

INTRODUCTION

Dental healthcare professionals (DHCPs) are at risk of infections caused by various microorganisms such as *Mycobacterium tuberculosis*, hepatitis B and hepatitis C viruses, staphylococci, streptococci, herpes simplex virus types 1, human immunodeficiency virus (HIV), mumps, influenza, and rubella (*Araujo et al., 2002*).

The ideal way leading to the prevention of infectious disease is the strict adherence to universal precautions for all patients (*Gershon et al., 1998*), though not limited to, eye protection with lateral shields, facemask, and protective clothing, which will be laundered on the premises or by appropriate services (*Garner, 1996*).

Many researches clarified that there are gaps in some dentists' knowledge regarding modes of transmission of infectious diseases, the risk of infection from needle stick injuries, and awareness that general measures that protect against HBV transmission are sufficient to protect against HIV. However, dentists working in hospitals and dental

schools are more likely to adhere to ICP than private sector dentists because institutions usually have occupational health policies related to infection control (*McCarthy et al., 1998*).

The issue of cross infection becomes an integral part of dental practice and a major concern to dentists and patients due to the increased risk of hepatitis and AIDS (*Morris et al., 1996*).

The identification of human immunodeficiency virus (HIV) and the epidemiologic evidence of its transmission through inoculation with contaminated blood (*Ciesielski et al., 1992*), in addition to early reports of hepatitis B virus (HBV) transmission to patients from surgeons and dentists (*Bell et al., 1995*) raised concerns related to cross infection with HIV and HBV and other blood borne pathogens. As a result, there was a need to develop infection control recommendations designed to reduce the risk of transmission of blood borne diseases in health care facilities. These procedures were termed as universal standard precautions, which consider all blood and blood contaminated fluids as potentially infectious (*Surveill, 2003*).

Both viruses of HIV and HBV can be transmitted after needle stick injuries and contact with body secretions (*Al-Dwairi, 2005*). Also because many infected patients are unaware of their status or not willing to disclose their disease status to health care workers (*Samaranayake, 1993*).

To minimize the risk of cross infection in the dental clinics, specific recommendations have been issued by professional health agencies. These recommendations include routine use of barrier techniques (gloves, masks), heat sterilization of dental instruments, vaccination against HBV, and the universal precautions. Dentists' compliance with these recommendations and infection control programs (ICP) has been recently studied in different parts of the world (*Al-Dwairi, 2005*).

There have been several reports of HBV and HIV transmission to patients from surgeons despite the development of the universal precautions (*CDR, 1997*).

In the dental setting, there are special circumstances and opportunities able to lead to transmission of such organisms to DHPs. For instance, high-speed dental instruments can create

instance, high-speed dental instruments can create aerosols of water, saliva, and potentially infectious droplets through the air/water irrigation systems which are necessary to prevent pulpal overheating during dental preparation (*McCarthy et al., 1998*). Therefore, it is appropriate to always use eye/face protection and have adequate suction when using high-speed rotary instruments.

In 2003, the Center for Disease Control and Prevention of the United States of America (CDC) updated their guidelines for infection control in dental settings (*Kohn et al., 2003*).

These guidelines include standard precautions which aim to ensure a safe working environment and prevent potentially transmission of occupational and nosocomial infections among DHCPs and their patients.

Standard isolation precautions are designed to reduce the risk of acquiring occupational infections from both known and unknown sources in the healthcare setting. Awareness and compliance with these recommendations is crucial for the prevention of occupational and nosocomial infections in healthcare workers, including dental healthcare professionals (*Gershon et al., 1998*).

The role of the dental assistant is vital to the process of infection control; however, the adherence of this particular group to these guidelines is inadequate because they receive less formal training than provided for dentists (*Al-Rabeah and Mohamed, 2002*).

Oral health care workers are known to be at increased risk of hepatitis and HIV infection. Although the hepatitis risk has been known for years, it is clear that the routine infection control recommendations and procedures available since the 1970's had often been ignored even in highly educated groups. Infection control practices in second and third world settings have not been widely documented. Furthermore, there is no information reported regarding infection control practice in Kuwait (*Morris et al., 1996*).

The oral health care system in Kuwait is primarily a national health care system, accounting for some 85% of oral health services. Personnel employed have been trained in a variety of settings worldwide. In this period of heightened awareness of infection control, the government is concerned that standardized accepted methods of infection control are followed both in the national health care system and in the private sector (*Morris et al., 1996*).

AIM OF THE WORK

1. To ensure the availability and accessibility of infection control protocols in the private dental care clinics in Kuwait.
2. To check compliance of dental health care providers to the safety precautions universally implied all over the world in the form of infection control guidelines, and provided by the Ministry of Health in Kuwait.
3. To find out the obstacles that prevent dental health care providers from adherence to the infection control guidelines.



STATE OF KUWAIT

Kuwait is an Arab emirate bordered by Saudi Arabia to the south and Iraq to the north and west. The name is a diminutive of an Arabic word meaning "fortress built near water." It has a population of 3.1 million and an area of 17,818km². Kuwait is a constitutional monarchy with a parliamentary system of government, with Kuwait City serving as the country's political and economic capital.

Kuwait gained independence from the United Kingdom in 1961. Since then, the nation's oil industry saw unprecedented growth. Petroleum and petroleum products now account for nearly 95% of export revenues, and 80% of government income. Kuwait is divided into six governorates:

- Al Ahmadi
- Al Farwaniyah

- Al Asimah
- Al Jahra
- Hawalli
- Mubarak Al-Kabeer



Kuwait Towers



Map of Kuwait

Chapter 1

IMPORTANCE OF PROPER INFECTION CONTROL PRACTICE

A variety of bacterial, viral, fungal, and protozoan microbes present hazards to the dental team and patients. They may be exposed to these microbes through direct contact with a patient's tissues such as blood, skin, and other secretions, or by indirect contact like injuries caused by sharp contaminated instruments or by droplet infection from aerosols and spatter (*Miller et al., 1993*).

There are two reasons why dental health care workers must wear operating gloves: 1) to prevent transmission of infection from the operator's hands to the patients; and 2) to prevent contact of blood and saliva with the operator's hands (*Wood, 1992*).

With the global rise in the number of people infected with hepatitis B and C and HIV viruses, cross Infection has become of paramount concern to dental health care workers and their patients. The objective of this study was to assess the infection control practice in the private dental sector in Kuwait.

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There is a need to develop infection control recommendations designed to reduce the risk of transmission of bloodborne diseases in health care facilities. These procedures were termed as universal standard precautions, which consider all blood and blood-contaminated fluids as potentially infectious (*Surveill, 2003*).

The issue of cross infection becomes an integral part of dental practice and a major concern to dentists and patients due to the increased risk of hepatitis and AIDS (*Morris et al., 1996*). Both viruses can be transmitted after needlestick injuries and contact with body secretions (*Wood, 1992*) and also because many infected patients are unaware of their status or not willing to disclose their disease status to health care workers (*Samaranayake, 1993*).

There have been several reports of HBV and HIV transmission to patients from surgeons despite the development of the universal precautions (*McCarthy et al., 1995*).

To minimize the risk of cross infection in the dental office, specific recommendations have been issued by professional health agencies. These recommendations include routine use of barrier techniques (gloves, masks), heat sterilization of dental instruments, vaccination against HBV, and the universal precautions. Dentists' compliance with these recommendations and infection control programs (ICP) has been recently studied in different parts of the world (*Al-Rabeah and Mohamed, 2002*).

These investigations indicate that there are gaps in some dentists' knowledge regarding modes of transmission of infectious diseases, the risk of infection from needle stick injuries, and awareness that general measures that protect against HBV transmission are sufficient to protect against HIV. However, dentists working in hospitals and dental schools are more likely to adhere to ICP than private sector dentists because institutions usually have occupational health policies related to infection control (*McCarthy et al., 1998*).

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Human Immunodeficiency Virus (HIV) is now becoming a big issue. It is the cause of Acquired Immune Deficiency syndrome (AIDS), and is transmitted through sexual contacts, exposure to infected blood or blood components, needle stick injury, and perinatally from an infected mother to neonate.

Despite the minimal risk, the transmission of HIV in health care setting is often a cause of anxiety. HCW should be familiar with precautionary measures to further minimize the potential risk of HIV transmission in health care settings (*Hong Kong Advisory Council, 2005*).

A thorough medical history of the patient is taken during his first dental visit, which is updated and reviewed at subsequent visits. Not all patients with infectious diseases can be identified by medical history, physical examination or readily available laboratory tests. This limitation has introduced the concept of Universal precautions. (*Shinsho F, et al. 1994*). This term refers to a method of infection control

in which all human blood and certain human body fluids (saliva in dentistry) are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens. Universal precautions mean that the same infection control procedures are used for all patients. In a dental clinic, the patient's saliva, dental plaque, blood and pus, are aerosolized and spattered. Microorganisms are always mixed with these body materials and they cause infectious and transmissible diseases, the most common of which are common cold, pneumonia, TB, herpes, hepatitis, and AIDS (*Shinsho et al., 1994*).

By adhering to some basic procedures, the dental staff can safe guard their own health and prevent cross infections.

Chapter 2

INFECTION CONTROL PRACTICE IN DENTISTRY

I. Personnel Health Elements of an Infection-Control Program

A protective health component for DHCP is an integral part of a dental practice infection-control program. The objectives are to educate DHCP regarding the principles of infection control, identify work-related infection risks, institute preventive measures, and ensure prompt exposure management and medical follow-up. Coordination between the dental practice's infection-control coordinator and other qualified health-care professionals is necessary to provide DHCP with appropriate services. In such settings, the infection-control coordinator should establish programs that arrange for site-specific infection-control services from external health-care facilities and providers before DHCP are placed at risk for exposure.

II. Education and Training

Personnel are more likely to comply with an infection-control program and exposure-control plan if they understand its rationale (*Gershon et al., 2000*).

Clearly written policies, procedures, and guidelines can help ensure consistency, efficiency, and effective coordination of activities. Personnel subject to occupational exposure should receive infection-control training on initial assignment, when new tasks or procedures affect their occupational exposure, and at a minimum, annually (*US Department of Labor, 1991*). Education and training should be appropriate to the assigned duties of specific DHCP (e.g., techniques to prevent cross-contamination or instrument sterilization). For DHCP who perform tasks or procedures likely to result in occupational exposure to infectious agents, training should include 1) a description of their exposure risks; 2) review of prevention strategies and infection-control policies and procedures; 3) discussion regarding how to manage work-related illness and injuries, including PEP; and 4) review of work restrictions for the exposure or infection (*Bolyard et al., 1998*).

III. Immunization Programs

DHCP are at risk for exposure to, and possible infection with, infectious organisms. Immunizations substantially reduce both the number of DHCP susceptible to these diseases and the potential for disease transmission to other DHCP and patients
