



An Overview of Latex Allergies for the CNA

**This course has been awarded
three (3.0) contact hours.
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....**Nadine Salmon, MSN, BSN, IBCLC** is the Clinical Content Specialist for RN.com. She is a South African trained Registered Nurse, Midwife and International Board Certified Lactation Consultant. Nadine obtained an MSN at Grand Canyon University, with an emphasis on Nursing Leadership. Her clinical background is in Labor & Delivery and Postpartum nursing, and she has also worked in Medical Surgical Nursing and Home Health. Nadine has work experience in three countries, including the United States, the United Kingdom and South Africa. She worked for the international nurse division of American Mobile Healthcare, prior to joining the Education Team at RN.com. Nadine is a nurse planner for RN.com and is responsible for all clinical aspects of course development. She updates course content to current standards, and develops new course materials for RN.com.

Purpose and Objectives

The purpose of this course is to introduce CNAs to the subject of latex allergies and who might have them. It also discusses how to safely care for the latex allergic patient and how to minimize the chance of developing a latex allergy.

After successful completion of this course, you will be able to:

1. Describe the types of latex allergies.
2. Identify why latex allergies are increasing.
3. Describe the signs, symptoms, onset, and recovery times of irritant contact dermatitis.
4. Discuss how healthcare professionals can reduce their risk of latex sensitivity in themselves and their patients.
5. Identify the characteristics of people most at risk for latex allergy.
6. Summarize the steps required to safely care for surgical patients who are allergic to latex.
7. Discuss alternative management strategies to address latex sensitivity and the need for latex products in healthcare settings.

Definitions

Before you start this course, there are some terms that will be helpful for you to know.

- **Latex sensitivity:** A medical diagnosis of reaction to latex. This can mean anything from a skin reaction to a deadly anaphylactic reaction. An anaphylactic reaction can make it difficult or impossible to breathe or even cause a type of shock.
- **Irritant contact dermatitis (ICD):** A common precursor to latex allergy. It is not a true allergic response. It is a result of direct injury to the skin. ICD is most commonly seen on the hands. Its onset is usually gradual. Preventing ICD is the most important step in preventing the development of latex sensitivity.
- **Allergic contact dermatitis (ACD):** The most common allergic reaction which produces skin lesions or a crusty thickened appearance of the skin. ACD is also sometimes called **chemical sensitivity dermatitis**.
- **Delayed sensitivity reaction:** A reaction to latex that usually only appears six to 48 hours after the time of contact, so sensitized individuals may not always associate it with latex gloves. A delayed sensitivity reaction usually presents as a skin rash that may persist for seven to ten days and is usually limited to the area where the skin came into contact with the latex. Treatment requires the elimination of contact with the latex.
- **IgE-mediated sensitivity (Type I):** Is a response to latex by an immune system that is sensitive to latex. In this response, the immune system makes immunoglobulin E (IgE) antibodies upon exposure to the latex

allergen that will react to latex the next time the body comes into contact with it. Immediate reactions occur within thirty minutes to one hour after exposure. Approximately thirty percent of Type I latex allergic individuals develop respiratory problems such as rhinitis or bronchial asthma, or eye symptoms such as conjunctivitis. The remaining seventy percent develop contact urticaria (hives) (Roy, 2000). The gastrointestinal tract may also be affected. These reactions are not mutually exclusive. Type I immediate hypersensitivity is the least common and most life-threatening allergic response.

- **Accommodation:** Is the provision of specific supplies and/or recommended environmental changes to healthcare workers that will decrease the risk of exposure to allergens.
- **Latex-safe:** Is an environment which accommodates latex-allergic staff and patients by drastically reducing, but not totally eliminating, the presence of latex allergens.

More Info: CD may also include contact pruritus (itching), erythema (redness), vesicular lesions, eczema, and contact. Its appearance is similar to poison ivy.

What are Latex Allergies?

Latex allergy is an allergic reaction to substances in natural latex (WebMD, 2012). Rubber gloves are the main source of allergic reactions, although latex is also used in other products such as medical devices, including catheters, syringes, and stethoscopes.

There are many everyday products that also contain latex, such as erasers, balloons, condoms, rubber bands, and telephone cords. It is important to be aware of all objects containing latex because once sensitivity is developed; it can become more severe with further exposure.

The exact cause of latex allergies is unknown, but it is thought that repeated exposure to latex and rubber products may induce symptoms (WebMD, 2012).

Incidence of Latex Allergies

The incidence of latex allergies are increasing in healthcare workers.

The amount of latex exposure needed to produce sensitization or an allergic reaction is unknown (NIOSH, 2012). Increasing the exposure to latex proteins increases the risk of developing allergic symptoms. In sensitized persons, symptoms usually begin within minutes of exposure; but they can occur hours later and can be quite varied.

The Occupational Safety and Health Administration (OSHA) recommend that all healthcare workers reduce the risk of developing latex allergies by "reducing unnecessary exposure to natural rubber latex (NRL) products."

About 8% to 12% of health care workers have some form of allergy to latex (OSHA, 2012).

How Did Latex Allergies Come About?

In 1987, the Centers for Disease Control (CDC) recommended universal precautions for all healthcare workers and facilities. This led to a dramatic increase in the demand for gloves. With this increase in demand, the supply began diminishing.

To cope with this situation, glove manufacturers made changes in the manufacturing process, which decreased the purity of the latex found in gloves. The use of less pure latex has led to an increase in the risk of developing latex allergies, which has resulted in a large increase in the incidence of irritant contact dermatitis and allergic reactions to latex in healthcare professionals.

True or False?

Latex allergies are on the increase because of the increased amount of glove use by healthcare workers.

True!

Increased glove use has exposed more healthcare workers to latex, resulting in more allergies.

Types of Latex Reactions

There are three types of latex reactions:

Irritant contact dermatitis: This is also known as a non-allergenic skin reaction. It usually occurs as a result of repeated exposure to the chemicals in latex gloves and results in dryness, itching, burning, scaling, and lesions of the skin.

Allergic contact dermatitis: Is a delayed reaction to additives used in latex manufacturing, and presents as irritant contact dermatitis (dryness, itching, burning, scaling, and lesions of the skin), but the reaction is more severe, spreads to more parts of the body, and lasts longer.

Immediate allergic reaction (latex hypersensitivity): This is the most serious reaction to latex. It can show up as rhinitis (inflammation of the mucous lining of the nose) with hay fever-like symptoms, conjunctivitis (pink eye), cramps, hives, and severe itching. It is rare, but symptoms may progress to include rapid heartbeat, tremors, chest pain, difficulty breathing, and anaphylactic shock.

Latex Safe Environments

In response to the many cases of latex allergy in healthcare workers, many healthcare institutions are creating "latex-safe" environments. They do this by selecting gloves and medical supplies that are low in latex and powder-free.

These institutions are also trying to use non-latex gloves in all situations where barrier protection is not required.

The Source of the Problem

Latex is the naturally occurring milky sap of a commercial rubber tree, called *Hevea Brasiliensis*. Trees are tapped for latex and a centrifuge is used to concentrate the product. Because latex is a mix of hundreds of proteins, it has been difficult to develop effective desensitization techniques or standard latex extracts for skin testing of suspected allergic individuals (Roy, 2000).

Although direct skin exposure is the largest cause of sensitivity, airborne latex proteins can lead to inhalation-based sensitivities as well.

Latex paint does not contain latex. There is no natural rubber in latex paint. (Is Latex Paint Hazardous, 2003)

Products That May Contain Latex	
<u>Hospital Items</u> B/P cuffs Stethoscopes Gloves Oral & nasal airways Endotracheal tubes IV tubing Syringes Electrode pads Surgical masks Goggles Rubber aprons Dental dams Anesthesia masks Catheters Drains Injection ports Rubber tops of multi-dose vials Respirators	<u>Household Items</u> Rubber bands Erasers Auto tires Motorcycle or bike handgrips Carpet Swimming goggles Racquet handles Shoe soles Expandable fabrics (waistbands) Dishwashing gloves Hot water bottles Condoms Diaphragms Balloons Pacifiers Baby bottle nipples

(Latex Containing Products, 2003)

Who Is At Risk?

There are varying factors that make individuals susceptible to latex allergy. The type and severity of a reaction depends on:

1. The site(s) of exposure
2. The individuals' level of sensitivity
3. The amount of allergen to which they are exposed

People most at risk are those who are repeatedly exposed to latex. This includes those who work in healthcare and the rubber industry, and those who have undergone repeated and/or long surgeries or frequent bladder catheterization, especially early in life.

Some of the most severe reactions occur during surgery when latex gloves touch internal organs (Brooks, 2004).

True or False?

Healthcare Workers have a low risk of developing a latex allergy.

False!

Risk increases with exposure to latex, and healthcare workers can be exposed to latex in many parts of the healthcare setting.

Degree of Association or Prevalence			
High	Moderate	Low	Undetermined
Banana	Apple	Pear	Mango
Avacado	Carrot	Peach	Rye
Chestnut	Celery	Plum	Wheat
	Papaya	Cherry	Grasses
	Kiwi	Pineapple	Ragweed
	Potato	Strawberry	Mugwort
	Tomato	Fig	Hazelnut
	Melons	Grape	Walnut
		Apricot	Soybean
		Passion Fruit	Peanut
		Nectarine	

Other risk factors for developing latex allergies include:

- **Highly allergic individuals** (i.e., persons with a tendency to develop allergic conditions, such as asthma, hayfever, and eczema) are at increased risk for developing latex allergy. “Latex fruit syndrome” is common to people with latex allergy with one study showing as many as 52% of latex allergic patients with allergies to various fruits and nuts. Because of the high degree of correlation between fruit allergies and severe reactions to latex, it is of critical importance that these allergies are disclosed and noted on the charts of pre-operative patients. If you perform pre-operative patient assessments, you may want to specifically question patients about fruit allergies.
- **Allergic eczema on the hands** also predisposes individuals to latex allergy (ACAAI, 2012b).

Given the risks of latex sensitization and sudden onset of allergic reactions in healthcare personnel, NIOSH (2012) recommends that healthcare employers periodically screen high-risk workers for latex allergy symptoms. Consequently, many healthcare facilities and other employers of healthcare personnel now routinely ask questions about all allergies with known correlation to latex sensitivity as part of employee pre-employment and annual physical examinations.

Latex Allergy in Children

Early in life babies are exposed to rubber in significant amounts. Latex is used in the manufacture of baby bottle nipples, toys, and pacifiers. The most common symptom of latex allergy in babies is a rash where the child’s skin comes in contact with the latex.

The introduction of balloons into a child’s life, and their frequent exposure to toys with latex, increases the risk of sensitization to latex. Both latex balloons and the powder used to keep them from hardening represent unnecessary exposure to latex. This exposure extends to any adult who inflates balloons. In many individuals, the latex in balloons can cause lip and facial swelling.

True or False?

Early exposure to toys made with latex can cause latex allergies later on in life.

True.

Unnecessary exposure to Latex at a young age is believed to increase the risk of sensitization to latex.

In addition to the unnecessary exposure to latex, balloons are especially dangerous because of the potential of breakage and aspiration of pieces into the lungs, which would require surgical removal. Use and breakage of latex balloons also projects latex particles into the air, increasing the potential of latex sensitivity.

Children who are exposed to latex through extensive medical and surgical procedures are most vulnerable to latex sensitivity. This is especially true for spina bifida patients. These patients have multiple surgeries early in life, and have frequent exposure to latex in these surgeries.

True or False?

Patients with a history of multiple surgeries have a greater risk of having a latex allergy.

True!

This is especially true for spina bifida patients who have had many surgeries at a young age. These patients are at a very high risk for having a latex allergy. This is due to multiple exposures to latex at a very young age.

Irritant Contact Dermatitis

Irritant contact dermatitis (ICD) is the most common precursor to latex allergy. It is not a true allergic response. This is because the reaction is not mediated through the immune system. Rather, it is a direct injury to the skin and NOT a reaction to latex. However, when the skin is broken, more latex particles can enter the body and increase the level of exposure to latex allergens.

ICD most commonly occurs on the hands and presents with symptoms ranging from redness and chapping to overt dermatitis with vesicles (tiny water blisters), scaling, cracking, and finally, splitting of the skin. The onset is gradual. The causes of ICD may include:

- Overaggressive scrubbing
- Inadequate drying of the hands, especially before donning gloves
- Use of abrasive or irritating hand soaps
- Abrasive effect of cornstarch in gloves
- Maceration from sweating while wearing gloves
- Pre-existing eczematous condition or tendency

Leaving your gloves on for a prolonged period of time can increase your risk of developing a contact dermatitis. When you wear latex gloves for a prolonged period of time, your hands will sweat, causing maceration.

Prevention of Irritant Contact Dermatitis (ICD)

Each preventive action is important since ICD is commonly seen before a true latex allergy develops. Preventing ICD is the single most important step that non-allergic healthcare professionals can take to minimize their risk of latex sensitivity. If you develop ICD, treat it aggressively and minimize exposure to latex and bacteria. Remember that it is ICD that makes you most vulnerable to the development of a latex allergy. ICD can be cured by determining and removing the cause and by using proper care:

- Do not use latex gloves until the rash is completely healed.
- Do not use powdered gloves. Powders like cornstarch are a nutrient source for bacteria and can cause infections on the skin.
- Some gloves and liners made of substances other than latex use elastic or other latex products in the cuffs. Be careful not to use gloves or liners with elastic cuffs to prevent exposure to latex in the wrist area.
- Do not use gloves labeled “hypoallergenic.” The FDA has forbidden the use of the term “hypoallergenic latex gloves” for gloves manufactured after September 30, 1998. Use water-based hand creams five to ten times during working hours to facilitate the restoration of skin integrity.
- Do not wear jewelry until the dermatitis is totally resolved.
- Use petroleum-based creams after work and especially before bedtime to promote healing (Roy, 2000; Hood, 2000).

True or False?

If you have developed Irritant Contact Dermatitis (ICD), you have developed a latex allergy.

False

Irritant Contact Dermatitis is not a true latex allergy, but is seen before a true allergy develops. Preventing ICD and treating it aggressively will decrease your chances of developing a latex allergy.

Using Latex Gloves Safely

When you do use latex gloves, there are simple choices you can make to reduce your own and your patients' exposure to latex:

- Whenever possible, use "low protein" gloves. Per FDA labeling regulations, latex gloves must have no more than 50 mcg of latex protein per gram of rubber glove to be labeled "low protein." Be cautious even in the use of these gloves.
- Whenever possible, use low powder or "powder-free" latex gloves. Low powder gloves create fewer airborne latex particles and reduced exposure to allergic sensitivity through inhalation of latex (Miller, 2000).
- When wearing latex gloves; do not touch your eyes, mouth or other mucous membranes. Sensitization can occur more easily through the mucus membranes.
- Remove all gloves, even "powder-free" gloves slowly, turning them inside out as you pull them off your hand. Do not "snap" them as this propels powder into the air.

Preventing Sensitization to Latex Gloves

- Do not use gloves powdered with cornstarch. Cornstarch powder has been called "medicine's deadly dust," in that it can act as an aerosol agent for latex.
- Do not apply hand lotions immediately before donning gloves. Oil-based hand creams pull latex proteins out of the glove, increasing your skin exposure and your risk of developing a true allergy.
- Be sure to dry your hands thoroughly before putting on the latex gloves. Warm, wet skin absorbs more latex proteins than dry skin does.
- In the event you have any type of skin break or rash, do not wear latex gloves. Any skin breakdown can contribute to your risk of developing a true allergy.
- Wash and dry your hands thoroughly after removing latex gloves. Hand washing after glove removal prevents transfer of latex proteins to other surfaces (Miller, 2000).
- If you work in the operating room or other environment where latex gloves are used extensively, change your scrubs before leaving the surgical area to minimize your own and others' exposure to the aerosolized latex you may be "wearing."

Protection against Unnecessary Exposure

- While wearing latex gloves, touch patients ONLY when absolutely necessary.
- Never inflate gloves and use them as toys for pediatric patients.
- If balloons are still permitted, work with your manager to achieve a facility-wide "no rubber balloon" policy, in which only balloons made of Mylar are permitted.

True or False?

Blowing up gloves to use as a toy for children is a great way to entertain them.

False!

In spite of past practices, blowing up gloves latex or other substances is not recommended. This can expose them (or you) to more latex. Also, there is risk of choking if children put them near their mouth.

The Surgical Patient who is at Risk for a Severe Reaction

Current or former healthcare workers, especially operating room personnel and others, who have had long-term, extensive occupational exposure to latex, have some of the most serious allergic reactions to latex in the surgical and post-operative settings.

If your patient is a healthcare provider, has recently retired from work in a healthcare facility (including in housekeeping or food service), or has worked in another industry with high exposure to latex, such as automotive repair, be especially sensitive to their needs. They are at high risk for allergic reactions to latex materials or aerosolized latex from powder.

If you are the patient, be certain to tell your physician about your high-risk status and confirm with your nurses that this has been documented on the chart.

Caring for Patients with Latex Allergy

Avoidance of latex is the only means to assure prevention of a latex allergy and protection from its symptoms in a person who has an active latex allergy.

Surgical Patients

- Preoperatively, assist the patient or caregiver to complete a latex allergy questionnaire. Be certain that the allergic status is documented and a “latex allergy” label is put on the chart cover.
- Schedule the patient’s surgery as the first case of the day, in a room in which latex products have not been used for many hours (Fogg, 2004).
- Follow a latex-free surgical protocol, assuring that anyone in the operating room does not wear latex gloves or use any equipment or supplies containing latex.

True or False?

Items with “hidden latex” include blood pressure cuffs and tourniquets.

True!

These are two of the most common items that contain latex.

Facility Protocols

Your facility will have specific protocols, but some of the policies you will see may include the following:

- Prepare a private room to limit the risk of accidental exposure. Remove all natural latex rubber items. Replace sharps containers. Cover any wall-mounted BP devices so they will not be used. Be sure that housekeeping wipes down the bed and all other patient and staff contact surfaces to remove residual glove powders. Place labels noting the patient’s latex status above the patient’s bed, on the room door, and on the patient’s armband.
- During hospitalization, give ancillary departments adequate notice before sending the patient off the unit for diagnostic tests and procedures. Advise the patient or caregiver to inform all other personnel about the allergy.
- Alert the pharmacy about the patient’s status when forwarding medication orders.
- When nurses are preparing medications from vials, remove the rubber stopper so you do not core it when drawing up the medication. Use only latex-free syringe plungers.
- Keep a latex-safe cart in the room and use only those products on the patient. Be sensitive to “hidden” latex, such as latex in blood pressure cuffs or tourniquets.

Creating a Latex Safe Environment

A latex-safe environment allows allergic and non-latex allergic patients and employees to function and exist with minimal risk of latex exposure.

Low antigen, powder-free latex gloves reduce breathing in latex particles. This should reduce the rate of sensitization of exposed healthcare workers and patients.

In addition to gloves, powders are also used in the production of other medical supplies.

Latex-Free Carts

Many hospitals are developing latex-free supply carts for use on patients with latex sensitivity. The American Association of Operating Room Nurses has written latex guidelines for this process which stress the importance of assuring that all elements on the cart are completely latex-free. For example, silicone catheters that are completely free of latex are appropriate for the cart. Silastic catheters, which are made of latex with an external non-latex coating, are not appropriate (Petersen, 2000). For more information on how to create a latex-free cart, log on to the following web site: www.latexallergyresources.org

Out with the Rubber Tree Plants!

The sap of the commonly used decorative rubber tree plant, ficus elastica, cross-reacts with Hevea brasiliensis, the rubber used in latex gloves, to cause symptom of allergic rhinitis and asthma. As the plant is known to be a strong sensitizer to latex allergy, it should not be used in medical offices, healthcare waiting rooms, or any place populated with at-risk individuals including, of course, their homes. Potentially, poinsettia plants carry the same risk because they too are in the rubber plant family.

Employer Responsibilities

According to the American Nurses Association, healthcare institutions have the following responsibilities to protect all employees from unnecessary sensitization, and allergic employees from latex:

1. OSHA's "Right to Know" laws require employers to inform healthcare workers of potentially dangerous substances in the workplace on an annual basis. Ensure that latex allergy information appears in annual updates and on the agendas of joint labor-management health and safety committees and risk management committees.
2. Incorporate latex allergy information in new employee orientation and also conduct in-service education.
3. Establish a multi-disciplinary latex allergy task force to develop a comprehensive plan that provides latex-safe care for sensitized patients, reduces risk of sensitization for patients and staff, and ensures that sensitized staff can continue to work.
4. Make alternative products available in all work sites. (The employer must provide alternative gloves, if needed, according to the OSHA Bloodborne Pathogens Standard.)
5. Establish guidelines for the following measures:
 - Eliminate the use of powdered gloves.
 - Establish standards of care and administrative procedures to ensure safe patient care and protect nurses from negligence claims related to latex allergy.
 - Protect latex-allergic nurses from being required to work in latex-contaminated areas.
 - Remove latex contamination from the environment, including the ventilation system.
6. Establish procedures to ensure that latex-sensitized nurses are informed of their legal rights and responsibilities concerning reasonable accommodations in the workplace, disability insurance, medical insurance, workers' compensation, vocational rehabilitation, and Social Security disability.

Precautionary Actions

If you are sensitive to latex, you should take the following precautionary actions:

- Create a latex-reduced home environment for yourself.
- Minimize your risk for cross-reactivity from foods.

If you use condoms for contraception, consider using natural skin condoms, which do not contain latex. However, these condoms do NOT protect against sexually transmitted diseases (STDs). Synthetic rubber condoms, created to prevent both pregnancy and STDs including HIV, are now available.

If you are already covered by disability insurance or are considering purchasing this coverage, make certain that your policy specifies coverage for your occupation with a residual benefit for partial disability.

True or False?

If you are sensitized to latex there is nothing you can do to decrease your exposure.

False!

You can create a latex-reduced home environment and reduce your exposure that has a risk of cross-sensitivity.

"I'm Allergic to Latex"

Persons with newly diagnosed latex sensitivities need to be aggressive in self-care measures:

1. Obtain and carry quick-acting oral antihistamines (liquid or rapidly dissolving) and auto-injectable epinephrine at all times, according to your physician's orders.
2. Wear a "latex allergy" medical-alert bracelet.
3. Carry a wallet card informing emergency care workers of the latex allergy.
4. Ensure that your regular physician (if an allergist or dermatologist makes the diagnosis) is informed of the allergy.
5. Inform employer of the allergy and ask for any necessary accommodations to work safely.

**Latex Sensitive or Allergic? You should have a Medicalert bracelet or necklace and card.
Contact www.medicalert.org or 1-800-432-5378**

Reporting Latex Allergy Episodes

If you, a co-worker, or a patient is diagnosed as having latex sensitivity following an allergic episode, or you have a patient who has been previously diagnosed and has an allergic episode despite taking appropriate precautions, be sure to report it to the Food and Drug Administration's MedWatch program at 800-FDA-1088.

By making this report, you will be assisting the FDA in its mission to protect public health.

"Is This the End of My Career?"

People vary a great deal in their latex allergy patterns. Latex allergy in most people is known to "wax and wane" over a lifetime. In some cases, latex allergies disappear completely if exposure to latex is eliminated or minimized.

A 1999 report of research at the Johns Hopkins Hospital provided encouraging results to healthcare workers with latex allergy. Studies show that if you have less exposure, your allergy symptoms may lessen (Miller, 2000).

If you have, or develop, a latex allergy, the bad news and the good news is that you are one of a growing number of healthcare workers with this sensitivity.

Given the shortage of qualified healthcare workers, most employers are developing strategies to deal with latex exposure in order to retain their latex-sensitive employees.

A Look towards the Future

The current literature on latex allergy shows that hospitals achieve savings and protect patients by minimizing exposure to latex allergens.

If you think you have a latex sensitivity, do not try to diagnose it and treat it yourself. DO NOT TRY TO HIDE IT!

Immediately switch to latex-free gloves and see a dermatologist or allergist. If the dermatologist or allergist confirms your suspicions, notify your employee health department immediately.

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