

# Bed bugs, housing and Montreal public health

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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, one 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
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- 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
  
- Reference: Susser et al. Mental health effects from urban bed bug infestation: a cross-sectional study. *BMJ open* 2012.

# Results

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

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

\*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
- One of the big issues 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

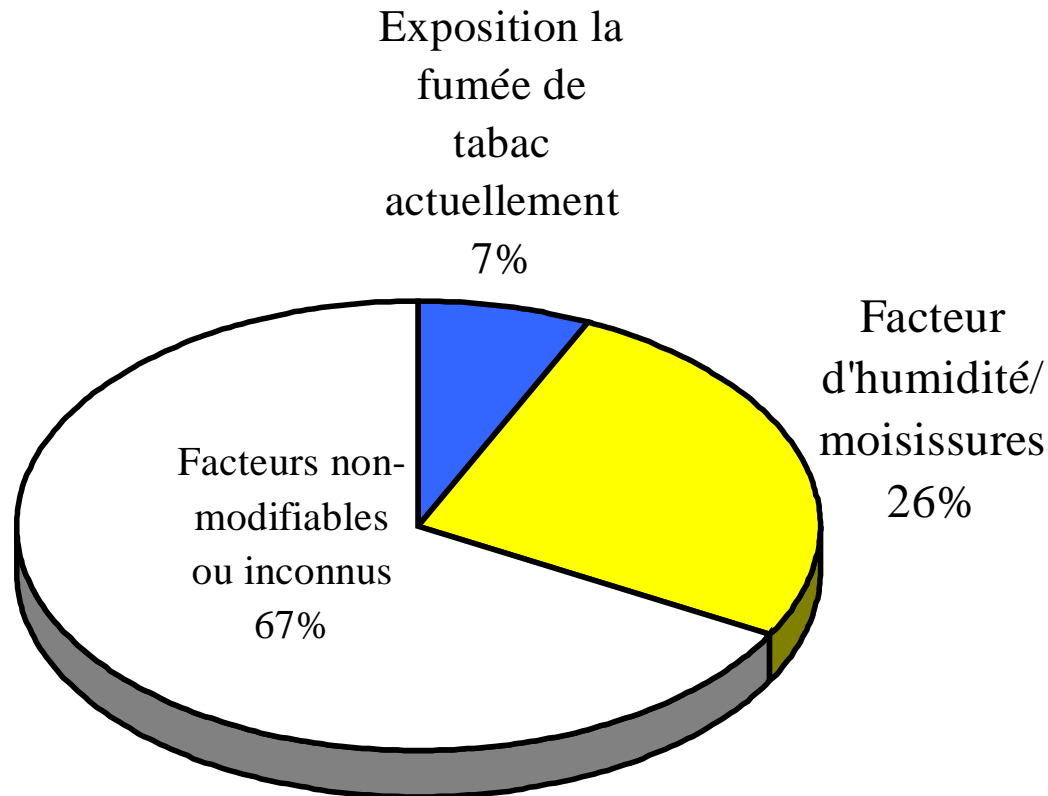
# Présence des facteurs de risque par territoire de CLSC

<b>Qualité de l'air – Animaux nuisibles</b>	<b>Île % moy.</b>	<b>CLSC % min.</b>	<b>CLSC % max.</b>
Blattes	<b>4,5</b>	<b>~0</b> <i>Pointe-aux- Trembles / Montréal-Est et Olivier-Guimond</i>	<b>25,9</b> <i>Parc- Extension</i>
Rongeurs (rats souris)	<b>6,1</b>	<b>1,1</b> <i>Olivier-Guimond</i>	<b>18,7</b> <i>Parc- Extension</i>



# % des cas attribuables aux facteurs de risque 2 types d'infections respiratoires ou +

## Île de Montréal



# Fraction attribuable du risque dans la population

## Asthme actif

### Île de Montréal

■ Exposition à la fumée in utero

■ Absence d'allaitement

■ Facteur d'humidité/moisissures

□ Facteurs non-modifiables ou inconnus

