Dental Waterlines (11/03)


Microbial biofilms colonize dental waterlines and contaminate water used in dental treatment. Biofilms are complex, resilient microscopic communities that are resistant to dislodgment or inactivation by antibiotics or germicides. Although organisms recovered from dental systems include potentially pathogenic bacteria, fungi, and protozoa, the risk of infection associated with exposure to contaminated dental water is unknown. High levels of endotoxin produced by gram-negative water bacteria have been reported in dental unit water. The impact of chronic exposure to endotoxin on patients and dental workers suggests a topic for further investigation.

DIS Comment: Researchers have not demonstrated a measurable risk of adverse health effects among dental health-care personnel (DHCP) or patients from exposure to dental water, however a large body of scientific evidence verifies the potential for transmission of waterborne infections and disease in hospital settings. Disease outbreaks in the community have also been reported from diverse environmental aerosol-producing sources, including whirlpool spas, swimming pools, and a grocery store mist machine. This article reviews the nature of biofilms and dental equipment design features contributing to the contamination of dental unit water. An excellent review of the literature concerning dental waterlines and health issues is also presented. Although no epidemiological evidence suggests a current public health problem, the presence of large numbers of pathogens in dental unit waterlines generates concern. Exposing patients or DHCP to water of uncertain microbiological quality, despite the lack of documented adverse health effects, is inconsistent with generally accepted infection control principles.