Bed bugs before and after engorgement.

BED BUG CHARACTERISTICS. Bed bugs are small, brownish insects that feed solely on the blood of animals. The common bed bug, *Cimex lectularius*, is the species most adapted to living with humans. It has done so since ancient times. Bed bugs are mentioned in medieval European texts and in classical Greek writings back to the time of Aristotle. Although humans are preferred, bed bugs also will bite other warm-blooded animals including dogs and cats. Other species prefer to feed on wild hosts, especially bats and birds.

Adult bed bugs are about 3/16-inch long and reddish-brown, with oval, flattened bodies. Their coloration is similar to an apple seed although their size is closer to a lentil. The bugs are sometimes mistaken for ticks, cockroaches, or other household insects. Immature bed bugs (nymphs) resemble the adults, but are smaller and somewhat lighter in color. Bed bugs don't fly, or jump like fleas, but can crawl rapidly when disturbed or seeking a host.

Adult females lay their eggs in secluded places, depositing one, two or more per day, and about 100-200 during their lifetime. The eggs are tiny (about the size of a dust speck), whitish, and hard to see without magnification, especially on light-colored materials. When first laid, eggs are sticky, causing them to adhere to surfaces. At room temperature, bed bug eggs hatch in about a week. The newly emerged nymphs are straw-colored and no bigger than a pinhead. As the nymphs grow, they molt, shedding their skin five times before reaching maturity. A blood meal is needed between each successive molt. Adult females must also periodically feed in order to lay eggs. Under favorable conditions, e.g., 70-80°F and a ready supply of blood, bed bugs can mature in as little as a month and produce multiple generations per year. Cooler temperatures or limited access to a host prolong development. Given adequate resources, the average lifespan of a bed bug is about 10 months.

Bed bugs are resilient. Nymphs and adults can persist months without feeding, which is unusual for most insects. The ability to survive without a blood meal is longer at cooler temperatures — potentially up to a year or longer at 55°F or less. In temperature-controlled buildings, a more typical duration without feeding is about 1 to 4 months. Consequently, it is usually impractical to leave homes unoccupied in hopes of 'starving' an infestation. When infested dwellings are left vacant, bed bugs often disperse to nearby units, or reduce their activity until the unit is reoccupied.

Bed bugs are active mainly at night. During the day, they prefer to hide close to where people sleep, but if necessary will crawl longer distances in search of a meal. Initially they tend to be concentrated around beds, sofas, and other sleeping areas — but if infestations are allowed to persist, they may disperse elsewhere.

Their flattened bodies enable them to fit into tiny crevices — especially those associated with mattresses, box springs, bed frames and headboards. Bed bugs don't have 'nests' like ants or bees, but do tend to congregate in habitual hiding places. Characteristically, these areas are marked by dark spotting and staining, which is the dried excrement of the bugs. Also present will be hatched and unhatched eggs, and tan-colored 'skins' shed by developing nymphs. Another possible sign are rusty or reddish smears on walls, bed sheets or mattresses from bugs which have been crushed by the occupant. Very heavy infestations may have a 'buggy' smell, but the odor is seldom apparent and should not be relied upon for detection.

Your Guide To **BED BUGS**

BITES/HEALTH CONCERNS. Bed bugs usually bite people at night while they are sleeping. Hungry bed bugs also may feed during the day, especially if this is when the occupant normally sleeps. They feed by piercing the skin with an elongated beak through which they withdraw blood. Engorgement takes about three to 10 minutes, but because the bite is painless, people seldom realize they are being bitten. Bed bugs normally do not reside on or attach to people like lice or ticks — after feeding they crawl to a secluded location to digest their meal.

Symptoms after being bitten vary from person to person. Many develop an itchy red welt within a day or so of the bite. In others the reaction is delayed days or even weeks, which can make it difficult to determine when and where the incident occurred. Other people bitten by bed bugs have no reaction whatsoever. Studies conducted in bed bug-infested apartments suggest about 30 percent of people do not react even when bitten repeatedly, and even higher levels of non-reactivity occur among the elderly. Unlike flea bites which occur mainly around the ankles, bed bugs feed on any skin exposed while sleeping (face, neck, shoulders, back, arms, legs, etc.).

The welts and itching are often wrongly attributed to other causes, such as mosquitoes. As such, infestations may go a long time unnoticed, and can become large before being detected. The likelihood of bed bug involvement increases if the affected individual has been traveling, or had acquired used beds/furnishings before symptoms started to appear. Bed bugs also are suspected if you wake up with itchy welts you did not have when you went to sleep. Conversely, it's important to recognize that not all bite-like reactions are due to bed bugs. Confirmation requires finding the bugs and/or their signs, which often requires a professional.

A common concern with bed bugs is whether they transmit diseases. Although the bugs can harbor various pathogens, transmission to humans has not been proven and is generally considered unlikely[1]. Their medical significance is mainly attributed to itching and inflammation from their bites. Antihistamines and corticosteroids may be prescribed to reduce allergic reactions, and antiseptic or antibiotic ointments to prevent infection.

Though not known to transmit diseases, bed bugs can reduce quality of life by causing discomfort, sleeplessness, anxiety, and embarrassment. According to some health experts, the added stress from living with bed bugs can have a significant impact on the emotional health and well-being of certain individuals.

Repellents like those used to deter ticks and mosquitoes do not appear to be as effective against bed bugs and applying them at bedtime is not recommended. Sleeping with the lights on is also not likely to deter hungry bed bugs, as they will adjust their feeding cycle to the host's sleep patterns.

HOW INFESTATIONS OCCUR. It often seems that bed bug infestations arise from nowhere. The bugs are efficient hitchhikers and are easily transported into dwellings on luggage, clothing, beds, furniture, and belongings. This is a particular problem for hotels and apartments, where turnover of occupants is constant. Bed

Bed bugs can be transported into dwellings on shoes, backpacks and other personal belongings.

[1] One recent study suggested bed bugs may be capable of transmitting Chagas, a debilitating disease impacting millions of people in Latin America. The blood-sucking insects that normally transmit Chagas ("triatomines" or "kissing bugs") are relatives of bed bugs. As of this writing it remains unclear whether bed bugs can be epidemiologically important vectors of the disease too.