

Methods of cross infection control in dental setups in Karachi

Yousuf Lakdawala, Mohsina Hamid Gore, Humza Azim Daudpota

Abstract

Objective: The aim of this study is to explore the different methods of cross infection control employed in dental institutions/clinics of Karachi.

Methodology: A structured questionnaire was administered to a small group 36 respondents who were responsible for recording the different methods of infection control in dental institutions and clinics. The institutes/clinics were divided according to their area so that a generalized survey of clinics in Karachi can be conducted. These include Altamash Institute of Dental Medicine, Sir Syed institute, DOW Institute, Ziauddin Hospital, KMDC, and a few other clinics.

Results: Questionnaires from 36 respondents were collected and analyzed. The results are as follows: 52.7% of the respondents were satisfied with the methods of cross infection control in their clinic, 77.7% recorded use of antiseptic hand wash, 50% recorded hand washing after examining the patient and at both times, 86.1% used latex gloves, 77.7% used masks, 47.2% used proper clothing (e.g. scrubs), 33.3% used plastic wraps around knobs/handles, 61.1% used double gloves/masks technique, 36.1% recorded use of disposable instruments, 61.1% (22) preferred sterilization over disinfection, 83.3% use Autoclave for sterilization, 66.6% use Alcohol/spirit and 77.7% (28) claimed that most doctors and staff were adequately vaccinated.

Conclusion: It is essential for the dental team to be knowledgeable about the principals of sterile technique and to employ adequate corrective procedures to have a good surgical conscience. The methods employed in dental clinics in Karachi were satisfactory and they need to be improved further.

Keywords: Cross infection control, Sterilization, disinfection.

Introduction

Cross-infection can be defined as the transmission of infectious agents between patients and staff within a clinical environment.¹⁻⁴ The possible threat of cross infection in dental clinics validates the need for adequate protocols and equipment by the practitioner and staff, to help prevent disease outbreaks amongst patients. Every encounter with a patient should be considered a medium for contagious infections to spread, either from the patient to another patient, or from the dental practitioner to the patient or vice versa. Cross infection control has

occupied the attention of health care workers since the discovery of the human immune deficiency virus (HIV). Consequently, some health care authorities including the British Dental Association, British Medical Association and the World Health Organization recommended stringent guidelines for the management of HIV infected and AIDS patients.³

Sterilization is a process by which complete destruction or killing of all microorganisms, including bacterial spores is achieved.¹ This is carried out in dental clinics by physical or chemical methods. However, disinfection describes a

Received:
13th June 2016

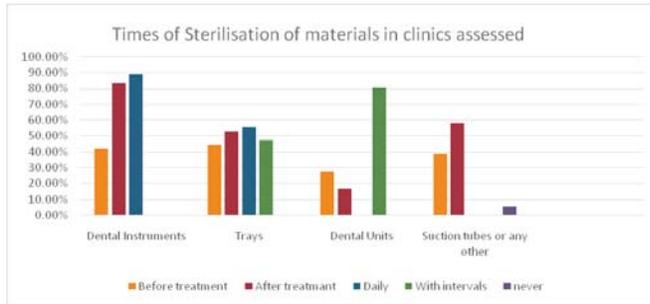
Accepted:
24th December 2016

**Altamash Institute of
Dental Medicine, Karachi**
YA Lakdawala
MH Gore
HA Daudpota

Correspondence:
Dr Yousuf A. Lakdawala,
Assistant Professor,
Department General
Surgery, Altamash Institute
of Dental Medicine, D.H.A
phase 4, Karachi.
Cell: +92 321 2031609
Email: youlak92@yahoo.
com

Table-1: When are, the following materials sterilized?

	Before treatment	After treatment	daily	with intervals	never
Dental instruments	41.7%	83.3%	88.9%		
Trays	44%	52.8%	55.5%	47.2%	
Dental units	27.8%	16.7%		80.6%	
Suction tubes or any other	38.9%	58.3%	5.5%		



Autoclave Hot air Oven

process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects.² Infection usually spreads through exposure to body fluids and through the air (expiration), needle stick injury or any cuts from used instruments also prove to be a source of spread. Numerous surveys and studies have shown that the incidence of hepatitis B developing after needle stick injuries from HbsAg patients is approximately 20.0% compared with an estimate of 0.4% following similar exposure to the HIV.⁴ In one of the studies conducted in the year 2000 in Pakistan, the researchers found that out of 10 registered health care practitioners, none of them were able to mention hepatitis-C as a disease likely to be transmitted through unsterile syringes, only two mentioned hepatitis B virus while over half of them mentioned tuberculosis.⁵ Studies in Pakistan on small targeted groups including health professionals and other groups of people indicate that the prevalence of

hepatitis C is as high as 40%.⁵

Therefore, it is essential for clinics and dental practitioners to adopt adequate rules of conduct for safe dental procedures.

Methodology:

A structured questionnaire with closed ended questions was administered to willing respondents. The questionnaire had a total of 15 questions. A total of 5 medical and dental institutes and few more dental clinics were selected from different areas of Karachi. These institutes and clinics were assessed on the types of methods of cross infection control employed in their clinics. A total of 36 respondents had taken part in the research, 6 per institute/clinic. These respondents included BDS third and final year students, House officers, FCPS residents and lab technicians. The study was conducted from 1st November 2016 to 15th January 2017. All the results collected were analyzed using Microsoft Excel 2016.

Results:

A total of 36 questionnaires were collected which had been completed and filled. In this study, all of the clinics assessed believed that cross infection control is a very important part of dental practice and that it should be practiced in every procedure carried out in the clinic.

About 52.7% (19) of the respondents were satisfied with the methods of cross infection control in their clinic. About 77.7% (28) of them recorded that an antiseptic hand wash is used by the practitioners during handwashing while the rest recorded the use of plain soap. 50% (18) of them recorded washing of hands by the practitioners only after examining the patient while the rest recorded handwashing both before and after examining the patient.

When asked for the use of barrier techniques the respondents recorded: 86.1% (31) used latex gloves, 77.7% (28) used masks, 47.2% (17) used proper clothing (e.g. scrubs), 33.3% (12) used plastic wraps around knobs/handles and 61.1% (22) used double gloves/masks technique when

treating patients with contagious diseases.

About 36.1% (13) respondents recorded the use of disposable instruments in the clinics while the rest reported the use of metal instruments.

61.1% (22) preferred sterilization methods over disinfection. 83.3% (30) of the respondents reported the use of Autoclave for sterilization and 66.6% (24) reported use of Alcohol/spirit as the method of disinfection. Table 1 shows the results of how often sterilization of some of the materials is carried out.

Many respondents were unsure regarding the methods of waste disposal, but a few reported the use of yellow waste bags. 77.7% (28) claimed that most doctors and staff were adequately vaccinated against diseases like Hepatitis B but were unsure as to the number of time they were screened for life threatening diseases.

Discussion:

Possible concerns about the spread of blood-borne diseases, and the impact of emerging, highly contagious respiratory and other illnesses, require practitioners to establish, evaluate, continually update, and monitor their infection prevention and control strategies and protocols.⁶

Washing of hands is a very important part of proper cross infection control in dental practice and so practitioners have been practicing hand-washing even before the discovery of AIDS. Both the type of medium used and the times of handwashing is important. A study in 1990 by C Scully et al showed that 38% of the health care workers washed their hands before gloving, while 50% of them washed their hands only after patients' examination.⁷

Studies have shown that cutaneous, percutaneous, and mucous membrane can be exposed to patients' blood during surgeries.⁸ The dental staff or the dentist may be one of the most 'at risk person' to such an infection. Some other conditions like HIV have no immunization protection and hence it becomes more imperative to exercise personal protection by barrier tech-

niques like using gowns, gloves, face masks, eye wear and rubber dam.¹² In this study 86.1% of the respondents reported the use of latex gloves being worn by practitioners, which can protect against any small accidental cuts, and abrasions and so reduce the transmission of dangerous diseases to practitioners. Also 77.7% use masks which is a good percentage as these facemasks prevent the inhalation of infective air droplets or a spray of saliva from the patient for e.g. during coughing. It was disturbing to find that only 33.3% respondents reported the use of sterile plastic wraps around handles, without the knowledge that dirt from overhead lighting or contaminated handles may hinder the sterility of the procedure.⁹ Use of the double gloves/masks technique (66.1%) is very important in preventing contamination, Quebbeman et al studied in 1992 that there was a 51% hand-contamination rate for those who wore a single pair of gloves compared to a 7% contamination rate for those who wore two pairs of gloves.¹¹

Very few of the respondents (36.1%) reported the use of disposable instruments. Disposable items provide the simplest means of infection control though it has a disadvantage of not being economical and may cause problems of disposal or environmental pollution.¹²

Most of the respondents preferred proper sterilization over disinfection as this is the only technique by which all micro-organisms and their spores can be killed. Autoclaving of instruments is the most frequently adopted method of sterilization (83.3%) as moist heat (steam under pressure) is the most effective against organisms and their spores.

Only 38.9% sterilized suction tubes before the dental procedure; a study by William R. Hopper concluded that when a sterile item extends beyond the sterile boundary, it is considered contaminated and should not be pulled into the sterile field.¹⁰

When inquired about waste management most were unaware of such organization and vague answers were given. Vaccination of the doctors

and the staff can aid in protection against certain diseases.

Most of the staff is reported to have been effectively immunized against Hepatitis B although schedules of adequate and regular screening for contagious life threatening diseases of the staff was mostly unknown.

Conclusion:

Many clinics are practicing proper cross infection control techniques but there is still inadequacy in a few areas due to lack of realization of the importance of cross infection control. The steps of infection control are mostly directed at prevention of contact with infectious agent. There are several reasons for the noncompliance of the dentist and the staff with the rules and regulations of proper infection control procedures however, it is imperative for dental health care providers to understand the true risk of exposure to an infectious agent through contamination and the probability of it resulting in catastrophe. Knowing this, each member of the dental team can strive to eliminate any discrepancies in the sterile techniques, ultimately improving the patient's surgical outcome. The use proper handwashing techniques with antiseptic hand washes, adequate barrier techniques, proper sterilization methods and use of disposable items may be expensive but are an effective means of infection control.

Conflict of interest: None

Funding source: None

Role and contribution of authors:

Dr Yousuf A. Lakdawala, Assistant Professor of General Surgery department, Altamash Insti-

tute of Dental Medicine, helped in topic selection and analysis of data.

Dr Mohsina Hamid Gore, B.D.S 3rd year student of Altamash Institute of Dental Medicine, collection of data, writing of article and discussion.

Dr Humza Azim Daudpota, B.D.S 3rd year student of Altamash Institute of Dental Medicine, helped in collection of data

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