



# 'GETTING THE BUGS OUT'

## of Boston Public Housing



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**T**RADITIONAL pest control in low-income multifamily housing, which consists of initial flush-out and periodic spray, only eliminates pests for the short term. It also often results in the survival of the strongest pests. In desperation, residents sometimes take pest control into their own hands and resort to over-the-counter, restricted, and illegal pesticides.

In the late 1990s, the Boston Housing Authority (BHA) began looking into other solutions. One method we considered was an integrated pest management (IPM) program: an environmentally-sensitive approach that relies on a combination of common-sense practices and uses current, comprehensive information on the life cycles of pests and their interaction with the environment.<sup>1</sup> The basic principles of IPM are further outlined in Table 1.

After five years of conducting research studies within a public

agency/university/community collaboration—the Healthy Public Housing Initiative<sup>2</sup> (HPHI)—the BHA adopted the IPM program in 2006. The BHA continues to collaborate with many of the same partners in a three-year IPM demonstration project funded by the W.K. Kellogg Foundation (2006-2009) and directed by the Boston Public Health Commission called the Healthy Pest Free Housing Initiative (HPFHI). This article reports on the results of two years of IPM in eleven housing developments containing 5,191 residential units — 40% of the total BHA portfolio. It also describes, in brief, the standard operating procedures (SOPs) that the BHA has put in place to institutionalize a reliable and effective IPM program in all of their developments.

<sup>1</sup> See [www.epa.gov/opp00001/factsheets/ipm.htm](http://www.epa.gov/opp00001/factsheets/ipm.htm) for more information.

<sup>2</sup> [www.hsph.harvard.edu/hphi/](http://www.hsph.harvard.edu/hphi/)

### Measuring the Results of IPM

The BHA work order system is a computerized system that registers and tracks residents' complaints of poor housing conditions, units in need of repair and maintenance work performed by the BHA staff. Within the system, BHA staff, residents, and pest control contractors

can initiate work orders to address pests and pest-related conditions. To evaluate the IPM demonstration program, BHA created a Pest Work Order Report that shows related data for select housing developments over specific periods of time. This report enabled us to compare the number of pest work orders before the IPM program with the number following

the implementation of the IPM program in order to evaluate the effectiveness of the program.

In Chart 1, the first column for each housing development represents the number of pest work orders logged in the BHA work order system for the 12-month period before an IPM contract was initiated. Pre-IPM contracts largely consisted of periodic flush-outs,

during which a pest control company would treat each unit with pesticides and then return some months later to treat again. Under this pre-IPM model, occasional callbacks to treat pest infestations in between flush-outs would occur. The sec-

ond column of results for each development represents total pest work orders during the first 12 months of the IPM contract, and the third represents the second year of the IPM contract (where applicable). Note the a significant reduction in pest-related work orders experienced at these developments following the implementation of IPM.

### Cost Analysis: You Get What You Pay For

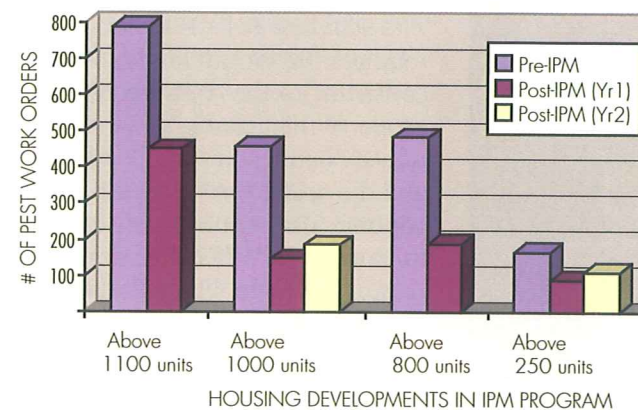
The Pest Work Order report also includes those who requested the pest-related work (generally the manager or the tenant; the time it took to complete the work order, who completed the work and the worker's hourly wage. This last item is helpful for comparing the cost of pest control in terms of BHA staff time and contract costs, both before and after the implementation of IPM.

Chart 2 shows the unit monthly

TABLE 1. ELEMENTS OF AN IPM PROGRAM

- Communicate IPM policies to residents, staff, and maintenance personnel
- Educate residents about improving sanitation, reducing clutter, and preparing for IPM inspection
- Visually inspect all units
- Seal cracks and holes, eliminate moisture sources
- Develop short list of units with persistent pest problems and inspect regularly
- Treat units with low-toxicity methods such as gel baits, tamper-resistant traps, etc.

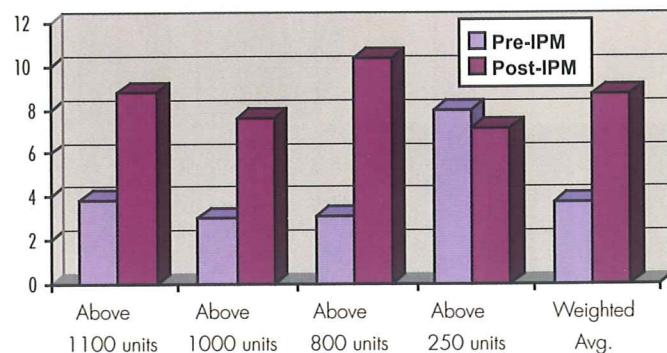
Chart 1 Total Pest Work Order Results at 4 Select Sites



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Chart 2:  
Monthly Average Total Costs per Unit  
for Pest Management



average total costs for pest management, including pest control contract costs and BHA labor. The first column shows the pest control costs in the 12 months prior to the IPM contract; the second shows the pest control costs for the first 12 months of IPM in four developments. A weighted average of pest control costs is calculated. As the chart indicates, pest control costs for IPM rose significantly: the overall weighted average went from \$3.73 per unit per month to \$8.68 per unit per month. BHA plans to follow the expenditures in the second and third years of the program to determine if unit costs can be lowered as buildings come under sustained IPM.

### Sustaining IPM in Boston Public Housing

In order to sustain IPM beyond February 2009, when the three-year demonstration project ends, our goal is to put policies and procedures in place that will institutionalize the program. The Director of Operations has mandated that all of the 49 BHA-managed family and elderly/disabled developments have an IPM program in place before the end of March 2009. Translating this directive into procedures, specifications, and best practices throughout

TABLE 2.  
**ELEMENTS FOR SUSTAINING IPM AT BOSTON HOUSING AUTHORITY**

- Standard Operating Procedures Manual Changes
- IPM Contract Specification
- Tracking Mechanism for Focus Units: Housekeeping Log
- IPM Education and Training
- Social Service Partnerships
- Capital Construction Best Practices Guide
- Continual Evaluation of IPM Program
- IPM Credentialing of Pest Control Operators

BHA has resulted in the elements listed in Table 2, each of which is briefly described in the remainder of this article. **Standard Operating Procedures Manual:** Changes to our Standard Operations Procedures Manual are a

critical component in making IPM sustainable and successful long-term. The two chapters most affected by the new IPM procedures are "Pests & Mold" and "Vacancies." Pest policy, which once necessitated chemical treatments (flushouts) in all apartments several times yearly, now requires an IPM contract with a reputable contractor. Managers and maintenance personnel have been asked to strongly discourage the residents from using pesticides in their homes and instead let the IPM professionals do the work. All pesticides used in IPM are low toxicity baits and gels (except for bedbug

treatments, which use sprays). Fogging and aerosol bombs are prohibited; dusting powders can be used in basement applications when treating fleas.

Vacancy turnaround procedures now incorporate IPM practices. All old baits and gels are removed and those areas are thoroughly cleaned. A thorough vacuuming with a HEPA vacuum removes dead pests, pest parts and rodent droppings. All holes that pests use to enter the unit or travel between rooms and apartments are sealed. Finally, all vacant apartments are pretreated with gel in inconspicuous places, including the back of electrical boxes and medicine cabinets and the openings around pipe chases. **IPM Contract Specification:** The Massachusetts State IPM Contract, FAC 50, requires the contractor to submit an IPM plan within 30 days of the award of a contract. The BHA requires the contractor to follow the protocol spelled out in our IPM contract specification. A copy of the BHA Specification and Quotation Sheet (bid sheet) and Housekeeping Log can be found in the Integrated Pest Management: A Guide for Managers and Owners of Affordable Housing on the Asthma Regional Council's website<sup>3</sup>.

### IPM Team and Community Meeting Specification

The standard BHA IPM contract requires the formation of a team consisting of the contractor, the property management, the maintenance department, the residents and the social service entities. The contract also requires the IPM contractor to hire a BHA resident as part of the team who will deliver all notifications of pest service vis-

<sup>3</sup> www.asthmaregionalcouncil.org/documents/asthma\_ipm\_guide\_000.pdf



IPM Credential Meeting October 1, 2008 held at ISD Offices including partners from City of Boston Inspectional Services Department; Boston University School of Public Health; Boston Public Health Commission, Boston Public Schools, Rivard Resources, New England Pest Management Association, and Boston Housing Authority.

its to the residents and accompany the technicians to all service calls. Before the contractor begins work, the BHA distributes notices to every family at the development, inviting them to attend an initial community meeting. The meeting is held usually in the evening to achieve optimum attendance. The contractor is required to attend the initial meeting, as is anyone the property manager deems necessary, such as the maintenance superintendent, the contractor's technician(s) or the tenant coordinator. The meeting consists of introductions, the explanation of the IPM plan and the review of all the team roles. Afterwards, the team holds quarterly follow-up meetings in order to update all partners in the progress of the contract and to iron out any problems that might arise. The property manager determines who should attend the quarterly meetings, depending on the topics to be discussed or problems encountered, but the contractor is always required to attend.



### Initial Inspection Specification

A comprehensive inspection of the entire facility is required at the start of each contract. This includes

apartments, common areas, utility rooms, boiler rooms, basements, community spaces, offices, building exteriors, dumpster areas and the like. If pests are seen during the initial inspection, IPM chemical treatments are applied. If pests are not sighted but conditions conducive to pests are identified, monitoring traps (sticky traps) are dated and placed in the area, and follow-up is planned. No action is taken if there are no pests or conditions that make the area habitable to pests. Comprehensive reporting is required throughout the contract period. Reports must include, but are not limited to: pests seen, use of gels and baits, placement of monitoring traps, status of clutter and sanitation, and IPM-related repairs needed, such as leaks and holes.

### Focus Unit Specifications

After the inspection period, the manager of the development puts together the list of problem units (called "focus" units) for follow-up inspection and treatment by the contractor. The yearly contract is based on the number of focus units and frequency of follow-up visits. As the term indicates, these units will be the focus of all the pest contractor's resources for the remainder of the contract period (one

year). Apartments that meet any or all of the following criteria are subject to continual follow-up:

- had visible pests and required a treatment;
- had conditions conducive to pest infestation and are being monitored with sticky traps for visible pest infestation;
- require a second visit because there was no access gained during the inspection (no key, tenant refused access (requires lease enforcement), dog left in the apartment when no one was home, etc.); or
- apartment was not prepared for the inspection.

All residents are informed and required to remove belongings from the kitchen cabinets and all closets and drawers so that the contractor



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can get a clear view of all areas where pests might reside.

### Flexibility in the IPM Contract

During the contract period, the manager can add apartments not initially on the focus list. These additions can be the result of tenant complaints, yearly living unit inspections, maintenance personnel reports during regular maintenance calls, regulatory agency complaints, etc. The frequency and number of follow up visits will depend on the budget, which is where contract flexibility comes into play. The BHA requires managers to have a continuous contract over the year; entire buildings, rather than units, are included in the contract for the sake of successful IPM. Where contract cost is an issue (which is the norm), managers are advised to choose only those buildings that reveal pest problems at the initial IPM inspection. The quotation or bid sheet that accompanies our contract specification gives the BHA that flexibility. The contract can be tailored to the amount of money and pest problems a manager has.

### Resident Education

The IPM contract requires the contractor to educate the residents when behaviors of the resident are contributing to the pest problems. Education begins with the initial community meeting to explain the IPM program. In the IPM demon-

**"As a manager of the Boston Housing Authority, IPM to me is I = invest in your property to P = prevent infestation and complaints to the manager and M=maintain the success you have achieved by continuing with an IPM program. The cost is not the issue but the results are."**

*Bob MacGregor, BHA Manager of Kellogg Grant Site*

stration project, BHA has pioneered the use of trained IPM peer educators to inform and motivate residents regarding their role in a successful IPM program.

### Reporting Maintenance Issues Specifications

The contractor is obligated to report maintenance issues contributing to pest infestation: "All leaks and holes larger than the contractor can handle shall be reported to the property manager by the end of the work day." The manager then places work orders for repair and prioritizes their correction.

**Housekeeping Log:** The Housekeeping Log is an Excel spreadsheet that tracks the progress of focus units. The spreadsheet, which can be sorted by apartment, date of service, or problem encountered, facilitates tracking progress in problem units; it also captures corrective action taken and lease enforcement. The Housekeeping Log captures all activity in the focus units and provides documentation of the progress or lack thereof.

**IPM Education/Training:** IPM is primarily about changing behaviors and correcting structural problems that contribute to the infestation; thus, the most important component of the IPM program is educating the residents and staff. With the assistance of partners from the demonstration project, BHA has been able to train its staff in the basics of IPM and in the use of the IPM specifications and quotation sheet. We take a "train the trainers" approach by sending some of the operations staff to all of the trainings so they in turn can train new residents who would like to participate as peer

educators. This will eventually establish a pool of residents who can be hired by the IPM contractor and the BHA to perform tenant coordinator duties and to provide peer education.

### New Residents

Our IPM sustainability plan includes an orientation for new residents that addresses the pest problems in public housing. It includes the following topics: sanitation, proper food storage, proper trash removal, reporting of maintenance issues in a timely manner (especially holes and leaks), and the role of the resident in a successful IPM program.

**Social Services:** While education is an important component of the IPM procedures, at times we have to seek outside help for the residents. Whether due to disabilities or lack of knowledge, not all of our residents are capable of maintaining their apartments. Our elderly/disabled sites have social service coordinators that managers can refer their tenants to, but our family sites don't have access to similar services. In order to address

### Additional Notes:

- For more information on the Getting the Bugs Out conference, see <http://www.asthmaregionalcouncil.org/GettingtheBugsOutIntegratedPestControlStrategiesforAffordableHousing.html>
- For further information on the Pest Work Order report and costs of IPM contact: John Kane, planner in Operations Department, at [john.kane@bostonhousing.org](mailto:john.kane@bostonhousing.org)
- For further information on the IPM contract and the elements of sustaining IPM contact: Lori Luce, Maintenance Systems Manager, at [Lori.Luce@bostonhousing.org](mailto:Lori.Luce@bostonhousing.org)



this gap, we developed a partnership with the Boston University School of Social Work. Student interns will work with those tenants in family developments who have problems keeping up their apartments to standard. We expect to eventually have a social service directory that we can provide to our managers so they can seek outside social service agency assistance for the most problematic residents.

**Capital Construction Best Practices Guide:** The BHA directed that an IPM best practices guide be developed for our Capital Construction Department (CCD). It



IPM Monthly Implementation Meeting for Kellogg Grant held at Torre Unidad Elderly/Disabled Development September 25, 2008 including partners from Committee for Boston Public Housing, Boston University School of Public Health, Boston University School of Social Work, Boston Public Health Committee, West Broadway Task Force, WatchAll Pest Management, and Boston Housing Authority.

states that if a site for which capital construction/renovation work is being planned has an IPM contract, that the project manager must, at a minimum, have a discussion with the manager of the site regarding any structural issues contributing to the pest problem and any issues that may impact the design and construction of capital work. The BHA is taking that a step further by putting out an RFP (request for proposal) to develop a best practices guide that can be used by CCD in the design of all capital work in the future. We intend to ensure that past mistakes in construction and renovation



that have contributed to pest problems will not be repeated. Including the capital division in our IPM program is a sound decision and enhances our IPM partnership at the BHA

**Evaluation:** The monitoring and evaluation of the BHA's contracts is critical, and we will be performing quality control as we go forward. This will require speaking to residents and technicians about the services provided. Occasionally, our managers will accompany the technicians on service calls to observe first-hand what the technicians are doing and what they are up against. Frequent meetings are another way to ensure constant information flow and quality control: Besides the initial community meeting and the quarterly meetings throughout the contract, the manager or maintenance superintendent should be having weekly meetings with the tenant coordinator and the technician to discuss issues or problems that arise on the day

of the service. We will also evaluate results by running pest work order reports, keeping detailed cost information from year to year and tracking progress.

**Advanced IPM Credentialing:** BHA is working with the city of Boston and other partners to develop an Advanced IPM Credential training program, enhance the existing New England Pest Management Association IPM (NEPMA) registry, train companies in classroom and field settings and audit performance in IPM for housing, schools and food service. As public agencies, we are required to solicit competitive bids. Our experi-

**"IPM is a cutting edge approach to one of the biggest problems any landlord faces. Congratulations on the good work."**

*Sandra Henriquez, BHA Administrator, to IPM program staff.*

ence in the past is that some of the companies on the NEPMA IPM registry will bid low on our contracts, but then perform traditional pest control (chemical treatments only). The intent of the Advanced IPM Credentialing program is to develop a list of skilled IPM technicians who can perform certified IPM practices so that supply of certified IPM pest control can meet the growing demand.

### Conclusion

We intend to continue IPM at the BHA. The increased quality of life that has resulted for both our residents and our employees has convinced us that we are doing the right thing. ■

### Acknowledgments

The Healthy Pest Free Housing Initiative (HPFHI) is a collaborative project aimed at reducing pest infestation and pesticide use in public housing in Boston. HPFHI is funded with support from the W.K. Kellogg Foundation and the U. S. Environmental Protection Agency. The primary focus of HPFHI is implementation of integrated pest management (IPM), a safer and more effective alternative to traditional pest control, that relies on residents, managers and pest control companies working together to reduce pest infestation.

Partners include the Boston Public Health Commission which serves as the lead agency, Committee for Boston Public Housing, the West Broadway Task Force, the Boston Housing Authority, the Boston University School of Public Health, the Asthma Regional Council, the Massachusetts Public Health Association, and the Boston Urban Asthma Coalition.

