



INTEGRATED PEST MANAGEMENT (IPM) IN HEALTH CARE FACILITIES

FALL 2011 NEWSLETTER

Welcome to the Fall edition of the *IPM in Health Care Facilities newsletter*, published by the **IPM in Health Care Facilities Project**—a partnership of the Maryland Pesticide Network and Beyond Pesticides in collaboration with the Maryland chapter of Hospitals for a Healthy Environment (MD H2E). The Project enables and facilitates transition to safe pest management practices at Maryland health care facilities. This newsletter is part of the Project’s outreach effort to share information with Maryland health care facilities interested in effective pest management that protects patients, residents, staff and visitors from unnecessary exposure to pesticides.

Facilities participating in the Project’s Partnership Program agree that IPM prioritizes pest prevention and non-chemical interventions as key components to **greening** their facilities. Under an IPM approach, only least-toxic pesticides are used as a last resort for pest management. This approach is especially important for patient and long-term care populations, which are especially vulnerable to chemical-intensive pest control methods that can cause or exacerbate the very diseases and conditions for which they are being treated.

Feel free to contact us to learn more about how you can improve patient, staff and visitor safety by reducing pest complaints and toxic chemicals in your facility—with no increase in cost.

This edition of the newsletter includes important information on EPA restrictions to the most hazardous rodenticides, as well as steps you can take to eliminate mice and other rodents in your facility, without exposing patients and staff to toxic pesticides. We have also featured “Pesticides as a Last Resort,” an article by the Joint Commission, the nation’s oldest and largest standards-setting and accrediting body in health care. The newsletter concludes with a short chemical profile of hydramethylnon, a pesticide used in many facilities.

SAVE THE DATE!

Maryland Hospitals for a Healthy Environment’s Annual Conference
Environmental Excellence in Health Care: Measuring Success

- NOVEMBER 10, 2011 -

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EPA Takes Actions to Reduce Risk from Rat and Mouse Poisons

On June 7, 2011, the Environmental Protection Agency (EPA) announced that it is moving to ban the sale of most toxic rat and mouse poisons (brodifacoum, bromadiolone, difethialone and difenacoum), as well as most loose bait and pellet products, to residential consumers in an effort to better protect children, pets and wildlife. While these chemicals can still legally be used by pesticide applicators, we recommend that rodenticides banned for residential use not be used in a health care setting. If they are too hazardous for the home, they have no place in a health care facility.

Instead of using poisons for rodent control indoors, IPM in Health Care Facilities Project encourages the use of traps and nonchemical exclusion techniques that eliminate food and water sources and entryways indoors. Traps and bait products in locked specialized



containers can be used outdoors (see EPA's Tier I list).

Children are particularly at risk for exposure to rodent poisons because the products are typically placed on floors. The American Association of Poison Control Centers annually receives between 12,000 and 15,000 reports of children under the age of six being exposed to these types of products.

EPA began this phase-out process in 2008 when it released its final risk mitigation decision for ten rodenticides. EPA gave producers of rat and mouse poison until June 4, 2011 to research, develop, and register new products that would be safer for children, pets, and wildlife. A handful of companies do not plan to adopt the new safety measures, which include child-proof bait stations and replacing the most hazardous ingredients, so EPA intends to initiate cancellation proceedings against these manufacturers.

Rodent Control without Hazardous Pesticides

Rats, mice, and other small rodents present some of the most significant challenges for facilities committed to the safety of staff and patients, and environmental protection in the Chesapeake Bay watershed through least-toxic integrated pest management. In addition to the general disruption these pests can cause in a facility, rodents are disease vectors and can cause property damage.

Prevention:

The first defense and offense should always be prevention. A full-grown mouse can enter the structure through a hole the size of a dime. They are talented climbers and able to swim, but do not need water to survive. (They get water from their food.)



Monitoring:

Rodent activity increases in the fall, when the cold weather hits. Pay particular attention to facility areas where food is stored. Watch for activity on the grounds outside, particularly to the areas next to buildings, which may be the first sign of an impending onslaught. Where there is evidence of mice, the territory of a single mouse colony is likely to be contained within a 10-foot radius sphere. Inspect this entire area for entry points, feeding areas and nest sites.

- Regularly inspect for signs of rodent infestation including sightings, tracks, droppings, grease marks along walls and baseboards, evidence of feeding, or property damage, principally gnawing around wall openings, trash receptacles, etc.

Approved Bait Station Products

The following bait stations are categorized as “Tier I” by EPA. They are considered to be tamper-resistant and weather-resistant. At the time of EPA’s announcement, they were the **only products registered for outdoor residential use**. If non-chemical methods have not provided adequate control, these are a few options for outdoor baits (to be used within 50 feet of buildings).

Product Name	EPA Reg. No.	Active Ingredient	Target Rodent
Tomcat® Mouse Killer I	12455-120	Bromethalin	Mouse
Tomcat® Mouse Killer	12455-121	Bromethalin	Mouse
Tomcat® Rat Killer	12455-122	Bromethalin	Mouse/Rat
d-Con® Bait Station XIV	3282-100	Diphacinone	Mouse
d-Con® Bait Station XIII	3282-101	Diphacinone	Mouse
d-Con® Bait Station XI;	3282-102	Diphacinone	Mouse
d-Con® Bait Station XII	3282-103	Diphacinone	Mouse
Tomcat® Mouse Killer VI	12455-119	Diphacinone	Mouse

Exclusion:

Exclusion is the first line of defense against rodents. A rodent inspection also should identify conducive conditions, especially entry points into facility buildings, transit points within buildings, and sources of food and water.

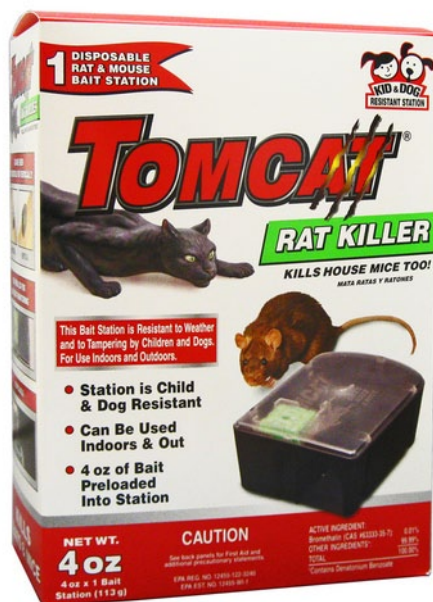
Just like people, most rodents use the door. Installation and maintenance of door sweeps on all exterior doors should be the first step in an IPM program for rodents. Studies have shown that an effective door sweep program can reduce pest problems by two-thirds. In practice, any light that shows under a door indicates a pest entry or transit point. Window screening runs a close second to door sweeps in eliminating rodent entry. In addition to upkeep of door sweeps and window screens:

- Seal small holes with steel or copper wool (copper will not rust) or with caulk.
- Screen door vents or louvers
- Seal around all wall penetra-

tions.

- Seal holes larger than 3 inches in diameter with 1/4-inch hardware cloth, 19-gauge or thicker sheet metal, plaster, or mortar.
 - Make sure all vents and vent pipes are screened securely with 1/4-inch hardware cloth.
- Per fire code requirements, all wall penetrations (conduits, pipe chases, etc.) should be plated or sealed to prevent pest migration.

- Disturbing the environment of mice by moving boxes, shelves, etc. improves the effectiveness of control techniques as mice investigate their changed habitat. An active stock rotation policy can help greatly in mouse control in storage areas.



Sanitation:

Food waste is the main source of food for rodents. Rodent issues are often reported in administrative and other staff areas of health care facilities, particularly where there is food and water. Staff should limit the storage of food items in these work areas. Proper disposal of food and other

organic waste is essential.

- All food waste should be separated from other garbage.
- Thoroughly rinse all cans, bottles, and plastic containers before recycling or discarding.
- Garbage can and dumpster lids must seal tightly and remain closed when not in use.
- Clean garbage cans and dumpsters are essential. Frequent cleaning is necessary to prevent build-up of food waste. Dumpsters should be fitted with drains.
- Inspect dumpsters and other outdoor trash receptacles daily.
- Garbage cans on facility grounds should have removable, domed tops with vertical, spring-loaded swinging doors. Line these cans with plastic bags that can be tightly sealed and emptied into rodent-proof garbage containers every evening.
- Inform staff of the importance of placing garbage inside the proper containers.

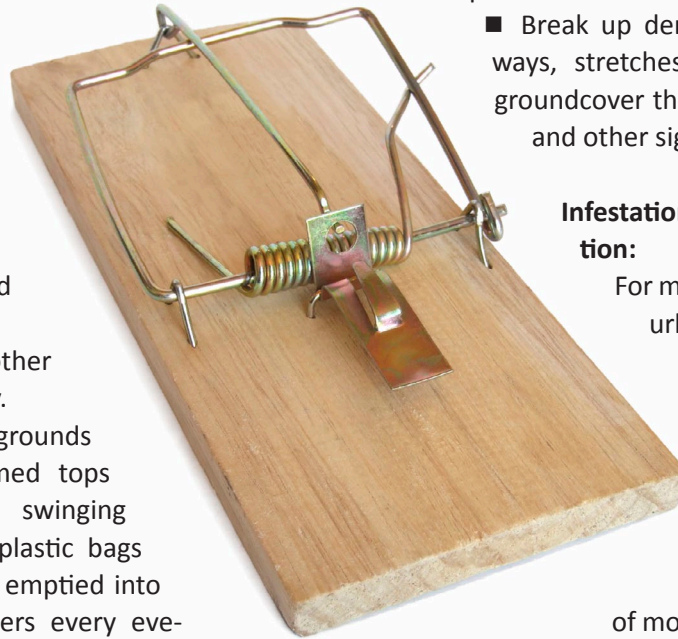
Other Conducive Conditions:

- Air conditioners (both window and roof units) can provide rodents with water, harborage, and access to a structure. Make sure each unit is well-sealed, especially those on the roof.
- Organize storage rooms to improve inspections and reduce harborage.
- Remove exterior debris, especially construction debris.
- Free-standing water in drip pans, ditches, ornamental pools, fountains, etc., should be minimized. Pools and fountains should be temporarily drained during a severe infestation.
- Keep leaking pipes, faucets, irrigation systems, etc., in good, leak-free repair.
- Store all foods in metal, glass, or heavy plastic containers with tight fitting lids. Do not leave food out overnight.
- Do not allow staff to store food in their lockers overnight unless it is in rodent-proof containers. Signs

in staff lounges are recommended.

Removing Vegetation:

- Trim trees, vines, bushes, grass, and weeds at least 12 to 18 inches from all buildings to allow proper inspection and decrease cover for rodents.
- Break up dense plantings with pathways, stretches of lawn, or very low groundcover that can shield rat burrows and other signs of rodent activity.



Infestation Control and Elimination:

For most facilities, especially in urban areas, the final step in your IPM program for rodents involves preventive control measures and elimination of active infestations.

- Areas showing signs of mouse infestation should be set with mechanical, spring traps until the problem is solved. Glue boards are a secondary recommendation. Some situations will require the setting of several traps, even dozens, until the infestation is reversed. Traps should be inspected several times a day.
- A mouse typically will not travel more than 30 feet from its nest. Inspect an infested area for signs of nesting or transiting to and from a nest and seal/remove access and nests as needed.
- When non-chemical prevention and control methods have failed to manage a rodent problem, then exterior placement of rodent bait blocks in tamper-proof bait stations is a safer and effective alternative to uncontrolled placement of rodenticide. Bait blocks should be regularly inspected for signs of feeding and replaced as needed.
- Active rat burrows should not be treated with 'loose' tracking powders: 'bagged' products are preferred, with regular daily inspection and retrieval of unopened bags ejected from burrows.
- Interior use of rodenticide in wall voids, etc., while common in a conventional program, can present serious health risks and should be avoided at all costs.

Pesticides as a Last Resort

Least-Toxic Pest Management Protects Most-Vulnerable Patients

The following article was published in the May 2011 issue of Environment of Care News, a publication of The Joint Commission, the nation's oldest and largest standards-setting and accrediting body in health care. Joint Commission Resources provides innovative solutions to help health care organizations across all settings improve patient safety and quality.

First, do no harm. Physicians across health care disciplines are expected to practice in accordance with this well-known principle. Professionals ranging from health facilities managers to nurses also adhere to this credo as they go about their daily work and ensure patient and visitor safety. This principle even comes into play when evaluating the effectiveness of a facility's pest control program. If the program that's in place compromises patient safety at your facility, it's time to consider a shift to an integrated pest management (IPM) approach.

The Honeymoon Is Over for Pesticides

The pest control contracts with which customers are most familiar are scheduled maintenance contracts: A vendor comes to spray on a predetermined weekly, monthly, quarterly, or annual basis, regardless of whether pests or pest related damage have been spot-

ted on the grounds or within a facility. But these pesticide-dependent practices don't effectively eliminate pests and pest-related problems.

Worse still, they endanger health—especially the health of the most vulnerable populations residing in long term care or acute care facilities, including infants, children, the elderly, and people with existing illnesses or those recovering from surgery and other medical treatments.

A recent Maryland Health Care Facilities Pest Management Survey found a general reliance on toxic pesticides at Maryland hospitals and elder care facilities. Of the 25 pesticides identified by survey participants as being used at facilities, 11 are linked to cancer, 12 are associated with neurological effects, 10 are associated with reproductive effects, and 10 cause liver or



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Resources for Integrated Pest Management

Not sure where to start in implementing Integrated Pest Management (IPM)? The Integrated Pest Management in Health Care Facilities Project has created a Model IPM Policy, Model IPM Plan, Model Landscape Policy, and Sample IPM Contract.

To access these model policies, visit www.mdpestnet.org/projects/ipmHealthcare.html.

kidney damage. The survey was conducted by the Integrated Pest Management in Health Care Facilities Project, spearheaded by the Maryland Pesticide Network, based in Baltimore, and Beyond Pesticides, based in Washington, DC, in collaboration with the grant-funded Maryland Hospitals for a Healthy Environment (MD H2E). For more information, see “Resources for Integrated Pest Management,” on next page.

Integrated Pest Management Defined

Although there is no standard accepted definition of IPM, the IPM methodology generally establishes a sustainable approach to managing pests. IPM combines biological, cultural, physical, and—as a last resort—chemical tools in a way that minimizes health and environmental risk. IPM pest management techniques commonly include the following:

- Exclusion techniques—Sealing cracks and crevices with caulk or steel wool; repairing door sweeps and leaking pipes;
- Mechanical techniques—Using traps and vacuum-



Pesticides on the lawn can be tracked in and make patients sick.

ing;

- Sanitation techniques—Washing all recycle bins, trash cans, carts, kitchens, and floor drain covers.

“All nonchemical strategies such as behavior change and trash management must be exhausted before introducing pesticides as the last resort of an IPM program,” says Jay Feldman, executive director, Beyond Pesticides.

Prevention Is Part of the Plan

Many clients realize that their conventional pest control service is not working when they examine the number of “callbacks” in vendor log books. But when IPM is implemented, departments learn how to prevent pest problems. “Here is where IPM has direct overlap with energy conservation,” notes Feldman. “Both efforts are trying to seal up the building envelope. We want to try to exclude pests rather than kill them because this reduces the toxic load in a building. We are talking about both structural and landscape management. Chemicals used in landscaping tend to find a way into a facility, through tracking and other methods.” Natural (IPM-compliant) turf and landscape management promotes soil health and protects public health and the environment through the selection of nontoxic and nonsynthetic inputs.

Jim Chang, C.I.H., director, safety and environmental health, University of Maryland Medical Center (UMMC), Baltimore, says it becomes easier to recognize and resolve pest-friendly conditions when people are in the IPM mindset. “Before IPM, it was easy to walk by the gap under the door,” he says. “But thanks to the efforts of our IPM mentors, the green team, and our sustainability manager, we now look at gaps under

doors as a potential waste of heating and air conditioning energy, as well as a route of entry for mice and other creatures to come inside in search of warmth and food.” Chang notes that even remedying the smallest imperfections can benefit the organization from an IPM perspective. “Facilities people also have to work with housekeeping, patients, and visitors to make sure debris, discarded food, and plant waste are kept away from the building,” he says.

The Integrated Pest Management Coordinator

To be the most successful, an IPM program needs an IPM coordinator. An existing safety coordinator, environmental services professional, or person representing the facility green team is a potential candidate. The IPM coordinator is responsible for implementing the IPM plan and coordinating pest management–related communications between the facility, its landlords, service providers, staff, and patients. Joan Plisko, technical director, MD H2E, points out that 75% to 80% of hospitals in Maryland have green teams, most with leadership buy-in. “Green team members already understand the effects pesticides have on the environment,” she says. Plisko also advises including a nurse leader as part of the IPM team. “This person can really contribute to the IPM education module.”

Pest control vendors and employees should report pest-related problems to the IPM coordinator and generate work orders to fix problems. The IPM coordinator needs to review log books to confirm that the needed work has been completed.

The ability to maintain an IPM program’s continuity over time is critical; turnover in facility management, the IPM team, and the pest control company can undo years of progress if written policies are not in place. The IPM coordinator serves as the guardian of institutionalized policies that dictate how the IPM program works. He or she also needs to make it a priority to obtain a material safety data sheet (MSDS) for each pesticide substance applied at the facility.

Educate and Implement

IPM education for staff should cover information about entryway controls, attraction, and harborage. Entryways such as loading docks and doorways without ef-



fective air curtains, door sweeps, or light traps can attract pests. Removing harborage opportunities means eliminating comfortable pest living spaces and involves addressing details about mop storage and dirty-water management. Simple adjustments can eliminate pests without the use of chemicals (for example, changing trash receptacles or trash receptacle locations). The way people do their jobs—whether they work in environmental services or maintenance—influences the severity of a facility’s pest problem.

“A large portion of pest management is people management,” Plisko says. “The number of food sources for pests in a health care facility is huge. We must teach and reteach staff about how to clean up after themselves.”

Denise Choiniere, R.N., M.S., sustainability manager at UMMC, incorporates sustainability across hospital operations and clinical practice, evaluating patient, employee, and environmental safety. “An effective IPM program has to benefit every department,” Choiniere says. “IPM theory means finding and eliminating the source.” UMMC employees are educated through the facility’s volunteer green team, which is a subcommittee of the environment of care team, and represents 20 departments.

“When employees understand the health effects of pesticides, a light bulb may go off,” Choiniere says. “We want our patients to know we are here to take care of

them, not make them sicker.” And employees need to know that they have a direct effect on pest control. “UMMC is writing employee behavioral standards that incorporate IPM. We want employees to know they have a key role in IPM—which is to eliminate the source—and they can be held accountable for their behaviors,” Choiniere says.

The 2011 focus for the University of Maryland grant-based Alliance of Nurses for Healthy Environments (ANHE) is chemical policy and reform. Robyn Gildea, Ph.D., R.N., assistant professor, University of Maryland School of Nursing (UMSON), and a member of the ANHE Research work group, is collaborating with the Children’s Environmental Health Network and its Eco-Healthy Child Care Center Program checklist, of which pesticides and IPM are major components. UMSON offers an environmental health course that discusses pesticides and IPM in depth.

The Evolving Vendor Culture

An IPM team has to successfully connect pest control vendor efforts back to decision makers and training so everyone knows how to recognize and report pest problems.

“If staff can manage pests without using chemicals, people become engaged,” Feldman says. “But this re-

quires cultural change. Pest control vendors must be required to communicate problems—for example, with cracks or leaky pipes—to the proper person. If elements of an IPM program are adopted and requirements for reporting, disclosure, and communication are in place, vendors can be held to a standard that is in alignment with IPM policy. The contract defines vendor activities. The industry is still evolving to create IPM contracts that meet the needs of the health care industry.”

Chang advises health facilities professionals who are interested in IPM to seek out their local advocacy groups to learn more. He says, “Groups such as Beyond Pesticides and Maryland Pesticide Network have heard the concerns and skepticism, they know which pest control vendors abide by IPM practices, and they can advise on how to best proceed down this path. Once you make this commitment, it’s amazingly easy to move to sustainment mode. IPM consultants can advise about how to address periodic acute infestations of bedbugs or lice, for example, while still following IPM practices.”

Concludes Feldman, “The health care commitment to ‘first, do no harm’ can play out in the pest management arena as we avoid using toxic chemicals that are really not needed when a good pest prevention program is in place.”

Chemical Corner: Hydramethylnon

General Information

Product names: Found in some Amdro, Combat, Maxforce, Siege, and Sensible products.

Alternatives: Boric acid-based products, with sanitation and exclusion.

Breakdown: Can degrade in 12 hours in direct sunlight, but can take years in dark spaces.

Health Effects

EPA Acute Toxicity Class III.

Organ Toxicity: Kidney, liver, and testis damage.

Cancer: Classified as a “Class C: Possible Human Carcinogen” by EPA.

Reproductive Effects: Animals studies show testicular atrophy and male infertility.

Developmental Effects: Classified as a developmental toxin by the state of California

Irritant: Exposure may result in irritation of the eyes and respiratory tract.

Environmental Effects

Non-target species: Toxic to fish and aquatic life.