Evaluation of the physical integrity of latex gloves and blood-borne viral infection protection during a needlestick injury simulation

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Introduction: The use of personal protective equipment (PPE) by health professionals aims to reduce the risks inherent in the workplace. **Objective**: This study aimed to assess *in vitro* the physical integrity of latex gloves and blood-borne viral infection protection during a needlestick injury simulation. **Methods:** Three different batches of latex procedure gloves were evaluated before use for physical integrity (presence or absence of tears and/or holes) using standardized protocols and blood-borne viral infection protection during a needlestick injury simulation by two different techniques (crystal violet dye and viral contamination). **Results**: Brands D and C showed the best and worst results in the immediate inspections and after 2 min, respectively. For Brand C, damage occurred in one finger/region in a total of 12 gloves, while seven gloves were damaged/unable to be worn. Brand D presented only two gloves with tears and/or holes in one finger/region. Regarding the crystal violet technique, the only difference was between Brand B and Brand D ($p=0.0390$) but the viral contamination data showed no significant difference among the groups ($p=0.270$). **Conclusion:** All glove brands presented physical damage that might affect the acquisition and/or spread of microbial contamination. In addition, different gloves did not exert an additional protective effect during a needlestick injury simulation in accordance with the two techniques used in this study, but further studies are needed.

Keywords: Containment of Biohazards; Personal Protective Equipment; Protective Gloves; Risk Management; Healthcare simulation.

Financial support: The study was supported by the Coordination for the Improvement of Higher Education Personnel (CAPES) for financial support (Finance Code 001).