Occupational Health & Safety Agency for Healthcare in BC

*health research* **FACTS**

THE UNIVERSITY OF BRITISH COLUMBIA

# Impacts of Chemical Substitution on Employee Health and Organization


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## Why the Study?

### To Examine the Aspects of Substituting a Known Hazardous Chemical with Substitutes of Unknown Toxicity

For the past 40 years, glutaraldehyde has been the chemical of choice for high-level disinfection. It is very effective, easy to use, and does not damage equipment. However, glutaraldehyde can negatively impact the health of workers who come into contact with it.

Healthcare workers who use glutaraldehyde can experience a number of health problems, including dermatitis, skin irritation, respiratory symptoms, and even occupational asthma.

Until recently, there was no viable alternative to glutaraldehyde. Since 1999, two new alternatives have become available that are advertised as safer substitutes for glutaraldehyde.

## What Did We Want to Know?

- What effects on health do the two new products have in comparison with glutaraldehyde?
- What are the current practices employed in the use of high-level disinfectants in BC hospitals?
- What protective recommendations can we make to healthcare workers who use high-level disinfectants?

## How Did We Do It?

We predicted and compared the health effects that might occur after exposure to each type of high-level disinfectant. To this end, we:

- Contacted regulatory agencies and product manufacturers to request health information;
- Reviewed the published scientific literature;
- Compared the structure and reactive properties of each chemical.

## What Did We Find?

**Information from regulators**:
Manufacturers are not routinely required to provide toxicology or health data to Health Canada in order to get a new high-level disinfectant approved in Canada.

**Information from other sources:**
Glutaraldehyde has been used as a high-level disinfectant for years. Numerous studies have been published describing its potential health effects. Skin contact with glutaraldehyde can lead to irritation and allergic reactions. Glutaraldehyde vapour irritates the respiratory tract and can aggravate existing respiratory conditions such as asthma or bronchitis.

**Use of high-level disinfectants in BC hospitals:**
The use of glutaraldehyde alternatives is already widespread in BC hospitals. OPA is the most commonly used alternative.

Of the 64 hospitals that responded, 51 of them (80%) were using alternatives. Within this 80%, 18 (35%) hospitals used alternatives exclusively. Use of alternatives was found to be significantly associated with hospital size. Alternatives were less commonly used in small hospitals, but their use was not associated with hospital location or the availability of OH&S personnel.

## What Can I Do?

Make easier, better decisions about chemical choice.

- Work together
- Educate co-workers
- Go straight to the source
- Talk to people
- Protect yourself
- Protect your environment
- Use the Precautionary Principle


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