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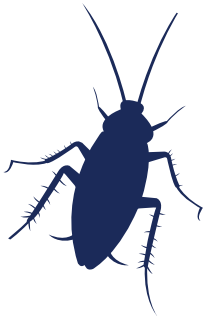
CASE STUDY REPORT

American Cockroaches in a Pharmaceutical Lab



Introduction

There are several different types of pests which can infest health care facilities. Although good sanitation is of high priority in health care settings, building age and location can cause pest challenges for even the cleanest of health care facilities. Pests may enter structures from the exterior, on patients, via staff and through incoming shipments. A sometimes-overlooked pathway for pests is the underground entryway of the sewer system. Flies, cockroaches and rats can all use this system to enter heath care facilities.

Challenge

American cockroaches were being found periodically in some lab areas on the third and fourth floors of a building containing offices and research labs of a manufacturer. The sightings were far and few between but nevertheless there was concern regarding the chronic nature of the activity and the health hazards associated with cockroaches. The American cockroach is the second most common cockroach species in the United States. It is considered a peridomestic species in that it can be found outdoors and indoors depending on temperature and geographic location. The facility in question was located in the Midwest and outdoor populations were ruled out since the cockroaches would appear year round inside the building. American cockroaches are often associated with sewers and steam tunnels in urban areas regardless of exterior temperatures. The American cockroach is 1.5 to 2 inches in length as adults. It is reddish brown in color and the adults are fully winged but are considered weak fliers. The area behind the head, called the pronotal shield, is marked with a pale yellow border with brown center. American cockroaches are considered a pest of medical importance. They can harbor pathogens responsible for food borne illness on the hairs, legs and bodies. They have also been shown to trigger allergic reactions in some people and can taint foods and infested living spaces with odors from secretions produced by the cockroach.

Investigation

An inspection of the labs, storage areas and offices was made to determine the source of the infestations. There was an elevator and pit associated with the area and it was included in the inspection but no evidence of cockroaches were found. There was also a crawl space associated with an older section of the building which was difficult to access but inspected in accessible areas. One common element in the labs and storage areas were floor drains. Many of the floor drains were dry and not receiving a sufficient volume of water to keep traps full. Grating on the floor drains was present but the grate size would permit cockroach entry and exit.

Solution

In order to determine if the drains were indeed the source of the infestation, clear plastic sheeting was placed over the drains on a temporary basis to see if it would reduce cockroach numbers. Drains were selected based on the need for water drainage in the area involved. Glue traps in addition to visual inspections were conducted to monitor for the floor drain capping experiment. No cockroaches were found in any of the areas participating in the drain exclusion after the drains were fitted with seals. Drain caps with one way valves were recommended to the site. These devices allow for water flow down the drain and prevent insect migrations up through the drain. These devices are marketed for small fly and cockroach control and are available through a variety of manufacturers. They typically are available in a range of sizes for use in drains up to 3" in diameter. Drains must be measured and proper sizes ordered. There are also drain socks made of fine mesh screen which can also be installed and are based on drain size. Other options are to place a permanent seal or cap on the drain to exclude the cockroaches or periodically add water to each drain on a scheduled frequency to prevent loss of the water gap as an exclusion method. Any of these methods would have worked. The bottom line is to exclude the cockroaches from coming up through the sewers. Exclusion methods were responsible for solving this problem.

Summary

Non-chemical exclusionary control devices were a benefit for these sites in preventing cockroach sightings and activity in sensitive areas. Exclusion not only reduces chemical use but provides a long term control solution. Although American cockroaches were not invading from the outdoor environment in this situation, they were invading from underground reservoirs. The drains provided a route of entry for a potentially limitless supply of sewer based cockroaches to exploit. Chemical solutions would not have addressed the root of the problem.