Introduction

Concern has been expressed whether the quality of dental unit water used in routine dental procedures meets acceptable microbial contamination standards or guidelines. This issue is of considerable importance as patients and oral health care workers are regularly exposed to water and aerosols generated from the dental unit. A characteristic feature of a dental unit water line is the capacity to rapidly develop biofilms on the inner surfaces of its tubes and associated containers. (A biofilm is a community of microbes growing on a substrate and encased in a matrix of extracellular polymeric material.) Generally, such microbes that grow at ambient temperature are relatively harmless, saprophytic organisms and cause disease only under exceptional circumstances, mainly in compromised hosts.

The major source of microbes for biofilm development in dental unit water systems (DUWS) is considered to be the municipal or the local water supply which usually provides potable water with extremely low levels of saprophytic bacteria, if any. Another possible source of organisms that may contaminate DUWS is when there is a temporary drop in the local water supply pressure. Current science suggests, however, that there is an extremely low risk of such contamination of public water supplies from cross-connections in dental operative units. Finally, retraction of patients’ saliva, contaminated with microbes, into the DUWS has been considered a possibility. However, this risk is minimized in modern dental units which are now routinely fitted with anti-retraction valves.

Statement

Contamination of dental unit water systems from either the municipal supply or the patient's mouth may lead to the development of biofilms within the system. However, currently available scientific data imply that the risk to either the patients or the oral health care workers through water with essentially harmless, saprophytic bacteria is extremely low. It is prudent nevertheless to follow current waterline cleaning (regular flushing) and disinfection recommendations and directions for maintenance of each dental operative unit, essentially for hygienic considerations.