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Asthma in the workplace: Animal health: Prevention fact sheet

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ASTHMA IN THE WORKPLACE

ANIMAL HEALTH
PREVENTION FACT SHEET
RF-536



GET THE FACTS

AND WORK SMARTER

If you're in the animal health or veterinary medicine profession, there are health risks you should know about. Getting the facts will help you work smarter and avoid certain practices that could lead to occupational asthma and rhinitis.

Hair, dander, urine, dust and antiseptic cleaners are the main risk factors that can cause or aggravate these respiratory diseases.

READ THE SAFETY DATA-SHEETS
FOR THE PRODUCTS YOU USE.
MAKE SURE YOU UNDERSTAND
WHAT'S IN THEM.

A SIGNIFICANT STUDY

A study covering the entire college or university training of 417 animal health and veterinary students in Quebec* revealed that:

21.5 %	have developed allergic sensitization to laboratory animals.
24 %	have symptoms of rhinitis or conjunctivitis on contact with these animals.
5.9 %	have respiratory symptoms on contact with laboratory animals.

* Gauthier, D. et al, Rapport IRSST R-494, 2007

FIND OUT

ABOUT ASTHMA

Asthma is a chronic respiratory disease that makes breathing—especially exhaling—difficult.

Asthma usually results from allergies to certain substances in your environment. Its main symptoms are coughing, shortness of breath, wheezing and tightness in the chest. Asthma can also be accompanied by symptoms of rhinitis and conjunctivitis.

Asthma in the workplace can be:

- Caused by exposure to allergenic or irritant substances found in the learning or work environment; or
- Aggravated in somebody who is already asthmatic by these irritant substances or physical factors (e.g., extreme ambient temperatures).

In both cases, the symptoms get worse when the person performs training or work-related tasks that carry a risk of exposure. They decrease or disappear outside the learning or work environment.

ABOUT RHINITIS

Rhinitis is a respiratory disease that causes inflammation of the mucous membranes in the nose, stuffy nose, runny nose and eyes, and sneezing.

UNDERSTAND

THE RISK FACTORS

As a animal health or veterinary medicine student, you perform very similar tasks to those in a laboratory animal facility, veterinary clinic or breeding environment. The commercial products and raw materials you use could cause or aggravate asthma.

Animal protein, dust and gases are the major sources that irritate or sensitize the respiratory tract. You could also be directly exposed to a chemical substance through skin contact.

The species and gender of the animals you handle have a direct impact on the level risk you are exposed to. For example, the male rat often used in laboratories is more allergenic than the female.



Handling and shaving
of animals

Cleaning and changing
of litter in cages

Tasks in an agricultural
environment

Tasks in a biology and
dissection laboratory

Cleaning
and sterilization
of instruments

Cleaning the work
surfaces

IT IS IMPORTANT TO
UNDERSTAND WHICH ARE
THE HAZARDOUS TASKS
AND POTENTIALLY-HARMFUL
SUBSTANCES, AND HOW TO
CONTROL EXPOSURE.



CHEMICAL HAZARD

Inhalation of irritant or sensitizing dusts	•	•	•			
Inhalation of irritant or sensitizing gases or mists			•	•	•	•
Skin contact with irritant or sensitizing substances	•	•	•	•	•	•

EXAMPLE OF PRODUCTS

Small animals (cats, dogs)	•	•				
Laboratory animals (rats, mice, rabbits)	•	•		•		
Reptiles/amphibians (lizards, frogs)	•	•		•		
Fantasy birds (parrots, doves)	•	•				
Farm animals (cattle, horses, pigs, poultry)			•			
Formalin solutions				•		
Antiseptic cleaners		•			•	•
Latex gloves	•	•	•	•	•	•

EXAMPLE OF SUBSTANCES

Animal dander	•	•	•			
Animal urinary proteins	•	•	•			
Ammonia	•	•	•			
Formaldehyde				•		
Chlorhexidine					•	•
Quaternary ammoniums		•			•	•
Latex proteins	•	•	•	•	•	•

MEANS OF CONTROL

Substitution		•		•	•	•
Work method	•	•	•	•	•	•
Capture at source	•	•		•	•	
General ventilation	•	•	•	•	•	•
Respiratory protection	•	•	•	•	•	•
Skin protection	•	•	•	•	•	•

Informing and training students, apprentices and employees on the risks of exposure to substances in their learning or work environment, the sources of emission, the most hazardous tasks, methods of control (including work practices and methods) and personal protective equipment are key to controlling exposure.

PROTECT

YOURSELF RESPONSIBLY

Protecting your respiratory tract

Use a respirator if you cannot control exposure any other way.

The N95 filtering half-facepiece respirator is recommended to protect against dust. You could also use other respirators depending on the intensity of exposure, the nature of the task and the degree of effort. All respirators have a protection factor (PF) that indicates how effective they are and that reflects the theoretical concentration of the contaminant in the environment compared to that inside the mask. So, a factor of 10 indicates that the concentration inside the respirator is 10 times less than that in the learning or work environment.

For a respirator to offer appropriate protection against a particular substance, you have to look at the permissible exposure value (PEV) for that substance, as stated in the Regulation on occupational health and safety (ROHS).

Choosing a respirator to suit the intensity of dust you are exposed to*

Intensity	Types of respirators*	PF
Under 10 times the PEV	N95 filtering half-facepiece Half-facepiece with N95, P95 or P100 filter cartridges	10
Over 10 times the PEV	Full-facepiece with N95, P95 or P100 filter cartridges Powered air-purifying respirator (PAPR) with HEPA filter cartridges	100

* These recommendations do not apply to all work situations. You must check the respirator's efficiency with the manufacturer or with the person responsible for the respiratory health program.

The teaching institution must also set up a training program so that apprentices know how to use a respirator, its limitations and maintenance, and arrange for a personal fitting to adjust the respirator in accordance with the regulations in Quebec.¹

A surgical mask is not a respirator



Unlike the N95 filtering half-facepiece respirator, a surgical mask is not designed to filter dust. It is not effective or airtight enough to meet regulations.

Protecting your skin

As you go about your training or professional work in animal health or veterinary medicine, irritant or sensitizing substances (such as disinfecting agents that contain quaternary ammoniums) may contact your skin. Wearing nitrile gloves will reduce this type of risk. However, they are only appropriate for some mixes. So, it is important to check how effective your choice of protection is with the manufacturer before adopting it.

¹ www.irsst.qc.ca/fr/_publicationirsst_862.html

CONTROL

THE RISK TO YOUR HEALTH

Substitute products

First, consider replacing a potentially harmful product with one that reduces or eliminates the risk.

Some examples are:

- Replace the formalin solution used in biology classes and dissection laboratories with a product that contains no formaldehyde, such as NotoxhistoTM;
- Wear nitrile gloves instead of latex gloves;
- Replace the quaternary ammonium family of disinfectants with ammonium-free equivalents;
- Replace products containing benzalkonium chloride, which sensitizes the respiratory tract, with products that do not. (source: <http://www.asthme.csst.qc.ca>).

Work practices

Good work practices and habits can prevent exposure or help to reduce the duration and intensity of exposure. Some examples are:

- Shave animals on a hair-free surface;
- Stay away from the source of the contaminant and its trajectory;
- Use a high efficiency particulate air (HEPA) filter to avoid recirculating allergens;
- Use female rats rather than male rats in laboratories.

Capture at source

This reduces exposure to the sawdust generated by equipment. It protects you and the people near your workstation.

Use individually-ventilated or filter-top cages (NIOSH reference) to minimize the risk when performing various tasks in a laboratory animal facility or in a veterinary clinic.

Ventilation

General, natural or mechanical ventilation reduces the ambient level of substances and so reduces direct and secondary exposure to irritants or allergenic substances associated with hazardous tasks.

PEOPLE WHO DEVELOP AN ALLERGIC SENSITIZATION TO LABORATORY ANIMALS DO NOT NECESSARILY DEVELOP OCCUPATIONAL ASTHMA, BUT THEIR RISK INCREASES.

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BE INFORMED—BE CAREFUL

Other health and safety risks related to the animal health or veterinary medicine profession*

Category	Risk	Methods of control	Information
Biological	Contact with biological fluids Zoonosis Rabies	Adopt appropriate personal hygiene measures Adapt work methods Protect your skin	CSST

* This list is not exhaustive and does not apply to all workplaces.

There is always a risk of being bitten, scratched or struck by the animal during different handling scenarios. Always handle animals according to the recommended techniques that you have been taught.

TO LEARN MORE

Guide d'utilisation d'une fiche signalétique, CSST

http://www.csst.qc.ca/portail/fr/publications/DC_200_338_5.htm

Asthme CSST

<http://www.asthme.csst.qc.ca/>

IRSST

<http://www.irsst.qc.ca>

REPTOX

<http://www.reptox.csst.qc.ca/>

Québec Lung Association

<http://www.pq.lung.ca>

Center for Asthma in the Workplace

<http://asthma-workplace.com/en>

REFERENCES

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Lara, J. and Vennes, M. *Guide pratique de protection respiratoire*, IRSST, R-319, 2002, 56 pages.

http://www.irsst.qc.ca/fr/_publicationirsst_862.html

National Institute for Occupational Safety and Health (NIOSH). *NIOSH Alert: Preventing allergic reactions to natural rubber latex in the workplace* (97-135), NIOSH, 1997, 16 pages.

<http://www.cdc.gov/niosh/latexalt.html>

NIOSH Alert: Preventing asthma in animal handler (97-116), NIOSH, 1997, 15 pages.

<http://www.cdc.gov/niosh/animalrt.html>

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