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EPIDEMIOLOGY & BIostatISTICS

Slides Sheet Handout other.....

Lecture # 2

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"ابدأ رحلة يقينك بثورة على النفس."

Occupational Health

Al Salam Aleikom, today we are going to continue talking about occupational health, it is an easy topic and a short lecture, most of which is stories.

When you specialize in occupational health your clients will constitute a very large group because 50% of the worldwide populations are workers. And you must keep in mind that their health isn't only determined by the hazards in the workplace but also by other social and individual factors. So the point is the injury isn't always because of the nature of their work.

Although Ramazzini is considered the father of occupational health, Paracelsus was a prominent figure in the 15th century and he wrote several papers about work health and safety.

So what is occupational health? Occupational Health is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs.

(ILO / WHO 1950) → International Labor Organization/
World Health Organization.

As we can see, the definition of health (Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity) is part of the definition of occupational health.

So why do we need occupational health: (In the definition)

- 1- Promoting and maintaining the highest degree of social, mental and physical wellbeing.
- 2- Preventing adverse effects on workers caused by their working conditions.
- 3- Protecting workers from risks caused by factors adverse to health.
- 4- Maintaining workers in an environment adapted to their physical and mental needs and suitable for humans.

Development of occupational health regulations:

The United States was the first country to make regulations concerning this issue in 1970; however, other countries like European Union have their own control and regulations for their workers. In 1996, the *European Agency for Safety and Health at Work* was established and another agency for the Personal Protective Equipment. The United Kingdom had their own regulations starting by the Health and Safety at Work Act in 1974 and now by having the Health and Safety Executive. Although Canada follows many of the United States regulations, they developed their own regulations regarding occupational health and that was in 1978 by the Canadian

Center for Occupational Health and Safety. Malaysia had the Occupational Safety and Health Act in 1994. China was kind of late, as they started to have regulations in 2002 although they are one of the leading industries worldwide. You see how important it is? As each country has its own regulations.

United States	1970
United Kingdom	1974
Canada	1978
Malaysia	1994
China	2002

When did each country develop its own regulations?

There are three definitions that you should differentiate in between: Hazard, Harm and Risk.

- **Hazard:** something that can cause harm if not controlled. For example, a stair step becomes hazardous if it's broken. It will cause accidents and people might step on it and have their leg broken. Also, an exposed electrical cord is considered hazardous as it may cause electrical shock. Placing things on the ground in a work place where people walk can also be hazardous.

Harm: the result or the outcome of the hazard; like a broken leg or an electrical shock.

Risk: a percentage; how likely is it for a person to break his leg due to a broken stair step for example (What is the percentage of having this accident?).

We have to know these definitions because when inspecting a place, there is something called risk assessment and hazard assessment

Risk assessment includes the hazard assessment in it to some extent.

How to evaluate a workplace? (Hazard+ risk assessment)

1- Identify the hazards (not well fixed carpet, electricity, light...)

2- Identify all the people who will be possibly affected by this hazard. (Workers, public...)

3- Evaluate the risk. (What is the possibility of having an accident when using this machine?)

4- Use an appropriate control vision. (What should I do to control this hazard? What are my recommendations?)

Wherever you work and whatever you do, you will always have work place hazards, most of them would be under one of the following categories:

1- Mechanical Hazards:

- Impact forces:
E.g. Roof collapsing on your head like mine workers.
- Confined space:
E.g. working in a limited place, claustrophobia (i.e. the fear of being in small spaces/rooms like elevators)
- Slips and trips:
If you have a *fluid* on the ground, then you might *slip*.
If you have a *solid* object, you might *trip*.
- Falling on a pointed object:

Like stepping on a needle, or falling off in a construction place.

- Compressed (high-pressure) air:
Used for cleaning purposes instead of vacuum or in diving under water.
- Entanglement: part of the cloth twisting around something or getting stuck in a way that is difficult to relieve.

As doctors, we should be familiar with the following specific terminologies so that we can use them to describe the harm/injury:

Crushing/cutting/friction/abrasion/shearing/stabbing/puncture . Later on, you will be taught many terminologies and the usage of each one of them so that you could write a proper report especially for courts, as you have to be careful to what you say to the judge.

Falling down: this is one of the major problems in many countries including Jordan: Workers fall down.

It is common between construction workers to evaluate or rank the high rising buildings by the number of lives lost during the building process. As they die when they fall down during construction or when they are cleaning the glassy windows from outside. Majority of people are afraid of heights but, that's not the case for workers. They don't mind standing on free edge and looking or leaning forward and they might be overconfident that they won't fall. As a result, they won't take any kind of safety precautions, thus raising their likelihood to fall.

Falling in the construction industry account for 67% of all falls in the United States.

2- Physical Hazards:

Place, Noise, Vibration, Light, Barotraumas due to pressure, Ionizing radiation, Electricity, Asphyxia (extreme decrease in the concentration of oxygen in the body), cold stresses and heat stresses.

You will deal with asphyxia often, especially in winter in closed places with high CO levels.

Electricity is a global issue. Electrical cords might not be long enough and need to be connected to other parts as extensions by using tape. After several usages, it might get stepped on, it could get exposed, and electrical machines and workers are moving around, it might have contact with water resulting in electrical shock. 4-6.5 % of all admissions to the burn unit in the United States are due to electricity, and around a thousand people die every year due to electrical shocks. Many people use a two headed cord for a three headed plug, and they use any metallic part for the third head and this will result in shock. A common issue is that most of us think that they are electrical experts; they like to do the electrical work in their homes by themselves without consulting a REAL expert, like fixing their television. Even if it's unplugged, the electrical current remains inside for a few minutes later. And this is causes a lot of electrical shocks.

3- Biological Hazards:

You are doctors; don't think that you are superheroes and immune against microorganisms unless you already had specific vaccines. Many doctors and nurses worldwide had H1N1 and corona virus from their patients. Recently, an American nurse who was volunteering in Africa to help people with Ebola virus got infected, so when she got back to America, she brought the virus back with her.

Nowadays, when doctors examine patients, they get too close to them, so if they have a certain virus or infection, they might cough or sneeze and in the doctor's face without putting anything on their mouth or nose to prevent the spread of infection. So, be careful!

Tuberculosis is coming back after being controlled worldwide in many countries, why? Because of the misuse of antibiotics, and this is both the doctors' and the patients' fault. Many doctors prescribe antibiotics for common cold although they now it's viral infection. Patients improve after a day or two and they stop taking the antibiotic. By this means we are creating new generations of bacteria resistant to the original antibiotic, and that is why it's coming back. Even in the United States, tuberculosis is coming back and is considered one of the leading causes of infection in workplace especially in *California, Texas, New York and Florida*.

4- Chemical hazards

We, as physicians, deal with many chemicals in the workplace. We have laboratories in hospitals and we also deal with drugs. Acids, bases, heavy metals, solvents, particulate matters, tubes,

mixture gases, highly reactive chemicals, fire, and explosive hazards can all be found in hospitals.

Drugs' issues are either by accident, for example you are giving your patient an anticancer drug, and while you are doing it, the patient pulls his hand and you injected the drug in yours instead, or you might do it yourself on purpose, and this is a big problem. Every now and then, they catch doctors, nurses and health workers abusing their presence in hospitals, by reaching to narcotic drugs and abusing them.

Note about China: Fourteen thousand cases were diagnosed as being occupational health diseases in a single year.

Occupational poisoning is an outcome of chemicals in the work place; 13-20% of these Chinese cases are intoxications. People are working at factories, certain chemicals are used that may leak and cause intoxication.

تغبر الرئة Pneumoconiosis: (

Pneumoconiosis means that dust is reaching the lung and causing various health problems. This dust could come in different forms; one of them is silica which comes from coal mining. About 12 million are diagnosed with pneumoconiosis in China and 70-80% of the cases are due to silica (silicosis). Silicosis is one of the major occupational health problems in China.

5- Psychosocial Hazards:

This type has been only recently recognized as a workplace hazard. It is mainly entitled to physicians as their job is tough especially in the very first years and without taking the needed

precautions and knowing how to handle the job, you will have many problems. For example:

Work related stress due to excessive working time and overwork.

Violence: this is increasing with time. More and more, doctors are being victims of violence. If the patient died and his family didn't like the way he died, they might beat you to death and make you pay the price. That's why some doctors now may not do certain needed procedures afraid that the patient would die, and they might be beaten by his family.

A doctor was finishing his work at a health center, and while he was leaving, heading to his car, an old lady came asking him, but he told her that he was leaving so he ignored her and kept going, and she started shouting. Unluckily for the doctor, her sons were butchers and they were nearby. They ran with their knives toward the doctor and he was beaten almost to death. While the doctor was in the hospital unconscious, the lady went to the police station complaining that the doctor had pushed her first. The moment he woke up from his unconsciousness, he found that he would end up in jail due to this complaint. So he ended up begging her sons to drop the complaint instead of getting paid for the damages.

Sadly, this is more of a society culture; For example, another doctor asked the patients to stay in queue in front of his clinic. One of them thought that he is more important than others and by chance he came to be a karate player, so he jumped on the doctor and started beating him. We really need strong regulations to protect the physicians or it would be just like

street fighting. Moreover, doctors aren't the only ones in danger, even nurses and hospital guards.

Bullying: from bull. If someone is stronger than the other in a workplace, he might start pushing him around, making a joke out of him, forcing him to do things he doesn't want to, whether it's emotional or verbal abuse.

Sexual harassments: as some managers might ask their female employees inappropriate things threatening them by getting fired. In the past, they used to keep silent, but now they are starting to talk about it and highlighting this issue.

Burn out: It's the *late* point where you say: 'I can't do it anymore, I give up.', overloaded with work and problems at work and home, followed by breaking down. And this is one place that we don't like to reach, as when you do so, it's difficult to come back. It's considered as a late outcome of psychological pressure.

Some people's lives are too centered on their job that they start to think that their value is determined by their job, so when the time comes and he gets kicked out, he would feel worthless without any value.

Doctor's life span is not the best in country, as a majority of doctors in Jordan according to many studies die between the age of 50 and 60. Is it because of stress? or is it because they are overdoing things? Or maybe because they are heavy smokers, as the prevalence of smoking is high among doctors? Sadly, doctors are not the best survivals, as they have been pushed to become burnouts and to their extremes. And stress is not good for the overall health.

Dedicated to: Hasan Hammo & correction team.

Written by: Rakan Radi

طريقة عمل الهريسة الأردنية:

المكونات:

- 4 أكواب سميد.

- كوب سكر.

- $\frac{1}{4}$ زيت نباتي.

- ملعقة سمن بلدي.

- كوبان من اللبن

- ملعقة كربونة.

- فستق سوداني للزينة.



البقري.

طريقة التحضير:

- نخلط جميع المكونات في وعاء، ثم نصبها داخل صينية، ونزينها بالفستق، ونقطّعها بالسكين قبل إدخالها إلى الفرن.

- نحمّي الفرن على درجة حرارة 270

- نخبزها لمدة 15 دقيقة ثمّ تحمّر.