



Knowledge and Practices of Dental Health Care Workers Regarding Infection Control Measures

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Abstract

1. Introduction

Infection control in a dental practice can never be overemphasized, as both patients and members of the dental team are constantly at risk of exposure to a variety of microorganisms that are present in the blood and blood fluids, mucosa, saliva, or exudates. While the former is a potential source of life-threatening diseases, including hepatitis B, C, HIV/AIDS, and tuberculosis, the latter is an entry point for the invaders. Over the years, there have been substantial improvements in these practices, standards, and guidelines, and their adoption by members of the dental team. Yet, breaches in infection control by healthcare workers, thereby transmitting infections to patients during care delivery, are documented. Shortcomings in compliance with infection control guidelines are not uncommon, with dental hygienists and dental assistants demonstrating higher levels of compliance compared to dentists.

Methods

This comprehensive study employed a detailed cross-sectional survey design to thoroughly assess the knowledge and practices of dental health care workers in relation to vital infection control measures. The purpose was to gather significant insights into the current standards and protocols being followed.



Conclusion

The key to controlling cross infections lies in the education and practice of the individuals providing dental care services, as well as adhering to a well-documented infection control protocol. However, the current practice of dental health care workers indicated the need for better educational programs and further training regarding protection and infection control. Ultimately, policymakers and dental industry leaders should promote health and design effective infection control protocols with provisions for the well-being and safety of dental professionals and the public. Furthermore, dental professionals should establish well-documented infection control protocols and adhere to government regulations. Although these conclusions are drawn from new lines, further studies are needed in this area to substantiate or refute the conclusions derived from this directive. Finally, we could not identify the potential barriers limiting adherence to infection control recommendations. Future research should identify and understand these limitations and develop strategies for overcoming them. At the very least, an education campaign should target at-risk practices that fall below the standard of care across the board and focus on providing quality oral health care to all populations.

Introduction

All the dental health care workers are at substantial risk of contracting and unknowingly passing diseases to their patients. The hepatitis B virus, hepatitis C virus, and HIV are the causative agents of three major diseases that are of concern to dental health care personnel. Other potentially infectious agents include Mycobacterium tuberculosis, which causes tuberculosis, Streptococcus pneumoniae, Haemophilus influenzae type b, rubella, and measles. The objective of this study, therefore, was to assess the level of knowledge and practices of dental health care workers regarding infection control measures in public hospital facilities of Makkah City. A cross-sectional study was conducted among 220 dental health care workers in Makkah City hospitals. A structured self-administered questionnaire was used for this purpose to collect the required data. The majority of participants had a good level of knowledge, which influenced their practices positively. In conclusion, the results of this study showed that the dental health care workers at Makkah City's hospitals had an excellent level of knowledge and practice regarding infection control measures. The study revealed that their level of knowledge influenced their practices. The establishment of guidelines and a good follow-up by officials about these guidelines will increase compliance of dental health care workers with rules. The findings of this study should be recognized and used, and it should be emphasized that continuous education and adequate training of dental health care workers will improve their level of safety concerning cross-infection and sharp injuries, thereby promoting safer dental practices. This study also emphasized the need for proper infrastructural facilities and the introduction of registration details of infected dental



patients. Dental health care workers should make health intelligence information about infected patients available to the dental work environment.

2. The Importance of Infection Control in Dental Settings

Knowledge and Practices of Dental Health Care Workers Regarding Infection Control Measures in Tiruvallur District

Dental health care workers are at high risk of acquiring a variety of infectious diseases because of the contaminated aerosols, splatter, and instruments generated during dental procedures. They could be exposed to a variety of microorganisms transmitted by direct or indirect contact with blood, saliva, or other body fluids. Research conducted worldwide has found that members of the dental team who are most at risk for exposure to bloodborne pathogens are dental surgeons, dental assistants, dental hygienists, and special needs workers. Dental health care workers have a high risk of infection from various viruses such as hepatitis B virus, hepatitis C virus, cytomegalovirus, herpes simplex virus, and HIV, Mycobacterium tuberculosis, and bacteria responsible for tuberculosis, acquired through droplets and splatter. Using proper hand hygiene, wearing personal protective equipment including gloves, eye protection, masks, gowns, and proper disposal of biomedical waste is necessary to prevent infection among dental health care workers. Proper infection control is indispensable for the safety and security of care providers and patients; thus, the knowledge and practices of infection control measures among dental health care workers are important.

3. Guidelines and Regulations for Infection Control in Dentistry

Guidelines and regulations from various international, regional, and national organizations and associations are available for dental health care delivery. While numerous guidelines and regulations have been prepared, the overwhelming number of them come from American organizations. The Centers for Disease Control has issued two important documents on guidelines for infection control practice. In addition to these recommendations, the United States has regulations for addressing infection control from the Occupational Safety and Health Administration, state health departments, and other local health authorities. Following these, the local health authorities in the United States have also issued standards that are implemented and inspected as per the national rules and regulations.

The development of national regulations is also in use in specific countries. Germany has passed a regulation which includes regulations for hygienic standards in health care settings. The legislation of Switzerland also includes regulations for dental practices in its public health codes. In other European countries, the national laws on quality in health care settings are followed for infection control measure adherence. The guidelines prepared by non-governmental organizations such as dental associations in the United States, the United Kingdom, and by European associations, associations in Australia, and Taiwan also serve as



informative documents for dental healthcare delivery. The mere existence of regulations or guidelines does not guarantee their implementation in practice. The strength in adherence comes from educating dental care workers.

4. Common Infectious Agents in Dental Settings

Dental health care personnel and clients are commonly exposed to various microorganisms during oral health care. Regular exposure to various microbes in the oral cavity and bloodborne diseases through direct contact with body fluids may pose a significant threat to the health of dental care workers and clients. Microbial infections and bloodborne viruses can be transmitted through direct contact of broken skin or mucous membranes with infected saliva, blood, respiratory secretions, human milk, urine, excretion, and secretions from specific body sites, as well as body fluids of subpopulations in patients with infections; through the droplet diffusion of infected saliva and respiratory secretions; aerosol diffusion generating infectious droplets; or through contact with surfaces contaminated with infectious agents in the clinic or in the community area or air. The infectivity varies according to the degree of viral shedding and the contact details and occupation of dental health care workers.

5. Training and Education for Dental Health Care Workers

Desk-based computer searches can be conducted to provide information regarding strategies for decreasing these risk factors, the effectiveness of strategies to increase infection control practices, and personnel and training issues. Training of health care personnel often leads to changes in attitudes and provides information and skill mastery. Such workshops can also increase staff uptake of hepatitis B immunization and have the potential to reduce the risk of contracting such infections. Regular training sessions with practical demonstrations should be incorporated into the overall training package. Clinicians should be given annual updates and should be made aware of the policy concerning advice on immunizations. Members of the dental team may feel that those with occupational exposure may be at greater risk of infection. Educational intervention can help rid clinicians of these misconceptions and can also allay concerns. Members of the dental team can be trained to provide basic pre- and post-exposure advice and support. Management should provide evidence of good management, support, and policies. Account should be taken of additional sources of risk associated with specific prosthodontic treatments that could lead to occupational exposure. Members of the dental team should comply with the policy to utilize PPE to perform these activities as a matter of routine.

6. Assessment of Knowledge and Practices

Knowledge and Practices of Dental Health Care Workers Regarding Infection Control Measures in India



Abstract: Background: India has the largest oral disease burden in the world. Hence, dental care infection and control are critical because of their close contact with patients, and many dental patients have the potential to transmit infections to dental staff through blood or body fluid exposure. Aim: The study aims to determine the knowledge and infection control practices among dental health care workers, private and postgraduate students. Materials and Methods: The survey included 35 private and 38 postgraduate students who participated in the study in detail. The results are evaluated using statistical methods. Results: The statistical analysis showed a difference in the mean and sum of the correct knowledge level of the postgraduates and the faculty. The practice score shows a statistical difference. Furthermore, the results are statistically insignificant. Conclusion: Even if the results have some enthusiasm, it is evident that there is a gap between the acquisition of knowledge and the implementation of infection control measures by dental health workers. There should be periodic seminars, workshops, or courses to raise awareness of these issues among health care workers.

7. Barriers to Implementation of Infection Control Measures

In our study, HCPs were more frequently reported as risk groups for blood-borne infections when compared to the general population, but these results were not influenced by the implementation of infection protection measures. This was also clarified by the positive relationship between participants' perception of their susceptibility to hepatitis and the practice of wearing gloves in dental practice. Significantly more non-clinical and clinical dental personnel stated that they take more stringent sterilization and disinfection precautions than required in routine dental practice, although they did not feel at risk from the transmission of HBV, HCV, or HIV compared to clinical personnel working in a hospital.

The guideline states that dental procedures have always been associated with the need for appropriate personal protection measures; nevertheless, it may sometimes pose a risk. Studies support that utilizing infection protection measures is far better implemented in a hospital setting compared to dental practice. According to the results of some other studies, wearing gloves is mainly determined by the type of clinic setting and type of procedure. The most frequently mentioned reasons for not wearing gloves in the dental profession were the size of the gloves, and for dental nurses, it was the finger dexterity. The fear of patient embarrassment and discomfort, and the lack of observed exposure for dental students were also noted. However, most of these papers were assessing the attitudes and practices of students doing clinical training in the dental faculties.

8. Strategies for Improving Compliance

People's compliance with any preventive measures can only be increased if everyone knows the risks involved and believes they are real. Educational programs should aim to make

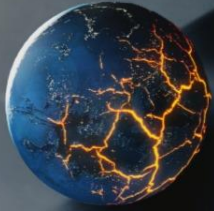


health care workers aware of their risk for exposure to blood and blood-borne diseases. During dental practice, a number of sharp instruments may be used, which could cause injury to health care workers. The delivery of health care services can expose these workers to infections. Apart from producing a direct effect on the mental and physical well-being of health care workers, such injuries can have adverse effects on society. It is estimated that millions of people receive injections each year, and a large number of these injections are administered to health care workers by their colleagues. Risk and the route and means of transmission of infections should be made clear to health care workers. Suitable precautions, in order to protect themselves and others from infection, should be explained. Provision of information targeted to the different stages in the learning process of health care workers is crucial for achieving these goals.

In people who are being exposed to infectious diseases, instructions should be given on the implementation and management of preventive measures. Furthermore, attention should be paid to socio-demographic and work-related factors. Educational activities should be targeted not only to qualified workers but also to students. Schools and hospitals should develop and implement a policy on needlestick injuries and the management of these incidents. Their action plan has to be simple and clear. The strategy to be developed should include information on risk assessment for infections from blood and other body fluids, on how to promote the use of preventive techniques, and guidance on post-exposure counseling, medical, and psychological aid. School programs should be adapted to the level of education, to specific topics mastered by students, and to pedagogical objectives. These programs should rely on office and hospital staff. The level of information should depend on both the problem of infections in the area and the situation and risk related to work conditions in their country. Such programs cannot rely solely on the training of hospital and local staff but also have to attract the interest of the students' families. Ongoing training is also considered of high importance for maintaining high-risk prevention in schools and hospitals. To improve compliance, the pedagogical and psychological context of the education should be integrated, and the delivery method should be adapted in two or more educational steps. (Goulart et al.2022)(Southworth et al.2023)(Rasulova and Karimov2022)(Saidov et al.2023)(Kilag et al.2023)(Rustamov and Mamaziyayev2022)

9. Future Directions and Research Needs

In conclusion, the level of KAP among DHCW in this study was low, which suggested the need for ongoing education initiatives that can be organized and made mandatory by the different health systems on infection control measures. It is recommended that future research initiatives need to focus on the role of organizational climate and support in promoting adherence by DHCW in infection control measures. The health center can also provide an



environment conducive to open discussion on practices and experiences in a supportive setting.

There is also a need for the extension of similar studies to the rest of the country. Despite limitations, this study is the first of its kind in South Africa to examine the knowledge and practice of DHCW on infection control. The results of this study do provide a basis for the enhancement of education and support initiatives and the potential means of tracking individual adherence to recommended infection control measures. As in all studies, there are a number of limitations that warrant further mention. Data collection relied solely on self-report measures and cannot verify the accuracy of responses in terms of observed and reported behavior. In addition, various question items elicited a "perfect world" response because that action was desirable as opposed to actual observed behavior.

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