

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY MEDICAL COMMAND
2050 Worth Road
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MEDCOM Regulation
No. 40-44

6 June 2002

Medical Services
LATEX ALLERGY PREVENTION

Supplementation of this regulation and establishment of forms other than MEDCOM forms are prohibited without prior approval from HQ MEDCOM, ATTN: MCPO-NC.

1. HISTORY. This is the first printing of this publication.

2. PURPOSE. This policy prescribes the policies and procedures for identifying, reducing, and/or eliminating health risks associated with latex exposures in the health care setting. It prescribes the use of U.S. Army Medical Command (MEDCOM) Form 736-R (Occupational Health Surveillance for Latex Sensitivity) at appendix D. The goal of this policy is to protect patients and staffs from unnecessary exposures to latex.

3. REFERENCES.

- a. AR 40-3, Medical, Dental, and Veterinary Care.
- b. AR 40-5, Preventive Medicine.
- c. AR 40-66, Medical Record Administration and Health Care Documentation.
- d. AR 385-10, The Army Safety Program.
- e. National Institute for Occupational Safety and Health (NIOSH) Alert: Preventing Allergic Reactions to Natural Rubber Latex in the Workplace, Publication No 97-135.
- f. Title 29, Code of Federal Regulations, Part 1910 (29 CFR 1910), Occupational Safety and Health Standards.

4. EXPLANATION OF ABBREVIATIONS AND TERMS. Abbreviations and special terms used in this regulation are explained in the glossary.

5. APPLICABILITY. This policy applies to all MEDCOM Major Subordinate Commands, U.S. Army Medical Centers, U.S. Army Medical Department Activities, and Military Treatment Facilities (MTFs), including U.S. Army Dental Command and U.S. Army Veterinary Command activities. This policy covers patients, soldiers, and employees who work in MTFs.

6. BACKGROUND.

a. Latex allergy has increased over the past 10 years, and occurs with relatively high frequency in certain at-risk populations, especially health care workers (HCWs), certain patients, and workers who may be required to use latex products in their day-to-day work environment. Once sensitized, latex-allergic individuals are at risk for potentially life-threatening reactions to latex exposure. Reducing latex exposure to the maximum extent possible minimizes sensitization and development of new latex allergy cases.

b. Latex allergy development has been attributed to a high molecular weight (greater than 30,000 daltons) trypsin-sensitive protein derived from the rubber tree *Hevea brasiliensis*. This protein may leach out of latex gloves onto skin, mucous membranes, or surrounding powder and thus becomes airborne.

c. Latex products have been widely used during the 20th century and the existence of latex-induced irritant dermatitis has been well documented in the medical literature. In the last decade, a new emergence of latex hypersensitivity has been reported.

d. Between 1988 and 1992, the Food and Drug Administration (FDA) received reports of more than 1,000 systemic allergic reactions to latex, 15 of which were fatal. The prevalence of latex allergy in HCWs ranges from 5 to 10 percent, however, it may be as high as 24 percent in those with an atopic history.

7. RESPONSIBILITIES. Commanders are responsible for the establishment, implementation, and overall supervision of a latex allergy detection and exposure control program.

8. POLICY. Prevention and control measures to prevent latex sensitization and latex allergies will include the following:

a. Identification of where latex is utilized in the MTF.

b. Surgical and examination gloves must be powder free if made of natural rubber latex with low latex protein release attributes (<50 mcg-protein/gram latex). Refer to appendix A for a list of latex-containing products and substitutes. These efforts may prevent latex sensitization.

c. Mandatory education of HCWs and patients regarding the hazards of latex exposure, a requirement for personnel protective equipment and control measures.

d. Ensure all patients, soldiers, and civilian employees who work with latex are screened using MEDCOM Form 736-R to identify high risk individuals who may be latex sensitized or latex allergic, or who are already allergic and taking appropriate precautions. Providers should be aware that many glove reactions are due to the accelerators used in glove manufacture (usually thiourams and carbamates). These reactions usually manifest as a contact dermatitis. They may be treated and controlled with steroid creams, cotton glove inserts, and substitution of gloves. These workers should be evaluated and followed by a dermatologist. They are at higher risk of sensitization to latex proteins and should be closely followed and routinely evaluated for latex sensitization.

e. Refer to appendix B for guidelines on how to prevent latex sensitization and latex allergy. Latex use will be reduced or eliminated by substituting non-latex containing products, pharmaceuticals, and equipment. Use non-latex products whenever practical. Focus on latex safe rather than latex free.

f. Once patients and HCWs are identified as high risk for latex sensitization, every effort will be made to make the immediate work area and patient rooms latex safe avoiding direct latex contact for the patient or affected employee.

g. Commanders should consult Allergy and Immunology, Dermatology, Occupational Medicine, Logistics, and Department of Nursing personnel in designing a latex reduction and control program.

h. Latex allergic soldiers and civilian employees will be managed utilizing the procedures outlined in appendix C.

Appendix A

Latex Alternatives

Disclaimer: This list is NOT comprehensive and is subject to change over time. It is provided as a means to start a latex inventory for your institution. Institutions should validate the accuracy of what is latex safe or free prior to use with patients manifesting hypersensitivity.

FREQUENTLY CONTAIN LATEX

EXAMPLES OF LATEX-SAFE ALTERNATIVES/BARRIERS

Anesthesia,ventilator circuits, bags	Neoprene (Anesthesia Associates, Ohmeda adult) well-washed systems
Band-aids	Active Strips (3M-latex in package), Snippy Band (Quantasia), Readi-Bandages
Bed protectors (washable rubber)	Disposable underpads
Blood pressure cuff, tubing	Cleen Cuff (Vital Signs), Dinamap, Critikon, over clothing or stockinette
Bulb syringe	PVC (Davol)
Casts: Delta-Lite Conformable (J&J)	Scotchcast soft cast, Delta-Lite S, Fiberglass, Fabric (J&J)
Catheters, condom	Silicone (Coloplast, Mentor, Rochester)
Catheters, indwelling	Silicone (Argyle, Bard, Kendall, Rochester, Vitaid)
Catheters, leg bags, drainage systems	Velcro, nylon (Dale, Mentor), Bard systems
Catheters, straight, coude	Bard, Coloplast, Mentor, RobNel (Sherwood)
Catheters, Urodynamics	Bard, Cook, Lifetech, Rusch
Catheters, rectal pressure	Cook, Lifetech
Dressings: Moleskin (J&J), Action Wrap, Coban (3M), BDF Elastoplast	Duoderm (Squibb), reston foam (3M), Opsite. Venigard, Comfeel (Coloplast), Xerofoam (Sherwood), PinCare (Hollister), Bioclusive, Montgomery straps (J&J), Webrill (Kendall). NOTE: Steri-strips, Tegaderm, Tegisorb (3M) have latex in package
Elastic wrap: ACE, Esmarch, Zimmer Dyna-flex, Elastikon (J&J)	Adban Adhesive Compression Bandage (Avcor). Cover skin with cotton barrier
Electrode bulbs, pads, grounding	Baxter, Dantec EMG, Conmed, ValleyLab, Vermont Med
Endotracheal tubes, airways	Berman, Mallinckrodt, Polamedco, Portex, Sheridan, Shiley
Enemas, Reay-use (Fleet-latex valve)	Glycerin, BabyLax (Fleet), Theravac, Bowel Management Tube (MIC)
G-tubes, buttons	Silicone (Bard, MIC, Stomate)

Gloves, sterile, clean, surgical	Vinyl, neoprene, polymer gloves: Allergard (J&J), dermaprene (Ansell), Neolon, SensiCare, Tru-touch (B-D), Nitrex, Tactyl 1.2 (SmartPractice), Duraprene, Tritlex (Baxter)
IV access: injection ports. Y-sites, bags buretrol ports, PRN adapters, Needleless systems	Cover Y-sites and do not puncture: Use stopcocks for meds. Do not puncture bag ports to add meds. Flush all tubing. Abbot nitroglycerin tubing: Walrus, Gemini (IMED), some Baxter systems. Braun burettes: Braun, Clave, Abbott needleless systems
Jobst spandex products	Jobst has a non-latex material available
OR masks, hats, shoe covers	Replace elastic bands with twill tape ties
Oxygen masks, cannulas	Remove elastic bands: check content of valves
Medication vial stoppers	Eli Lilly, Fujisawa: if not certain, remove stopper
Penrose drains	Jackson-Pratt, Zimmer Hemovac
Pulse oximeters	Certain Oxisensor (Nellcor), cover digit with Tegaderm
Reflex hammers	Cover with baggie
Respirators – tb (3M 9970)	Advantage (MSA), HEPA-Tech (uvex)
Resuscitators, manual	Silicone: PMR 2 (Puriton Bennett), SPUR (Ambu), Vital Blue, Respironics, Laerdal, Armstrong
Stethoscope tubing	PVC tubing, cover with stockinette or ScopeCoat
Suction tubing	PVC (Davol, Laerdal, Mallinckrodt, Superior, Yankauer)
Syringes, disposable	Draw up medication in syringe right before use: Abboject, PCA (Abbott), Terumo syringe latex-free
Tapes: adhesive, porous, pink, Waterproof (3M)	Dermaclear, Dermicel, Waterproof (J&J), Durapore, Microfoam, Micropore, Transpre (3M)
Tourniquet	Children's Med Ventures, Grafco, VelcroPedic, or over clothes
Theraband, Therastrip, Theratube	Cover with cloth, exercise putty (Rolyan)
Tubing, sheeting	Plastic tubing, Tygon LR-40 (Norton), elastic thread, sheets (JPS), Elastomerics

Appendix B

Guidelines for Preventing Latex Sensitization and Latex Allergy in MTF Staff and Patients

B-1. Provide workers with non-latex gloves when there is little potential for contact with infectious materials (such as food preparation, routine housekeeping and maintenance, etc.)

B-2. Appropriate barrier protection is necessary when handling infectious materials. If latex gloves are chosen, provide powder-free gloves to protect workers from the latex protein particles bound to the powder.

B-3. Good housekeeping practices must be utilized to identify and remove latex containing dust from the workplace.

a. Identify areas contaminated by latex dust for frequent cleaning.

b. Change ventilation filters and vacuum bags frequently in latex contaminated areas.

B-4. Provide workers with education programs and training materials about latex allergy. Training should be documented as required by the Occupational Safety and Health Administration, and the Joint Commission on Accreditation of Healthcare Organizations.

B-5. Screen all HCWs and others working with latex using MEDCOM Form 736-R to identify high risk individuals.

a. When new patients are admitted and when outpatient invasive procedures are performed, patients must be screened.

b. In addition, soldiers and employees will be screened using MEDCOM Form 736-R at in-processing and during periodic health assessments.

B-6. Once high risk individuals are identified, they should receive IGE RAST blood testing. Two commercially available serologic tests for IgE have been approved by the FDA to test for latex sensitization. Healthcare providers should be aware of the fact that up to 15-20% of such tests will be negative in challenge positive hypersensitive individuals. Therefore, a positive test is helpful, a negative is NOT and patients with positive histories should be evaluated by a specialist.

B-7. Periodically screen high-risk workers for latex allergy symptoms. Detecting symptoms early and removing symptomatic workers from latex exposure are essential for preventing long-term health effects.

B-8. Reduce or eliminate latex exposure in the healthcare facility as much as feasible.

B-9. Perform surgical procedures in a latex-free area on all patients with spina bifida, regardless of history, and on all patients with positive history of latex allergy.

Appendix C

Management of Latex Sensitized Patients and Staff

C-1. The clinical management of individuals with latex hypersensitivity requires early identification and reducing or eliminating latex exposures. Interventions should be tailored according to the severity of the symptoms.

C-2. Individuals with irritant dermatitis may be educated regarding the risk of latex allergy and advised to use cotton liners in their gloves and/or eliminate the unnecessary use of gloves. In addition, attempts must be made to identify the irritant and eliminate the risk with good hand care techniques such as thorough and frequent hand washing.

C-3. Individuals who have been identified with allergic dermatitis/delayed hypersensitivity should be referred for skin testing and advised to use powder free or non-latex gloves when possible.

C-4. Individuals who suffer local allergic reactions, such as contact urticaria, should be referred to a dermatologist or allergist for follow-up evaluation and treatment that may include antihistamines and oral or topical corticosteroids. These individuals should work in a latex-free environment when possible.

C-5. The highest risk category includes those who have sustained systemic allergic reactions to latex. These individuals should be evaluated by dermatology or allergy and immunology.

a. In only the most severe cases should affected soldiers be considered for a medical board.

b. Civilian employees should be considered for placement in a latex-free work area or job retraining when no other alternatives are available.

C-6. Patients with a positive history of atopy, multiple allergies, latex glove intolerance, allergies to medical products, i.e., catheters, should receive a RAST blood test for IGE.

C-7. If blood testing confirms the presence of latex allergy, then the operating suite will be made latex safe and the latex allergic patient should be scheduled as the first case in the day and should wear a Medic-Alert bracelet at all times.

C-8. Further, patients scheduled for surgery who are latex allergic must be managed with a latex-free cart.

Appendix D

MEDCOM Form 736-R
(Occupational Health Surveillance for Latex Sensitivity)

MEDICAL RECORD - OCCUPATIONAL HEALTH SURVEILLANCE FOR LATEX SENSITIVITY

OTSG APPROVED (Date)

For use of this form see MEDCOM Reg 40-44

DEPARTMENT	OCCUPATION	NUMBER OF YEARS IN OCCUPATION	WORK PHONE
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1. Has a doctor ever told you that you have an allergy to any latex products? Yes No

If YES, to what specifically did the doctor say you were

2. Do you have a history of : Contact Dermatitis Rhinitis or Conjunctivitis Eczema
 Spina Bifida Hay Fever Asthma
 Auto Immune Disease (i.e., thyroid disease, diabetes, lupus)

3. Please check product(s) to which you have a noted reaction:

<input type="checkbox"/> Surgical Gloves	<input type="checkbox"/> Enema Cuffs	<input type="checkbox"/> Rubber Bands/Binders	<input type="checkbox"/> Ostomy Bags
<input type="checkbox"/> Catheters	<input type="checkbox"/> Dental Darns	<input type="checkbox"/> Anesthetic Mask	<input type="checkbox"/> Intestinal Tubes
<input type="checkbox"/> Buretrols	<input type="checkbox"/> Condoms	<input type="checkbox"/> Rebreather Bags	<input type="checkbox"/> Ostomy Tubes
<input type="checkbox"/> Diaphragm	<input type="checkbox"/> Elastic Adhesives (bandaids)	<input type="checkbox"/> Power in Latex Gloves	<input type="checkbox"/> Other _____
<input type="checkbox"/> Intubation Tubes	<input type="checkbox"/> Vial with Latex Tops	<input type="checkbox"/> Elastic Threads	
<input type="checkbox"/> Blood Pressure Cuffs	<input type="checkbox"/> Tubing (Latex Ports)	<input type="checkbox"/> Ballons	

4. Type of reaction noted:

<input type="checkbox"/> Sneezing	<input type="checkbox"/> Itchy Skin	<input type="checkbox"/> Chapped/Cracking Hands	<input type="checkbox"/> Stuffy Nose
<input type="checkbox"/> Low Blood Pressure	<input type="checkbox"/> Itchy Throat	<input type="checkbox"/> Shortness of Breath	<input type="checkbox"/> Runny Nose
<input type="checkbox"/> Wheezing	<input type="checkbox"/> Itchy Ears	<input type="checkbox"/> Lost of Consciousness	<input type="checkbox"/> Watery Eyes
<input type="checkbox"/> Tight Chest	<input type="checkbox"/> Itchy Eyes	<input type="checkbox"/> Rash	
<input type="checkbox"/> Other			

5. Do you have any food allergies? Yes No If YES, are you allergic to any of the following?

<input type="checkbox"/> Kiwi	<input type="checkbox"/> Banana	<input type="checkbox"/> Chestnut	<input type="checkbox"/> Avocado
<input type="checkbox"/> Passion Fruit	<input type="checkbox"/> Tomato	<input type="checkbox"/> Papaya	<input type="checkbox"/> Peaches
<input type="checkbox"/> Potato	<input type="checkbox"/> Milk	<input type="checkbox"/> Grape	<input type="checkbox"/> Other _____

6. Have you had any previous surgery? Yes No If YES, how many? _____

What types? _____

7. Have you ever had any allergic or unusual symptoms following a dental, gynecological or rectal Yes No

If YES, explain: _____

8. Have you ever had hives, asthma, swelling and tightness in the throat or other unusual reaction to latex products or devices? Yes No

If YES, explain: _____

OCCUPATIONAL HEALTH NURSE COMMENTS:

List of products containing latex issued Educational material reviewed and issued
 Aw are of available powerless latex gloves and non-latex supplies at CMS

PREPARED BY (Signature and Title)	DEPARTMENT/SERVICE/CLINIC	DATE
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PATIENT IDENTIFICATION	<input type="checkbox"/> HISTORY/PHYSICAL	<input type="checkbox"/> FLOW CHART
	<input type="checkbox"/> OTHER EXAMINATION OR EVALUATION	<input type="checkbox"/> OTHER (Specify) _____
	<input type="checkbox"/> DIAGNOSTIC STUDIES	_____
	<input type="checkbox"/> TREATMENT	_____

Glossary

Section I Abbreviations

FDA.....	Food and Drug Administration
HCW.....	health care worker
MEDCOM.....	U.S. Army Medical Command
MTF.....	Military Treatment Facility

Section II Terms

Anergy

The absence of the capacity to express delayed type hypersensitivity skin test reactivity to common antigens such as tetanus, candida, and mumps. The state of anergy reflects a depressed functional capacity of the cellular immune system.

Employee

DA civilian employees, students, or volunteers who work in health care facilities or perform other tasks where blood and body fluids of patients may be encountered.

High risk populations:

a. HCWs are at greatest risk for latex hypersensitivity because of frequent exposure to latex gloves.

b. Workers in other occupations including firefighters, police, security personnel, rescue workers, correctional workers, emergency response personnel, day care workers, and food handlers are also at risk.

c. Patients who have multiple surgical, dental, and radiological procedures as well as vaginal and rectal examinations may be at high risk. Patients with neural tube defects such as meningomyelocele and spina bifida or congenital urologic abnormalities requiring multiple catheterizations and/ or surgeries at an early age are at a particularly high risk for sensitization.

d. Subgroups of individuals which merit particular attention are those with:

- (1) Atopic disease.
- (2) Pre-existing hand eczema.
- (3) Prior reactions to latex.

(4) Allergies to certain foods including bananas, avocados, chestnuts, and kiwi fruits.

High hazard procedures

Procedures that involve mucous membrane contact with latex and donning of powdered latex gloves, which produces aerosolized particles of powder covered with latex proteins.

Latex

Refers to natural rubber produced from the coagulating sap of the rubber tree *Hevea brasiliensis*, the proteins of which produce a number of water-soluble allergens. See appendix A for a list of equipment and supplies that may contain latex.

Latex-free area

Work area where latex free gloves, pharmaceuticals, and equipment are utilized.

Latex routes of exposure

There are five recognized routes of latex exposure: cutaneous, percutaneous, mucosal, parenteral, and inhalation.

- a. HCWs are most commonly exposed to latex through direct contact with latex gloves.
- b. Patients can be exposed to latex by the direct contact of latex gloves and latex containing medical equipment with the skin and mucosal surfaces.
- c. Both patients and HCWs can be exposed to latex proteins bound to glove powder particles aerosolized when donning and removing latex gloves.

Types of latex reactions

- a. Irritant contact dermatitis. The most common reaction to protective gloves is irritant contact dermatitis. It usually produces a dry, crusty and irritated contact area on the skin, usually the hands. This non-allergic condition is caused by skin irritation from using gloves, repeated hand-washing, incomplete drying, and possibly by exposure to other workplace products and chemicals. It typically resolves upon removal of exposure and may be a risk factor for developing a true latex allergy.
- b. Allergic contact dermatitis. A delayed (Type IV) cell mediated hypersensitivity reaction which manifests acutely as an eczematous rash over the affected area during the first 6 to 48 hours following contact. This reaction is similar to poison ivy. This is the most common allergy resulting from exposure to chemicals added to latex during harvesting, processing or manufacturing. Repeated exposure causes extension of the rash into non-contact areas and oozing skin blisters.

c. Immediate (type I) hypersensitivity reactions. Both local and systemic latex allergic reactions are IgE mediated and can occur within minutes, but can also occur hours later. In HCWs sensitized to aeroallergens from powdered latex gloves, as many as 30 percent develop allergic respiratory symptoms. Unfortunately, it is difficult to predict the severity of the reaction from IgE serum levels, skin testing or types of exposure. Some individuals have repeated mild reactions, while others with minor responses may unexpectedly react severely. The degrees of reaction are:

(1) Mild—Urticaria, rhinoconjunctivitis, cough, dyspnea, and hives. Providers should be aware that these patients are at risk for life-threatening hypersensitivity reactions. Cough and dyspnea ARE SYMPTOMS of upper respiratory reactions and may be associated with abnormal spirometry or early laryngeal edema.

(2) More severe—Upper respiratory symptoms such as runny nose, sneezing, itchy eyes, scratchy throat; bronchial asthma, abdominal pain, and nausea.

(3) Severe—May include hypotension, shock and death but is seldom the first sign of latex allergy. In these cases, massive release of histamine and other mediators results from the cross-linking of mast cell and/or basophil surface bound IgE by latex allergens.

The proponent of this publication is the Proponency Office for Preventive Medicine. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, U.S. Army Medical Command, ATTN: MCPO-NC, 2050 Worth Road, Fort Sam Houston, TX 78234-6010.



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