Regional Public Health
Better Health For The Greater Wellington Region

PUBLIC HEALTH POST

Public Health for Primary Care in Wellington, Wairarapa and the Hutt Valley

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SLEEP TIGHT, AND DON'T LET THE BEDBUGS BITE!

Jonathan Lambert, Health Protection Officer, Regional Public Health

Figure 1. Bedbug in action[1].

Introduction

Regional Public Health recently investigated a case where a lady had been bitten by bedbugs on several parts of her body while staying in a Wellington Hostel. Investigations revealed a minor infestation of the insects in the room where she had stayed for two nights.

Bedbugs (*Cimex lectularius*) are becoming a problem around the world. These small nocturnal parasitic insects feed on human beings while sleeping. Adults are reddish brown in colour and about the size of an apple pip, but range between 1-7mm in length depending on life stage. All life stages feed on blood and are equally important as nuisance pests. They are able to survive for months without a blood meal.

While there is no evidence that bedbugs can spread disease, people can suffer from anaemia, and bite sites can become infected. People with allergies and asthma may become sensitised to bedbugs as a trigger for their symptoms. The mental trauma may be far worse than the bites themselves[2].

Why are they becoming a problem?

Infestations are increasing worldwide due to the increase in global travel. The insects love to hitch a ride in people's luggage and can also be commonly found in second hand furniture. Bedbugs have also been found on aircraft and in taxis, but hotels and hostels are the main source from which people transfer the bugs to their homes[3].

Female bugs can lay more than two eggs per day and potentially hundreds in a lifetime. Eggs are tiny, whitish in colour and hard to see without magnification. They are sticky and adhere to surfaces. At normal room temperature, bedbugs hatch within a week and moult five times before reaching maturity. They require a blood meal before each moult. Females are known to disperse to avoid multiple inseminations by males, and males will disperse to avoid competition[2].

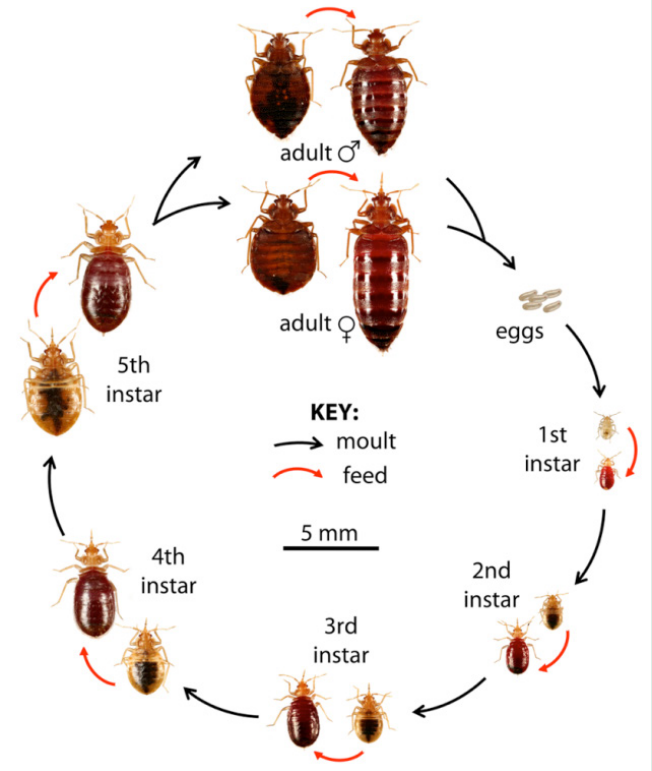

Figure 2. Picture showing the lifecycle from egg to adult[4].

The lifecycle shows the huge difference in size, shape and colour between a bedbug that is fed and unfed. They become much longer and fatter once they have fed on a blood meal. Many people would not recognise the insect as the change is so dramatic. However, fully-fed bugs will need to digest and discharge the blood in order to become flat again, which enables them to crawl back into cracks and crevices to hide until their next meal.

Bedbug bites

Bedbugs feed on exposed skin, such as the abdomen, neck, arms, shoulders, face and legs feet and toes. They normally bite in neat rows and draw blood by piercing the skin with their proboscis. Reactions to their bites vary, some people may suffer little reaction while others experience raised itchy welts that can become infected. Generally bites are painless.

Figure 3. Bedbug bites[5].

Figure 4. Bedbug bites on back[6].

Bedbug habitats

Seventy-five percent of bedbug population will generally be found within 2-3m from the bed, but they can crawl up to 30 metres during the night. They are mostly found on or in mattresses, especially under the buttons, seams, handles and labels. They are also found in pillowcases, bed box springs, bedframes and headboards. They hide in skirting boards, architraves, picture frames, mirrors, blinds, curtains, bookshelves, light fixtures, ceiling coving and bedroom furniture. Bedbugs can also be found in wallpaper (especially where it has peeled), electrical sockets, and equipment, clothing, bags and suitcases[2].

Evidence of bedbugs

Live or dead bugs and blood spotting (digested blood defecated by the insect on bed linen, mattress, bed frame or box spring or other harbourage points are common indicators, along with evidence of bites on the skin, which are often mistaken for flea bites. Heavy infestations can give off a sickly, sweet, coriander/almond smell.

Figure 5. Bedbug faecal stains[7].

Figure 6. Bedbug eggs[7].

Figure 7. Bedbug infestations in a bed[8].

Figure 8. Bedbug infestation[8].

Treatment for bedbugs

A qualified pest control professional should be called to detect and treat bedbugs if an infestation is suspected. Their training, experience and access to commercial strength pest control products means that they will be able to eradicate the insects efficiently and safely. Two methods can be used to control bedbugs; non-chemical or chemical.

Non-chemical methods include removal of infested furniture, vacuuming, heat (>60°C), steam, freezing (time-critical), traps and barriers, diatomaceous earth, mattress and box spring encasements and laundering. Detector dogs can be used to help locate infestations.

Chemical methods include the use of permethrin insecticide such as bendiocarb or deltamethrin plus a growth inhibitor. These are normally applied using a fine wet spray that leaves a residue on surfaces. Dry insecticide powder may be used for electrical sockets.

Things to consider in order to prevent bedbug infestation

Always check beds in hotels and hostels, look for signs of dead or live insects and blood spotting on bed linen, the mattress and pillows – you may need to take a good torch! Never leave your suitcase open in a hotel room and always use the bag stand provided. Do not unpack your luggage on your bed at home! If in doubt, launder your clothes on a high temperature wash, and dry in a spin dryer (this will kill all life stages and eggs).

What if I need advice about bedbugs

Health Protection Officers employed at your local public health unit (Regional Public Health) provide advice about bedbugs. Local Council Environmental Health Officers have powers under health legislation to take action if complaints are received from members of the public.

Links to Resources

- This manual is a detailed document produced by the UK's Chartered Institute of Environmental Health. **http://www.cieh.org/uploadedFiles/Core/Policy/Publications_and_information_services/Policy_publications/Publications/CIEH_Bedbug_doc.pdf**
- This simple factsheet from Leeds City Council in the UK succinctly covers relevant information. **http://www.leeds.gov.uk/docs/bedbugs.pdf**

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DISEASE NOTIFICATION – HOW YOUR GENERAL PRACTICE CAN HELP

In 2013 Regional Public Health launched the *Public Health Disease Notification Manual* to assist in the disease notification process. Updates for this manual are located at **http://www.rph.org.nz**

To enable our staff to promptly initiate disease follow up we need your help in the following ways:

1. Inform your patient of the illness they have been diagnosed with or exposed to and that public health staff may be in contact.
2. Notify Regional Public Health of the disease within a timely fashion (after the case has been informed) - by phone for urgent notifications (as soon as you are aware), or by faxing a case report form for non-urgent (within one working day). You can find a list of urgent vs. non-urgent notifications on the Regional Public Health website under Health Professionals > Notifiable Diseases.
3. Complete all sections of the form, especially:
   - work/school/early childhood centre information
   - name of parent or guardian for a child under 16 years old.

The 3D HealthPathways includes a pathway on reporting notifiable diseases: **http://3d.healthpathways.org.nz**

WHAT ARE YOU REPORTING?

THREE MONTHS OF NOTIFIED CASES IN THE HUTT VALLEY, WAIRARAPA, WELLINGTON

Dr Jonathan Kennedy, Medical Officer, Regional Public Health

Table 1. Notifiable cases by DHB in the Hutt Valley, Wairarapa and Wellington 1/1/2017 – 31/3/2017. Table includes 'confirmed' cases with additional 'probable' cases in brackets.

Notifiable Condition	*Hutt Valley*	*Capital and Coast*	*Wairarapa*	Totals
Campylobacteriosis	47	112	11	170
Cryptosporidiosis	1	7	1	9
Dengue fever		3		3
Gastroenteritis	0(5)	5(9)		5(14)
Giardiasis	13	33	1	47
Hepatitis A		2		2
Hepatitis B		1		1
Hepatitis C		0(1)		0(1)
Invasive pneumococcal disease	1	4		5
Legionellosis	3			3
Leptospirosis			0(1)	0(1)
Malaria		2		2
Mumps	1	0(1)		1(1)
Pertussis	12(1)	35(9)		47(10)
Rheumatic fever	1			1
Salmonellosis	7	25	4	36
Shigellosis		7		7
Tuberculosis	3	4(2)		7(2)
Typhoid fever	1			1
VTEC/STEC infection	1	5		6
Yersiniosis	13	21	2	36
Totals	104(6)	266(22)	19(1)	**389(29)**

Notes (1,2)

- *Campylobacteriosis* accounted for 170 of the 389 confirmed case notifications during the three months. In most cases no source was determined.
- The three *dengue fever* cases were potentially exposed in Fiji, Thailand and Sri Lanka respectively. There were no *Zika* virus or *chikungunya virus* notifications during the three month period.
- *Gastroenteritis* cases included three cases of scromboid fish poisoning, with probable exposures including consumption of mullet eggs or raw mackerel eggs
- Ten cases of *giardia* in one week in February included three cases in the same family.
- A 31 year old male developed *hepatitis A* after travelling to Samoa. Another traveller, a 26 year old woman, developed the same illness after travelling to the United Kingdom, and presented with fever, headaches, muscle pains and jaundice. These cases are a reminder of the value of travel vaccination.

- A 32 year old woman was found to have *hepatitis C*, while nearly at term in her pregnancy. She had previously had a clear test five years before and had risk factors including IV drug use and a new tattoo. Transmission of hepatitis C during delivery is rare though babies are recommended to have follow-up tests.
- A 68 year old woman from Porirua was admitted to the intensive care unit with *legionellosis*. She had possible exposure due to inadequate hot water temperatures at home, with her hot water system intermittently being turned off. This may have allowed the water temperature to drop below levels sufficient to remove harmful organisms. No associated cases were found. A 55 year old woman and a 69 year old man also developed *legionellosis*, after exposure to compost or potting mix while gardening.
- A 66 year old man from Lower Hutt developed *leptospirosis* after working in a wardrobe space that had recently had a rat infestation. He had previously cut his hand while building. He also had potential exposure to rodent urine during gardening.
- There were no cases of *meningococcal disease* during the three month period.
- A suspected case of *mumps* turned out to have a cheek swelling following wisdom tooth extractions.
- Seven *shigellosis* cases included a 25 year old male who had experienced symptoms intermittently since travelling to Egypt six to seven months before. Four of the *shigellosis* cases had potential overseas exposure in the incubation period, including in Samoa and Indonesia.
- *Tuberculosis* cases fitted the usual patterns of illness including presentations with chronic cough, fever and weight loss. One case with a more complex picture had been coughing for more than one year, with negative investigations during this time. Bronchial washings revealed no acid fast bacilli but a culture three weeks later grew mycobacterium tuberculosis, illustrating the difficult nature of this disease to diagnose.
- A 29 year old woman was hospitalised with *typhoid fever* after returning from travel to Samoa.

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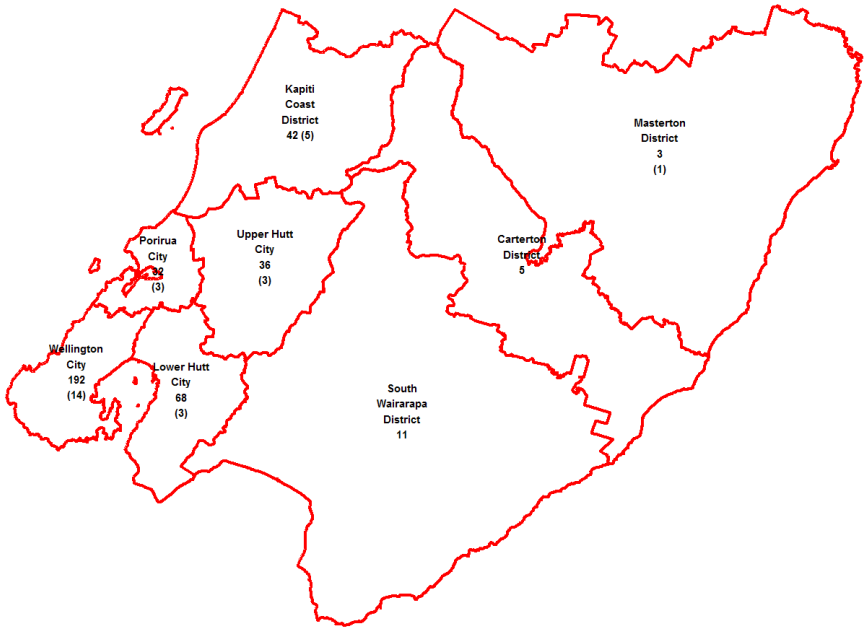
Regional Public Health Notifications
1st Jan 2017 to 31st Mar 2017



Kapiti Coast District	*pop. 49104*
Campylobacteriosis	22
Cryptosporidiosis	1
Gastroenteritis	0 (4)
Giardiasis	5
Mumps	0 (1)
Pertussis	7
Salmonellosis	2
VTEC/STEC infection	3
Yersiniosis	2
TOTAL	42 (5)

Porirua City	*pop. 51717*
Campylobacteriosis	16
Gastroenteritis	0 (1)
Giardiasis	1
Hepatitis A	1
Invasive pneumococcal disease	2
Legionellosis	0
Pertussis	3 (1)
Salmonellosis	2
Shigellosis	2
Tuberculosis	2 (1)
Yersiniosis	3
TOTAL	32 (3)

Wellington City	*pop. 190956*
Campylobacteriosis	74
Cryptosporidiosis	6
Dengue fever	3
Gastroenteritis	5 (4)
Giardiasis	27
Hepatitis A	1
Hepatitis B	1
Hepatitis C	0 (1)
Invasive pneumococcal disease	2
Malaria	2
Pertussis	25 (8)
Salmonellosis	21
Shigellosis	5
Tuberculosis	2 (1)
VTEC/STEC infection	2
Yersiniosis	16
TOTAL	192 (14)

Lower Hutt City	*pop. 98238*
Campylobacteriosis	30
Cryptosporidiosis	1
Gastroenteritis	0 (2)
Giardiasis	9
Legionellosis	2
Leptospirosis	0
Pertussis	7 (1)
Rheumatic fever	1
Salmonellosis	5
Tuberculosis	2
VTEC/STEC infection	1
Yersiniosis	10
TOTAL	68 (3)

Upper Hutt City	*pop. 40179*
Campylobacteriosis	17
Gastroenteritis	0 (3)
Giardiasis	4
Invasive pneumococcal disease	1
Legionellosis	1
Mumps	1
Pertussis	5
Salmonellosis	2
Tuberculosis	1
Typhoid fever	1
Yersiniosis	3
TOTAL	36 (3)

Masterton District	*pop. 23352*
Campylobacteriosis	1
Leptospirosis	0 (1)
Measles	0
Salmonellosis	2
TOTAL	3 (1)

Carterton District	*pop. 8235*
Campylobacteriosis	2
Cryptosporidiosis	1
Salmonellosis	1
Yersiniosis	1
TOTAL	5

South Wairarapa District	*pop. 9528*
Campylobacteriosis	8
Giardiasis	1
Leptospirosis	0
Salmonellosis	1
Yersiniosis	1
TOTAL	11

Notes:
1. Population data from Statistics New Zealand 2013 Census 'usually resident population'.
2. Tables present the number of 'confirmed cases', with additional 'probable cases' in parentheses.
3. Notification data from Episurv database.

Figure 1. Notifiable cases in the Hutt Valley, Wairarapa and Wellington 1/1/2017 – 31/3/2017, tabulated by territorial authority

EXPANDED WELL HOMES PROGRAMME

Dr Elinor Millar, Public Health Registrar, Regional Public Health
Vanessa Cameron, Well Homes Project Manager, Regional Public Health
Tara D'sousa, Group Manager, Healthy Environments and Disease Control, Regional Public Health

With summer ended, it is time to prepare for winter. Now is the perfect time to discuss housing with your patients, and refer them for a FREE housing assessment to get their home warmer, drier and safer before winter returns.

Quick facts on Housing and Health

- Housing is a key determinant of health, with housing quality and household crowding playing a major role in health outcomes[1-3].
- Poor living conditions, including dampness and crowding, are important risk factors for acute rheumatic fever[4,5].
- NZ children hospitalised with respiratory infections often have poor housing conditions, which increases their risk of future ill health[6].
- On a positive note: there is strong evidence that improving housing improves health[7,8]. These health gains are greatest when the interventions are targeted to those in most need[8].
- The Auckland Healthy Housing Programme, very similar to Well Homes, has undergone extensive evaluation[9-11]. The programme decreased acute hospital admissions and housing-related admissions, particularly among 0-4 year olds (11% reduction, CI:1-21%) and 5-34 year olds (23% reduction, CI:15-30%)[11]. There were also many co-benefits such as improvements in housing stock, improved energy efficiency and a significant return on investment[9,12].

What is Well Homes?

Well Homes is a housing coordination service working in Capital and Coast (CCDHB) and Hutt Valley District Health Board (HVDHB) areas. The service is delivered through a partnership between Tu Kotahi Māori Asthma Trust, Sustainability Trust, He Kāinga Oranga and Regional Public Health.

Well Homes Referral Criteria

The Well Homes Programme has recently received additional government funding and as a result the team are able to offer housing assessments and interventions to more whānau in the region because of broader eligibility criteria.

The Well Homes service works with whānau who:

- Hold a Community Services Card (CSC), or are of low income (indicated by accessing food banks, Work and Income benefit, budgeting services, social agencies).

We are able to arrange an assessment of the home if:

- There are children living in the household with respiratory conditions, *or*
- A woman in the house is pregnant or a new mother, *or*
- The whānau are working with Child Youth and Family (CYFs) or Corrections, *or*
- You have seen the family and have concerns that the health of the whānau is at risk due to poor quality housing.

Figure 1. Mould in the kitchen of a house visited by a Well Homes housing assessor.

Figure 2. A broken window in a private rental property had been this way for months when the Well Homes assessor visited the house.

If you identify a whānau who doesn't meet the CSC/low income group but you think their health is at risk due to a cold, damp home, please still refer them and we will link them with an appropriate housing service.

Local Case Study – by Tu Kotahi Māori Asthma Trust Assessor

This housing assessment was for a young woman who had recently relocated to Wainuiomata from Tokoroa with her two children. She moved into her Uncle's garage and had thought that she would be in a house of her own within 3 months, however, on the day of my visit she had been living in her Uncle's garage for 5 months.

She had been actively looking for a home of her own but had found it extremely hard to find an appropriate house in her price bracket. She had worked out a budget taking care of school fees, paying off old debts, shopping, power and rent of $250. Unfortunately the average cost of a three bedroom home in the region is at least $100 higher than she can afford. She was particularly struggling with the cost of setting up the house as for most houses she needed to have 1 weeks rent in advance, 2 weeks rent in bond and 1 weeks rent letting fee. This meant on average she needed $1500 - $1800 before even moving into the house. She had applied for housing with Housing New Zealand and was told that she was on the waiting list for a home but was also told that there were currently no three bedroom homes available in Lower Hutt.

It was clear that the garage was not fit for her and her two children. The garage had a port-a-loo by the side door, little space, no kitchen facilities, no insulation, exposed wiring and sizable holes in the garage door. The woman was worried about the health of her two children and the number of days that they have had off school over the 5 months. On the day of my visit her daughter was at home from high-school for the fourth day in a row with respiratory illness and her primary school-aged child had only just returned to school after two weeks off with respiratory problems.

We put a number of interventions in place for this young whānau, including providing heating and bedding; however the focus was on re-housing. This required conversations with Housing New Zealand through the co-ordinator of the Well homes programme. The process took a while but the whānau was able to move out of the garage and into a new home 8 weeks later.

How to Refer

The referral form is available online: **http://www.rph.org.nz/content/57ba28fd-f5ee-4a39-9887-cf9cd8dbd47e.html**

It is also on the '3D Health Pathways' – currently under the bronchiolitis, non-acute asthma, and rheumatic fever pathway, but will also appear under the 'public health' pathway once localised.

We are happy to work with you if you would like to incorporate the Well Homes Referral into your website or local computer system. Please make contact with Well Homes if you have any questions about referral criteria or would like more information about the service.

Phone: 0800 675 675 or (04) 570 9002
(ask for Well Homes)
Email: **wellhomes@huttvalleydhb.org.nz**

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REMINDER: PROGRESS ON IMPLEMENTATION OF THE NOTIFICATION PROCESS FOR SECTION C DISEASES (SYPHILIS, GONORRHOEA, AIDS AND HIV INFECTION)

ESR has been working with the AIDS Epidemiology Group (AEG), the Ministry of Health, diagnostic laboratories, Medical Officers of Health and other stakeholders to introduce a new IT system and processes to support the notification of Section C diseases (AIDS, HIV infection, syphilis and gonorrhoea) – these became notifiable from 4 January, 2017. Until the new IT system is in place no change in action for these diseases is needed. Once it is in place, you will be asked to complete a questionnaire on each case. **It is now expected that the new system will not be fully functional until after July 2017.**

PUBLIC HEALTH ALERTS

Regional Public Health communicates public health alerts to primary care practices by fax and by email. These communications often contain information that needs to be urgently taken on board by general practitioners and primary care nurses.

Please contact Regional Public Health on (04) 570 9002 if you have not been receiving alerts, or to check and confirm that we have your correct details.

If you are not yet receiving alerts by email, and would like to, then you can provide your email address via phoning the number above.

Ordering pamphlets and posters:

To order any Ministry of Health resources, please contact the Health Information Centre on (04) 570 9691 or email **laurina.francis@huttvalleydhb.org.nz**

For enquiries regarding the Public Health Post, please contact Dr Jonathan Kennedy, medical officer, Regional Public Health, by email **jonathan.kennedy@huttvalleydhb.org.nz** or by phone **(04) 570 9002**. Alternatively contact one of the regional medical officers of health: **Dr Jill McKenzie, Dr Craig Thornley, Dr Annette Nesdale and Dr Stephen Palmer.**

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