American Latex Allergy Association

AANA Latex Protocol

Introduction
In recent years, latex allergy has been recognized as a significant problem for both specific patient and provider populations. The incidence of latex allergy throughout the general population has been estimated between 1% and 6% while certain pediatric populations may experience an incidence as high as 73% (spina bifida and related pathologies). Healthcare workers who are regularly exposed to latex-containing devices and products maintain an incidence of allergic response that ranges from 8% to 17%.

Latex allergy is an immunologic reaction to natural rubber latex, processed from the Hevea Brasiliensis tree indigenous to Central and South America. Newer rubber medical supplies, particularly very soft ?dipped? products, contain the greatest proportion of low molecular weight soluble proteins thought to be responsible for the allergic response.

The more recent appearance and recognition of latex allergy as a serious medical concern has resulted from the incorporation of increased barrier precautions in preventing the transmission of infectious bloodborne pathogens. The increase in the number of medical gloves imported to the United States increased awareness among providers. Improved methods in diagnosing latex allergy also accounts for the recent rise in the number of reported cases.

Immediate hypersensitivity reactions to latex vary from contact urticaria to systemic anaphylaxis and laryngeal edema that require lifesaving intervention. Allergic contact dermatitis can also occur and is a delayed hypersensitivity which mimics a poison ivy-type skin reaction. No immunotherapy or desensitization currently exists for latex allergy. Each systemic reaction occurs with less provocation and presentation of a greater magnitude.

Anaphylactic reactions have complicated a variety of common medical procedures including surgery (particularly of the genitourinary tract) and anesthesia, barium enemas, as well as oral, vaginal, and rectal examinations utilizing latex gloves. In most cases, there has been contact between latex products and mucous membranes. However, in some exquisitely sensitive individuals, exposure through inhalation of aerosolized latex or through intravenous administration has led to severe reactions. This type of reaction is similar to immediate drug reactions or stinging insect venom and may be associated with rapidly progressive anaphylaxis and death.

Populations at Risk for Developing Latex AllergyA complete and thorough medical history remains as the most reliable screening test to predict the likelihood of an anaphylactic reaction.

Individuals (particularly in the pediatric population) who are most likely to exhibit a sensitivity to latex that may result in varying degrees of reactivity include:

- Those who possess a known or suspected allergy to latex by having exhibited an allergic or anaphylactic reaction, positive skin testing, or positive IgE antibodies against latex.
- Those with documented history of intraoperative anaphylaxis of unknown etiology.
- Those with neural tube defects including: Spina bifidaMyelomeningocele/meningoceleLipomyelomeningocele
- Those who have experienced some interaction between their central nervous and immune systems.
- Those who have had multiple operations, particularly as a neonate.
- Those who require chronic bladder catheterizations as a result of:
    - Spinal cord trauma
    - Exstrophy of the bladder
    - Neurogenic bladder
- Those who possess some history of atopy and multiple allergies including food products. Particular allergies to fruits and vegetables including bananas, avocado, celery, fig, chestnut, papaya and passion fruit are most significant.
- Children with a strong or confirmed allergy to bananas should be considered to be allergic to latex.

Individuals who have experienced a significant degree or repeated exposure to latex products are more likely to develop a latex allergy. These situations may include treatment that involves:

- Occupational exposure to latex (i.e. latex industry, healthcare workers).
- Repeat surgical procedures
- Surgical procedures involving mucosal membranes
- Repeated placement of ventriculo-peritoneal shunts (i.e. cerebral palsy)
- Repeated or chronic intravenous and urinary catheterizations
- A history of allergic reaction after touching balloons, rubber gloves or powder from rubber gloves, dental dams, latex consumer products, and medical devices; especially atopic patients.
- Healthcare providers or other workers who give a history of mild latex glove eczema rarely have anaphylactic events. However, a history of severe or worsening latex glove induced eczema, urticaria, or work-related conjunctivitis, rhinitis, asthma, or urticaria may indicate allergic sensitization and increase the risk for more severe reactions in the future.

Latex Avoidance PrecautionsBy touching any latex object, the healthcare worker can transmit the allergen by

hand to the patient. Caution should be taken to keep the powder from the gloves away from the patient, as the powder will act as a carrier for the latex protein. Therefore, in order to reduce the possibility of the latex protein becoming airborne, care must be taken not to snap gloves on and off.

Patients should be identified as being latex sensitive. The room should be labeled latex free to avoid personnel from bringing rubber products (wrist bands, chart labels, bed, room signs, etc.) into the room. A master list of latex free devices and products is readily available from several internet Web sites including:

Kendall?s Healthcare Products
Search their Latex-Free Database
http://www.kendallhq.com/ [1]

Hudson RCI
Latex-free respiratory care and anesthesia products
http://www.teleflex.com/en/usa/productAreas/respiratory/index.html [2]

Establish a latex consultant in your institution; an allergist is recommended. Develop programs to educate healthcare workers in the care of latex-sensitive patients. Develop educational programs for patients and their families in the care and precautions that should be taken to prevent latex exposure. This should encompass a first aid protocol in the event a severe reaction should arise. Encourage latex-sensitive patients to obtain and carry with them, at all times, some type of identification such as a medical alert bracelet and to have an epinephrine auto-injection kit if warranted.

* Resource articles on latex allergy and a sample letter to manufacturers requesting latex information and resource articles are available in a Latex Packet from the Practice Department, American Association of Nurse Anesthetists, 222 South Prospect Avenue, Park Ridge, IL 60068-4001. Phone: (847) 692-7050, ext. 3016.

Recommendations for Patient Care
Patients with Latex Allergy or Latex Risk
Schedule latex-allergy and/or latex-risk patients as the first case(s) in the morning. This will allow later dust (from the previous day) to be removed overnight.

The Operating Room

- Remove all latex products from the operating room.
- Bring a latex-free cart (if available) into the room.
- Use a latex-free reservoir bag, airways and endoctracheal tubes and laryngeal mask airways.
- Use a non-latex breathing circuit with plastic mask and bag.
- Ventilator must have a non-latex bellows.
- Place all monitoring devices, cords/tubes (oximeter, blood pressure, electrocardiograph wires) in stockinet and secure with tape to prevent direct skin contact. Items sterilized in ethylene oxide must be rinsed before

use. Residual ethylene oxide reacts and can cause an allergic response in a latex-allergic patient.

Intravenous Line Preparation

- Use intravenous (IV) tubing without latex ports; utilize stopcocks if available.
- If unable to obtain IV tubing without latex ports, cover latex ports with tape.
- Cover all rubber injection ports on IV bags with tape and label in the following way: Do not inject or withdraw fluid through the latex port. Note: Pulmonary artery catheters (especially the balloon), central venous catheters, and arterial lines may all contain latex components!

Operating Room Patient Care

- Use non-latex gloves. (Use caution when selecting non-latex gloves. Not all substitutes are equally impermeable to bloodborne pathogens; care and investigation should be taken in the selection of substitute gloves.)
- Use non-latex tourniquets or use non-latex examination gloves or polyvinyl chloride tubing.
- Draw medication directly from opened multidose vials (remove stoppers) if medications are not available in ampoules.
- Draw up medications immediately prior to the beginning of the case or their administration. The rubber allergen could leach out of the plunger of the syringe causing a reaction. The intensity of this reaction appears to increase over time.
- Utilize latex-free or glass syringes.
- Use stopcocks to inject drugs rather than latex ports.
- Minimize mixing/agitating lyophilized drugs in multidose vials with rubber stoppers.
- Notify Pharmacy and Central Supply that the patient you are caring for is latex sensitive so that these departments can use appropriate procedure when preparing preparations and instruments for the patient. Also notify radiology, respiratory therapy, housekeeping, food service and post operative care units so the appropriate precautions can be made to protect the patient.
- Place clear and readily visible signs on the doors of the operating room to inform all who enter that the patient has a latex allergy.

Signs and Symptoms of Allergic Reactions to LatexSymptoms usually occur within 30 minutes following anesthesia induction; however, the actual onset can range from 10-290 minutes.

Awake Patient	**Anesthetized Patient**