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CLINICAL BULLETIN

THE NEED TO CHANGE EXAMINATION GLOVES

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Medical Gloves as Essential Protection

Medical gloves are critical personal protective equipment (PPE). Numerous studies confirm that wearing medical gloves significantly reduces the risk of healthcare workers' (HCWs) hands being contaminated while caring for patients, thus reducing the potential transmission of pathogens between patients and the environment.[1] Gloves must be worn during all patient care activities involving potential exposure to blood, bodily fluids, mucous membranes, or non-intact skin.[2]

Appropriate glove barrier selection depends on several factors including quality of manufacturing, material, fit, comfort, and user practices. Manufacturers must adhere to rigorous regulatory and quality standards, such as those outlined in the FDA's Medical Glove Guidance Manual, the European Union Medical Device Regulation (EU MDR 2017/745), and the UK Medical Devices Regulations 2002.[3,4,5]

In routine care, HCWs typically wear one pair of examination gloves. However, in high-risk scenarios, such as treating patients with viral hemorrhagic fevers (e.g., Ebola), double gloving may be necessary. This allows the contaminated outer gloves to be removed while retaining protective inner gloves.[6]

According to the World Health Organization (WHO), examination gloves should be changed:[7]

- As soon as practical when visibly contaminated
- Immediately if torn or punctured
- After contact with blood or body fluids
- Between patients
- Between clean and contaminated body sites on the same patient
- After touching environmental surfaces

Contamination Beyond the Glove

Despite guidelines, misuse of examination gloves is widespread in healthcare settings. Bekele et al. conducted a systematic review in 2024 and found that perforation rates in examination gloves ranged from 10% to 30%, with most defects going unnoticed by healthcare workers.[8] A clinical study involving scrub nurses in 2025 revealed that 27% of gloves had undetected perforations.[9] These findings reinforce concerns that glove integrity decreases over time and with use, stressing the importance of defined maximum glove use duration.

Hübner et al. previously reported that 10% of examination gloves were perforated and that HCWs only detected these defects in 5% of instances, emphasizing the need to limit wearing time to 15 minutes to balance safety and practicality.[10] However, recent findings suggest glove failure rates are even higher and may depend significantly on glove material and task complexity.[8,9]

The Gap in Standardized Recommendations

While gloves protect HCWs, the glove surface itself can become heavily contaminated during patient care. If not changed appropriately, gloves become vectors for cross-contamination. Loveday et al. demonstrated that gloves are often worn when not indicated, donned too early, and removed too late resulted in contact with contaminated surfaces and unnecessary risk of pathogen transmission.[10]

A New Zealand study found that examination gloves were contaminated even before patient contact. The primary source was unwashed HCW hands.[12] This highlights the importance of hand hygiene to prevent contamination.

Gloves Don't Replace Hand Hygiene

Hand hygiene is non-negotiable. According to WHO's 2025 "Gloves Are Not a Substitute for Hand Hygiene" campaign, gloves should never replace hand cleansing.[7] Moreover, excessive glove use contributes significantly to medical waste, with hospitals producing over 1,600 tons annually prompting calls for judicious glove use.[6]

Proper donning and doffing techniques are essential. Gloves should be removed carefully to avoid contact with contaminated surfaces. After glove removal, hands must be cleaned with soap and water or alcohol-based hand rub. Gloves should never be washed or reused, as this practice is linked to increased pathogen transmission.[3]

Conclusion

Examination gloves remain an essential barrier in infection prevention, but their protective value depends on correct use and timely replacement. Evidence shows that unnoticed perforations, material degradation, and surface contamination can compromise safety within minutes of donning. To reduce cross-transmission risks, gloves must be changed frequently, in line with WHO recommendations, and always paired with proper hand hygiene.

Healthcare workers must view gloves not as a substitute for hand washing, but as one layer of defense within broader infection control practices. By adopting safer glove practices, frequent changes, correct donning and doffing, and judicious use, healthcare teams can strengthen protection for both patients and themselves, while also addressing the environmental impact of medical waste.

References

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