Regulatory framework in veterinary care

Cris Barzan

March 9, 2025


TN
TRUE NORTH
VETERINARY DIAGNOSTICS

Agenda

1. Who is WorkSafeBC?
2. Rights and Responsibilities
3. Risk assessment framework
4. Radiation regulatory requirements
5. Animal handling hazards
6. Training and orientation

Who we are?

- WorkSafeBC is a ‘statutory agency’
- The sole insurer of workers’ compensation in British Columbia
- The Occupational Safety and Health regulator, inspector and promoter

Rights and Responsibilities

- Workers Compensation Act
- Occupational Health and Safety Regulation (OHSR)
- Occupational Health and Safety Regulation Policy
- Occupational Health and Safety Regulation Guidelines

Workers Compensation Act (WCA) Division 3

- General Duties
  - Employers (WCA 21)
  - Workers (WCA 22)
  - Supervisors (WCA 23)
  - Coordination (WCA 24)
  - Owner (WCA 25)
  - Suppliers (WCA 26)
  - Duties of directors and officers of a corporation (WCA 27)
  - Requirements that apply to more than one person (WCA 31)

Employer Responsibilities-WCA 21

- Make sure young workers – all workers – can do their jobs without unnecessary risk.
- Know and comply with health and safety regulations that apply to their workplace – and place the regulations where workers can see and read them.
- Involve supervisors and experienced workers in identifying health and safety problems and developing prevention programs to eliminate these hazards.
- Provide comprehensive training to make sure that workers recognize hazards and are competent in safe work procedures.
- Ensure supervisors are trained in safe work procedures.
- Provide required safety gear and protective clothing. Workers are responsible for providing their own clothing to protect them against the natural elements, work gloves, safety footwear and safety headgear.

Worker Responsibilities – WCA 22

- Always follow safe work procedures and encourage co-workers to do the same.
- Use all safety gear and protective clothing when and where required.
- Know how to handle any hazardous materials or chemicals you use on the job.
- Don't assume you can do something that you've never done before. Ask your supervisor to show you how to do it safely.
- Correct unsafe conditions or report them right away to supervisor.
- If you have doubts about your safety, talk with your supervisor.
- Tell supervisor of any physical or mental conditions that may make you unable to work safely.

Supervisor Responsibilities – WCA 23

- Ensure health and safety of the workers under their direct supervision
- Knowledgeable about the Act and OHS Regulation
- Ensure the workers are made aware of the known and reasonably foreseeable health and safety hazards
- Consult with the joint committee or worker health and safety representative
- Investigate concerns of health and safety and address them
- Inspect the worksite, work procedure, worker activities, etc
- Report unsafe conditions to his/her superiors

Occupational Health and Safety Regulation

Occupational Health and Safety Regulation

- Part 3- General duty Regulation
  - OH & S Programs
  - Workplace inspection
  - Correction of unsafe conditions
  - Refusal of unsafe work
  - New and young worker orientation
- Part 4- General Conditions

Occupational Health and Safety Regulation

- Part 5 - Chemical & Biological Substances
- Part 6 – Substance specific (i.e. biological, hazardous drugs)
- Part 7 – Noise, vibration, **radiation** and temperature
- Part 8 – Personal Protective Equipment
- Other parts – 9 to 34

Risk assessments

- What is a risk assessment?
- When is a risk assessment needed?
- Who is responsible for a risk assessment?

What is the purpose of a risk assessment?

Risk assessment framework

- Identify the hazard(s)
- Evaluate the risk of exposure to the hazard

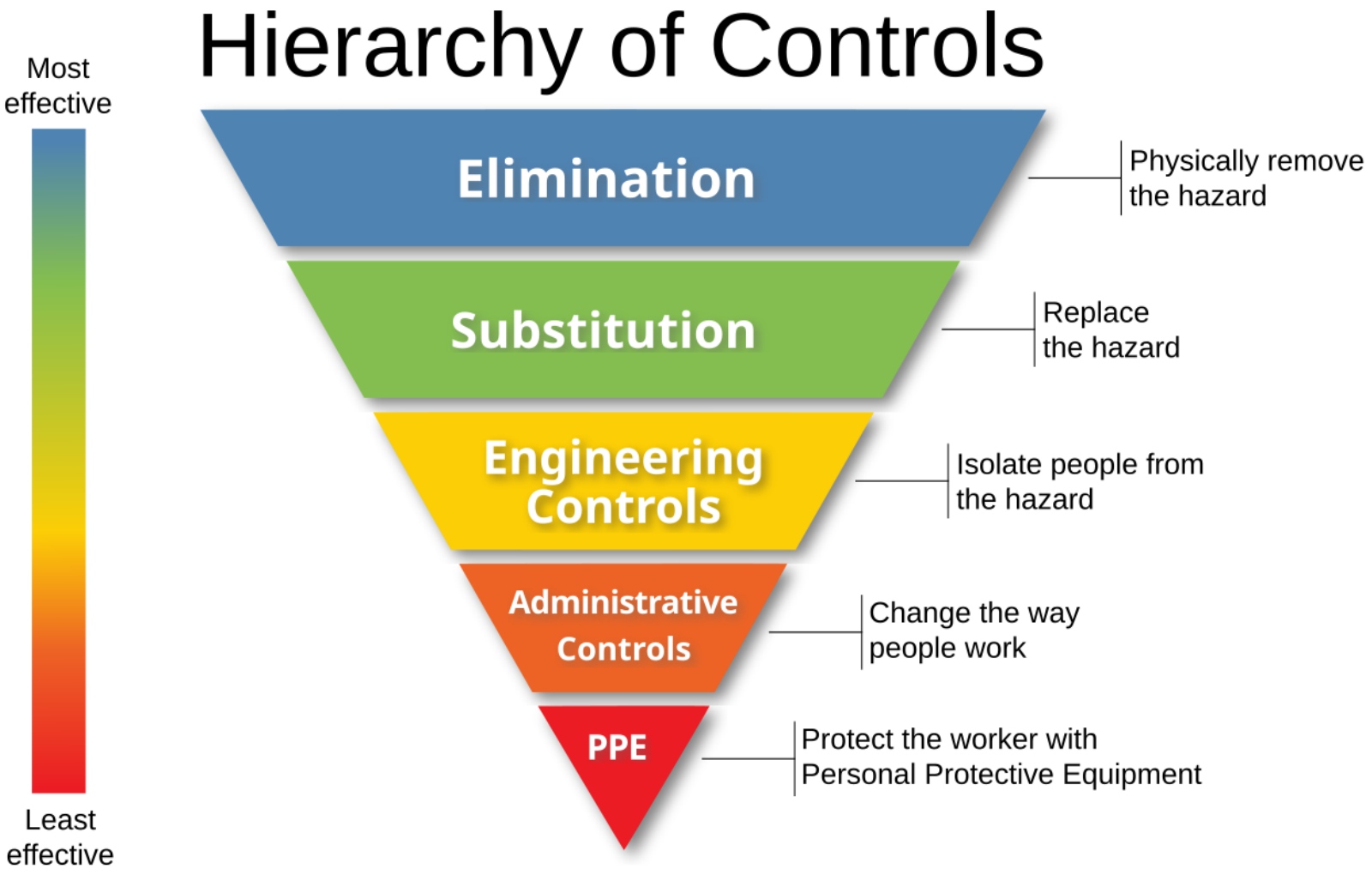
Evaluate the risk of exposure to the hazard

- Consider factors that impact the risk, for example:
  - Who can be exposed?
  - How many workers?
  - What is the mechanism of exposure (i.e. impact, injury, pathway)?
  - Duration of the task?
  - Frequency of the task?
  - Health outcomes from the hazard?
    - Acute (i.e. immediate, quick)
    - Chronic (i.e. long term, lengthy delay)

Evaluate the risk of exposure to the hazard

- Consider factors that impact the risk, for example:
  - Health outcomes from the hazard?
    - Acute (i.e. immediate, quick)
    - Chronic (i.e. long term, lengthy delay)
  - Environmental conditions?
  - Are there any Regulatory requirements?
  - Other factors?

How do mitigate the risk?



Check-in

Radiation Exposure

- What is radiation?
  - In simple terms, radiation is energy travelling in the form of particles or waves.

- How many types of radiation are there?
  - Radiation can be subdivided into two broad categories: ionizing and non-ionizing.

- What is the difference between ionizing and non-ionizing radiation?
  - Radiation capable of producing electrically charged atoms (called ions) in the medium is called ionizing radiation.
  - Non-ionizing radiation does not possess sufficient energy to remove electrons from absorbing medium atoms.

Examples of ionizing and non-ionizing radiation:

- Ionizing Radiation: radiation from radioisotopes, cosmic radiation, radiation from x-ray machines and accelerators
- Non-Ionizing Radiation: visible light, microwaves, radio waves
- The only observable difference between ionizing and non-ionizing radiation is the energy of the radiation. In all other respects, they are identical.

Where would radiation be encountered in your workplace?

Radiation exposure

- Section 7.17 to 7.25 of the Regulation
  - 7.17 Definitions
  - 7.18 Application
  - 7.19 Exposure limits
  - 7.20 Exposure control plan
  - 7.21 Reproductive hazards
  - 7.22 Monitoring exposure
  - 7.23 Standards for use of equipment
  - 7.24 Radiation surveys
  - 7.25 Records

Radiation exposure - 7.17 Definitions

- action level, ionizing radiation" means an effective dose of 1 milliSievert (mSv) per year;

- "action level, non-ionizing radiation" means the exposure limits for the general public referred to in section 7.19(4) or, if no public limit is referred to, it means the maximum exposure limit for workers referred to in section 7.19(4);

Radiation exposure - 7.18 Application

This Division applies to all sources of:

- ultrasonic energy,
- non-ionizing and
- ionizing radiation, including radiation sources governed by the *Nuclear Safety and Control Act* (Canada)

- except as otherwise determined by the Board.

Radiation exposure - 7.19 Exposure limits

(1) A worker's exposure to ionizing radiation must not exceed any of the following:

(a) an effective dose of 20 mSv over any period of 12 consecutive months;

(b) with respect to exposure to the lens of an eye,

(i) an equivalent dose of 50 mSv over any period of 12 consecutive months that starts on or after December 1, 2021, and

(ii) an equivalent dose of 100 mSv over any period of 60 consecutive months that starts on or after December 1, 2021;

Radiation exposure - 7.19 Exposure limits

(1) A worker's exposure to ionizing radiation must not exceed any of the following:

…

(c) with respect to exposure to the skin, averaged over any 1 cm2 area at a nominal depth of 7 mg/cm2, regardless of the area exposed, an equivalent dose of 500 mSv over any period of 12 consecutive months;

(d) with respect to exposure to the hands and feet, an equivalent dose of 500 mSv over any period of 12 consecutive months.

Radiation exposure - 7.19 Exposure limits - Pregnancy

(2) If a worker declares the worker's pregnancy to the employer, the worker's effective dose of ionizing radiation, for the remainder of the pregnancy, from external and internal sources, must be limited by the employer to the lesser of

(a) 4 mSv, or

(b) the dose limit specified for pregnant workers under the *Nuclear Safety and Control Act* (Canada).

Radiation exposure - 7.19 Exposure limits

(3) The employer must ensure that the exposure of workers to ionizing radiation is kept as low as reasonably achievable below the exposure limits.

> **ALARA (as low as reasonably achievable)**
> The International Agency for Research on Cancer classifies ionizing radiation as a Group 1 carcinogen (i.e., causes cancer in humans).

(4) The employer must ensure that a worker's exposure to non-ionizing radiation does not exceed the exposure limits specified in *"the respective Safety Codes"*

Radiation exposure - 7.20 Exposure control plan

(1) If a worker exceeds or may exceed an action level, ionizing radiation or action level, non-ionizing radiation, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54(2).

(2) The instructions to workers developed under subsection (1) must be posted or otherwise available in the work area or near the applicable equipment controls.

What is an Exposure Control Plan?

(2) The exposure control plan must incorporate the following elements:

(a) a statement of purpose and responsibilities;

(b) risk identification, assessment and control;

(c) education and training;

(d) written work procedures, when required;

(e) hygiene facilities and decontamination procedures, when required;

(f) health monitoring, when required;

(g) documentation, when required.

Radiation exposure - 7.21 Reproductive hazards

(1) The employer must ensure that every worker who exceeds, or may exceed, the action level, ionizing radiation is fully informed of any potential reproductive hazards associated with exposure to ionizing radiation.

(2) When requested by a pregnant worker or by a worker intending to conceive a child, the employer must make counselling available with respect to the reproductive hazards associated with exposure to ionizing radiation.

Radiation exposure - 7.22 Monitoring exposure

Unless exempted by the Board, if a worker exceeds or may exceed the action level, ionizing radiation, the employer must ensure that the worker is provided with and properly uses a personal dosimeter acceptable to the Board.

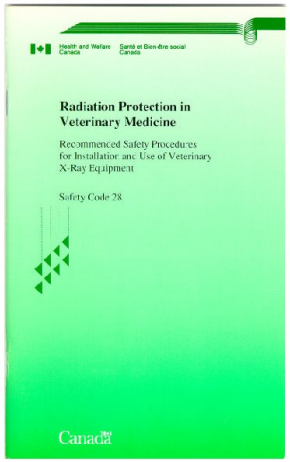
Radiation exposure - 7.23 Standards for use of equipment

Equipment producing ionizing or non-ionizing radiation or ultrasonic energy must be installed, operated and maintained in accordance with the following:

(a) for ionizing radiation:

…

(iii) *Health Canada Safety Code 28, Radiation Protection in Veterinary Medicine - Recommended Safety Procedures for Installation and Use of Veterinary X-Ray Equipment,* 1991, as amended from time to time;



Health Canada Safety Code 28, Radiation Protection in Veterinary Medicine

- Responsibility and Personnel
- Building and installation requirements
- Radiation Protection Surveys
- Equipment Specifications
- Procedures to Reduce Dose to X-Ray Personnel

Responsibility and Personnel

Responsible User

There *must* be at least one person designated as the responsible user (veterinarian, animal health technologist, registered radiology technician) to undertake responsibility

Responsibility and Personnel

Responsible User

There *must* be at least one person designated as the responsible user (veterinarian, animal health technologist, registered radiology technician) to undertake responsibility

X-Ray Equipment Operators

Responsibility and Personnel

Responsible User

There *must* be at least one person designated as the responsible user (veterinarian, animal health technologist, registered radiology technician) to undertake responsibility

X-Ray Equipment Operators

Students or Operators-in-Training

Building and installation requirements

Design Criteria

- Shielding requirements

Building and installation requirements

Design Criteria

- Shielding requirements

General Recommendations

Radiation Protection Surveys

General Procedures

- Pre-operation survey
- Survey following changes
  - be carried out after any change that may increase radiation output of the equipment; or
  - affect protection of the operator; or
  - others, e.g. alterations of protective barriers, replacement of the X-ray
  - machine with one capable of operating at a higher X-ray tube voltage;
  - changes in operating procedures or increased workload.

Radiation Protection Surveys

General Procedures

Survey Report

1. identification of the X-ray equipment and the date, or at least approximate date, of manufacture;
2. observations of the condition of the X-ray equipment at the time of the survey;
3. an assessment of the condition of protective equipment;
4. an estimate of potential exposures to personnel and general public in or around the facility;
5. an assessment of radiological and film processing techniques from the viewpoint of radiation safety.
6. recommendations regarding the need for a follow-up survey.

Equipment Specifications

X-Ray Equipment

All veterinary X-ray equipment and accessories for such equipment sold in Canada must conform to the **Radiation Emitting Devices Act and the Food and Drugs Act**.

Protective Clothing

Protective aprons, gloves and thyroid shields used for veterinary X-ray examinations must provide attenuation equivalent to at least 0.5 mm of lead at X-ray tube voltages of up to 150 kVp.

Darkroom and Film Processing

Procedures to Reduce Dose to X-Ray Personnel

- Time
- Distance
- Shielding

Radiation exposure - 7.24 Radiation surveys

Except as otherwise determined by the Board, the employer must conduct a radiation survey for ionizing radiation in accordance with the standard practice specified under the applicable Safety Code listed in section 7.23(a) or the regulations under the Nuclear Safety and Control Act (Canada),

(a) at the times required by the Safety Code or regulations, as the case requires,

(b) if equipment has been damaged or modified, or

(c) if there is an indication of an unusually high exposure of a worker to ionizing radiation.

Radiation exposure - 7.25 Records

The employer must

(a) maintain and make available to the Board,

(i) for at least 10 years, records of radiation surveys, and

(ii) for the period that the worker is employed plus 10 years, records of exposure monitoring and personal dosimetry data, and

(b) make the records available to workers.

Check-in

Animal handling hazards

- What are some of the hazards that come to mind when handling animals?

Animal handling hazards

- Bites
- Hit (kick, head-butt, paw, claw, peck, gore)
- Working alone
- Noise
- Biological agent exposure – Zoonotic diseases
- Exposure to chemical substances

Animal handling hazards

- Exposure to hazardous drugs
- Musculoskeletal injuries (i.e. repetitive motion, sudden force, sustained force)
- Slips, trips and falls
- Psychological hazards

Animal behaviour

- No two animals are exactly the same
- While some reactions are predictable, there can also be unpredictable reactions
- Change in environment (i.e. physical, people or animals)
- Previous history or incidents
- Change in routine
- Agitation and excitement is contagious

Animal behaviour

- Potential for territorial behaviour
- Aggressive potential during mating process
- “Flight or Fight” response (i.e. exposure to fire, smoke, etc.)
- Herd behaviour
- Protection of the young
- Signs of distress, fear or aggression

What would these factors provide?

- Consideration for the risk assessment
- Consideration for type of controls to implement
    - Understanding the behaviour or what is driving behaviour should guide the appropriate actions for control

Consideration for controls

- Elimination/substitution
  - Avoid contact in some circumstances
  - Consider personal behaviour/mood prior to interacting with animals
  - Prevent transmission of diseases
  - Vaccinations

Consideration for controls

- Elimination/substitution
- Engineering
  - Design of environment (i.e. spaces, floors, lighting, access, etc.)
  - Enclosures
  - Ensure barriers or other equipment are in good working condition

Consideration for controls

- Elimination/substitution
- Engineering
- Administrative
  - Training and orientation
  - Procedures
  - Considering sequence of actions or timing of actions
  - Supervision

Consideration for controls

- Elimination/substitution
- Engineering
- Administrative
- Personal Protective Equipment
  - Footwear
  - Gloves
  - Eyewear
  - Clothing
  - Respirators
  - Hearing protection

Training and orientation

- What is considered training?
- Who should be trained?
- Who should receive an orientation?

Training and orientation

- General requirement in the WCA
- New and young worker orientation and training
- Requirements throughout sections of the Regulation, for example:
  - Joint health and safety committee training
  - Emergency preparedness and response
  - Violence
  - Working alone or isolation
  - Musculoskeletal injuries (MSI)
  - Hazardous substances
  - Personal protective equipment

New and Young Worker

- What is a young worker?
- What is an new worker?

New and Young Worker

- Explicit definition of young and new workers
- Prescriptive list of topics needing orientation or training (s.3.23(2))
    - Rights and responsibilities, PPE, first aid, safe work procedures, hazardous materials, etc.
- Employees have the right to request additional training
- Requirement for employer to document orientation and training

First aid requirements

- Considerations regarding first aid:
  - Do workers know how to request first aid?
  - Do workers know when to request first aid?
  - Are there barriers to first aid?
- Annual practice drills
- Records of first aid

Working alone or in isolation

- Do any of your workers work alone or isolation?
  - "to work alone or in isolation" means to work in circumstances where assistance would not be readily available to the worker

    (a) in case of an emergency, or

    (b) in case the worker is injured or in ill health.

- Risk assessment of situation

- Implement controls
  - Eliminate working alone or in isolation, if possible
  - Implement procedures for check-in on the lone worker

Noise

- What is noise?

Noise

- Noise exposure can impact hearing
- Noise exposure can have other health effects
- Measurements are required if noise exposure exceeds the action limit (82 dBA)
- A noise control and hearing conservation program is required if exposure to noise occurs above either of the exposure limits:

  (a) 85 dBA Lex daily noise exposure level;

  (b) 140 dBC peak sound level.

Noise control and hearing conservation program

(a) noise measurement;

(b) education and training;

(c) engineered noise control;

(d) hearing protection;

(e) posting of noise hazard areas;

(f) hearing tests;

(g) annual program review.

Biological agent exposure

- What is exposure to a biological agent?
- How can exposure to a biological agent occur?
- What health effects can occur from exposure to biological agents?

Biological agent exposure

5.1.1 Designation as hazardous substances

For the purposes of sections 5.2 and 6.33 to 6.40 and Part 30, the following biological agents are designated as hazardous substances:

(a) a liquid or solid material that is contaminated with a prion, virus, bacterium, fungus or other biological agent that has a classification given by the Public Health Agency of Canada as a Risk Group 2, 3 or 4 human pathogen that causes an adverse health effect;

(b) a biological toxin that causes an adverse health effect.

Biological agent exposure

- If occupational exposure to a biological agent has or may occur, then the following are requirements of an employer:
  - Develop and implement an exposure control plan
  - Implement engineering controls (i.e. safety-engineered hallow bore needles)*
  - Labels and identification
  - Offer vaccination
  - Medical evaluation – advise to seek medical evaluation

Biological agent Exposure Control Plan

- The exposure control plan must meet section 5.54 and 6.34 of the Regulation
- The risk assessment must be conducted by a qualified person
- All work activities for potential exposure must be identified
- Minimize exposure through engineering and administrative controls
- Routine infection control precautions are required
- Training and education requirements
- Records

Chemical substances

- What is exposure to a chemical substances?
- How can exposure to a chemical substances occur?
- What health effects can occur from exposure to chemical substances?

Chemical substances

- If occupational exposure to a chemical substance can or may occur, then the following are requirements of an employer:
  - Identify the chemical agent and possible health effects
  - Communicate the information clearly to the worker
  - Develop and implement written procedures to minimize or eliminate risk of exposure, and address any emergency that may occur
  - Training requirement for worker and supervisor

WorkSafeBC E-limit mobile tool

- **E-Limit** (https://elimit.online.worksafebc.com/)

Hazardous drugs

- What is a hazardous drug?

Hazardous drugs

- What is a hazardous drug?

"hazardous drug" means a drug that

(a) has one or more of the following characteristics:

(i) carcinogenicity;

(ii) teratogenicity;

(iii) genotoxicity;

(iv) reproductive toxicity;

(v) organ toxicity at low doses,

(b) is a new drug that mimics, in structure or toxicity, an existing drug known to be a hazardous drug according to the characteristics listed in paragraph (a), or

(c) is identified in the NIOSH list as a hazardous drug;

Hazardous drugs

- Are hazardous drugs used in your practice?
- What hazardous drugs are used in your practice?

Hazardous drugs

- If occupational exposure to a hazardous drug may occur, then the following are requirements of an employer:
  - Identify hazardous drugs and maintain a list
  - Risk assessment must be prepared by a qualified person
  - Develop and implement an exposure control plan that meets the requirement of section 5.54 and the risk assessment
  - At least annual review of items identified above

Hazardous drugs

- Written work procedures based on the risk assessment
- Reproductive toxin requirement
- Eliminate or controlling exposure
- Preparation and administration of certain hazardous drugs

  (a) a hazardous drug that is identified in the NIOSH list as being antineoplastic;

  (b) a hazardous drug for which the manufacturer recommends ventilated engineering controls;

  (c) a hazardous drug that is classified by the IARC Monographs as a Group 1 or Group 2A carcinogen.

Hazardous drugs

- Instruction and training
- Supervision requirements
- Spill procedures and kits
- Storing and labeling hazardous drugs
- Transportation of hazardous drugs
- Handle and disposing waste
- Control cross-contamination
- Records

Musculoskeletal injuries (MSI)

- Risk identification
- Risk assessment, which must include risk factors*
- Risk controls – elimination, if not practical, minimize the risk of MSI to workers
- Education and training
- Evaluation

MSI Risk Factors

(a) the physical demands of work activities, including

(i) force required,

(ii) repetition,

(iii) duration,

(iv) work postures, and

(v) local contact stresses;

MSI Risk Factors

(b) aspects of the layout and condition of the workplace or workstation, including

(i) working reaches,

(ii) working heights,

(iii) seating, and

(iv) floor surfaces;

MSI Risk Factors

(c) the characteristics of objects handled, including

(i) size and shape,

(ii) load condition and weight distribution, and

(iii) container, tool and equipment handles;

MSI Risk Factors

(d) the environmental conditions, including cold temperature;

(e) the following characteristics of the organization of work:

(i) work-recovery cycles;

(ii) task variability;

(iii) work rate.

Slips, trips and falls

- Work environment and arrangement can impact risk of slips, trips or falls
- Risk assessment of work environments
- Develop and implement a risk management plan that uses the established hierarchy of controls
- Evaluation and monitor

Psychological health and safety

- How does psychological health and safety affect your workplaces?
  - About 30% of short and long-term workplace disability claims in Canada are attributed to psychological issues
  - In any given year, 1 in 5 people in Canada will personally experience a mental health problem or illness
  - Approximately 20% of Canadian youth are affected by mental illness or disorder

Psychological health and safety

- Some feedback from veterinary clinics re: mental health challenges:
  - Having to do back to back euthanasia
  - Having to interact with difficult human clients
  - Making a mistake
  - Causing distress to animals

Psychological health and safety

- Examples of what veterinary clinics can do:
  - Assess potential situations that can impact mental health and safety
  - Have a process for workers to be involved
  - Monthly health and safety meeting topics to include mental health
  - Peer support programs
  - Implement procedures for preventing and responding to situations that may impact mental health and safety

Resources

Managing risk – WorkSafeBC

Roles, rights & responsibilities - WorkSafeBC

Radiation (non-ionizing) - WorkSafeBC

Animal handling – WorkSafeBC

First aid requirements – WorkSafeBC

Working alone or in isolation - WorkSafeBC

Noise – WorkSafeBC

Hazardous drug exposure | WorkSafeBC

Safe Work Practices for Handling Hazardous Drugs | WorkSafeBC

Ergonomics – WorkSafeBC

Slips, trips, and falls – WorkSafeBC

Managing psychological health & safety - WorkSafeBC

Emergency planning & response - WorkSafeBC

Workplace inspections - WorkSafeBC

Open Forum

TRUE NORTH
VETERINARY DIAGNOSTICS

Report Unsafe Conditions or Incidents

Phone: 604.276.3100 (Lower Mainland)

Toll-free: 1.888.621.7233 (1.888.621.SAFE)

Cris Barzan, CIH MSc

Prevention Officer

604.232.1555

cris.barzan@worksafebc.com

www.worksafebc.com