

Occupation eye injuries assignment



**ASSIGN
BUSTER**

| OHSE 2630 ASSIGNMENT| OCCUPATIONAL EYE INJURIES| | YEU PEK HOCK|
STUDENT ID: 3139981| | PART 1: ARTICLE A1: Using the Medline exercises and guide⁶ provided on Blackboard, I was able to access to Medline database. With the Ovid: Search Form I was given an abstract view of the article¹. I was directed to the “ SMJ: Singapore Medical Journal” where I was able to read the article in full text. The article¹ was based on a study of the patients served by Tan Tock Seng Hospital’s emergency ophthalmology department.

Statistics¹ showed the main contributing group of affected patients were non-residents which accounted for more than 90% of the patients as Singapore has the highest proportion of foreign workers in Asia. The analysis amplified the issues¹ on the requirement of providing Personal Protective Equipment (PPE), the quality of the PPE, the compliance of using PPE and lastly the effectiveness of safety training and communication among the lower skilled foreign workers. ARTICLE B2: By using the title search function of Medline, I was directed to “ Oxford Journals” website where I was able to view the full article.

Studies² on the A department in a UK district general hospital shows that close to one third of the patients were due to occupational eye injuries. Corneal foreign body was the highest contributing injury² which accounts for approximately 64% of the injuries. Although PPE was provided, the quality and proper usage of the PPE issues² were still questionable. Additional factor² on the education level of the workers further enlarged the problems with the effectiveness of training. Occupational eye injuries can be prevented if more emphasis were focused on these issues. ARTICLE C3: Using the

keyword “ occupational eye injuries” on the Medline database, this title from the filtered results drew my attention as welding has always been one of the top occupations contributing to occupational eye injuries. The article³ uses a hybrid narrative coding approach from two established classification system to analyse the factors³ and events³ that cause eye injuries among welders base on the workers’ compensation claims database of a large US insurance provider.

Working environment with welding activities are potential hazards as injuries are not constrained to just welders but as well as the surrounding personnel for example propelled particulates hazard and UV light hazard. An important note³ is eye injuries are preventable through engineering controls such as machine guards and proper PPE. ARTICLE D4: The article⁴ was available through PubMed¹², a huge database under National Center for Biotechnology Information which contains vast amount of literature related to life sciences. This article⁴ was listed as one of the references in Article A1.

A 7 week prospective study⁴ on the Department of Ophthalmology at the National University Hospital, Singapore was carried out and results⁴ showed that more than half of the eye injuries occurred at the workplace. The main point⁴ from the article is eye injuries are preventable. PPE must be provided for all hazardous tasks and quality of the PPE⁴ must be in line with the impact of the work to provide adequate protection. Young non-resident males especially in the construction industry are more prone to injuries as they are more likely to take risk by not using the PPE provided.

Lastly training on the proper usage of PPE and awareness on the compliance to legislation must be further enforced and emphasised. ARTICLE E5: The article⁵ was located using the Encore search function of the University of Newcastle with the keyword “ work related eye injuries. The PDF format full text was readily available. Using the health survey results⁵ from 2002 National Health Interview Survey (NHIS), it was identified the ratio⁵ of male having eye injuries as compared to female was 4: 1.

Education level also played a major role with results⁵ showing individuals with lower education level yielded more eye injuries. Impact⁵ of eye injuries is not limited to the individual, but as well as the production rate of the company, the medical fees and worker’s compensation. Construction and mining industries were one of the highest contributors⁵ with foreign body as the most common eye injuries. Eye protection program can help to create awareness and narrow the gap for those lower skilled male workers. Part 2: Types of Occupational Eye Injuries: A. Chemical burns⁷:

Exposure to chemical substances⁷ either acids or alkalis can cause chemical burn to the eyes when come into contact with. Severity⁷ of the injury depends on the substances exposed to and must not be taken lightly as the damage can range from discomfort to loss of vision. Alkali burns⁷ compared to acid burns⁷ are more serious as they have a better ability to penetrate and damage the interior parts of the eyes. Symptoms⁷ include redness, pain, irritation and swelling to the eyes and eyelids. Workers working in a laboratory are more prone to experience chemical burns.

B. Foreign body in the eye and Corneal Abrasions: Foreign bodies⁹ can range from wood chip, metal dust particles or even a piece of glass fragment which can caused discomfort, infection or even scarring to the eyes if not treated properly. This injury is most common especially to workers doing welding or grinding works in the construction industry where the exposure rate is higher compared to other industries. Common symptoms⁹ include watery red eyes, sharp pain in the eye followed by burning and irritating sensation.

For minor injuries, symptoms usually subside if foreign bodies are removed. For cases⁹ where foreign bodies are not removed, a more serious impact for example like rust forming around the metal impurities can affect the vision capability. There is also a tendency to develop into corneal abrasions⁸ when foreign body scratch and damaged the outermost surface of the eye which is the cornea. Corneal ulcer⁹ happens when the scratch is unable to heal which in turn affects the visibility level.

A more severe condition termed corneal laceration happens if cornea is partially or fully cut through. C. Traumatic Iritis: Individual with blunt trauma to the eyes can suffer from swelling and traumatic inflammation¹⁰ of the iris. Symptoms¹⁰ include increase in pain when exposed to light (photophobia), blurred vision, reddened eye and odd shaped pupil. Diagnosis⁸ of Traumatic iritis can be confirmed by using slit lamp exam. This eye injury is more commonly found in sports occupation like boxing or other close contact sports. D. Hyphemas and orbital blowout fractures

These injuries⁸ are results of direct trauma to the eyes by small blunt object for example fist, ball or flying object with a force great enough to cause

blowout fractures in the surrounding facial bones of the eyes. Accumulation of blood in the anterior chamber of the eye is termed Hyphemas⁸.

Symptoms⁸ of hyphemas include pain and blurry vision. Orbital fractures⁸ can cause soft tissue swelling, double vision and immense pain with the movement of the eyes. Industrial falls or accidents due to poor housekeeping may result in such eye injuries. Causes of Occupational Eye Injuries:

A. Man¹¹ Human factor has always played a major part in contributing to the statistics of Occupational eye injuries. Studies¹ showed that the group of young male workers were at the highest risk as the tendency to take risks and shortcuts is higher compared to other age groups. The factor of complacency sets in as some workers choose not to use the provided PPE even though they were performing hazardous tasks. Education level¹ of lower skilled workers also affects the effectiveness of training which results in lack of awareness and assertiveness.

B. Machine¹¹ Poorly maintained machineries can also cause serious injuries to its users. This is especially so for motor-operated machineries without machine guards as the chances of the moving parts disintegrating into propelling foreign bodies is highly possible. Using the wrong tools for the task can yield unexpected results causing injuries to user and surrounding personnel as well. Build and design of the issued PPE² failing to meet the requirements of the hazardous tasks can also create unwanted eye injuries.

Insufficient quantity of PPE also creates opportunities for eye injuries to happen. Incorrect fitting of PPE to individual reduce the effectiveness of protection and might even in turn become a hazard to the workers. C.

Management¹¹ The commitment level of the management defines the safety culture of the workplace. Lack of supervision¹ to ensure compliance to legislation will encourage workers to skip processes and even to the extent of not using PPE. Pressure from the management in meeting production or deadline further introduce the rush factor to its workers.

Too inclined to production will give room for more accidents to happen thus supervisors play a major role in balancing production and safety. D.

Medium¹¹ Working environment also plays a vital role in contributing to occupational eye injuries. Working in a dimly lit environment affects the visibility of the workers which can result in eye injuries over a period of time. Poor housekeeping creates tripping hazards which in turn will give rise to more unwanted accidents. Prevalence of Occupational Eye Injuries:

Studies¹ by Voon et al in 1997 reflected more than 70% of eye injuries reported in Singapore was a result of work-related ocular trauma. Woo and Sundar did another study⁴ 8 years later in 2005 and favourable results showed that 56.4% of eye injuries reported were work-related. No doubt statistics has improved; the fact that occupational eye injuries were still prevalence could not be taken lightly. Globally, work-related eye trauma statistics¹ vary worldwide from reports of 70% in the United Kingdom, 38.9% in Taiwan, 32.8% in Greece, 19.% in Scotland and 14.3% in the United States. Occupational eye injuries not only affect individual's visibility, but other impacts⁴ such as loss of production, medical expense, unnecessary loss of workdays(average 3.4 days), socio-economic costs and compensation of the worker as well which accounts for millions of dollars annually. Due to the shortage of manpower resources¹ in Singapore,

majority of the labour forces in the service sector and blue collar jobs for example construction industry were made up of foreigners.

Studies¹ from Ngo and Leo reflected the majority of eye injuries (approximately 95.7%) were contributed by this young non-residents group (aged between 20-30 years old) of foreign male workers. The most common eye injury¹ was superficial foreign bodies injury followed by chemical injury and blunt trauma injury. As demand for manpower continue to rise, the population of lower skilled foreign workers will continue to rise and in the long run they pose a major problem in preventing accidents from happening if nothing is done to educate them.

Preventive Measures: A. Training Training must be carried out at all levels regardless of workers or supervisors so that emphasis on the compliance to legislation and proper maintenance and usage of provided PPE can be enforced. Use of different languages¹ is necessary to make sure messages can get across to all workers. Increase of awareness helps to encourage assertiveness of workers when they spot any safety infringements. Key message to be send to every individual is accident is preventable and safety is everyone's responsibilities. B. Supervision:

Supervisors played a critical role as they helped to ensure workers carry out their tasks safely at the same time maintaining the required production.

Good planning of resources and manpower helps to reduce chances of accidents and with the professional knowledge and authority, they can stop work or call for time out if any unsafe acts were carried out. C. Safety Program Implementing a safety program¹ provides a channel to share

lessons learned or other safety related messages across to everyone. It also acts as a reminder to reiterate the importance of safety at workplace as it is human nature to be complacent after a period of time.

It can also serve as a forum for workers to highlight their safety concerns and suggestions which can in turn create a safer workplace for everyone. D. Management Commitment of the management towards safety is important to drive the safety program and align everyone towards the safety policy set by the company. Key performance indicators (KPI) in safety aspect by the management gives the workers and supervisors a common goal to achieve which in turn helps to motivate the whole company as a whole. E. Personal Protection Equipment

Being the last line of defence, proper maintenance on PPE must be carried out so that they do not fail their function. Feedback from supervisors and workers are necessary to ensure adequate protection² and comforts of the PPE are met. Sufficient quantity of PPE must be maintained and good fitting of PPE can help to encourage workers to use PPE. F. Assessment and Review Last but not least, continual assessment and review must be carried out periodically to ensure latest information and legislation is up to date. Review existing procedures or tasks for a better method or approach to help make the work easier without compromising safety.

Condition check of machineries and PPE issued to identify wear and tear as they tend to deteriorate over time and replaced any defective parts if necessary. References: 1. Ngo C. S. and Leo S. W. Industrial accident-related ocular emergencies in a tertiary hospital in Singapore, Singapore Medical

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