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# HEALTH AND SAFETY (OHS) TRAINING – ANIMAL FACILITY



# LESSON PLAN

- Introduction
- OHS training program
- Health program
- Categories and sources of risk
- First aid and emergencies
- Support
- Resources



# INTRODUCTION



## INTRODUCTION - PREFACE

«In order to fully implement OHS measures, all those involved in animal care or use must be thoroughly trained to fully understand how to protect themselves from animal related risks.»

CCAC policies : Senior administrators responsible for animal care and use programs (appendix VIII OHS)

# INTRODUCTION – ENGAGEMENT

- Université Laval and affiliated research centers are committed to maintain a safe work environment.
- The main objective of the policy on occupational health and safety adopted by the board of directors of Université Laval on February 16, 2011, is to promote health, safety and the improvement of the quality of the working environment by ensuring compliance with laws and regulations.
- Students, visitors, contractors, etc., also have an obligation to comply with regulations arising from occupational health and safety laws.



# OHS TRAINING PROGRAM

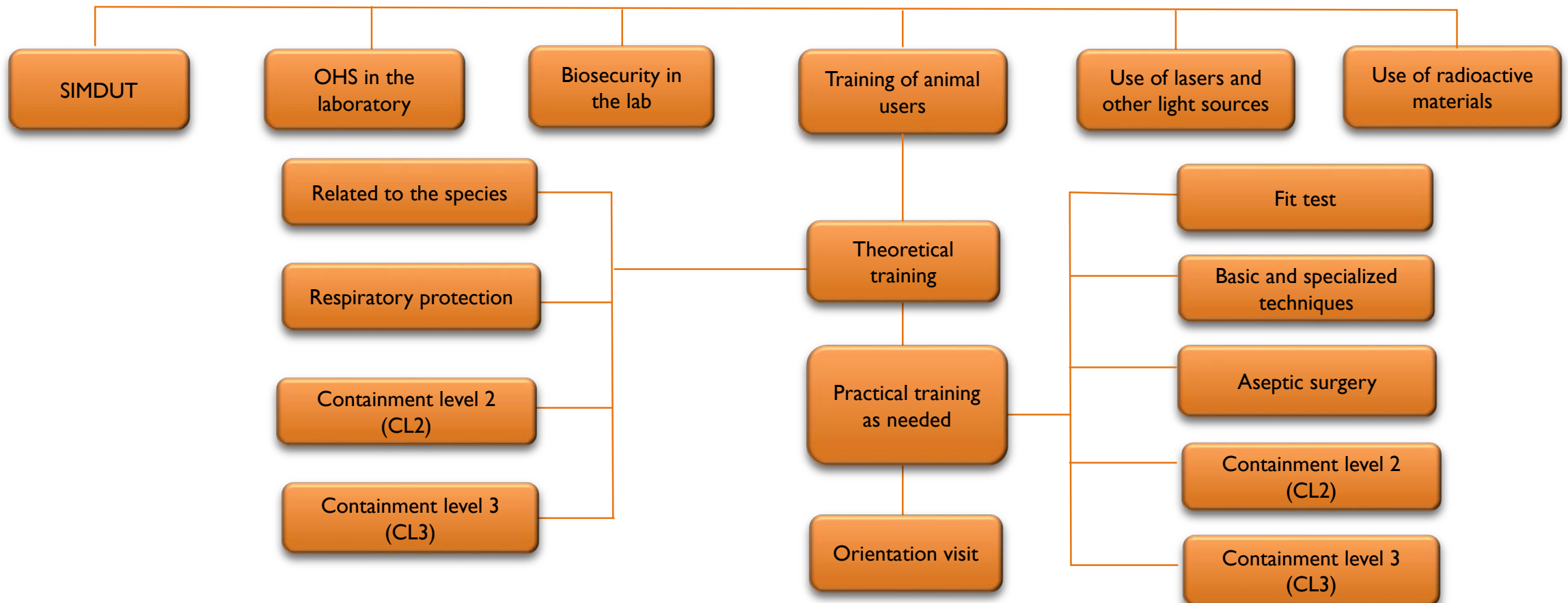


## OHS TRAINING PROGRAM - RESPONSIBILITY

The OHS program in animal facilities is the responsibility of the manager responsible for the care program, namely the vice-rector for research, creation and innovation, in collaboration with local managers.

# OHS TRAINING PROGRAM - ANIMAL FACILITIES COMPONENT

## OHS Program- Université Laval





# OHS TRAINING PROGRAM - ANIMAL FACILITIES COMPONENT

Training(s)	Mandatory for :
SIMDUT – Respiratory protection – OHS in the laboratory	All animal users of the facility
Biosecurity in lab	Anyone working on a protocol for which a biocontainment certificate has been assigned
Use of lasers and other light source - Use of radioactive materials	Anyone called upon to work with these risks
Theoretical training related to the species	Anyone called upon to work on a protocol involving the use of animals
Practical training - Orientation visit	Anyone called upon to handle animals in a research facility



# HEALTH PROGRAM



# HEALTH PROGRAM – PREVENTION

- Minimum recommended vaccination depending on the species:

Species	Diphtheria-Tetanus	Hepatitis A	Hepatitis B
Cats and dogs	√		
Primates	√	√	√
Rodents	√		

- Additional vaccination depending on the risks associated with the protocol (ex.: H1N1)
- Prevention
  - Notify your supervisor immediately if you are pregnant.
  - Notify your supervisor immediately if you are immunosuppressed.



# CATEGORIES AND SOURCES OF RISK



# CATEGORIES AND SOURCES OF RISK— SOURCES OF EXPOSITION

By airway

- Steam
- Gas
- Volatile virus
- Etc.


By skin-mucous  
membranes

- Spill
- Needle stick with a contaminated needle
- Bite
- Etc.

By digestive  
tract


- Splash
- Contaminated hands brought to the mouth
- Etc.

# CATEGORIES AND SOURCES OF RISK – DISPLAY

Risk	Room	Dedicated equipement	Contaminated cages
Biological 	<ul style="list-style-type: none"> <li>Biohazard pictogram on the door</li> </ul>	<ul style="list-style-type: none"> <li>Biohazard pictogram</li> </ul>	<ul style="list-style-type: none"> <li>Biohazard pictogram</li> <li>Name of the pathogen</li> <li>Administration date</li> <li>End of protocol date or end of excretion date</li> </ul>
Chemical	<ul style="list-style-type: none"> <li>SIMDUT pictogram on the door</li> </ul>	<ul style="list-style-type: none"> <li>SIMDUT pictogram</li> </ul>	<ul style="list-style-type: none"> <li>SIMDUT pictogram</li> <li>Name of the product</li> </ul>



# CATEGORIES AND SOURCES OF RISK – DISPLAY

Risk	Room	Dedicated equipment	Contaminated cages
Radioactive 	<ul style="list-style-type: none"> <li>• Radioactivity pictogram on the door</li> <li>• Contaminated zone delimitation</li> <li>• Posting the room's classification on the institution's license</li> </ul>	<ul style="list-style-type: none"> <li>• Radioactivity pictogram</li> </ul>	<ul style="list-style-type: none"> <li>• Radioactivity pictogram</li> <li>• Name of the product</li> <li>• Administration date</li> </ul>
Lasers and non-confined dangerous optical sources	<ul style="list-style-type: none"> <li>• Indication on the door of the highest laser level used in the room</li> </ul>	<ul style="list-style-type: none"> <li>• Not required</li> </ul>	<ul style="list-style-type: none"> <li>• Not required</li> </ul>

# CATEGORIES AND SOURCES OF RISK – BIOLOGICAL RISK

- Protocol related risk :
  - Human cells and/or pathogen manipulation
  - Protection :
    - Mandatory laboratory biosafety training
    - Assignment of the containment level (CL) according to the risk
      - CL 1, 2, 3 or 4
      - CL2 and more = Specific training required
    - Pathogen Safety Data Sheets from Santé Canada
    - Specific use procedure : DSV website
    - Display
    - Adequate personal protection equipment (PPE)
    - Hand washing
    - In some cases, possible vaccination





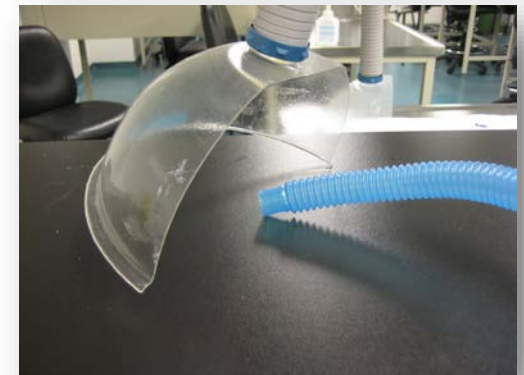
# CATEGORIES AND SOURCES OF RISK – ZOOONOSIS

- Zoonosis :
  - Transmissible disease in natural conditions from animals to human or from human to animals.
- Transmission :
  - Passive vector (contaminated surface, needle, etc.)
  - Direct contact (bite, scratch, contact with biological liquids, etc.)
  - Indirect contact (inhalation or accidental ingestion)
- Prevention :
  - Knowledge about the species behaviour
  - Use of sedation or anesthesia if needed
  - Appropriate PPE
  - Hand washing
  - In some cases, possible vaccination



# CATEGORIES AND SOURCES OF RISK – CHEMICAL RISK

- Isoflurane :
  - Most used anaesthetic gas that has some risks
  - Exposure risks :
    - Headache, nausea, dizziness, cough, sore throat
    - Not recommended for pregnant women
  - See the user's guide on the DSV website
- Prevention :
  - Display
  - Filling under the suction arm
  - Using suction arm or activated charcoal (F/AIR) while doing anesthesia
  - If possible, opening and cleaning induction boxes near a suction arm



# CATEGORIES AND SOURCES OF RISK – CHEMICAL RISK

- Use of activated charcoal (F/AIR) :
  - Weight and note the initial weight on the canister
  - Weight before every use
  - Throw away after a 50g weight augmentation of the initial weight
  - Put it in a closed plastic bag before throwing it away
    - Possibility of an accidental dumping of its content
    - Possibility of heat-induced desorption of isoflurane



# CATEGORIES AND SOURCES OF RISK – CHEMICAL RISK

- Compressed gas :
  - Danger of propulsion if a cylinder falls
- Prevention :
  - Securely attach the top third of the cylinder to the wall
    - The use of a chain is recommended
  - Clearly separate the full cylinders from the empty cylinders
  - Move them with an appropriated cart
  - Do not pull or move by the cap
  - Let the protection cap on if the cylinder is not plugged on a regulator
  - Regulate the cylinder pressure to zero before closing the main valve



# CATEGORIES AND SOURCES OF RISK – CHEMICAL RISK

- Liquid nitrogen
  - Risks :
    - Burns
    - Asphyxiation
  - Prevention :
    - Store in a container provided for that purpose
    - Wearing adequate PPE



# CATEGORIES AND SOURCES OF RISK – CHEMICAL RISK

- Formaldehyde :

- Acute toxicity by inhalation
- Skin and eyes corrosion
- Toxic when ingested
- Carcinogenic



- Prevention :

- Use with suction tables or under a chemical hood
- Wear adequate PPE
- Waste management according to the establishment's OHS standards

# CATEGORIES AND SOURCES OF RISK – CHEMICAL RISK

- Other chemical risks :
  - Exemple : MPTP, BrdU, DMSO, etc. :
    - Refer to the specific operating procedures on the DSV website and to the product safety data sheets (MSDS)
- Tested products with unknow associated risks
  - Provide adequate protection



# CATEGORIES AND SOURCES OF RISK – RADIOACTIVE RISK

- Risks :
  - Equipement used
    - Exept CT scan and Dexa; Safe because no radiation outside of the device
  - Manipulated products
  - Radio-isotopes injected or excreted by animals
    - Most used: C14 and H3





# CATEGORIES AND SOURCES OF RISK – RADIOACTIVE RISK

- Prevention :
  - Mandatory training of the use of radioactive materials
  - Canadian Nuclear Safety Commission's Material Safety Data Sheets for the radioisotope
  - Display
  - Regular scrubbing and decontamination of surfaces
  - Specific PPE according to the device and/or the product
  - Dosimeter for devices or products that emit radiation
  - Dedicated carcass freezers



# CATEGORIES AND SOURCES OF RISK - LASERS AND NON- CONFINED DANGEROUS OPTICAL SOURCES

- Work with lasers :
  - Mandatory ophtalmologic exam
  - Mandatory specific training
- User protection :
  - Training
  - PPE
  - Display on door :
    - Indication on the door of the highest laser level used in the room



# CATEGORIES AND SOURCES OF RISK – ERGONOMIC AND PHYSICAL RISKS

- Physical risks
  - Bites and scratches :
    - Special attention according to the species :
      - Recognize signs of aggressivity
    - Prevention
      - Mandatory practical training
      - Assistance for the first manipulations



# CATEGORIES AND SOURCES OF RISK – ERGONOMIC AND PHYSICAL RISKS

- Punctures and lacerations :
  - Respect the needle manipulation techniques
    - Support of the arms when opening the needle
    - Never let the tip of the needle free
      - Slide the tip of the needle into the cap until ready to use it
    - Do not recap
      - If necessary to recap, use the one-hand technique
    - Immediately throw in an adequate container after use
      - Make sure that the needle is completely in the container
      - Respect the maximum filling line on the container
  - Use of retractable needles or automatic capping when risks are more high
    - Exemple: biological risks



# CATEGORIES AND SOURCES OF RISK – ERGONOMIC AND PHYSICAL RISKS

- Ergonomic risks
  - Repetitive motions :
    - Adapt the task to the worker (respect of each person rythm)
  - Heavy load transport :
    - Use the available material for transport
    - Ask for help if needed
    - Respect the basic principles of ergonomics
      - Force with the back straight
      - Push instead of pulling rolling objects
      - Take support if needed
      - Do not manipulate heavy loads at arm's lenght



# CATEGORIES AND SOURCES OF RISK – ALLERGIES

Allergy	Symptoms	Prevention
Animals	Runny and/or itchy nose Discharge and/or itching of the eyes Sneezing Respiratory problems Bronchospasm	PPE N95 respirator Biosafety cabinet Changing cage station Hygienic measure
Used products ex.: drug, cleaning product, etc.	Rash Irritation Itches Other signs according to the severity of the allergy	PPE Hygienic measure Other indicated measure

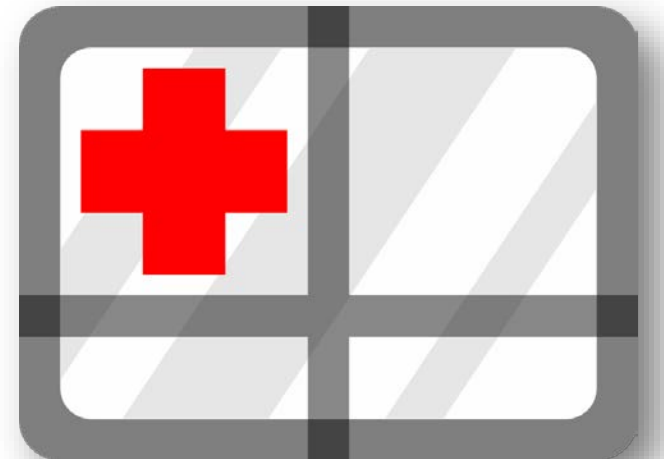


# FIRST AID AND EMERGENCIES



# FIRST AID AND EMERGENCIES – MINOR INJURY

- Minor injury :
  - Make bleed (if applicable)
  - Wash with a soft soap
  - Rinse for 15 minutes
- Mucous membranes :
  - Immediately irrigate for 15 minutes
- If applicable, check the data sheet (chemical, biological and radioactive risks)
- Accident report
  - Use the right report form according to your situation (student vs teacher vs carestaff)
  - Submit the report as fast as possible
  - Notify the animal facility responsible
  - Consult a doctor if there's any appearance of symptoms





# FIRST AID AND EMERGENCIES – MAJOR EVENT

## Université Laval

- Medical emergency :
  - Call 911
  - If assistance is needed : call 405555
  - If applicable, check the data sheet (chemical, biological and radioactive risks)
- Installation emergency :
  - Call 407000
  - If applicable, check the data sheet (Chemical, biological and radioactive spillings)
  - Notify the animal facility responsible



# FIRST AID AND EMERGENCIES – MAJOR EVENT

## CRCHU de Québec

- Medical emergency :
  - Call 911
  - If assistance is needed : call 5555
  - If applicable, check the data sheet (chemical, biological and radioactive risks)
- Installation emergency :
  - If applicable, check the data sheet (chemical, biological and radioactive spillings)
  - Call 42117
  - Notify the animal facility responsible



# FIRST AID AND EMERGENCIES – MAJOR EVENT

## Centre de recherche CERVO

- Medical emergency :
  - Call 911
  - If assistance is needed : call 5555
  - If applicable, check the data sheet (chemical, biological and radioactive risks)
- Installation emergency :
  - If applicable, check the data sheet (chemical, biological and radioactive spillings)
  - Call 5555
  - Notify the animal facility responsible:



# PREMIERS SOINS ET URGENCES – ÉVÈNEMENT MAJEUR

## CRIUCPQ

- Medical emergency :
  - Call 911
  - If assistance is needed : call 5555
  - If applicable, check the data sheet (Chemical, biological and radioactive risks)
- Installation emergency :
  - If applicable, check the data sheet (Chemical, biological and radioactive spillings)
  - Call 42117
  - Notify the animal facility responsible





SUPPORT



# SUPPORT – NEED FOR ASSISTANCE

- Support sometime needed
  - If you are nervous
  - If you are fearful of an animal
- Who can support you?
  - A trained research team member
  - A trained animal facility member
  - A veterinarian



\*Withdrawing from working with animals; a reality to consider in some cases\*



# RESOURCES



# RESOURCES

- Resource-person :
  - OHS representative of your facility
  - Université Laval risk management committee (biological, chemical, radioactive, lasers)
  - Animal facility responsables
  - Facility security services
- OHS manual in animal facilities according to the research center
- Standard operation procedure (SOP) :
  - Available on the DSV website



# RESOURCES

- Safety Data Sheets (SIMDUT) :
  - Available in animal facilities
- Pathogen Safety Data Sheets
  - Available on Santé Canada's website
- Material Safety Data Sheets for the radioisotope :
  - Available on Canadian Nuclear Safety Commission's website
- Standard operation procedure (SOP):
  - Available on the DSV's website and in every animal facility