



Implementing an Integrated Pest Management Program

One of the most important responsibilities of any health care provider can be captured best by four well-known words from the writings of Hippocrates: “First, do no harm.”

Adhering to that maxim is intuitive and ethical, and in recent years has led to a variety of programs to improve not only the tools and techniques of modern medicine, but also the health care environment itself. One of the most important of these initiatives, reflected by environmentally friendly, or “green” programs in hospitals across the country, is chemical reduction. By eliminating or at least reducing toxic chemicals—including pesticides—in our health care facilities, we create a safer environment for patients and staff.

Integrated Pest Management, or IPM, goes beyond chemical treatments to take advantage of a much wider variety of pest management techniques. IPM practitioners recognize that pests seek their essential survival needs—food, water and shelter—and that removing some of these basic elements or blocking pests’ access to them can curb many pest problems long before chemical pesticides are employed.

IPM also supports several Environment of Care standards required for

accreditation by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) by helping hospitals “manage safety risks,” “establish and maintain an appropriate environment,” and “improve the environment.”

To help you get started in implementing an effective IPM program, Practice Greenhealth recommends the following ten-step process.

Step One: Understand IPM and its advantages over other pest control methodologies

To understand IPM and its advantages, you have to recognize some of the fundamental ways it differs from more traditional pest control programs:

IPM addresses more than just the symptoms of a pest problem

Non-integrated pest control programs tend to focus on killing pests while ignoring the reasons why pests are there in the first place, which doesn’t do much to prevent recurring problems. By removing or altering the conditions that attract or are conducive to pest infestations, IPM practitioners can better cure existing infestations and prevent future ones.

Scheduled chemical treatments are not IPM

Many pest control plans call for routine pesticide applications whether pests are present or not. These applications are seen as “protective barriers” that will prevent infestations. They are not. In fact, unnecessary applications may even lead to the development of pesticide resistance in target pest populations and increase problem infestations instead of reducing them. And an application of a pesticide on a regular schedule is not IPM. IPM instead relies on routine inspection and monitoring for pest presence. Pesticides are considered only when there is clear evidence of pest presence (e.g., pest sightings, droppings or pest catches in monitoring traps, and when non-chemical approaches such as vacuuming, trapping and exclusion (i.e., physically blocking pests’ entrance) have been unsuccessful or are inappropriate.

IPM techniques are less toxic, more targeted

Some pest controllers will apply pesticide to exposed areas far from where it is really needed and use more of it than necessary. Baseboard spraying and room fogging, for example, greatly increase the potential for human exposure, but such techniques are not very effective against pests living deep within furniture, equipment or the building structure itself. When they resort to pesticide applications, IPM practitioners apply pesticides with precision and choose the least-toxic formulation to get the job done.

IPM is not a one-person job

Long-term pest management solutions typically depend on daily pest monitoring and a variety of sanitation, housekeeping, maintenance and occupant practices. No one person can do it alone. Without cooperation from management and staff, the IPM model falls apart and chemical treatments will be difficult to avoid.

IPM requires greater expertise than traditional programs

Managing pests with less pesticide requires a strong working knowledge of pest biology and behavior, current pest control technologies and practices, facility layout, structural characteristics and staff behavior.

Without this knowledge, it will be difficult, if not impossible, to prevent infestations without routine chemical applications.

IPM is more effective

Simply put, IPM is more effective in controlling pests over long periods. This is not surprising, since IPM

combines many control techniques instead of relying on any one technique. IPM’s efficacy advantage has been confirmed by research and in practice in health care facilities, and the IPM approach is recommended by the U.S. Environmental Protection Agency, Centers for Disease Control and Prevention, American Hospital Association and many others.

IPM costs less long-term

It is a common misconception that IPM programs are more expensive than traditional programs, partly because it can cost more up front to implement an IPM strategy. But IPM is analogous to preventive health maintenance. In the long term, it’s almost certainly more cost-effective in terms of time, personnel and materials to prevent problems than to remediate the same symptoms again and again.

IPM poses less risk

Health care patients may have compromised immune, neurological, digestive and respiratory systems that put them at increased risk of suffering harmful effects from exposure to pesticides. Chemically sensitive individuals, pregnant women, infants, children and the elderly may be especially vulnerable to the effects of pesticides. And health care facility staff, who work long hours in enclosed environments, may be highly exposed to pesticide chemicals if they are applied routinely in the facility. By reducing pesticide use, IPM helps reduce the potential for negative impacts on human health and the environment.

Step Two: Identify the implementation team

As with any successful initiative, the transition to an IPM program requires a diverse, action-oriented team. This committee could be part of an existing green team or developed as a subcommittee under the Environment of Care committee, since implementation of a new IPM program can be tracked as a performance indicator for the JCAHO-required quality improvement initiative, patient safety or hazardous material and waste management program.

The leader of this project should be familiar with the facility layout, have a direct link to supporting leadership and have the time and authority to supervise IPM implementation. The Director of Environmental Health and Safety might be the most appropriate leader for such a team, since s/he will be familiar with JCAHO standards, may also have a working

knowledge of IPM principles and may be trained in the biology and control of insects and rodents. Alternate potential leaders include directors of facilities, operations, support services, engineering or environmental services. Other team members could include nursing, maintenance, employee health, food services, industrial hygiene, environmental services, safety and infection control. If you do not have IPM expertise in-house and plan to contract out IPM services, you may wish to identify your prospective vendor and make use of their information and support as you develop implementation plans.

Step Three: Decide on scale of implementation

Hospitals are unique—rural, urban, union, inpatient, long-term care—and building and environmental conditions, types of pests, and building occupant attitudes toward them, will also vary widely. To determine the scale and strategic approach you need to take, first discuss what IPM is—and what it isn't—with key staff and committees. If you are outsourcing and have identified a prospective IPM vendor, ask a representative to accompany you to committee meetings to help explain the IPM approach and give examples of documented success in facilities like yours. Through these discussions you can build understanding and address potential objections with solid information. Having well-positioned members of your designated IPM committee present before department heads, nursing leadership, grand rounds, board of directors and other committees may create sufficient buy-in to allow you to make changes in your pest control methods across the board.

Feeling resistance? Try a pilot to accommodate concerns, work out the kinks and build support. Problems can more easily be seen as a learning process when you start small. When determining where to carry out your pilot, remember that IPM involves altering the environment to reduce pest entry points, and food and water sources, so it works best when it encompasses an isolated area. For example, choose a single building if possible, rather than one floor of a building, where pests can easily travel from another floor to continue to infest your pilot areas.

Remember, IPM takes time to achieve positive results, and even successful programs may go through a period of static as you discover problem areas and



adjust accordingly. Taking one building or one unit at a time, you can tweak your process as needed as you transition to a system-wide IPM program. There may be resistance—this is a natural response to change—but with education, monitoring and positive reinforcement, over time, staff will understand that reducing their exposure to toxic chemicals and improving air quality is an important occupational safety improvement, and an integral component of a healing environment.

Step Four: Set goals and measurable objectives for your IPM program

When will your IPM program be up and running? How much will it cost? What are you trying to accomplish by choosing IPM? How will you know if you've succeeded? You will need to answer these questions before you tackle IPM implementation. Measurable goals to track for JCAHO and Practice Greenhealth could include pest management costs, monitoring of pest activity before and after implementation of an IPM program, number of calls related to pest problems and toxic chemical use reduction.

When will the shift to IPM occur?

The first step is to develop an implementation timeline that includes time to execute all of the steps outlined in this document, leading up to a launch date. Make sure to include time to obtain administration and staff buy-in, conduct any staff training and manage an RFP process if you expect to outsource to a pest management professional.

How much will it cost?

The budget for the program will be critical to administration. Be sure to design a budget that differentiates the costs of initial implementation from the costs of maintaining the program, which should be less than the implementation cost. Talk to industry colleagues

whose facilities have implemented IPM programs. How long did it take them? Do they outsource, and if so, to whom? Are they satisfied with their service? What is their budget? What does it include? Be sure to analyze the marginal cost of your IPM program when compared to the costs of your current pest control effort. It may be less than you think. Practice Greenhealth can provide contacts for hospitals actively practicing IPM.

How will you know if IPM is succeeding?

The advantages of IPM—efficacy, cost and safety—are laudable but probably won't do you much good when it comes to asking for budget if you don't have a system in place to measure the program's achievements. Build measurable objectives for each of those goals into your program plan from the beginning.

- **Efficacy**—Since IPM is better at controlling pests, you should see a measurable reduction in pest sightings, patient complaints and monitoring station counts over time. But if you're planning to measure against these or similar metrics later, you'll need benchmark data on them now. Consider how you will obtain and compile that data before the switch to IPM. Once you've implemented your IPM program, you'll want to allow the program sufficient time—at least six months—to make a real difference before you measure. Remember, IPM's not an overnight event. It's a process.
- **Cost**—Do you expect to see cost reductions over time as IPM gains momentum? When? Set specific dollar-figure parameters for your IPM costs so you can measure against them later.

- **Safety**—IPM's ability to create a safer health care environment is predicated in large part on reducing pesticide use. If you're already outsourcing to a professional, ask them if records are available as to the volume of pesticides applied in the facility for the previous year (or more if available). If you're just starting a contract with a professional for the IPM program, be sure the company can provide detailed information on how any decision to apply pesticides will be made, their advance notification procedures for pesticide application, and how they will supply you with pesticide usage records when pesticides are applied (see Step 10). In either case, the information will help you prepare for, benchmark and track pesticide usage. The goal should be a downward trend over time or ideally, a specific reduction amount, with the end result a reduction to only very occasional usage of highly toxic pest control chemicals.

Step Five: Analyze current housekeeping, maintenance and pest control practices

As you prepare to make the switch to IPM, it helps tremendously to have a clear idea of your facility's current policies and practices when it comes to structural maintenance, sanitation and pest control. In some cases, current practice may be in line with IPM principles. In others, you may have a long way to go. The more you know about what your facility is doing now, the better you can prepare for the necessary changes. Here are a few considerations to keep in mind as you lay the groundwork.

Structural Maintenance

One of the best (and maybe most obvious) ways to keep pests out of a facility is to physically stop them from entering wherever possible. As part of your regular IPM inspections, you'll need to inspect cracks, crevices or other unnecessary openings in the building exterior that can be used by pests as harborage areas or entry points—no matter how small—and seal them as appropriate. Is your maintenance staff or pest management provider already doing this? If not, who will be responsible for this activity under the IPM program? Will training be required? What are the cost implications?

Sanitation

If pests can't find the food and water they need in your facility, they have much less reason to be there. That's



why sanitation will always be one of the most powerful tools in the IPM arsenal. The cleaner the facility, the less need there will be for chemical pest control treatments. Does your facility already follow a written sanitation plan indicating cleaning schedules, procedures and responsible parties? If so, make sure the routine sanitation inspections focus on areas of high pest pressure (e.g., receiving docks, food service areas, admissions areas, break rooms or bio-hazard rooms). You may need to work with the appropriate parties to implement a sanitation plan that pays special attention to these sensitive areas. Also consider how daily staff sanitation practices play into the overall cleanliness of the facility. When it comes to pest control, a sanitation plan is only as strong as its dirtiest break room or nurse station. Be prepared for staff pushback and the chance that staff may need some special training (see Step 9).

Pest Control

Naturally, as you prepare to implement IPM, your existing pest control practices may see the biggest changes. Does your current program call for scheduled chemical treatments to lay down a “protective barrier?” Do staff members expect or demand to see a technician spraying after they call in a pest sighting? If you looked in the cabinets at nurse stations or break rooms, might you find a can of roach spray? These are symptoms of outdated and inappropriate pest control practices in health care facilities. Gather service records, talk to staff and otherwise document your facility’s current pest control program as much as you can (or, if you outsource pest control, request a document detailing the current service protocols from your provider). You’ll want to identify specific changes to current practices and plan to address them with your new IPM program.

Step Six: Establish a system of regular IPM inspections

Whereas many pest control programs still revolve around regularly scheduled pesticide applications, IPM revolves around regular facility inspections. These inspections are the “engine” for an ongoing cycle of IPM activities that may or may not include chemical treatments. These activities include:

- a. Inspections
- b. Pest Identification
- c. Selection of Control Methods
- d. Monitoring
- e. Evaluation

IPM inspections must focus on the five “zones” or “triggers” of pest activity: entry points, water sources, food sources, harborage areas and employee areas. During inspections, all existing pest issues and potential problem areas, inside and out, must be noted for follow-up (see Step 7).

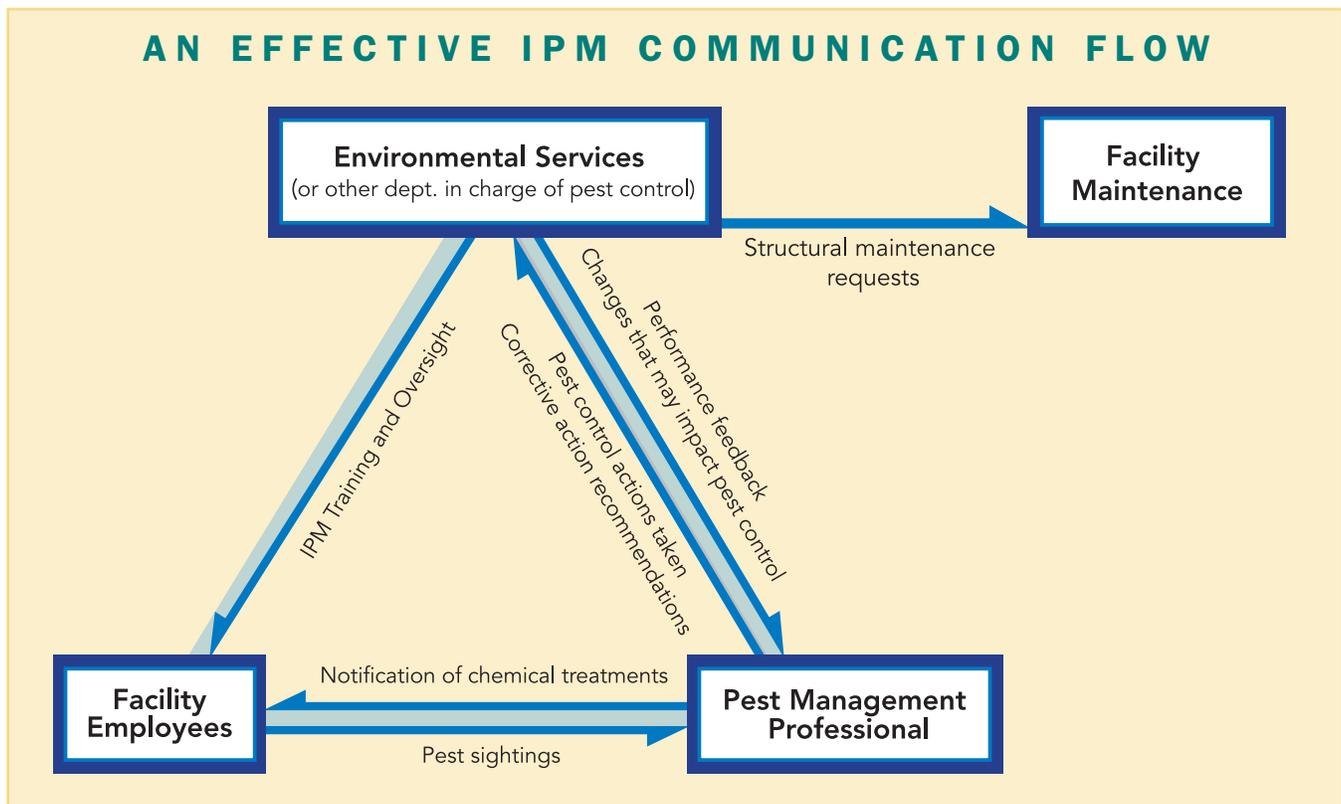
If your facility chooses to outsource IPM services, it will be the provider’s job to perform a thorough inspection during each scheduled visit and determine appropriate treatment methods. For in-house IPM programs, the greatest inspection challenge will be establishing routine, proactive surveillance by trained specialists (see Step 9).

Step Seven: Define policy for treatment selection

Even in the cleanest facility, pests will appear from time to time, so you need a clear, written policy on how your facility will respond when they do:

- The policy should define non-chemical and chemical treatment options and the order in which they should be considered. It should be very clear on when and where chemical treatments are appropriate. Finally, it should include an “approved materials” list to ensure smart choices when chemical treatments are applied.
- Keep in mind as you develop your policy that the first step in any IPM response is to correctly identify the pest that has invaded. Because pest behavior varies so much from one species to the next, the appropriate response will vary just as widely.
- Once the pest is identified and the source of activity is pinpointed, the treatment policy should call for habitat modifications such as exclusion, repair or better sanitation. These countermeasures can greatly reduce pest presence before chemical responses are considered.
- Additional treatment options—chemical and non-chemical—can then be tailored to the biology and behavior of the target pest.
- The final step in the response cycle? Monitoring. The information you gain through continuous monitoring of the problem will help determine additional treatment options if they are needed.
- If you outsource to a pest management professional, work with the provider to agree on a policy and a written approved materials list. But don’t forget that the policy applies to facility staff as well as the provider.

AN EFFECTIVE IPM COMMUNICATION FLOW



Step Eight: Establish communication protocols for environmental services, facility maintenance, facility management and service provider

Because IPM is a cooperative effort, effective communication between various parties is a prerequisite for success. Employees must document pest sightings, the pest management professional must make recommendations and notify appropriate parties of chemical treatments, environmental services must communicate with maintenance to make necessary repairs, and so forth. Consider the “bird’s eye view” of an effective IPM communication flow above.

Step Nine: Develop worker training plans and policies

As mentioned in Step 6, the greatest challenge for in-house IPM programs will be establishing routine, proactive surveillance by trained specialists.

Whether you outsource or not, remember that your employees can serve as a vast pool of “inspectors” charged with reporting pest sightings, which will quicken response times and help limit the scope of new infestations. Host training sessions to acquaint hospital employees with IPM principles and the role

they will play in a successful IPM program. Some pest management providers will offer IPM training for your staff. Take advantage of it. A little on-the-ground help from employees will go a long way toward achieving your IPM goals.

Recommended training resources include:

Siddiqi, Zia; Meek, Frank; Rummel, Robert; and Frishman, Austin M. *ASHES Recommended Practice Series: Integrated Pest Management*. American Society for Healthcare Environmental Services of the American Hospital Association. (Chicago, Ill. 2005).

Owens, K. *Healthy Hospitals: Controlling Pests Without Pesticides*. Health Care Without Harm (HCWH) and BEyond Pesticides, 2003. Health Care Without Harm website. Available at: <http://www.noharm.org/details.cfm?ID=864&type=document>.

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA, Public Law 92-516, as amended), available for download at <http://www.epa.gov/region5/defs/html/fifra.htm>.



Step Ten: Track progress and reward success

Remember the measurable objectives you set and benchmark data you gathered in Step 4? Your goals won't mean much if you don't measure the IPM program's performance against them at least once a year.

Detailed service records will be critical to these evaluations, so make sure your pest management professional or in-house program provides the following documentation:

- Detailed description of the parameters and service protocols of the IPM program (i.e., what are the ground rules?)
- Specific locations where pest management work was performed
- Dates of service
- Activity descriptions, e.g., baiting, crack-and-crevice treatment, trapping, structural repair
- Log of any pesticide applications, including:
 - Target pest(s)
 - The brand names and active ingredients of any pesticides applied
 - EPA registration numbers of pesticides applied
 - Percentages of mix used in dilution
 - Volume of pesticides used expressed in pounds of active ingredient
 - Applicator's name(s) and certification identity (copy of original certification and recertification should be maintained by Environmental Services)
- Facility floor plan on which all pest control devices are mapped and numbered
- Pest tracking logs (sightings and trap counts)
- Action plans, including structural and sanitation plans, to correct any pest problems
- Pest sighting memos for staff to use in reporting pest presence to environmental services and/or the pest management provider

Using these records, and assuming the goals of your IPM program are increased efficacy, lower costs and reduced pesticide use (see Step 4), you should see:



- Fewer pest sightings and patient complaints
- Lower monitoring-station counts over time
- Lower costs after the first 12-18 months, once IPM's efficacy advantage has had time to take effect
- Downward trend in volume or frequency of pesticide usage

Report the program's successes following each evaluation and encourage good practices by recognizing individuals who played a role. Remember, IPM is a team effort. Communicating the success of your program in reducing toxic chemical use and exposure, reducing pest complaints and lowering costs will help facility staff understand the purpose of the program and appreciate its success. The more they understand, the more likely they will participate willingly in helping you expand and institutionalize IPM in your facility.

When your program has been in place for long enough to show significant results, you may also wish to work with your community affairs department to publicize your successes more broadly to demonstrate your environmentally responsible approach to effective pest control.

And last but not least, lead by example by sharing your success with other Practice Greenhealth members through our listserv or a case study we can post to the Practice Greenhealth website.

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