

# Public Health Unit Bed Bug Support Fund

## Final Surveillance and Evaluation Report

<b>Board of Health:</b> Middlesex-London Health Unit	<b>Address:</b> 50 King St, London, ON, N6A 5L7
<b>Contact Name / Position Title:</b> Iqbal Kalsi, Manager	<b>Telephone Number:</b> 519-663-5317 ext 2650
<b>Date submitted:</b> April 2012	

## **Introduction:**

This information is being submitted to the Ministry of Health and Long Term Care in accordance to the condition of the funding being received by the Middlesex-London Health Unit (MLHU) to report on the level of infestations in the Middlesex-London Area. The Final Surveillance and Evaluation Report are being submitted for the time period of January 1, 2012 – March 31<sup>st</sup>, 2012.

## **Data Collection: Surveillance and Evaluation**

1. a) Has there been a change in the level of bed bug infestations in your public health unit area within the current reporting period?

- Increase
- Decrease
- None
- Don't know

The number of calls being received by the MLHU's Environmental Health, Health Hazard program related to bed bugs has risen in comparison to the other Health Hazard complaint service requests (CSRs) received by the MLHU for this reporting period. In January 2012, MLHU received 31 phone calls related to bed bugs, followed by 32 related to mould/indoor air quality, and 13 related to Land Use Planning. There were a total of 112 calls for health hazards and bed bugs were 28% of the calls in January.

In February 2012, there were 51 bed bug related calls, 35 mould/indoor air quality calls and 11 related to land use planning. There were 131 calls to health hazards, 39% of the health hazard calls in February were bed bug related. March 2012 again saw an increase in the total number of bed bug calls with 71. The second most calls again were mould/indoor air quality with 41 calls. There were a total of 169 calls in March, 42% which were bed bugs. Within the current reporting period, bed bug calls have continued to be on an upward trend and within the top three (3) most frequently related phone calls. The increased amount of education has given people the awareness and the knowledge to recognize bed bug infestations and how to report them to the health unit and their landlord.

b) Has there been a change in the level of bed bug infestation in your public health unit area in comparison to the previous reporting period?

- Increase
- Decrease
- None
- Don't know

Within the last reporting period of April 1, 2011-December 31, 2011, the total number of bed bug calls were 370 of 1420 total calls. Bed bugs were 26% of the total calls to health hazard. Within the current reporting period, 433 total calls had been received by health hazard, and 170 of them were bed bug related. Overall 39% of calls to health hazard were related to bed bugs. This is a 33% increase in the number of calls being received to the health unit in comparison to the previous reporting period.

2. Appendix 1 is a summary of the data collected by the Middlesex-London Health Unit. A graph is attached illustrating the trend in the calls to the MLHU related to bed bugs from June 2011 – March 2012.

Appendix 2 is a summary of the information collected by the Middlesex-London Health Unit from Community partners.

A description of our data collection system for Appendices 1 and 2 were completed in the Initial Surveillance and Evaluation Report for April 1, 2012 – December 31, 2012.

For our community partners, the number of bed bug related calls and treatments have been lower in this reporting period. There is some data included in the updated Appendix 2 which is being reported from the previous reporting period. Our community partner, London Middlesex Housing Corporation, reported data that had not been tallied in the previous year end. Similarity for this reporting period, data as not been compiled for March 2012 from London Middlesex Housing Corporation, making it seem as if there were no treatments for that month. The numbers for the amount of preparations in November and December are significantly more than the months before and after due to special funding that the City allotted to London Housing to do their own preparations.

The Salvation Army Centre of Hope reported their total number of treatments for the whole 2011 year as 33 treatments which was added into the total data being reported in the months of 2011. UWO and City of London, Housing divisions did not have any new data to report in the January – March 2012 reporting period. London Middlesex Housing Corporation does not track the specific number of bed bug related calls which they receive or the number of inspections which do not result in findings of bed bugs. The number of treatments and preparations coordinated are the only pieces of data which are tracked. The City of London Housing Division which is additionally responsible for the not for profit and co-op housing in the City of London did not have any reports of bed bugs or additional calls for treatment in this reporting period.

3. Have you implemented the Rapid Risk Factor Surveillance System (RRFSS) bed bugs module?

- Yes
- No
- Not applicable
- Not yet

If yes, provide a summary of the results for the reporting period by attaching relevant reports.

Appendix 4 is a summary of the results for the RRFSS Bed Bugs Module. The module was asked for one cycle from September to December, 2011 and had 427 participants.

Figure 1.1 illustrates the percentage of respondents to the RRFSS Module who had read, seen or heard anything about bed bugs at the time of interview. 427 people answered this question. 91.1% ± 2.7% answered yes and 8.9% ± 2.7% responded no. This means that over 90% of people in Middlesex-London at some point were exposed to a bed bug message, image or information. Although not statistically significant, females were more aware than males, and awareness generally increased as age and income increased (data not shown). Campaign messages, throughout the program, were broadcast on the radio, posted on transit shelters, in libraries and on the side of city of buses. These are images and messages that residents would see and if asked would respond that they have seen or heard something about the topic without having to explain what they knew about the topic.

When asked about whether the respondent had bed bugs in their home in the past year, just over 90% replied no and 9.0% ± 2.7% hadn't heard of bed bugs. Only 2 respondents of the total 427 indicated that they had bed bugs in their home in the past 12 months.

Figure 1.2 in Appendix 4 represents the number of respondents who in the last 12 months looked for information about bed bugs on their own. Of the 425 respondents, 80.5%  $\pm$  3.8% said that no, they did not go looking for information and 9.5%  $\pm$  3.8% responded that they yes they did look for information on their own. When asked to specify where they were receiving their information from, the respondents were not prompted with places where they may have found information. Figure 1.3 represents the participants who said that they found their information from an online source. 16%  $\pm$  3.5% voluntarily said they went on the internet to look for information, but when later asked if they had heard of bedbugsinfo.ca, 87.8%  $\pm$  3.1% of respondents had not heard of the website, and 6.3%  $\pm$  2.3% had heard of the site but not visited it. This could be due to the fact that when the general public begins a search for information they go to Public Health websites such as, the MLHU website which has bedbugsinfo.ca posted on it but does not immediately take them to the bedbugsinfo.ca website. The general population may also be looking to websites such as Toronto Public Health which have been recognized as the leader in bed bug education and have resources not necessarily linked to the bedbugsinfo.ca site. 80.7%  $\pm$  3.8% responded that they have not looked for bed bug information on their own at all.

When asked how concerned they were about getting bed bugs in their home, 23.2%  $\pm$  4.0% responded as very concerned, 27.0%  $\pm$  4.2% responded as somewhat concerned, 25.6%  $\pm$  4.2 were not very concerned and 15.2%  $\pm$  3.4 were not concerned at all. Nine percent  $\pm$  2.7 has not heard of bed bugs at all. This information shows that bed bug infestations are a concern; even though information is not actively sought out by everyone. This information is illustrated on Appendix 4, Figure 1.4. While it can't be determined from the survey, one hypothesis is that the concern level may be related to an attitude that bed bugs cannot be prevented. People may believe there is no point becoming aware of them unless they become infested and need to seek the appropriate treatment measures.

Figure 1.5 illustrates the responses about how people try to prevent infestations in their own homes. Vacuuming is a prevention and management tool to get the bed bugs off of the mattresses or box spring. When asked if vacuuming was a prevention method they used, 9.5%  $\pm$  3.5 said they yes they did. 90.5%  $\pm$  3.5 did not mention vacuuming as a prevention method which they used. 264 respondents offered information about their prevention methods. When asked if cleaning up and washing was used as a preventative 41.8%  $\pm$  3.7 responded they did follow cleaning methods as a preventative, 43%  $\pm$  4.7 did not mention cleaning and washing as prevention. 38.3%  $\pm$  4.6 did not know if that was a method to prevent bed bugs from entering the home. Other answers which the respondents gave without being prompted were that they did not bring in used furniture and mattresses. 11.8%  $\pm$  3.9 indicated that this was a prevention strategy for them. 88.2%  $\pm$  3.9 did not mention this as a strategy. 5.3%  $\pm$  2.7 did mention that they inspect the second hand clothing and furniture. 27.3%  $\pm$  5.4 responded that they inspected luggage while travelling to look for bed bug hitchhikers. The most popular unprompted answer was that 50.4%  $\pm$  4.2 checked mattresses and bedding for bed bugs. 27.2%  $\pm$  4.2 did not mention checking beds and bed and 22.5%  $\pm$  4 did not know to check there. There was not a statistically significant data to tell us that respondents looked in other places such as cracks and crevices in walls to trying to force bed bugs out of hiding spaces was a preventative measure. From this data, it can be thought that there is still a misconception about the places bed bugs hide other than the mattress/box spring and couches.

4. Have you implemented any other population-based surveillance systems (e.g. community survey, online reporting, etc.)?

- Yes
- No

Not applicable

If yes, provide a summary of the results for the reporting period by attaching relevant reports.

Appendix 5 is a summary of the Bed Bug Survey results for this reporting period.

A description of our surveillance system, target populations and items we measured, were completed in the Initial surveillance and Evaluation Report. They have remained unchanged for the reporting period of January 1, 2012 – March 31<sup>st</sup>, 2012.

From the survey results, attached on Appendix 5, you will see that there is a 32% - 68% split of people calling who receive government programs to those who do not. This is an increase from a 50/50 split of callers during the initial reporting period. In this reporting period, 38% of people calling to report bed bugs are living alone in their home. 38% of callers had two (2) people living in their home and it drops off to 14% of people living with three (3) people. 82% of callers said there were zero (0) children living in the units, and 82% of callers said there were zero (0) seniors living in the home. The highest number of callers continued to be those living alone, without children, but they are vulnerable populations due to age, economic restraints, or a mental or physical disability. When there is not a strong support system living in house, the burden of having to deal with the problem falls on the sole person living in the home.

When asked about their comfort level and if they would be able to talk about bed bugs with other community members, 58% of respondents answered yes, they would feel comfortable talking about them. Within the bed bug campaign, the myths the MLHU worked to dispel was that bed bugs were a result of living a dirty lifestyle. Making people aware that bed bugs are an everyday pest and there is no blame to lay about how they started, was a major barrier to overcome at the beginning of the program. There was very little awareness about how they spread and the environments they thrive in.

The postal code data has been compiled for the combined Bed Bug Reporting period. The map shows the reported postal codes for both the city and county, and density of reports in that area for all 121 reported postal codes. For the initial reporting period of April 1, 2011 – December 31, 2011, 71 calls were reporting bed bugs. In the final surveillance period of January 1, 2012 – March 31, 2012, 50 callers were reporting bed bug infestations. The survey was not put online in order to have all of the callers talk to the Health Promoter on the Bed Bug hotline and receive education and information. Unless there was an inspection completed because the landlord was being difficult or the tenant was going to receive funding money, it was expected that the caller was being truthful and accurately reporting their infestation.

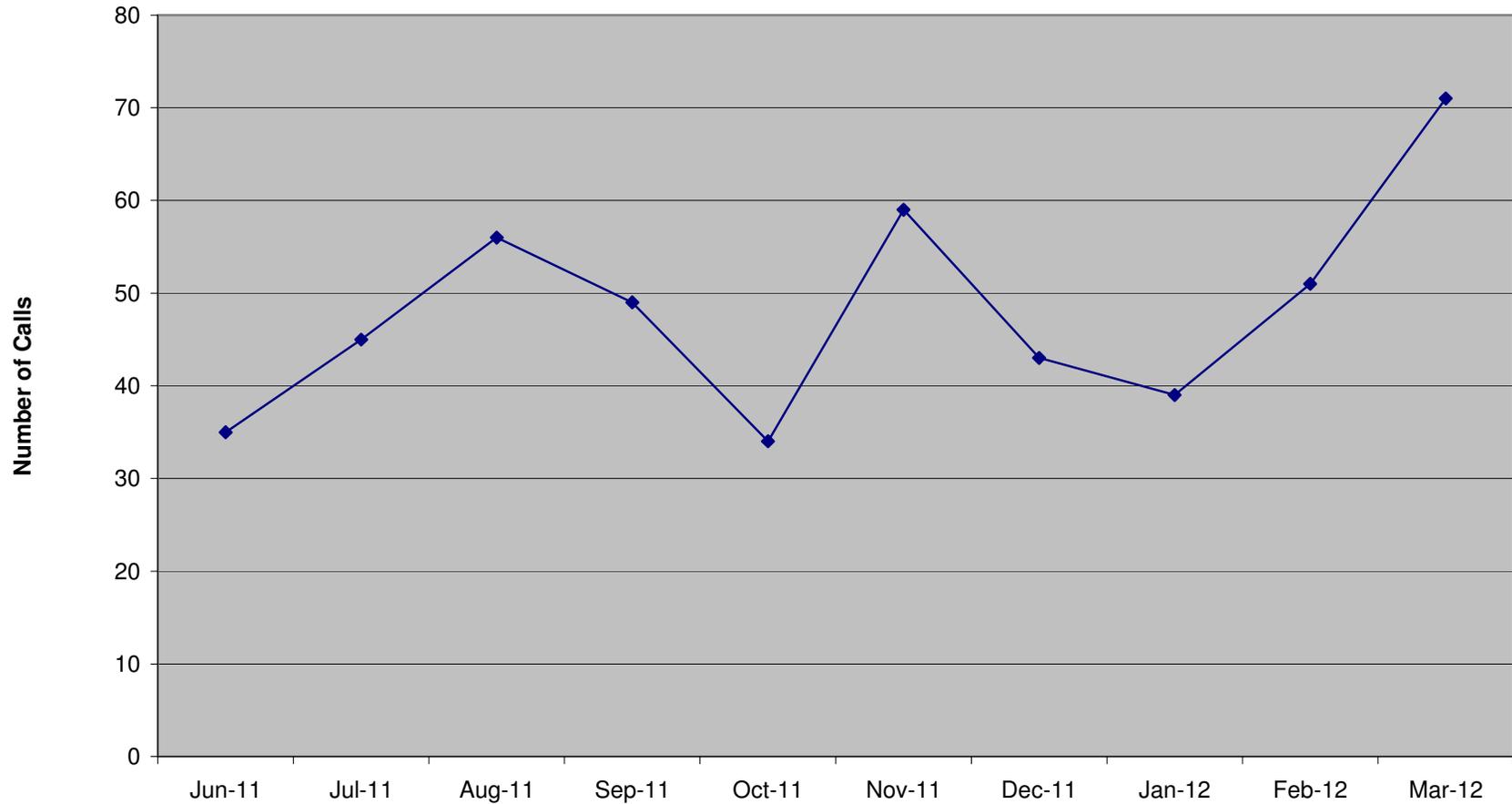
5. Any additional comments?

Without continued education and promotion of the [bedbugsinfo.ca](http://bedbugsinfo.ca) information, residents of Ontario will not be able to have concerns addressed in the same matter that they did while the bed bug program was running. Through the program funding, a team of Public Health Inspector and a Health Promoter responded to the concerns and requests for information sessions. Without the continued funding, the needs of community partners and vulnerable populations will not be met in the same format which they were while the program was running. With continued education, not being presented, awareness of bed bugs will not see an upward trend.

**Appendix 1: Summary of Bed Bugs Data Collected within Health Unit**

		Total Numbers (counts):																							
		Baseline (if available)											Initial Reporting Period									Final Reporting Period			
	Activities (Refer to Appendix 3 for definitions)	Apr 2010	May 2010	Jun 2010	Jul 2010	Aug 2010	Sept 2010	Oct 2010	Nov 2010	Dec 2010	Jan 2011	Feb 2011	Mar 2011	Apr 2011	May 2011	Jun 2011	Jul 2011	Aug 2011	Sept 2011	Oct 2011	Nov 2011	Dec 2011	Jan 2012	Feb 2012	Mar 2012
1.	Total # of bed bug-related calls					5	12	3	8	1	7	12	34	19	20	35	45	56	49	34	59	43	31	51	71
2.a.	# of requests for identification of bed bugs															4	6	3	5	2	1	3	2	1	6
2.b.	Of the total number of requests, total # of positive identifications															4	4	3	3	0	0	1	1	0	2
3.	# of on-site investigations completed															1	1	0	0	1	3	2	7	11	13
4.	# of vulnerable clients served															1	1	0	0	1	3	2	4	8	7
5.	# of unit preparations and/or extreme cleanings coordinated																				3	2	4	8	7
6.	# of pest control treatments coordinated																				1	0	1	1	3
7.	Other – Please Specify																								

### Bed Bug Calls



	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12
Bed Bugs	35	45	56	49	34	59	43	39	51	71

**Month Reported**

**Appendix 2: Summary of Bed Bugs Data Collected from Community Partners**

		Total Numbers (counts):																							
		Baseline (if available)											Initial Reporting Period									Final Reporting Period			
	Activities	Apr 2010	May 2010	Jun 2010	Jul 2010	Aug 2010	Sept 2010	Oct 2010	Nov 2010	Dec 2010	Jan 2011	Feb 2011	Mar 2011	Apr 2011	May 2011	Jun 2011	Jul 2011	Aug 2011	Sept 2011	Oct 2011	Nov 2011	Dec 2011	Jan 2012	Feb 2012	Mar 2012
1.	<b>Total # of bed bug-related calls</b>	0	0	0	0	0	1	11	5	5	5	1	1	0	0	0	1	1	9	5	4	7	1	0	0
2.	<b># of unit preparations and/or extreme cleanings coordinated</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	11	5	77	128	1	6	0
3.	<b># of pest control treatments coordinated</b>	0	0	0	0	0	0	2	1	1	1	166	184	76	65	100	97	117	141	101	148	142	108	44	0
4.	<b>Bed Bug Inspections</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	0	4	0	0

Provide a description of the community partners that provided data:

London Middlesex Housing Corporation, Salvation Army Centre of Hope, University of Western Ontario: Housing, The City of London: Housing.

**Appendix 4: RRFSS Bed Bug Module Results**

Fig 1.1

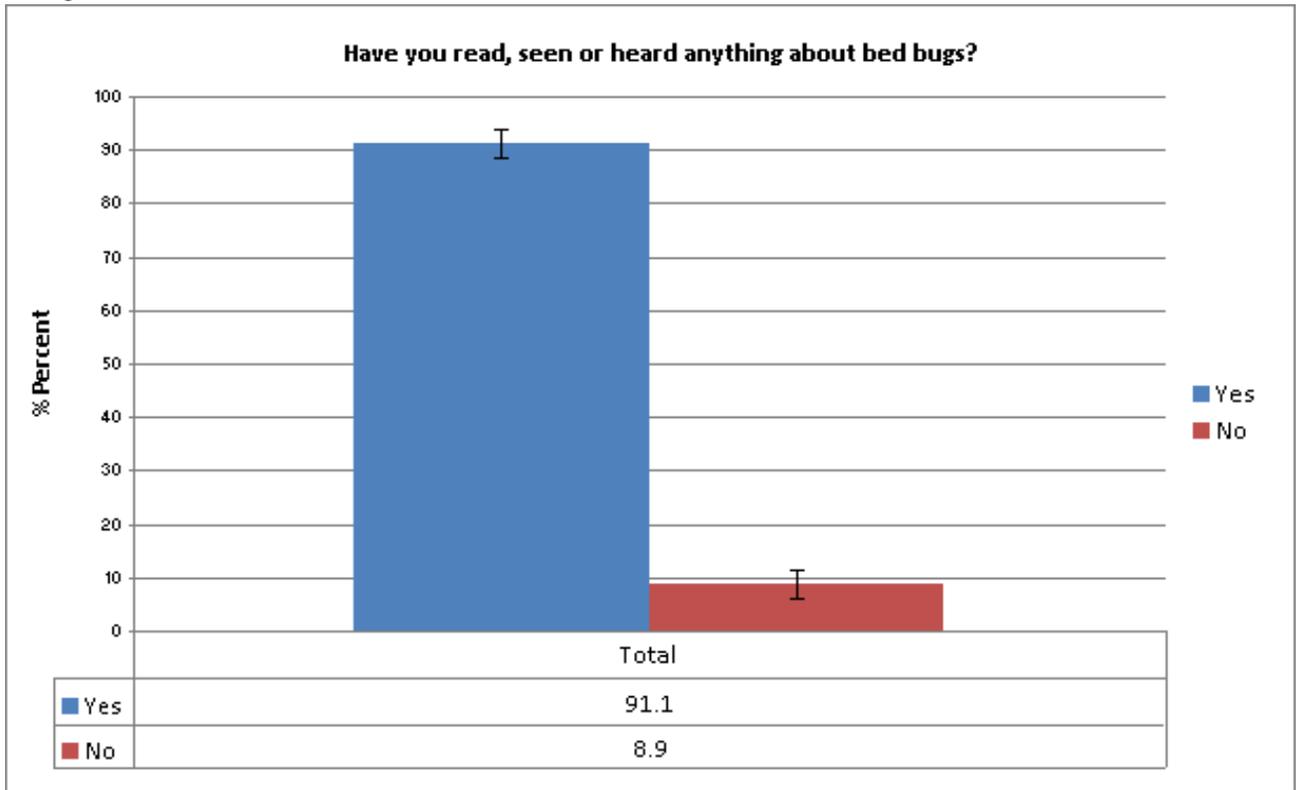


Fig 1.2

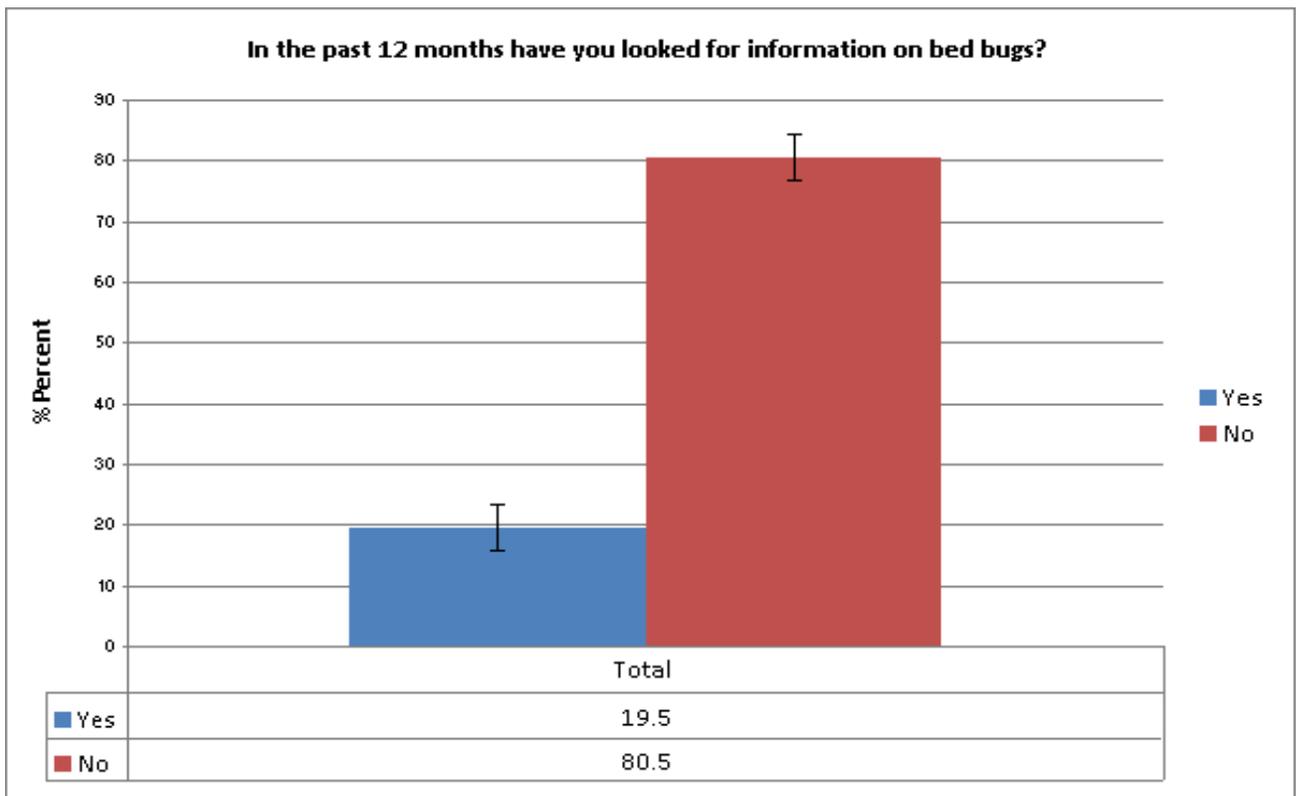


Fig 1.3

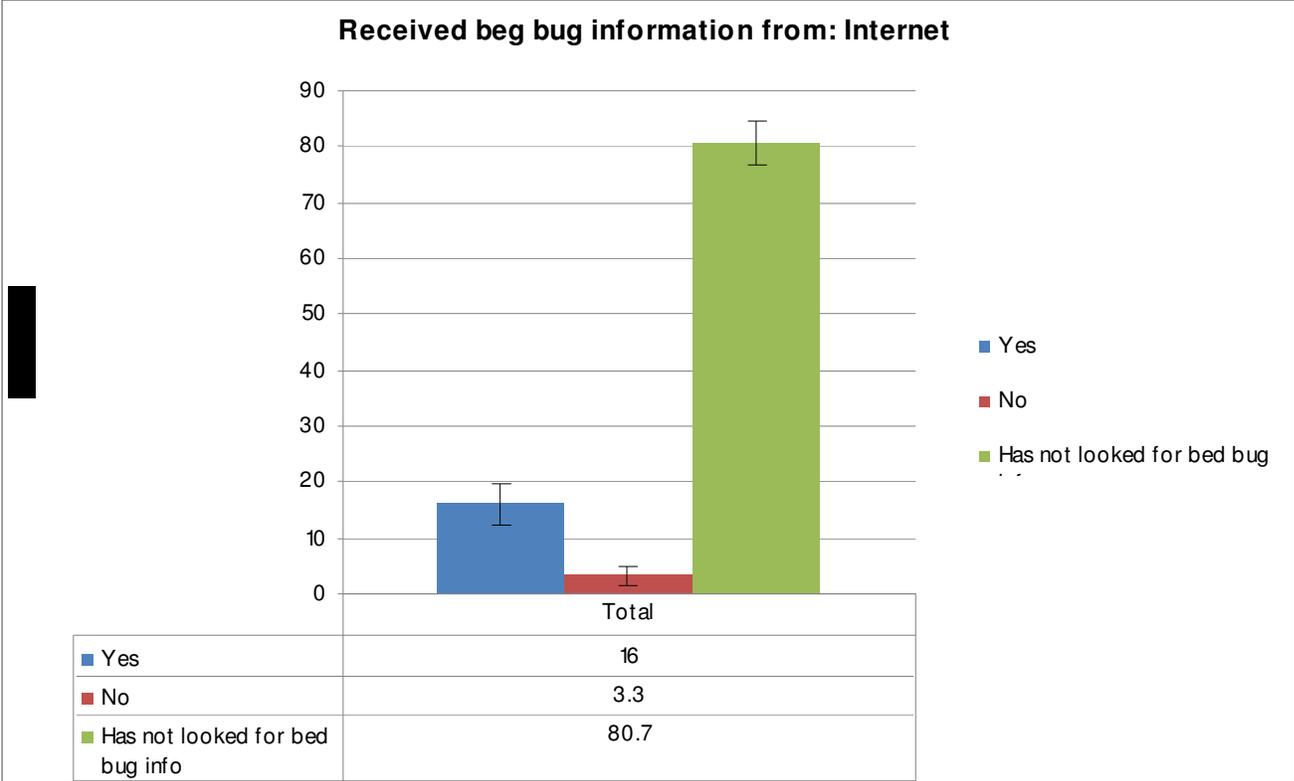


Fig 1.4

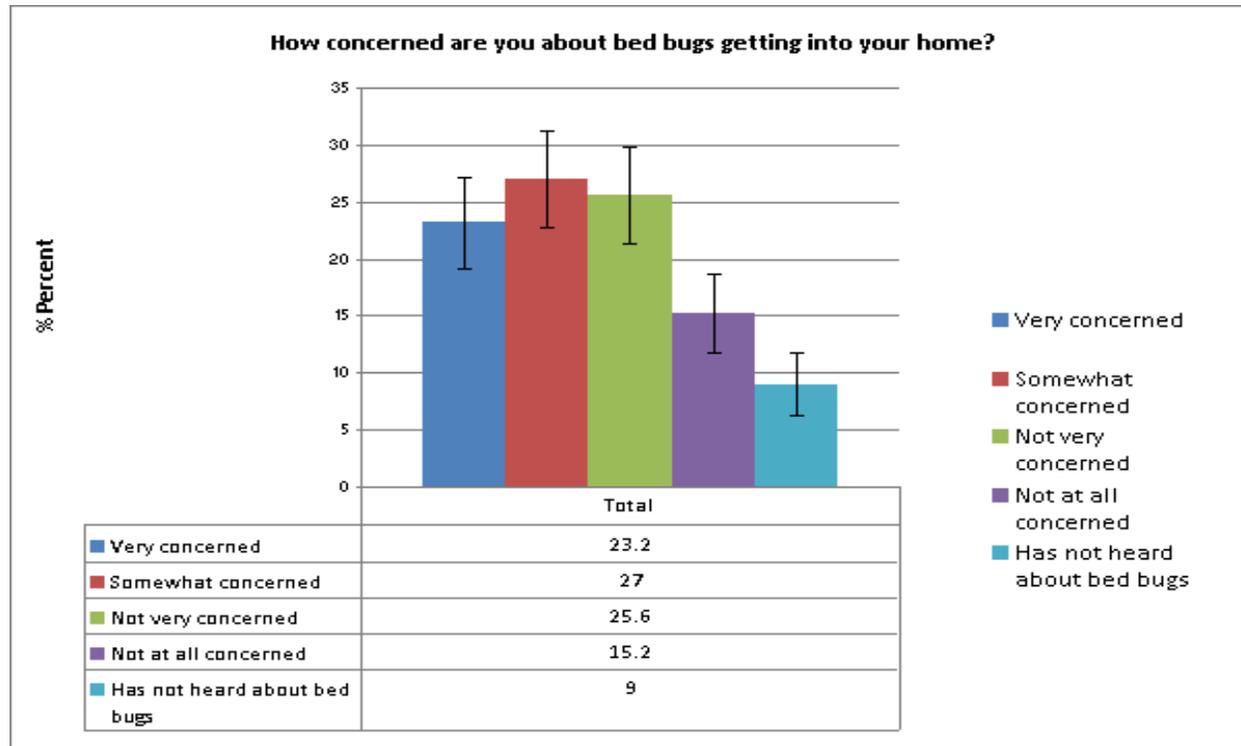


Fig 1.5

**Prevent bed Bug In Home:**

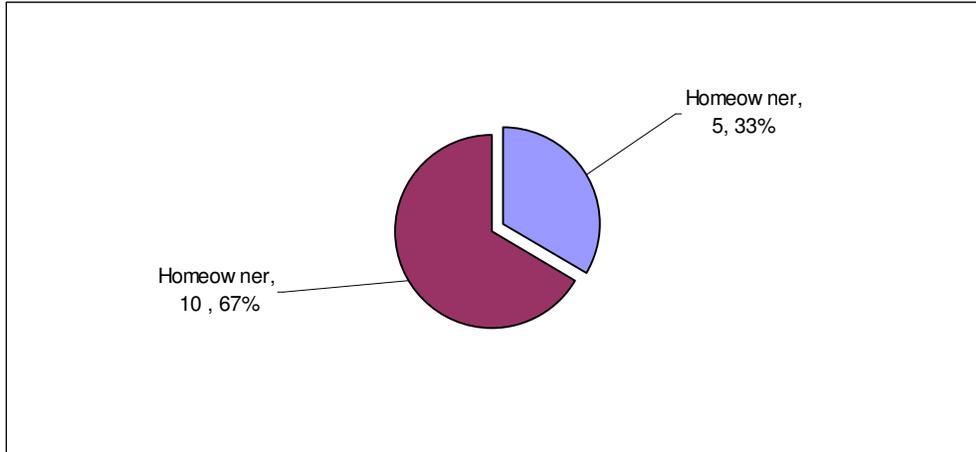
	Clean up, wash	Vacuumping	Inspect 2 <sup>nd</sup> Hand Clothing	Do Not Bring In Used Furniture and mattresses	Check/Inspect Luggage	Check Mattresses and Bedding
<b>No mention</b>	43%	90.50%	94.7%	88.20%	72.70%	27.20%
<b>Yes</b>	18.80%	9.50%	5.3%	11.80%	27.30%	50.40%
<b>Don't Know</b>	38.30%	NA	NA	NA	NA	22.50%
<b># of Respondents</b>	426	264	263	263	264	427

## Appendix 5: Bed Bug Survey Results

### Total Participants: 50

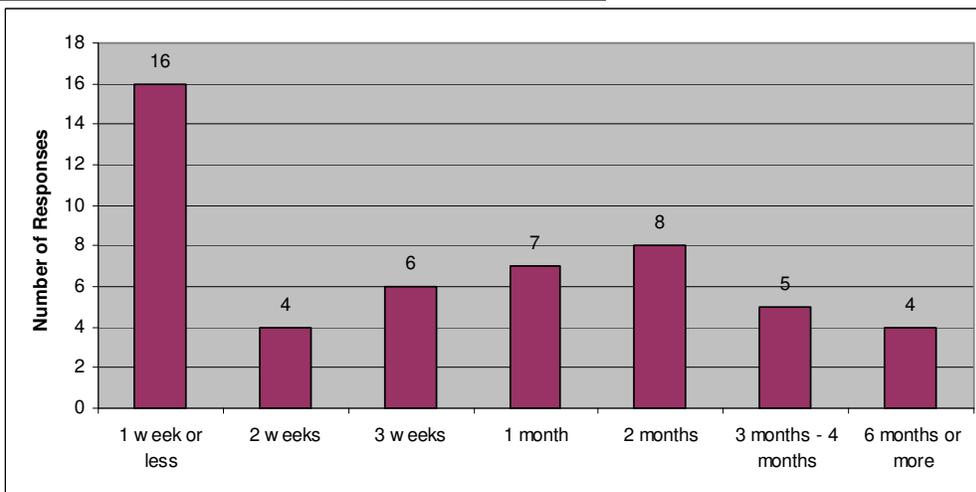
Are you a:

Homeowner	5	10.0%
Tenant	45	90.0%



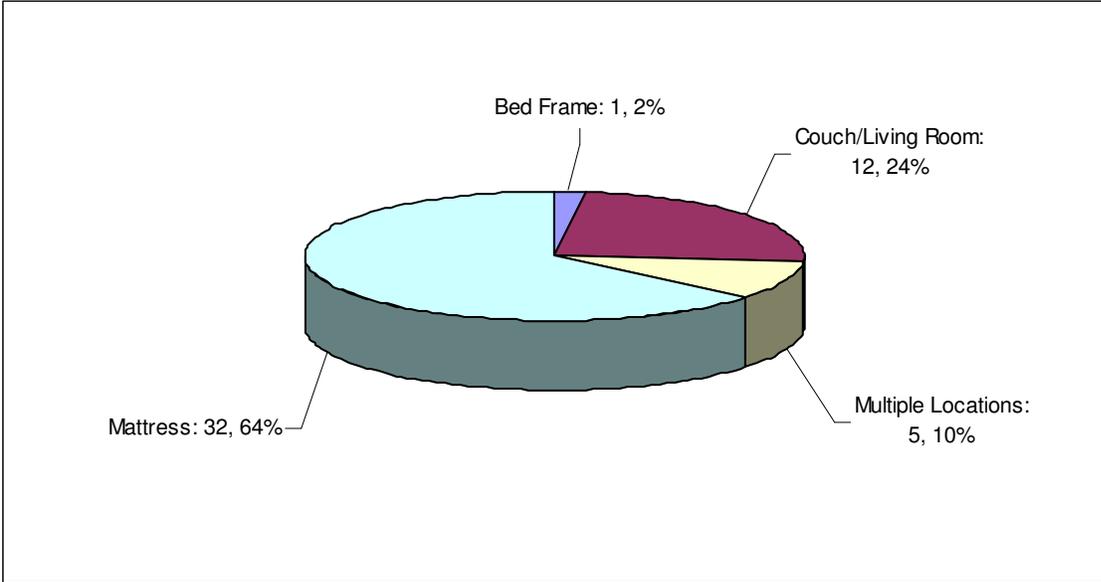
When did the bedbugs first become a problem for you at this address?

1 week or less	16	32.0%
2 weeks	4	8.0%
3 weeks	6	12.0%
1 month	7	14.0%
2 months	8	16.0%
3 months - 4 months	5	10.0%
6 months or more	4	8.0%



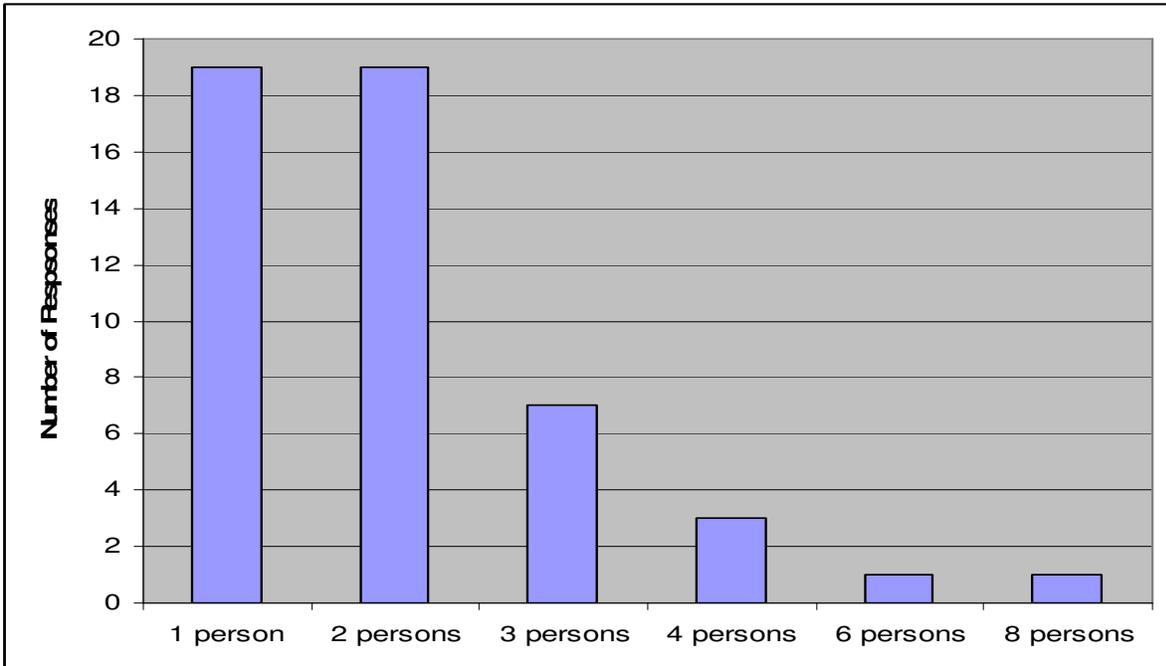
**Where have you found bedbugs hiding in the home?**

Bed frame (Bedroom)	1	2.0%
Couch/Living Room Furniture	12	24.0%
In multiple locations throughout the residence	5	10.0%
Mattress (Bedroom)	32	64.0%



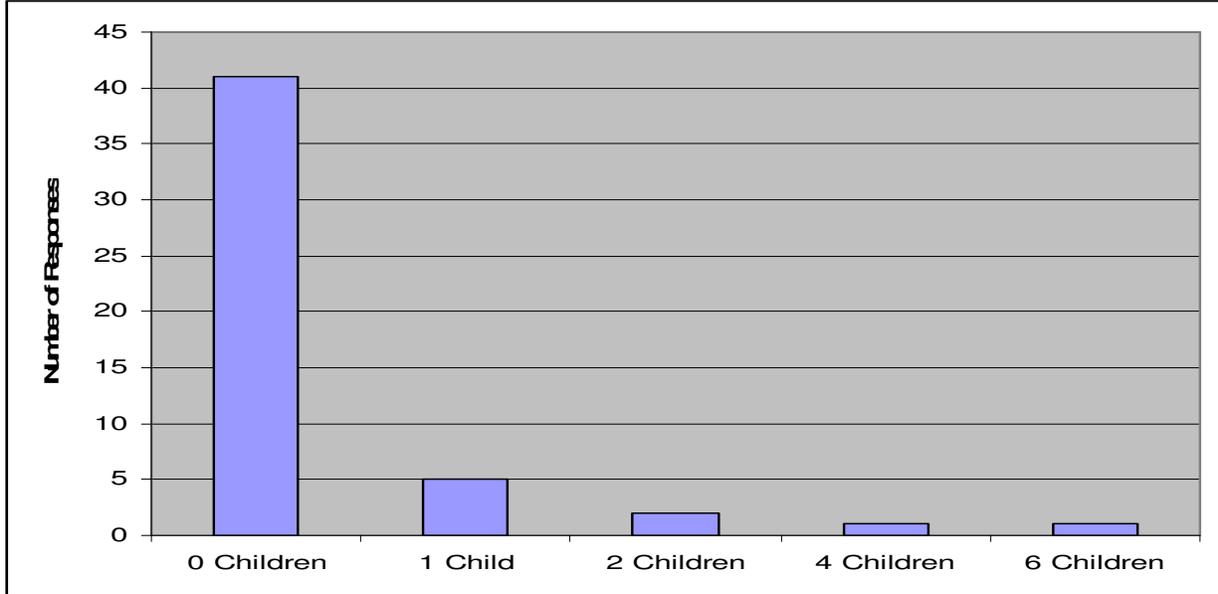
**How many people are living in the affected unit?**

1	19	38.0%
2	19	38.0%
3	7	14.0%
4	3	6.0%
6	1	2.0%
8	1	2.0%



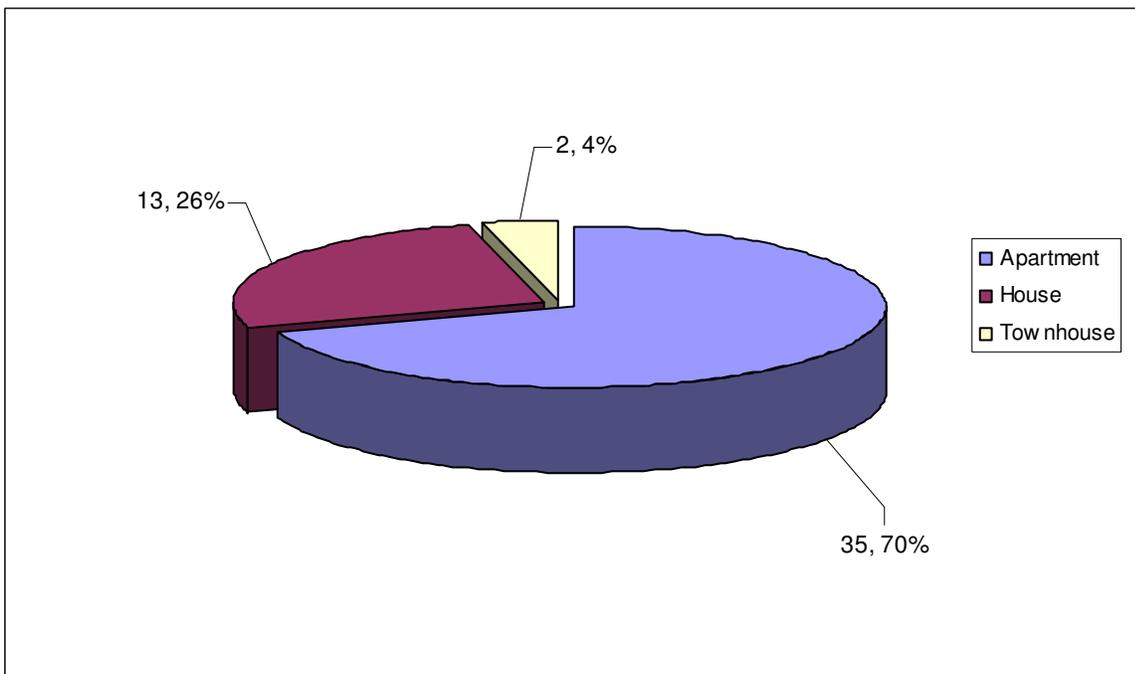
**How many of them are children?**

0	41	82.0%
1	5	10.0%
2	2	4.0%
4	1	2.0%
6	1	2.0%



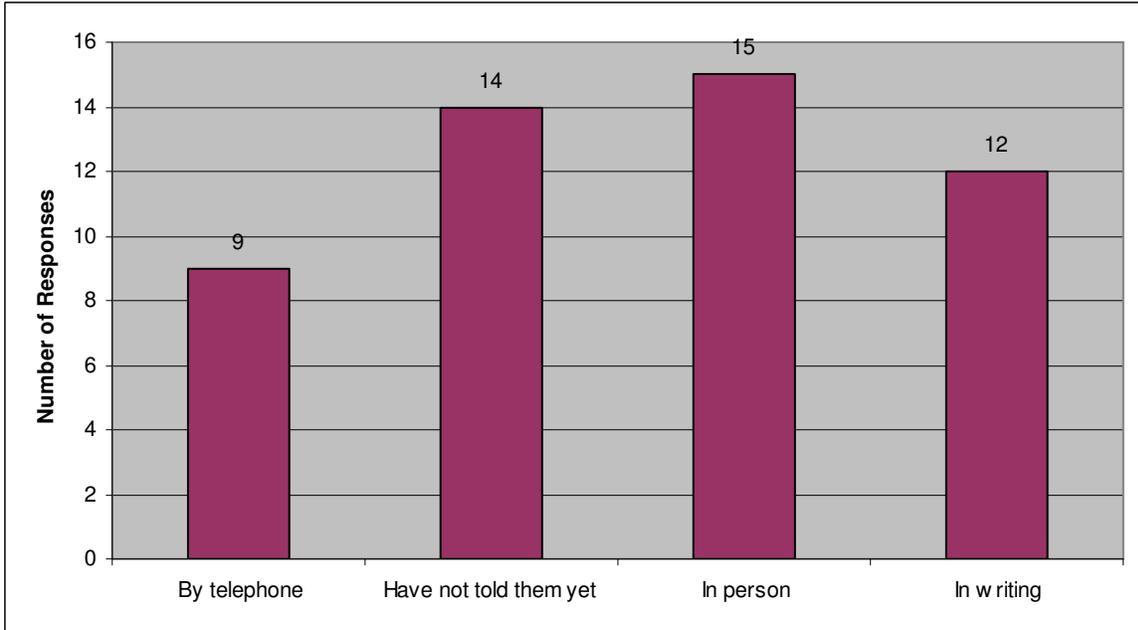
**What type of unit do you live in?**

Apartment	35	70.0%
House	13	26.0%
Townhouse	2	4.0%



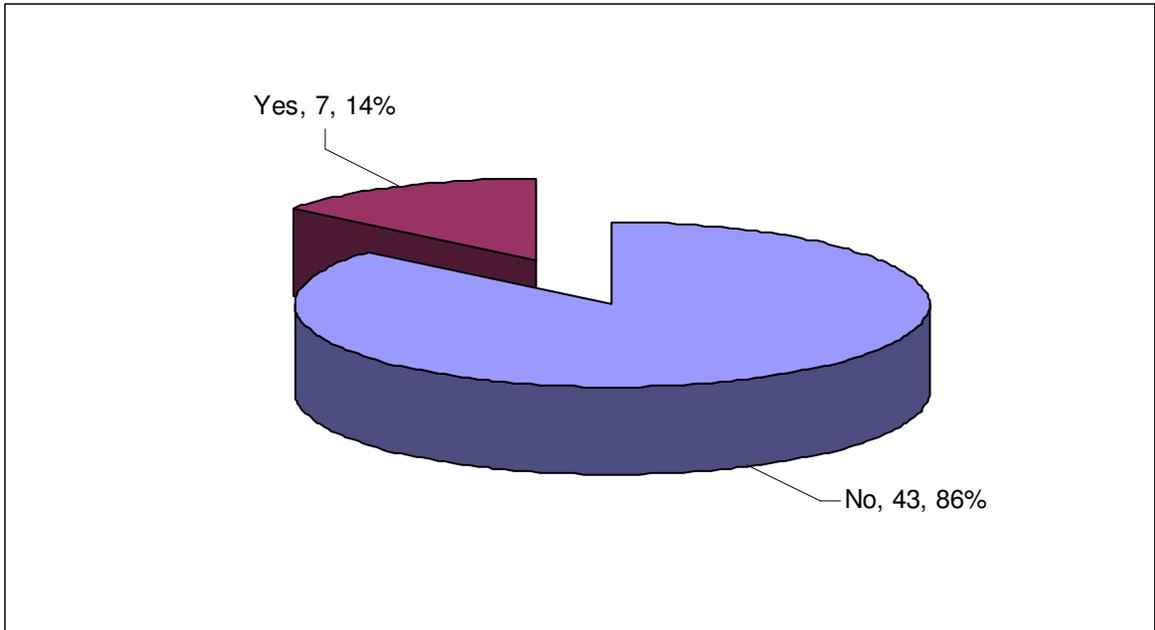
**How did you inform your landlord of the bedbug issue?**

By telephone	9	18.0%
Have not told them yet	14	18.0%
In person	15	30.0%
In writing	12	24.0%



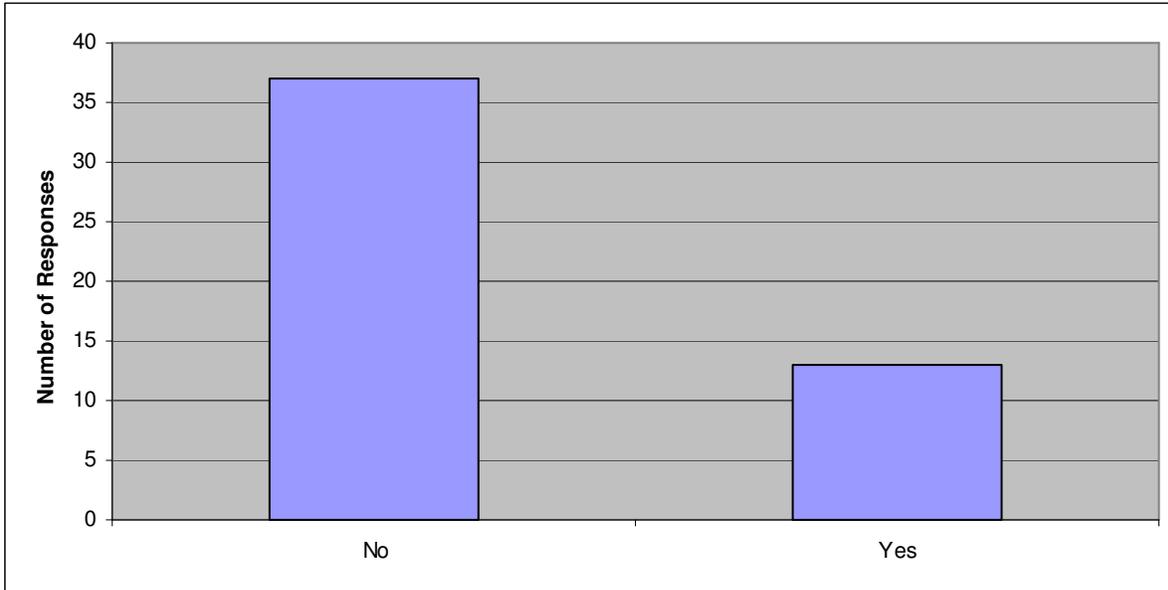
**Did you use a spray / powder yourself?**

No	43	86.0%
Yes	7	14.0%



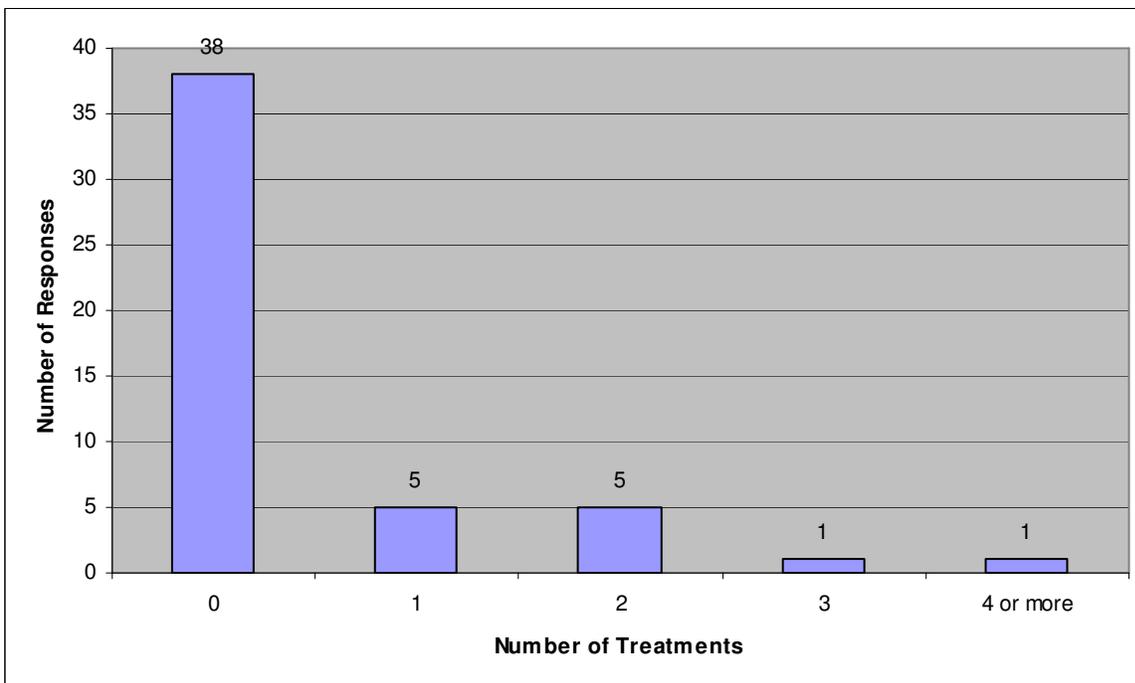
**Did you hire a pest control company to come in to spray pesticides?**

No	37	74.0%
Yes	13	26.0%



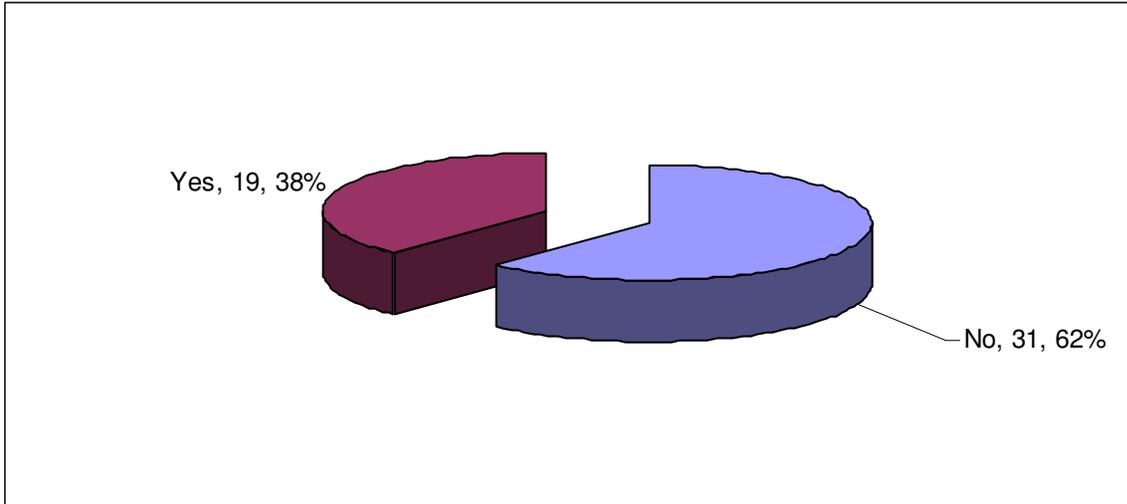
**How many treatments have you done?**

0	38	76.0%
1	5	10.0%
2	5	10.0%
3	1	2.0%
4 or more	1	2.0%



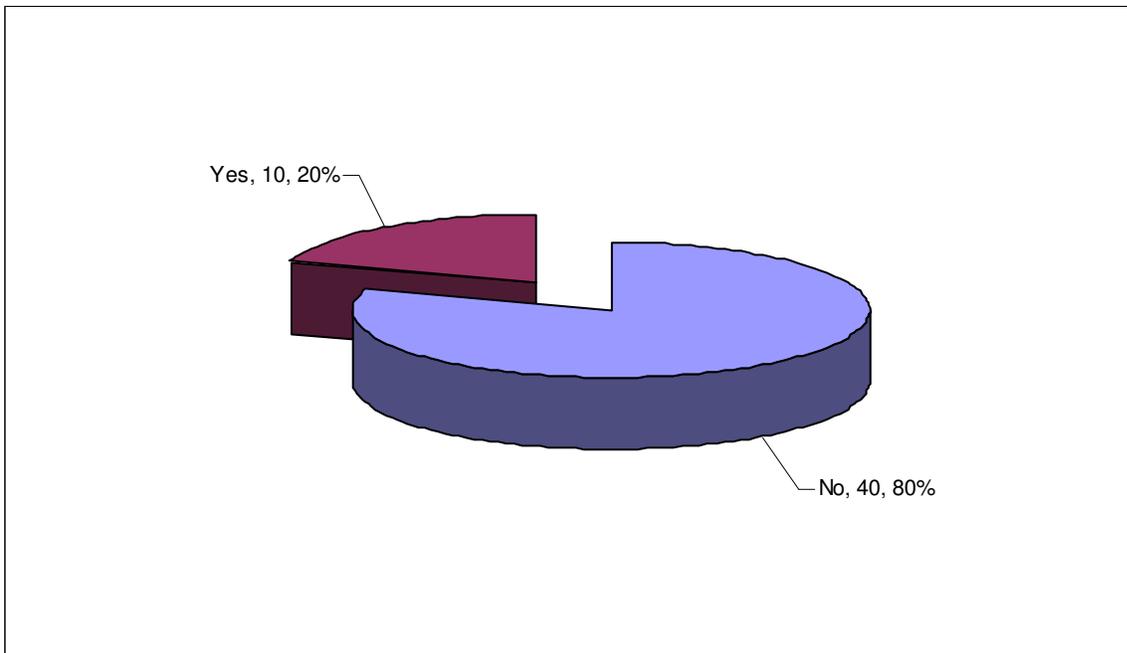
**Were you told how to prepare your residence for a pesticide treatment? (i.e. removal of all clutter, disposing of infested items, laundering infested clothing, vacuuming items / baseboards etc)**

No	31	62.0%
Yes	19	38.0%



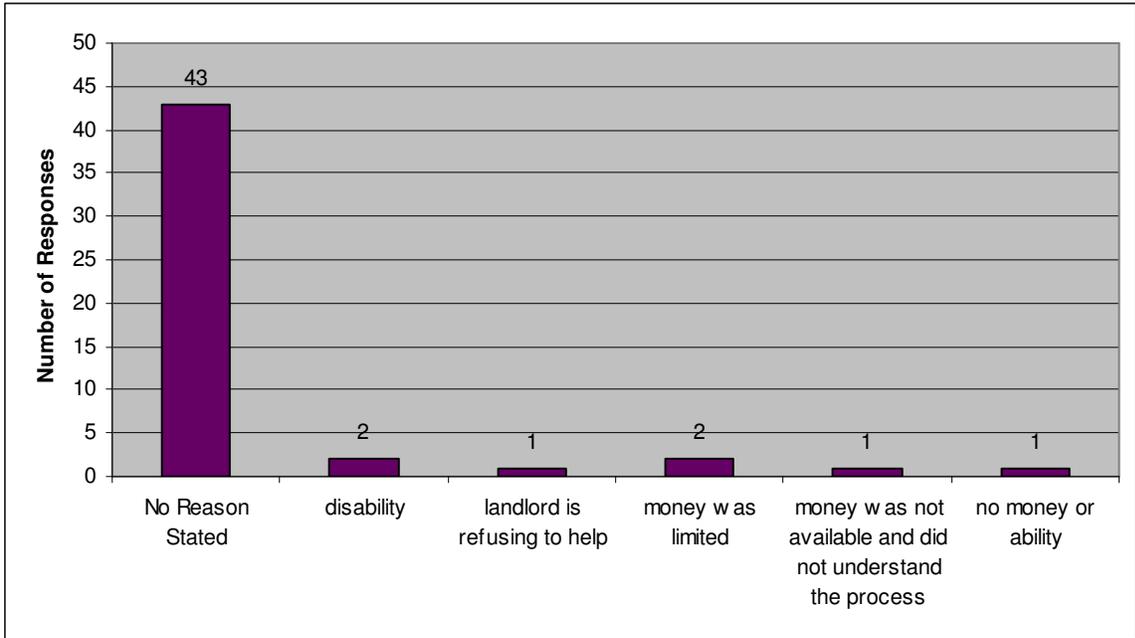
**Did you follow the steps to prepare your unit to have the most effective bedbug treatment?**

No	40	80.0%
Yes	10	20.0%



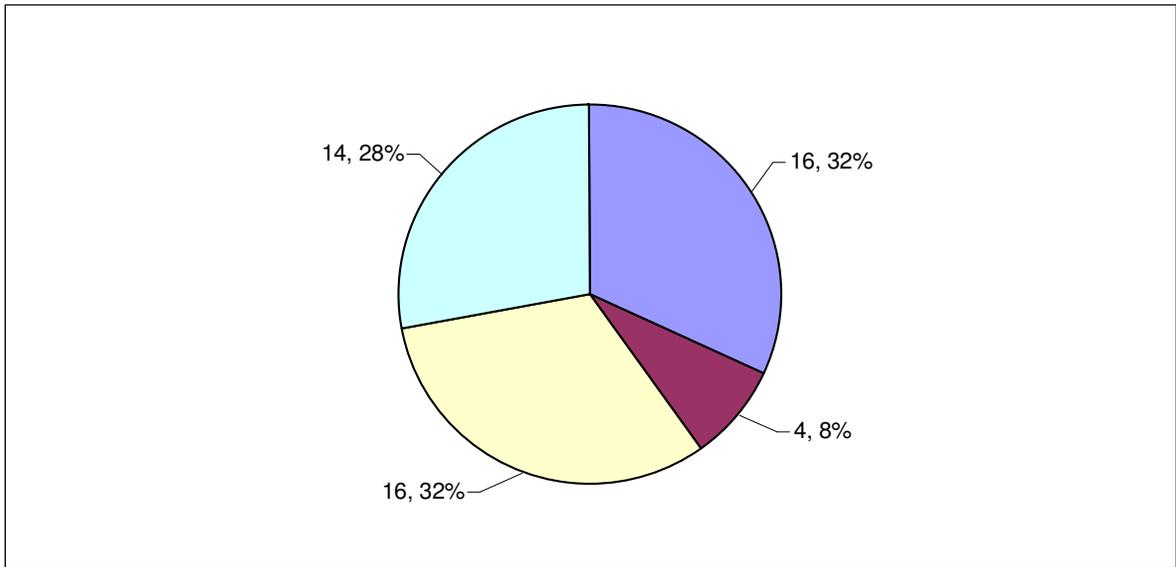
**If no, why not?**

No Reason Stated	43	86.0%
disability	2	2.0%
landlord is refusing to help	1	2.0%
money was limited	2	2.0%
money was not available and did not understand the process	1	2.0%
no money or ability	1	2.0%



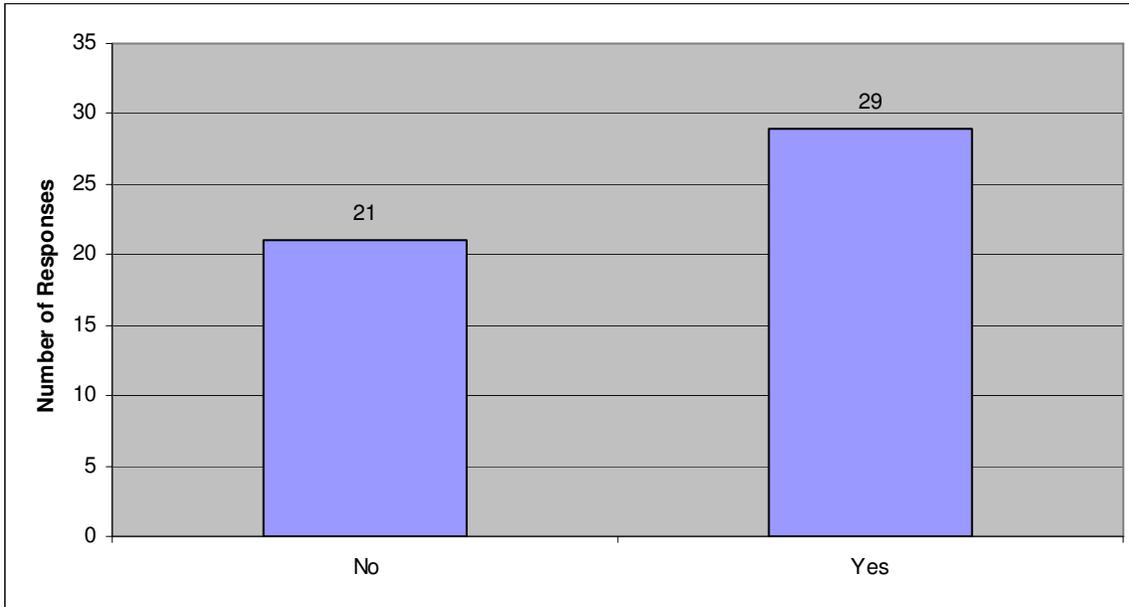
**How do you think you got the bedbugs?**

Unsure	16	32.0%
From a hotel or home where I may have stayed	4	8.0 %
From a used piece of furniture / clothing	16	32.0%
Moved into home where bedbugs already existed	14	28.0%



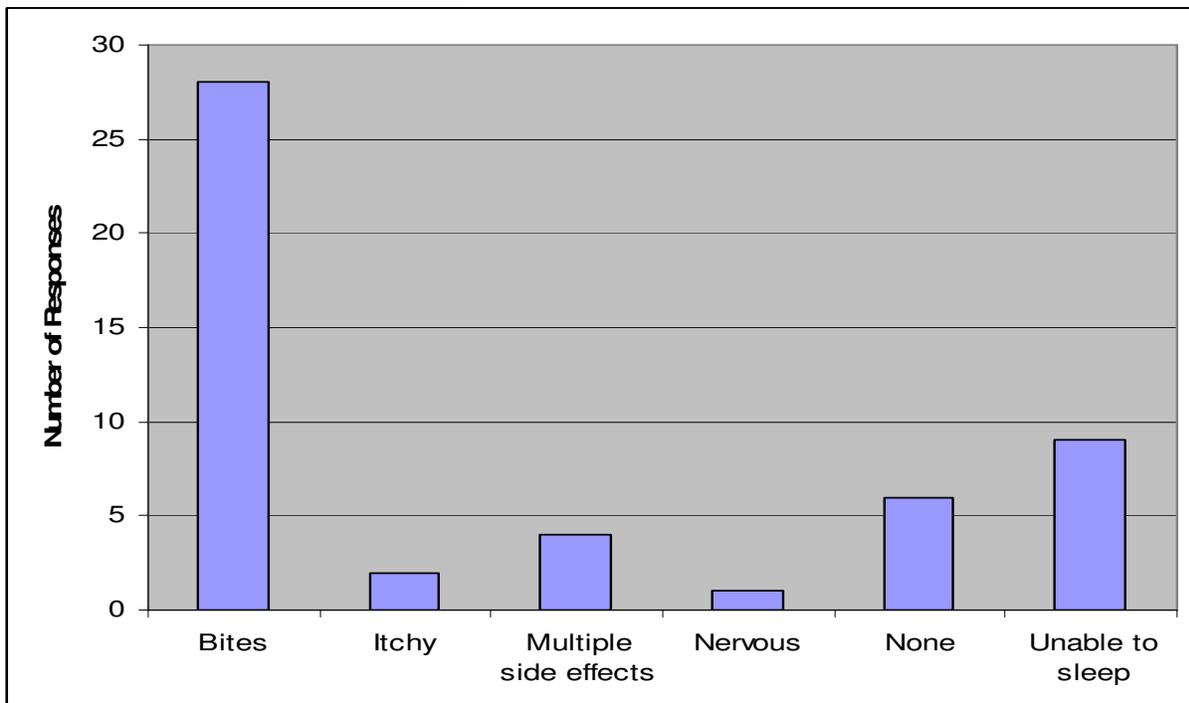
**Do you feel comfortable talking about your bedbug issue with other people in the community or building?**

No	21	42.0%
Yes	29	58.0%



**As a result of the bedbug situation, what were some of the side effects that you experienced?**

Bites	28	56.0%
Itchy	2	4.0%
Multiple side effects	4	8.0%
Nervous	1	2.0%
None	6	12.0%
Unable to sleep	9	18.0%

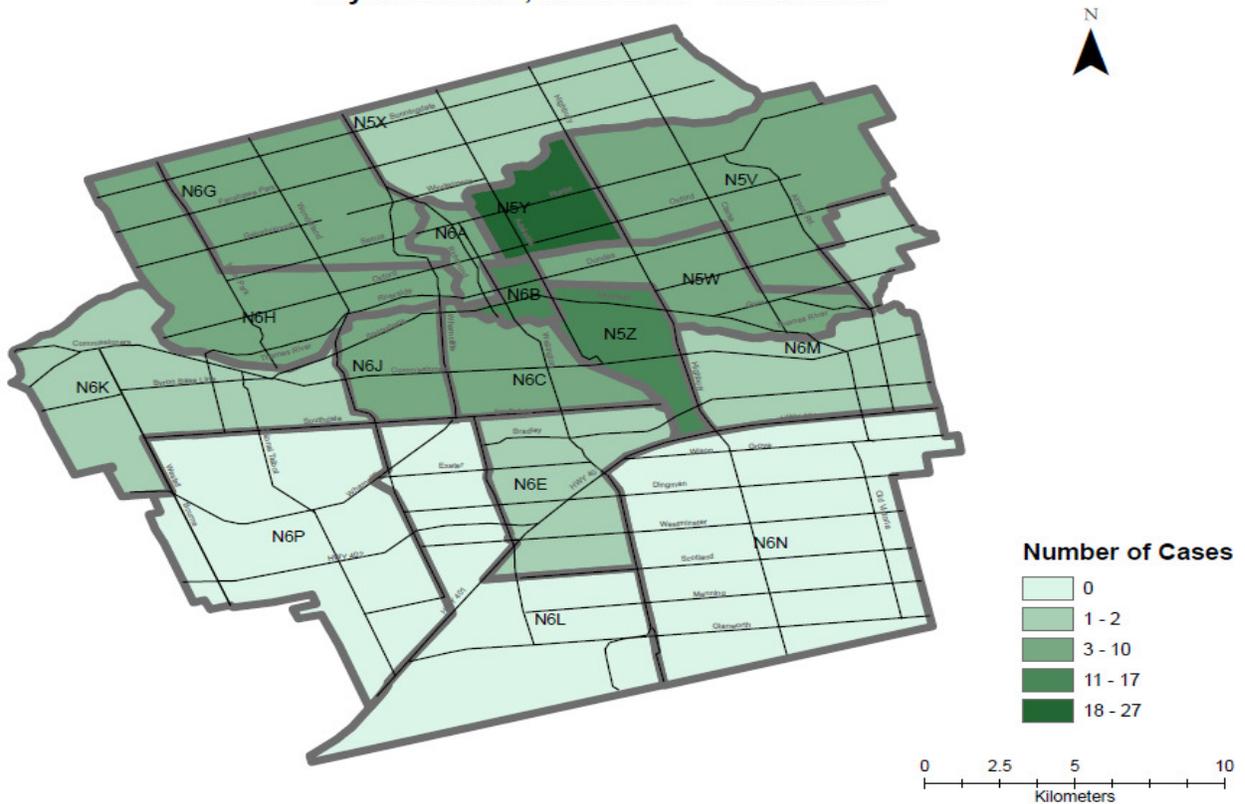


**What is your postal code?**

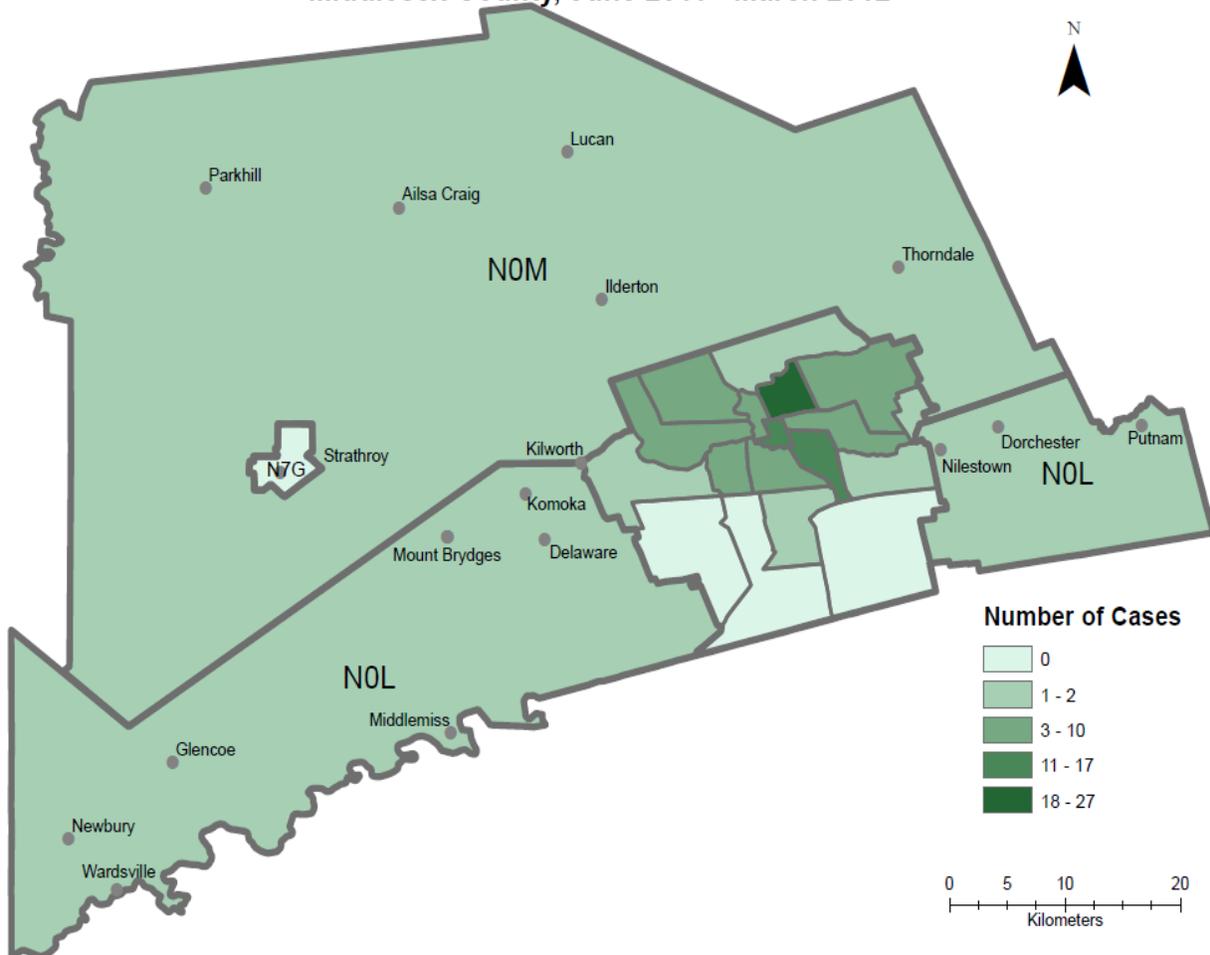
Would not disclose	4	8.0
N0L 2B0	1	2.0
N0M 2B0	1	2.0
N5V 2A2	1	2.0
N5W 1G7	1	2.0
N5W 1N5	1	2.0
N5W 2Y8	1	2.0
N5W 2Z7	1	2.0
N5W 3H3	1	2.0
N5X 2L9	1	2.0
N5Y 2M2	1	2.0
N5Y 3A5	2	4.0
N5Y 3E7	1	2.0
N5Y 4L7	1	2.0
N5Y 4R9	2	4.0
N5Y 4S6	1	2.0
N5Y 4X1	1	2.0
N5Y 4Y1	1	2.0
N5Z 1R1	1	2.0
N5Z 3K1	1	2.0
N5Z 4L7	1	2.0

N6A 1L4	2	4.0
N6A 3C2	1	2.0
N6B 1G9	1	2.0
N6B 1J7	1	2.0
N6B 1S7	2	4.0
N6B 1X9	1	2.0
N6B 2H7	1	2.0
N6B 3J7	1	2.0
N6B 3N6	2	4.0
N6C 2B6	1	2.0
N6C 3W6	1	2.0
N6E 2X1	1	2.0
N6G 1E2	1	2.0
N6G 3Y3	1	2.0
N6H 1X7	2	4.0
N6H 2R5	1	2.0
N6H 3Z5	1	2.0
N6J 1H1	1	2.0
N6J 2K2	1	2.0
N6K 2V8	1	2.0

**Reported Cases of Bed Bug Reports by Postal Code, City of London, June 2011 - March 2012**



### Reported Cases of Bed Bug Reports by Postal Code, Middlesex County, June 2011 - March 2012



### Do you receive any income support from a government programs?

No	16	32.0%
Yes	34	68.0%

