

Bed-Bugs and Beyond

A case for Integrated Pest Management (IPM)

Have you received a call from one of your tenants proclaiming they are being eaten alive by creatures in the night? If so, you might be dealing with bed-bugs. These tiny parasites that are notoriously difficult to kill or contain have returned in full force. Resistant strains of “super” bed-bugs are infesting mattresses at an alarming rate across the country. Pest control companies nationwide reported a 71% increase in bed-bug calls between 2000 and 2005.¹ In California, San Francisco has been hit particularly hard reporting nearly 300 bed-bug infestations to health officials in 2006, more than double the number in 2004. Likewise, in Los Angeles, health officials have recently issued a public health warning stating bed-bugs have resurfaced as an important public health concern.

There are different theories about why bed-bugs have made such a strong comeback. One hypothesis is that the bugs have grown resistant to the current crop of chemicals used to thwart them. One might ask then how do you rid your building of these super bugs? Pest control companies across the U.S. and in California have begun utilizing a more comprehensive approach to pest infestations called Integrated Pest Management (IPM). This approach seeks to correct the conditions that lead to pest problems without unnecessary pesticide use.

The rest of this article is dedicated to demonstrating why an Integrated Pest Management approach is not only important for protecting human health but serves as an effective, long-term, cost-saving solution to pest infestation within urban, structural environments. Conversely, conventional methods of pest control which employ chemical pesticides are harmful to tenants’ health and they do not address the underlying causes of infestations. Landlords must also consider liability issues related to tenant pesticide exposure.

Liability for Property Owners and Managers

Tenants who have been exposed to pesticides and become injured may be able to seek recourse for their injuries from a landlord. Though landlord-tenant laws do not specifically delineate rights and responsibility with respect to pesticide use, under California landlord-tenant laws, a landlord must “keep all areas under control... free from all accumulations of debris filth, rubbish, garbage, rodents, and vermin.”² Tenant laws also require landlords to maintain residences in a “habitable” condition. This could potentially be used as an avenue for tenant recourse. Tenants could also possibly seek recovery from injury sustained as a result of pesticide exposure through common law tort remedies. For example, if a landlord, through a pest control operator, intentionally uses a pesticide, knowing that the fumes or drift could cause injury and injury does occur, the landlord could be found liable for battery.³

¹May. “Bedbugs bounce back: Outbreaks in all 50 states.” *SFGate.com*. www.sfgate.com. April 8, 2007. accessed July 12, 2007.

²California Civil Code Div 3, Pt. 4, Title 5, Ch 2, s1941. 1(f).

³Paisner. “Pesticides in Rentals and Condominiums, No More Pesticides At Home.” *Journal of Pesticide Reform*. Fall 1996. Volume 16. No. 3. www.pesticide.org.

Health Impacts of Pesticide Exposure

More than just a nuisance, pests in the home are a health issue for residents. Cockroaches, flies, fleas, rats and mice carry disease and can get into food. Roaches and house dust mites can make allergies and asthma worse. Roaches can also bite and crawl into children's ears. The bites of rats and certain spiders can make children very ill. The conventional response to pest infestations in apartment buildings and homes, such as cockroaches, is to spray chemicals such as Raid. However, spraying Raid or any other chemical pesticide, poses serious health risks and fails to identify or solve the root cause of the infestation.

Chemical pesticides can cause immediate poisonings that result in stinging eyes, rashes, blisters, nausea, dizziness, diarrhea, vomiting and even death for tenants. Over the long-term, exposure to pesticides has been linked to cancers, birth defects, reproductive and developmental harm, damage to brain function, and disruption of the body's hormone system -- health impacts that can occur months or years after exposure.⁴ Some 40 pesticides in use in California are known to cause cancer in animals. Forty-three pesticides registered in California, including the widely used fumigant Methyl Bromide, are listed as known to cause birth defects or impair childhood development.

Certain people are more vulnerable than others to pesticide impacts. For example, infants and young children are known to be more susceptible than adults to the toxic effects of chemical pesticides. Children are more vulnerable to chemical exposures because their organs, nervous systems and immune systems are still developing, and their higher rates of cell division and lower body weight also increase their susceptibility to pesticide exposure and risks.⁵ Children also have greater contact with environmental contaminants because of personal behaviors such as crawling on floor surfaces and hand-to-mouth habits. An analysis of all reported pesticide poisonings in the United States showed that 57% of all cases involved children under the age of 6 years.⁶

Pathways of Pesticide Exposure

Individuals can be exposed to pesticides through various pathways including: food consumption; drinking or contaminated bath/shower water; and working in the agricultural industry. One of the most overlooked pesticide exposure pathways is the urban environment. Urban residents become exposed during spraying and fumigation of homes and apartment buildings. Communities also often spray pesticides in parks and on roadways to kill unwanted insects and weeds. Many schools and child care centers utilize chemicals to control their indoor and outdoor pest problems.

⁴Solomon, et al. 2000. *Pesticides and Human Health, A Resource Guide for Health Care Professionals*. Physicians for Social Responsibility.

⁵Schettler et al. 2000. *In Harm's Way: Toxic Threats to Child Development*. Greater Boston Physicians for Social Responsibility.

⁶ Klein-Schwartz W, Smith GS. Agricultural and horticultural chemical poisoning: mortality and morbidity in the U.S. *Ann Emerg Med* 1997;29(2):232-38.

Different Types of Pesticides

There are many different types of pesticides designed to kill different pests, such as weeds, insects, rodents, fungi and bacteria. Insecticides, which are used to kill insects, are also linked with large numbers of pesticide poisoning in humans. Two of the most toxic insecticides are the Organophosphates and Carbamates which are found in in-home insect sprays and in dips to kill fleas. These pesticides attack the brain and nervous system, interfering with nerve signal transmission. Acute poisoning of the nervous system by these pesticides affects hundreds of thousands of people around the world each year.⁷ Other pesticides that are commonly associated with acute poisoning include: Synthetic Pyrethroids insecticides, fumigants such as Methyl Bromide and Dipyridyl herbicides such as Paraquat.

Integrated Pest Management Approach

Fortunately, there are many simple ways to control common pests in apartment buildings and complexes that do not rely on conventional pesticides. Spray-intensive pest control approaches may make pests go away in the immediate sense, but all too often they return. Integrated Pest Management (IPM) is a term used to describe a proven, cost-effective strategy to combat ongoing pest problems without unnecessary pesticide use. Where conventional methods of pest control turn first to chemical controls, IPM seeks to determine why and how pests are becoming a nuisance, and to address the root causes of the problem. IPM methods emphasize: 1) *Monitoring* pest activity; 2) *Exclusion*, by blocking pest entry points; and 3) *Prevention*, by denying pests access to food, water and habitat. IPM uses least-toxic pesticides only as a last resort, reducing contamination of air and water, as well as threats to human health.

- Monitoring means finding out how the pest is getting into the apartment or building. Is it through cracks around baseboards and under doors, holes in walls where plumbing or heating ducts come through, doors or windows left open or damaged screens...
- Exclusion seeks to find pests' path and blocking it by installing screens on windows or doors, installing door sweeps, caulking cracks and crevices in walls, floors around baseboards and windows, sealing holes around pipes, fixing leaks in plumbing among other structural improvement.

It is a popular misconception that pest infestation (i.e. cockroaches and rats) in housing are the result of uncleanliness on the part of the tenants. While uncleanliness may exacerbate an infestation, the problem itself is typically due to a structural issue (i.e. leaky pipes, cracks in the walls, excessive moisture from plants situated too close to the structure, etc...).

- Prevention means denying pests access to food, water and habitat by storing all food in tightly sealed containers, cleaning surfaces regularly, eliminating standing water, keeping dishes and sinks clean and dry, eliminating clutter, deep cleaning cupboards, closets, and drawers, inspecting boxes that have been in storage before bringing them into the apartment or building and repairing plumbing leaks.

⁷Californians for Pesticide Reform. www.pesticidereform.org. accessed on July 11, 2007.

IPM advocates the use of low-risk *Control Measures* for existing pests. These include:

- Ants- borate-based baits, boric acid
- Cockroaches- boric acid dust
- Mice and Rats- snap traps
- Pantry Pests- pheromone traps
- Fleas- flea comb, flea traps with incandescent light, beneficial nematodes, oral treatment using lufenuron
- Bed-bugs- vacuum daily the mattress, box spring, and furniture; clean bed linens in hot water; move your bed away from the wall and make sure the linens don't touch the floor; seal the crevices in the windows, walls, baseboards in your bedroom; and as a last resort silica gel dusts

IPM Research

Research shows that IPM is effective and economical. Numerous studies have documented the ability of IPM interventions to reduce pest populations, allergen levels, and asthma morbidity.

A study of 131 families in east Harlem, NY found that IPM can be an efficient and cost-effective way to control cockroaches in urban environments. More than 80% of the families documented the presence of cockroaches at the start of the study, while only 39% of families had cockroaches six months later- a 50% reduction in the roach population as a result of employing IPM interventions. The study also found that costs of IPM were \$46-49 per unit in the first year (including repairs) and \$24 per unit per subsequent year. Traditional chemical treatment is estimated at \$24-46 per unit per year.⁸

The city of Santa Monica has seen a 30% decrease in public building and grounds pest control costs since it adopted IPM in 1996. Santa Monica has achieved excellent control of pests, including rats, mice, cockroaches, and ants in and around all city-owned buildings and structures. The city has also as reduced the number of complaints received by facilities managers related to pest infestations.⁹

An IPM intervention in New York City was shown to reduce both pest infestation levels and insecticide exposure among pregnant women living within the target buildings. Cockroach infestations were reduced by 47% for households in the study after the IPM intervention but not among tenants who did not receive IPM services. Further, levels of insecticide were lower by 50% in indoor air quality samples for participants' apartments after the IPM intervention. Insecticides were detected in maternal blood samples collected at delivery from pregnant women *not* receiving the IPM services but not from those who did participate in the IPM program.¹⁰

⁸Brenner, et al. 2003. "Nonchemical Prevention of Cockroaches Proves Successful in Low-Income Urban Environment." *Environmental Health Perspectives*. 111:13. 1649-53.

⁹EPA. 1998. The City of Santa Monica's Environmental Purchasing Case Study. www.epa.gov/opptintr/epp.

¹⁰Williams et al. 2006. "An Intervention to Reduce Residential Insecticide Exposure during Pregnancy among an Inner-City Cohort." *Environmental Health Perspectives*. 114:11. 1684-1689.

A study of over 900 children with asthma in seven major U.S. cities demonstrated that IPM interventions significantly decreased exposure to indoor allergens, including cockroaches and dust-mite allergens and resulted in reduced asthma-associated morbidity.¹¹

Conclusion

IPM is safer, more cost-effective, better for the environment and reduces potential liability for property owners/managers related to toxic exposure. Here's how to find out more about it/implement it in your property:

- Physicians for Social Responsibility-Los Angeles, www.psrla.org
-Provides training for housing advocates, real estate management companies, day-care centers, and tenants on low-toxic pest control.
- Green Shield Certified, www.greenshieldcertified.org
- Green Shield Certified is an independent, non-profit certification program that promotes practitioners of Integrated Pest Management. Green Shield certification is available to qualifying pest control professionals and to buildings and facilities. Green Shield certified is operated by the [IPM Institute of North America](http://www.ipminstitute.org), a nonprofit organization recognized by the U.S. Environmental Protection Agency for its expertise and accomplishments in promoting Integrated Pest Management.

¹¹Morgan et al. 2004. "Results of a Home-Based Environmental Intervention among Urban Children with Asthma." *New England Journal of Medicine*. 351:1068-1080.