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## What You Don't Know Can Kill You ... Literally!

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Some amazing dialogue has been occurring in medical and hospital publications and seminars over the last couple of years regarding current shortcomings in hand-hygiene protocol. We had better pay attention!

**Question:** *How many readers know someone who went to a hospital for whatever reason and, while there, contracted a serious infection and died?*

**Question:** *How many readers, or their staff or patients, have caught a germ-borne infection while at their dental office?*

**Question:** *How many readers have experienced the spread of germ-borne infection within their families/friends (colds, flu, etc.)?*



The first question is about a far more serious subject than the second, which is partly because we dentists have no way of knowing, except in serious situations, how many colds, flu, herpes, or other germ-borne diseases have been transferred to someone while in our offices. These infections are usually not life threatening, but can be very annoying.

The answers to the first and third questions are probably most of us!

- **Amazing fact No. 1:** "Health-care-associated infections (nosocomial) are an important cause of morbidity and mortality among hospitalized patients worldwide. Such infections affect nearly 2 million individuals annually in the United States and are responsible for approximately 80,000 deaths each year." How do you like those odds?
- **Amazing fact No. 2:** "You calculate that hospital infections add an estimated \$30 billion to the nation's hospital costs each year. That amounts to nearly \$6 million per hospital (based on an AHA figure of 5,200 hospitals). What does that total encompass?  
"That total includes only the direct, additional cost of care delivered in the hospital as a result of infection, and generally the high cost is due to substantial increases in length of stay. The total does not include doctors' fees, lost time at work, or care outside the hospital."
- **Amazing fact No. 3:** "Transmission of health-care-associated pathogens most often occurs via the contaminated hands of health-care workers."

[The CDC states that less than 5 percent of germ-borne diseases occur as a result of aerosol transmission, mostly from coughing. The CDC states that to minimize this occurrence, stand at least three feet from anyone coughing. Cough into the arm sleeve, not the hands.]

- **Amazing fact No. 4:** "... hand hygiene (i.e., handwashing with soap and water or use of a waterless, alcohol-based hand rub) has long been considered one of the most important infection-control measures for preventing health-care-associated infections. However, compliance by health-care workers with recommended hand-hygiene procedures has remained unacceptable, with compliance rates generally below 50 percent of hand-hygiene opportunities." (Italics added) Think

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about that!

Many articles have been written to try to explain why hand-hygiene protocol compliance is so poor among health-care workers, and we suspect that includes many dentists and staff as well. In all of these articles, the most obvious reason to us is not even mentioned - doctors and nurses do not like the alcohol gels because they dry out their skin and make their skin painful. The same is true with antibacterial soaps. You do not use that which you do not like!

Another problem with alcohol is that it burns. There are documented cases in the last 12 months in U.S. hospitals where patients were being prepped for surgery in the operating rooms with alcohol-based scrubs, and a spark in the adjacent equipment ignited these patients on fire. We forget how volatile and explosive alcohol is.

### **Centers for Disease Control (CDC) statements**

All of us are aware by now that the CDC has recommended alcohol-based hand rubs when not washing with soap and water. Everyone has jumped on that bandwagon, despite alcohol's shortcomings. Let's take a deeper look at the testing procedures from which these recommendations have been taken, and I quote directly from the Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Health-Care Infection-Control Practices Advisory Committee and the HPCPAC/SHEA/APIC/IDSA Hand Hygiene Task Force, prepared by John M. Boyce, MD, and Didier Pittet, MD. After covering the various methods used to evaluate the efficacy of hand-hygiene products, the topic of "Shortcomings of Traditional Methodologies of Evaluation" was discussed:

"Accepted methods of evaluating hand-hygiene products intended for use by HCWs require that test volunteers wash their hands with a plain or antimicrobial soap for 30 seconds or one minute, despite the observation in the majority of studies that the average duration of handwashing by hospital personnel is < 15 seconds. A limited number of investigators have used 15-second handwashing or hygiene hand-wash protocols.

Therefore, almost no data exist regarding the efficacy of plain or antimicrobial soaps under conditions in which they are actually used by HCWs. Similarly, certain accepted methods for evaluating waterless antiseptic agents for use as antiseptic hand rubs require that 3 mL of alcohol be rubbed into the hands for 30 seconds, followed by a repeat application for the same duration. This type of protocol also does not reflect actual usage patterns among HCWs. Furthermore, volunteers used in evaluations of products are usually surrogates for HCWs, and their hand flora may not reflect flora found on the hands of personnel working in health-care settings.

Further studies should be conducted among practicing HCWs using standardized protocols to obtain more realistic views of microbial colonization and risk of bacterial transfer and cross-transmission.

### **Conclusions**

Significant reduction of incidents involving germ-borne transfer of disease will occur when surfaces we touch are regularly disinfected. Disinfecting our skin will further reduce our chances of transferring disease, since the great majority of germ-borne diseases are transmitted from hand to face contact.

Finding products that will disinfect our skin in the time frame we typically use to apply products is a major challenge. The great majority of product testing for skin-disinfecting products uses unrealistic time frames.

Finding products that do not "ruin" our skin in the process of disinfecting is also a major challenge. Alcohol, the CDC-recommended choice, has many drawbacks. Alcohol must be at a concentration of at least 60 percent in order to kill germs. Alcohol volatilizes quickly as soon as it is applied to the skin. Touching contaminated surfaces shortly after applying alcohol-based products will recontaminate your hands.

Applying alcohol products as frequently as recommended to your skin will leach out the fatty acids in the cells of the skin, thus drying out the skin over time. The addition of skin emollients and conditioners helps some, but does not solve the problem. The flammability of alcohol is also a major concern.

If you are concerned with the problem and would like to explore a possible resolution to the problems identified in this article, we invite you to visit [www.mypureworks/dentistreader](http://www.mypureworks/dentistreader) for some great information on a new product.

References available upon request.

Dr. Jeffrey Hoos has a 26-year-old private group practice in Stratford with three partners and 27 dedicated health-care professionals. He lectures nationally and internationally on cosmetics, implants, and practice management. His philosophy is best described as *Balancing: the Art, Science, & Business of Dentistry*. Contact Dr. Hoos by e-mail at [jchdmd@msn.com](mailto:jchdmd@msn.com), or visit his Web site at [www.dentalexplorations.com](http://www.dentalexplorations.com) or [www.bettersmile.com](http://www.bettersmile.com).

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