

# Latex\*

## Allergy in Health Care

### Fact Sheet

\*natural rubber latex

Prepared cooperatively by the  
Massachusetts Nurses Association  
and HCWH.

#### Latex Allergy— Symptoms and Causes

Since 1987, when the Centers for Disease Control and Prevention (CDC) recommended universal precautions, the increased use of natural rubber latex gloves in health care settings has been associated with an increase in reported natural rubber latex allergies among both patients and workers. Prevalence studies indicate that 6-17% of the exposed health care workforce has become allergic to latex.<sup>1</sup> Symptoms range from irritating to life-threatening.

Ten years later, in June 1997, the National Institute for Occupational Safety and Health (NIOSH) published an Alert – “Preventing Allergic Reactions to Natural Rubber Latex in the Workplace” — which, among other recommendations, called for education to inform workers of the symptoms of latex allergy. These symptoms include dermatitis, urticaria, rhinitis, nasal, eye or sinus symptoms, asthma, and anaphylaxis.<sup>2</sup> Deaths have been reported as well.<sup>3</sup> Latex is recognized by NIOSH as a hazard to the health of exposed workers.

Latex allergy has become an increasingly serious threat to health care workers (housekeepers, lab workers, dentists, nurses and physicians) who experience frequent or prolonged exposure to natural rubber latex through inhalation and exposure to mucous membrane or disrupted skin. Sensitization occurs through contact with latex proteins. Powder on gloves is a vehicle for sensitization. Powder increases the probability of sensitization as it allows direct contact of aerosolized latex proteins with mucous membranes of the eyes and respiratory tract.

For many allergic workers the common denominator is, “I have been using latex gloves for years, why is this a problem now?” The number of exposures necessary for sensitization varies depending on the individual. A health care worker can use latex gloves for many years before developing a latex allergy.

For most sensitized people, the symptoms of skin rashes, runny nose, and itchy eyes persist for a very long time. For others, the rashes and runny nose quickly become breathing problems such as asthma, airway obstruction, and extreme spasms in the throat (laryngospasm). For still others, the first symptom may be life-threatening shock (anaphylaxis). No immunotherapy or desensitization exists for latex allergy. Each systemic reaction comes with less provocation; each reaction is worse. For a summary of the reactions associated with latex gloves, see Table 1.

Patients with spina bifida, and patients with congenital genitourinary abnormalities who are heavily exposed to natural rubber latex through surgical procedures and contact with latex catheters show sensitization rates as high as 18-73%.<sup>4,5</sup> Patients who have undergone as few as three surgical procedures may be at a higher risk of developing latex allergy.

Not only direct contact with latex, but also exposure to the airborne latex proteins carried on powder can sensitize an individual and elicit an immune response (allergic reaction). Therefore, only avoidance of exposure to latex material and aeroallergens will prevent latex allergy from developing in workers and patients.<sup>6</sup>

Table 1. Types of reactions associated with latex gloves

Cause of Reaction	Terms Used or Description	Signs and Symptoms	Cause(s)
Irritant contact dermatitis	Irritation (non-allergic irritation)	Dry, crusty, hard bumps, sores, and horizontal cracks on skin may manifest as itchy dermatitis on the back of hands under the gloves	Direct skin irritation by gloves, powder, soap/detergent, scrubs, and/or incomplete hand rinsing and drying
Allergic contact dermatitis	Type IV delayed hypersensitivity  Allergy contact sensitivity	Red, raised, palpable area with bumps, sores, and horizontal cracks may extend up the forearm. Occurs after a sensitization period. Appears several hours after glove contact and may persist many days.	Exposure to chemicals used in latex manufacturing, including accelerators, biocides, antioxidants (e.g., thiurams, carbamates, and benziothiazoles)
Allergy to latex proteins	Type I hypersensitivity  IgE/histamine mediated reaction	Wheal and flare response or itchy redness on the skin under the glove. Occurs within minutes, fades away rapidly after removing the glove. In chronic form may mimic irritant and allergic contact dermatitis. Symptoms can include facial swelling, rhinitis, eye symptoms, generalized urticaria, respiratory distress, and asthma. In rare cases, anaphylactic shock may occur.	Exposure to proteins in latex on glove surface and/or bound to powder and suspended in the air, settled on objects, or transferred by touch.

Source: American Nurses Association. *Latex Allergy: Protect Yourself, Protect Your Patients* (brochure). Washington, D.C. ANA, 1996.

## Worker Protection

According to the Occupational Safety and Health Law of 1970, employers have a responsibility to provide a workplace free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees.

## Recommendations for a Latex Safe Work Environment<sup>7</sup>

1. Use non-latex — and non-chlorine (non-vinyl and non-neoprene) containing<sup>8</sup> — examination gloves in all health care settings.
2. Use latex-free equipment in resuscitation and invasive procedures.
3. Identify products that contain latex, including surgical gloves and other medical devices:
  - locate non-latex alternatives and
  - plan, evaluate and implement the use of non-latex alternatives.
4. Provide education for nurses and other health care workers to ensure an understanding of latex allergy, including:
  - routes of exposure, sensitization and reactions;
  - procedures for reporting acute and chronic occupational illness;
  - protocols for treatment and accommodation of sensitized workers;
5. Provide education for nurses and physicians to:
  - submit written reports (retaining copies) of their symptoms to their supervisors and the occupational health department (when available); and
  - report adverse health effects resulting from the use of latex gloves and other latex medical devices to the FDA MedWatch Program: tel: 1-800-FDA-1088 or fax: 1-800-FDA-0178.
5. Provide education for nurses and physicians to:
  - recognize signs and symptoms of latex allergy in patients;
  - safely care for latex allergic patients; and
  - learn treatment protocols for patients with acute allergic reactions to latex.

6. Identify health care providers with expertise in treating latex allergy to provide care for latex allergic nurses, other health care workers, and patients.
7. In some states it is the law to report cases of latex-induced occupational asthma to the Department of Public Health, as in Massachusetts, where all cases must be reported to the Department of Public Health, Occupational Health Surveillance Program (tel: 617-624-5637).

### Non-latex Gloves with Barrier Protection Equal to or Better Than Latex

A variety of non-latex gloves made of alternative materials, with barrier protection equal to or better than latex gloves, are available (see Table 2). The protective characteristics of each material must be taken into consideration in relationship to the purpose for which the glove will be used. Information on how to select medical gloves and a list of non-latex glove alternatives are available from the Sustainable Hospitals Project (SHP) at the University of Massachusetts Lowell. This information can be found online at [www.sustainablehospitals.org](http://www.sustainablehospitals.org) or contact the SHP directly at 978-934-3386 or [shp@uml.edu](mailto:shp@uml.edu).

In summary, health care practitioners and their employers must protect themselves and others against latex sensitization and allergy. Important steps include:

- Use non-latex and non-vinyl gloves that offer barrier protection equal to or better than natural rubber latex.
- Learn to recognize the signs and symptoms of latex allergy in yourself, co-workers and patients.

**Table 2. Non-latex and non-chlorine (non-vinyl and non-neoprene) containing gloves**

Manufacturer	Glove
Ansell-Perry 800-321-9752 <a href="http://www.ansellhealthcare.com">www.ansellhealthcare.com</a>	Nitra-Tex™ nitrile exam glove Nitra-Touch® nitrile exam glove Elite™ polyurethane surgical glove
Best Manufacturing Co. 800-241-0323 <a href="http://www.bestglove.com">www.bestglove.com</a>	N-DEX® and Nitra-Care® gloves
ECI Medical Technologies, Canada 902-543-6665 <a href="http://www.ecimedical.com">www.ecimedical.com</a>	Elastyren® family of synthetic copolymer medical gloves
Maxxim Medical 800-727-7951 <a href="http://www.maxximedical.com">www.maxximedical.com</a>	SensiCare™ Nitrile exam glove SensiCare™ NXP exam glove SensiCare™ polyurethane exam glove SensiCare™ polyisoprene surgical glove
Safeskin Corporation 800-462-9993 <a href="http://www.safeskin.com">www.safeskin.com</a>	Safeskin Blue Nitrile Safeskin Purple Nitrile™
SmartCare Inc. 800-822-8956 <a href="http://www.smartcare.com">www.smartcare.com</a>	Nitra PF™
Tillotson Healthcare Corporation 800-445-6830 <a href="http://www.thcnet.com">www.thcnet.com</a>	Dual Advantage Pure Advantage

Source: Sustainable Hospitals Project Clearinghouse, [www.sustainablehospitals.org](http://www.sustainablehospitals.org)

If you or anyone has the signs and symptoms of latex allergy:

- report the signs and symptoms to supervisors, managers, and occupational health providers immediately;
- inform all your healthcare providers — physicians, dentists, nurses — that you have latex allergy and that you must avoid exposure to all latex products including latex gloves; and
- wear a medical alert bracelet.

Only with increased awareness, education, reporting, and support will health care practitioners be enabled to protect themselves, their co-workers, and their patients from sensitization and potentially life-threatening reactions to latex.

Health care practitioners and employers will not be able to prevent themselves, their employees, and patients from sensitization and potentially life-threatening latex reactions unless latex is removed from the workplace. Increasing attention to latex allergy education and latex-safe protocols for patient care is essential for a safe environment for workers and patients alike.

## References

- 1 & 2. US Department of Health and Human Services. Public Health Service. Centers for Disease Control and Prevention. NIOSH Alert. Preventing allergic reaction to natural rubber latex in the workplace. June, 1997; NIOSH publication, pp 97-135.
3. US Department of Labor. Occupational Safety and Health Administration. Technical Information Bulletin: Potential for Allergy to Natural Rubber Latex Gloves and Other Natural Rubber Products. Washington, DC: OSHA, April 12, 1999.
4. Meeropol, E., Kelleher R., Bell SI, & Leger R., 1990. Allergic reactions to rubber in patients with myelodysplasia. *New England Journal of Medicine*, 1990: 323:2072.
5. Kelly, K., Pearson, M., & Kurup, V. A cluster of anaphylactic reactions in children with spina bifida during general anesthesia: Epidemiologic features, risk factors, and latex hypersensitivity.
6. Poley, GE, Slater JE, Latex Allergy. *J Allergy Clin Immunol* 2000;105(6):1054-1062.
7. Source of recommendations: Massachusetts Nurses Association, Latex Allergy Position Statement, (1997).
8. Polyvinyl chloride (also known as PVC or "vinyl") and polychloroprene ("neoprene") are the chlorine-containing materials used to manufacture examination gloves. Chlorinated materials are of concern because they can contribute to dioxin emissions from incinerators.



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