

Part 6: Substance Specific Requirements

Review Part 6 Sub-Part BIOHAZARDOUS MATERIALS in its entirety – Sections 6.33 to 6.41

Consequential amendments to:

Part 5: Chemical and Biological Substances

Section 5.2, General information requirement

Purpose:

A review of the sections covering biohazardous materials is being conducted to:

- Clarify that the scope and application of Part 6 is not restricted to blood-borne and body fluid-borne pathogenic agents; that it also covers other infectious agents such as those agents responsible for SARS, tuberculosis, Legionnaires Disease and, potentially, an influenza pandemic;
- Clarify that protective measures need to be developed and implemented for any pathogenic infectious agent capable of causing high morbidity and mortality among workers in consideration of all routes of transmission, including contact, droplet and airborne transmission;
- Restructure sections 6.34 to 6.41 based on the exposure control plan model specified in section 5.54.

Rationale for Change:

- It is currently not clear that a risk assessment is required and that it forms the basis for any exposure control plan;
- Section 6.33, Definitions is outdated with its reference to the Medical Research Council regarding the risk group classification system for infectious pathogenic agents;
- The protective measures prescribed in section 6.36 are unclear and limited in scope with respect to the controls that need to be considered for the exposure control plan.

Key Issues:

- To redefine the misleading term “biohazardous material” and to clarify what is meant by “other biohazardous material”.
- Emphasize the relationship between sections 6.33 to 6.41 (infectious agent / material), section 5.2 (hazardous biological agent), and section 106 of the *Workers Compensation Act* (hazardous substance / biological agent).
- Remove the current administrative requirement for a biohazardous material / infectious agent to be “specified by the board”.
- Clarify that infectious agents may be transmitted not just through direct contact (which includes needlestick injuries) but also by droplet and airborne routes of transmission.
- To specify that control measures need to reflect the specific route of transmission; control measures include contact precautions, droplet precautions and airborne precautions.

Evaluative Mechanism

The proposed amendments will:

- Reduce the risk and spread of infectious diseases in the workplace for workers who may be occupationally exposed to pathogenic infectious agents covered by Part 6,
- Ensure workplaces are better prepared in case of a SARS, Legionnaires Disease, or other disease outbreak, including the potential of an influenza pandemic, and
- Reduce the number of communicable disease-related claims.

Source: Health care unions and employers, Policy and Research Division

Please note that proposed deletions in the regulatory amendments are identified with a ~~strikethrough~~ and additions are identified in **bold**.

PART 5: CHEMICAL AND BIOLOGICAL SUBSTANCES

Definitions	5.1	In this Part: “hazardous biological agent”	means an agent which, by reason of its properties, is hazardous to the health and safety of persons who are exposed to it and includes (a) an infectious agent and infectious material as defined in section 6.33, and (b) a toxin of biological origin;
General information requirement	5.2	If a worker is or may be exposed to a chemical or biological substance hazardous chemical substance or hazardous biological agent which could cause an adverse health effect, the employer must ensure that	 (a) the identity of the substance substance or agent, its possible effects on worker health and safety and any precautions required for the health and safety of the worker are clearly indicated by labels, MSDSs, placards, signs, tags or other similar means, (b) the content and meaning of the information required by paragraph (a) is clearly communicated to the worker, (c) effective written procedures are prepared and implemented to prevent exposure by any route that could cause an adverse health effect, and to address emergency and cleanup procedures in the event of a spill or release of the substance substance or agent, and (d) the supervisor and the worker are trained in and follow the established procedures for safely handling, using, storing and disposing of the substance substance or agent, including emergency and spill cleanup procedures.

Explanatory Note

The proposed new definition for “hazardous biological agent” in section 5.1 has been added in order to accommodate the amendments proposed to Part 6 covering infectious agents and materials, and to emphasize linkage to section 106 of the *Workers Compensation Act* and sections 6.33 to 6.41 of the *Occupational Health and Safety Regulation*. A biological agent includes an infectious agent and infectious material as defined in section 6.33 as well as a toxin of biological origin.

The proposed amendments to section 5.2 clarify that in addition to such infectious agents as hepatitis B virus, HIV virus, TB bacterium, or Hantavirus, it also includes substances that are toxic by-products (toxins) of biological origin. Of concern are those biological toxins to which workers could be exposed during the course of employment – toxins with the potential of causing acute or chronic infections, or toxic and allergic reactions, or death. Examples include fungal toxins (mycotoxins), insect allergens, bacterial endotoxins, detergent enzyme allergens, grain flour allergens, photodermatitis agents (e.g., furanocoumarins), venom, etc. This information will be explained further in a guideline.

PART 6: SUBSTANCE SPECIFIC REQUIREMENTS

~~BIOHAZARDOUS MATERIALS~~ INFECTIOUS AGENTS AND MATERIALS

Definitions	6.33	In sections 6.33 to 6.41:
"infectious agent"		means a prion, virus, bacterium, fungus or other similar agent that has the potential to cause injury or disease in people as specified by the World Health Organization, Health Canada or other agency acceptable to the Board;
"biohazardous material"		means a pathogenic organism, including a bloodborne pathogen, which due to its known or reasonably believed ability to cause disease in humans, would be classified as Risk Group II, III or IV as defined by the Medical Research Council of Canada, or any material contaminated with such an organism; means a liquid or solid material that contains an infectious agent;
"infectious material"		
"occupational exposure"		means reasonably anticipated, harmful contact with blood or other potentially biohazardous material an infectious agent or infectious material that may result from the performance of a worker's duties;
"route of transmission"		means any route by which an infectious agent may be transmitted and includes contact, droplet and airborne transmission;
"safety-engineered needle"		includes a self-sheathing needle device and a retractable needle system. system; (amendment approved July 25, 2006 and effective January 1, 2007)
"standard infection control precautions"		means routine safe work practices and procedures, as specified by the World Health Organization, Health Canada or other agency acceptable to the Board, that are implemented to reduce the risk of transmission of an infectious agent from both recognized and unrecognized sources within the workplace.
Exposure control plan	6.34	The employer must develop and implement an exposure control plan meeting the requirements of section 5.54, if a worker has or may have occupational exposure to a bloodborne pathogen, or to other biohazardous material as specified by the Board. (1) If a person has or may have occupational exposure to an infectious agent or infectious material that may be a health risk to people, the employer must develop and implement an exposure control plan that meets the requirements of section 5.54 and that includes the following subject matter: (a) a risk assessment conducted by a qualified person to determine if there is a potential for occupational exposure to the infectious agent or infectious material by any route of transmission; (b) based on the risk assessment, engineering controls and work practice controls to eliminate or minimize the potential for occupational exposure to the infectious agent or infectious material;

- (c) a system of standard infection control precautions and transmission-based precautions for all work tasks and procedures that have been identified as having a potential for occupational exposure to the infectious agent or infectious material;
- (d) a list of all job classifications, tasks and procedures in which there is a potential for occupational exposure to the infectious agent or infectious material;
- (e) personal protective equipment for shielding people from occupational exposure to the infectious agent or infectious material;
- (f) housekeeping practices designed to keep the workplace clean and free from spills, splashes or other accidental contamination by the infectious agent or infectious material;
- (g) work procedures to ensure that laundry and disposable personal protective equipment contaminated with the infectious agent or infectious material is isolated and bagged and handled as little as possible;
- (h) informing persons present in the workplace about the contents of the exposure control plan and providing them with adequate education, training and supervision to work safely with, and in proximity to, the potentially infectious agent or infectious material;
- (i) a record of all persons who are exposed to the infectious agent or infectious material;
- (j) a record of all training and education provided to workers.

**Risk
identification**

6.35 The employer must maintain a list of all job classifications and must identify all tasks and procedures in which there is a potential for occupational exposure to a bloodborne pathogen, or to other biohazardous material specified by the Board.

Controls

- 6.36**
- (1) Engineering controls and work practice controls must be established to eliminate or minimize the potential for occupational exposure to a bloodborne pathogen or other biohazardous material.
 - (1.1) *(Under review)*
 - (2) Personal protective equipment must be worn to shield workers from biohazardous material.
 - (3) Housekeeping practices must be designed to keep the workplace clean and free from spills of biohazardous material.
 - (4) Work procedures must ensure that laundry contaminated with biohazardous material is isolated and bagged, and handled as little as possible.
 - (5) Repealed. [B.C. Reg. 312/2003.]
 - (6) For bloodborne pathogens, the employer must implement a system of universal precautions for all tasks and procedures identified as having a potential for occupational exposure under section 6.35.

- Labels and identification** **6.37** (1) Except as provided in subsections (2) to (4), a container of ~~known or suspected biohazardous material~~ **a known or suspected infectious material** must have a label affixed which discloses the product identifier, the name of the organism known or suspected to be present, information on the safe handling of the material, or a biohazard symbol, and a reference to an MSDS for the material if one has been prepared.
- (2) A label on a diagnostic specimen of human body fluid or tissue that is known or suspected to contain ~~a biohazardous organism~~ **an infectious agent** is exempt from subsection (1) if
- (a) ~~the label discloses a sample identifier, and the risk group number of any risk group II, III, or IV organism, as defined by the Medical Research Council of Canada, known or suspected to be present,~~
- (b) the specimen is identified as biohazardous by use of a biohazard symbol or equivalent means, and
- (c) sufficient information is provided to enable immediate contact with the medical professional providing the sample in the event of an emergency.
- (3) If a container of ~~known or suspected biohazardous material~~ **a known or suspected infectious material** is too small to be labelled, the employer is exempt from the requirements of subsections (1) and (2) if an equivalent system of hazard communication is developed and implemented.
- (4) ~~Laundry or waste material that is contaminated with a known or suspected bloodborne pathogen is exempt from subsections (1) and (2) if~~
- (a) ~~all such material is handled using universal precautions, and~~
- (b) ~~an alternate and equally effective system of hazard identification, such as distinctive coloured bagging, is used.~~
- Laundry or waste material that is contaminated or suspected to be contaminated with an infectious agent or material is exempt from subsections (1) and (2) if**
- (a) **the laundry or waste material is handled using standard infection control precautions, and**
- (b) **an alternate and equally effective system of hazard identification, such as distinctive-coloured bagging, is used.**
- (5) ~~Known or suspected biohazardous material~~ **infectious material** that is not in a container must be identified by
- (a) posting a conspicuous and clearly legible placard that discloses the information required in subsection (1), or
- (b) an equivalent means of hazard communication.
- Education and training** **6.38** ~~The employer must inform workers about the contents of the exposure control plan and provide them with adequate education and training to work safely with and in proximity to potentially biohazardous material.~~
- Vaccination** **6.39** ~~Vaccination against hepatitis B virus must be made available at no cost to the worker, upon request, for all workers who have, or who may have, occupational exposure to hepatitis B virus.~~
- (1) **An employer must offer vaccination against hepatitis B virus to all workers who have or who may have occupational exposure to that virus.**

- (2) **After a risk assessment of the appropriateness of a particular vaccination for an infectious agent, an employer must offer the vaccination to all workers who have or who may have occupational exposure to that infectious agent.**
- (3) **All vaccinations offered under this section must be provided without cost to workers.**
- Health protection** **6.40** (1) ~~A worker potentially exposed, to hepatitis B virus or another bloodborne pathogen in an exposure incident must be advised to seek a medical evaluation at the time of the incident.~~
- An employer must advise a person in the workplace to seek medical attention at the time of any incident if the person is exposed or could have been exposed to an infectious agent or infectious material.**
- (2) The medical evaluation must be based on an assessment of the risks associated with the incident, and subsequent post-exposure health management, **which may include preventative treatment**, must be provided as necessary.
- Records** **6.41** ~~A record must be kept of all workers who are exposed to biohazardous or potentially biohazardous material while on the job, and of worker education and training sessions on biohazardous materials.~~
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Explanatory Note

Sections 6.33 to 6.41 relating to biohazardous materials are proposed to be amended primarily to clarify that its current scope is not limited to blood-borne or body fluid-borne pathogens. The proposed amendments clarify that Part 6 also covers pathogens / infectious agents capable of causing high morbidity and death among workers during the course of employment, such as the agents responsible for SARS, tuberculosis, Legionnaires Disease and a potential influenza pandemic such as the 1918 "Spanish Flu". It does not apply to common diseases such as the annual influenza, the common cold and similar diseases that readily affect the general population on a periodic basis.

It is proposed that "biohazardous materials" be redefined as "infectious agent" and "infectious material" in section 6.33, and that the reference to the Medical Research Council and its risk group assignments for the various pathogenic organisms be deleted. This agency no longer exists. The proposed amendment references the World Health Agency ("WHO") and Health Canada; both are agencies acceptable to the Board. Health Canada has not completed its review process related to classifying infectious agents at this time. WHO has completed its review and recently issued the 3rd edition of the Laboratory Biosafety Manual. As such, the WHO classification system and its risk groups of infectious agents, specifically risk groups 2, 3 and 4, will form the basis for declaring an infectious agent as "in scope" with respect to the application of Part 6. A guideline will describe the WHO risk classification system and provide examples of infectious agents that would be covered by Part 6.

Infectious agents can spread to a person by any one or all of several recognized routes. The proposed amendments address this through introduction of a new definition – the "route of transmission". This clarifies that a risk assessment must consider all routes of transmission for an infectious agent, including contact, droplet as well as airborne transmission. This is an important consideration. For example, in planning and implementing control measures for an influenza pandemic, it is recognized by both the WHO and US Centers for Disease Control and Prevention ("CDC") that the transmission of the influenza virus likely involves all three routes of transmission – contact, large droplet and droplet nuclei (i.e., airborne) transmission. The proposed amendments are consistent with the direction of the WHO and the CDC. Hence, where

a potential exists for airborne transmission, airborne precautions must be considered in planning the appropriate preventative measures.

A new definition for “standard infection control precautions” is proposed to help clarify the application of section 6.34 (1) (c). It replaces “universal precautions”, terminology no longer used by the infection control community.

To ensure consistency with the requirements for an “exposure control plan” as outlined in section 5.54, it is proposed that sections 6.35, 6.36, 6.38, and 6.41 be repealed and included as subsections to section 6.34. Risk identification, controls, education and training, records, among others, are all components of an exposure control plan. Hence,

- existing section 6.35 is proposed to be amended and renumbered as section 6.34 (1) (d),
- existing section 6.36 (1) is proposed to be amended and renumbered as section 6.34 (1) (b),
- existing section 6.36 (2) is proposed to be amended and renumbered as section 6.34 (1) (e),
- existing section 6.36 (3) is proposed to be amended and renumbered as section 6.34 (1) (f),
- existing section 6.36 (4) is proposed to be amended and renumbered as section 6.34 (1) (g),
- existing section 6.36 (6) is proposed to be amended and renumbered as section 6.34 (1) (c),
- existing section 6.38 is proposed to be amended and renumbered as section 6.34 (1) (h), and
- existing section 6.41 is proposed to be amended and renumbered as sections 6.34 (1) (i) and 6.34 (1) (j).

Proposed new section 6.34 (1) (a), which complements the proposed changes to section 6.34, sets out the requirement for conducting a risk assessment for potential exposure to an infectious agent or material by any route of transmission.

The proposed amendments to section 6.37, Labels and identification, involves replacement of the term “biohazardous” with “infectious”, and “biohazardous organism” with “infectious agent”. As well, for the identification of infectious agents, section 6.37 (2) (a) is proposed to be amended in accordance with the proposed new definition for “infectious agent” in section 6.33.

It is proposed that section 6.37 (4) (a) be amended to bring it up-to-date with current infection control terminology by replacing the term “universal precautions” with “standard infection control precautions”. “Standard infection control precautions” is defined in section 6.33 as part of the proposed amendments.

The proposed amendments to section 6.39, Vaccination, clarifies the requirements for the employer in providing vaccinations for the treatment and protection of workers who have or may have occupational exposure to specific disease organisms for which treatment is available.

The proposed amendment to section 6.40 (1), Health protection, clarifies that a person in the workplace must be advised to seek medical attention following an exposure incident with a potential infectious agent. The proposed amendment to section 6.40 (2) add clarity through inclusion of the clause “which may include preventative treatment” as part of the medical evaluation following an exposure incident. Currently, preventative (prophylactic) treatment is available for a number of infectious agents – beyond the singular reference to the hepatitis B virus per the current wording in this section. The amendment provides flexibility, allowing for future treatments to be considered as they become available.

Proposed G6.33-1 Definition of infectious agent

Issued August 1999; Editorial Revision July 2004; Proposed Revision November 2006.

Regulatory excerpt

Definitions **6.33** In sections 6.33 to 6.41:

“infectious agent” **means a prion, virus, bacterium, fungus or other similar agent that has the potential to cause injury or disease in people as specified by the World Health Organization, Health Canada or other agency acceptable to the Board;**

“biohazardous material” **means a pathogenic organism, including a bloodborne pathogen, which due to its known or reasonably believed ability to cause disease in humans, would be classified as Risk Group II, III or IV as defined by the Medical Research Council of Canada, or any material contaminated with such an organism; means a liquid or solid material that contains an infectious agent;**

Purpose of guideline

This proposed guideline provides information to clarify the definition of “infectious agent” in section 6.33(1) of the Occupational Health and Safety Regulation (“*Regulation*”). It discusses the classification system used by the World Health Organization (WHO). The guideline also provides information on other requirements that address biohazardous materials, such as WHMIS.

Infectious agents and the WHO classification system

The definition of “infectious agent” in section 6.33 applies to pathogenic infectious micro-organisms capable of causing injury or disease in people. In particular, it applies to pathogens that are or would be classified by the World Health Organization as Risk Group 2, 3 or 4 in accordance with the 3rd edition of the WHO *Laboratory Biosafety Manual*. (*Health Canada has not yet completed its review of the classification system for infectious agents. They are likely to adopt the WHO system along with other agencies such as the US Center for Disease Control*).

The definitions of WHO Risk Groups 2, 3 and 4 are as follows:

Risk Group 2: Moderate individual risk, low community risk

“A pathogen that can cause human or animal disease but is unlikely to be a serious hazard to laboratory workers, the community, livestock, or the environment. Laboratory exposures may cause serious infection, but effective treatment and preventive measures are available and the risk of spread is limited”.

Examples of Risk Group 2 infectious agents include the Hepatitis B and Hepatitis C viruses, and Staphylococcus aureus.

Risk Group 3: High individual risk, low community risk

“A pathogen that usually causes serious human or animal disease but does not ordinarily spread from one infected individual to another. Effective treatment and preventive measures are available”.

“Ordinary spread” refers to casual contact from one individual to another. Effective treatment includes antimicrobial or antiparasitic agents. Examples of Risk Group 3 pathogens include the human immunodeficiency virus (HIV), hantavirus and tuberculosis.

Risk Group 4: High individual risk and high community risk

“A pathogen that usually causes serious human or animal disease and that can be readily transmitted from one individual to another, directly or indirectly. Effective treatment and preventive measures are not usually available”.

Transmission can also be from animal to human or vice-versa directly or indirectly, or by casual contact. Examples of Risk Group 4 pathogens are the hemorrhagic fever viruses such as Ebola, Marburg and Lassa.

The assignment of an infectious agent must be based on a risk assessment which includes consideration of the following factors:

- The Risk Group assigned to the infectious agent
- Pathogenicity pattern (where an agent has changed its pathogenic status and requires reclassification to a higher Risk Group)
- Infectious dose, if known
- Potential routes of transmission, including contact, droplet and airborne transmission

For example, the agent responsible for SARS (Severe Acute Respiratory Syndrome), a coronavirus, is ordinarily classified as a Risk Group 2 agent. However, during an outbreak it would be reclassified as a Risk Group 4 agent. Similarly, the influenza virus – ordinarily classified as a Risk Group 2 (e.g., influenza virus type A) – would also be classified under Risk Group 4 if it shows effective person-to-person transmission, and high morbidity and mortality patterns on an epidemic basis, such as the pandemic influenza outbreak of 1918 – the “Spanish Flu”.

Other regulatory references to biohazards

Section 6.33 defines the term “infectious agent”, which is a more restrictive concept than “hazardous biological agent” as referenced in the proposed revision to section 5.2 of the *Regulation*. The agents covered by section 6.33 must be capable of inducing infection, whereas those covered by section 5.2 also include other substances such as toxins. The terminology in section 5.2 has a similar intent to the reference to “hazardous substance – biological agent” in section 107 of the *Workers Compensation Act*.

Under WHMIS, biohazardous infectious materials are classified under Division 3 of Class D (Poisonous and Infectious Material). This Division applies to organisms (e.g., viruses, bacteria, rickettsia, fungi, protozoa, and helminthes) which cause disease or are reasonably believed to cause disease in persons or animals, and to the toxins produced by such organisms. Note that the definition of “infectious agent” in section 6.33 does not apply to organisms capable of causing disease in animals.

The term “bloodborne pathogen” is sometimes used in connection with the regulation of biohazards. The term refers to organisms that are present in human blood or human blood components (e.g., plasma, platelets, exudates from wounds) that are capable of

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causing disease in humans. Some examples of diseases caused by bloodborne pathogens are HIV, Hepatitis B and C, malaria and syphilis.

Bloodborne pathogens may also be present in other body fluids such as cerebrospinal fluid, pleural fluid, saliva, semen and vaginal secretions. These fluids may or may not be visibly contaminated with blood. The term does not apply to substances such as urine, nasal secretions, sputum and vomit, unless they are visibly contaminated with blood.

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