HIDDEN SOURCES OF LATEX IN HEALTHCARE PRODUCTS

Over the past decade, considerable scientific and clinical information has been acquired and strategies have been implemented to reduce allergic reactions to latex in healthcare settings. Despite this effort, however, reports submitted in the PA-PSRS system indicate that latex exposure and allergic reactions continue. The following examples were reported to PA-PSRS:

- A condom catheter was placed on a patient with a documented latex allergy. The patient developed dermatitis.
- A surgeon used latex gloves while performing an invasive procedure on a patient with a documented latex allergy. During recovery, the patient became short of breath, and oxygen saturation decreased. The patient was treated until symptoms resolved.

Patients with latex allergy may experience reactions ranging from minor rashes to anaphylaxis.¹ The more exposures a latex-sensitive patient experiences, the more severe their reactions may become.²

Now that latex allergy protocols are implemented in the healthcare community, the new frontier may be to assure that such interventions are updated, effective, and fully implemented by the staff. Latex is extremely common in healthcare and consumer products. Approximately 40,000 products contain natural latex rubber proteins.³ Approximately 2,000 of these products are used in healthcare settings.⁴ Identifying which products contain latex and which are latex-free can be a tremendous challenge.

To prevent latex sensitization in high-risk groups or to prevent serious allergic reactions in those sensitized to latex, the most effective method is avoidance of contact with latex-containing materials.⁵ It is important that healthcare providers recognize that some products may contain latex and that appropriate alternatives may be available. In addition, updated information about latex-containing products can be integrated into patient education programs.

This article presents selected information from the clinical literature about latex-containing products that may be less well-known. The information is not comprehensive, but is designed to pique interest and spark further inquiry, as protocols and staff/patient education programs are reviewed and updated.

Since September 1998, the Food and Drug Administration (FDA) has required labeling of the presence of latex on all medical equipment that may come in contact with humans, as well as latex packaging materials that come in contact with the product.⁶ While the labeling requirement is helpful, there may be many products currently in use that were manufactured prior to the implementation of this labeling requirement. For example, providers may use latex-containing personal stethoscopes or reflex hammers that were acquired many years ago. In addition, the ruling does not include pharmaceuticals or items not regulated by the FDA. Also, individual components within a larger package may not be labeled.⁷

The following products may contain latex:

**Hospital supplies**: blood pressure cuffs; tubex syringes; ECG wires; pulse oximeters and cables; vascular compression stockings; ready-to-use enemas; Ace bandages; spacers for multi-dose inhalers; adhesive tapes; tourniquets; CPR mannequins; condom catheters; wheelchair cushions; oxygen masks/cannulas; incentive deep breathing exercisers; fitted hospital bed sheets; IV injection ports/tubing; disposable syringes with rubber plungers; ostomy pouches and straps; disposable incontinence pads; washable underpads; latex-stoppered multidose vials; nasogastric tubes (silastic-covered latex); certain dressings.

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Hidden Sources of Latex (Continued)

**Personal protective equipment:** goggles; masks; gloves; respirators.

**Operating room:** drapes with adhesive strips; bouffant caps and shoe protectors; surgical wound drains; instrument mats; mesh; electrode grounding pads; anesthesia machine reservoir bags; anesthesia masks; body positioning/holder devices; fiberoptic/video scopes; eye shields; laparoscopy insufflation hoses; needle counting systems; rubber breathing circuits and ventilation bellows; teeth protectors/bite blocks; bronchoscopy components (T-piece, saline injector, suction tubing).

**Critical care/Emergency Departments:** Ambu bags; endotracheal tubes; cervical spine collars; Swan-Ganz catheters.

**Physical Therapy:** exercise bands and balls; crutch pads (axillary and arm grips); cold/hot packs.

**Medical Imaging:** rubber aprons; positioning blocks; head straps.

**Dietary:** latex gloves (may contaminate food served to patients and employees).8

A review of the clinical literature identifies common elements in protocols related to the latex allergic patient:

- Coordination by a multidisciplinary committee/task force.
- Assessment/identification of those at risk.
- Communication among staff about the allergy.
- Strategies to eliminate/minimize latex exposure.
- Maintaining lists of latex-containing and latex-free products, using brand names.
- Latex-free carts/kits.
- Latex-safe procedures for specific patient care areas/departments.
- Ongoing education programs for healthcare providers and patients/families.
- Identification of symptoms and being prepared to provide interventions.
- Reviewing/monitoring data concerning latex reactions to assess program effectiveness and to take corrective actions.9

Several resources compile and communicate information about latex allergy to both healthcare providers and patients. Many are accessible on the Internet. Such information can be invaluable when updating protocols and educational programs.

**Available Resources**

- American College of Allergy, Asthma, and Immunology. [www.allergy.mcg.edu/physicians/ltxhome.html](http://www.allergy.mcg.edu/physicians/ltxhome.html).
USE OF MULTIDOSE MEDICATION VIALS AND LATEX ALLERGY

One latex avoidance strategy suggested in the literature relates to multidose vials. It was thought that the solution in such vials contained latex allergen from the stopper, or that the allergen could enter the needle used to puncture the vial stopper. It has been suggested that multidose vials with latex stoppers be replaced with glass ampules or latex-free vials. Another proposed strategy was to remove latex stoppers from multidose vials to draw up medications, rather than puncturing the stopper with a needle in order to obtain the medication.

A review of the literature, however, indicates that the risk of latex exposure from the use of multidose vials with latex stoppers is not clear. The level of latex allergen in such vials has been determined to be extremely low. In one study, the amount of latex protein found in medication vials was not detectable when the rubber stopper was punctured up to 40 times. Also, studies have indicated that there was no difference in measurable allergen of the solution when puncturing rubber stopper, compared to when latex stoppers were removed.

The Johns Hopkins Hospital, which uses multidose vials widely, indicates the following in its Interdisciplinary Clinical Practice Manual: "When drawing up medication, it is not necessary to remove the stopper from the vial. Multidose vials should only be punctured once and then discarded, unless using the Clave multidose vial adaptor. Use IV tubing sets with synthetic ports to eliminate allergen exposure."

Isolated cases, however, continue to be reported of allergic reactions associated with use of multidose vials. Coring may occur with repetitive puncturing of a stopper on a multidose vial. This may result in microscopic rubber particles that may contaminate the medication or be injected into subcutaneous tissue.

It is, therefore, incumbent upon each healthcare institution to decide whether and/or how to use multidose vials in the care of the latex-sensitive patient. In determining such a policy, institutions may wish to balance the potential for latex exposure by withdrawing a medication through a latex-stoppered vial with other considerations, including the patient’s degree of latex hypersensitivity and the potential for errors in dosage, dilution, contamination, and waste.

Notes
Hidden Sources of Latex (Continued)

Notes (continued)


The Patient Safety Authority is an independent state agency created by Act 13 of 2002, the Medical Care Availability and Reduction of Error ("Mcare") Act. Consistent with Act 13, ECRI, as contractor for the PA-PSRS program, is issuing this newsletter to advise medical facilities of immediate changes that can be instituted to reduce serious events and incidents. For more information about the PA-PSRS program or the Patient Safety Authority, see the Authority’s website at www.psa.state.pa.us.

ECRI is an independent, nonprofit health services research agency dedicated to improving the safety, efficacy and cost-effectiveness of healthcare. ECRI’s focus is healthcare technology, healthcare risk and quality management and healthcare environmental management. ECRI provides information services and technical assistance to more than 5,000 hospitals, healthcare organizations, ministries of health, government and planning agencies, and other organizations worldwide.

The Institute for Safe Medication Practices (ISMP) is an independent, nonprofit organization dedicated solely to medication error prevention and safe medication use. ISMP provides recommendations for the safe use of medications to the healthcare community including healthcare professionals, government agencies, accrediting organizations, and consumers. ISMP’s efforts are built on a non-punitive approach and systems-based solutions.