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InTouch
Clinical update for healthcare workers with an interest in safety and infection prevention

ISSUE 12
PART 2

PART 2: COVID-19 PROTECTION FOR HEALTHCARE WORKERS

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LEARNING OBJECTIVES

1. Review the impact the SARS-CoV-2 Virus has had on the global Personal Protective Equipment (PPE) demand and supply.
2. Explore peak body recommendations for PPE availability and preservation.
3. Examine PPE recommendations for standard and extra transmission-based precautions, and optimal PPE donning and doffing steps.

GLOBAL IMPACT OF PPE DEMAND ON MANUFACTURERS

Healthcare workers (HCWs) represent a unique high-risk group for COVID-19 due to their contact with suspected and positive patients and find themselves balancing their safety while still providing care to their patients. Paramount, however, should be the need to protect themselves from potential exposure with correct hand hygiene principals and adequate personal protective equipment (PPE) such as masks, gowns, gloves and eye protection. Fortunately, standard precautions have been in place for decades having familiarized HCWs with effective practices.

With the declaration of the COVID-19 pandemic the entire world, not only HCWs, immediately increased their demand for PPE. Even governments across the globe who stockpiled for pandemics still found themselves short, due to poor planning and an inability to foresee the scale of PPE needed for what was coming ahead from the SARS-CoV-2 Virus.

With or without stockpiles, governments have been playing catch-up in local production of PPE, since more than 90% of PPE production has been historically dependent on manufacturers from China. The World Health Organization (WHO) has called on industry and governments to increase manufacturing by 40% to meet rising global demand.[1] Rallying to the cause, previously medically unrelated manufacturers across the globe have been retooling their plants to make medical and non-medical grade products. For example, Ford Motor Company began making ventilators and air purifying respirators in their plants in conjunction with 3M, a major manufacturer of N95 respirators.

In reality, increase in production and supply distribution has been beset by challenges that will take time to overcome. Countries that manufacture PPE are likely to have had their workforce numbers reduced, either to worker COVID-19 infections, the numbers allowed in manufacturing plants due to social distancing, or strict curfew times set by governments reducing the times that workers are allowed out of the home. Also depending on the PPE, manufacturing is usually run as close to capacity as it can be, and is reliant on forecasting so numbers are controlled. To increase production, it may take anywhere from 1 to 12 months to establish new manufacturing lines to meet the demand.

Added to manufacturing, supply and distribution of products is not as straightforward as it was pre-COVID-19 and can now take longer to deliver. There has been border control and interception by governments, so products do not reach their intended destination. Unfortunately, in these desperate times, PPE may go to the highest bidder rather than those who need it the most.

HEALTHCARE PEAK BODY PPE COMMENTARY

From the outset, WHO warned that severe and mounting disruption to the global supply of PPE – caused by rising demand, panic buying, hoarding and misuse – is putting lives at risk from the new coronavirus and other infectious diseases. Healthcare workers who rely on PPE to protect themselves and their patients from being infected and infecting others are the most impacted. These PPE shortages are leaving doctors, nurses, and other frontline workers dangerously ill-equipped to care for COVID-19 patients, due to limited access to supplies such as gloves, medical masks, respirators, goggles, face shields, gowns, and aprons.

The limited availability of adequate PPE has raised concerns about whether healthcare systems are able to fully protect their healthcare workers and other employees. A study, which was conducted by a team led by researchers at Massachusetts General Hospital showed frontline healthcare workers had an eleven times higher risk than the general community of testing positive and those who reported that they had inadequate access to PPE had a 23% higher risk.[2]

To ensure that PPE is available to the healthcare workers most at risk of COVID-19, implementing PPE preservation strategies have played a critical role in deciding the appropriate level of PPE for use in non-healthcare industries. WHO,[3] CDC,[4] Federal Emergency Management Agency (FEMA)[5] and Occupational Safety and Health Administration (OSHA)[6] have specific guidance on the use of PPE as part of routine duties performed by non-healthcare essential workers. Other global agencies in Europe and Australia have followed suit. Such examples include N95 or equivalent respirator to be worn only by high priority healthcare workers and that simple cloth covering may be adequate in the general community where social distancing measures cannot be maintained.

World Health Organization CDC Centers for Disease Control and Prevention FEMA OSHA

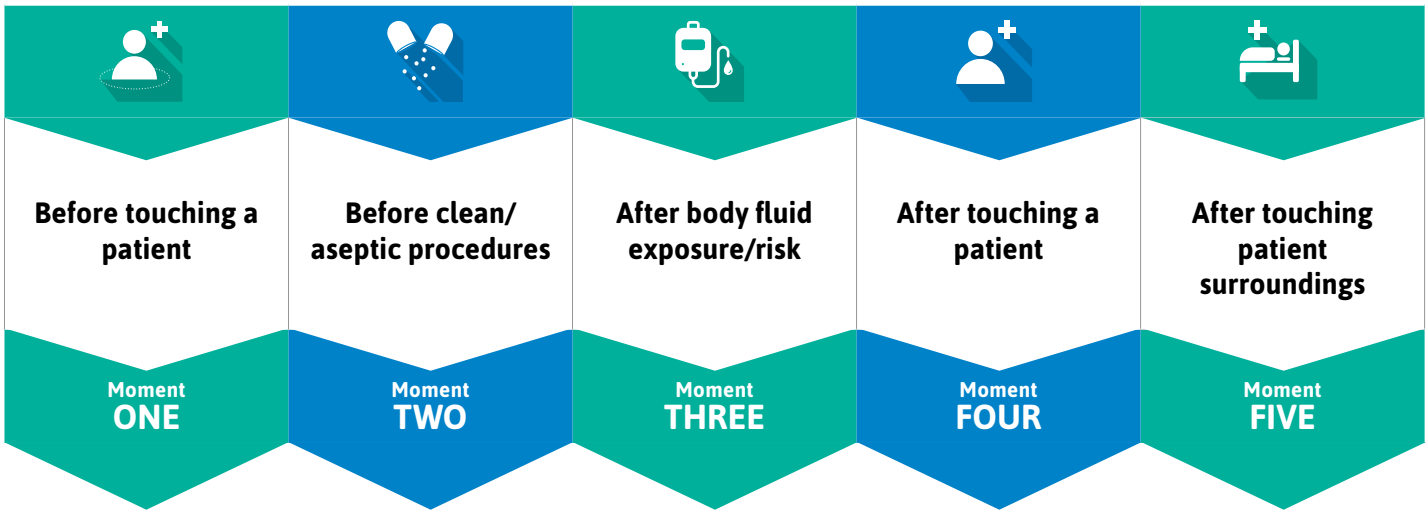
HEIGHTENING PROTECTION WITH AVAILABILITY OF APPROPRIATE PPE

The WHO published healthcare worker rights for employers and managers in health facilities as related to PPE:[7]

- Ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks;
- Provide information, instruction and training on occupational safety and health, including refresher training on infection prevention and control (IPC) and donning and doffing PPE;
- Provide adequate PPE supplies (masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity to healthcare or confirmed patients; and
- Understand and track PPE requirements and stock levels. Look at and manage usage accordingly.

Hand hygiene remains the most essential infection prevention and control strategy in the healthcare setting, and with COVID-19 and more frequent donning and doffing of PPE, it is one of the simplest and most effective ways to prevent the spread of infection.

The WHO's My 5 Moments for Hand Hygiene are:[8]



Pre-COVID-19, gowns, masks, gloves and eye protection were standard precaution. When healthcare workers are choosing PPE during COVID-19, they should be guided by PPE availability, the task they are performing as exposure risk, as well as regional regulations.

Where a mask is recommended, N95/P2/FFP2 respirators should be used only for those personnel at the highest risk during aerosol generating procedures (AGP) which require a higher level of respiratory protection against smaller particles. The volume of patients with COVID-19 admitted to healthcare facilities over a short period of time has created a critical national shortage and supply preservation is necessary. In other situations, a surgical mask should adequately protect the wearer from droplets, splashes and sprays reaching their mouth and nose.

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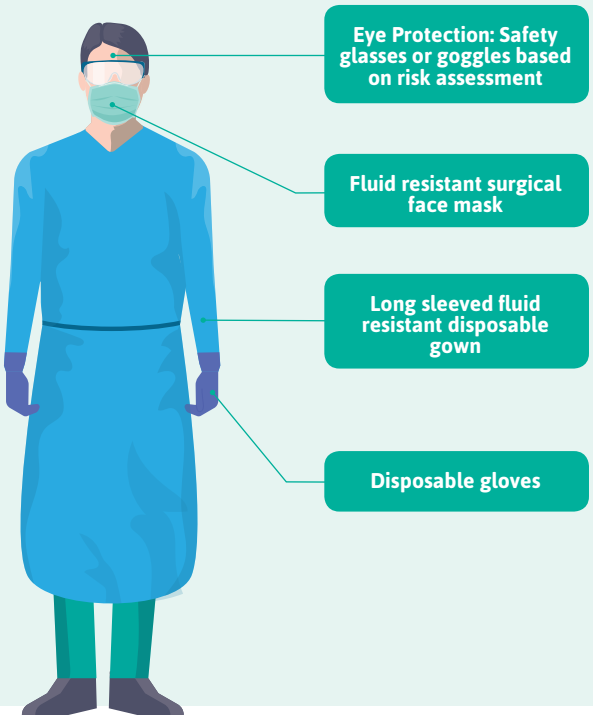
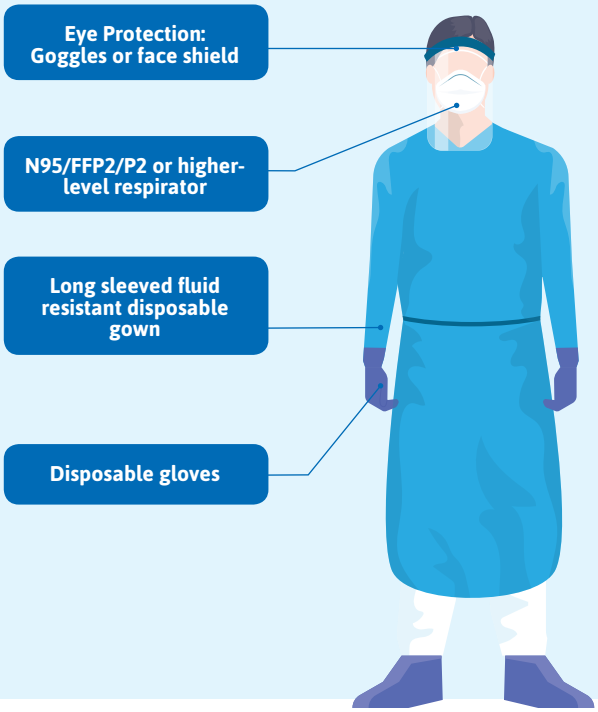
COVID-19 PPE GUIDE FOR STANDARD AND TRANSMISSION-BASED PRECAUTIONS[9]

STANDARD PRECAUTIONS



TRANSMISSION-BASED PRECAUTIONS



PPE is only truly protective if hand hygiene is performed at crucial points and PPE is donned and doffed correctly before and after patient care is performed. For optimal protection to prevent exposure and cross-contamination, follow these steps based on recommendations:[9]

DONNING

1. **Perform hand hygiene.**
2. **Protective Clothing:** Don the gown. When using a gown with back closure, a second operator should assist in securing the back.
3. **N95/FFP2/P2 Respirator or Surgical Mask:** Proceed with respirator or surgical mask as appropriate. Perform fit/seal check if using a respirator. For surgical masks, tighten straps for secure comfortable fit.
4. **Eye Protection:** Place goggles or face shield over the mask straps and ensure the elastic strap fits snugly on the head.
5. **Perform hand hygiene before putting on gloves.**
6. **Gloves:** Don gloves as the final step. Be sure to extend the gloves over the gown cuff or clothing to cover the wrist and limit exposure.

DOFFING

1. **Remove gloves:** Being careful to prevent additional contamination of hands. Grasp outside of the glove with the opposite gloved hand and peel off, holding the removed glove in the gloved hand. Then slide fingers of ungloved hand under glove cuff and peel off. Discard in waste receptacle.
2. **Remove gown.** Unfasten ties, pulling away from the neck and shoulders touching the inside of the gown only. Turn the gown inside out and fold or roll into a bundle and discard.
3. **Perform hand hygiene.**
4. **Remove face shield or goggles** by grabbing the strap or sides, pulling upwards and away from head. Do not touch the front of face shield or goggles. Discard in a sealed trash receptacle or prepare for cleaning/reprocessing.
5. **Remove and discard respirator or mask** without touching the front.
   Respirator - To remove the bottom strap, bring over the head, repeat with top strap, then pull the respirator away from face.
   Mask - Carefully untie or unloop straps and pull away from face. Discard respirator or mask in a sealed waste receptacle.
6. **Perform hand hygiene** after removing all PPE.

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PPE Donning and Doffing important tips:[9]

- PPE must be donned correctly before entering the patient area.
- PPE should remain in place and be worn correctly for durations of patient exposure.
- Always extend glove cuff over gown cuff to fully cover wrist and limit exposure.
- PPE should not be adjusted (e.g. retying gown, adjusting respirator/face mask) during patient contact. Avoid touching your face during patient care.
- If wearing a respirator, face must be clean shaven for proper fit to prevent leaks or improper seal.
- Find a respirator mask suitable to fit your face and immediately perform a fit or seal check.
- If respirator is not available, use a combination of surgical mask and full face shield.
- PPE must be removed slowly and deliberately in a sequence that prevents self-contamination.
- Make sure gloves are removed to avoid self-contamination
- Treat waste contaminated with blood, body fluids, secretions and excretions as medical waste, in accordance with local regulations.
- Clean and disinfect reusable eye protection per manufacturer's instructions.
- Reusable cloth gowns should be laundered after each use.

CONCLUSION

The world was unprepared for this COVID-19 pandemic and the increased need for personal protective equipment (PPE). Manufacturing is doing its best to meet the needs of both healthcare and general consumers, and while on its way to achieving this, hospitals still report inadequate supplies of the critical PPE required to effectively protect our most vulnerable healthcare workers. Following local conservation guidelines remains critical until supply is fully restored. Healthcare staff also need to ensure that when wearing PPE they are truly protecting themselves by applying infection prevention techniques with correct donning and removal. This pandemic has unfortunately uncovered that in some countries, there are inadequate staff training for the proper use of PPE. In the future, many hospitals could consider a standard program for PPE training with annual competencies to avoid healthcare workers from putting themselves at unnecessary risk during times of crisis due to improper PPE selection, donning, or doffing techniques.

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Please Note: Given the novelty of this coronavirus, recommendations from the source references are interim and advisory in nature and are based on current knowledge of the situation. Always ensure compliance with your local public health authorities regulations regarding conservation, usage and selection guidance of PPE to combat the COVID-19 pandemic.

For more information on infection prevention and control of COVID-19, please visit: www.ansell.com/us/en/the-new-coronavirus or submit queries to ansellcares@ansell.,com

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InTouch
CLINICAL UPDATE

ISSUE 12: IN-SERVICE BRIEF

Part 2 - COVID-19 Protection for Healthcare Workers

IMPACT OF INCREASED PPE DEMAND

With the declaration of the COVID-19 pandemic the entire world, not only healthcare workers, immediately increased their demand for PPE. Even governments across the globe who stockpiled for pandemics still found themselves short, due to poor planning and an inability to foresee the scale of PPE needed for what was coming ahead from the SARS-CoV-2 Virus.

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- Provide adequate PPE supplies (masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity to healthcare or other staff caring for suspected or confirmed patients; and
- Understand and track PPE requirements and stock levels. Look at and manage usage accordingly.

IMPORTANT TIPS FOR PPE USE

- PPE must be worn correctly and remain in place for the duration of care.
- Perform hand hygiene before donning and after removing gloves.
- Always extend the glove cuff over the gown cuff to fully cover the wrist and limit exposure.
- If a respirator is not available, use a combination of a surgical mask and a full-face shield.
- PPE should not be adjusted (i.e. retying gowns, adjusting mask, etc.) during patient care.
- Remove and discard all disposable PPE into a sealed trash receptacle (disposable respirators/masks, eye protection, gown, glove,etc.).
- Unsoiled PPE can be discarded into general waste. Visibly soiled PPE must be disposed of as clinical/ infectious waste.
- Clean and disinfect resusable eye protection according to manufacturer's instructions prior to re-use.

DONNING	DOFFING
1. Hand Hygiene	1. Gloves
2. Gown/Protective Clothing	2. Gown/Protective Clothing
3. Mask/Respirator	3. Exit Patient Area
4. Eye Protection	4. Hand Hygiene
5. Hand Hygiene	5. Face Shield/Eye Protection
6. Gloves	6. Mask/Respirator and Discard
	7. Hand Hygiene

REFERENCES

The full list of references which include Centers for Disease Control and Prevention, Federal Emergency Management Agency, Occupational Safety and Health Administration and World Health Organization can be found within InTouch Issue 12:Part 2 - COVID-19 Protection and Treatment

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Please read InTouch Issue 12: Part 2 – COVID-19 Protection and Treatment for more information on this topic.

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