

## Program Overview

### LIFE UPenn

- Urban setting, West Philadelphia
- 70,000 square feet of program and office space
- Census ranges from 400 to 450 participants
- Participants reside in 13 different zip codes



## Bedbug Basics

### What are bedbugs?

- Bedbugs are blood sucking insects that primarily seek human contact (Wang, 2009).
- Bedbugs live for at least 4 months and feed once a week on average (Jacobs, 2007, n.p).
- Bedbugs are mostly nocturnal.

### Where are bedbugs found?

- Bedbugs are most often found near their human feeding sources; on mattresses, sofas, etc.
- Bedbugs can retreat into walls during treatment, travel between different areas of the home, and travel between homes.

### Identifying bedbugs

- People usually do not feel a bed bug when it bites, but often develop red welts and itchiness due to an allergic reaction to bed bug saliva (Wang, 2009).
- Black marks can often be found where bedbugs have defecated after eating.
- An accredited dog is the most reliable detector of bed bugs.

### Types of Treatment

	Advantages	Disadvantages
Chemical Treatment	<ul style="list-style-type: none"> <li>• Can be completed in all types of settings</li> </ul>	<ul style="list-style-type: none"> <li>• More timely, typically 3 sessions</li> <li>• Long term health effects unknown</li> <li>• Extensive prep work required</li> </ul>
Heat Treatment	<ul style="list-style-type: none"> <li>• Most effective treatment</li> <li>• Only requires 1 session</li> <li>• No negative health outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• Most costly treatment</li> <li>• Cannot be completed in homes that are fragile</li> <li>• Requires high amounts of electricity</li> </ul>

## Goals

### Primary Goal

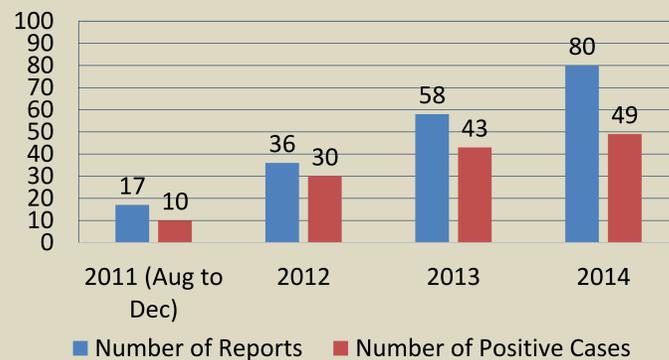
Prevention of infestation at the center

### Additional Goals

- Decrease staff anxiety
- Decrease member anxiety
- Implement action plan to efficiently rid bedbugs in member homes
- Establish which staff are responsible for dealing with bedbug cases

## Bedbugs at LIFE UPenn

LIFE UPenn Bedbug Reports by Year



## Staff Training

### Goals of Staff Training

- Provide facts about bedbug characteristics
- Education on how to identify potential bedbug cases
- Education on how to reduce the risk of acquiring bedbugs
- Education on LIFE UPenn policy and procedure
- Education on LIFE UPenn response if staff members transfer bedbugs in their homes

### Inclusion of Exterminator in Staff Training

Education sessions were planned with the program's contracted exterminator, which provided the following benefits:

- The exterminator brings a level of expertise and authority to the discussion.
- Exterminators typically have not brought bedbugs into their own homes, which is reassuring to staff.
- Inclusion of the exterminator in staff education helps the vendor become familiar with the scope and depth of PACE work

## Protection Against Center Infestation

- Monthly scheduled dog inspections of the day center.
- Additional center inspections when positive cases were identified.
- Closing down areas of the day center when inspections prove positive.

## Protection Against Center Infestation

- Disposing of furniture or other items found positive for bugs (i.e. chairs).
- Changing furniture purchasing practices to more vinyl (not cloth) where possible.
- Bagging participant coats each day in clear bags.
- Utilize a "heat box" when needed to reduce exposure risk.
- Developing a plan for cleanup of impacted areas.

## Communication

### Communication regarding center approach to bedbug management

- Letter sent to participants/families regarding LIFE UPenn approach
- Presentation and discussion at Council of Elders (participant representative) meeting
- Informal discussion with participants by Executive Director during day center hours

### Communication when participant has been exposed to bedbugs

- Social worker becomes actively involved immediately and follows the outlined procedure
- Communication is presented in a manor which attempts to reduce any potential shame or humiliation and focuses on the random and unfortunate nature of bedbug infestation

## Bedbug Approach Policy & Procedure

1. Staff indicates suspicion of bedbugs. Social worker reviews the policy and procedure with the participant/family.
2. The participant is showered and clothing changed at the day center. Any assistive devices (i.e. wheelchair, walker, etc.) are placed in a heat tent, if possible.
3. The participant is returned home as quickly as possible.
4. Day center attendance is placed on hold. Homecare may be on hold (vendor dependent).
5. The social worker contacts the contracted exterminator to arrange an inspection of the home with the certified dog to confirm or deny the presence of bedbugs.
6. If bedbugs are confirmed, care plan arrangements are made with the participant/family. Treatment arrangements are made either directly through the PACE site using the established vendor, or through the participant's landlord/apartment building.
7. After treatment is completed, an additional dog inspection is conducted to confirm that the home is "all clear" of bedbugs.
8. Once cleared, the participant returns to previous care plan, inclusive of home services and day center attendance.

## Vendors

### Exterminator Roles

- Inspections to detect bedbugs at the day center and at participant homes, ideally within 24 hours of reported suspicion
- Treatment of bedbugs at the day center and at participant homes
- Education to PACE site staff
- Consultation, as indicated



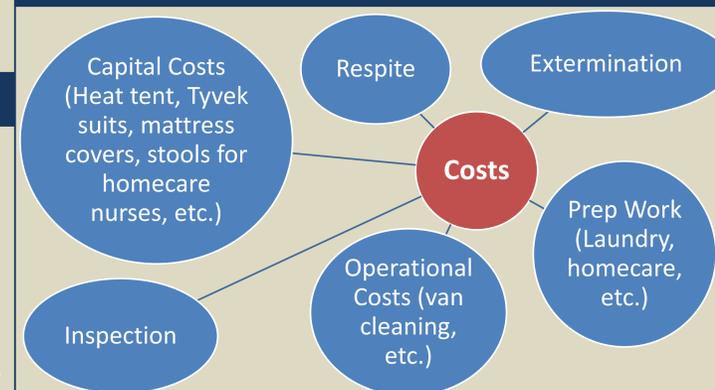
### Additional Vendors Needed

- Prep work assistance
- Homecare assistance
- Laundry assistance
- Nursing home partners

### Challenges with Vendors

- Companies have to meet the requirements to become an approved provider
- Vendors must be able to respond quickly to requests
- Vendors need to be sensitive and flexible to the needs of older adults
- Identifying categories of providers
- Vendors need to be willing to service all zip codes covered

## Costs



## References

Cognitive State of Patients for the Clinician. *Journal of Psychiatric Research*, 12(3); 189-198.

Department of Health & Human Services (DHHS), Centers for Medicare & Medicaid Services (CMS). *Programs of All-Inclusive Care for the Elderly (PACE) Manual*. Pub. 100-11. June 3, 2011. <http://www.cms.gov/Medicare/Health-Plans/pace/downloads/R1SO.pdf>, retrieved March 10, 2014.

LIFE UPenn (2011). *Bedbug Policy*. University of Pennsylvania.

National Entomology Scent Detection Canine Association (2014). *The Future of Pet Detection is Here*. Retrieved March 2014. [http://www.nesdca.com/index.php?option=com\\_content&view=article&id=30:accreditedbedbugteams&catid=8:accreditedteams&Itemid=19](http://www.nesdca.com/index.php?option=com_content&view=article&id=30:accreditedbedbugteams&catid=8:accreditedteams&Itemid=19)

National PACE Association (NPA), LIFE UPenn School of Nursing, Quarter 3 of 2013 Report. Run date March 31, 2014.

Jacobs, S (2007). *Bedbug Fact Sheet*. Pennsylvania State University Extension. Retrieved July 23, 2014. <http://ento.psu.edu/extension/factsheets/bedbugs>

Kurlowicz, L., & Wallace, M. (1999). The mini mental state examination (MMSE). *Journal of gerontological nursing*, 25(5), 8-9.

Folstein, M., Folstein, S.E., McHugh, P.R. (1975). "Mini-Mental State" a Practical Method for Grading the Mabud, T. S., Barbarin, A. M., Barbu, C. M., Levy, K. H., Edinger, J., & Levy, M. Z. (2014). Spatial and Temporal Patterns in Cimex lectularius (Hemiptera: Cimicidae) Reporting in Philadelphia, PA. *Journal of medical entomology*, 51(1), 50-54.

Orkin (2014). *Worst Bed Bug Cities 2014: Chicago Tops Orkin's Bed Bug Cities List for Second Year In A Row*. Retrieved July 23, 2014. [http://www.huffingtonpost.com/2014/01/16/worst-bed-bug-cities\\_n\\_4612695.html](http://www.huffingtonpost.com/2014/01/16/worst-bed-bug-cities_n_4612695.html)

Terminex (2012). *Philadelphia Takes Top Spot in Annual Bedbug-Infested Cities List*. Retrieved July 22, 2014. <http://www.prnewswire.com/news-releases/philadelphia-takes-top-spot-in-annual-bedbug-infested-cities-list-158410705.html>

Wang, C. (2009). *Fact Sheet FS1098*. Rutgers University Cooperative Extension.

Wu, Y., Tracy, D. M., Barbarin, A. M., Barbu, C. M., & Levy, M. Z. (2014). A Door-to-Door Survey of Bed Bug (Cimex lectularius) Infestations in Row Homes in Philadelphia, Pennsylvania. *The American journal of tropical medicine and hygiene*, 13-0714.