Guest Editorial

The hazards of gloves in dentistry

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Because of concerns about infection with human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS), and hepatitis B virus (HBV), dentists have been encouraged to wear gloves during all patient contacts.[1–3] This has resulted in an increased utilization of latex gloves amounting to nearly US $1 billion that is being spent by health care providers on gloves each year.[4] This action has been prompted by the belief that gloves are effective in preventing HIV and HBV infections.[1–3] Numerous mandatory regulations and guidelines have been enacted to "encourage" the use of this protection.

Although "common knowledge" recognizes gloves as effective viral barriers, there is little clinical-epidemiologic evidence that confirms this theory.[5–10] However, an extensive body of data has shown that there is no significant difference in the rates of occupationally acquired viral infections among dentists who use gloves and those who work bare handed.[5–8,11–19] These studies are rarely mentioned in the press.

Although glove use appears to be relatively harmless (but ineffective), it gives a false sense of security. Unfortunately, gloves possess numerous deficiencies that result in hazards to dentists, staff, and patients. The natural porosities in latex (15 μm) are hundreds of times greater than the viral capsid diameters of HBV (0.042 μm) and HIV (0.10 μm).[8,16,20–22] Gloves can no more stop virus particles than a basketball hoop can stop the fall of a marble.

In addition, gloves come with numerous (2% to 36%) holes in the form of manufacturing defects (wet-finger syndrome). They degenerate quickly in the air and with use and do not protect the wearer from needle sticks, the greatest cause of blood-borne occupational viral infections.[1,2,13,16,17,20,21,23] Although frequently cited, there have been only a few cases, in dentistry, of occupational HBV infections and no documented cases of occupational HIV seroconversions in the past 10 years, worldwide.[7,10,13,24] This is not true in other branches of medicine. The wide use of HBV vaccine and the waning of the AIDS epidemic is rapidly reducing the potential occupational threat perceived in previous years.

Gloves pose numerous mechanical problems that result in hazards to the dentist and patient. They hinder hand movement and reduce light touch perception and general dexterity.[15,19,25] Increased tissue lacerations have been reported in patients whose prophylaxis has been performed by gloved, instead of bare-handed, dental personnel.[26] Dental burs and lathe wheels tend to snag glove material, causing cuts, punctures, and broken bones.[15,27–29] The glove material is flammable and poses a fire hazard, especially in the laboratory.[28] Gloves increase the difficulty in manipulating small objects (pins, wrenches, endo files, etc), thus prolonging treatment time, reducing productivity, and increasing danger of aspiration.[15,28,30] They also form poor barriers to solvents and oils (monomers, alcohol, and solvents).

Gloves are a contamination hazard. Most gloves contain talc or corn starch, which, along with a variety of chemicals, act as irritants.[31,32] They contribute to cellular breakdown, wound inflammation, asthma, allergic reactions, and lesions on the skin of dentists and patients.[31–36] The starch lubricant, in conjunction with the warmth and moisture of the skin, acts as a bacterial growth medium for the natural microbial flora of the hands. This has resulted in numerous cases of urticaria, open lesions, asthma, facial edema, anaphylaxis, and toxic shock in staff and patients.[17,21,22,29,31,34,36,37]

Gloves present a sour taste that offends many patients.[19,38] Gloves have become an issue among the patient, dentist, media, and government.[1,2,19,39] The elasticity of the latex causes muscle fatigue and pseudocarpal syndromes.[40] The gloving and degloving processes impede productivity and lengthen treatment time.[30,32,41] The wearing of gloves compromises the use of many impression materials, composite resins, adhesives, and pulp testing equipment.[41]

Gloves are expensive. The average dentist or staff member will use approximately US $700 worth of gloves each year.[42] They contribute to waste disposal problems. They are financially and environmentally costly, because the bulk of discarded gloves will accelerate the filling of limited landfills and contaminate the air when they are burned in hazardous-waste disposal plants.

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Although the use of gloves has many benefits, gloves were seldom used before the AIDS panic (by 2% to 15% of dentists) because of their many disadvantages and hazards.[26,43] Utilizing the new epidemiologic data that show the ineffectiveness of gloves as a viral barrier and the reduced threat of HBV/HIV, dentists must scientifically reexamine the effectiveness, hazards, and infection dangers surrounding glove use and make strong recommendations to the profession, media, and government. In the past, dentists have accepted, at face value, the claims and mandates of bureaucrats and self-proclaimed experts at a tremendous cost in time, money, and comfort to professionals and patients.[44] It's time for another look.

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