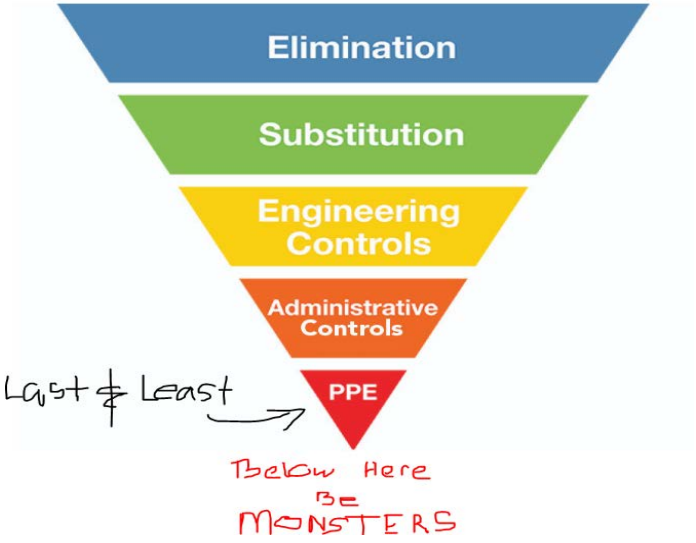
STANDARD DEVIATIONS: PPE – Biosafety's Stepchild?

Greetings,

Last of the 2019 **Preparedness Month** blurbs! Maybe you noticed that I haven't mentioned earthquakes, fires, floods, or active shooters. No, sir, I'm talking about the disaster we know will occur and when, influenza. We've looked at vaccines and handwashing as **Engineering Controls** that give us a measure of risk mitigation. Now we'll tackle another control, **PPE**. This is the bottom of the pile of controls we can throw at a biosafety problem, the thin line between you and exposure.



It's the control most of us are depending on every day, and yet we also misuse it. I'm not here to scold, but to point out some limitations, concerns, and thoughts.

Stop reading and turn around. Someone you know has a lab coat on that's unbuttoned, unzipped, or unsnapped. Someone else is not wearing gloves or the ones on are pretty filthy. Another tech is working with their sleeves pushed back, hair down, texting on a phone, or any combination of these gaffs. And in a short few weeks, someone will be aching, sneezing, coughing, and just working when they should be home in bed.

So let's consider:

Lab Coats. What goes through your mind when you see those docs or RNs in the cafeteria wearing the same outfit they had on in their patient's room? How often are you sending your trusty, crusty garment to the cleaning bin? Have you ever had to hang your coat on top of

someone else's? You know what I'm talking about; lab coats should never leave the workplace and should be immediately replaced whenever soiled.

Have you worked with this guy?

Maybe your administration thinks two coats per tech is plenty (watching pennies not germs). But I'd argue that you should have access to clean coats whenever you need (and that could be several times a day!). Do you have a supply of disposables?

As we start testing samples for influenza, it would be good practice to wear a disposable, fluid-resistant closed-front gown. They're cheap, easy and safe. Wear them just for a specific bench and toss 'em every time you finish your task.

Gloves. Medical-grade nitrile gloves are our workhorse and they're damn good. Not so with vinyl, they have ~3% failure rates. But even nitrile wears out and outdated or open boxes will show decay issues. And pathogens on our gloves aren't any safer, just closer. Changing gloves often and whenever needed is key.

If you're working in a biosafety cabinet, you should be wearing two pair, and that outer pair should never leave the cabinet. A best practice would be de-conning that outer glove and removing it to waste in the BSC and then re-gloving right away.

Two glove colors make breeches evident.

Extended cuff gloves protect that small space between your hand and the sleeve of your coat. Give them a try.

Eyewear and face protection. It's hard to talk about exposure without mentioning the vulnerable areas of our noggin. Our eyes, mouth and nares are avenues for pathogen entry.

Not only are they often exposed, we're constantly putting our hands to them, even if unconsciously. Splashes and spills are going to happen and when those involve organisms that are respiratory or bloodborne pathogens we should be protecting ourselves. Safety eyewear deserves a place in everyone's supply and face shields are light, disposable tools that are making "head"way into our safety paradigm.

And they're customizable!

Masks. Are you and/or your staff fit tested for N95 respirators? Chances are your phlebotomy team has someone fitted for respiratory precaution patients, but the techs on the bench are often overlooked. Those techs handling influenza specimens (or at risk of aerosols, in general) deserve the same safety consideration as those in contact with infectious patients.

What about surgical masks? A recent study looked at the safety of N95 vs surgical masks and found them comparable in their protective capability for influenza (JAMA. 2019;322(9):824-833. doi:10.1001/jama.2019.11645).

~8% of both groups came down with flu!

The only caveat I'll provide is that neither was 100% effective and the comparison found that similar numbers of study participants still contracted disease (~8%). Either mask choice provides greater protection than working without. Cost may factor in a decision as the surgical mask costs a tenth of the N95. Every lab should evaluate the risks on the bench and the value of fit testing staff for respiratory protection.

Influenza is coming. In the lab you're facing exposure.

We can't eliminate this risk; we can only apply our mitigation tools. Vaccination and hygiene are Engineering Controls we use, SOPs and safety practice guidance are Administrative Controls. PPE is the last line of defense in our toolkit; and it's the piece we must get right.

Have a great week and be safe,

Bryan