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Screening of Lab Transfer Objects for Presence of Pathogenic Bacteria

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Abstract:

To screen the lab transfer objects for presence of pathogenic bacteria. The objective is to identify the bacteria species present in the dentures of the patient which are then transferred to lab and spread of these pathogens through these lab transfer objects or through aerosol to dentist and dental technician. A swab was collected from the complete dentures of the patient before transferred to laboratory for processing. It is then inoculated in nutrient agar and blood agar. The plates were then incubated for 24 hours and the bacterial colonies are formed. To assess the risk of infection from the lab transfer objects in the clinic and dental laboratories.

INTRODUCTION:

The purpose of infection control in dental practice is to prevent the transmission of disease-producing agents such as bacteria, viruses and fungi from one patient to another patient, from dental practitioner and dental staff to patients, and from patients to dental practitioner or the dental staff. It is necessary that endogenous spread of infection also be prevented by limiting the spread of infectious agents. In dental practice, microorganisms can be inhaled, implanted, ingested, injected, or splashed onto the skin or mucosa. They can spread by direct contact from one person to another, or through indirect contact via instruments and equipment, when the dental staff member's hands or clothing become contaminated, where patient care devices are shared between patients [1].

In the dental practice setting, microorganisms can also spread by aerosol transmission – when dental staff or others inhale small particles that contain infectious agents. A number of infectious agents, including viral influenza, can be transmitted through respiratory droplets that are generated by a patient who is coughing, sneezing or talking. Transmission via large droplets requires close contact, as large droplets do not remain suspended in the air. Droplet transmission can occur when a staff member's hands become contaminated with respiratory droplets and are transferred to susceptible mucosal surfaces such as the eyes, when infectious respiratory droplets are expelled by coughing, sneezing or talking, and come into contact with another's mucosa (eyes, nose or mouth), either directly into or via contaminated hands [2]. Standard precautions and safe work practices must be used in the dental laboratory. The most important phase is the thorough cleaning of material that has contacted oral tissue (e.g. impressions). Thorough rinsing with cold running water, followed by the application of a diluted detergent and further rinsing must continue until all visible contamination is removed. Manufacturers' instructions for disinfectants need to be carefully followed when cleaning and disinfecting prosthetic items and materials. Even after cleaning there may still be biological contamination present and at all stages of handling of the prosthetic item standard precautions must be applied. all materials, impressions, dental prostheses, intra- and extra-oral appliances must be thoroughly cleaned before insertion and adjustment; the area for grinding or cutting plaster and making models and the area for instrument management and sterilisation must be well separated and not used at the same time if both procedures utilise the same room; implantable items must be sterile at time of implantation; any instruments, equipment, attachments and materials which are used in the operatory on contaminated. Prostheses or stages of prosthetic work should be either single use or cleaned and preferably heat sterilised after each patient use. If unsuitable for heat sterilisation these items should be thermally disinfected (e.g. polishing mops); and when polishing appliances which have been worn in the mouth, repaired appliances or relined appliances, polishing pumice should be dispensed for individual use and the pumice tray cleaned after each use [3]. This study is done to determine the extent of quantum of organism of being transferred through lab transfer objects especially dentures which are transferred from the patient to the lab by trimming and polishing.

MATERIAL AND METHODS:

A total of 20 dentures were randomly selected irrespective of the age and sex. Swabs were collected denture wearers. Before acquiring each sample, the swab was wetted with saline. The swab taken was from measured area for standardisation. Then each sample was inoculated into a single blood agar plates. The samples were incubated for 24 hours. Bacterial count was done for each of these plates and a part of the sample was taken for suspension to identify the types of bacteria.

RESULT:

	Count	Type of bacteria
Sample 1	whole plate	Enterococcus.
Sample 2	whole plate	Enterococcus.
Sample 3	whole plate	Enterococcus.
Sample 4	whole plate	Enterococcus.
Sample 5	65	Enterococcus, alpha haemolysis.
Sample 6	Whole plate	Beta haemolytic streptococcus.
Sample 7	Whole plate	Enterococcus, alpha haemolysis, beta haemolytic streptococcus.
Sample 8	Whole plate	Enterococcus, coagulase negative staphylococcus.
Sample 9	59	Beta haemolytic streptococcus, coagulase negative staphylococcus, alpha haemolysis.
Sample 10	Whole plate	Alpha haemolysis, coagulase negative staphylococcus.
Sample 11	Whole plate	Alpha haemolysis, negative coagulase staphylococcus, beta haemolytic streptococcus, enterococcus.
Sample 12	Whole plate	Alpha haemolysis, enterococcus.
Sample 13	71	Alpha haemolysis, enterococcus.
Sample 14	32	Beta haemolytic streptococcus.
Sample 15	Whole plate	Enterococcus, beta haemolytic streptococcus, coagulase negative staphylococcus.
Sample 16	Whole plate	Alpha haemolysis, beta haemolytic streptococcus.
Sample 17	Whole plate	Beta haemolytic streptococcus, coagulase negative staphylococcus.
Sample 18	113	Alpha haemolysis, enterococcus.
Sample 19	Whole plate	Alpha haemolysis, enterococcus.
Sample 20	Whole plate	Alpha haemolytic, beta haemolytic streptococcus, enterococcus, coagulase negative staphylococcus.

DISCUSSION:

The swabs were collected and 20 dentures from different patients and processed for bacterial load carried by them. This will be an indicator of risk of transmission of infections through lab transfer objects. Swabs were collected from the dentures from a fixed and measured area for standardisation. Among the 20 samples collected, 15 samples have shown confluent or growth on the entire plate. Remaining 5 samples have shown colony count ranging from 32- 113. The organisms isolated from these dentures are Enterococcus, Alpha haemolysis, Coagulase negative staphylococcus and Beta haemolytic streptococcus. Beta haemolytic streptococcus was isolated in 7 samples. Demonstrations of virus were not included in this study. But in other studies conducted by previous authors on aerosol in dental clinics viruses are demonstrated in the aerosol too. So the risks of transmission of infection from the denture bases are more important that the denture bases are handled by non professional dental technicians. It can be disinfected in the clinic as soon as it is removed from the patient's mouth and then can be transported to the laboratory.

CONCLUSION:

This study is done to assess the risk of transmission of infection through lab transfer objects in dental clinic and laboratory and to create awareness on importance of disinfecting the denture after each trail. There is definite risk of transmission of infections through lab transfer objects. Though this study has demonstrated the presence of bacteria in the denture bases but the real risk is more than what is demonstrated in the study.

REFERENCE:

1. Australian Dental Association Inc. The Practical Guides. 7th edition. Sydney: ADA Inc, 2006.
2. Australian Dental Association Victorian Branch Inc. Systematic Operating Procedures 2005. A manual for infection control and occupational health and safety for the dental practice. Melbourne: ADA Inc, 2005
3. Dental Practice Board of Victoria (2007). Information Sheet: Infection control. Accessed August 2007 from http://www.dentprac.vic.gov.au