IPM in Hospitals

Cockroaches, rodents, ants, etc. are a serious threat to the sanitary well-being of a hospital. Even one cockroach or ant could prove to be a threat to a particular patient. By their very nature, however, hospitals are extremely sensitive environments in which to perform pest management practices. A pest management service professional's options are often severely limited in the methods that can be utilized to control a pest infestation in many areas of a hospital. Innovative approaches and methods are therefore necessary in order to keep a hospital as free from pest activity as possible.

Each hospital will be different in its construction, pest infestations, and maintenance, therefore, the pest management service procedures may change with each building and each situation within a building.

Cooperation and communication between Terminix and the hospital's management and staff is important to success in minimizing the use of pesticides while at the same time keeping the building relatively free of pest infestations. Any condition that may contribute to a pest infestation needs to be corrected quickly after it has been identified. Failure to correct such conditions often results in the need for additional services and treatments.

The following specifications are general in nature, but will encompass most of the procedures that may be implemented in servicing particular rooms or areas within a hospital building.

Facility Participation

Cooperation between the building management and Terminix are important in realizing an essentially pest-free environment.

1. Maintenance of the structural integrity of the building by sealing cracks in the exterior and installing proper weatherstripping on doors to prevent entry of pests.
2. Correction of pest-contributing conditions when are brought to the management's attention.
3. Making sure doors remain closed except when in use. Doors should close within three seconds of being released.
4. Maintaining the grounds to limit potential pest harborages outdoors.
5. Arranging access for the Terminix Service Professional to service any problem areas that might occur within the building (e.g., locked areas, elevator shafts, roof areas).
6. Preparing for the pest management service, when necessary, to allow the Terminix Service Professional access to all potential pest harborages for inspection and treatment.

High Risk (Red) Areas Requiring Once-Per-Month Service

Any area where pest activity is most likely to occur needs to receive service at least once per month. These areas generally are associated with a moisture source and include the following areas:

Kitchen & Cafeteria	Trash Rooms	Restrooms/Locker Rooms
Nourishment Centers	Storage Rooms	Clean & Soiled Utility Rooms
Employee Break Rooms	Nurse's Stations	Clean & Soiled Linen Rooms
Nurse/Doctor Lounges	Vending Areas	Environmental Closets
Boiler Rooms	Laundry Area	Exterior/Loading Dock

Kitchen, Cafeteria, Nourishment Centers, and Family Refreshment Centers

The main kitchen and cafeteria, nourishment Centers, and family refreshment centers are the primary sites that may become infested with cockroaches, mice, or flies. These areas should be serviced at least once per month. Large hospital kitchens may require once-per-week or possibly twice-per-month service.

Cockroaches

1. The hospital housekeeping, engineering, and maintenance staff should correct or eliminate any conditions contributing to a pest infestation pointed out by the Terminix Service Professional. These steps are crucial for long-term relief from pest infestations and to reduce the need for applications of pest service materials.
2. General cockroach control should be completed using procedures detailed in the *German Cockroach Control* and *Terminix Five Step System—Food Service Facilities* located earlier in this section of this manual.
3. The pits under dumbwaiter elevators may need to be inspected and serviced periodically for pest activity. A licensed elevator technician must be available for these services. Any food or debris at the bottom of these pits should be removed at that time by the housekeeping department.
4. Food carts may need to be inspected periodically. Should cockroaches be found infesting a cart, cracks and voids in the cart may be flushed and any cockroaches found removed by vacuuming. Treatment of cracks in carts may be completed using an inorganic dust or an aerosol product.

Mice and Rats

1. It is essential to long-term rodent control for all potential openings in the building's exterior to be sealed to exclude rodents, including all cracks and holes ¼-inch or larger and the weatherstripping at the bottom of all doorways. Failure to implement effective rodentproofing may permit rodents, especially mice, to enter at any time.
2. Small openings may be temporarily plugged or permanently sealed by the Terminix Service Professional where the situation permits. The Terminix Service Professional

will point out other potential rodent entry points for the hospital's maintenance staff to seal.

3. Multiple catch mouse traps may be placed in the kitchen, storerooms, and/or closets if the threat of mouse invasion is moderate to high in probability.
4. Multiple catch traps, snap traps, and glue traps may all be used to eliminate an active rodent infestation. Traps should be checked every day or every few days until the infestation has been eliminated.

Flies and Other Flying Insects

1. Should flies become a problem in the kitchen or cafeteria, an inspection to determine the source of the flies will be completed.
2. Any organic matter or food debris that is serving as breeding material or is attracting flies should be cleaned up immediately.
3. Cracks around doors should be sealed and doors kept closed to exclude flies.
4. The dumpster should be located as far as possible from the back door to the building.
5. Spot treatments using a WP, ME, or SC product may be applied to walls around the back doorway and to other fly resting areas in the dumpster area.
6. If necessary, insect light traps can be installed in the kitchen and cafeteria. Installation and maintenance of ILTs is an additional service at an added charge.

Nurse's Stations and Substations

1. Nurse's stations need be inspected for pest activity at least once each month.
2. When cockroaches have been reported, the base voids of any fixed cabinets or desks may be drilled, Insiders installed, and the voids treated with an inorganic dust product.
3. Cracks and voids where cockroaches are harboring may be treated using a gel cockroach bait. Where possible, cracks should be sealed by the hospital maintenance staff following treatment.
4. If any plumbing voids exist under sinks in a nurse's station, an Insider may be installed into each such void and the void treated with an inorganic dust product.
5. Monitoring traps may be placed in out-of-sight locations and checked during each service visit to the station.

Vending Areas & Concession Stands

1. Vending areas should be inspected and serviced at least once per month.
2. These areas require regular cleaning to remove potential food sources for pests. Contributing conditions should be pointed out to the housekeeping staff.

3. Cracks and voids where pest activity is found may be treated using an inorganic dust product. When possible, cracks and holes should be sealed by the hospital maintenance staff following treatment.
4. Gel cockroach baits may be applied into active or potential cockroach harborages.
5. Where feasible, live pests may be removed by vacuuming.
6. Monitoring traps may be placed in these areas in out-of-sight locations and where these traps will not interfere with cleaning operations.
7. Future services to vending areas should primarily involve inspections only, and treatments will generally be rendered only as a response to pest activity.

Employee Break Rooms and Nurse's and Doctor's Lounges

1. Rooms used for employee breaks should receive monthly inspection and service due to the fact that food is often stored and eaten in such areas.
2. Cracks in these rooms may be treated with an inorganic dust product. When possible, cracks and holes should be sealed by the hospital maintenance staff following treatment.
3. Gel cockroach baits may be applied into active or potential cockroach harborages.
4. Where feasible, live pests may be removed by vacuuming.
5. Monitoring traps may be placed in cabinets, closets, and other out-of-sight locations. These traps will be checked during each service visit to these areas.
6. Restrooms in these areas may be serviced as described in the section titled *"Public Restrooms and Locker Rooms*."
7. Should mice be active in a nurse's lounge, doctor's lounge, or break room, snap traps, glue traps, and multiple catch traps may be placed and then monitored every day until the infestation has been eliminated. Such devices may need to be set out at night for a few hours at a time over a several night period.
8. Future services to these rooms should primarily involve inspections only, and treatments will generally be rendered as a response to an active pest infestation.

Clean & Soiled Linen and Utility Rooms, Storage Rooms, and Trash Rooms. Utility, linen, trash, and storage rooms are generally located on patient floors in a hospital. Each wing of a patient floor may contain any or all of these types of rooms. Such rooms should be serviced on a once-per-month basis.

1. Services to these rooms should primarily involve inspections only, and treatments will generally be rendered as a response to pest activity.
2. Insiders may be installed into any plumbing voids, and the voids periodically treated with an inorganic dust. Any holes around plumbing penetrations into walls should be sealed by the hospital maintenance staff.

3. Cracks where pests are harboring in these rooms may be treated with an inorganic dust product. When possible, cracks and holes should be sealed by the hospital maintenance staff following treatment.
4. Gel cockroach baits may be applied into active or potential cockroach harborages.
5. Monitoring stations may be placed and maintained in cabinets or behind appliances.

Environmental Closets

1. Cracks in an environmental closet may be treated with an inorganic dust product. When possible, cracks and holes should be sealed by the hospital maintenance staff following treatment.
2. Insiders may be installed into plumbing voids, and the voids periodically treated with an inorganic dust. Any holes around plumbing penetrations into walls should be sealed by the hospital maintenance staff.
3. Gel cockroach baits may be applied into active or potential cockroach harborages.
4. Future services to environmental closets should primarily involve inspections only, and treatments will generally be rendered as a response to pest activity.

Public Restrooms & Locker Rooms

1. Public restrooms and locker rooms should be serviced once per month.
2. Cracks in restrooms and locker rooms may be treated with an inorganic dust product. When possible, cracks and holes should be sealed by the hospital maintenance staff following treatment.
3. Gel cockroach baits may be applied into active or potential cockroach harborages.
4. Where cockroaches have proved a consistent problem, the wall void behind each toilet and urinal may be drilled, an Insider installed, and the void treated with an inorganic dust product.
5. Future services to restrooms and locker rooms should primarily involve inspections and limited treatments to areas of potential pest activity.

Storage Rooms

1. Rooms where food goods, hospital supplies, and similar items are stored are common sources for pest activity, especially mice. These areas should be serviced on a once-per-month basis.
2. One or more multiple catch mouse traps may be maintained in storerooms for preventive mouse control.
3. Monitoring traps may be placed on shelves and along walls to monitor for insect activity. These traps will checked for activity during each service visit to the area.

4. Active rodent infestations may be controlled using a variety of traps and, if the situation warrants, the use of rodent baits in tamper-resistant bait stations. All rodent control devices, except for traps used as a preventive measure, should be removed after the infestation has been eliminated.
5. In general, any treatments should be limited to active pest harborages such as cracks and voids. Gel cockroach baits may be applied into active or potential cockroach harborages. Physical removal of pests by vacuuming may also be employed.
6. Future services to storage rooms should primarily involve inspections and limited treatments to areas of potential pest activity.

Boiler Room & Unfinished Basement Areas

1. The boiler room and unfinished basement areas are a prime area for pest activity, especially for large cockroach species and mice, and should be serviced on a once-per-month basis.
2. Cracks and voids where cockroaches could live may be treated with an inorganic dust product. When possible, cracks and holes should be sealed by the hospital maintenance staff following treatment.
3. Spot treatments using a ME, WP, or SC product may be applied onto exposed surfaces where insects might crawl or rest.
4. One to several multiple catch mouse traps may be placed for preventive mouse control.
5. Insect monitoring traps may be placed along walls to monitor for insect pest activity.
6. Insect bait products may be placed into voids and cracks, inside rodent stations, or in other suitable sites.
7. Future services to boiler rooms and basements should primarily involve inspections and limited treatments to potential or active pest harborages.

Laundry Area

1. Rooms where laundry is cleaned, dried, folded, and stored are prime areas for pest activity, especially for large cockroach species and mice, and should be serviced on a once-per-month basis.
2. Cracks and voids where cockroaches could live may be treated with an inorganic dust product. When possible, cracks and holes should be sealed by the hotel maintenance staff following treatment.
3. Spot treatments using a ME, WP, or SC product may be applied onto exposed surfaces where insects might crawl or rest.
4. One to several multiple catch mouse traps may be placed to catch mice that might enter the room.
5. Insect monitoring traps may be placed along walls to monitor for insect pest activity.

6. Insect bait products may be placed in cracks, in stations, or other suitable sites.
7. Laundry carts need periodic inspection for cockroach activity. Cockroaches can be flushed from carts and/or be removed by vacuuming. Wheels and cracks in carts may be treated with an appropriate residual dust or aerosol product.
8. Future services to laundry areas should primarily involve inspections and limited treatments to potential or active pest harborages.

Exterior Service. The outside area of a hotel is important to the prevention of inside pest activity for many pests including flies, ants, rodents, and occasional invader pests.

1. The perimeter of each building on the hotel should be inspected at least once per month.
2. During the warm months, a perimeter treatment to the foundation and landscaped areas may be recommended to control outside pests if these are a persistent problem with the facility. Ant colonies in soil and landscaping may be drenched when discovered.
3. Exterior cracks may be treated with a dust product and should be sealed by the hotel maintenance staff.
4. Tamper-resistant bait stations should be placed along the foundation of the building, particularly in landscaped areas where they can be partially or completely concealed.
5. Multiple catch mouse traps should be maintained on the back loading dock and inside the doorways leading to the loading dock area.
6. The dumpster should be regularly inspected for sanitary deficiencies and these reported to the housekeeping department in writing via a sanitation report. Ideally, the dumpster should be located as far from the building as possible.
7. Doors should be equipped with tight-fitting weatherstrips to the entry of flies and rodents. They should remain closed when not in use.

Low Risk Areas: Quarterly Service (Yellow) & As-Needed (Green)

Most of the rooms in a hospital are considered low risk areas for pest activity, or they may be a particularly sensitive area (e.g., ICU, operating room, patient room). The persons working in these areas need to be informed of the phone number in the hospital to call to report a pest sighting. This number will be where the Terminix Pest Sighting Log is kept (the main housekeeping or engineering office). Areas which will be serviced on an as-needed basis include:

Emergency Rooms	Patient Rooms	Examination Areas
Offices	Operating Theatres	Pharmacy
Laboratories	Research Clinics	Dialysis Units
Intensive Care Units	Nurseries	Exercise/Therapy Rooms
Rehabilitation Clinics	X-Ray Rooms	Radiation Department

Patient Rooms

1. Patient rooms should only be serviced as-needed upon request due to a pest sighting. The patient should be removed from the room during the service and kept out of the room for a short period afterward. In cases where furniture in a patient room is infested but the patient cannot be removed from the room, the infested furniture may be moved to another area (e.g., shower room, soiled utility room) to be serviced.
2. When cockroaches have been reported, voids in the base of a bathroom vanity and pipe voids may be drilled, Insiders installed, and the voids treated with an inorganic dust product. Cracks should be sealed by the hospital maintenance staff.
3. Where possible, cockroaches may be removed by vacuuming.
4. Gel baits or bait stations may be placed in vanities, nightstands, dressers, and/or closets to control cockroaches.
5. When ants are seen in a patient room, an attempt should be made to follow foraging trails back to the colony location so it can be treated directly. When the colony cannot be located, ant baits may be placed along these trails when these can be placed out-of-sight or reach of patients and other persons.
6. Rooms that have experienced a pest infestation may be reinspected within two weeks following the original service of that room to evaluate the results.

Waiting Areas/Doctor's Offices/Examination Areas/Pharmacy/Dialysis Units/Laboratories/Research Clinics

1. Waiting areas, doctor's offices, exam rooms, the pharmacy, dialysis units and similar areas may be serviced on an as-needed basis upon request due to a pest sighting. These areas should be serviced when they are likely to be vacant, such as during the evening.
2. Physical removal of pests by trapping or vacuuming should be the method of choice. Treatments should be limited to active pest harborages, such as cracks and voids and involve primarily baits and inorganic dust products. Cracks and holes should be sealed, when possible, by the hospital maintenance staff.

Emergency Area/Rooms

1. All rooms within the emergency area should be serviced as-needed upon request due to a pest sighting. Any patients should be removed from the target room during the service and kept out of the room for a short period afterward.
2. When cockroaches have been reported, they should be flushed from harborages (preferably with hot air) where possible and removed by vacuuming. Cracks near infested harborages may be treated by application of an appropriately labeled gel cockroach bait.
3. Voids where cockroaches or other pests are found harboring may be treated by drilling into the void, installing Insiders, and treating with a residual dust product or gel cockroach bait.

4. Gel baits or bait stations may be placed in furniture to control cockroaches. In cases where furniture is found to be infested, it may be moved to another area to be treated. A soiled utility room or storage room will suffice for this purpose.
5. When ants are seen in an emergency room area, an attempt should be made to follow foraging trails back to the colony location so it can be treated directly. When the colony cannot be located, ant baits may be placed along these trails when these can be placed out-of-sight and reach of patients and others.
6. Rooms that have experienced a pest infestation may be reinspected within two weeks following the original service of that room to evaluate the results.

Classrooms/Offices/Exercise Rooms/Rehabilitation Clinics

1. Classrooms, offices, exercise rooms, and rehabilitation clinics are generally low risk areas for pest activity in a hospital and should be serviced upon request when pests have been seen in the rooms.
2. Any area that reports pest activity to the pest sighting log will receive service on the next scheduled service visit unless the pest sighting requires an emergency service visit.
3. Any classroom that has received service for an active pest infestation may be reinspected during the next scheduled service visit to evaluate whether the infestation has been solved.
4. When no pest activity is evident, service in classrooms, offices, etc. should be limited to inspections only. Monitoring traps may be placed in cabinets, in closets, and other similar out-of-sight locations. Monitoring traps are best utilized in areas where previous pest activity has been reported.
5. The type of pest infestation that is present should dictate the specific treatment methods used. In general, treatments should be limited to active pest harborages, such as cracks and voids. Baits may be applied to active pest harborages. Physical removal of pests by vacuuming may also be employed.

Intensive Care Units and Nursery

1. Intensive care units and the nursery should be serviced on an as-needed basis upon request due to a pest sighting.
2. Due to the sensitive nature of these areas, physical removal by trapping will be the method of choice. Any treatments utilized will be limited to active pest harborages such as cracks and voids and involve only baits. Cracks and holes should be sealed following treatment by hospital personnel.
3. In cases where furniture is infested, it should be moved to another area to be treated, then thoroughly cleaned prior to returning it to the ICU or nursery.

Operating Theatres and Other Sterile Rooms

1. Rooms where operations are completed or other rooms where sterile conditions are maintained should be serviced on an as-needed basis upon request due to a pest sighting. Due to the sensitive nature of these areas, *the rooms receiving treatment should be vacant and then be thoroughly cleaned following any treatment*.

2. The treatment procedures used will depend on the pest involved. Physical removal using a vacuum device will be important in cockroach control. Any treatments utilized will be limited to active pest harborages, such as cracks and voids, and involve inorganic dust products. *Cracks and holes should be sealed following treatment by hospital personnel.*

3. Inspections should be conducted in the surrounding rooms, outside, etc. to determine, if possible, where the offending pests might be originating or entering. The hospital maintenance staff my be advised to seal cracks or correct other conditions that might be contributing the pest invasion.

Other Areas in the Hospital

1. All other areas found in a hospital, such as X-ray, nuclear medicine, etc., should be serviced on an as-needed basis in response to a pest sighting.

2. The treatment procedures used will depend on the pest involved. Physical removal using a vacuum device will be important in cockroach control.

3. Any treatments utilized will be limited to active pest harborages, such as cracks and voids, and involve inorganic dust products or gel cockroach baits. Cracks and holes should be sealed by the hospital maintenance staff following treatment.

Special Pest Issues in Hotels

Overwintering Pest Infestations in Hospitals

In some areas of the country, hospitals, like other tall, commercial buildings, may experience infestations of overwintering pests, such as cluster flies, box elder bugs, and lady beetles. These pests usually are attracted to the west and south sides of buildings during the fall where they crawl into cracks in walls and around windows to spend the winter in a protected location. Unfortunately, the pests often crawl into the interior areas of the building where they are seen flying about.

These infestations are not covered under the normal Terminix Service Agreement and may require a separate service agreement due to the special treatment procedures required to control the pests.

1. Once inside the walls of a building, overwintering pests are very difficult to eliminate. Attempts can be made to treat into voids from the inside but all of the actual voids where the insects are harboring are not likely to be found and treated.

2. Insect light traps can be placed inside false ceilings to attract and capture these pests as they exit walls into the ceiling.
3. Any building with a history of infestation of these pests will benefit more from exclusion by caulking and possibly a preventive application of residual insecticides. The best solution for these infestations is to seal cracks and holes in the building's exterior during the early- to mid-summer months to prevent the pests from entering the walls when fall arrives. The more cracks that are sealed, the better the results. Specific procedures for preventive treatments must be prepared on a case-by-case basis.

Pharaoh Ant Infestations in Hospitals

Pharaoh ants are one of the most difficult pests to control in large buildings due to a number of unique aspects of their biology. Treating infestations of this ant with residual products simply makes the infestation worse by splitting the colonies and moving them into previously uninfested areas.

Successful control of a Pharaoh ant infestation requires a comprehensive baiting program be implemented .

Due to the specialized nature of this baiting program, an additional service agreement with Terminix is needed for that service. The cost and content of a Pharaoh ant service must be determined on case-by-case basis depending on the size of the building and the extent of the infestation.

Fruit Fly & Phorid Fly Infestations in Hospitals

Fruit flies and phorid flies, in particular, are of great concern because they can easily establish breeding populations within a hospital. Both these small flies require moist decaying organic matter in which to breed. It is the responsibility of the hospital's housekeeping staff to remove as many potential indoor fly breeding sites as possible. Still, despite the best efforts, these flies become established because they require so little organic debris in which to get started. Once introduced into the facility via fresh produce or by flying in through a doorway, fruit and phorid flies can prove the most difficult infestations to solve, if total elimination is even possible (particularly in older facilities).