

TITLE: EVALUATION OF LATEX PROCEDURE GLOVES: ARE WE TOTALLY SAFE?

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ABSTRACT:

Gloves are fundamental for professionals' and patients' protection against cross-contamination, especially in control of risk of contact with corporal fluids. The objective of this study was to determine *in vitro* the physical integrity of latex non-surgical procedure gloves marketed in Brazil. The experimental methodology followed the standard protocols of *Food and Drug Administration* (FDA) and *American Society for Testing and Materials* (ASTM), in which each glove was evaluated in an independent way. Each glove was fixed by wrist with metallic clamp, wrapped by rubber, to a polyvinyl chloride (PVC) pipe of 17cm of length per 5cm of inner diameter attached through universal support. Afterward, 1,000mL of water at room temperature was added into each glove with the help of a graduated cylinder. Evaluation of presence of physical damages was carried out after the addition of water and, if it was not immediately realized, a second analysis would be performed after two minutes. Only the minimum manipulation of glove fingers was applied to verify possible physical damages. A total of 1,504 latex procedure gloves of different commercial brands were evaluated, with three distinct batches for each, they are: brand A (n=302), brand B (n=300), brand C (n=298), brand D (n=302) and brand E (n=302). It is worth to note that most boxes presented number of gloves different from the amount described by the manufacturer. The results were expressed in absolute and relative frequencies. The gloves of brands D (1%) and C (9.2 and 9.4%) presented the best and the worst of the tears and/or holes results in the immediate and after two minutes inspections, respectively. A total of 7% (n=21) of tears and/or holes of brand C happened in one glove finger/region, while 1.3% (n=4) were damaged/torn. The brand D remained with the best result because presented only 1% (n=3) of tears and/or holes in one finger/region. In conclusion, all brands of evaluated latex procedure gloves presented physical damages with higher frequency in the region between the fingers.

Keywords: biosafety, personal protective equipment, latex, protective gloves, risk management.

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