

1. Title:
Educational Outreach for the Prevention and Management of Bed Bugs

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4. Abstract:
In the past decade, bed bugs have made an astounding comeback all across the United States. Bed bugs are small blood-feeding insects that invade human habitats, specifically the home, and where people sleep. Since bed bugs were nearly absent for 40 years in the US, very little is currently known about them, both in terms of their biology and the public's familiarity with their appearance and control. Educational needs for dealing with this pest are overwhelming, and include outreach to cooperative extension educators, Master Gardeners, pest control professionals, facilities managers, social workers, medical professionals, travelers, college students and their families, landlords, tenants of rented properties, and just about everyone else. Those who seem to be most vulnerable to bed bugs include those in multiple unit buildings, the elderly (living alone), and those living in assisted or group homes. Elderly and disabled individuals tend to have fewer resources and may lack the ability to recognize or deal with bed bugs.

The New York State IPM Program has approached the bed bug issue from a variety of angles. Staff are frequently called upon to help individuals, organizations and agencies deal with bed bugs in homes, facilities, and schools. Through phone calls, presentations, sample identification, development of educational materials and other outreach, the NYS IPM Program is working hard on raising public awareness about this pest and means of controlling it.

In a broad effort to bring cooperative extension educators and other trainers up to speed with bed bugs, we have created a Frequently Asked Questions page on bed bugs, traveler's cards (and college student cards) for easy ID of bed bugs, and a guide for Master Gardeners on how to answer the questions from bed bug callers. Additionally, guidelines for shelters and group homes were developed. Many training sessions have been held in 2008, reaching trainers as well as new audiences such as social workers and medical service providers.

5. Background and justification:

Bed bugs, *Cimex lectularius*, are blood-feeding parasites of humans and some animals. Bed bugs cannot fly or jump, but they run and they are excellent at remaining undetected. These insects, once commonplace in homes and hotels, nearly disappeared from developed countries by the 1950's due to the use of residual insecticides. A steady resurgence of bed bugs became evident in the late 1990's, and since this time research

and outreach from various sources have expanded yearly. But so have the bed bug infestations.

Throughout the United States people are facing bed bug infestations in their homes, dormitories, hotels, and other types of housing and accommodations. According to a survey of the pest control industry conducted in 2005, the resurgence of bed bugs has been consistent across the US (Gangloff-Kaufmann et al. 2006). Although bed bugs are not vectors of disease, they do have significant health effects for sufferers. Bed bugs cause high levels of anxiety, stress, and loss of sleep when they infest the home. While reactions to bites vary among individuals, bites often result in itchy welts that may lead to secondary infections from scratching. Anemia has been reported for the elderly in heavy infestations. Bed bugs have also been identified as an asthma trigger. However, the overexposure to pesticides, especially from self-treatment, may be a greatly underestimated public health risk.

Extension programs in many states have responded with fact sheets, new research programs, and educational opportunities. In addition, health departments and municipal agencies in a few cities have taken steps to help their citizens with bed bug problems. Still the problem appears to have worsened over the past few years. Complaints to the New York City help line, 311, have increased from about 540 in 2004 to more than 8800 by the first half of 2008. Field collected bed bugs from various parts of the US are known to be resistant to commonly used pyrethroids (Romero et al. 2007). Although bed bugs are not currently known to vector disease, their public health impact can be seen in the numbers of bites victims suffer, the emotional stress of fighting them, the financial strain placed on families and people when money is tight, and the potential for pesticide overuse. Even with the improved level of communication among pest control professionals and university researchers, and increased awareness and skill level, bed bugs continue to be among the most frequent and challenging pests to deal with. This project addresses the needs of the pest control industry, municipal agencies, and the general public for help with bed bug problems. In particular, focusing on underserved audiences, such as shelters and group homes, may have a significant impact on the protection of human health while indirectly benefitting others.

6. Objectives:

- a. **To improve awareness of the prevention and management of bed bugs.**
- b. **To increase audience (and stakeholder) ability and confidence in managing bed bug outbreaks.**
- c. **To collaborate statewide, regionally and nationally, sharing bed bug resources, research, and educational opportunities.**

7. Procedures:

- a. **Improving awareness of bed bugs –**

The development of both written and visual materials for bed bug education has been a primary activity of the IPM Program. The Frequently Asked Questions document (published online) seeks to provide answers to each and every question a bed bug sufferer

might have. It is a comprehensive guide to provide answers and visual information about bed bug appearance and other physical evidence of them. It guides the reader on where to look for bed bugs and also how to manage them in belongings and in the home.

Through collaboration with the New York City Dept of Health and Mental Hygiene and NYC Dept of Homeless Services, IPM staff developed the “Guidelines for Prevention and Management of Bed Bugs in Shelters and Group Living Facilities”. This guide provides the landlord or facilities manager with proper bed bug management steps. It instructs residents on how to prepare, do laundry and clean, and how to keep their family safe from bed bugs. It provides necessary information to social and medical service providers to help their clients who have bed bugs. The guide is applicable to a variety of multiple unit dwellings, such as college dormitories, SROs, and temporary housing. It is meant to compliment the IPM program of the professional pest manager. Along with the Guidelines, a separate flyer was developed specifically to be handed out to clients of shelters and group homes. This flyer titled “How to Protect You and Your Family from Bed Bugs” addresses the particular responsibility that each of us plays in bed bug prevention and management, from not picking up discarded items and furniture, to cleaning and organizing. As a final part of this project, a poster was developed to engage the target audience. The poster has been modified and will be used in a separate HUD/EPA/ Northeastern IPM Center project in Baltimore and Boston.

Anyone can pick up bed bugs in their daily lives and through traveling, a point that many people do not understand. For those who travel and others who attend college, IPM staff developed Bed Bug Traveler’s Cards, which summarize the most important points about bed bugs and provide images for identification on the spot. These cards also have tips for the traveler to inspect their own hotel room. Modified into a college student card and a general ID card, these are highly colorful, wallet sized, attractive and simple.

With county extension programs in mind, IPM staff created the Bed Bug Caller Guidance, which is a tool for Master Gardeners and extension agents who may be unfamiliar with bed bugs. The Caller Guidance provides the extension agent with complete answers to the most common questions asked by people who suspect or know they have bed bugs. The original fact sheet developed by IPM staff titled “Bed Bugs are Back! An IPM Answer” still remains one of the most popular URLs on the IPM website. The fact sheet contains basic bed bug information and control tips, but needs to be updated.

b. Increase audience ability and confidence to deal with bed bugs–

Bed bugs are notoriously difficult to control due to their insidious nature and ability to move and be transported. The use of integrated pest management is dictated by the nature of bed bugs, because no amount of pesticides, cleaning, or disposal of belongings, alone, will control them. Through the development of Power Point presentations, delivery of seminars and workshops, and the dissemination of manuals and traveler’s cards, IPM staff have reached out to share knowledge and experience with audiences. Seminars and workshops have been delivered to audiences including staff of Columbia University, New York pest management professionals (PMPs), nurses and social workers who work with

the disabled, the Coalition for the Homeless, and the NYC Department of Health and their affiliates. An in-service was offered in Putnam County to area extension educators and PMPs that included a lecture and two hands-on sessions to teach bed bug scouting and identification. Additionally, the Nassau County District Attorney's office and community activists in Nassau County organized a roundtable discussion of bed bug problems in low-income and public housing areas of Hempstead, NY, and what can be done to help.

The "Guidelines for Prevention and Management of Bed Bugs..." has been mailed out to over 60 different organizations that deal with the homeless and those in group homes. To further disseminate bed bug materials, all publications have been placed onto the NYS IPM program website. Publicity through sites such as www.bedbugger.com has helped promote our online resources.

c. Collaborate statewide, regionally and nationally –

Bed bugs will only ever be brought under control through collaboration of those involved and those potentially affected. IPM staff members have been interested in raising the skill level of fellow extension agents in providing education and help for their stakeholders. The Bed Bug Road Show was a good example of efforts to bring others up to speed on bed bug management. Participants were interested, enthusiastic, and they received support materials that should enable them to answer questions effectively. In the future, we hope to present this workshop to extension audiences in other parts of the state.

Since bed bugs are not just a local problem, the Northeastern IPM Center's Community IPM working group (CWG) has designated community pests, such as bed bugs, a priority. In 2008, CWG members wrote a grant proposal that seeks to create a website to link the public with university and extension resources, but through an affiliated mass-transit campaign. The members are planning to create bus posters that grab the attention of riders and draw their curiosity or need to the website thus establishing a new relationship with previously unreached urban audiences. The first topic in the first ad campaign will be bed bugs (if funded). Furthermore, members of the CWG have teamed with others to develop a mini-symposium titled "Bed Bugs and Public Health: Establishing the Connections" at the upcoming National IPM Symposium. Both projects will lead the NYS IPM program into new relationships and collaborations in the battle against bed bugs.

8. Results and discussion:

Bed bugs are unique in the realm of pest management in that their control absolutely depends on using integrated strategies, and these strategies always involve work on the part of the person or people whose homes are infested. Outreach and education for bed bug management has therefore allowed us to steer a lot of activity directly to the public, and organizations that provide social and medical help to the public, in addition to typical audiences, such as PMPs. While the pest management industry is still on a learning curve with bed bugs, it seems that most have become skilled in bed bug control. The public, individuals who are affected by bed bugs, require significant amounts of outreach, because their role is vital and many do-it-yourselfers resort to old-fashioned pest control

tools such as “bug bombs”. Educational messages about bed bugs include strong discouragement of the use of “bug bombs” and other over the counter pesticides, because such methods are usually ineffective. By teaching the individual about the importance of their role as home organizer and cleaner, and encouraging them to hire pest control services, it is expected that the use of pesticides will be reduced. By teaching the individual ways and reasons to cooperate with PMPs, such as home preparation for bed bug treatments, pest management becomes more effective, resulting in reduced economic and health risks. Also by informing agencies, organizations, and people about ways to clean belongings and furniture, bed bug management becomes more effective, financial burdens are reduced (from replacing items), and the spread of bed bugs is reduced by not allowing infested items to be scavenged.

This work has the potential to affect any person who visits the NYS IPM website for bed bug information. Pest management professionals are pleased that outreach is being done to encourage people to take responsibility in bed bug control. NYS IPM materials are being used in other areas. For example, the bed bug poster has been modified and will be used in a separate HUD/EPA/ Northeastern IPM Center project in Baltimore and Boston. The “Guidelines” online have garnered over 4200 hits in four months and will be used by the Michigan Department of Health in their own bed bug outreach.

9. References:

Gangloff-Kaufmann, J.L., C. Hollingsworth, J. Hahn, L. Hansen, B. Kard, M. Waldvogel. Bed Bugs in America: A Pest Management Industry Survey. PCT Magazine, Nov. 2006.

Romero, A., M.F. Potter, D.A. Potter and K.F. Haynes. 2007. Insecticide Resistance in the Bed Bug: A Factor in the Pest’s Sudden Resurgence? J. Med. Entomol. 44(2): 175-178 (2007)

10. Project location(s):

Several presentations about bed bugs have been given in Suffolk County and Nassau County, and New York City. One presentation was given in Albany, NY for the New York State Association of MR DD Nurses (statewide group). The Bed Bug Road Show was conducted in Putnam County and included participants from various Hudson Valley counties. All written materials apply nationally and have been accessed by people around the United States.

11. Samples of resources developed: (if applicable)

Publications:

Bed Bug Travelers Cards:

http://www.nysipm.cornell.edu/publications/bed_bugs/files/bb_travelers_online.pdf

Bed Bug Frequently Asked Questions:

http://www.nysipm.cornell.edu/bug_bytes/bed_bugs/bedbugs_faqs.asp

“Guidelines for Prevention and Management of Bed Bugs in Shelters and Group Living Facilities” http://www.nysipm.cornell.edu/publications/bb_guidelines/default.asp

Bed Bug Caller Guidance:

http://www.nysipm.cornell.edu/publications/bed_bugs/files/caller_guidance.pdf

Photographs taken at the Bed Bug Road Show, Putnam County Nov 4th, 2008.

