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Care OF THE LATEX ALLERGIC PATIENT

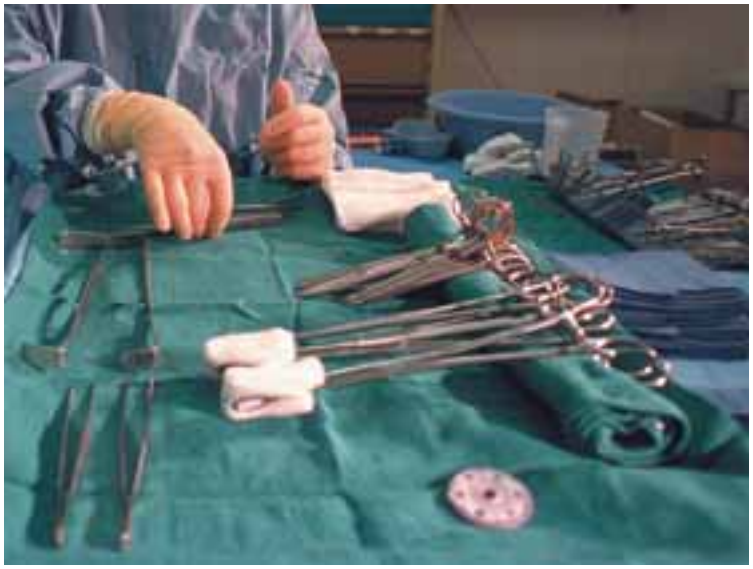
Every day, health care workers are confronted with situations that could compromise their patients' safety. Natural rubber latex allergy (NRLA or latex allergy) is one of the hidden dangers affecting health care workers and their patients. An increased awareness of the problem and knowledge of the tools available to prevent exposure to latex are critical in prevention of a potentially deadly incident.

Editor's Note: This is the second of two articles discussing latex allergy. In this issue, the author covers specific information regarding care of the latex allergic patient. For information on the origins, symptoms and diagnosis of latex allergy refer to "Safety in the OR: Latex Allergy," in the January 2001 issue of The Surgical Technologist.

Establishing a protocol

A protocol should be established at each facility to identify and care for the latex allergic patient. The first step may be organization of a multidisciplinary committee to facilitate establishment of the protocol. Each department should have a committee representative. Tasks performed by members of the committee may include:

- Researching current (within 12 months) literature
- Identifying products that contain latex and nonlatex alternatives
- Devising a method to identify the patient who is/may be at risk



- Designating an individual (eg, immunologist) to serve as a consultant
- Writing and obtaining approval of the protocol
- Reviewing and maintaining the protocol
- Assembling a latex-free supply cart (Table 1) The supply cart should be well organized, cared for in a similar fashion to a crash cart, and designed to remain with the patient the duration of their stay.
- Identifying methods to communicate information concerning the latex allergic patient
- Providing educational programs for facility personnel

The Association of Surgical Technologists (AST) and the Association of periOperative Registered Nurses (AORN) have both set forth recommended clinical practice guidelines that may be useful in developing the general facility protocol and the protocol specific to the surgical environment. The AORN Latex Guideline is available in the latest edition of the *Standards, Recommended Practices, & Guidelines.* AST's "Standards of Practice for the Natural Rubber Latex Protein Allergic Patient in the Operating Room Environment" was adopted by the House of Delegates in 1999 (sidebar). Remember, the operating room is just one facet of patient care; a facility-wide policy must be developed and implemented.

Patient screening

All patients entering the health care setting should be screened to determine if they are at risk for, suspected to have, or proven to have latex allergy. Individuals have been shown to be at risk for latex allergy if he or she:

- has a birth defect especially of the neural tube or genitourinary tract
- was born prematurely
- is a health care worker (eg, surgical technologist)
- has undergone multiple surgical procedures
- has undergone frequent procedures that cause mucosal contact with latex devices (eg, repeated bladder catheterization)
- is allergic to certain foods (Table 2)
- works in the rubber industry
- is atopic (eg, exhibit asthma or hay fever)

Initial screening for latex allergy occurs as the patient's health history is obtained; secondary screening may be in the form of a questionnaire. Ideally, screening takes place prior to admission to the health care facility. Sample questions to assess an individual's risk for latex allergy include:

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Table 1 **Suggested items for latex-free supply cart**

In 1997 the FDA issued a ruling stating that all medical supplies (even Band-Aids) be labeled if they contain latex. Do not use pre-made kits that contain latex gloves (eg prep kits, Foley catheter trays, back table packs, etc.) All supplies MUST be latex free. If ever in doubt, call the manufacturer.

1. Copy of the current Latex Protocol

2. Current list of supplies containing latex and their alternatives

3. Latex-allergic identification bands, stickers, and signs

4. Airway supplies
- Ambu bag
- CPR Mask
- Endotracheal tubes
- Nasal airways
- Oral airways
- Oxygen masks and cannulas
- Suction catheters
- Suction tubing
- Ventilator equipment

5. Anesthesia supplies
- Circuit (including bag)

6. Bandages
- Assorted sizes and styles
- Tape
- Wraps

7. Gloves
- Nonsterile (assorted)
- Sterile (assorted)

8. Intravenous supplies
- Blood administration set
- Filter needles
- Fluid bags (assorted)
- Injection ports
- IV catheters (assorted venous and arterial)
- Tubing

9. Medications and related supplies
- Emergency medications (eg, epinephrine)
- Needles (assorted)
- Protective sheets
- Spacer for inhaler
- Syringes (assorted)

10. Miscellaneous
- Bulb syringes (assorted)
- Enema kit
- Filter masks for patient use during transport (N-95 particulate masks)
- Tourniquet

11. Monitoring supplies
- Blood pressure cuffs (assorted)
- ECG electrodes
- Pulse oximeter
- Reflex hammer
- Stethoscope

12. Surgical supplies
- Catheters (embolectomy/irrigation assorted)
- Dispersive electrode for the electrosurgical unit
- Hair covers (hats—assorted)
- Masks (assorted)
- Penrose drain
- Shoe covers

13. Urinary catheterization
- Catheters (self-retaining/non-retaining—assorted)
- Drainage bag

Note: *This is a sample list—facility-specific modifications will be necessary.*

Standards of practice
for the natural rubber latex protein allergic patient in the operating room environment

Adopted by the AST House of Delegates, 1999

Background: *With the recent increase and awareness of natural rubber latex protein allergies, it is very important for all members of the perioperative team to understand and recognize the need to decrease and/or eliminate latex exposure in the surgical suite for those individuals who are allergic to natural rubber latex.*

Purpose: *To provide guidelines for perioperative staff to promote an optimal operative experience for individuals who demonstrate a natural rubber, latex protein allergy. Proper care of the patient is essential to their safety from anaphylactic reactions and to assure an ideal outcome. These recommended practices should be used in accordance with each health care facility's Latex Allergy Committee guidelines. If the health care facility uses latex-free products these practices may not be needed.*

RECOMMENDED PRACTICE I

Schedule the latex allergic patient as first case of the morning and preferably the first day of the week.

Rationale: This will decrease the chances of airborne powder from powdered natural rubber latex gloves, creating an optimal physical environment for patients with a natural rubber, latex protein allergy. Studies have shown that glove powder can become airborne and stay airborne for up to five (5) hours. Studies have also shown that operating rooms with high laminar flow air exchange rates have the same latex aeroallergen levels as ones with the conventional air exchange rates. It has also been documented that operating rooms that were not used for 48 hours or more have undetectable amounts of aeroallergen.

RECOMMENDED PRACTICE II

All natural rubber latex containing supplies should be removed from the operating room. Workers should use housekeeping practices that promote the removal of latex-containing dust from the workplace. Areas contaminated with latex dust should be identified for frequent cleaning (upholstery, carpets and ventilation ducts). Workers should change ventilation filters and vacuum bags frequently in latex-contaminated areas.

Rationale: Asthma attacks or bronchospasm can be induced in individuals with a Type I natural rubber latex protein allergy by being in an environment where there is an open box of powdered natural rubber gloves or where latex-laden powder has been released. Glove powder can linger in ventilation systems, on furniture, overhead lights, etc. Nonlatex gloves should be used to clean the operating rooms, recovery rooms, and preoperative holding areas.

RECOMMENDED PRACTICE III

Patient should wear a filter particulate mask when being transported through the hospital corridors.

Rationale: Filter particulate masks reduce the amount of glove powder being inhaled by the patient with a latex protein allergy.

RECOMMENDED PRACTICE IV

Only use latex-free head coverings for patients and staff.

Rationale: When facilities require patient's/staff hair to be covered, bouffant caps with an elastic band

containing natural rubber latex should not be used. If latex-free products are not available, a tie cap should be worn or a towel can be placed over the patient's hair.

RECOMMENDED PRACTICE V

Patients should be transported directly from the patient unit to the operating room. The patient should **not** be admitted to the preoperative holding area if powdered natural rubber latex gloves are worn in this area.

Rationale: This practice will promote the safety of the patient by minimizing exposure to or coming in contact with preoperative holding and operating room areas containing natural rubber latex particles.

RECOMMENDED PRACTICE VI

"Latex allergic" signs should be posted on patient's bed, on the inside and outside of the operating room doors, and on anesthesia equipment. Keep traffic in the operating room to a minimum. Educate the operating room staff as to acceptable procedures and equipment to use with the natural rubber latex protein allergic patient.

Rationale: Any employee who has worn powdered natural rubber latex gloves should **not** enter any environment where the natural rubber latex protein allergic individual will be. This can cause anaphylaxis. Any item (stretcher, equipment, supplies, etc.) used on or for the patient must be cleaned and contacted only by staff that has not come into contact with natural rubber latex gloves, glove powder or latex containing supplies.

RECOMMENDED PRACTICE VII

A latex-free equipment/supply cart should be created, stocked, and used for procedures involving the natural rubber latex protein allergic patient. Premade packages containing natural rubber latex-based products or powdered natural rubber latex gloves should **not** be used for the procedure.

Rationale: Supplies for natural rubber latex protein allergic patient use should be identified and assembled for ease of identification and use during the surgical intervention. A stocked cart with appropriate supplies and equipment reduces the chance of using natural rubber latex containing items for those patients.

Powder from natural rubber latex gloves can penetrate the layers of materials found in premade packages. Check with the manufacturer for natural rubber latex containing contents in custom trays prior to use. Packages, which do **not** use natural rubber latex containing sealant, should be stocked in the operating room for use on the latex protein allergic patient.

RECOMMENDED PRACTICE VIII

The operating room staff is prohibited from wearing natural rubber latex gloves for any procedure involving a latex protein allergic patient.

Rationale: No member of the operating room team may wear any form of latex gloves. Wearing nonlatex gloves over natural rubber latex gloves is prohibited, as is wearing low powdered or powder-free natural rubber latex gloves. Wear only nonlatex gloves.

RECOMMENDED PRACTICE IX

Multidiscipline focused, hospital-specific policies and procedures to address care issues for the latex protein allergic patient should be developed.

Interpretive Statement 1: Health care facilities should develop a Latex Allergy Practices Committee comprised of representatives from all

patient care-focused disciplines, including nursing, dietary, laboratory, housekeeping, anesthesia, the operating room, pharmacy, respiratory therapy, admitting, X-ray, volunteers and home care. This committee should be charged with the development of policies and procedures related to the care of the natural rubber latex protein allergic patient. If at all possible, a natural rubber latex protein allergic individual should be a part of this committee.

Rationale: Multidiscipline focused planning, implementation and education will promote the creation and maintenance of a latex safe environment, facilitate the delivery of optimum patient care while minimizing the patient's potential exposure to natural rubber latex.

RECOMMENDED PRACTICE X

Check all equipment and supplies for natural rubber latex content before opening a package or using it on a patient. Packing material of devices should also be checked for the presence of natural rubber latex in packaging materials, sealant, and contents. The circulator will verify that supplies are natural rubber latex free with the scrub.

Interpretive Statement 1: After September 30, 1998, the FDA requires that all natural rubber latex containing medical devices be labeled as such. Devices manufactured before this time should be checked for the presence of natural rubber latex in packaging materials, sealant, and contents.

Rationale: Documentation should be obtained from manufacturers stating the natural rubber latex status of the product, packaging, and sealant. This documentation should be kept on file and be readily accessible to the facility staff for reference. This will optimize identification of items safe to be used for the natural rubber latex protein allergic patient's care.

RECOMMENDED PRACTICE XI

Assure that no natural rubber latex containing items meet the patient's skin. Cover all wires or cords containing natural rubber latex to prevent contact with the patient's skin, including blood pressure cuffs, EKG cords, and Holter Monitor cords.

Rationale: There are reported cases of natural rubber latex protein allergic individuals demonstrating mild to moderate allergic reactions from natural rubber latex containing equipment contacting patient surfaces, such as blood pressure cuffs, EKG leads, etc. Patient skin contact with these items should be avoided. Substitution with nonlatex containing equipment or protection of the patient from contacting natural rubber latex equipment should be used at all times.

RECOMMENDED PRACTICE XII

An extension tubing and stopcock should be added to the IV lines containing natural rubber latex ports. Cover all natural rubber latex ports with bright colored tape to prevent accidental use.

Rationale: The stopcock portal should be used to inject all intravenous medications. Never inject medications through a natural rubber latex port. Do **not** remove tape from the latex portals in the patient's IV line to minimize inadvertent use. Attach the stopcock far enough from the patient intravenous catheter to optimize patient comfort. Latex-free intravenous tubing is available and makes this step unnecessary.

RECOMMENDED PRACTICE XIII

The isolation section of the Post Anesthesia Care Unit should be utilized for the recovering patient with a natural rubber latex protein allergy. This area should be posted with signs indicating the need for implementing latex safe protocols.

Rationale: Use of the isolation area for the natural rubber latex protein allergic patient provides an optimal, latex safe environment. PACU staff shall **not** wear latex gloves, powdered or not, while caring for the patient. A latex-free supply cart should be available for use during patient care.

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1. Do you have a known latex allergy?
2. Are you allergic to any medications?
3. Are you allergic to any foods (especially avocado, banana, or chestnut)?
4. Have you ever had an anaphylactic reaction?
5. Do you have a congenital abnormality?
6. Do you have a history of asthma, autoimmune disease, contact dermatitis, or hay fever?
7. Have you ever had a reaction (eg, chapping of the skin, hives, itching, nasal congestion, redness, swelling) following personal contact with latex (eg, balloon, condom, elastic bandages, elastic clothing, eraser, garden hose, pacifier, rubber band, rubber gloves)?
8. Have you ever undergone surgery or had extensive dental work?
9. Have you ever had an allergic reaction during anesthesia?
10. What is your occupation?

Note: Certain responses to any of these questions will require additional information.

Table 2 Food allergens associated with latex allergy

High risk:	*avocado, banana, chestnut*
Intermediate risk	*apple, carrot, celery, kiwi, melon, papaya, potato, tomato*
Low/undetermined risk	*apricot, cherry, fig, grape, hazelnut, mango, nectarine, passion fruit, peach, peanut, pear, pineapple, plum, rye, soybean, strawberry, walnut, wheat*

Patient care considerations

The most important factor in caring for the latex allergic patient is education of the caregivers. The health care worker who is aware and knowledgeable is able to provide optimal patient care. Creating a latex-safe environment for the known latex allergic patient takes a great deal of preplanning. All staff members must be aware of the condition, be readily able to identify items that may contain latex, be able to recognize the signs and symptoms of a reaction, and be familiar with the protocol for prevention of exposure and treatment of a reaction. A latex-free cart must be available in each area (department) of the facility or must be available to accompany the patient throughout his or her treatment.

General preparation of the patient care area(s) includes the following:

- All latex items must be removed
- The area must be thoroughly cleaned (to remove latex residue) by an individual not wearing any latex (eg, gloves, hair cover, undergarments, etc)
- Ideally, the patient is assigned one caregiver (1:1 ratio) who avoids contact with all latex containing products while caring for that particular patient
- Warning signs must be posted inside and outside the patient (eg, door, chart, bed, etc) care area
- The patient is provided with an identification band that prominently states the allergy information
- All necessary personnel (eg, food service workers, environmental service workers, etc) must be informed that a latex allergic patient is in the facility
- Traffic in the patient care area must be minimized
- Bouquets containing latex balloons must not be allowed

- Provide the patient with an N-95 particulate filter masks during transportation throughout the facility

Additional resources

The National Institute for Occupational Safety and Health (NIOSH) has a searchable database of occupational safety and health publications, documents, grant reports and journal articles. In addition, they publish several publications on prevention and latex allergy. All of these are available at ***www.cdc.gov/niosh/topics/latex***.

Other good resources include:

- The Association of Nurse Anesthetists Latex Protocol, available at ***www.aana.com/crna/prof/latex.asp***.
- The American Academy of Family Physicians Latex Allergy, available at ***aafp.org/afp/980101ap/reddy.html***.
- Guidelines for the Management of Latex Allergies and Safe Latex Use in Health Care Facilities. Allergy, Asthma & Immunology Online, available at ***allergy.mcg.edu/physicians/latex.html***.
- Spina Bifida Association of America, latex information, available at ***www.sbaa.org/html/sbaa_latex.html***.

About the author

Pat Lawson, CST, is the founder and director of the Iowa Latex Allergy Support Network. Lawson uses her personal experiences with Type I Natural Rubber Latex Allergy and Type IV chemical allergies to present educational sessions around the country.

References

1. Bauer X, Ammon J, Chen Z, Beckman U, Czuppon AB. Health risk in hospitals through airborne allergens for patients presensitized to latex. *Lancet.* 1993;342:1148-1149.
2. Beezhold D. LEAP: Latex ELISA for antigenic protein. *Guthrie Journal.* 1992; 61:77-81.
3. Beezhold D, Pugh B, Liss G, Sussman G. Correlation of protein levels with skin prick test reactions in patients allergic to latex. *J Allergy and Clin Immunol.* 1996 Dec; 98 (6 part 1):1097-102.
4. Beezhold DH, Sussman GL, Liss GM, Chang NS. Latex allergy can induce clinical reactions to specific foods. *Clin Exp Allergy.* 1996 Apr; 26(4):416-422.
5. CFR. Code of Federal regulations. Washington, DC: U.S. Government Printing Office, Office of the Federal Register. 21 CFR Part 801 -Natural Rubber -Containing Devices; User Labeling; Final Rule September 30, 1997 (Volume 62, Number 189)
6. Charous LB, et al. "Latex allergy - an Emerging Health Care Problem." *Annals of Allergy, Asthma & Immunology.* 1995;75:19-21.
7. Hadjiliadis D., D.E. Banks and S.M. Tarlo. "The relationship between latex skin prick test responses and clinical allergies responses." *J Allergy Clin Immunol.* 1996 Jun;97(6):1202-6.
8. Heilman DK, Jones RT, Swanson MC, and Yunginger JW. "A prospective, controlled study showing that rubber gloves are the major contributor to latex aeroallergens in the operating room." *J Allergy Clin Immunol.* 1996 Aug; 98(2):325-30.
9. Latex Information. Spina Bifida Association of America. ***www.sbaa.org/html/sbaa_latex.html*** Accessed 10-10-03