

**LATEX DANGERS IN EMBALMING:
A Report for Funeral Service Practitioners
Part 2
By: James H. Bedino, Chemist/Dir. Research
The Champion Company**

IRRITANT DERMATITIS: Irritant dermatitis is not technically an allergy, but is a cause of skin problems during the wearing of gloves. It is not immune-mediated and is not caused by latex, but instead, by the very wearing of gloves during embalming. Symptoms include: dry, itchy irritated skin, redness, swelling, cracking, peeling, scaling and occasionally blistering of skin. Its causes include repeated hand washing, use of irritating soaps and cleansers, use of hand sanitizers and the powder found in most gloves. Irritation can also occur from one's own sweat trapped on the skin surfaces by long term glove use. Irritant dermatitis can cause an increase in nosocomial infections by contributing to breaks in the integrity of the users skin surfaces. Irritant dermatitis can be eliminated by the use of well-fitting, high-quality gloves and proper pre and post care of hand surfaces.

ALLERGIC CONTACT DERMATITIS: Also referred to as Type IV hypersensitivity reactions, allergic contact dermatitis is an enhanced allergic response to chemical insult with symptoms usually manifesting 24 - 48 hours after exposure. This is a common reaction to latex products but is due to the accessory chemicals that are present during manufacture and not from the latex protein itself. Exposure to the additives in poorly made gloves results in these types of allergic response. In addition, this allergic response seems to set the stage for the more serious latex allergies to manifest themselves by promoting the development of this type of allergic reaction. Contact dermatitis can also occur in children from exposure to latex soles in their shoes, but the most common reaction is to usage of common latex gloves. Symptoms include skin redness, itching, blistering and oozing of sores that manifests very similar to a serious attack of poison ivy. Symptoms occur most commonly 1- 2 days after exposure but can occur earlier. Allergic contact dermatitis is T-cell mediated and is a true allergic reaction. Skin patch testing is available to determine the chemical found in the latex gloves that is causing the allergic reaction. Using higher quality, properly leached and washed gloves or the use of cotton liners will eliminate this type of reaction.

TRUE LATEX ALLERGY: Also referred to as TYPE I hypersensitivity, IgE immune-mediated latex allergy is a serious health problem and causes dangerous symptomatology that can lead to death. Serious urticaria (hiving) rhinitis, conjunctivitis, bronchospasms, laryngospasms and full blown anaphylaxis can result. Symptoms can appear within minutes or seconds of exposure and explosively exacerbate. Routes of exposure can be mucosal, cutaneous, by aerosol, visceral or peritoneal. Sensitization results from early and repeated exposures to latex products usually from multiple surgeries and other invasive procedures that involve latex products. Maximum rates of latex allergy occur in spina bifida patients and others with congenital urogenital syndromes. Also, higher rates are noted in cerebral palsy patients, mentally retarded individuals and quadriplegics and are probably due to numerous medical procedures over time with high exposure rates to latex. Atopics (persons with multiple allergies) and persons with several food allergies are more susceptible due to their increased tendency to exhibit allergic reactions. Cross allergies to avocado, banana, chestnuts, kiwi, papaya, nectarines and apricots have been noted in persons with latex allergy.

Testing for latex allergy is available in several formats. RAST (radioimmunoassay) that test for IgE specific to latex is useful and results in 2/3 confidence and presents no danger to the patient as it is a blood test. ELISA (enzyme-linked immunosorbent assay) accomplishes the same result with less accuracy but is still useful. A skin prick test is available and is very accurate and specific but presents the possibility of a severe reaction if the person is a true latex allergic individual. Treatment for latex allergic attacks include the use of epinephrine, antihistamines, systemic corticosteroids and H2 blockers. There is no cure for latex allergy and the possibility of living a normal life is severely limited — due to the constant need for avoidance of all latex products in the environment which are present all the way from rubber bands, shoe soles, balloons to elastic in undergarments.

LATEX PROBLEMS IN EMBALMING: The use of fair to poor quality disposable or semi-disposable type latex gloves in embalming and other duties around funeral homes is legion. Disposable latex gloves is the presumed standard of acceptability in embalming and funeral service. The problems and failings of latex, however, are enormous and create a definite set of hazards to the embalmer and others in funeral home settings.

Latex gloves contribute to allergic contact dermatitis in numerous individuals through leaching of the additive chemicals in manufacture to the skin surfaces of the embalmer wearing the glove. The problem is worse if inexpensive, disposable type latex gloves are used, as these tend to be poorly constructed and are not as well washed during manufacture. The consequence is that much more chemical reaches the skin and the chances for allergic contact dermatitis and ultimate sensitization increases.

Latex exposure always occurs when latex gloves are used, but the exposure is amplified if the gloves are of inexpensive, poor quality construction, not well washed and are powdered (usually with cornstarch). This allows the additional pathway of airborne exposure to occur during donning and doffing of gloves, which occurs regularly in embalming scenarios. Powder on gloves increases exposure to the skin surfaces also, by

trapping the allergenic proteins of latex in the powder and literally grinding it into the skin during wearing. In addition, if the hands are sweaty (which is almost always the case), more allergenic substances are chemically and physically delivered to the skin surfaces that you are trying to protect by wearing latex gloves in the first place.

Latex gloves degrade from the moment you don them and begin your embalming task, whatever it may be. Hydration from skin surface moisture to the latex glove causes a definite breakdown in barrier protection and the chances of blood and body fluids exposure occurs. This hydration effect of latex usually occurs in less than 30 minutes of use. This is the main reason in the health care industry for frequent regloving as a standard protocol. Unfortunately, this rarely occurs in embalming, as most embalmers continue to use latex gloves until they visibly break or literally fall apart. The typical embalmer has been receiving minimal protection from latex gloves during embalming by not frequently regloving or double gloving.

The sad fact is, that latex has never been acceptable for protection from the major chemical exposure hazard that is posed in embalming. Embalmers have been embalming for years under the false belief that if latex delivers barrier protection to blood and body fluids — then it must also protect against chemical exposure. This is absolutely false, only the thickest and well-made latex gloves protect against chemical exposures for any length of time. The typical latex gloves used during embalming will have breakthrough times for formaldehyde that is measured in seconds and minutes. Permeation rates, in addition, for formaldehyde is extremely high. Even exposure to the chemical environment of embalming can degrade latex gloves without even using them. Embalmers are not protecting themselves from chemical exposure during embalming by the use of latex gloves. This situation has been addressed in the medical field by an advisory regarding the use of latex gloves and sterilization solutions. This advisory essentially states that with the use of sterilizing solutions containing glutaraldehyde (the only commonly used liquid sterilant in health care) that latex gloves not be used as breakthrough and permeation of the chemicals may occur. Embalmers are exposing themselves to all the chemicals used in embalming when they are using typical latex gloves during embalming. These chemicals include formaldehyde, glutaraldehyde, phenol, methanol and isopropanol. Adequate protection from this veritable soup of chemicals is not possible with typical latex gloves used in embalming. As a footnote, be aware that acceptable failure rates for latex gloves (both governmental and industry-accepted) are typically 2.5% - 4%. Do not expect every glove out of the box to fit correctly or not break during donning or rapidly deteriorate during use. These are additional reasons for the protocols of frequent regloving or double gloving.

CONTINUED: Latex Dangers in Embalming: A Report for Funeral Service Practitioners.
Champion Expanding Encyclopedia of Mortuary Practices
Number 633, 1998

Want To Eliminate 90% of Your Chemical Exposure During Embalming?

It's Easy — Follow These Three Simple Steps:

1. Use **Cavity 48** instead of your current high-fuming formaldehyde cavity.
2. Use **Millenium New Era Compound** instead of your dusty and dangerous autopsy/hardening compound.
3. Use **Metriguard Disinfectant Spray** instead of a formaldehyde embalming spray that is ineffective and generates fumes.