In 1996, the Centers for Disease Control and Prevention (CDC) introduced Standard Precautions which combined and expanded the elements of Universal Precautions into a standard of care designed to all protect health care personnel (HCP) from pathogens that can be spread by blood or any other body fluid, excretion, or secretion. Standard Precautions also contain three additional subsets of precautions, known as Transmission-Based Precautions, based on the routes of disease transmission for a smaller number of specified patients known or suspected to be infected or colonized with highly transmissible or epidemiologically important pathogens. Sometimes referred to as the second-tier of precautions, Transmission-Based Precautions are designed to reduce the risk of airborne, droplet, and contact transmission and are always used in addition to Standard Precautions. Since the publication of the Guidelines for Infection Control in Dental Health-Care Settings—2003 the CDC published updated isolation guidelines which introduced several new elements of Standard Precautions and provided more detailed information about Transmission-Based Precautions. This article provides a historical overview of Standard Precautions, including the two new elements applicable to dentistry—safe injection practices and respiratory hygiene and cough etiquette. The importance and relevance of Transmission-Based Precautions to dental settings is also discussed. Dental health care personnel (DHCP) should update their infection control programs to ensure that safe injection practices and respiratory hygiene and cough etiquette measures are used routinely. In addition, with the emergence of new pathogens, re-emergence of variant organisms and more patients seeking care in ambulatory care facilities, DHCP need to be aware of additional measures to take when treating patients in their offices who are actively infected with certain organisms to protect fully other patients, their staff members and themselves.