

Immunizations

An Evolving Paradigm for Oral Health Care Providers



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KEYWORDS

- Vaccine-preventable diseases • Vaccine effectiveness • Active
- Passive immunization • Vaccine Adverse Event Reporting System (VAERS)
- CDC Standard precautions

KEY POINTS

- The pervasive increase in transmissible vectors of infectious diseases has created great concern in the health of populations globally.
- Oral health care professionals are especially at risk for the transmission of significant microorganisms, both bacterial and viral.
- The provider needs to be knowledgeable about the exposure/transmission of life-threatening infections in their daily practice, as well as options for prevention.
- This article is designed to increase the oral health care provider's awareness of vaccine-preventable diseases that pose a high risk in the dental health care setting.
- Specific dosing strategies are suggested for the prevention of infections caused by several bacterial and viral microorganisms based on available evidence and the epidemiologic changes described recently.

INTRODUCTION

The pervasive increase in transmissible vectors of infectious diseases has created great concern in the health of populations globally. The World Health Organization has approximately 36 million health care workers worldwide with more than 3 million who have not received vaccinations/immunizations.^{1,2} These health care providers are exposed to a cornucopia of infectious agents as they perform their professional duties, including being at high risk for injuries and transmission from exposure to blood borne pathogens (BBPs).^{1,2} Of occupational exposures, 75% are percutaneous; the remaining 25% are mucosal-cutaneous.¹⁻⁴ Infection transmission in the oral health arena has

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been a global public health concern since the 1980s, when the human immunodeficiency virus (HIV) epidemic came to light. Risk factor identification revealed the high risk of contact between dentists and their patients serving as a vector for transmission.^{5,6} Furthermore, dentists experience puncture wounds by needles more than any other health care specialist.⁴⁻⁷ As such, oral health care professionals are especially at greatest risk for the transmission of significant microorganisms, both bacterial and viral (Table 1). There are numerous reports across the globe that document significant cases where dentists still do not engage in safe practices with regard to barrier protection; that is, gloves, eye glasses, facemasks, and other protective shields.^{3,4,6}

In the 1980s, viral hepatitis, that is, hepatitis B virus (HBV) infection, was 4 times greater among oral health care workers, which has declined significantly owing to high compliance with HBV immunizations of the dental staff, as well as infection control practices referred to as universal precautions.^{8,9} The Centers for Disease Control and Prevention (CDC) in 1996 expanded the “concept” of universal precautions to

Disease Name	Etiologic Agent	Incubation Time
Bacterial		
Staphylococcal infections	<i>Staphylococcus aureus</i>	4–10 d
Streptococcal infections	<i>Streptococcus pyogenic</i>	2–3 d
Tuberculosis infections	<i>Mycobacterium tuberculosis</i>	Up to 6 mo
Diphtheria	<i>Corynebacterium diphtherias</i>	—
Pertussis	<i>Bordetella pertussis</i>	—
Viral		
Recurrent herpetic	Herpes simplex type 1 and type 2	2 wk
Rubella	Rubella togavirus	9–11 d
Measles	Paramyxovirus	10–12 d
Mumps	Paramyxovirus	16–18 d
Influenza	Live attenuated vaccine/H1N1	—
Hepatitis A	Hepatitis A virus	14–28 d
Hepatitis B	Hepatitis B virus	6 wk–6 mo
Hepatitis C	Hepatitis C virus (non-A non-B hepatitis)	Weeks–months
Hepatitis D (delta)	Hepatitis D virus (delta)	Weeks–months
Varicella virus	Varicella zoster	—
Infectious mononucleosis	Epstein–Barr virus	4–7 wk
Hand–foot–mouth disease	Cocksackie virus A, B	2 d–3 wk
Herpangina	Cocksackie virus A	5 d
AIDS	Human immunodeficiency virus	Weeks–months
Fungal		
Dermatomycosis	<i>Trichophyton microorganism</i>	Days–weeks
Superficial skin infections	<i>Epidermophyton/Candida</i>	—
Candidiasis miscellaneous	<i>Candida albicans/esophagitis</i>	Days–weeks
Superficial infections from hands and eyes	Numerous organisms	2–3 d

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