Bed bugs, housing and Montreal public health

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Vancouver NCCEH bed bug planning meeting
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Housing and health regulation in Quebec

History

• Health inspectors in municipalities

• New legislation in the 70s, health inspections was removed from cities to the environment ministry

• Moved again to the municipalities, but not an obligation and not functionally linked to public health

• Montreal has a bylaw for on maintenance – only for apartment buildings

• Two types of divisions, on for the central city, and one within boroughs
Montreal public health and CSSS

- CSSS
  - Responsible for support to vulnerable populations
Public health actions

- Knowledge acquisition
  - Surveillance
  - Research

- Advocacy
  - Action plan against bed bugs with the city
  - Training
  - Strong links with different stakeholders

- Protection
  - Reporting by health professionals and city inspectors that may lead to an investigation
Public health team

- Equivalent of 1 full time physician
- 1 hygienist
- Half time toxicologist
- Half time manager
- Support of one biostatistician

- During investigations, may have support from social workers, community organisers and nurses from CSSS
Research

• Health hazard from Ontario Health protection and promotion act
  ▫ A) Condition of a premises, or b) a substance, thing, plant or animal other than man or c) a solid, liquid, gas or combination of any of them that has or that is likely to have an adverse effect on the health of any person

• Quebec public health act
  ▫ Do not define health hazards but has the notion of threats to the health of the population
Mental health and bed bugs

- Convenience sample of tenants recruited in apartment complexes from Montreal Canada
- Context, investigation for multiple health hazards (water infiltration, mould, cockroaches)
- 39 bed bug exposed tenants with 52 unexposed
- We measured anxiety symptoms, depressive symptoms and sleep disturbances

Results

Table 2  ORs and 95% CIs for the associations between bed bug infestation exposure and mental health symptoms

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted OR (95% CI)</th>
<th>Fully adjusted OR (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQI(5)</td>
<td>3.80 (1.10 to 13.35)</td>
<td>5.00 (1.30 to 18.80)</td>
</tr>
<tr>
<td>GAD-7</td>
<td>2.56 (1.04 to 6.32)</td>
<td>4.75 (1.54 to 14.70)</td>
</tr>
<tr>
<td>PHQ-9</td>
<td>1.86 (0.74 to 4.67)</td>
<td>2.48 (0.84 to 7.30)</td>
</tr>
</tbody>
</table>

*All models were adjusted for sex and age. Generalised Anxiety Disorder 7-item scale (GAD-7) and Pittsburgh Sleep Quality Index, 5th subscale (PHQ-9) were further adjusted for psychiatric diagnosis and number of inhabitants. GAD-7 was additionally adjusted for cockroaches in dwelling. PSQI(5), Patient Health Questionnaire, 9-item.
Surveillance data

• 2010-2012 – 2.5% of households, on average had a bed bug infestation in the last year
Surveillance and research

- Survey on knowledge of bed bug for the Montreal population
  - General knowledge
  - Medium from which this knowledge was acquired
  - What to do to prevent having an infestation
  - What to do if infested
Surveillance and research

- Pilot project on dwelling preparation
  - Partners – Municipal housing corporation and a non for profit organisation Plumeau et chiffon
  - Tenants with bed bugs randomized in a group with comprehensive preparation help and the other group with no help for preparation
  - Measuring both bed bug related outcomes and mental health outcomes
  - Lessons learned could be useful to advocate for more support for vulnerable populations
Protection

- Links with CSSS, physicians, community groups and city inspectors
- Referral to the occupational and environmental clinics
- On site investigations with hygienist
- Public health advisory to the municipality
- Success in removing some families from very unfit housing units in the private sector
Public policy

- Our preliminary surveillance data indicate that there is a high proportion of apartments that is unfit with no improvement in time
- Next annual report by Montreal Public health will be on housing and health
- On of the big issue will be housing policy for both proper maintenance and access to affordable housing
- Need to consider best public policy practices to tackle the issue of unfit housing
Présence des facteurs de risque par territoire de CLSC

<table>
<thead>
<tr>
<th>Qualité de l’air – Animaux nuisibles</th>
<th>Île % moy.</th>
<th>CLSC % min.</th>
<th>CLSC % max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blattes</td>
<td>4,5</td>
<td>~0</td>
<td>25,9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pointe-aux-Trembles / Montréal-Est et Olivier-Guimond</td>
<td>Parc-Extension</td>
</tr>
<tr>
<td>Rongeurs (rats souris)</td>
<td>6,1</td>
<td>1,1</td>
<td>18,7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Olivier-Guimond</td>
<td>Parc-Extension</td>
</tr>
</tbody>
</table>
% des cas attribuables aux facteurs de risque
2 types d’infections respiratoires ou +

Île de Montréal

Exposition la
fumée de
tabac
actuellement
7%

Facteurs non-modifiables
ou inconnus
67%

Facteur
d'humidité/
moisissures
26%
Fraction attribuable du risque dans la population

Asthme actif

Île de Montréal

- Exposition à la fumée in utero: 10%
- Absence d'allaitement: 11%
- Facteur d'humidité/moisissures: 17%
- Facteurs non-modifiables ou inconnus: 62%