Epidemiology of Oral and Maxillofacial Infections

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KEYWORDS

• Dental caries • Gingivitis • Periodontitis • Odontogenic infections
• Oral mucosal infections • Antibiotic resistance • Microbe-related oral cancer

KEY POINTS

- Educating dentists on the epidemiologic information of dental caries, gingivitis, periodontitis, odontogenic infections, oral mucosal infections, and microbial-related oral cancer.
- Predominant types of microbes associated with periodontal pockets and odontogenic infections.
- Treatment options and prevention strategies of methicillin-resistant *Staphylococcus aureus* for dental and oral surgery practice.
- Human papilloma virus (HPV) -associated oropharyngeal cancer rates in United States population.
- Prevalence of HPV-associated oropharyngeal cancer in human immunodeficiency virus–infected individuals in United States.

INTRODUCTION

Epidemiologic studies usually provide information on determinants, occurrence, and distribution of health and disease in a defined population. The 3 major links in disease occurrence are etiologic agent, method of transmission, and the host. The different epidemiologic methods are descriptive, analytical, and experimental studies. The general factors that influence the occurrence of infectious disease are the following:

1. Pathogenic agent
2. Host

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3. Disease transmission
4. Environment

Epidemiology of dental disease is important when trying to understand the clinical and the public health impact of the disease as well as providing data for assessing methods of controlling this disease. To comprehend the disease process and how it affects different groups of society, one needs to know the distribution of the disease in various communities. Dental caries and periodontal diseases are common in industrialized countries and have been increasing worldwide. A fact sheet on oral health published by the World Health Organization (WHO) in 2012 revealed dental health data focused on dental caries, periodontal disease, edentulousness, socioeconomic, and other risk factors. The key facts of WHO are given in **Box 1**. WHO mentioned that the most common oral diseases are dental caries, periodontal disease, oral infectious diseases, oral cancer, trauma from injuries, and hereditary lesions.[1]

This article outlines the epidemiology of oral and maxillofacial infections, such as:

1. Dental caries
2. Gingivitis
3. Periodontitis
4. Odontogenic infections
5. Oral mucosal infections
6. Microbial-related oral cancer

The epidemiology of antibiotics resistance in oral infections and specifically as it relates to methicillin-resistant *Staphylococcus aureus* (MRSA) in dental and oral surgery practice completes the article.

EPIDEMIOLOGY OF DENTAL CARIES

Dental caries is considered the most prevalent oral disease and the main cause for tooth loss among all populations.[2] It is an infectious disease caused by bacterial strains that coexist in the oral cavity, mainly *Streptococcus mutans* and Lactobacillus. Epidemiologic studies have clearly established that social, economic, cultural, ethnic, and environmental factors play an important role in the formation of dental caries and also influence the individual oral microflora related to oral health.[3,4]

The decayed, missing, filled (DMF) index is used as the key measure of caries occurrence in dental epidemiology. Data from the DMF table published by FDI (Federation

Box 1
World Health Organization key facts on dental health

- Worldwide, 60% to 90% of school children and nearly 100% of adults have dental cavities.
- Severe periodontal disease is found in 15% to 20% of middle-aged (35–44 years) adults.
- Globally, about 30% of people aged 65 to 74 have no natural teeth.
- Oral disease in children and adults is higher among poor and disadvantaged population groups.
- Risk factors for oral diseases include an unhealthy diet, tobacco use, harmful alcohol use, poor oral hygiene, and social determinants.

From World Health Organization (WHO). Oral health: fact sheet No. 318. April 2012. Available at: http://www.who.int/mediacentre/factsheets/fs318/en/; with permission.