

ASTHMA IN THE WORKPLACE

DENTAL HYGIENE
PREVENTION FACT SHEET
RF-534



GET THE FACTS

AND WORK SMARTER

If you're in the dental hygiene 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.

Using commercial products, including latex gloves, is one of 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 of 122 dental hygiene students in Québec revealed that, from start to finish of their training:

1.8% have symptoms of rhinitis on contact with latex gloves.

6.4% have developed an allergic sensitization to latex.

4.5% have developed probable occupational asthma.

* Gauthrin, 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 dental hygiene student, you perform very similar tasks to those in a dental clinic. The commercial products and raw materials you use could cause or aggravate asthma.

These products and materials are the major source of dust and vapor that irritate or sensitize the respiratory tract. You could also be directly exposed to a chemical substance through skin contact.

Some filling composites, disinfectant products and wearing latex gloves, among other things, can lead to a health risk.



Insertion of filling composite

Production of impressions for mouth guards and trays

Cleaning and sterilization of instruments

Cleaning of equipment and 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 dust

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Inhalation of irritant sensitizing vapours

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Skin contact with irritant or sensitizing substances

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EXAMPLE OF PRODUCTS

Filling materials (composites)

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Materials for impressions

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Plaster products

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Disinfectant

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Antiseptic cleaner

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Latex gloves

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EXAMPLE OF SUBSTANCES

Acrylate family

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Crystalline silica

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Calcium sulphate

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Quaternary ammoniums

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Latex proteins

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MEANS OF CONTROL

Substitution

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Work method

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Capture at source

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General ventilation

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Respiratory protection

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Skin protection

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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 dental hygiene, irritant or sensitizing substances (such as latex, 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:

- Wear nitrile gloves instead of latex gloves;
- Replace the quaternary ammonium family of disinfectants with ammonium-free equivalents.

Work practices

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

- Spray antiseptic cleaners carefully, using containers in good condition;
- Stay away from the source of the contaminant and its trajectory.

Capture at source

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

Sand and machine impressions and plaster models using an instrument equipped with a local exhaust system or with running water to reduce exposure to dust.

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.



BE INFORMED—BE CAREFUL

Other health and safety risks related to the dental hygiene profession*

Category	Risk	Methods of control	Information
Biological	Bioaerosols	Wear respiratory protection	IRSST
	Contact with biological fluids	Adopt appropriate personal hygiene measures Adapt work methods Protect your skin	CSST
Chemical	Sanding and polishing dental impressions and plaster models (crystalline silica of quartz and cristobalite)	Local exhaust system	IRSST
		System with flowing water on the machine Wear respiratory protection	CSST (crystalline silica)

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

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

Gautrin, D. et al. *Surveillance de l'asthme professionnel chez des travailleurs dans des secteurs à risque*, IRSST, R-494, 2007, 45 pages.

<http://www.irsst.qc.ca/files/documents/PubIRSST/R-494.pdf>

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>

Hagberg, S. *Exposure to volatile methacrylates in dental personnel*, *Appl. Occup. Environ. Hyg.*, 2003, 18: 1031-1047.

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

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