The Challenges of Waterborne Infections: A Microbiology Perspective

Infections caused by waterborne microorganisms are among the most harmful to global health. These include diseases caused by a variety of bacteria, protozoa, viruses, and other parasites. They are able to proliferate in many natural water sources, as well as man-made systems designed to provide potable water for public and health care use. An initial overview of the principles and epidemiology associated with waterborne infections will be followed by discussion of representative, clinically important pathogens and the challenges they present to healthcare settings and the general public. With specific regard to dentistry, comprehensive infection prevention recommendations now address the potential for colonization and contamination of dental treatment water. Emphasis here will focus on current waterborne microbial challenges, including Pseudomonas, Legionella pneumophilia, and nontuberculous Mycobacteria (NTM) species.

Vaccine Recommendations: Science, Success & Myths

This seminar will consider vaccination as an effective public health infection control approach for prevention of both the general population and health care professionals. Emphasis will focus on the most recent updated information pertaining to vaccines used in the prevention of adult infectious disease, especially those with increased occupational health care risks. Discussion concerning recent public health vaccine recommendations, such as those targeting shingles and human papilloma virus (HPV) will also be included. The rationale and classification of available vaccines and emerging technologies will be discussed in order to provide participants appropriate scientific and clinical evidence, which can be useful when considering the necessity for their own protection, as well as protection of the general public and individuals diagnosed with immune compromising conditions and diseases. In addition, important information will be presented concerning certain public misperceptions against vaccines which threaten their documented global success against many preventable infectious diseases.

Learning Objectives

- Describe infectious disease characteristics and outbreaks of specific waterborne pathogens that challenge our health care infection control procedures.
- Discuss available approaches to control microbial colonization of waterlines in dental and medical settings.
- Comprehend the overall impact vaccinations have had in protecting the population against many infectious diseases.
- Discuss the latest CDC vaccine recommendations for health care professionals.
- Understand the rationale for other representative vaccination recommendations, including homologous virus infections.
- Describe the dangers of public misperceptions against vaccines.

At the completion of this course the participants should be able to:

- Understand the unique colonization and pathogenic properties of microorganisms that promote cross-contamination and infection in susceptible hosts.
- Comprehend the variety of acceptable product choices for accomplishing an infection control goal in dental facilities.
- Comprehend the historical and current challenges waterborne infections present to the population and healthcare facilities.
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