

Health and safety in a dental laboratory



Health, safety risk assessments and Control of Substances Hazardous to Health

(COSHH) assessments, cross infection and cross infection control, decontamination

techniques are some of the principles a dental care professional should be efficient

to apply them in a daily work. The awareness of the potential hazards that are concealed in a dental laboratory is the essential element that will lead to their

prevention. Standard operating procedures (SOP'S) are an important part of a dental

environment. Moreover, this document gives a more detailed protocol for dental care

professionals to ensure that processes are being carried out effectively. The protocol should be produced by the organisation or a general manager and should be followed by the dental team accordingly (Isopharm, 2016).

The aim of this Standard Operating Procedures (SOP) book is to have the essential

part that need only routine minor review with occasional update and respond to

major change of ethical regulatory and legal framework. Standard Operating

Procedures (SOP) appear in book form that means that we don't have individual

Standard Operating Procedures to an identical template. The Standard Operating

Procedures book will be reviewed every two years from the issue date.

(University of

Aberdeen, 2012)

All dental workplaces, their staff and patients are covered by the provisions of the Health and Safety at work Act (1974). Health and Safety legislation protects employees and patients by making the staff aware of any hazards at work. The health and safety at work for both the staff and the visitors are taken into serious

consideration by the employer. This is ensured by first identifying and resolving all the potential hazards and anything that could cause harm. The Health and Safety

Executive (HSE) supervises and regulates the employer's compliance. HSE is a

government body which guides employers. Furthermore it investigates any serious

incidents that take place in a workplace. Dental workplaces must be registered within

the HSE (Mrzezo, 2015).

In dental environments, gaining the skills that are required in order to identify and

prevent potential hazards at a workplace is essential. This allows various precautions to be taken. For example toxic, irritant and sensitive working materials should be replaced by less harmful alternatives. Respiratory and skin exposure is a serious threat therefore ventilation systems in dental laboratories must be constructed properly. Protective equipment such as clothing, shoes, eye and respiratory protectors and gloves should be worn at all times. Moreover when the noise reaches or surpasses the harmful levels of 80 DB, hearing protection must be used. Prohibition of smoking or eating within a dental environment is necessary (occup environ med 2006).

Health and safety protect everyone in the dental environment. This is accomplished by fulfilling a risk assessment to prevent any hazard that can happen

(Mrzezo, 2015).

A risk assessment is a test of knowledge of what could physically hurt people and it

identifies the risks that can cause injuries to people. The aim of a risk assessment is

to minimize the level of hazards by adding some control measures that can make

people work safely. A risk assessment is done so that someone can decide if they

have been taken enough precautions to prevent accidents or injuries in a dental

workplace (Blackwell, 2017).

The employer or a self-employed dental technician are obligated to follow the

Substances Hazardous to Health Regulations (COSHH). Hazardous substances that

Containers of chemical substances must be appropriately and clearly labeled.

Incompatible substances must be separated from each other. The stock levels of

hazardous materials must be kept to the minimum. Good stock control such as

taking note of the expiring dates as well as the dates of when a bottle is first opened

is essential. Chemicals must not be stored under sinks. Large containers that are

breakable should be stored below shoulder height, especially if they contain liquids

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(The University of Nottingham, 2012).

that many materials in a dental laboratory can cause health harm because of a long-term usage. However there are a few cases of dental technicians developing in health conditions especially with lung disorders. Some examples of substances that can cause hazardous in a dental laboratory are methyl methacrylate monomer, molybdenum, cristobalite, carbon tetrachloride, glutaraldehyde, phosphoric acid and bacteria/viruses. The first thing that has to be done is to identify the substances and find out more information about them.(Promoting British Dental Technology, 2002) The regulations reenacted with amendments the Control of Substances Hazardous to Work Regulations 1999 and implement several European Union Directions. If an Employer or employee breaks the law of regulations is a crime and punishable on Summary conviction with a fine of up to £400 (Jatakiya et al, 2013) Containers of chemical substances must be appropriately and clearly labeled.

Incompatible substances must be separated from each other. The stock levels of hazardous materials must be kept to the minimum. Good stock control such as taking note of the expiring dates as well as the dates of when a bottle is first opened is essential. Chemicals must not be stored under sinks. Large containers that are breakable should be stored below shoulder height, especially if they contain liquids (The University of Nottingham, 2012).

The protection of humans and of the environment is ensured by waste management law which regulates the production, re-use, recycling, recovery and disposal of waste.

In England and Wales, local authorities regulates the waste (Promoting British Dental Technology, 2016). Dental bridges, prosthesis wax and interocclusal record materials are infectious objects and are handled by dental laboratories accordingly (The Open Dentistry Journal, 2015).

Safeguarding protects people wellbeing and human rights. The care quality commission (CQC) explains that safeguarding children and adults means to protect the rights to keep patients safe from abuse, neglect and improper treatment (BD Team, 2017).

Every practice needs to have a safeguarding policy to protect children and vulnerable adults. If you come across with a situation that you are worried about then you should inform the practices safeguarding lead and make sure that they have acted properly (MDU, 2018).

Cross infection is the transfer of substance microorganisms such as bacteria and viruses. The expand of infections can happen between people, equipment or within the body (Chemey, 2016).

Precautions that control potential infections is very important for dental technicians. The dental team can be exposed to cross-contamination and possibly cross-infection if contaminated items such as impressions or casts are poorly handled. A safe working environment is achieved by achieving communication between the dental practice and the dental laboratory which

helps to ensure that the infection control procedures and protocols are followed to the letter. Centers of Disease Control and Prevention (CDC) introduced the standard precautions. Dental technicians are at risk for spreading infections by mechanisms possible infections that can be spread by contacting directly infected saliva or blood through cuts and abrasions. Indirect contact through cross-contamination is a serious exposure risk for dental laboratory personnel. Principles such as aseptic techniques, appropriate immunizations for laboratory personnel, barrier techniques and planning of standard precautions will be followed by the dental laboratory in order to minimize the spread of infection. Cross infection control in dental laboratories is very important, dental technicians communication with the dental office is essential. The laboratory should clearly describe the infection control requirements to the dental office and communicate about the disinfection status of incoming and outgoing cases (Fluent and Molinar, 2013). Decontamination is a combination of methods that removes or destroys infection so that diseases cannot spread infection. Some of the most common techniques that dental environments follow are: Physical cleaning is a method that physically removes infection and some microorganisms. When cleaning equipment and work surfaces it is best to use warm water and liquid. Ultrasonication is another decontamination technique which is a liquid-based method of cleaning most preferable for some equipment. Disinfection purpose is to decrease the number of microorganisms but not the spores. Disinfection may destroy many or all pathogenic microorganisms. Antisepsis is applied to a process of disinfection of tissue. Sterilisation is a method of decontamination that destroys all microorganisms and spores (Health and Safety Executive).

Disinfection in dental impressions is very important before starting the process. Personal Protective Equipment (PPE) must be worn. All the items that have been in contact with patients must be disinfected properly before we start working on them. First of all, we must rinse the impression under running water and then spray all surfaces with sodium hypochlorite or cavicide disinfectant and place them in a container for 5 minutes and then remove the item with uncontaminated gloves and rinse with water (UIC College of Dentistry).

The types of impression disinfection are by spraying the impression or by using the Immersion technique. The American Dental Association (ADA) recommends that Disinfection by spraying alginate impressions are approved by American Dental Association (ADA) and have to be placed in a plastic sealed bag. No changes in dimension, nor any surface deterioration is noticed to be caused by spray disinfection of alginate impressions. Japan's Prosthodontic Society recommends that on disinfection by immersion, alginate impressions should be dipped within 2-3, 5% glutaraldehyde solution for 30-60 minutes and for 15-30 minutes in 0.1-1.0% sodium hypochlorite solution. However, according to reports, alginate impressions that have been treated with glutaraldehyde for 30 minutes had the dimensional accuracy and surface quality of the resultant stone models. Otherwise sodium hypochlorite solution is used to disinfect alginate impressions. Prolonged alginate impressions with immersion technique results in water absorption by causing changes in impressions.

Disinfection by immersion it has better results and is more trustworthy than spraying disinfection (Hiraguchi et al, 2012).

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Health and Safety in a dental laboratory involves wide spectrum of equipment and materials that may create chemical, physical and biological hazard to workers and others in the dental laboratory (University of Colorado, 2008).

It is important that each laboratory should have a safety manual which will include Standard Operating Procedures, Standard Risk Assessments, Register of Equipment and Chemical and Biological Agents within the laboratory. Emergency Procedures for fire/smoke, personal injuries/spills. Waste Management and Disposal Procedures Transport Requirements for materials being brought or taken out of the laboratory (The University of Western Australia, 2016).

Health and Safety predictably will be one of the first important things in your mind when working in a dental laboratory. Some of the topics related with Health and Safety are Control of Substances Hazardous to Health (COSHH), Reporting of injuries Diseases and Dangerous Occurrences Regulations (RIDDOR) etc. The laboratory manager must ensure that the risk for the Health and Safety of the laboratory's workers is minimized. The right of workers to work in places that such risks are controlled is clearly stated by the Health and Safety Executive (HSE). Waste management and Disposal Procedures must be taken seriously because the health of dental personnel is at risk. Safety is achieved by raising awareness of the potential hazards and following by the safety procedures at all times. This is legally abiding. Serious Legal consequences, such as hefty fines or even imprisonment for those failing to meet the requirements of the law, exist. The impact of ignoring safety procedures can be personal, practical or financial. The <https://assignbuster.com/health-and-safety-in-a-dental-laboratory/>

laboratory can be seriously affected by this, whether on the long term by losing confidence in business and/or a rise in the insurance payment or on the short term by absence of employees. (Collins, 2014).

The Medical Devices Directive and Medical Devices Regulations are required to be met by all dental laboratories. The law demands registration within the Medicines and Healthcare products Regulatory Agency (MHRA). (Damas, 2013).

The Medicines and Healthcare products Regulatory Agency observe safety and quality with regular inspections of good and safe practice that includes: medicines manufacture and supply distribution storage and laboratory testing medicines. Also ongoing reports from healthcare professionals, patients and manufacturers and assessment of incorrect information. When a product is suspected to be faulty the Medicines and Healthcare products Regulatory Agency immediately works with the producer and take action. The Medicines and Healthcare products Regulatory Agency also has the power to prosecute when breaking the law and the court can impose fines or prison (The Medicines and Healthcare products Regulatory Agency).

Therefore, Health and Safety in dental environments is one of the most important things that dental professionals need to focus on, in order to be responsible not only for the mselves but also for the other co-worker.

Following the law and standards that dental environments require makes your workplace safer and more attractive to other dental members.

Dental Laboratory - RISK ASSESSMENT FORM

ASSESSMENT

UNDERTAKEN 1805738 SIGNED:

Signatu

BY:

re

ASSESSMENT TYPE
 on material disinfection
 DATE OF ASSESSMENT
 14/11/2018

LABORATORY AREA BEING ASSESSED
 Processing room, QF20 queens
 DATE OF NEXT REVIEW:
 14/11/2019

SPECIFIC ACTIVITY ASSESSED
 The disinfection of impression material

HAZARDS & RISK FACTORS IDENTIFIED
 1)Water spills-slip hazard

HAZARDS & RISK FACTORS IDENTIFIED
 2)Transfer microorganisms

HAZARDS & RISK FACTORS IDENTIFIED
 3)Water splash into eyes

WHO IS AT RISK
 Students, staff, visitors to dental

sciences

1)Wear appropriate

PPE: Laboratory

coats, gloves

2)Use the

immersion

technique

EXISTING

3)Keep the area

CONTROLS/WHERE

clean and tidy

INFORMATION CAN BE

4)Wear proper

FOUND

shoes

5)Any water spills

need to be cleaned

up

6)Wash hands

before and after

FURTHER ACTION TO BE

None

TAKEN (IF REQUIRED)

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