



Difäm Health Community (DHC)

Podcast: Personal Protective Equipment (PPE 1)

Welcome everyone to today's podcast. It is the next one in the IPC series and today we are going to talk about personal protective equipment – in short PPE. We have always known that PPE is important but in the course of the pandemic, PPE was suddenly much more on the agenda than before. I have my colleague XXX with me today, so we can talk about it more detailed. We will find out what PPE actually is, what role it plays and what challenges there are in regards to PPE. Hello XXX

Hello everyone, good to be here again. Well, to give a short definition: Personal protective equipment (PPE) is a collection of specialized clothing and equipment worn by healthcare workers to protect them from infectious agents, chemicals, and other hazards. Just how essential PPE is in preventing transmission of infectious diseases between health care workers and patients we all experienced lately. Just think about the role of PPE during COVID times or with Ebola or Cholera. However, as you can see already, PPE for Ebola looks different from PPE for prevention of the transmission of Cholera, for example.

PPE required in one situation is not the same as in another situation. Do I get this right? Moreover, in the definition you not only mentioned infectious agents – that is what we all have in mind, when we think about PPE at the moment but also other hazards.

Yes, that is right, and it is the reason why it makes sense to go through the different aspects one by one and see, what options there are and in which situations such equipment might be needed.

I think that's a good idea. Let's start with the obvious: gloves are the most commonly used items of PPE, right.

Yes. Gloves are an important part of personal protective equipment (PPE) in healthcare settings. They are used to protect healthcare workers from exposure to infectious agents, chemicals, and other hazardous materials.

Gloves are typically made of materials such as latex, nitrile, or vinyl and come in various sizes and styles. There are also heavy-duty gloves for the handling of medical waste or protective gloves when dealing with sharp materials.

Single use gloves are primarily worn in patient contact to protect both patient and healthcare worker from the potential transmission of pathogens. They are important when

there is contact with body fluids like blood, urine or faeces. This includes procedures like drawing blood, inserting a catheter or changing a wound dressing. Gloves should also be worn when you are exposed to mucous membranes in procedures like tooth extractions, intubation and suctioning. Pathogens cannot only be passed on by direct contact between humans but also through contaminated surfaces. So, wear gloves when handling contaminated medical devices or soiled surgical sheets. Lastly, although the use is never doubted here, let us not forget the invasive procedures like surgery or biopsy taking where it is mandatory to wear gloves.

It is important for healthcare workers to use gloves correctly and consistently to prevent the spread of infections. This includes proper hand hygiene before and after glove use, changing gloves between patients, and avoiding touching other surfaces or items while wearing gloves.

Okay, that was about single use gloves, and I am happy, that the times of resterilising gloves for theatre is hopefully over. However, you said, that there are still reusable gloves ...

Yes, and here I am talking mainly about heavy-duty gloves. Heavy-duty gloves are designed to provide additional protection from hazardous materials and other risks in the healthcare context. They are required in special settings such as the following:

Firstly, for healthcare workers who handle chemicals or hazardous materials to protect their hands from exposure. This includes cleaning and disinfection procedures, as well as handling biologically active, radioactive or toxic substances. This might not be the case in many facilities, but it is important to know, that for example if chemotherapeutic substances are spilled, special protections should be used to clean up.

Heavy-duty gloves for heat protection are in use when it comes to e.g. autoclaving or incineration. They protect healthcare workers from exposure to high temperatures and steam.

Finally, there is the issue of construction and maintenance: In healthcare facilities, heavy-duty gloves may be required for workers involved in construction or maintenance activities, such as repairing or installing equipment, to protect against sharp edges or other hazards. So think about this protection even if you are a nurse and just helping the plumber out, because there is a leakage at your ward.

Therefore, gloves are always about protecting myself and/or protecting others. Moreover, it is important for healthcare workers to use the appropriate type of glove for the task at hand to ensure proper protection. Gloves should be a fitting size and not be worn for extended periods. Donning and taking off gloves should be done carefully, so that there is no contamination in the process. For new employees, the use of gloves should be demonstrated and practiced until everyone can do it correctly. It is important to note that gloves are not a substitute for proper hand hygiene. Hand hygiene should be performed before and after glove use to prevent the spread of infections, is that correct?

Yes it is; and it is always important to note, that hand hygiene is the Alpha and the Omega of IPC. We already did a podcast on hand hygiene, so you might want to listen, if you missed it.

Okay, that was already quite some input about just one item of PPE. I suppose and I learned and saw during COVID, that PPE is much more, than gloves. So what is next?

Let's continue with masks. Yes, you are right about COVID, the most common use of masks in healthcare settings is to prevent the transmission of respiratory infections such as COVID, flu, influenza. There is protection on two sides: The mask that a patient wears prevents a high output of pathogens through breathing, coughing, sneezing, talking etc.; this is called the source control side and the mask that a health care worker wears protects him or her from inhaling the infectious agents. Therefore, the more people wear masks, the more protections there is. We could see that during COVID.

However, masks not only protect from infectious pathogens. As with the gloves, there are other potentially toxic substances like fumes when preparing chemotherapy or other hazardous drugs. Masks should also be worn when handling radioactive materials. Otherwise, you might just inhale microparticles of dangerous materials.

Oh yes, masks were around a lot and there was also a lot of discussion about different types of masks, N95 masks became very popular in COVID, before I had rarely ever seen them...

Yes, that is true. There are different types and for some of these there are even different names. Let's keep it easy and stick with the American classification:

N95 respirators: Are masks that protect against particles. N95 respirators are designed to filter out at least 95% of airborne particles, including bacteria and viruses. They are considered the most protective type of mask and are used in situations where there is a risk of airborne transmission, such as during intubation or ventilation procedures. N95 respirators are disposable and should be discarded after use.

Surgical masks: Surgical masks are loose-fitting masks that are primarily designed to protect against droplets and sprays. They are commonly used in healthcare settings to prevent the transmission of respiratory infections between patients and healthcare workers. Surgical masks are disposable and should be discarded after use.

Cloth masks: Cloth masks are made of fabric and are commonly used in community settings to prevent the transmission of respiratory infections. While they are less effective than N95 respirators or surgical masks, cloth masks can provide some protection against respiratory droplets. Cloth masks should be washed after each use.

In addition to these types of masks, there are also respirators that are designed for specific types of hazards, such as chemicals, fumes, vapours and gases. They are not so common in general healthcare settings.

In addition, let me say, it is important for healthcare workers to use masks correctly and consistently to prevent the spread of infectious diseases and other airborne contaminants. This includes proper fit, use, and disposal of masks.

Gloves and masks these are I think the two most frequently used items of PPE but there are others, right?

Yes, there are, there is the whole chapter of protective clothing and perhaps to be mentioned separately protective footwear and eye protection.

As we have been talking rather a long time already, maybe we'll talk about these things in the next podcast. I can feel that there is again a lot of information coming.

Yes, there is more information coming, and I think there will be some aspects that are not as obvious as the information about gloves and masks.

So, let's draw a line here and wait for next week to learn more about the PPE and its proper use. Until then, even if you wear gloves, don't forget about hand hygiene and always discard your PPE properly after use.

Yes - and stay safe and stay blessed!

Ressources

<https://www.who.int/teams/health-product-policy-and-standards/assistive-and-medical-technology/medical-devices/ppe>

https://www.who.int/publications/i/item/WHO-2019-nCoV-PPE_specifications-2020.1

<https://www.cdc.gov/hai/prevent/ppe.html>