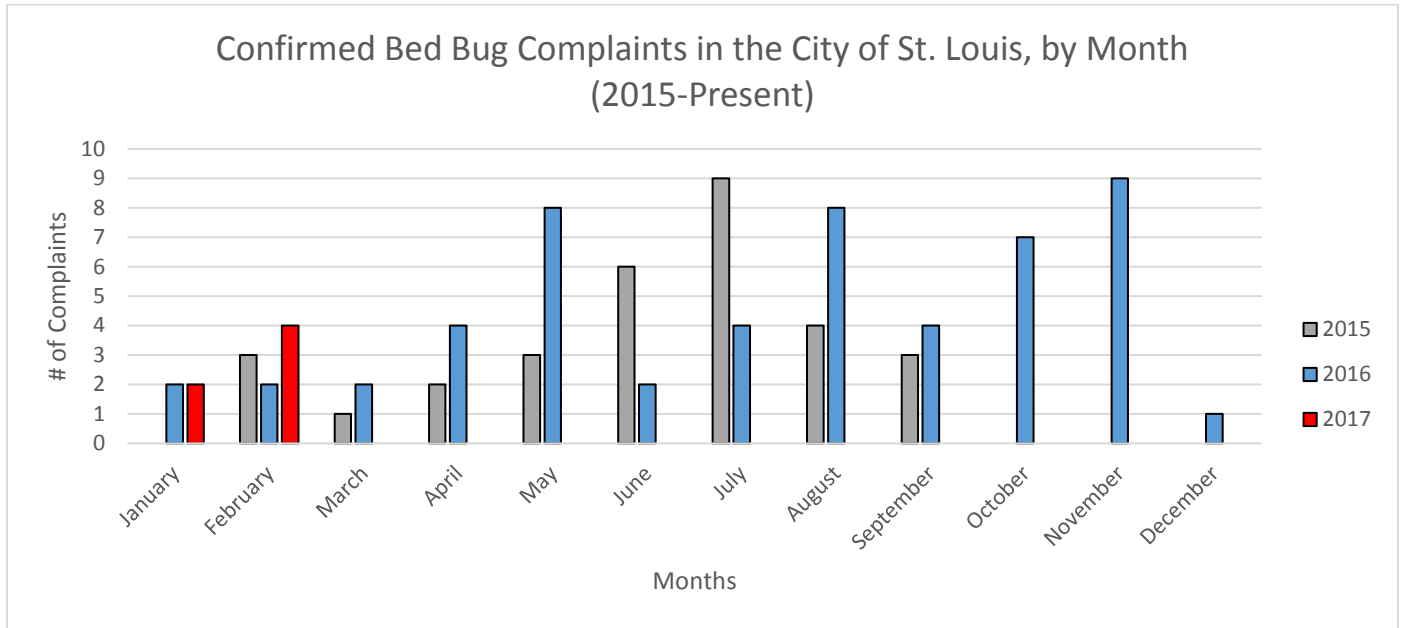
<i>Bed Bug Complaints</i>	2012	2013	2014	2015	2016	2017 (YTD)
<i>% Confirmed Complaints</i>	9%	25%	17%	22%	26%	25%
<i># Total Complaints</i>	21	86	141	203	205	24

Distribution and Determinants

Looking at the distribution of bed bug complaints in the City of St. Louis over the last five years, an increase in complaints has been observed. Prior to mid-2012, complaint and inspection outcomes were documented on paper, but more recent electronic methods have improved tracking and analysis of bed bug surveillance. Although the DOH received a similar number of total bed bug complaints in 2015 and 2016, the percentage of confirmation went up from 22% in 2015 to 26% in 2016. The peak number of bed bug complaints has been received later every year (2013 Peak – July, 2014 Peak – August, 2015 Peak – September, 2016 Peak – August). However, the trend still seems to show that most bed bug complaints are observed between July and November.



In 2015, bed bug confirmed complaints were on the rise from March and then peaked in July. This was likely due to increased traveling and vacationing. In 2016, this trend shifted. Bed bug confirmed complaints were on the rise from March to May but there were two more peaks throughout the year (August and November). Both of these changes could be attributed to the delay in extreme cold temperatures during the winter season. This could have possibly promoted an increase in close common socializing, and moving from one residence to another.



The majority of complaints in 2016 were seen in the northern and south-east regions of the city (see maps attached). Infestations can repeatedly occur at locations with a lot of dwelling units (large complexes) and where citizens unknowingly recycle items from thrift shops without inspecting their purchase, reuse improperly disposed items, or frequent a location that has an infestation.

For further information, visit the Centers for Disease Control and Prevention website:

<https://www.cdc.gov/parasites/bedbugs/>

Tips for Preventing Infestations:

- Conduct regular inspections of your dwelling for any signs of an infestation. Also keep an eye out for signs of bed bugs at locations you are visiting.
- **NEVER** pick up discarded furniture from the street, alley or near a dumpster.
- When purchasing a second-hand mattress, sofa or bed, ask the seller if the item has ever been stored or used in an apartment with bed bugs. If yes, **DO NOT BUY IT** before inspecting the item yourself for any sign of bed bugs or eggs.