



National Collaborating Centre  
for Environmental Health

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Centre de collaboration nationale  
en santé environnementale

# **Planning Meeting to Develop an Understanding of Public Health Approaches to Bed Bug Management in Canada**

Meeting Report  
November 28–29, 2013  
Vancouver, British Columbia

Prepared February 2014  
Daniel Fong

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## **Executive Summary**

In 2013, the National Collaborating Centre for Environmental Health (NCCEH) facilitated a meeting between senior environmental public health professionals in Canada to strengthen the knowledge on how public health is involved in bed bug management. Challenges, barriers, gaps, and priorities were also identified. As there are limitations in generalizing the results from this report, we encourage the use of the outcomes to support the development of public health bed bug management strategies, not to dictate policy.

Current Canadian public health approaches to address bed bugs vary and are often dependent on the local context. Issues arising from bed bug infestations are multi-dimensional and require expertise from public and private agencies to address the most complex cases. Public health policies and programs are in need of data to characterize the bed bug problem and the burden it has on the health of the Canadian population. Public health agencies often provide basic bed bug information and should continue to increase public awareness on effective prevention, identification, and treatment options. Initiatives to provide pre-treatment or treatment services can be a means to support the most difficult cases, but require sustainable dedicated funding.

Regulatory actions of public health agencies in response to bed bugs are rare due to the lack of a defined role of public health and legislative support in this area. There is also no evidence for transmission of diseases from bed bugs to humans, creating a resistance to frame bed bugs as a health hazard. Legal and directional implications are also noted if public health exercises regulatory authority in ill-defined situations where health hazards may exist, particularly if no precedents or applicable guidelines exist. Nevertheless, regulatory support can be especially helpful if public health agencies become involved in severe cases of bed bug infestations or are asked to assist under special circumstances (e.g., widespread infestation of public housing, interference with delivery of healthcare services). Recognizing the value of collaboration, public health agencies continue to work with local governments and community partners, but also desire leadership and support from provincial/territorial governments.

Although bed bugs can affect anyone, challenges with bed bug-related issues are more prominent amongst vulnerable populations and often require additional resources to remedy. There is a desire to increase public awareness regarding bed bugs to reduce stigmatization and advocate for consistent treatment methods. Bed bug management strategies should consider housing and mental health to help foster long-term sustainable solutions.

Sharing of success stories is an important mechanism to develop public health approaches, especially if there are examples with information on efficacy and costs. Public health knowledge translation activities should focus on how public health, governments, and their community partners can effectively work together to address bed bug-related issues.

## **Introduction**

Bed bugs (*Cimex lectularius*) are small, elusive, and resilient insects which live by feeding on the blood of mammals, including humans. Bed bug infestations have become prominent worldwide, generating increased public concern. Despite the attention given to bed bugs by the public, researchers, governments, and pest management professionals, there are still considerable challenges with managing bed bug infestations.

Currently, there is no evidence for the transmission of human disease through bed bugs, making it difficult to characterize their resurgence as a substantive public health threat strictly on the basis of communicable disease frameworks. However, bed bugs have been associated with adverse health effects, including allergic skin reactions, secondary infections, and scarring as a result of the intense scratching their bites provoke. There are concerns with improper insecticide use, which can be ineffective and result in harmful exposure. Perhaps of greatest concern is the psychological impact on people who are living in bed bug infested conditions. While anyone can be subject to a bed bug infestation, challenges are often greatest among people who are socially and economically disadvantaged. Given the complex issues arising from bed bug infestations, effective strategies often require collaboration and services from multiple public and private agencies.

A [workshop](#) at the 2010 Canadian Public Health Association Conference and reported in the [Canadian Journal of Public Health \(2012\)](#) indicated that the current approach to [bed bug management](#) in Canada is ad hoc, varying from province to province and municipality to municipality. Since the 2010 workshop, the National Collaborating Centre for Environmental Health (NCCEH) has continued to explore challenges and successes around bed bug management.

## **Project Overview and Objectives**

Supported by a grant from the Canadian Institutes of Health Research (CIHR), the NCCEH brought together a group of local and regional decision-makers across Canada to develop an understanding of the role of public health in the management of bed bug infestations and to identify priorities for developing Canada's public health strategies in response to bed bug infestations. This meeting was a preliminary discussion to stimulate knowledge synthesis and exchange amongst environmental public health professionals who seek information on bed bug management strategies in Canada and the evolving challenges and gaps in research, policy, and practice. As there are limitations in generalizing the results from this report, we encourage the use of the outcomes to support the development of public health bed bug management strategies, not to dictate policy.

The objectives of the Planning Meeting were as follows:

- Discuss public health approaches to and appropriate technologies for bed bug management
- Develop an understanding of public health's ideal, current, and future roles in relation to bed bug management
- Identify public health priorities in relation to bed bug management
- Summarize potential barriers, data gaps, and information needs to assist in decision-making

In addition to the Planning Meeting, the following is also being completed as part of this knowledge translation project:

- A survey of Environmental Health Directors across Canada to help inform on the current state of public health practice with regards to bed bugs in various Canadian jurisdictions and areas where additional support is needed (September 2013)
- A review of bed bug control technologies, in consultation with an entomologist (2014)

- A compiled list of relevant literature and resources on bed bug management, legislative controls, international examples, and health effects (November 2013)

### **Meeting Framework, Agenda, and Participants**

The framework and agenda for the meeting was focused around understanding the ideal, current, and future state of public health approaches in bed bug management (see [Appendix A](#)). Facilitated breakout groups, open discussions, and presentations were used to achieve the overarching objectives of the meeting. Guiding questions based on key public health functions formed the basis of discussions and allowed participation from a diverse group. These public health functions are listed below:

*Health Surveillance*  
*Population Health Assessment*  
*Health Promotion*  
*Disease and Injury Prevention*  
*Health Protection*  
*Emergency Management*

*Leadership*  
*Partnership and Collaboration*  
*Health Advocacy*  
*Health Equity*  
*Research*

Meeting participants were from seven provinces/territories across Canada and included environmental health directors, medical officers of health, program managers, an adjunct professor, a senior environmental health officer, an entomologist, and a pesticide management technician (see [Appendix B](#)).

### **Summary of Ideal State Discussion – “What should public health do?”**

Before the current state discussions, facilitated breakout groups were used to generate discussion about the desired strategies for developing public health approaches. The following sections summarize this discussion within each public health function.

#### ***Health Surveillance***

In order to inform policy and drive program development, there is a need for baseline data on the burden of bed bug infestations as well as prevalence of associated physical and mental health impacts. Uniform collection and coordinated reporting of this data would help generate the needed information. Some examples include tracking and compiling related administrative data from various departments including health, social services, city services, housing, and residential tenancy; tracking staff resources, workload, and training dedicated to bed bugs; making available the means for reporting bed bug issues online or through telephone; surveying pest management companies or obtaining their reports; and community-based surveys of the general population, healthcare settings, landlords, tenants, and the hospitality industry (e.g., hotels). Pilot projects can be initiated to determine if proposed options are acceptable and effective to justify requests for resources.

#### ***Population Health Assessment***

Whereas information on physical health impacts arising from bed bug infestations is available, information on mental health impacts is scarce. By characterizing the physical and mental health impacts that bed bugs may impose on those affected, public health agencies can better demonstrate the burden that bed bugs place on the community and inform decision-making. Anecdotal evidence of mental health impacts is not enough and consistent means to document them must be explored.

Ideally, this data would then be linked to mental illness or as a factor that may worsen mental illness. Generating case reports could also be a means to do this.

### ***Health Promotion***

Bed bugs are pests that are often treated as a housing or property issue. Addressing poor housing conditions can aid the prevention and treatment of bed bug infestations. However, framing the issue without understanding the health impacts may impede efforts to inform affected individuals and the general public. Public health agencies should be actively involved in promoting awareness of bed bug precautions and providing basic information on what to do if there is a potential infestation; increasing awareness can help reduce panic and promote long-term solutions. Partnering with community-based groups is needed. Initiatives should be targeted to those who may encounter bed bugs including tenants, landlords, hotels, property management, social housing, and pest management professionals. Institutions and healthcare workers may encounter situations with bed bugs and can benefit from guidance on how to respond. This point extends to the use of insecticides, in which harmful exposure and inappropriate application has generated concern. Pesticide regulators, inspectors, and other caseworkers may encounter cases of misuse, which should be made available to determine if follow-up is necessary.

### ***Disease and Injury Prevention***

Providing mattress encasements, bed bug interceptors, pre-treatment services, and support for financially disadvantaged individuals can be roles of public health agencies, but dedicated human and financial resources are needed. Continued funding of these initiatives would need data regarding cost-effectiveness with ongoing monitoring and evaluation.

### ***Health Protection***

Although public health agencies provide inspection and enforcement services, they are not often used to manage bed bug infestations. Also, public health orders are typically related to physical, microbiological, or chemical health hazards and not traditionally written to prevent mental illness or nuisances. If these services are to be used for bed bug management, policies and/or legislation must make this clear and ensure adequate resources are allocated. Policies that facilitate collaboration between public health and other departments would help formalize working relationships. A suggested model involves establishing an interdepartmental team (e.g., public health inspectors, public health nurses, municipal bylaw officers) that can address housing issues, especially amongst vulnerable populations. Bed bug management would be part of this team's portfolio and services would be coordinated on a case-by-case basis. Whether or not it is public health to lead, they would be an essential part of this team.

Furthermore, establishing a legal framework may assist in ensuring proactive approaches to monitor for bed bugs in infested housing and requiring satisfactory treatment practices from pest control services. Having regulatory tools available for health authorities to act in certain situations may help minimize the impact of bed bug problems in the community, prevent infestations from becoming unmanageable, and discourage ineffective pest management practices.

### ***Emergency Management***

Public health may become involved in severe cases of bed bug infestations or assist under special circumstances. This may include situations in which bed bugs are widespread in public or social housing; individuals are facing eviction from rental units; pesticides are grossly misused; there is interference with the delivery of healthcare/emergency services; and infestation occurs in schools or public institutions. Some of the examples mentioned include community shelters having to turn away

individuals and also potential withdrawal of services at nursing homes or private homes due to concerns with bed bugs (e.g., duty of care, anxiety, stigma). In some provinces, government funding is available to help manage certain situations.

### ***Leadership***

Public health is often involved or consulted on bed bug-related issues and in some situations has become the *de-facto* lead, serving as a trusted information source particularly in situations relating to public housing, shelters, and institutions. Other agencies may play a more prominent role, depending on their abilities, resources, and local conditions. Regardless, public health sees it necessary to have provincial leadership with regulatory and financial support. Alongside local governments, public health agencies would be able to better allocate time and resources to bed bug issues (e.g., impact on facilities, physical and mental health) if the issue is defined and recognized on a provincial level.

### ***Partnership and Collaboration***

A prominent theme in the discussions was the need for collaboration when responding to issues with bed bugs. No single agency has all the required expertise, resources, and reach to fully manage all the issues arising from bed bug infestations. Public health should continue to support working relationships between agencies that may encounter bed bug-related issues. Some of the mentioned partners include housing authorities, social services, municipal governments, public health nurses, pest management professionals, community-based non-profit organizations, residential tenancy, health professionals, emergency first responders (fire/police), and pesticide regulators.

### ***Health Advocacy***

Public health should advocate for consistent information on management (e.g., best practices, response), invoking partnerships and collaboration, as well as having dedicated resources and leadership in this area. Increasing awareness and educating communities on bed bugs would decrease the stigma and potential discrimination and marginalization of those affected. Educational materials to the public should be tailored in different languages and disseminated to community groups. Public health should also advocate for management methods that maximize the privacy of the affected individual while providing services that protect the community from bed bugs.

### ***Health Equity***

Complex cases of bed bug infestations may eventually require individual assessment to determine the extent of public health's involvement. Generally, to prevent the spread of bed bugs in a community, resources and time should be focused on cases where affected individuals are unable to adequately support treatment regimens (e.g., vulnerable populations). Those involved should be sensitive to the privacy of affected individuals, and promotion activities should encourage the public to seek help with treatments.

### ***Research***

Public health agencies can advocate for best practices, including recommendations to pest management companies to ensure consistency in their approaches. Agencies can also document health indicators, interventions, and costs of pilot programs for evaluation purposes. Furthermore, sharing of information on health effects, inappropriate use of pesticides, and case studies can be helpful to keep up with current policies and practices available in Canada.



## **Summary of Current State Discussion – “What is public health doing?”**

Three presentations helped to prime the discussion on the current state of bed bug management in Canada. Toronto Public Health shared an update of [Toronto’s experience with bed bugs](#) and how the involvement of the public health department has evolved. A consulting entomologist presented historical and [current bed bug control technologies](#) along with their challenges. The NCCEH shared a [summary of results from the preliminary survey](#) to inform on bed bug management practices of various public health agencies in Canada.

Public health agencies have continued to respond in different ways, but a general trend can be seen across the public health functions as indicated from the presentations and the resulting discussions. Promoting and educating populations, responding to urgent situations, and fostering partnerships to manage bed bug issues are where public health is most consistently involved across Canada. Passive or active surveillance activities are not common, but there are examples where data has been collected to measure the problem in local communities (e.g., Montreal, Toronto). Although cases amongst vulnerable populations are disproportionately affected, the current response of public health agencies is general and often consists of providing educational materials, bed bug identification, referral to services of other agencies, or assisting with other departments (e.g., city building inspectors) upon request.

Public health agencies vary in providing programs or services to prevent bed bug infestations; analyzing or collecting data on bed bug complaints; providing inspection and enforcement activities; having a role in leading the response to cases; and advocating for improved bed bug management. Other roles may include consulting with committees and stakeholders, training staff, and providing presentations to facilities that may encounter bed bugs (hotels, public housing, licensed facilities, etc.).

### ***Examples of Current Practices***

Examples of current practices, in Canada and elsewhere, are found in the [NCCEH compiled list of bed bug literature](#). A few activities in Canada are described below.

#### **i. Toronto**

Toronto Public Health has been involved extensively in bed bug management. They have conducted surveillance to document the problem, hosted a multi-stakeholder forum, created a bed bug steering committee, and established a dedicated team to respond to bed bug issues. This has allowed them to conduct inspections and coordinate with external agencies. As a strategy to respond to cases where individuals face extreme social, health, and other community challenges, the City of Toronto has proposed a city unit to facilitate a coordinated response aimed at enhancing the efficiency and effectiveness of inter-departmental services; bed bugs are specifically mentioned under the purview of this unit.

#### **ii. Montreal**

Montreal has implemented a regional plan that includes surveillance, monitoring, communications, and a commitment to action with their partners including city services, social services, housing, and non-profit organizations. Activities include developing a central database for geographical data on bed bug infestations, conducting a survey for the prevalence of bed bugs and their health impacts,

facilitating inter-agency work, as well as assessing and increasing the knowledge of landlords and tenants regarding bed bug management.

### **iii. Regional Municipality of Peel**

Region of Peel had received provincial funding to provide bed bug training to public health inspectors and by-law enforcement. They hosted a multi-stakeholder Bed Bug Symposium to facilitate knowledge exchange.

### **iv. Province of Manitoba**

The province of Manitoba established a Bed Bug Task Force, a pre-treatment program (“Bug N Scrub”) free to eligible vulnerable individuals, a Bed Bug Grant Program for community organizations, and a dedicated bed bug info line and email.

## **Summary of Future State Discussion – “How should public health move forward?”**

Two presentations were given followed by an open discussion about the future state of bed bug management and public health. The first outlined [emerging bed bug control](#) technologies and the second highlighted bed bug management activities of [Montreal Public Health](#). During the open discussion, many suggestions were given on how public health should move forward, and these are described below. Participants also identified priority areas for public health as illustrated in **Figure 1**.

### ***Standardize Practices and Coordinate Local Response***

Responding to bed bug infestations requires a consistent approach based on available best practices. Public health agencies can provide recommendations for the design of treatment plans (e.g., Integrated Pest Management) to pest management professionals, property management companies, housing, institutions, and healthcare professionals to minimize misinformation, panic, and spread of bed bugs in the community. They can also facilitate partnerships between external agencies to develop strategies for bed bug management. Public complaints should prompt a response that considers specific characteristics of the complaint to determine whether further investigation is needed (e.g., property information, level of infestation, client characteristics, case definitions). Guidance on when and how to involve the appropriate agencies will help foster a meaningful response that uses available resources efficiently (i.e., solutions to fit the situation).

### ***Share Success Stories and Approaches***

Public health agencies should continue to share their bed bug management approaches. Although not the only examples that exist, two prominent approaches were shared at the meeting. Both Toronto Public Health and Montreal Public Health have dedicated teams that utilize the skills of public health inspectors, public health nurses, physicians, hygienists, toxicologists, biostatisticians, and/or managers. They often collaborate with external agencies to investigate cases. Other jurisdictions can consider existing strategies to enhance their own approaches or to prepare themselves for this issue in affected communities. The history, advantages, and disadvantages of approaches can also be considered. Examples on how to sustain and evaluate current approaches can provide models to advocating or lobbying for certain bed bug initiatives.

## **Enhance Surveillance**

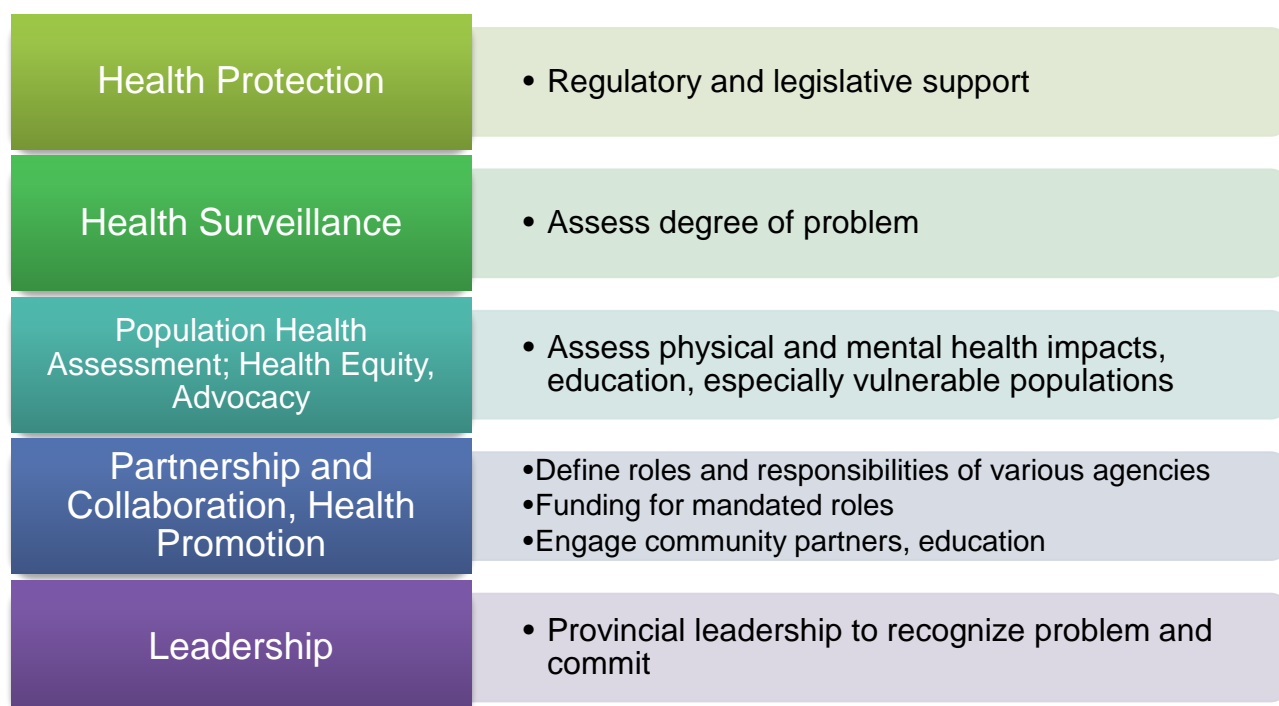
Bed bugs are an issue for many jurisdictions, but less in others. Affected communities also face different levels of infestations. There is an appetite for determining patterns and severity of the bed bug problem in communities, but data is not commonly being collected or analyzed. As a priority, health agencies and other bed bug stakeholders should determine characteristics that can be documented and reported so baseline data is available. Strong data presented to provincial and local policymakers can increase the support to do more to address bed bug issues. The ability to compare between communities would also be useful to focus resources in problem areas or further investigate the reasons for the spread of infestations in certain communities.

## **Promote Knowledge Translation**

Activities to promote the use of best practices, exchange information, build networks, and host stakeholder forums will help support and advance public health strategies in bed bug management. Developing consensus statements to frame bed bug issues would also be useful. Bed bug related issues cut across multiple disciplines, so knowledge translation activities should also support how these groups could work together effectively.

## **Build Strategies into Healthy Housing and Mental Health**

Approaching bed bug issues in isolation health can lead to inefficient use of resources (e.g., duplication of efforts), recurring spread of infestations, and loss of public confidence in addressing bed bug-related issues. Housing and mental health must be recognized in cases involving bed bugs and agencies should be ready to respond either directly or indirectly. Public health agencies can discuss with local governments and housing authorities how they can mitigate concerns without drastic reorganization or disruption of existing agencies.



**Figure 1.** Public health priorities identified by participants

## **Challenges, Barriers, and Gaps**

The challenges, barriers, and gaps identified during the Planning Meeting are outlined in the table below (**Table 1**).

**Table 1.** Challenges, barriers and gaps identified during the Planning Meeting

<b>Challenges</b>	<b>Barriers</b>	<b>Gaps</b>
<ul style="list-style-type: none"> <li>• Limited or no regulatory support</li> <li>• Limited resources to respond</li> <li>• High volume of work to address bed bugs issues that are present with other problems (e.g., hoarding, poverty, poor housing conditions, complex cases involving vulnerable populations)</li> <li>• Connection between health impacts and bed bugs not widely established</li> <li>• Economic impact on affected individuals (e.g., cost of replacing items, treatment)</li> <li>• Risk of infestation to those providing services to affected individuals (e.g., physicians, paramedics, social workers, nurses, care-aides)</li> <li>• Bed bugs are developing resistance to insecticides</li> <li>• Improper and ineffective self-treatment leading to spread of bed bugs and adverse health effects from overexposure to insecticides</li> <li>• Limited expertise</li> </ul>	<ul style="list-style-type: none"> <li>• Bed bugs are a major problem in some communities but are a transient or lesser problem in others (heterogeneity)</li> <li>• Resistance to maintaining effective control measures by landlords or tenants</li> <li>• Differences in availability and need of interventions in rural and urban situations</li> <li>• Stigma, distress, fear, isolation, and heightened anxiety towards bed bugs</li> <li>• Fear of negative consequences, leading to resistance in reporting bed bugs (e.g., eviction, involvement of family and child services)</li> <li>• Inconsistency in the response to bed bugs within a local region (e.g., one or more communities respond differently than others in the region)</li> <li>• Lack of coordinated response or dedicated efforts</li> <li>• Lack of surveillance data</li> <li>• Lack of leadership and commitment to action</li> <li>• Roles of agencies and partners not clearly defined; unaware or unclear of roles of external agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Issue is not consistently or clearly defined as a health hazard or a nuisance. There are legal and directional implications if bed bug issue is classified as health hazard.</li> <li>• Missing data on burden of problem (prevalence of bed bugs and health impacts) and costs of action for a community</li> <li>• Need evaluation and monitoring of existing strategies and treatment technologies</li> <li>• Need to promote consistency of treatment methods used by pest control companies (e.g., Integrated Pest Management)</li> <li>• Considerable variability in leadership and local governance structure</li> <li>• Unclear how to facilitate sustainable dialogue and progress</li> <li>• Need to determine priorities for different levels of government</li> </ul>

## **Meeting Evaluation**

Participants were asked to complete anonymous evaluation forms at the end of the meeting. Eleven forms were received. All forms received indicated that participants will be able to use information in their work and would recommend this type of planning meeting to others. Participants rated the meeting an average of 6.5 out of 7 (7 being excellent).

Examples of information that participants took away from the Planning Meeting include the following:

- Sharing of success stories and concrete examples for consensus building
- Need for ongoing information sharing and building community of practice
- Importance of linking health protection (inspection) to health promotion (housing)
- Existing service models are good, but more to be done
- Bed bug issues are not equal across all Canadian communities and different approaches exist
- Value and need of strategic partnerships with relevant stakeholders
- Need for surveillance and collection processes
- Need to recognize variable situations and respond accordingly
- Lack of information in this area

Examples of how they will use this information in their work:

- Advocacy for linking health protection to health promotion
- Work to improve substandard housing issues
- Explore relationships between mental health, shelter, and pests
- Present information to health department to modify their approach
- Update staff in own region who deal with bed bug issues
- Incorporate new information and develop new contacts to advance our work
- Help to strengthen the argument on the breadth and depth of the problem

## **Conclusion**

The information generated during the Planning Meeting can be used to enhance the profile of how public health agencies become involved in bed bug management in Canada. Current public health approaches to bed bug issues vary depending on local community needs. However, there are similar functions, priorities, challenges, barriers, and gaps identified that span across many jurisdictions in Canada. Framing the bed bug issue within public health functions can facilitate meaningful dialogue to develop context-specific strategies amongst various stakeholders. As bed bug issues are often multi-dimensional, those involved need guidance on their specific role and need to understand how their potential partners can work together in situations where a concerted effort is appropriate in providing a streamlined and effective response. Knowledge translation and exchange activities should support public health agencies in fostering effective partnerships.

## Appendices

### **Appendix A. Planning Meeting Agenda and Framework**

**NCCEH Bed Bug Planning Meeting  
November 28–29, 2013  
Four Seasons Hotel Vancouver – room locations below  
791 West Georgia Street  
Vancouver, BC**

#### Purpose

- To develop an understanding of the role of public health in the management of bed bug infestations and to identify priorities for developing Canada’s public health strategies in response to bed bug infestations.

#### Objectives

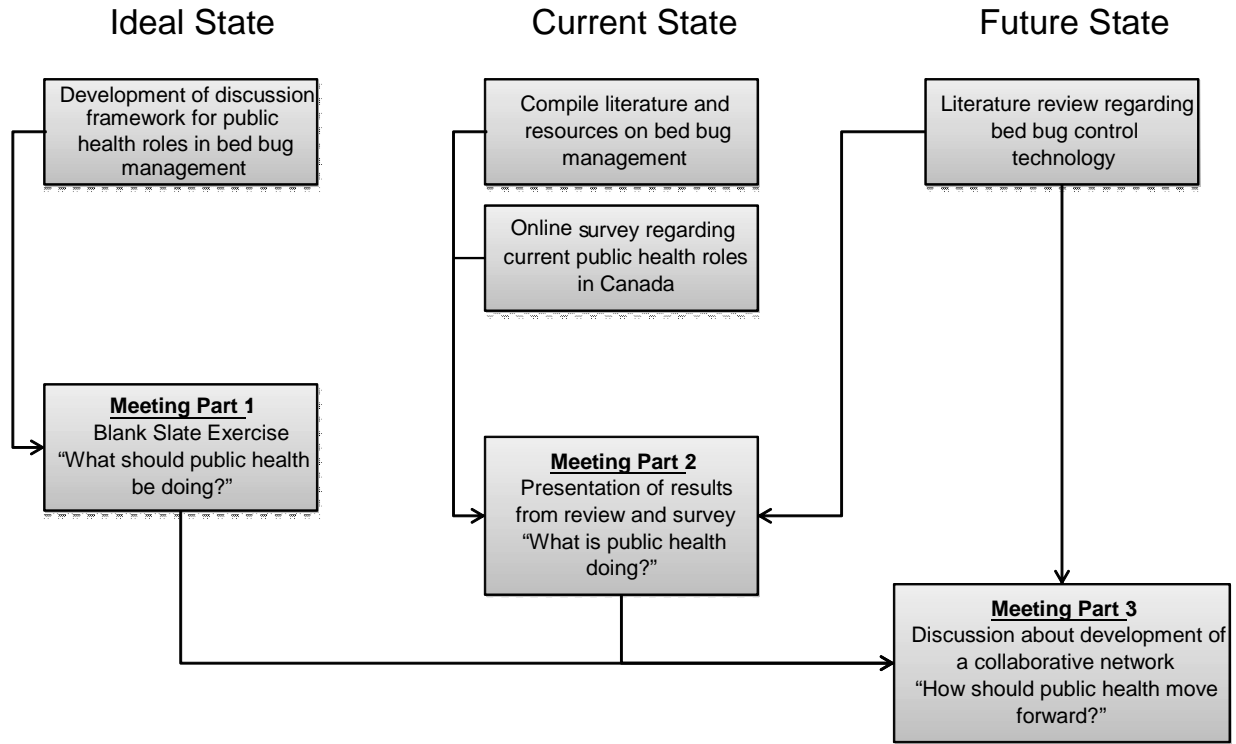
- discuss public health approaches to and appropriate technologies for bed bug management
- develop an understanding of public health’s ideal, current, and future roles in relation to bed bug management
- identify public health priorities in relation to bed bug management
- summarize potential barriers, data gaps, and information needs to assist in decision-making

#### Agenda

<b>Garibaldi Room, Thursday, November 28, 2013</b>		
	<b>Item</b>	<b>Facilitator</b>
9:00 – 9:30 (30 min)	Breakfast and Registration	Kirsten/Daniel/Mark
9:30 – 10:00 (30 min)	Welcome/Introductions, Objectives of the Planning Meeting, Meeting Framework Explanation	Tom/Daniel/Mark
10:00 – 11:30 (1.5 hr)	Ideal state discussion (blank-slate exercise) - Breakout groups	Mark
11:30 – 12:00 (30 min)	Report on breakout group discussions	All
12:00 – 1:00 (1 hr)	Lunch	-
1:00 – 1:40 (40 min)	Update on Toronto’s experience with bed bugs	Ron/Tracy
1:45 – 2:15 (30 min)	Current state bed bug technologies presentation	Taz
2:20 – 2:50 (30 min)	Current state presentation of survey results	Daniel
2:50 – 3:00 (10 min)	Light coffee break	-
3:00 – 4:00 (1 hr)	Current state discussion – open discussion	Mark/Daniel

<b>Park Ballroom C, Friday, November 29, 2013</b>		
	<b>Item</b>	<b>Facilitator</b>
9:00 – 9:30 (30 min)	Breakfast	-
9:30 – 9:45 (15 min)	Report on Day 1 ideal state and current state discussions	Daniel/Mark
9:45 – 10:15 (30 min)	Future state bed bug technologies presentation	Taz
10:15 – 10:45 (30 min)	Bed bugs, housing, and Montreal public health	Stéphane
10:45 – 11:45 (1 hr)	Future state discussion – open discussion	Mark
11:45 – 12:00 (15 min)	Closing remarks	Tom/Daniel/Mark
12:00 – 1:00 (1 hr)	Lunch	-

## Planning Meeting Framework



**Appendix B. Planning Meeting Participants**

<b>Province/Territory</b>	<b>Name</b>	<b>Job Title</b>	<b>Organization/Affiliation</b>
AB	Nelson Fok	Adjunct Professor	Concordia University College of Alberta
BC	Shelley Beaudet	Senior Environmental Health Officer	Vancouver Coastal Health
	Angelo Kouris	Director, Environmental Health	
	Lawrence Loh	Medical Health Officer	Fraser Health Authority
	Colleen Loguisto	Pesticide Management Technician	BC Ministry of Environment
	Tom Kosatsky	Medical Director, Environmental Health Services; Scientific Director	BC Centre for Disease Control; National Collaborating Centre for Environmental Health
	Daniel Fong	Knowledge Translation Scientist	
	Mark Lysyshyn	Public Health and Preventive Medicine Resident	University of British Columbia
MB	Taz Stuart	Consulting Entomologist	TDTS Consulting
	Margaret Haworth-Brockman	Program Manager	National Collaborating Centre for Infectious Diseases
NT	Andre Corriveau	Chief Medical Health Officer	Northwest Territories Department of Health and Social Services
	Duane Fleming	Chief Environmental Health Officer	
ON	Paul Callanan	Director, Environmental Health	Regional Municipality of Peel Health Department
	Ron de Burger	Director, Healthy Environments	Toronto Public Health
	Tracy Leach	Manager, Healthy Environments	
QC	Stéphane Perron	Medical Officer	Montréal Public Health
SK	Michael Schwandt	Deputy Medical Health Officer	Saskatoon Health Region