

Bed Bug Infestations in Healthcare Facilities

How to Spot, Treat & Prevent

— Carl Rocco, Director of Healthcare Textiles



BED BUGS — IMPLICATIONS & SOLUTIONS FOR SENIOR LIVING FACILITIES



Bed bugs are a worldwide problem and have been for thousands of years, and their resurgence can be attributed to numerous factors commonly attributed to globalization and arguably the prohibition of certain pesticides.

Once deemed the illusionary villain of an endearing saying used at bedtime, bed bug references today are a stark warning, especially to those exposed to infestations. According to findings of its 2018 Bugs Without Borders research, the National Pest Management Association revealed nursing homes made the top 5 list as one of the most common places bed bugs were treated by pest professionals. [1] For the context of this paper, we'll explore the implications of bed bugs and infestations; management, prevention, and treatment methods; and financial and social impacts, while expanding the scope to include assisted living and skilled nursing facilities.

Bed Bugs Defined



Bed bugs are elusive and feed exclusively on the blood of humans and animals. These flat oval-shaped pests are reddish-brown in color and range from 1/4 to 3/16 of an inch in length or approximately the size of an apple seed when they reach adulthood. According to PestWorld.org, bed bugs likely received their common name from their habit of feeding on humans while they sleep in their beds, however, bed bugs have also been known to bite people when they're awake and out of bed. [2]

Bed bugs are expert trekkers and have the innate ability to latch on to any number of items when they journey to new surroundings. Once introduced to a new setting, they can effortlessly disperse throughout the environment. Sightings are often uncommon as bed bugs are hard to identify, however, they are commonly discovered in congregated settings where people are motionless for extended periods or in areas where there is a constant stream of people coming and going.

A bed bug intrusion or infestation isn't necessarily easy to detect. While these cryptic insects are often discovered hiding in mattresses, bedding, and bedsprings; they can also be found throughout a living space.

Biologist and master gardener, Melissa Askari suggests bed bugs can be encountered in cracks and crevices in walls or wood, vents, behind baseboards, in and around cushions, chairs, couches, drawers, electrical outlets, picture frames, and even wall coverings to name a few.[3]

Implications

HEALTH RISKS

Bed bugs are a public health issue and while it's generally accepted that they're not known to transmit disease to humans, [Cleveland Clinic's website](#) points out they usually don't cause serious health problems. While reactions to bites may be unique to the individual, symptoms commonly include itchiness, raised skin, burning sensations, mild pain and discomfort.

The renowned institution also indicates in rare cases bed bug bites can cause serious reactions and require immediate medical care. Signs of serious, even life-threatening reactions such as anaphylaxis to bed bug bites may include difficulty breathing, swollen tongue, blisters, fever and irregular heartbeat. [4]

SYMPTOMS OF BITES:

- Itchiness
- Raised Skin
- Burning Sensations
- Mild Pain
- Discomfort

SERIOUS REACTIONS:

- Difficulty Breathing
- Swollen Tongue
- Blisters
- Fever
- Irregular Heartbeat

Subjects of bed bug bites have various sensitivities, and the impact of bites may not become obvious for several days, states pest control company, Orkin. [5] For example, Dini Miller, professor of Urban Pest Management at Virginia Tech, explains:

“prescription medications can suppress the immune system. Older people who take these drugs may have no reaction at all to bed bug bites. So, the first signal that bed bugs may be present — waking up with itchy bites — can be absent in the elderly. Certain medications can also cause itchiness as a side effect, so if they do wake up itchy, they are likely to attribute it to their medication.” [6]

In addition to the physical effects associated with bed bug bites are those related to emotional and psychological distress, which can be detrimental to a person's overall wellness and may include nightmares, flashbacks, hypervigilance (to keep the bugs away), insomnia, anxiety, avoidance behaviors, and personal dysfunction, which may meet criteria for PTSD. [7]

BED BUGS — IMPLICATIONS & SOLUTIONS FOR SENIOR LIVING FACILITIES

Residents at long-term care facilities who have underlying health conditions may be subject to elevated risks, as bed bug infestations in these facilities can be amongst the most extreme due to the high concentration of people within the environment. “Ninety percent of the work we do is bed bugs, and some of the worst cases we’ve seen have been in senior living facilities,” mentioned Greg Osborne of Bug Bakers in Columbus, Ohio. [6] Similarly, Presto Pest Management in Michigan adds “those living in senior communities are among the most vulnerable to an infestation due to the combination of a well-heated environment (or even the warmer climates to which many Americans choose to retire), many people living in close proximity – often with shared laundry facilities – and a high footfall of visitors can provide the perfect opportunity for bed bugs to enter and move around a senior community.” [8]

Conclusively, the presence of bed bugs can reduce patient confidence in the facility and their caregivers, leading to a decline in their quality of life. Residents may feel that the facility is not providing adequate care and may lose trust in their healthcare providers. This loss of trust can lead to a breakdown in the patient-caregiver relationship and may ultimately result in residents leaving the facility.



SOCIAL RISKS

It’s generally accepted by business owners that brand reputation is among the most valuable assets within an organization, notably in the service industry such as healthcare. Conceptually, as part of the value proposition for long-term care facilities, earning the confidence of residents, patients, and even family members in the care and environment provided are vital to growth and success. Brand, communications, and reputation specialist, Ros Weadman authored, “your reputation is your most valuable intangible asset because it influences your most important tangible results in business, including your bottom line.” [9] “Reputation risk and brand tax aren’t just big business issues; they can play a huge role in stunting growth for small businesses. Seemingly small decisions can grow into large issues, which can lead to losing key staff, crippling a company and causing potential partners or collaborators to look elsewhere. Maintaining a reputation should be a long-term focus for businesses of any size,” mentioned Linda Varrell, president and founder of Broadreach Public Relations.[10]

FINANCIAL RISKS

Effectively, the implications of a bed bug infestation can be irreparable, damaging the reputation of the business, and consequently triggering financial implications, prompting owners and administrators to analyze their strategy as it relates to the cost and effectiveness of prevention versus treatment and extermination. There's a certain stigma associated with having a bed bug infestation, and it may be assumed that the structure is unsanitary, however, bed bugs are unbiased towards the cleanliness of their surroundings. This negative publicity can damage the reputation of the facility and result in decreased occupancy rates, reduced revenue, and a loss of trust among current and prospective residents. [11]



Bed bug infestations can result in significant financial strain for long-term care facilities, including:

- The costs associated with hiring a pest management company
- Reduced staff and productivity
- The cost of repairing structural damage
- The disposal of furniture and textiles, including linens, mattresses, beds, couches, chairs, and other items, and cost to replace
- Health care costs
- Potential penalties imposed by regulatory agencies or insurance companies for failure to properly address a bed bug infestation [12]
- Loss of wages
- Loss of business income resulting in lower occupancy rates

The burden of absorbing the full cost of treatments (insurance companies consider clearing infestations a maintenance problem and therefore do not extend coverage for this).

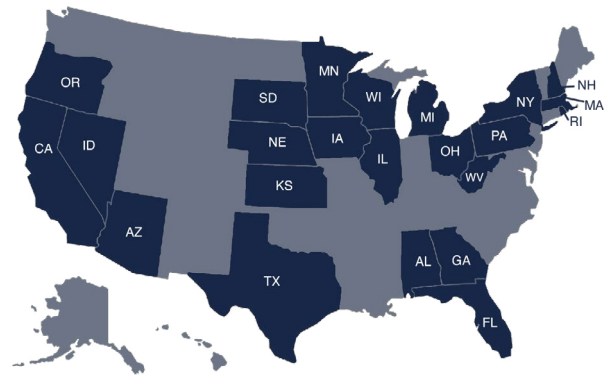
Even more concerning for the facility are the implications of potential legal action against the facility taken by a resident or staff member. Legal action often necessitates legal counsel and may include litigation damages depending on the state. [13]

BED BUGS — IMPLICATIONS & SOLUTIONS FOR SENIOR LIVING FACILITIES

To date, twenty-three states have passed or enacted bed bug-specific legislation or rulemaking across the United States. Some of these laws and regulations have been on the books for more than thirty years. [14]

Early detection and response to sightings are critical for minimizing the cost and impact of reactive treatment. The cost of bed bug elimination can vary depending on the severity of the infestation and the size of the facility. To

provide context, the average cost of bed bug extermination for an entire house is approximately \$3,250. In addition, bed bug infestations can lead to operational costs such as the replacement of infested furniture and linens, increased staffing requirements to handle the infestation, and the cost of repairing any structural damage caused by the infestation.



FACTORS THAT CAN AFFECT COST OF TREATMENT, INCLUDING TREATMENT TYPE, INSPECTION RATE, AND REQUIRED NUMBER OF VISITS ARE: [15]

Bed Bug Treatment Costs (per 1,000 Square Feet)

- Fumigation: \$4,000 - \$8,000
- Heat: \$1,000 - \$3,000
- Freezing: \$3,000 - \$6,000 [15]
- Pesticides: \$2,000 - \$4,500
- Steam: \$2,000 - \$7,500

STAFFING RISKS

Staff members can inadvertently spread bed bugs between rooms when moving residents, equipment, or furniture or even during the cleaning process if not properly completed using every possible precaution and awareness to the issue at hand. This can lead to staff members being blamed for the infestation, affecting their morale and job satisfaction. In addition, staff members who are repeatedly bitten may suffer from physical discomfort, affecting their work performance and attendance.

In today's labor challenged pool, it is vital to keep employees focused on the task at hand. Providing a safe and productive place to work is vital to employee retention. Caregivers are increasing in demand and the facility reputation is in no small part directly related to staff care of the residents. As it relates to bed bugs at work, Strategic HR Business Advisors points to the OSHA general duty standard, stating an employer has an obligation to provide a safe work environment free of hazards that may cause physical harm. [16]

Integrated Bed Bug Management

Without federal guidelines or legislation surrounding the prevention and management of bed bugs, facilities are largely autonomous, aside from the limited number of states and municipalities where regulations exist.

According to the Association for the Healthcare Environment in conjunction with the CDC, and the Environmental Protection Agency, an Integrated Pest Management plan is recommended in preventing and treating bed bugs. It is also encouraged that you partner with your pest management professional to develop and integrate a proactive monitoring program and appropriate action plan to respond to any bed bug sightings.[17]

Among the many measures that can be taken to prevent infestations include regular cleaning, the use of insect-resistant furniture, and visitor restrictions. Visitors should be screened and most importantly, prohibited from bringing infested items into the facility.

In a special blog post on Healthcare Facilities Today, author Paul Curtis suggests healthcare facility managers can prevent bed bug concerns with the following strategies:



- Education – A published protocol should be operational in facilities and staff training should include the identification of bed bugs, as well as detection of their presence.
- Implementation of a detection and monitoring program, especially in common areas.
- Intake procedures, which include the screening of residents and their personal belongings.
- Routine preventive cleaning around areas prone to bed bugs, which includes the reduction of clutter.
- Routine maintenance to ensure infrastructure flaws are promptly and efficiently repaired or restored. [18]

BED BUGS — IMPLICATIONS & SOLUTIONS FOR SENIOR LIVING FACILITIES

As part of your staff's training curriculum, it is essential that all healthcare and housekeeping staff be provided thorough and continuous training on bed bug identification, cleaning, and exclusion procedures within your facility. You might even consider including residents in sections of the training, as they along with your staff are the first line of defense against an infestation. Training should include:

- understanding the basic identifying features of bed bugs, which includes their characteristics, as well as areas where they're most likely to be encountered
- keeping staff members trained and ready to respond, encouraging them to bring attention to infestations without fear of reprisals of punishment
- thoroughly clean and inspect bedding, linens, and patient clothing regularly
- learning to identify possible bed bug sources, which includes entry points, or the presence of resident symptoms
- implementing consistent and recorded exclusion practices, which includes exclusion and quarantine procedures, and tracking sighting and removal procedures [19]

Mattress encasements have been demonstrated to be an effective tool in bed bug integrated pest management (IPM) programs (Wang et al. 2009, Doggett et al. 2011) and the adoption of encasements as an IPM tactic has been widely accepted (Wang et al. 2017). Encasing mattresses can provide immediate population reduction as the majority of bed bugs in most infestations are associated with the mattress, especially the box spring (Pinto et al. 2021). [20]

DO'S AND DON'TS

USA Pest Control offers a number of recommendations if bed bugs are discovered. In addition to wasting money, throwing away infested mattresses and furniture may intensify the problem, as bed bugs and their eggs may spread throughout your structure as furniture is carted away. The same can be said about moving yourself or your furniture between rooms, as bed bugs are expert trekkers.



Cleaning and de-cluttering infested rooms is highly recommended, as clutter provides a safe haven for bed bugs. It is encouraged that you bag and seal any and all items prior to disposal or transport to the laundry, where linens should be washed in the hottest possible water (120°F).

Finally, bed bug encasements for mattresses, box springs, and pillows is encouraged to prevent entry, escape, and breeding of bed bugs. [21]

BED BUGS — IMPLICATIONS & SOLUTIONS FOR SENIOR LIVING FACILITIES



Conclusion

Without federal guidelines or legislation surrounding the prevention and management of bed bugs, facilities are largely autonomous, aside from the limited number of states and municipalities where regulations exist.

According to the Association for the Healthcare Environment in conjunction with the CDC, and the Environmental Protection Agency, an Integrated Pest Management plan is recommended in preventing and treating bed bugs. It is also encouraged that you partner with your pest management professional to develop and integrate a proactive monitoring program and appropriate action plan to respond to any bed bug sightings.[17]

ABOUT THE AUTHOR

Carl Rocco stands at the forefront of one of the world's largest and fastest-growing industries. As the Director of Healthcare Business Development & Sales for Manchester Mills, Carl is passionate about developing and delivering solutions to meet the unique needs of new and existing healthcare partners. With more than 25 years of experience across the healthcare textiles, food service, uniform, and technology sectors, Carl's approach to business development and retention is genuinely rooted in enhancing each customer's knowledge about products, services, and trends. [LinkedIn profile](#) | carl.rocco@manchestermills.com



REFERENCES

1. 2018 Bed Bug Awareness Week. (2018). PestWorld.org. accessed May 26, 2023, <https://www.pestworld.org/multimedia-center/infographics/2018-bed-bug-awareness-week/>
2. What are Bed Bugs? (2023). PestWorld.org. accessed May 26, 2023, <https://www.pestworld.org/pest-guide/bed-bugs/bed-bugs/>
3. Askari, M. (2023). Where Do Bed Bugs Come From? And What Attracts Them? Planet Natural Resource Center. <https://www.planetnatural.com/where-do-bed-bugs-come-from/>
4. "Bed Bugs and Bed Bug Bites," Cleveland Clinic, accessed May 26, 2023, <https://my.clevelandclinic.org/health/articles/17847-bedbugs>
5. What Do Bed Bug Bites Look Like? (2023) Orkin. accessed June 12, 2023, <https://www.orkin.com/pests/bed-bugs/what-do-bed-bug-bites-look-like>
6. Defranco, D. (2019). Unique Challenges in Senior Living Facilities. Pest Control Technology. accessed May 26, 2023, <https://pctonline.com/article/unique-challenges-in-senior-living-facilities/>
7. Goddard, J., de Shazo, R. (2012) Psychological Effects of Bed Bug Attacks (Cimex lectularius L.). The American Journal of Medicine. accessed June 9, 2023, [https://www.amjmed.com/article/S0002-9343\(11\)00749-2/fulltext#%20](https://www.amjmed.com/article/S0002-9343(11)00749-2/fulltext#%20)
8. Bed Bugs: Terror of Senior Communities, (2016). Pronto Pest Management, accessed May 26, 2023, <https://prontopest.net/bed-bugs-senior-communities/>
9. Weadman, R. (2022). Why Your Reputation is Your Most Valuable Intangible Asset. LinkedIn, accessed May 30, 2023, https://www.linkedin.com/pulse/why-your-reputation-most-valuable-intangible-asset-ros-weadman-fpria?trk=articles_directory
10. Varrell, L., (2023). 5 Strategies To Lower Risk To Your Business's Reputation. Forbes. accessed June 12, 2023, <https://www.forbes.com/sites/forbesbusinesscouncil/2023/02/09/5-strategies-to-lower-risk-to-your-businesss-reputation/?sh=78395b757798>
11. Let's Talk About The Bed Bug Stigma, And How Its Causing Bed Bugs To Spread. (2023). Allison Pest Control. accessed June 12, 2023, <http://new.allisonpest.com/blog/2020/03/30/lets-talk-about-the-bed-bug-stigma-and-how-its-causing-bed-bugs-to-spread/#:~:text=There's%20a%20certain%20stigma%20associated,or%20dirty%20your%20home%20is.>
12. The Financial and Social Burden of Bed Bugs. (2020). Convector. Accessed June 1, 2023. <https://convectex.com/blogs/blog/the-financial-and-social-burden-of-bed-bugs>
13. Can You Sue For Bed Bugs? (2023). Bed Bug Lawyers. accessed June 1, 2023. <https://bedbuglawyer.org/can-you-sue-for-bed-bugs/#:~:text=The%20short%20answer%20is%20Yes,they're%20not%20always%20won>
14. Laws on Bed Bugs by State. (2023). National Pest Management Association. accessed June 1, 2023. <https://www.pestworld.org/all-things-bed-bugs/state-specific-bed-bug-laws/>
15. Wallender, L. (2023). How Much Does A Bed Bug Exterminator Cost In 2023? Forbes. accessed June 1, 2023. <https://www.forbes.com/home-improvement/pest-control/bed-bug-exterminator-cost/>
16. How to Handle Bed Bugs at Work. (2023). Strategic HR. accessed June 1, 2023. [https://strategichrinc.com/how-to-handle-bed-bugs-at-work/#:~:text=Under%20the%20OSHA%20general%20duty,typically%20by%20calling%20an%20exterminator\).](https://strategichrinc.com/how-to-handle-bed-bugs-at-work/#:~:text=Under%20the%20OSHA%20general%20duty,typically%20by%20calling%20an%20exterminator).)
17. Harrison, R. (2013) Keep Out! Keeping bed bugs out of your facility. Association for the Health Care Environment. accessed June 13, 2023, <https://www.ahe.org/keep-out-keeping-bed-bugs-out-your-facility>
18. Curtis, P. (2017). Bed bugs, bite risks and healthcare facilities: What every manager needs to know. Healthcare Facilities Today. accessed May 31, 2023, <https://www.healthcarefacilitiestoday.com/posts/Bed-bugs-bite-risks-and-healthcare-facilities-What-every-manager-needs-to-know-14397>
19. Bed Bug Control for Hospitals and Healthcare Facilities. (2018) JP Pest Services. accessed June 13, 2023, <https://www.jppestservices.com/blog/bed-bug-control-hospitals-and-healthcare-facilities>
20. Sked, S., Ramos, R., Cooper, R., Abbar, S., Pan, X., Ranabhat, S., Wang, C..(2023). Effect of Encasement Presence and Type of Material Used on Bed Bug Distribution. Pest Control Technology. Accessed June 1, 2023, <https://pctonline.com/news/effect-of-encasement-presence-and-type-of-material-used-on-bed-bug-distribution/>
21. What to Do and What Not to Do When You Got Bed-bugs Infestation. (2023) USA Pest Control. accessed June 13, 2023, http://www.usapestcontrol.us/bedbug_dos_and_donts.html

