

Joint Bed Bug Task Force
Strategic Plan
June 6, 2008

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Preface

Development of this strategic plan was stimulated by community concern about bed bug infestations expressed in a series of Town Hall meetings in Cincinnati that were sponsored by Ohio State Representative Dale Mallory. During the Town Hall meetings in August 2007, and October 2007, representatives from city and county health departments met with citizens from Cincinnati and Hamilton County, to hear about their personal experience and concerns about bed bugs and the effect of bed bug infestations on their quality of life.

Following those Town Hall meetings, Representative Mallory convened an emergency meeting of city, county, and state officials on January 18, 2008 to discuss solutions to the bed bug problem in Cincinnati and Hamilton County. Participants in the meeting included Representative Dale Mallory, Representative Michelle Schneider, Senator Bob Shuler, Cincinnati Councilman Chris Monzel, County Commissioner Todd Portune, Cincinnati Health Commissioner Dr. Noble Maseru, Hamilton County Health Commissioner Mr. Timothy Ingram, Dr. O'Dell Owens, Ms. Shirley Dunham representing Cincinnati Vice-Mayor David Crowley, Ms. Carolyn Edwards representing Cincinnati Councilman Cecil Thomas, Ohio State University Entomologist Dr. Susan Jones, Cincinnati Assistant Health Commissioner Dr. Camille Jones, Hamilton County Director of Environmental Health Chris Eddy, and Ms. Polly Doran from the Council on Aging of Southwestern Ohio. As a result of that meeting, the Joint Health Department Bed Bug Task Force was formed.

Task Force members included Dr. Camille Jones, Mr. Timothy Ingram, Dr. Susan Jones, Mr. Antonio Young, Mr. Chris Eddy, Mr. Thomas Hooper, Mr. Robert Smith, Ms. Bernadette Watson, and Dr. Mohammad Alam, with additional information and research being provided by Mr. Dale Grigsby, (the late) Mr. Alan Hamilton, and other members of the staff of both the Cincinnati Health Department and Hamilton County Public Health.

The importance of the bed bug issue, its effect on quality of life of residents, and its potential effect on the economic viability of the region have been clearly defined.

Ohio State Representative Dale Mallory stated “This infestation is a major social and economic issue that must be addressed. We are working hard at the state level to help address this issue. I have met with the Ohio Department of Health and the Ohio Department of Agriculture, and state elected officials. We are looking forward to helping resolve this problem.”

Vice Mayor David Crowley, Chairman of the City Council Health, Environment and Education Committee, said “It is obvious that bed bugs have infested our city. Declaring them as ‘vermin’ was just one step. The City, the County and the State have begun a cooperative approach, and it will take that continued cooperation to combat this infestation.”

Hamilton County Commissioner Todd Portune said “The City and County Health Departments have come together to put a plan to attack the bed bug problem in our community. This plan spells out what citizens can do to protect themselves from this pest.”

Ohio State Senator Robert Schuler said "As a legislator, I am concerned with maintaining and improving our constituents' quality of life. The bed bug issue impacts community members and local and state agencies. We must be dedicated to resolving it quickly."

Ohio State Representative Michelle Schneider said "This is a bipartisan issue that has nothing to do with whether someone is Republican or Democrat, rich or poor, young or old. Bed bugs can infest anyone. This is a major public health issue that must be addressed."

Cincinnati Councilman Chris Monzel said "The necessity of including the health department and other city and county departments as well as private and community organizations in this effort is clear."

Dr. Noble Maseru, Cincinnati Health Commissioner stated "This bed bug problem is like a canary in the coal mine, alerting us to vulnerabilities of our social environment. The Task Force led by Dr. Camille Jones provides guidance to address bed bug infestation and the importance of establishing an essential multi agency network to solve this major nuisance in our social environment. I also commend our state, county and city legislative leadership in their quest to acquire resources which in the long term must be resolved through a citizen, public and private sector collaborative effort. "

Mr. Timothy Ingram, Hamilton County Health Commissioner stated, "By working together with the Cincinnati Health Department, Hamilton County Public Health, and the Ohio State University Co-operative Extension Service, the bed bug protection plan provides citizens a resource on what to expect from us, and what citizens need to know to protect themselves from this pest."

The role of the citizen in fighting this infestation is also critically important.

Dr. Susan Jones, Ohio State University Extension Entomologist, said, "A multi-pronged, integrated approach is needed for the management of bed bugs. The use of insecticides alone will not lead to control of a bed bug infestation. Rather, bed bugs are best combated by using a variety of sanitation techniques (vacuuming, laundering and drying items, caulking cracks and crevices, removing wild animal roosts, eliminating bed bug harborages, etc.) in conjunction with exclusion methods and the targeted use of insecticides."

Mr. Antonio Young, Supervising Sanitarian for the Technical Environmental Service of the City of Cincinnati Health Department said "We are committed to finding a way to minimize the impact of bed bugs on our community. The southwestern area of Ohio appears to be experiencing what the rest of the state may expect in the near future. The important work that the Task Force and political representatives do in this region, if carefully done, may serve as a model in addressing this formidable quality of life issue elsewhere".

Mr. Thomas Hooper, Sanitarian in the Technical Environmental Service of the City of Cincinnati Health Department said, "Landlords and Pest Management Professionals play an important role in controlling bed bugs, but unless citizens properly prepare for a bed bug treatment it will not be effective. The Cincinnati Health Department has been giving

presentations to community groups, public housing, tenants, and city personnel. These presentations help bridge the gap between the Managers, Pest Management Professionals and Citizens and help define their role in bed bug control.”

This document is intended to be used as a stepping point, identifying issues that must be addressed in order to develop an effective response to the bed bug infestation in this region. However, it is clear that an effective response is going to require allocation of resources, as well as time and commitment on the part on numerous different agencies and organizations.

Dr. Mohammad Alam, Director of the Environmental Health Sciences section of the Cincinnati Health Department, said “Bed bugs are equal opportunity pest. They do not discriminate among their hosts. The increase in local, interstate, as well as international travel has helped their spread. Reports of bed bug presence in private dwellings, hotel/motel rooms, fire stations, ocean liners and even hospitals are indicative of the serious nature of the bed bug problem. In the past, the broad spectrum pesticide such as dichlorodiphenyltrichloroethane (DDT) helped control the problem very well. These banned pesticides cannot be used as a bed bug pesticide any more. There is an urgent need for our citizens, both landlords and tenants, to receive education in the identification of bed bugs, and appropriate measures for controlling bed bugs. There also exists a need for researchers in academia and pesticide manufacturing to propose viable alternate(s) to DDT. I see the recommendations of our task force as a small first step in this direction.”

Dr. Camille Jones, Assistant Health Commissioner for the Cincinnati Health Department, summarized “In the spirit of hope, synergism, energy and effectiveness, we offer these deliberations with the expectation that various sections of the plan will be evaluated, strengthened, and expanded in a way that will be helpful for all citizens in the region and the state.”

Sincerely,

The Joint Bed Bug Task Force

Camille Jones, MD, MPH

Timothy Ingram, RS, MS

Susan Jones, PhD.

Antonio Young, RS

Chris Eddy RS, MPH

Thomas Hooper, RS

Robert Smith, RS

Bernadette Watson

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BACKGROUND

Bed bug infestation is a very important QUALITY OF LIFE issue. Bed bugs are small parasitic insects that feed on blood, preferentially that of humans. They typically obtain a blood meal when their host is asleep. To date, no instances of transmission of infectious diseases via a bed bug bite have been documented in either public experience or in research studies. However, some individuals have very vigorous allergic reactions to bed bug bites. Others respond with insomnia, anxiety, and various levels of distress related to the bed bug infestation. If left untreated or improperly treated, bed bug populations rapidly increase and infestations can quickly spread to other households. City and County governments are appropriately concerned and interested in pursuing effective ways to improve the quality of life and decrease distress related to bed bug infestations.

Few complaints of bed bug infestations were received by the Cincinnati Health Department in 2006, but a large number of complaints were lodged in 2007 (737 recorded in the Cincinnati Customer Service Response system (CSR), and from January 1 through May 15 2008, an additional 320 complaints were lodged. The majority of complaints to the Cincinnati Health Department came from occupants of multi-unit apartment complexes. In Hamilton County, there also has been an upward trend in the number of bed bug complaints, with Hamilton County Public Health receiving 2 complaints in 2004, 37 in 2005, 84 in 2006, 167 in 2007, and 51 from January 1 through May 15, 2008.

Community organizations report that they have been dealing with bed bug problems for at least 2-3 years. The Talbert House (a community-wide nonprofit network of social services) began dealing with bed bugs in April 2005. The cost to Talbert House of specialty pest control, general cleaning, furniture replacement, and carpet cleaning has totaled more than \$55,900 to date. The Urban Appalachian Council also has been dealing with bed bug infestations in donated furniture over the past 3-5 years. It is clear that bed bugs are a growing problem in the Cincinnati metropolitan area.

A series of Town Hall meetings in Cincinnati, were sponsored by Ohio State Representative Dale Mallory in August 2007, and October 2007, with representation from city, county, and state elected officials and public health professions. A joint meeting of city, county, and state officials was held on January 18, 2008. As a result of that meeting, the Joint Health Department Bed Bug Task Force was formed with representatives from the Cincinnati Health Department (C. Jones, A. Young, T. Hooper, R. Smith, and B. Watson), Hamilton County Public Health (T. Ingram, C. Eddy), and Dr. S. Jones, an expert entomologist with Ohio State University Extension Service, to discuss what is currently being done, and to develop coordinated approaches to addressing the bed bug problem. The Joint Bed Bug Task Force has held five joint meetings on January 28, February 4, February 14, February 27 and April 14, 2008. During that period, the Task Force also has met several times with City/County/State officials to provide progress reports.

The Joint Bed Bug Task Force is working together to develop similar resources to be offered to city and county citizens to respond to bed bug infestations. These resources will include a coordinated

complaint line and surveillance system, standardized educational materials, and information on a) policies for disposal of infested materials, b) assessment standards for prospective Pest Control Operators (PCOs) in terms of licensure and complaints history, c) inspection protocols and procedures, and d) examination of policies for citation and enforcement. In addition, the Joint Bed Bug Task Force will brainstorm creative strategies to solve problems such as how to encourage responsiveness on the part of owners (and occupants) of multi-unit buildings that are infested. We will also develop recommendations for municipal and county codes and best practices protocols to regulate businesses and practices that may contribute to spreading infestations. The Joint Bed Bug Task Force meetings have been very productive, and the content of this strategic plan is the result of the discussions

City and County Similarities

In our discussions, we noted numerous similarities between the City of Cincinnati Health Department and the Hamilton County Public Health, in terms of objectives and needs. These include:

- Need for effective **educational outreach** to citizens at all levels of education and financial resources on ways to prevent and treat bed bug infestations
- Need for **ongoing coordinated surveillance**, tracking, and reporting of complaints to assess trends and other indicators of the extent of infestation
- Need for an **integrated pest management (IPM) approach** against bed bugs that incorporates a variety of non-chemical methods and chemicals applied to targeted sites. Need for effective **treatments** that kill both adult insects and eggs
- Need to increase the availability and use of known effective treatment methods (**e.g., high temperature ‘dry’ steam cleaning**) by **companies and individuals**
- Need for effective **oversight** of appropriately licensed companies/individuals offering bed bug control services to ensure safe application of chemicals according to label directions and best practices protocols for bed bug control
- Need to **limit toxic and hazardous exposures** to chemicals, dusts, and flammable alcohol fumes due to incorrect use of these substances on mattresses and other surfaces by concerned citizens
- Need for expanded **services** to be made available for citizens
 - Mattress encasement covers and instructions (at cost or subsidized for indigent citizens)
 - Wrapping and labeling materials for infested furniture that is being discarded
 - Educational resources for individuals and groups
- Need for residents to understand that discarding bed bug-infested furniture should NOT be standard practice given that replacement items can quickly become infested if bed bugs are still on the premises. Should residents opt to discard unsalvageable items, there is a need for efficient, fast **pick up of infested furniture**. In the City of Cincinnati, pick up is by Public Services personnel in a dedicated vehicle, with disposal in the city dump. In Hamilton County, there is privatized disposal of infested materials- by Rumpke or CSI. Within both jurisdictions, there is a need for easy-to-understand information on how to wrap and mark furniture prior to removal, in order to avoid dispersion of insects throughout a building. Need for info on marking and defacing furniture so it will not be reused
- Need for effective ways to **prevent infestations** among city and county workers who are exposed to bed bugs during their normal job duties

- An issue of particular importance to both the City of Cincinnati and Hamilton County is the highly **pesticide resistant species of bed bugs** that are found in our area, which means that there are fewer effective pesticides and the type of pesticide used must be changed for successive treatments. Targeted application to all harborage sites is critical, which necessitates in-depth inspections by highly trained personnel. However, chemical treatment alone cannot resolve a bed bug infestation. There must also be an integrated pest management plan involving cooperation and specific actions by the occupant as well as the owner/management of the affected building. Failure on the part of either party can result in treatment failure for the building. Occupants must take steps to prepare their dwelling prior to treatment by the PCO, such as removing all clutter, vacuuming all surfaces, removing all items from dressers and closets, laundering linens and clothes then bagging clean items, providing access to baseboards, etc.
- Another issue is the possibility that desperate occupants may attempt to eradicate the infestation themselves, using **toxic and/or ineffective methods of bed bug eradication**, either through lack of knowledge or lack of funds or because of sheer desperation. Although over-the-counter pesticides may be obtained at local stores, many of these products are not even labeled for bed bugs. Note that it is a violation of Federal Law to use a pesticide product in a manner inconsistent with its labeling.

City/County Differences

There are also significant differences between the City of Cincinnati and Hamilton County, that may affect the strategies that will be effective, the risk of spread of infestation, the ability of affected citizens to effectively respond to infestations with the recommended protocol of action, the willingness of owners and residents to extensively treat affected structures rather than moving to a different structure, and the ability of residents to dispose of heavily infested and unsalvageable furniture in the face of continuing infestation after appropriate treatment. These include:

- A higher percentage of residential units that are rental units in Cincinnati (58%) compared to Hamilton County (37%)
- Different types of housing stock in the compared to the County, including a higher proportion of old buildings that may provide numerous cracks and crevices for harborage of bed bugs
- A higher percentage of the population in the City of Cincinnati that is living below the poverty line (28%) compared to Hamilton County (15%)
- A larger number and higher density of transient residential structures (shelters, hotels, motels) in Cincinnati
- Greater mobility of the city population because of the higher percentage of renters
- Different laws and regulations that govern quality of life issues, treatment of nuisances, and maintenance of buildings and structures. For instance, City of Cincinnati and Hamilton County nuisance codes vary in a) where the financial onus of responsibility for abatement lies, b) ability of health department inspectors to enter an apartment with a management representative without a warrant for inspections, when the tenant is not present.

Bed bug infestation in Cincinnati, OH

In February 2008, the Cincinnati City Council passed a resolution to explicitly add bed bugs to the list of vermin in the city Neighborhood Quality of Life Code, CMC 1601-17 (Title XVI). The Cincinnati City Council has also asked the Cincinnati Board of Health to add bed bugs to the list of

vermin in the Cincinnati Board of Health regulations. This was considered at the March 2008 meeting of the Board of Health, but no action was taken.

Surveillance and Tracking

A review of vermin complaints recorded in the City of Cincinnati Complaint system showed the following information for complaints that were entered into CSR System from January 1, 2007 through May 15, 2008. Bed bugs already represent the most numerous complaints for vermin, outweighing complaints for mice, roaches and rats, which are known disease vectors:

- 104 mouse complaints
- 397 roach complaints
- 228 rat complaints
- 1057 bed bug complaints

From 2007 to present, the Cincinnati Health Department responded to the complaints by providing educational materials and inspecting approximately 9% of bed bug complaints.

For the non-bed bug vermin complaints, 95% required some sort of enforcement, but less than 1% resulted in court referral. We will be monitoring to see if bed bug complaints show the same level of required enforcement actions.

If a Health Department inspection response is mandated for all bed bug complaints, this will result in significantly increased use of Health Department resources, and will necessitate additional funding.

The Board of Health is in the process of considering the effect of expanding inspection activities relative to bed bugs on the state-mandated Health Department functions, and the synergistic effect of all of the unfunded mandates on our state-mandated disease control and public health assurance functions. It is clear that additional funding will be a required in order to respond in the manner being requested by City and State elected officials.

Bed bug infestation in Hamilton County, OH

In 2003, Hamilton County Public Health (HCPH) received its very first bed bug complaint. Although not currently considered to be a primary vector of human disease, bed bugs are actively handled by HCPH as public health nuisances. HCPH has responded to 100% of bed bug complaints received from 2003 to present, with field inspection within 5 business days.

HCPH is working with the recently organized Joint Bed Bug Task Force to respond to public concerns about bed bugs and to help eradicate the insects from occupied structures in the Hamilton County/ Greater Cincinnati region. Hamilton County Public Health Environmental Sanitation Regulation No. 1-67, Section 4.16 states: The interior of every structure used for human habitation shall be free from insect, rodent, and vermin infestation.

Surveillance and Tracking

1. Complaints are logged into a database and tracked regularly.
2. Complaints are assigned to a field sanitarian.

3. Complaint locations are geo-coded into the Cincinnati Area Geographic Information System (**CAGIS**) and mapped.

Investigation procedures

1. Complaints are received by the Environmental Health Division according to the normal nuisance complaint protocol (phone, email, referral, etc.)
2. Complaint is assigned to inspector and inspection is conducted within the established response timeframe (5 business days or less).
3. Field assessment performed to determine the extent of problem
4. Notice of Violation written to tenant and/ or landlord if appropriate.
5. Inspector follows-up with tenant, landlord, and pesticide applicator (if applicable) within 14 days to assess progress of treatment efforts.

HCPH vermin complaints:

2004 Rats and mice = 139
Roaches = 29
Bed bugs = 2

2005 Rats and mice = 75
Roaches = 30
Bed bugs = 37

2006 Rats and mice = 64
Roaches = 34
Bed bugs = 84

2007 Rats and mice = 75
Roaches = 55
Bed bugs = 167

January 1 to May 15, 2008
Rats and mice = 5
Roaches = 5
Bed bugs = 51

Joint Bed Bug Task Force Structure

At present, the Joint Bed Bug Task Force consists of two health departments (Cincinnati Health Department and Hamilton County Public Health) and the Ohio State University Extension Entomology. We foresee that many other entities will be involved in discussions of specific issues, with two levels of participation: a) Stakeholders - people/organizations that are present at the meetings, and b) Interested parties - people /organizations that receive automatic notification and minutes of the meetings.

Examples of stakeholders and interested parties:

- Council on Aging
- Greater Cincinnati Northern Kentucky Apartment Association (Charles Tassel)
- Talbert House
- CMHA
- Nursing home representatives
- Ohio Department of Health
- Ohio Department of Agriculture
- Legal counsel from City and County
- Cincinnati Rental Association
- Mental Health
- Legal Aid
- Ohio Pest Control Association
- Urban Appalachian Council
- Invest in Neighborhoods Board of Trustees
- Workforce development
- Pro-Seniors
- Community Action Agency
- Others (yet to be designated)

ISSUES

1. Quality of life issue. No documented transmission of disease from bed bug bites, unlike other insect vectors included in vermin regulations (roaches, fleas, mosquitoes, and ticks)
2. Tenaciousness of bed bug infestations
 - Resistance of bed bugs to currently available insecticides.
 - Bed bugs and eggs can be hidden in very small cracks, crevices, and fabric folds.
 - Bed bugs are highly mobile, and can travel behind walls and along water pipes from unit to unit in residential buildings. Old housing stock has numerous crevices in floors, baseboards, along water pipes.
 - Bed bugs in this region are highly resistant to available pesticides. Lack of effective residual killing power of current pesticides with respect to bed bugs.
 - Eggs are extremely durable and are not affected by many pesticides. Need to have a follow-up inspection and possibly a repeat treatment at 1-2 week intervals, to kill insects newly hatched from eggs, for at least 2-3 follow-up cycles.
 - Bed bugs can live more than a year without a blood meal.
3. Lack of public education about how to choose a pest control operator (PCO), how to evaluate the adequacy of their PCO's work, how to prepare the units, and prevention techniques to avoid getting an infestation.
4. Residents who are unable to adequately prepare unit for pesticide application (elderly, disabled)
5. Lack of financial resources of low income occupants/owners to hire pest control operators (PCOs).

6. Treatment issues

- Early intervention when the first bed bug or fecal sign is seen gives the greatest chance for eradication from a building.
- Need for simultaneous intensive inspection and treatment, to avoid scattering and dispersing the bed bugs.
- Need to inspect all surrounding units on the same floor as well as the units on the floors above and below the infested unit, at same time, and treat as needed.
- Need for repeated applications of chemicals by knowledgeable PCOs with rotation of type of chemicals
- May need structural modifications in buildings, due to high mobility of bed bugs, and their ability to spread through cracks in walls and baseboards, and along water lines and pipes.
- Some residents may be unable to adequately prepare their unit for pesticide application (elderly, disabled), which may be a cause of persistent infestation.
- Need to increase public's understanding of ways to maximize treatment effectiveness, i.e., rigorously reduce debris and clutter, launder and bag clothing, etc.
- Routine discarding of furniture is not recommended

7. Workforce and training issues

- Some PCOs may not have up-to-date information on integrated pest management strategies for bed bug eradication. Need continuing education for PCOs.

8. Educational issues

- Current educational outreach:
 - Written educational materials for citizens (brochures and fact sheets)
 - Health Department website-linked information,
 - Presentations to concerned organizations and citizens, tenants and landlords, schools
 - CHD information for public employees going into infested buildings
 - Detailed CHD DVD with information on bed bugs
- Joint development of educational materials, vetted by entomologists and pest control operators
- Need to educate public on safe method of usage and handling of pesticides.

9. Ease of re-infestation in previously treated buildings

- In residential units with high turnover, even when treated, a new occupant can bring bed bugs with them and re-infest a treated building.

10. Legal and enforcement issues

- Potential joint legal responsibility of owners and occupants for eradication
- Legal enforcement actions should be a last resort rather than a primary tool

11. Prevention

- Prevention of infestation is an important focus for educational efforts as well as legislative efforts

12. Anxiety
13. Toxicity of pesticides if not used correctly.
14. Criteria for documenting successful abatement with respect to the public health citation and enforcement process.
15. Disclosure of locations of complaints
 - While information on an infested location would be a matter of public record, also need current information on abatement status to allow buildings that have been successfully abated to avoid negative stereotyping and continued economic impacts.

Working Groups

Because the issues related to the bed bug infestation in the region are more complex than can be addressed by a small group of participants, we see the need to develop Working Groups which will discuss these issues in depth, and come back to the Joint Bed Bug Task Force with workable options. We suggest the following potential Working Groups:

1. Cost / Resource needs
2. Hotline / CSR Technical Committee
3. Educational brochures and scripts
4. Training
5. Inspection issues
6. Legal and enforcement issues
7. Research
8. Evaluation

Cost and Resource Needs Working Group

Based on the current scope of the bed bug problem, and the indications that infestations will continue to be a problem for the foreseeable future, it is clear that new resources will need to be made available to address this problem. These resources are needed to further develop the complaint lines and surveillance systems, to develop standardized educational materials, to develop policies for disposal of infested furniture and other materials, to develop and monitor implementation of inspection protocols and procedures, to brainstorm creative strategies to encourage responsiveness on the part of owners (and occupants) of multi-unit buildings that are infested, to develop municipal and county codes, and to develop best practices protocols to regulate businesses and practices that may contribute to spreading infestations.

The different cost categories identified to date are listed below. Other costs will become apparent in the future, and this is only a first draft of all of the costs and resources that eventually need to be applied to this problem.

Cost categories

- Safety equipment and supplies
- Personnel needs
 - Field Assessment
 - Inspectors
 - Translators
 - Expert Consultants (entomologist, etc)
 - Other Personnel
 - Follow-up assessment for response to Letter of Warning
 - Enforcement Actions
 - Notice of Violation
 - Gathering required information (SSN, etc)
 - Court time / document preparation time
- Hotline development
- Database monitoring
- Education
 - Written, visual, and electronic materials
 - Training
 - Media outreach
- Legal support
 - Enforcement
 - Ordinances / regulations
- Evaluation and monitoring short term (1-2 year) and long term (5 year) objectives
- Training including manpower development, and continuing education for licensed pest control operators
- Research to determine prevalence and distribution of infestations statewide and locally
- Indigent assistance fund
 - Mattress encasements
 - Assistance in preparing premises for pest control operator
 - Furniture assistance
- Infested furniture labels
- Task Force Coordination and Support
- Marketing costs for city and county to overcome negative stereotypes related to bed bug infestations

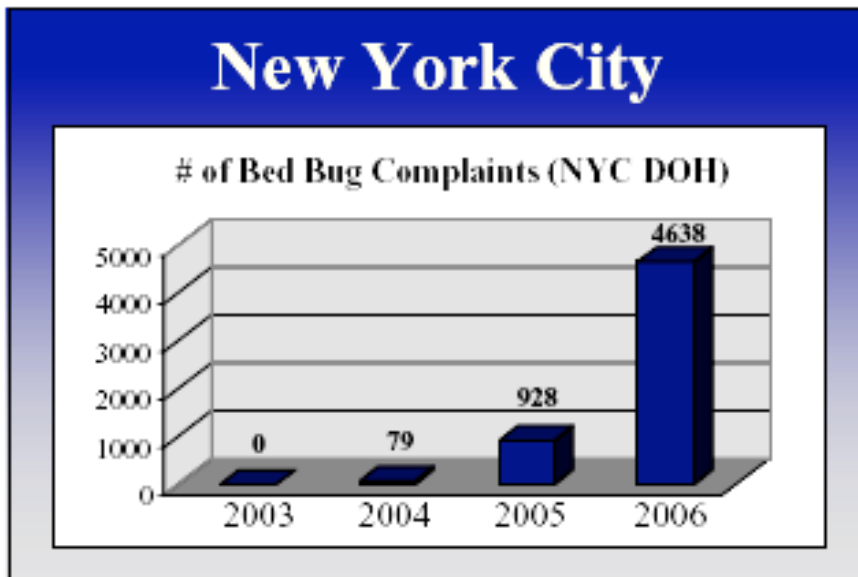
Costs include personnel and supply costs to departments which are asked to respond to the bed bug problem, as well as general costs which would apply regionally and statewide.

Cost estimates and assumptions

- Personnel time needed for inspection:
 - 1 hour to document presence/absence of bed bugs,
 - 30 minute travel time to and from unit,
 - 10-30 minutes to don and doff Tyvek suit
- Two inspectors needed per unit (may need both to move and flip furniture during the inspection)

- Additional personnel time needed to prepare Letter of Warning, Notice of Violation, and follow-up is estimated to be 3 hours total (similar to time required to prosecute roach complaints in Cincinnati)
- Protective equipment needed to avoid transmission of infestation from unit to unit, or from unit to employee's home will include Tyvek suits, gloves, shoe covers and other materials

Costs for inspections are estimated for three different scenarios: a) the same level of complaints as in 2007 in the City of Cincinnati (740) and Hamilton County (167), b) twice the number of complaints seen in 2007, c) four times the number of complaints seen in 2007. Based on the escalation of complaints seen in New York City, it is reasonable to plan for at least a doubling of complaints.



Selected Personnel-related Cost Categories	Estimated cost (dollars)		
	2007 complaint level	Twice 2007 complaint level	Quadrupled 2007 complaints
Safety equipment and supplies			
Cincinnati Health Department (740 in 2007)	\$9,953	\$19,979	\$39,669
Hamilton County Public Health (167 in 2007)	\$1,891	\$3,847	\$7,695
Personnel needs for field assessment and follow-up, assuming 1% enforcement			
Cincinnati Health Department (740 in 2007)	\$60,621	\$121,242	\$242,483
Hamilton County Public Health (167 in 2007)	\$15,526	\$31,050	\$62,100
Other personnel			
Clerical to support Task Force	TBD	TBD	TBD
Joint Bed Bug Task Force Coordinator	TBD	TBD	TBD
Translator @\$75/hr*3 hr (2% of complaints)	4,059	8,118	16,236

TOTAL	\$92,050	\$184,236	\$368,183
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NOTE: The total estimated costs in the above table do not include costs related to development of educational materials, training, research and evaluation.

In the City of Cincinnati, it would take more than 2 FTE sanitarians just to inspect all bed bug complaints received in 2007. In Hamilton County, 1 FTE sanitarian is currently dedicated to bed bug inspections. If the number of complaints made to the health departments in 2008 is double that seen in 2007, the sanitarian FTE's devoted to this effort will also double. Without additional resources, diverting sanitarian FTE's to this project will endanger the ability of the health departments to perform their state-mandated functions.

Unlike what is seen in other jurisdictions, to date, no bed bug complaints have been handled by other departments under Quality of Life ordinances in the City of Cincinnati or Hamilton County. This is an option that has not yet been explored by city or county government.

Other costs that can't be estimated at this time relate to the impact on other state funded and unfunded (smoking ban inspections, school inspections) mandates to the General Environmental programs at the city and county level.

Regional Total Estimate

Regionally, costs include many aspects of the bed bug response besides health department costs (Appendix B).

For the strategic plan outlined in this document, we believe that the number of complaints will at least double, and we estimate that at least \$ 418,302 in additional resources will need to be dedicated to the bed bug response in 2008. If the number of complaints quadruples, the total amount would approach \$ 712,361. These are tentative numbers, and some costs are not included, such as the in-kind cost for reprogramming the software programs in CAGIS for the hotline. These costs assume only 1% of orders written will proceed through the courts for enforcement. These estimates also do not include the cost of responding to the bed bug epidemic for other local and regional jurisdictions, nor does it include the cost of developing resources on a statewide basis.

Hotline / Database Working Group

After prolonged discussion, it was determined that an effective hotline and complaint system and database already exist for the city and potentially for the County through the City of Cincinnati's CSR system. Complaints are logged in CSR and can be mapped by CAGIS. Because the Hamilton County Commissioners are already moving towards adoption of this call system, the recommendation was made to enhance and accelerate implementation of the ability of this system to process calls from Hamilton County residents, rather than setting up a separate bed bug hotline.

Using CAGIS to develop a joint city/county bed bug hotline is felt to be very feasible, because there are currently similarities in how both the City and the County use other software on CAGIS

(Permits Plus) to track inspections for restaurants, building inspections, and developments. In addition, there are already plans for the county to have 2 county call takers by 2009, although these plans anticipated that the county call takers would handle calls about court date scheduling.

Under the proposed system, a citizen would call 513-591-6000, and computer software would determine whether to route the call to the city database or the county database, based on GIS mapping of the address. The call center staff would continue to refer calls to the relevant environmental health department (City or County), after determining whether the complainant was requesting educational materials or an inspection. This decision was made because the time it would take the call taker to extensively interview the complainant would slow down the complaint line, and potentially lead to decreased responsiveness rather than the desired increased responsiveness for bed bug complaints.

The current software can be reprogrammed to allow bed bug-specific complaints to be routed to City and County departments. The primary issue is cost availability of personnel to do the reprogramming. Because of the desire to have the enhanced hotline commence as soon as possible, the Joint Bed Bug Task Force is requesting resources be allocated to allow CAGIS personnel to accomplish the reprogramming within a month. In the future, if additional local health departments would like to participate in the CSR system for bed bug complaints, additional programming time and resources would be needed to accomplish that task.

Geographic mapping of complaints

Once calls are received, the CAGIS system is able to take the complainant's address and position it on a city or county map to show the geographic distribution of bed bug complaints being made to the city or county. Because of the high volume of calls to date in the city compared to the county, it is useful to present both a city map (for detail) and a county map (where the city portion would just be black because of the number of complaints).

While this map is somewhat informative, it is important to remember that not all bed bug infestations are reported to the health department in the city and county. In fact, based on data from other cities, it is expected that the majority of bed bug infestations will be treated by pest control operators without being reported to a health department. Therefore, these maps may merely show the distribution of bed bug infestations in lower income areas, rather than the true number and distribution of infestations in the city or county.

Issues in developing Hotline:

- Cost of reprogramming
- What response time to complaints would be mandated
 - Current CSR response is 48 hours
 - Suggested bed bug response is within 5 days (to allow other public health priorities to take precedence if needed)
 - NOTE: New York City mandated response time to bed bug complaints is within 30 (thirty) days
- Call taker training issues
 - What questions should the call takers ask, and what script will they follow

- What type of judgment are we asking the call takers to make, after asking the question “Why do you think you have bed bugs?”, in terms the information that is given to the caller
- What questions determine the level of response, i.e., providing educational information vs. submitting an inspection request
- Clients who are calling to request an inspection for bed bugs rather than to ask for information will be referred to the General Environmental Health Department (city or county) based on address of caller.
- Both health departments will continue to respond to direct calls, and will input those calls into the CSR system, to allow accurate geographic mapping of complaints

A future issue is whether the state will invest in a dedicated statewide bed bug hotline, with an 800 number. This could be hosted by the Ohio Department of Agriculture or the Ohio Department of Health, similar to the Smoke Free Ohio hotline.

Education

Current efforts

The Cincinnati Health Department’s current efforts with respect to education include:

- Bed Bug Brochure
- DVD with extensive information about bed bugs
- Presentations to community groups
- Presentations to landlords
- Information on the CHD Website
- Development of a procedure for how public employees going into infested buildings can protect themselves from spreading the infestation
- Continuing and expanding vigorous educational outreach to affected citizens

The Hamilton County Public Health’s current and ongoing efforts with respect to education include:

- Bed Bug Fact Sheet
- Presentations to community groups
- Presentations to landlords
- Information on the HCPH Website
- Continuing and expanding vigorous educational outreach to affected citizens.

New efforts

Dr. Susan Jones, a member of the Joint Bed Bug Task Force and an entomologist with the Ohio State University Extension, has agreed to review educational materials produced by both health departments involved in our collaborative working group, so that we have a standardized and current state-of-the-art educational content that is provided to our citizens. Dr. Susan Jones will also help the city/county collaborative by developing and providing training opportunities for pest control operators (see training).

New educational resources that are planned include:

- Brochures and ‘How To’ fact sheets:
 - General information
 - Strategies to prevent infestation
 - How to look for bed bugs
 - What to do if you find bed bugs
 - How to prepare your home prior to pesticide treatment
 - Treatments that people can apply themselves, and cautions (Sterifab, Bedlam)
 - What is an Integrated Pest Management System?
 - Use of multiple strategies that include non-chemical methods and chemicals applied to targeted sites.
 - Removal of visible insects (vacuuming) and eggs.
 - Laundering of all clothes and linens in hot water, high heat dryer.
 - Control of clutter.
 - Encasement of mattresses and box springs.
 - Repeated pesticide application with rotation of chemicals over 1-2 week periods to kill adult insects and insects hatching from eggs.
 - Treatment of furniture.
 - Inspection of all units surrounding known infested unit and treatment if warranted.
 - Discarding furniture is last resort, not first action.
 - Destroy, wrap in plastic, and label any furniture that is being discarded. Notify City Public Services or County private trash removal service.
 - What to expect if your home is being treated for bed bugs
 - How to adequately prepare your apartment or home prior to pesticide treatment for bed bugs
 - How to evaluate a pest control operator
 - How to find out the complaint history of a pest control operator
 - How to choose a mattress and bed spring encasement
 - How the public can check to see if they are hiring a licensed Pest Control Operator (PCO), and how to check the pesticide complaint records at ODA for PCOs, and how to file a complaint.
 - To file a pesticide complaint with ODA, call 1-800-282-1955, when the recording starts press 1 or 0 for the operator, and ask for Greg Minor, Jim Belt, or Matt Beal in the Pesticide Regulation Program. The direct number is (614) 728-6987. Citizens can also file a complaint through the ODA website www.ohioagriculture.gov, press contacts (upper right), under Pesticide Regulatory Program press link pesticides@agri.ohio.gov.

- Infested Furniture:
 - How to get infested furniture picked up, through Hotline.
 - How to destroy, label, wrap and remove infested furniture to avoid dispersal of insects and eggs.
 - Ways to treat furniture to decrease the amount of furniture that is discarded.
- Media / Public service announcements (web, newspaper, radio, TV, other)
- General bed bug information
- Labels for infested furniture
- Scripts for calls to CSR
 - Development of scripts relevant to specific questions about bed bugs, including scripts specific for Tenants, Landlords/Management, etc will be provided to CSR call takers.
- Guidelines for special situations
 - Child who comes to school with bed bugs
 - Clients with bed bugs who enter public buildings or transportation
- Education Outreach
 - Schools
 - Community Councils
 - Southwest Ohio Regional Transit Authority (SORTA)
 - Hotel housekeeping staff
- Education about secondary health issues
 - Anxiety related to bed bug infestations
 - Skin infections due to scratching at bites
- Translations of materials into other major languages
- Low literacy materials
- Prevention
 - Media blitz to advertise the availability and meaning of the infested furniture labels.
 - Need easily interpreted labels that can be affixed with adhesive or Velcro, or some other method for easily marking infested furniture. They should be downloadable from websites in color and Black and White, be a cartoon or picture rather than just text

Dissemination of information will occur through several venues:

- City of Cincinnati's City Cable
- Ohio Department of Health venues

- Ohio Environmental Health Association – a resource for disseminating information about bed bugs throughout the state
- South West Area Regional Mosquito Task Force (SWARM), - We can notify other local health districts about this effort, through the same SWARM mechanism that is used to coordinate the West Nile Virus response.

Inspection issues

From an entomologist's perspective: a) one bed bug is the sign of an infestation, since if one bed bug is seen, there will be many more hiding in cracks and crevices, b) a full inspection of a room might take up to 2 or more hours, and c) inspection and treatment should take place at the same time to avoid causing dispersal of bed bugs to other locations. Licensed Pest Control Operators (PCOs) should be the ones doing the complete inspections and simultaneous treatments with chemicals. Because of the known habits of bed bugs, including travel along water pipes, between walls, it is recommended that in multifamily buildings, inspection and treatment (as necessary) should be done at the same time for all adjacent units (above, below, and on either side) to an infested unit. To mandate this 'sphere' approach to inspection and treatment will require changes in laws and leases.

Based on this information, the Joint Bed Bug Task Force recommends that Health Department sanitarians and other government inspectors be sent to do field assessments rather than full inspections. The purpose of the field assessment is to confirm a complaint on the basis of performance of a standardized protocol for field assessment. If any sign of a bed bug infestation is documented, (≥ 1 bed bug seen, or fecal stains), a warning letter will be given to the owner/ manager saying that action to abate the nuisance must be taken within 5 days. At the same time, extensive educational materials will be given to both the owner/manager and the occupant, including guidelines for site preparation and information about Integrated Pest Management Programs.

If the site is a multiunit building of 4 or more units, at 5 days of follow-up the owner/manager will be required to show evidence that a licensed pest control operator has been hired to do the abatement. If no action has been taken to abate the nuisance, the owner/manager will be written a Notice of Violation, and will be subject to further enforcement action according to city or county codes.

The issue of achieving eradication is problematic because of the requirement for action by both the owner/manager and the tenant, because of the known high resistance to pesticides of the bed bug populations in Cincinnati and Hamilton County, and because of the long time that it takes for eradication to occur, even under the best of circumstances. Even licensed PCOs don't guarantee eradication. The standard of practice is to have applications of chemicals at the start, and again every 1-2 weeks to kill insects newly hatching from eggs. Inspection by a PCO for re-infestation at 30, 60, and 90-120 days may be required. However, a second infestation may occur during that time period. Therefore the Joint Bed Bug Task Force recommends that evidence of continued efforts to eradicate will be accepted in lieu of absolute confirmation of eradication. However, with continued infestation, the pest control operator may be required to document that they are using state-of-the-art practice in their attempt to eradicate the bed bugs.

A draft flowchart has been developed to show how health department field assessments for presence of bed bugs would lead to a letter of warning, then notice of violation, and orders for abatement.

We will develop a standardized protocol for the Health Department complaint follow-up, including timing and duration of re-inspection visits, documenting that a PCO company has been hired, and obtaining information on whether the occupant is still getting more bites after a specified period of time. The Health Department follow-up will include a disclaimer that even if no insects or eggs are noted on follow-up inspection, that is not a guarantee that the infestation is completely eradicated.

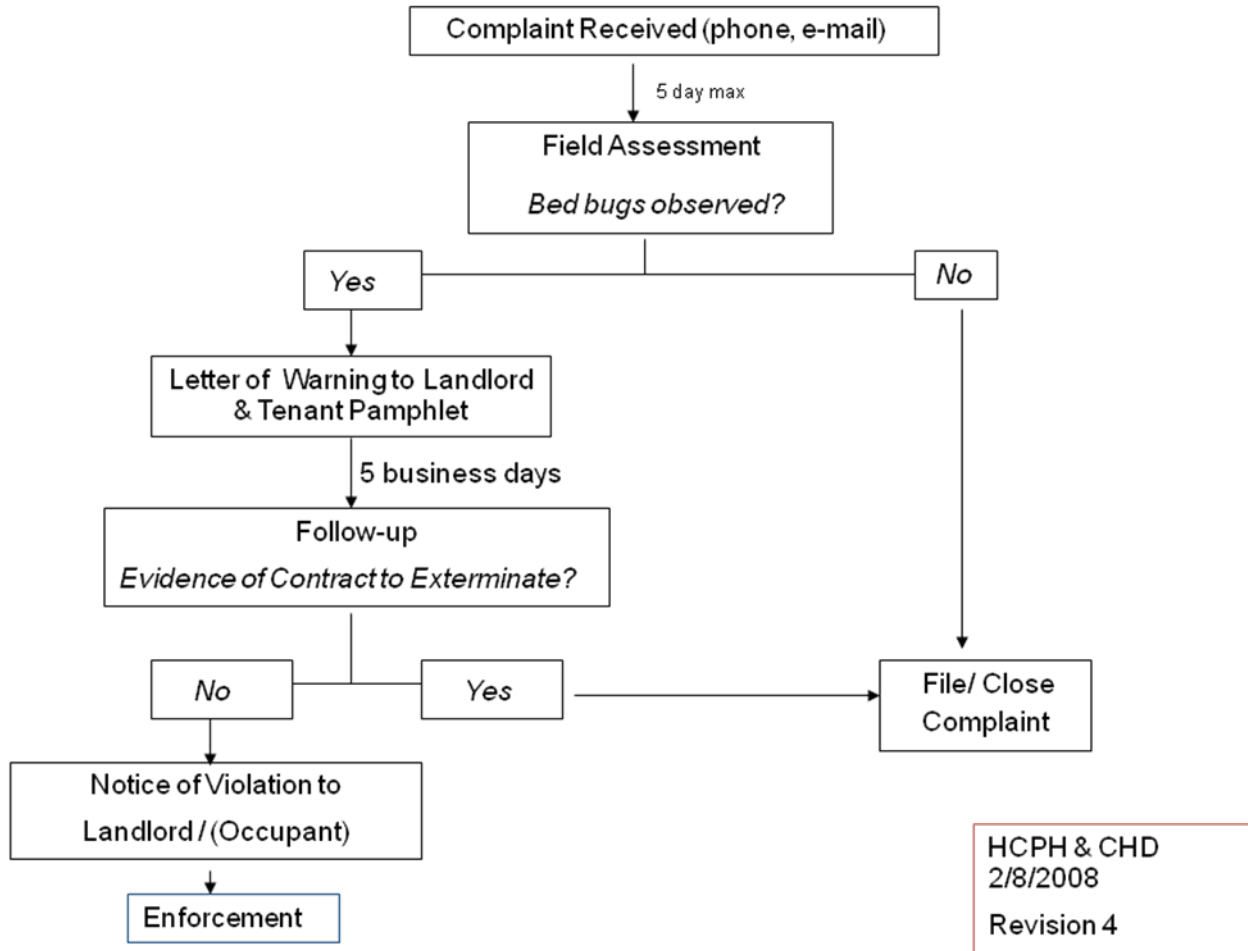
We will also develop standardized criteria for ‘closing out’ a bed bug complaint. To avoid the situation of having nuisance cases open for months even when gold standard abatement efforts are proceeding, the Joint Bed Bug Task Force recommends that the evidence that a licensed pest control operator has been hired for abatement serve as the documentation of abatement activity for first complaints. However, if another complaint comes in after 2-3 months, the process from inspection to Notice of Violation will be abbreviated, and inspectors may skip the Letter of Warning stage.

The Health Departments represented on the Joint Bed Bug Task Force have not yet had to proceed to enforcement actions from their Notices of Violation for bed bug infestations. Prosecution of owners/management and potentially tenants for failure to hire PCO’s and failure to achieve abatement of bed bugs has not been tested in court.

Transient Accommodations

The prevalence of bed bug infestation in city and county transient accommodations is currently unknown. At the recommendation of Cincinnati Health Department Environmental Health staff, the Cincinnati Board of Health has recently adopted a Transient Accommodations Regulation (BOH Regulation # 00011) that will help staff evaluate the bedbug infestation situation in the City.

Bed Bug Complaint Response Flow Chart



Legal and enforcement issues:

The laws that govern the actions of the Cincinnati Health Department include Board of Health Regulations 00053-9(D), 00053-9(E) and 00053-11(D), as well as the Neighborhood Quality of Life Code, CMC 1601-17 (Title XVI), and Ohio state law. The Board of Health and city municipal code regulations assign responsibility for abatement of vermin to both the owner/ manager and the occupant of an infested building. This means that the Health Department may not be able to enforce abatement orders against owner/managers of large apartment buildings without also enforcing abatement orders against the tenants.

The laws that govern the actions of Hamilton County Public Health are County code PHESR 1-67, Section 4.16, as well as Ohio state law. PHESR 1-67 allows citation of owners for abatement of vermin.

The section of the Ohio Revised Code that governs landlord/tenant relationships is ORC Section 5321. ORC 5321 does not address “vermin” specifically. ORC 5321.04 requires a landlord to “comply with the requirements of all applicable building, housing, health, and safety codes that materially affect health and safety” or to “make all repairs and do whatever is reasonably necessary to put and keep the premises in a fit and habitable condition.” It does not specifically require a landlord to treat property for bed bug infestations, and it is not clear that a court would find that bed bug infestations are governed by Chapter 5321. Additionally, ORC 5321.05 also imposes obligations on tenants to keep the premises safe and sanitary and to comply with all state and local housing, health, and safety codes. It is not clear if a tenant also would be liable for bed bug infestations under 5321.05. Under ORC 5321.07, a tenant may apply to a court for an order requiring a landlord to remedy a condition, but only under specific circumstances and after having taken specific action about notifying the landlord of the problem.

The Joint Bed Bug Task Force recommends that we continue to study regulations, codes, and enforcement actions by other jurisdictions that are addressing bed bug infestations, to see how responsibility for abatement of bed bugs is assigned in other areas, and to get additional ideas for legislation that may help us address the problem in Cincinnati and Hamilton County. Jurisdictions which have provided information to the Joint Bed Bug Task Force include Lexington, KY, New York City, NY, Toronto, Canada, and Boston/Cambridge, MA (Appendix C).

To obtain information about other jurisdictions, CHD staff contacted 12 health departments in the tri-state area as well as in New York City, Baltimore and Chicago. Most departments have no formal, written policy on control of these pests. However, some cities in Ohio are developing written policies (Cleveland). Apparently, there are few good models available for dealing with the problem. Lexington, KY has a fairly detailed policy that is worthy of further review. Contact with officials in Lexington indicates that they believe their program may be too in-depth and basically provides “free” pest control work to landlords. One recent case reported by the Lexington Health Department involved the inspection of a 300 dwelling unit complex, an inspection that utilized 11 staff members for an entire 8-hour day.

We also need to study all non-Health Department government and social service agencies that have been involved in a bed bug response in different jurisdictions. For example, in Columbus, OH, the Strategic Plan_ Joint Bed Bug Task Force _ FINAL _ June 6, 2008 rev. June 9 Page 23 of 51

Department of Development, not Columbus Public Health, has the responsibility for enforcing the city housing code which deals with insect infestations such as bed bugs. In New York City, the Department of Housing Preservation and Development (HPD) is responsible for inspections. In New York City, the Health Department only gets involved if more than 20% of units in a building are infested. In such cases, the Health Department can issue a “Commissioner’s order’ that carries stronger enforcement penalties. This model, in which trained inspectors do not have to be licensed sanitarians, is one that Cincinnati and Hamilton County should consider seriously. The City of Cincinnati has an existing job classification of ‘vector control inspector’ which might fit this purpose.

Another enforcement issue is the lack of stringent penalties in situations where the owner/manager and tenant show an inability to eradicate the problem. (According to the Cincinnati Board of Health Code # 061-99), the maximum penalty for a first offense is \$200, while the maximum penalty for repeated offenses is \$1,000 and a 6 month jail sentence. While the jail sentence may be a motivator, the initial penalties may be less than the cost of continued abatement efforts.

Other problematic issues include the following:

- What if a PCO is hired, but eradication of bed bugs does not occur due to lack of cooperation of occupants?
- What if a pest control company is hired that is not well trained in bed bug eradication?
- What if re-infestation occurs repeatedly?
- The Cincinnati Municipal Code imposes obligations on both landlords and tenants to eliminate infestations of vermin, including bed bugs. Based on the difficulty in determining the source or cause of bed bug infestation, however, it also would be difficult to determine whether to prosecute an owner, an occupant, or both for violating city law.

The Joint Bed Bug Task Force feels that legal enforcement actions are a last resort rather than a primary eradication tool.

New legislation

The Joint Bed Bug Task Force has identified several areas where new legislation and other legal documents may help in the prevention and control of bed bug infestations. We will need to get legal opinions based on Cincinnati Municipal Code and County codes about the legality, feasibility, and liability associated with some of these proposals. Potential legislation can be proposed by the Cincinnati City Council and the Hamilton County Commissioners, as well as by the City of Cincinnati Board of Health.

- Mandated treatment protocols for businesses that sell used furniture, especially mattresses and upholstered furniture that can easily harbor hidden infestations
- Legislation governing procedures for removal of infested furniture
- Legislation regarding treatment protocols for moving company trucks and vans, to prevent infestation during transport of household goods
- Legislation requiring landlords to assure that an apartment is bed bug free before the apartment can be re-rented.
- Truth in renting disclosure: Landlord must disclose whether an apartment had a previous infestation, date of occurrence, and when the apartment was last treated with pesticides for the problem

- Requirement that pest control operations report treatment of bed bugs to a central database in addition to maintaining the required ODA documentation.
- Liability limitations relating to public disclosure of addresses of bed bug complaints
- Apartment managers: Further legal research will be needed to see if apartment managers can be required to include a provision in new leases and contracts for mandatory inspection for bed bugs every few months, with mandatory treatment of unit if bed bugs are found. This would circumvent reluctance of some tenants to allow inspections, even if their apartment is infested, especially in assisted living facilities and senior homes. Since the State of Ohio has passed laws regarding terms that must be included in leases, it is not clear whether the City of Cincinnati or the Hamilton County Commissioners have authority to require leases to include this provision.
- Legislation with respect to evictions secondary to persistent bed bug infestations.
 - What protections for tenants and/or landlords should be developed for the case of persistent infestation?
 - Is there a requirement to label furniture as being bed bug infested? What happens if an apartment and the tenants' belongings are infested with bed bugs, and the tenant is evicted? Because the tenant has not abandoned the property, his or her belongings that may be set out in the street cannot be destroyed. However, it is unlikely that management will spend a lot of time carefully wrapping each piece. It is also highly likely that furniture set out on the street will be scavenged by other individuals, thereby spreading bed bug infestation.
- What regulations should be developed for businesses that provide transient accommodations?
- Legislation dealing with liability issues related to providing information about what individual citizens can do to attempt bed bug eradication before calling a pest control company
 - Example: Alcohol can be effective on adult bed bugs, but is also highly flammable and not listed as an acceptable bed bug pesticide

Training

Health department and other city and county employees

Both the Cincinnati Health Department and the Hamilton County Public Health have conducted in-service trainings for their sanitarians for bed bug issues, as well as encouraging sanitarians to attend other training courses. In addition, presentations have been made upon request to other city and county departments.

Pest control operators

The Joint "Bed bug Task Forces recommends the development of a bed bug educational seminar sponsored by Ohio State University Extension Entomology. Individuals who complete this training and pass an exam would receive a certificate, and be eligible to be included on a short list of certificate holders, which could be provided to the public upon request. In addition, the Ohio Department of Agriculture offers training on bed bugs.

Workforce development

Ms. Laverne Mayfield, Coordinator for the ICWUC's Brownfields Workforce Development project, has proposed the International Chemical Workers Union could add up to 80 hours of chemical safety training for pest control operators to the extensive coursework being provided to the Brownfields Workforce Trainees (estimated cost ~ \$37,500). This training and course work would

have to meet the State of Ohio's specific criteria and requirements regarding training for application of certain pesticides.

In addition, when the Pest Control Operator Bed Bug Educational Seminar and Certificate Program is developed, the Brownfields Workforce Trainees may be allowed to participate in that training.

Research

There is a critical need to evaluate the current level of infestation in Southwest Ohio, Northern Kentucky, and Southeast Indiana, to determine the burden of this significant quality of life hazard on the population, and to have a baseline for analysis of future trends. We have identified several potential projects to address this issue. These include adding questions related to recent bed bug exposure to the Greater Cincinnati Health Survey and the state Behavioral Risk Factor Surveillance (BRFSS), as well as developing a survey of pest control operators in the Tri-State region. All of these projects would require additional resources.

Greater Cincinnati Health Survey

This survey would allow us to ask several focused questions about the recent household exposure to bed bugs and efforts to eradicate infestations, in citizens of Cincinnati and Hamilton County. The survey would include ~500 respondents in the City of Cincinnati and 500 respondents in Hamilton County, and would provide population based representative estimates of exposure to bed bugs in the past year.

Behavioral Risk Factor Surveillance System (BRFSS)

This annual survey would be used to obtain state-wide prevalence estimates of recent bed bug infestations, and would provide the baseline data for evaluating trends in bed bug infestations throughout the state. Based on discussions with ODH, expression of State Legislative interest and a legislative directive to add a question about bed bugs to the BRFSS would be very helpful in getting this question added to the BRFSS, at no direct cost. Robert Indian (ODS) and Patty Koss (BRFSS coordinator) are the contact persons for this study.

Survey of pest control operators

Based on list of licensed PCO's provided by Ohio Department of Agriculture, we could design a survey to obtain information on the number of buildings being treated for bed bugs by pest control operations. Based on reported data from the city of Toronto, we believe that the majority of bed bug infestations are not being reported to the two Health Departments.

Evaluation

The work of the Joint Bed Bug Task Force, and the effect of our efforts on halting the spread of bed bugs in our region should be periodically evaluated. Baseline information on the level of infestation will be provided through the research projects mentioned above. Short and long-term outcome measures and a surveillance system must be developed to document trends in the level of infestations.

Summary of ideas and recommendations

There is agreement between the Cincinnati Health Department, Hamilton County Public Health, and Dr. Susan Jones (Ohio State University entomologist) that **education** of occupants, owners, pest control operators, and businesses is the most effective procedure for fighting the bed bug infestation. Below is a summary of ideas and recommendations for state, county and city elected officials.

- Provide additional resources to the Cincinnati Health Department and Hamilton County Public Health to fund the additional FTEs that will be required to combat bed bug infestations in the coming year.
- State funding to create a pool of dollars, perhaps funded through license fees, to help heavily impacted jurisdictions with prevention and eradication efforts.
- Provide funds to develop low literacy educational materials for citizens
- Provide resources to help with last resort removal of furniture (plastic, duct tape, labels in English and Spanish)
- Provide resources to help encase mattresses and box springs after treatment. Assess whether we can provide a subsidy for low-income residents to purchase protective encasements for the mattress and box springs
- Address obstacles to citizens' ability to comply with recommended actions to remove clutter and other fixtures prior to pesticide treatment. Obstacles may include being indigent, elderly or disabled, financial obstacles, having English as a second language, etc
- Assistance to low income owners /occupants to obtain PCO services (city/county/state)
- Develop materials with the Hotline number on it, like magnets, pens, etc
- Funding for OSU Extension Service Entomology to develop a voluntary regional training program for PCOs. Successful completion of written and visual test would result in certification (CBBM – Certified Bed Bug Manager). PCO's certified through this process would be put on a short list of PCO's which could be provided to citizens upon request.
- City and county workers who go into client's homes need to be trained on how to effectively use personal protective equipment to prevent transmission of bed bug infestations.
- Workforce development to train pest control operators
- Workforce development initiatives to train personnel to assist citizens in preparing their homes for pesticide application (clearing of clutter and/or moving furniture).
- Increase (Ohio Dept of Agriculture) ODA's oversight of PCO's in our area by requesting that a 3rd inspector be assigned to this region.
- Make ODA's PCO complaint history widely available to citizens.
- Ask ODA and OSU to offer educational sessions on bed bug treatments for landlords, PCO's, etc
- Develop new educational materials about bed bugs (see Education section for detailed list)
- Determine extent of bed bug infestation in the greater Cincinnati area and across Ohio by adding 1-3 questions to the Greater Cincinnati Health Survey and the Behavioral Risk Factor Surveillance System surveys, asking whether a citizen has ever lived in a unit with bed bug infestation, what treatments were done, and how long it took for the infestation to be abated.

- Funding to implement a regional survey of PCO companies (Tri-State Area), to evaluate the extent of infestations that are not being reported to Health Departments through the complaints database. (Ohio Department of Agriculture (ODA) has supplied a list of all licensed PCO's operating in Hamilton, Warren, and Butler counties, and can provide information on adjacent counties as needed. Departments of Agriculture in Indiana and Kentucky will also be asked to provide information.
- State of Ohio to offer grant opportunities to (a) encourage continued research into effective treatments, (b) help support regional conferences on bed bugs, (c) develop effective vetted educational materials, PSAs, etc. for audiences at different literacy levels.
- Investigate use of Heat Trucks to treat infested furniture
- Investigate use of the 'vector control inspector' job classification to assist in the response to the bed bug infestation (does not require the extensive training/licensing that sanitarians require)
- Learn about best practices from other cities fighting bed bug problem: Lexington KY, New York, San Francisco, Boston, Miami, Toronto, etc.
- Conceptualize responsibility for bed bug inspection / enforcement as a duty across all city and county departments that are involved in quality of life improvement, and nuisance abatement.

APPENDIX A: INFORMATION FROM OTHER CITIES

New York City

Mr. Kass
New York City Health Department
(212) 6762080

The Department of Housing Preservation and Development (HPD) is responsible for bed bug inspections for multi-unit dwellings (3+ units) and hotels. Seventy percent of NYC residents rent their housing, mostly in multiunit dwellings. If someone has problems with housing (bed bugs, mice, no heat, disrepair) they can file a complaint with the HPD.

HPD must go out within 30 days to inspect for BB's. HPD finds bed bugs in about 40% of inspections, in the remainder other insects may be found (cockroach nymphs, mites, spiders, etc). If bed bug signs are present, HPD can issue orders to landlords to abate housing disrepair. The City's perspective is that owners have the responsibility, and HPD can specifically cite the property owner if not he/she is not providing a pest free environment. No authority to force tenants to do anything. In extreme cases, landlords can take tenant to Housing Court to compel compliance to allow for inspection and treatment. If landlord wants to recoup expenses, they go to Housing Court.

Housing disrepair code is available online at: www.housingnyc.com/html/resources/hmc/hmc.html

Can find information on pests in Subsection 2, Article 4

Health Department

The Health department has produced fact sheets about bed bugs. The Health Department will issue a commissioner's order if more than 20% of units in a building are infested. They can take the case to the Board of Health tribunal, and they usually deal with about 10-15 buildings per year. There is a lot of pressure on the BOH from city council to do more inspections. However, the Health Department says that HPD already does inspections already. The Health Department is resisting pressure to do actual exterminations, and to develop protocols for pest management industry for prevention, inspection, response for homeless shelters, and single room occupancy hotels. The Health Department does run courses for exterminators on bed bug control.

New York City, Dept of Housing preservation and Development (HPD)

**CHAPTER 2
HOUSING MAINTENANCE CODE**

**SUBCHAPTER 2
MAINTENANCE, SERVICES, AND UTILITIES**

**ARTICLE 4
*Extermination and Rodent Eradication***

Section

[27-2017](#) Definitions

[27-2018](#) Rodent and Insect Eradication; Mandatory Extermination

[27-2019](#) Elimination of Harborages

Subsection 2, Article 4

Sec. 27-2017 Definitions

When used in this article:

- a. Eradication means the elimination of rodents or insects and other pests from any premises through the use of traps, poisons, fumigation or any other method of extermination.
- b. Insects and other pests include the members of class insecta, including houseflies, lice, bees, cockroaches, moths, silverfish, beetles, bed bugs, ants, termites, hornets, mosquitoes and wasps, and such members of the phylum arthropoda as spiders, mites, ticks, centipedes and wood lice.
- c. Harborage means any condition which provides shelter or protection for rodents or insects and other pests.

Sec. 27-2018 Rodent and insect eradication; mandatory extermination

- a. The owner or occupant in control of a dwelling shall keep the premises free from rodents, and from infestations of insects and other pests, and from any condition conducive to rodent or insect and other pest life.
- b. When any premises are subject to infestation by rodents or insects and other pests, the owner or occupant in control shall apply continuous eradication measures.
- c. When the department makes the determination that any premises are infested by rodents, insects or other pests, it may order such eradication measures as the department deems necessary.

Sec. 27-2019 Elimination of harborages

All building material, lumber, boxes, cartons, barrels, containers, machinery, raw material, fabricated goods, junk, food, animal feed and any other substance which may afford harborage or provide food for such rodents or insects and other pests shall be kept stored or handled by the owner and tenants of every dwelling in such manner as the department may require. The department may make orders to eliminate rat harborages to the person who is responsible for the conditions. The department shall uncover and inspect periodically all structural harborages which cannot be eliminated from dwellings.

Columbus. Ohio

Columbus, OHIO
614-645-7156

In 2001, the nuisance program was combined with Columbus Dept of Development, Division of Code Enforcement, (Dana Rose, 614-645-8139 general info) (housing codes, enforcement, regulations, permit issuing). They enforce city health code dealing with insect infestations and sanitation. Rationale is that inspectors are already going out to look for building code violations, and it was illogical to have two sets of inspectors evaluating the same building. With reduced funding, the city wanted to have one inspector do it all. Health Department is not responsible for having sanitarians go out to do inspections and issue orders.

Per Columbus code, the landlord is responsible for all insect infestations, but tenants must maintain living space in clean and sanitary fashion (free of clutter and tenant must cooperate with the landlord so that the extermination will be effective).

Current Columbus Health Department response to bed bugs:

- Provide educational materials
- Give presentations on bed bug control

Number of calls to Health Department has skyrocketed

- 2003 - no calls
- ~2004, customers starting bringing bugs to be identified
- Now- 5-10 calls/week (~360 per year) are coming in to the Health Department, not sure how many complaints that code enforcement is getting

No new legislation has been developed.

Lexington, KY

212.210 Powers and duties of the Cabinet for Health and Family Services (CHFS) and local health boards.

(1) The Cabinet for Health and Family Services and the local boards of health may examine into all nuisances, sources of filth, and causes of sickness that may, in their opinion, be injurious to the health of the inhabitants in any county in this state, or in any vessel within any harbor or port in any county in this state. Whenever any such nuisance, source of filth, or cause of sickness is found to exist on any private property, or in any vessel within any port or harbor in any county in this state, or upon any watercourse in this state, the Cabinet for Health and Family Services or the local board of health may order, in writing, the owner or occupant thereof, at his own expense, to remove the same within twenty-four (24) hours, or within such reasonable time thereafter as the board may order.

(2) If drinking water used by school children is found to be dangerous to their health, the local board of health or Cabinet for Health and Family Services may order that a supply of pure water be furnished at the expense of the county or city board of education.

(3) If in the opinion of the local board of health or Cabinet for Health and Family Services a school building is constructed in violation of law and is found to be unsanitary or unsafe for the housing of children, the local board of health or Cabinet for Health and Family Services may institute an action in the Circuit Court of the county where the building is situated, and the court, after due hearing and verifying the facts, may order a safe and sanitary school building to be erected within a reasonable time by the county or city board of education in accordance with the laws of the state governing the erection of schoolhouses and the control of disease, and the rules and regulations of the Cabinet for Health and Family Services.

(4) Any local board of health shall, for the purpose of controlling and eradicating rats and other unsanitary nuisances, require the owner or possessor of any building designed for human habitation and containing two (2) or more apartment units, to provide, where a specific area has been designated for the depositing of refuse on the premises, waste receptacles approved by the board. The board may further require that the design, construction, and maintenance of the area in which the waste receptacles are kept meet reasonable standards set by the board.

Effective: June 20, 2005

History: Amended 2005 Ky. Acts ch. 99, sec. 402, effective June 20, 2005. -- Amended 1998 Ky. Acts ch. 426, sec. 353, effective July 15, 1998. -- Amended 1974 Ky. Acts ch. 74, Art. VI, sec. 107(3). -- Amended 1970 Ky. Acts ch. 281, sec. 1. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. secs. 2054a-14, 2057.

Lexington Fayette County Health Department
Procedure For Responding to a Bed Bug Request for Service

POLICY STATEMENT

The Lexington Fayette County Health Department is routinely called upon to investigate nuisance and vector complaints in numerous settings. The goal of these programs is to achieve the abatement, mitigation, or elimination of nuisance and vector problems in a manner satisfactory for the protection of public health.

PURPOSE

The purpose of this policy is to set forth standard operating procedures for conducting investigations and enforcement actions to accomplish the eradication of bed bug infestations. There is a need for consistency in the conduction of these investigations as re-infestation is highly probable due to the durable nature of the pests. Prompt consistent enforcement is our best tool to eradicate these infestations.

PROPONENT

Send comments, questions, and suggestions to the Environmental Health Team Leader

PROCEDURE

General

- 1.) **Documentation of the Request:** The request shall be documented on a "Request for Service Form" and coded under program 673 (Insects). The information pertinent to the request should be documented including: name, address (including apartment number), telephone number, and nature of problem.
- 2.) **Assignment of the Request:** The request shall be assigned by the respective EH Coordinator to a lead environmental health specialist for investigation until resolution.
- 3.) **Initial Contact with Complainant:** Contact with the complainant shall be made within 24 hours of receiving the request. The following questions should be asked to obtain appropriate information:
 - How many people live at your residence?
 - Are any of them experiencing allergic reactions to bites?
 - Have you actually seen any bed bugs?
 - How long have you noticed the problem?
 - Which rooms of your residence have you seen the bugs?
 - Have you received any second hand furniture in the recent past?
 - Have you traveled within or outside the US recently?
 - Are any of your neighbors experiencing problems that you know of?
 - Have you reported this to your landlord?
 - What kind of pest control treatment is currently done by the landlord?
 - What has your landlord done about the problem?
 - What is a good time so that I may visit and inspect your residence for bed bugs?

If the person does not speak English then arrangements for an interpreter must be made to make this initial contact. Within 48 hours of receiving the complaint, an initial action plan should be developed.

4.) *The Initial Inspection:* *The initial inspection should be done by 1-2 environmentalists in the residence having the problem and an interpreter from a community partner organization or Health Department staff. During the initial inspection, the environmentalists should document the type of residence and ascertain the number of units and buildings within the complex. Supplies needed to conduct a thorough investigation include the following:*

- *Small flashlights*
- *Handheld magnifying glasses*
- *Disposable booties and gloves*
- *Disposable suits (when inspection requires)*
- *Soft tweezers*
- *Small flathead screwdriver*
- *Collection containers*
- *Insect repellent*
- *Educational materials (English and Spanish)*

Inside the residence, a thorough inspection should cover the following areas looking for bugs, eggs, and the characteristic dark brownish-red fecal staining:

- *Seams, tufts, and edges of mattresses*
- *Seams and corners of box springs*
- *Behind, bottom, and sides of bed frame and headboard*
- *Bedding fabric*
- *Along carpet edges and baseboards*
- *Behind, bottom, and sides of nightstand*
- *Behind curtains*
- *Corners of walls and ceilings*
- *Clothing in the closet*
- *Behind picture frames and other wall hangings*
- *On and behind electrical and phone outlets*
- *Seams, tufts, and edges of living room sofa*

During the initial visit, the infested unit and the adjacent units (above, below, and beside) should be inspected. If bed bugs are found in any of the adjacent units, then the entire building will need to be inspected on a second visit by a larger team of environmental health specialist and health education staff. Educational material should be provided to residents and management during initial and subsequent visits. A determination of additional anticipated social needs should also be done at this time (do they have the means to wash all of their bed linens and clothing?). Also during this first visit, an initial attempt to contact management should be made in person after attempting to visit the adjacent units. If you are unable to gain access to the adjacent apartments after finding bed bugs in the apartment where the complaint originated, then a request should be made to the management to access the necessary units. During the initial visit to the management, office the following should be documented:

- *Is management aware of the problem?*
- *If so, how long and in how many units?*
- *What is the name of their licensed pest control company?*
- *What type of treatment is performed on a regular basis and has any treatment been done for bed bugs?*

- *When can I arrange a time for our staff to conduct a survey to inspect all of the units?*

If no bed bugs are found at the apartment who originated the request and the adjacent units, a visit should still be made to the management office; however, the unit who made the request should not be identified. The management should instead be informed of why you were there and be provided with educational material for reference in case the problem occurs.

5.) Required Actions for Treatment: *After completing and documenting the initial inspection, findings need to be forwarded to the Environmental Health Coordinators and the EH Team Leader so a course of recommended actions can be ordered in the form of a Notice of Violations. Ideally these forms will be developed so they can be delivered onsite in the field. Whenever a Notice of Violations is issued, there will be a core group of human service providers that will be notified so they may respond to additional needs as they arise. The goal of these actions is to promote successful treatment of the infested area. The two components to this include resident cleaning and pest control treatment intervention. In order to successfully treat the problem, the treatment needs to occur immediately after the resident has cleaned their apartment. The following table contains recommendations for different settings:*

Setting	Findings of Initial Investigation	Initial Treatment Requirement
<i>Single Family Residence</i>	<i>Evidence of bed bugs found only in bedroom</i>	<i>Resident cleaning and laundering; treatment of affected room with re-inspection monthly and re-treatment</i>
<i>Single Family Residence</i>	<i>Evidence of bed bugs in multiple rooms</i>	<i>Resident cleaning and laundering; treatment of all rooms and upholstered furniture with re-inspection monthly and re-treatment</i>
<i>Duplex</i>	<i>Evidence of bed bugs in only one unit</i>	<i>Resident cleaning and laundering; treatment of all rooms and upholstered furniture with re-inspection of both units monthly and re-treatment; begin treatment of other unit if evidence of bed bugs is found during monthly inspection</i>
<i>Duplex</i>	<i>Evidence of bed bugs in only one unit</i>	<i>Resident cleaning and laundering; treatment of all rooms in both units and upholstered furniture with re-inspection monthly and re-treatment</i>
<i>Duplex</i>	<i>Evidence of bed bugs in both units</i>	<i>Resident cleaning and laundering; treatment of all rooms and upholstered furniture of infested unit with re-inspection monthly in infested unit and adjacent units and re-treatment; begin treatment</i>
<i>Apartment Complexes</i>	<i>Evidence of bed bugs in one unit</i>	<i>Resident cleaning and laundering; treatment of all rooms and upholstered furniture of infested unit with re-inspection monthly in infested unit and adjacent units and re-treatment; begin treatment</i>

		<i>of additional units and expand inspection area if evidence of bed bugs is found in adjacent units during monthly inspection</i>
<i>Apartment Complexes</i>	<i>Evidence of bed bugs in multiple units</i>	<i>Resident cleaning and laundering; treatment of all rooms in all units and upholstered furniture with re-inspection monthly and re-treatment</i>
<i>Hotels</i>	<i>Evidence of bed bugs in one unit</i>	<i>Management cleaning and laundering of all upholstered furniture and bed linens; treatment of entire room and upholstered furniture of infested unit with re-inspection monthly in infested unit and adjacent units (above, below, and beside) and re-treatment; begin treatment of additional units and expand inspection area if evidence of bed bugs is found in adjacent units during monthly inspection</i>
<i>Hotels</i>	<i>Evidence of bed bugs in multiple units</i>	<i>Management cleaning and laundering of all upholstered furniture and bed linens; treatment of all rooms and upholstered furniture with re-inspection and re-treatment monthly in all rooms</i>
<i>Hotels</i>	<i>Evidence of bed bugs in multiple units</i>	
<i>Dormitories</i>	<i>Evidence of bed bugs in one unit</i>	<i>Resident cleaning and laundering of all upholstered furniture and bed linens; treatment of entire room and upholstered furniture of infested unit with re-inspection monthly in infested unit and adjacent units (above, below, and beside) and re-treatment; begin treatment of additional units and expand inspection area if evidence of bed bugs is found in adjacent units during monthly inspection</i>
<i>Dormitories</i>	<i>Evidence of bed bugs in multiple units</i>	<i>Resident cleaning and laundering of all upholstered furniture and bed linens; treatment of all rooms and upholstered furniture with re-inspection and re-treatment monthly in all rooms</i>

6.) Cleaning and Laundering: *When an infestation is identified, residents and/or management needs to complete the following tasks prior to the pest control treatment. In*

order to successfully treat the problem, the treatment needs to occur immediately after the resident has cleaned their apartment as recommended below:

- Clean the dwelling and sweep or vacuum all dust and debris.
- Remove clothing and clutter from floors (including under the bed)
- Empty all closets (including living room, bedroom, and hallway closets)
- Move all furniture away from baseboards (2-3 feet).
- Remove all clothes and bed linens and launder at 120 degrees F.
- Remove all items from upholstered furniture so it can be treated.
- If you are keeping the carpeting, pull up the edges around bedroom and any other infested room so it may be treated.
- Empty all chest, desk, and bureau drawers.
- Cover all dishes and food items.
- Possible steam cleaning of carpet and infested furniture
- Placing the mattress into a zippered encasement between treatments may keep the bugs from spreading.

To assist residents, Environmental Health Specialists shall provide an information packet containing the following items: a detailed explanation of their responsibilities, a detailed explanation of the management's treatment responsibilities, and a general information pamphlet on how to get rid of bed bugs.

Depending upon the severity of the infestation, the problem may not be eradicated within this 3 month time period. If a re-infestation occurs, a pre-hearing conference must be held with the management to revise the required course of action. In addition to extending the treatment and inspection period beyond three (3) months, the following actions may be ordered:

- **Removal of severely infested furniture.** If this is required, special arrangements will need to be made with the LFUCG Division of Solid Waste to insure that the items are promptly removed so no one else may pick them up. Slashing and spray-painting of these items is recommended.
- **Removal of carpet.**
- **Vacating severely infested units.**

Taking any one of these actions will possibly bring about serious consequences for tenants and will likely lead to their need for additional human services. There are several groups that may be contacted to link people to these services:

Agency	Assistance	Contact Number
Adult Services/ Tenant Services	Relocation, rent and utility money for crisis situations, assistance with housing counseling and landlord/tenant disputes	(859) 258-3810
Fair Housing Council	Assists with disputes between landlords/tenants when allegations of discrimination are involved	(859) 971-8067
Catholic Action Center	Furniture donations (not consistent)	(859) 255-0301
United Way	Community assistance through fundraising; database of community service providers	

7.) Compliance: Compliance in regards to bed bug requests must include the following: access to all infested and adjacent units for inspection purposes, adequate laundering/removal of bed linens, clearing infested and adjacent areas of clutter, documentation of pest control treatment regiment, and access to all infested and adjacent units for monthly re-inspection. These inspections must occur for a minimum of 3 months to verify that the infestation has been eradicated and may need to occur for a longer period of time depending upon the severity of the infestation. This monthly inspection and treatment cycle is necessary to prevent re-infestation. Prior to requiring action on behalf of the landlord or tenants, community stakeholder agencies must be notified by the management team. This notification is the responsibility of the Environmental Health Coordinators and the Environmental Health Team Leader.

8.) Further Enforcement Actions: If the property owner or resident is not compliant with all of the preceding requirements outlined in the Notice of Violations, further enforcement action will be required. This action must be approved by the Environmental Health and Protection Management Team. The lead Environmental Health Specialist investigating will be asked to provide all the details of the investigation to their Environmental Health Coordinator to bring to the management team for review. The first step of the enforcement action needs to be determined by the severity of the resistance to compliance.

Generally, the first form of further enforcement beyond the initial Notice of Violations will be a letter requesting a pre-hearing conference with the involved parties (no attorneys) to discuss the requirements for compliance. The conference should be recorded and the correspondence should be typed and presented to all parties in attendance. The outcome of the conference will be a letter documenting the detailed required course of action to be taken by management/residents.

The more severe non-compliance issues (refusing entry to premises) will be addressed in the form of an order for compliance from the Commissioner. Any failure to comply with this order will result in a request to the Fayette Circuit Court for legal action to compel compliance. (sample copies of conference requests and orders to be attached)

9.) Standard Timeline for Investigation and Response: Each investigation will likely present different challenges for resolution, but the following timeline has been established to present uniform enforcement goals:

- Initial contact with complainant within 1-2 business days after receiving complaint.
- If unable to contact the individual within 2 business days, then the lead environmentalist should report to their Coordinator and make a visit to the complaint address and leave their contact information for the resident.
- Action plan for enforcement developed within 3 business days after receipt of complaint.

- Initial investigation visit within 5 business days from receiving the complaint.
- If evidence of bed bugs found, Notice of Violation should be issued within 6 business days from receiving the complaint.
- Resolution of complaint (elimination of infestation) within 4 months from receiving the complaint.

Employee Responsibility

It is the employee’s responsibility to follow the procedures set forth in the policy for response to bed bug requests for service. If at any time the employee is unsure about the proper course of action, they should contact their respective Environmental Health Coordinator for assistance.

Supervisor Responsibility

It is the supervisor’s responsibility to assure employee compliance with the policy for response to bed bug requests for service.

Approval

This standard operating procedure for the response to bed bug requests for service has been approved by the Environmental Health and Protection Management Team and shall be effective on this ____ day of November, 2006.

Signature _____
Date _____

Manager of Environmental Health and Protection

Signature _____
Date _____

Environmental Health Team Leader

Boston, MA

Information from the ABCDC (Allston/Brighton Community Development Corporation (CDC))

Inspections are done by the Boston Inspectional Services Department (ISD) and the Boston Public Health Department.

See www.Cityofboston.gov/isd

At first the bed bug response started out punitively towards property owners who didn't want to take care of infestation, but BPH now works with owners to develop an Integrated Pest Management System, mostly through incentives.

There is a Greater Boston Bed bug Task Force – to raise awareness about bed bugs at the state level

There is also the model of the ABCDC (Allston/Brighton Community Development Corporation (CDC)).

An earmark from the State of Massachusetts provides \$25,000 per year for incentives for treatment. Up to \$200 per apartment for property owners, and \$300 for tenants is provided to replace mattresses. (Recipients need to provide receipts and a copy of their IPM program). Approximately ~ 50 apartments a year are treated a year under this program. The Community Development Corporation Task Force also provides workshops to tenants and landlords/property managers.

There have been two big conferences held in the past few years. During a recent bed bug conference – a physical demonstration was given of an effective inspection, including how and where to look for bed bugs

There has also been stepped up enforcement of the sanitary codes. The Asst. Commissioner of Inspection Dion Irish, dioni@cityofboston.gov 617 961-3311, could give further information.

ISD and Boston Public Health (BPH) have also talked with Greater Boston Legal Services (tenants rights), and at the conference there was a panel on legal issues from both tenant and landlord perspective. Landlords are considered to be fiscally and materially responsible, but tenants shouldn't be obstinate and there has to be a strong level of communication.

The advice of this group is that we absolutely should not be involved in actual treatment of the apartments, or in litigation in the courts.

Canada

Bed bugs and the Law Canada

Responsibility for bed bug infestations and covering costs of extermination is often a battleground for tenants and landlords. Laws vary across Canada, and because bed bugs have just recently become an increasing problem many provinces and municipalities don't have legislation outlining who is responsible. In many regions, tenants must bring specific cases before a landlord-tenant arbitrator, and often, they hinge on proving who brought the bed bugs in. This tends to be a difficult process, because the initial source of bed bugs is often hard to prove.

Tenants and landlords can consult individual local or provincial landlord-tenant agencies for recommendations.

In **Newfoundland and Labrador**, landlords and tenants with bed bugs are advised to work out a resolution themselves. If a resolution can't be met, a mediation process may be conducted by a residential tenancy branch.

In **Nova Scotia**, Halifax doesn't have clear-cut legislation for dealing with bed bugs. Responsibility for extermination falls upon the tenant if a landlord can prove a tenant brought the bugs in. The Halifax agency has found that landlords often foot the bill as it's difficult to prove there were no bugs before a tenant moves in. Tenants are advised to write a letter to a landlord asking to deal with the problem within a reasonable timeframe. If the landlord refuses, a hearing can be conducted in front of the officer of residential tenancies.

In **Prince Edward Island**, the director of residential property deals with individual cases of tenants with bed bugs.

New Brunswick's rental and consumer affairs department investigates cases for tenants with bed bugs, as the province doesn't have specific bed bug legislation. The department will order a landlord to pay if the tenants can prove they didn't bring the bed bugs with them when they moved.

In **Quebec**, Montreal tenants are often responsible for getting rid of bed bugs, unless they have proof they didn't bring them with a move. However, it's the landlord's responsibility to make sure the infestation doesn't spread.

Ontario laws don't cover bedbug infestations, but, like most other provinces, the landlord-tenant act states a landlord is responsible for keeping a dwelling safe and healthy, while the tenant must maintain "ordinary cleanliness". The landlord-tenant agency recommends landlords take action for bed bug infestations, as there is no by-law in place. In most cases, the agency has found most

landlords are more than willing to foot the bill for exterminators as they don't want infestations to spread.

In **Manitoba**, pest control falls under municipal by-laws or the province's public health act. Generally, landlords are required to get rid of pests such as rodents, cockroaches and bed bugs, while tenants must keep dwellings reasonably clean and uncluttered to keep infestations from spreading.

Alberta's public health act and housing regulations require a landlord to provide a tenant with a healthy and habitable environment. A tenant with bed bugs is advised to report the dwelling to the regional health authority. Health inspectors will then assess the problem and in most cases order the landlord to take care of it.

Saskatchewan's landlord-tenant act doesn't specify who's responsible for dealing with bed bug infestations. Each case is brought before a hearing with an arbitrator. Often, if the tenant can prove the bugs were on the premises before they moved in, the arbitrator will order the landlord to pay for an exterminator.

In **British Columbia**, Vancouver's residential tenancy act states the landlord must provide a safe and healthy rental unit. While it doesn't specifically mention bed bugs, Vancouver's health by-law states that the landlord is responsible for treating bed bug infestations. Bed bugs are becoming a large problem in Vancouver. The Tenants Rights Action Coalition is a place tenants can go for further information.

APPENDIX B: COST SPREADSHEET

**Joint Bed Bug Task
Force
Selected Cost
Spreadsheet
June 6, 2008**

CHD Supply Costs (number of 2007 complaints =740)	Per unit cost	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Tyvek suits @ 25 for \$134	\$5.36	\$3,966	\$7,933	\$15,866
booties @ 100 pair for \$77	\$0.77	\$570	\$1,140	\$2,279
gloves @ 100 pair for \$13.5	\$0.14	\$100	\$200	\$400
flashlights @ \$70	\$70.00	\$1,050	\$2,100	\$4,200
magnifiers @ \$10	\$10.00	\$150	\$300	\$600
Flexible forceps @ \$10	\$10.00	\$150	\$300	\$600
collection vials @ \$1	\$1.00	\$740	\$1,480	\$2,960
Spray Bottle Base @ \$2	\$2.00	\$60	\$120	\$240
Spray Triggers @1 91% Isopropyl alcohol @ \$36 for 12 16oz bottles, to kill adult bugs on protective clothing	\$1.40 \$3	\$42 \$36	\$84 \$ 72	\$168 \$144
Painters tape (2" by 56 yard, at \$14/roll	\$14.00	\$3,024	\$6,048	\$12,096
12 gal garbage bags @ \$22 per 500	\$0.04	\$65	\$130	\$260

CHD Personnel time + cost for 2 sanitarians	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Inspection - 0.5 hour/ complaint	\$23,680	\$47,360	\$94,720
Follow-up - 0.5 hour/ complaint)	\$11,840	\$23,680	\$47,360
Travel time - 0.5 hour/ complaint	\$23,680	\$47,360	\$94,720
Enforcement 1% (additional 3 hours/ complaint)	\$1,421	\$2,842	\$5,683

HCPH Supply Costs (# of 2007 complaints was 167)	Per unit cost	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Tyvek suits @ 25 for \$134	\$5.36	\$895	\$1,790	\$3,580
booties @ 100 pair for \$77	\$0.77	\$129	\$257	\$514
gloves @ 100 pair for \$13.5	\$0.14	\$23	\$45	\$90
flashlights @ \$70	\$70.00	\$210	\$420	\$840
magnifiers @ \$10	\$10.00	\$30	\$60	\$120
flexible forceps @ \$10	\$10.00	\$30	\$60	\$120
collection vials @ \$1	\$1.00	\$167	\$334	\$668
Spray Bottle Base @ \$2	\$2.00	\$12	\$24	\$48

Spray Triggers @1	\$1.40	\$8	\$84	\$168
91% Isopropyl alcohol @ \$36 for 12 16oz bottles, to kill adult bugs on protective clothing	\$3	\$36	\$72	\$144
Painters tape (2" by 56 yard, at \$14/roll	\$14.00	\$336	\$672	\$1,344
12 gal garbage bags @ \$22 per 500	\$0.04	\$15	\$29	\$59

HCPH Personnel time and cost	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Inspection - 0.5 hour/complaint	\$3,006	\$6,012	\$12,024
Travel time - 0.5 hour/ complaint	\$3,006	\$6,012	\$12,024
Re-inspection (0.5 hr/complaint, assume 75% re-inspected)	\$2,255	\$4,509	\$9,018
Enforcement 1% (additional 3 hours /complaint	\$3,000	\$6,000	\$12,000
Office Time (0.35 hr @ \$36 each)	\$3,006	\$6,012	\$12,024
Mileage (0.5/mile @20 miles/complaint)	\$1,253	\$2,505	\$5,010
Other personnel costs	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Law Department costs/hr for enforcement activities			
Consultants from other Cities with BB task forces	\$5,000	\$5,000	\$5,000

Translator @ 75 /hour, assume 2% of complaints require translator services, average 3 hours ea	\$4,059	\$8,118	\$16,236
OSU Entomology consultant (OSU) @ 100//hr for task force meetings	\$7,200	\$7,200	\$7,200
OSU Entomology consultant (OSU) travel costs for task force meetings	\$1,344	\$1,344	\$1,344

Hotline development	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
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Reprogramming costs for CSR/CAGIS =\$4,270 in kind	\$0	\$0	\$0
Maintenance costs for system (in kind)	\$0	\$0	\$0

Development of Educational Materials	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
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Brochures @ 0.3 /copy * 10,000 copies distributed in 6 months	\$3,000	\$6,000	\$12,000
FACT SHEETS printing costs \$0.10/page *4 pages/complaint *(740+162)	\$361	\$722	\$1,443
DVD's (current DVD production costs) @ \$1 /DVD *400 copies in 6 months, plus production costs	\$800	\$1,600	\$3,200
DVD's (new low literacy DVD development)@\$1/copy * 400	\$400	\$800	\$1,600
Production costs for 'DO NOT USE labels' for furniture	\$3,000	\$6,000	\$12,000
Presentations (@ 20/year * 1 hour + 0.5 hr at CHD hourly rate)	\$960	\$1,920	\$3,840

Presentations (@ 20/year * 1 hour + 0.5 hr travel @ HCPH hourly rate)	\$1,080	\$2,160	\$4,320
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Bedbug Conference for ~400 participants	\$25,000	\$25,000	\$25,000
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Educational equipment costs	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
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Microboards GX2-1000 GX Disc Publisher	\$1,725	\$1,725	\$1,725
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Microboards GX Series Tri-color Cartridge	\$44	\$44	\$44
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Media costs	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
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The Buzz Radio website (banner ad on website @100/per week)	\$5,200	\$5,200	\$5,200
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Radio on air cost (one 60 second ad, playing 4times/day for 2 weeks at prime time, for 4 separate ads)	\$6,000	\$6,000	\$6,000
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Newspaper (Herald) 1/4page ad @\$665/week *26	\$17,290	\$17,290	\$17,290
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Community newspapers ~no cost for health related PSAs	\$0	\$0	\$0
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TV PSA (cost unknown)	\$4,000	\$4,000	\$4,000
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Bedbug conference promotion costs (email, direct mail, flyers, posters)	\$1,000	\$1,000	\$1,000
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Special services to low income citizens (assume 48% of complaints from CHD,28% HCPH)	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Encasement covers @ \$100/ for mattress + Box spring	\$40,056	\$80,112	\$160,224
Personnel time to help prepare home for 18% of complaints (elderly/disabled) for 2 treatments at ~6 hours	\$3,897	\$7,793	\$15,587
Documentation of low income costs (clerical)	\$1,502	\$3,004	\$6,008
Research Costs	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
BRFSS Survey (If supported by ODH and legislators, in kind at no cost)	\$0	\$0	\$0
Training costs	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Brownfield Workforce Development Training for PCO at \$150/d/student*10 days*40 students/class	\$37,500	\$37,500	\$37,500
Estimated cost of OSU developing first 4 hour training seminar for licensed PCO's	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
POV mileage reimbursement (GSA rate)= 224 miles R.T. x .485 = \$108.64	\$109	\$109	\$109
Consultant costs 25 hours x \$100/hr	\$2,500	\$2,500	\$2,500

Hard copies of materials = \$60	\$60	\$60	\$60
Clerical help for grading exams \$25/hr x 20 hr	\$500	\$500	\$500
Cost of 2 subsequent 4 hour PCO seminars + travel + printing + clerical + time (7 hrs @55/hr)	\$2,738	\$2,738	\$2,738
Cost of developing, maintaining, and mailing short list of trained PCOs names, addresses	\$500	\$500	\$500

Pest Control Operator Survey	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Survey development time	\$700	\$700	\$700
327 licensed people (Butler, Clermont, and Hamilton Co.) x \$0.42*2 mailings	\$275	\$275	\$275
Clerical help- \$25/hr x 20h	\$500	\$220	\$220
Printing of survey,	\$50	\$50	\$50
envelopes, return envelopes	\$50	\$50	\$50
Data entry , programming, and analysis of results @ 30/hr * 40 hours	\$1,200	\$1,200	\$1,200

Database for tracking trained PCOS in the tri-state area, updating address, mailing costs	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
Cost unknown			

Greater Cincinnati Survey	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
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3 questions for Cincinnati and Hamilton County @ \$1250/question)

\$3,750 \$3,750 \$3,750

BRFSS	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
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Cost unknown

TOTAL ESTIMATED COSTS	Cost if complaints at 2007 level	Cost if number of complaints doubled	Cost if number of complaints quadrupled
	\$271,339	\$418,302	\$712,361