Infection Control in the Dental Office

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KEYWORDS

• Hand hygiene • Blood-borne pathogens • Personal protective equipment
• Sterilization and disinfection • Environmental infection control

KEY POINTS

- The Centers for Disease Control and Prevention (CDC) has developed infection control guidelines intended to improve the effectiveness and impact of public health interventions and inform clinicians, public health practitioners, and the public.
- This article highlights current scientific rationale and technique for performing proper infection control practices in the dental office.
- Although the principles of infection control remain unchanged, new technologies, materials, equipment, and data require continuous evaluation of current infection control practices.

WHY IS INFECTION CONTROL IMPORTANT IN THE DENTAL OFFICE?

During dental treatment, both patients and dental health care personnel (DHCP) can be exposed to pathogens through contact with blood, oral and respiratory secretions, and contaminated equipment. Following recommended infection control protocols described in the 2003 CDC guidelines and 2016 CDC summary can prevent transmission of infectious organisms among both patients and DHCP.[1] Dental patients and DHCP may be exposed to a variety of disease-causing microorganisms that are present within the oral cavity and respiratory tract. These pathogens include cytomegalovirus, hepatitis B virus (HBV), hepatitis C virus (HCV), herpes simplex virus types 1 and 2, HIV, tuberculosis (TB), staphylococci including methicillin-resistant *Staphylococcus aureus*, and streptococci, among others. The modes of infection of these organisms in dental settings are through multiple routes:

1. Direct contact of blood, saliva, teeth, or other potentially infectious patient materials with intact or nonintact skin

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2. Indirect contact with a contaminated object, such as instruments, operatory equipment, or environmental surfaces
3. Direct contact of conjunctival, nasal, or oral mucosa with droplets containing microorganisms
4. Inhalation of airborne microorganisms that can remain suspended in the air for long periods of time

Infection through any of these routes requires that all of the following conditions be present:

- An adequate number of pathogens, or disease-causing organisms, to cause disease
- A reservoir or source, such as blood, that allows the pathogen to survive and multiply
- A mode of transmission from the source to the host
- An entrance through which the pathogen may enter the host
- A susceptible host, one who is not immune

The occurrence of all these events is the chain of infection (Fig. 1). Effective infection control strategies prevent disease transmission by interrupting 1 or more links in the chain of infection.

The CDC is widely recognized as the leading national public health institute of the United States. Previous CDC recommendations on infection control for dentistry in 1986 and 1993 described the use of universal precautions to prevent transmission of blood-borne pathogens. Universal precautions were based on the concept that all blood and certain body fluids should be treated as infectious because it is impossible to know who may be carrying a blood-borne virus. Thus, universal precautions should apply to all patients.

The relevance of universal precautions applied to other potentially infectious materials was recognized, and in 1996, the CDC replaced universal precautions with standard precautions.[1] Standard precautions integrate and expand universal precautions to include organisms spread by

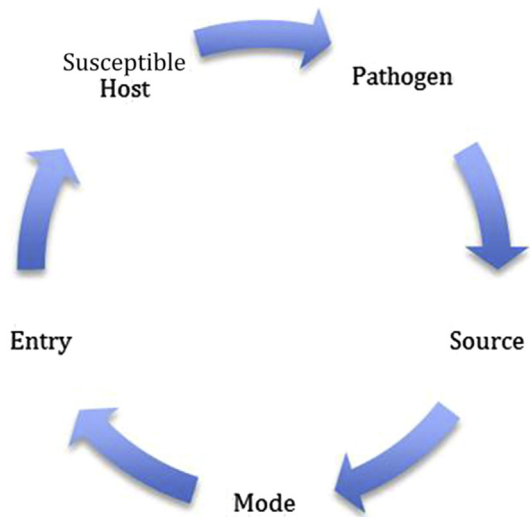

Fig. 1. The chain of infection.