



PPE USE IN HEALTHCARE SETTING

**ALFIYA G HASU, FNP
USA**

**ORGANIZED BY: ORNB, UNIVERSITIES
IN OROMIA, ORNB AC, OPA, IOHPA,
EEHA, EEA**

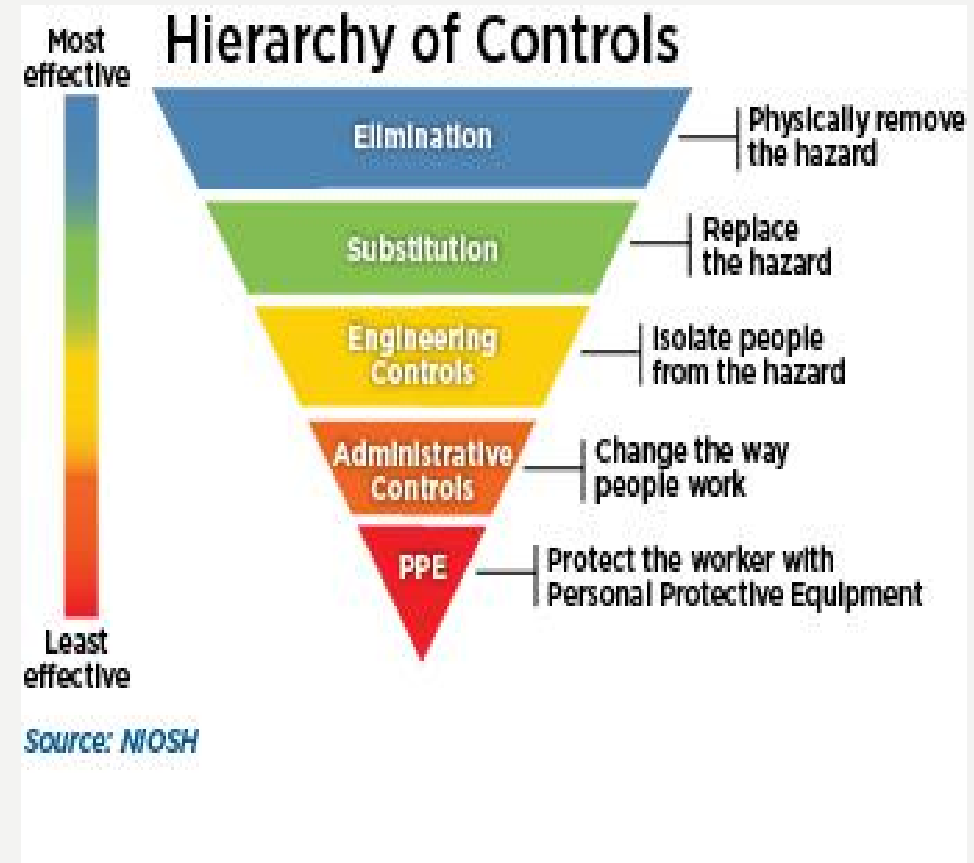
4/22/2020

OBJECTIVE

- DEFINE PPE
- TYPES OF PPE
- WHEN,WHO,AND HOW
- USE AND LIMITATIONS OF PPE
- PROPER USE AND MENTENANCE OF PPE
- DONNING AND DOFFING
- CONCLUSION

HAZARD PREVENTION AND CONTROL

- Controlling exposures to occupational hazards is the fundamental method of protecting workers
- A hierarchy of controls has been used as a means of determining how to implement feasible and effective control solutions.
- The control methods at the top of graphic are potentially more effective and protective than those at the bottom.
- While PPE is last in the hierarchy of prevention, it is very important for protecting healthcare workers from disease transmission.



DEFINE PEE

- **PPE** Personal protective equipment: specialized clothing or equipment, worn by an employee for protection against infectious materials, (OSHA)
- **Goal-** Improve personnel safety in the healthcare environment through appropriate use of PPE.
- Know what type of PPE is necessary for the duties you perform and use it correctly

TYPES OF PPE

- **Gloves** – protect hands
- **Gowns/aprons** – protect skin and/or clothing
- **Masks and respirators**– protect mouth/nose
 - **Respirators** – protect respiratory tract from airborne infectious agents
- **Goggles** – protect eyes
- **Face shields** – protect face, mouth, nose, and eyes
- **Shoes cover-** protect shoes
- **Head cover** –protect hair

FACTORS INFLUENCING PPE SELECTION

- Type of exposure anticipated
 - Splash/spray versus touch
- Category of isolation precautions
 - Standard and Expanded Isolation Precaution
- Durability and appropriateness for the task
- Fit

WHEN TO USE PPE IN HEALTHCARE SETTINGS

- **Standard and Expanded Isolation Precaution**
- **Standard precaution**
 - Universal precaution
 - Assumes blood and body fluid of ANY patient could be infectious
- **Expanded Precautions include**
 - Contact Precautions
 - Droplet Precautions
 - Airborne Infection Isolation

PPE FOR STANDARD PRECAUTIONS OR UNIVERSAL PRECAUTIONS

- **Gloves** – Use when touching blood, body fluids, secretions, excretions, contaminated items; for touching mucus membranes and nonintact skin •
- **Gowns** – Use during procedures and patient care activities when contact of clothing/ exposed skin with blood/body fluids, secretions, or excretions is anticipated
- **Mask and goggles or a face shield** – Use during patient care activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions

USE OF PPE FOR EXPANDED PRECAUTIONS

- **Contact Precautions** – Gown and gloves for contact with patient or environment of care (e.g., medical equipment, environmental surfaces)
 - In some instances these are required for entering patient's environment
- **Droplet Precautions** – Surgical masks within 3 feet of patient
- **Airborne Infection Isolation** – Particulate respirator
 - Negative pressure isolation room also required

GLOVES

- **Gloves** are the most common type of PPE used in healthcare settings.
- Select the right glove for a specified purpose.
 - Purpose, material, sterile or nonsterile, one or two pair
- **Do's and Don'ts of Glove Use**
 - Work from “clean to dirty”
 - Don't touch your face or adjust PPE with contaminated gloves –
 - Don't touch environmental surfaces except as necessary during patient care
 - Change gloves – During use if torn and when heavily soiled
 - Discard in appropriate receptacle
 - Never wash or reuse disposable gloves

GOWNS OR APRONS

- **There are three factors that influence the selection of a gown or apron as PPE**
- Purpose of use
 - Isolation or surgical
- Material –
 - Natural or man-made
 - Reusable or disposable
 - Resistance to fluid penetration
- Clean or sterile

FACE PROTECTION

- **Masks** – protect nose and mouth
 - Should fully cover nose and mouth and prevent fluid penetration
- **Goggles** – protect eyes
 - Should fit snugly over and around eyes
 - Personal glasses not a substitute for goggles
 - Antifog feature improves clarity
- **Face shields** – protect face, nose, mouth, and eyes –
 - Should cover forehead, extend below chin and wrap around side of face

RESPIRATORY PROTECTION

- **Purpose** – protect from inhalation of
 - Infectious aerosols (e.g., Mycobacterium Tuberculosis, SARS-COV2)
- **Types for respiratory protection**
 - Particulate respirators
 - Half- or full-face elastomeric respirators
 - Powered air purifying respirators (PAPR)
- **Elements of a Respiratory Protection**
 - Fit testing, Training, Fit checking before use

HOW TO SAFELY DON/USE, AND REMOVE/DOFF PPE

- Don before contact with the patient, generally before entering the room
- Use carefully – don't spread contamination
- Remove and discard carefully, either at the doorway or immediately outside patient room;
- remove respirator outside room
- Immediately perform hand hygiene

SEQUENCE FOR DONNING PPE

- Gown first
- Mask or respirator
- Goggles or face shield
- Gloves
- Combination of PPE will affect sequence – be practical
- <http://www.youtube.com/c/AlfiyaGHasuNP>

CONTACT AND DROPLET PRECAUTIONS - COVID-19 PERSONAL PROTECTIVE EQUIPMENT (PPE)

1 Perform hand hygiene
Alcohol based handrub | **Water and soap**
Rub hands for 20–30 seconds. | Wash hands for 40–60 seconds.



2 Put on the gown



3 Put on the mask
Medical mask | **or** | Respirator mask (N95, FFP2, FFP3, or equivalent).
Only use if performing aerosol generating procedures.



4 Put on eye protection
Put on face shield or goggles.



5 Put on gloves
Ensure gloves are placed over the cuff of the gown.



HOW TO DON PPE

HOW TO DON A GOWN

- Select appropriate type and size
- Opening is in the back
- Secure at neck and waist
- If gown is too small, use two gown
 - Gown #1 ties in front
 - Gown #2 ties in back



HOW TO DON A MASK

- Place over nose, mouth and chin
- Fit flexible nose piece over nose bridge
- Secure on head with ties or elastic
- Adjust to fit



HOW TO DON PPE

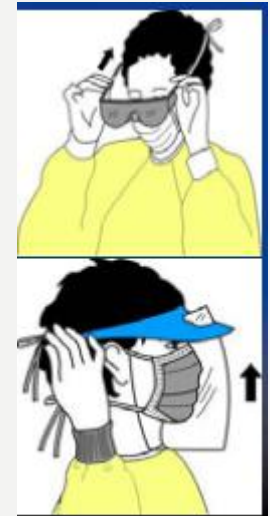
HOW TO DON A PARTICULATE RESPIRATOR

- Select a fit tested respirator
- Place over nose, mouth and chin
- Fit flexible nose piece over nose bridge
- Secure on head with elastic
- Adjust to fit
- Perform a fit check –
- Inhale – respirator should collapse
- Exhale – check for leakage around



HOW TO DON EYE AND FACE PROTECTION

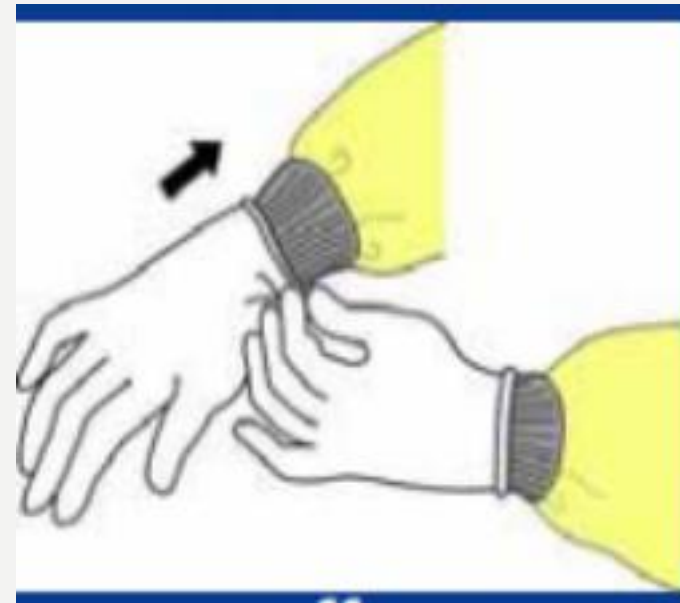
- Position goggles over eyes and secure to the head using the ear pieces or headband
- Position face shield over face and secure on brow with headband
- Adjust to fit comfortably



HOW TO DON PPE

HOW TO DON GLOVES

- Don gloves last
- Select correct type and size
- Insert hands into gloves
- Extend gloves over isolation gown cuffs



PUTTING/DONNING ON PPE

- Keep gloved hands away from face
- Avoid touching or adjusting other PPE
- Remove gloves if they become torn; perform hand hygiene before donning new gloves
- Limit surfaces and items touched
- <http://www.youtube.com/c/AlfiyaGHasuNP>

W TO GUIDE – PUTTING ON PPE R CONTACT/DROPLET PRECAUTIONS

1 Perform hand hygiene

Alcohol based handrub
Rub hands for 20–30 seconds.
or
Water and soap
Wash hands for 40–60 seconds.



2 Put on the gown



3 Put on the mask

Medical mask.



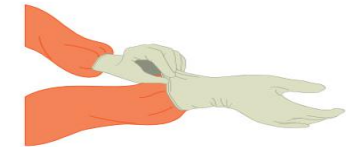
4 Put on eye protection

Put on face shield or goggles.



5 Put on gloves

Ensure glove is placed over the cuff of the gown.



Full PPE



SEQUENCE FOR REMOVING PPE

- Gloves
- Gown
- Face shield or goggles
- Mask or respirator
- Where to Remove PPE
 - At doorway, before leaving patient room or in anteroom*
 - Remove respirator outside room, after door has been closed*
- Ensure that hand hygiene facilities are available at the point needed, e.g., sink or alcohol-based hand rub

TAKING/DOFFING OFF PPE

- Contaminated – outside front
 - Areas of PPE that have or are likely to have been in contact with body sites, materials, or environmental surfaces where the infectious organism may reside
- Clean – inside, outside back, ties on head and back
 - Areas of PPE that are not likely to have been in contact with the infectious organism

<http://www.youtube.com/c/AlfiyaGHasuNP>

HOW TO GUIDE – TAKING OFF PPE FOR CONTACT/DROPLET PRECAUTIONS

Ensure that infectious waste containers are available for safe disposal of PPE. Separate containers should be available for reusable items.
Order is important

1 Remove gloves



2 Remove the gown

Ensure gown is pulled away from the body during removal and that clothing does not become contaminated and dispose of them safely.



3 Perform hand hygiene

Alcohol based handrub
Rub hands for 20–30 seconds.
or
Water and soap
Wash hands for 40–60 seconds.



4 Remove eye protection

Remove face shield or goggles.



5 Remove the mask

Ensure you are taking the mask off from the straps, avoid touching the mask.



6 Perform hand hygiene

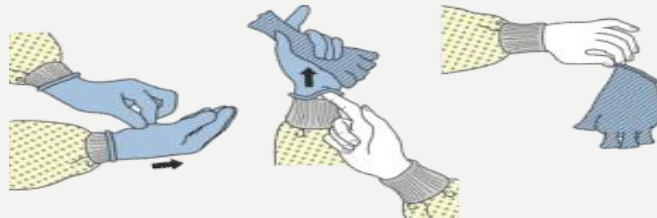
Alcohol based handrub
Rub hands for 20–30 seconds.
or
Water and soap
Wash hands for 40–60 seconds.



HOW TO DOFF/REMOVE PPE

HOW TO REMOVE GLOVES

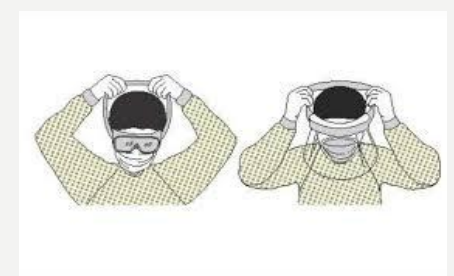
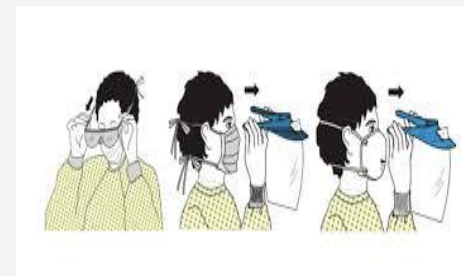
- Grasp outside edge near wrist
- Peel away from hand, turning glove inside-out
- Hold in opposite gloved hand
- Slide ungloved finger under the wrist of the remaining glove
- Peel off from inside, creating a bag for both gloves
- Discard



- <http://www.youtube.com/c/AlfiyaGHasuNP>

REMOVE GOGGLES OR FACE SHIELD

- Grasp ear or headpieces with ungloved hands
- Lift away from face
- Place in designated receptacle for reprocessing or disposal



- <http://www.youtube.com/c/AlfiyaGHasuNP>

HOW TO REMOVE PPE

REMOVING ISOLATION GOWN

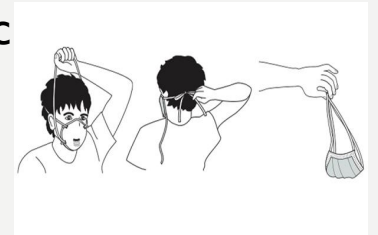
- Unfasten ties
- Peel gown away from neck and shoulder
- Turn contaminated outside toward the inside
- Fold or roll into a bundle
- Discard



- <http://www.youtube.com/c/AlfiyaGHasuNP>

REMOVING A MASK

- Untie the bottom, then top, tie
- Remove from face
- Discard
- **Removing a Particulate Respirator**
 - Lift the bottom elastic over your head first
 - Then lift off the top elastic
 - Discard



- <http://www.youtube.com/c/AlfiyaGHasuNP>

HAND HYGIENE

- Required for Standard and Expanded Precautions
- Perform hand hygiene for 20 seconds
 - Immediately after removing PPE.
 - Between patient contacts
- If hands become visibly contaminated during PPE removal, wash hands before continuing to remove PPE
- Wash hands with soap and water or use an alcohol-based hand rub
- Ensure that hand hygiene facilities are available at the point needed, e.g., sink or alcohol-based hand rub

HOW TO HANDRUB?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

⌚ Duration of the entire procedure: 20-30 seconds



Apply a palmful of the product in a cupped hand, covering all surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Once dry, your hands are safe.

Steps to put on personal protective equipment (PPE) including gown

1 Remove all personal items (jewelry, watches, cell phones, pens, etc.)



2 Put on scrub suit and rubber boots¹ in the changing room.

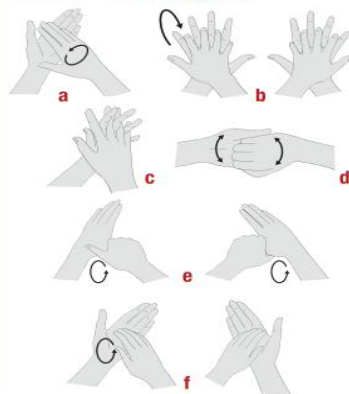


3 Move to the clean area at the entrance of the isolation unit.

4 By visual inspection, ensure that all sizes of the PPE set are correct and the quality is appropriate.

5 Undertake the procedure of putting on PPE under the guidance and supervision of a trained observer (colleague).

6 Perform hand hygiene.



7 Put on gloves (examination, nitrile gloves).



8 Put on disposable gown made of fabric that is tested for resistance to penetration by blood or body fluids OR to blood-borne pathogens.



9 Put on face mask.



10 Put on face shield OR goggles.



11 Put on head and neck covering surgical bonnet covering neck and sides of the head (preferable with face shield) OR hood.



12 Put on disposable waterproof apron (if not available, use heavy duty, reusable waterproof apron).



13 Put on second pair of (preferably long cuff) gloves over the cuff.



¹ If boots are not available, use closed shoes (slip-ons without shoelaces and fully covering the dorsum of the foot and ankles) and shoe covers (non-slip and preferably impermeable)

Steps to put on personal protective equipment (PPE) including coverall

1 Remove all personal items (jewelry, watches, cell phones, pens, etc.)



2 Put on scrub suit and rubber boots¹ in the changing room.

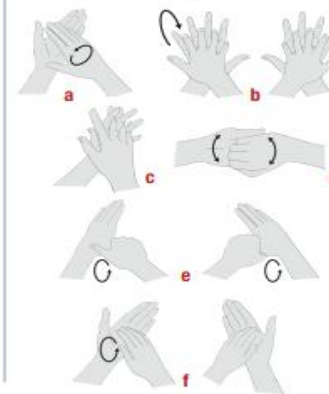


3 Move to the clean area at the entrance of the isolation unit.

4 By visual inspection, ensure that all sizes of the PPE set are correct and the quality is appropriate.

5 Undertake the procedure of putting on PPE under the guidance and supervision of a trained observer (colleague).

6 Perform hand hygiene.



7 Put on gloves (examination, nitrile gloves).



8 Put on coverall.²



9 Put on face mask.



10 Put on face shield OR goggles.



11 Put on head and neck covering surgical bonnet covering neck and sides of the head (preferable with face shield) OR hood.



12 Put on disposable waterproof apron (if not available, use heavy duty, reusable waterproof apron).



13 Put on second pair of (preferably long cuff) gloves over the cuff.



¹ If boots are not available, use closed shoes (slip-ons without shoelaces and fully covering the dorsum of the foot and ankles) and shoe covers (non-slip and preferably impermeable)

² Do not use adhesive tape to attach the gloves. If the gloves or the coverall sleeves are not long enough, make a thumb (or middle finger) hole in the coverall sleeve to ensure that your forearm is not exposed when making wide movements. Some coverall models have finger loops attached to sleeves.

THANK YOU

QUESTION ?

REFERRNCE

- <http://www.youtube.com/c/AlfiyaGHasuNP>
- https://apps.who.int/iris/bitstream/handle/10665/150115/WHO_HIS_SDS_2015.1_eng.pdf?sequence=1
- https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf
- <https://www.cdc.gov/hai/pdfs/ppe/ppeslides6-29-04.pdf>
- https://www.who.int/medical_devices/meddev_ppe/en/
- https://www.who.int/csr/resources/publications/ppe_en.pdf?ua=1
- https://apps.who.int/iris/bitstream/handle/10665/44102/9789241597906_eng.pdf?sequence=1