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CLINICAL BULLETIN

A Guide To Medical Glove Selection

Choosing The Right Glove For The Right Situation

With the rise in awareness of latex and chemical allergy, and the increase in powder glove bans due to powder-related issues for both patient and healthcare provider, synthetic and powder-free medical gloves continue to gain in favor. Each glove offers unique advantages but, at the same time, each of them comes with a certain amount of compromise in terms of barrier protection, durability, sensitivity, comfort, and cost.

No single glove provides the "perfect" solution for all applications and it is nearly impossible for a hospital to standardize on a single type of glove material to meet all their needs.

- **Latex** has long been the benchmark standard for fit, feel, comfort, strength and barrier protection.

- **Vinyl**, an economical alternative to latex, has been around for many years but in general may be associated with reduced barrier protection due to its susceptibility to tears, breakage and pinholes.

- **Nitrile** medical gloves have become popular as they offer excellent tear resistance and chemical resistance although cost more than vinyl. The new generation of nitrile glove films are thinner and stronger providing excellent tactile sensitive and durability yet maintaining excellent chemical resistant properties. When selecting a nitrile glove for chemotherapy ensure the glove has passed the testing standards to be used as a chemo glove. ASTM D6978-05 is the globally recognized standard.

- Polychloroprene was the first surgical latex alternative in the operating room. It offers comfort and is slightly more expensive than latex.
  New innovative polychloroprene formulations now offer gloves that are accelerator-free for those with chemical allergies. And unique formulations have resulted in gloves that are softer, with improved sensitivity, dexterity and over-all more latex- like. Polychloroprene gloves may also be a suitable glove for chemotherapy. Check with the manufacturer to ensure the glove passed the chemotherapy testing standards.

- **Polyisoprene** is another "latex-like" synthetic glove film. More expensive than other synthetic gloves it offers exceptional comfort and tactile sensitivity as well as puncture, tear and abrasion resistance. Polyisoprene gloves may also be a suitable glove for chemotherapy.

- **Synthetic Hybrids** are emerging, combining the best attributes of a variety of synthetic materials into one glove formula.

When selecting gloves for practice, it is important to ensure that the product is functional and effective. Involve staff members in evaluations and the product decision. Evaluate gloves for quality, flexibility, durability, and other indicators identified by those using the gloves. Include price in the comparison. The chart on the reverse side provides medical professionals with an easy to use guide in choosing the best glove film for their application.

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GLOVE TYPE	Latex (NRL) (Surgical/Exam)	Polyisoprene (Surgical)	Polychloroprene (Surgical/Exam)	Nitrile (Exam)	Vinyl (Exam)
Level of Barrier Protection	**Excellent** Benchmark for barrier protection due to its strength and elasticity.	**Excellent** Film is very durable with a high puncture, tear and abrasion resistance.	**Excellent** Provides barrier protection similar to latex.	**Excellent** Film is highly resistant to punctures and tears.	**Poor** During use breaks and punctures easily. Fits baggy at wrist.
Allergen Content	**Varies** Contains protein & chemical allergens. Powder-free gloves are lower in allergens.	**Very Good** Polyisoprene contains no latex proteins although contains chemical accelerators.	**Very Good / Excellent** Contains no latex proteins. May contain chemical accelerators.	**Very Good** Contains no latex proteins. May contain curing agents & other chemical ingredients.	**Good** No latex proteins or chemical accelerators. May contain other chemical ingredients.
Strength & Durability	**Excellent** NRL is very strong and durable. Tensile strength is typically 3500 psi (24 MPa) or better.	**Very Good** Extremely strong with superior puncture resistance. Tensile strength is typically 3000 psi (20.5 MPa) or better.	**Excellent** Strong, however, once punctured, the film tears easily. Tensile strength is typically 3000 psi (20.5 MPa) or better.	**Excellent** Film is extremely strong with puncture resistance superior to all glove films. Tensile strength is typically above 3000 psi (20.5 MPa).	**Poor** The weakest of the four films. Tends to break and puncture easily when stressed. Tensile strength is below 2000 psi (13.7 MPa).
Elasticity	**Excellent** Elasticity is superior to other glove films. Memory is very high so the film returns to its original shape. Elongation limit is about. 750%.	**Excellent** Polyisoprene is the closest to latex, with very high memory so the film retains its original shape. Elongation limit is about 750%.	**Excellent** Neoprene elasticity is close to that of latex and memory is very high, allowing the film to retain its original shape. Elongation limit is about 750%.	**Very Good** Elasticity is very good with elongation limits typically 500% or better. Exhibits some memory, allowing the film to adapt to the wearer's hand.	**Fair to Poor** Elasticity is limited and varies from brand to brand. Typical elongation limit is less than 500%. The film exhibits limited memory.
Fit, Comfort	**Excellent** Latex provides excellent comfort and fit due to its high elasticity and memory.	**Excellent** Polyisoprene provides very good comfort and fit due to its latex-like physical properties.	**Very Good** Excellent comfort and fit due to its high elasticity and memory. New formulations provide latex like fit & comfort.	**Very Good** Very good comfort & fit due to its high elasticity & memory. Sometimes a tighter fit, users may choose a larger size.	**Fair** Low elasticity limits fit and comfort. Wrist diameter is very large making the glove baggy around the cuff.
Economy	**Very Good-** Provides very good economy for Surgical Gloves. Powder-free versions are slightly more expensive.	**Fair-** More expensive than latex and other non-latex films but justified when weighed against the costs of managing latex allergies.	**Good-** More expensive than latex but can be justified when weighed against the cost of managing latex and chemical allergies.	**Very Good** Nitrile exam costs are typically similar to those of latex exam gloves.	**Very Good-**. A low-cost alternative to nitrile & latex if latex allergies are a concern.

Note: 1 Psi = 0.00689475729 Megapascal

Pounds per Square Inch (psi) is defined as 1 pound of force applied per square inch. It is the main pressure unit in united states.
Megapascal is a metric pressure unit and equals to 1 000 000 force of newton per square meter which is a pascal. The abbreviation is "MPa".

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