GN X-XX Vector-Borne Diseases

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Background

According to the World Health Organization, vectors are living organisms that can transmit infectious pathogens between humans, or from animals/insects to humans. Many of these vectors are bloodsucking insects which ingest disease-producing microorganisms during a blood meal from an infected host (human or animal) and later transmit it into a new host, after the pathogen has replicated. Often, once a vector becomes infectious, they are capable of transmitting the pathogen for the rest of their life during each subsequent bite/blood meal.

Firefighters often work in environments where there is a potential to be exposed to insects and other animals that carry and transmit diseases. These exposures may occur despite taking every precaution reasonable in the circumstances to protect firefighters' health and safety.

Vector-borne carriers include ticks, fleas, lice, bedbugs, mosquitoes and flies. The diseases they carry can include chikungunya fever, Zika virus fever, yellow fever, West Nile fever, Japanese encephalitis (all transmitted by mosquitoes), tick-borne encephalitis (transmitted by ticks), Lyme disease, and Oropouche fever (transmitted by Culicoides flies).

Infestations can result in a financial burden to a fire department. This may not only include pest control/elimination at the station, as it may need to be extended to a firefighter's personal residence.

Concerns/hazards

Firefighters may be exposed to these diseases unknowingly and may be delayed in experiencing symptoms. Serious illnesses can result from exposures that may require immediate intervention or medical treatment to prevent onset of disease

Actions for employers

Employers must:

- Provide training on the dangers of animals that carry vector-borne and other zoonotic disease where exposure is possible.
- Provide training on recognizing high risk situations where exposure to infectious animals/ environments may occur.
- Provide appropriate PPE preventing unnecessary exposure and ensuring proper fit and sealed cuffs
- Ensure crews are trained on proper donning and doffing techniques.
- Report exposures to public health as appropriate.

Employers should:

- Consult with their JHSC to establish operational guidelines and policies when responding to calls for service where there is a known risk.
- Develop operational guidelines or procedures to isolate personnel and equipment from furthering the area of infestation beyond the site of origin
- Develop operational guidelines or procedures for decontamination of equipment and personnel and their belongings (including when exposure has spread beyond municipal equipment, and buildings)
- Attempt to identify and communicate known properties prior to emergency response
- Provide insect repellant and tools for removal of ticks
- Check for the presence of ticks following removal of PPE

Considerations

- **Universal Precautions:** Utilizing personal protective equipment (PPE) such as gloves, eye protection, fitted respirators, and insect repellant textiles to help prevent contact with pathogens.
- **Vector Protection:** Safety guidelines for outdoor crews include using repellents containing DEET or Icaridin, wearing protective clothing, and performing regular tick checks.
- **Designated Officers:** Protocols are in place for firefighters to contact a **Designated Officer** immediately following a suspected exposure for risk assessment, testing, and follow-up care. [1, 2]
- **Gear Decontamination:** Specialized cleaning and decontamination of PPE are required to prevent cross-contamination and the spread of infectious agents (or pests like bedbugs/ticks/fleas) to stations and homes.

Applicable regulations and acts

Read:

- *Occupational Health and Safety Act*
    - clause 25(2)(a) for providing information, instruction and supervision to a worker
    - clause 25(2)(h) for taking every precaution reasonable in the circumstances to protect workers

Relevant standards

- NFPA 1970 (2025) Sections: 3.3.97 Insect Repellency and 13.4* Optional Requirements for Insect-Repellent Work Apparel
- Local Public Health Agencies Guidance

Related

Read firefighter guidance note:

- 6-49 Encampments

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This **resource does not replace the** *Occupational Health and Safety Act* (OHSA) **and its regulations and should not be used as or considered legal advice**. Health and safety inspectors apply and enforce these laws based on the facts they find in the workplace.