



Safe Patient Care
"Keeping our Residents Safe"

A TRADITION OF
 INDEPENDENT
 THINKING



University College Cork, Ireland
 Coláiste na hOllscoile Corcaigh

2016
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Let's play dress up: Why, when and who?

Personal Protective Equipment, practical of donning and doffing, also including Respiratory Hygiene

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Overview

Respiratory hygiene

- What is it?
- When do you use it?

PPE

- What is PPE?
- Types of PPE
- When do you use PPE?
- PPE for expanded precautions
- Sequence for putting on PPE
- Sequence for taking off PPE

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Respiratory hygiene

Respiratory hygiene & cough etiquette (CDC 2007)

- Evolved because of lessons learnt during SARS epidemic in 2003
- Targeted at people with undiagnosed transmissible respiratory illness
- The term "cough etiquette" came from source control measures for TB
- Reinforced during Swine flu Pandemic in 2009



Spread of viral infections

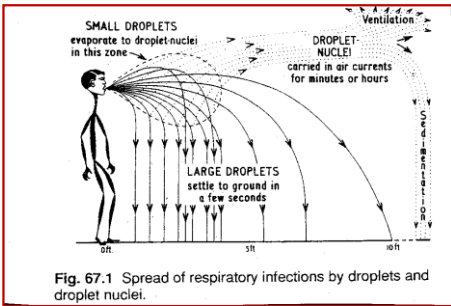
SARS 2003 457 RIP
H1n1 2009 8437 RIP

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Spread of respiratory infections



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Measures to contain respiratory secretions

- Cover mouth and nose with a one-use disposable tissue when coughing or sneezing
- Dispose of tissue after use
- Carry out hand hygiene
- Ensure the availability of materials for adhering to Respiratory Hygiene/Cough Etiquette in waiting areas for patients and visitors
- Provide tissues and no-touch receptacles for used tissue disposal
- Provide conveniently located dispensers of alcohol-based hand rub and ensure that supplies for hand washing (i.e., soap, disposable towels) are consistently available



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Increased respiratory infection activity in the community e.g. seasonal 'flu

- Offer masks to persons who are coughing
- Use visual alerts – posters, leaflets, emails
- Either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties) may be used to contain respiratory secretions
- Sputum containers should be disposable and discarded at least daily
- When space and chair availability permit, encourage coughing persons to sit at least **three feet** away from others in common areas
- Some facilities may find it easier to institute this recommendation year-round



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Health care workers

- HCWs should have **access to an occupational health team** and be offered annual influenza vaccination
- HCWs should **self monitor** for Influenza Like Illness (ILI).
- HCWs with ILI symptoms should not attend work and should immediately report symptoms to their line manager.

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Use visual alerts

Promote respiratory hygiene e.g. patient leaflets, posters

Educate HCWs, patients, visitors



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Current threats (HPSC 2016)

- Emergence of two exceptional new virus infections - Novel Coronavirus
- Middle East Respiratory Syndrome Coronavirus (MERS CoV)
- Avian Influenza A (H7N9)
- Unrelated viruses
- Both highly pathogenic
- Both considered to have potential to evolve and spread



STANDARD PRECAUTIONS

.....infection control practices used to prevent transmission of diseases that can be acquired by contact with blood, body fluids, non-intact skin (including rashes), and mucous membranes.....

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Personal Protective Equipment (PPE)

Definition:

“specialized clothing or equipment worn by an employee for protection against infectious materials” (OSHA)

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Types of PPE Used in Healthcare Settings

- Gloves** – Touching, or where there is a risk touching, *blood, body fluids, secretions, excretions, contaminated items; for touching mucous membranes and non-intact skin*
- Gowns/Aprons** – 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 activities likely to generate **splashes or sprays** of blood, body fluids, secretions, or excretions
- Respirators** – protect respiratory tract from airborne infectious agents

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PPE for Expanded Precautions

- Contact Precautions** – Gown or apron and gloves for contact with patient or environment (e.g., medical equipment, environmental surfaces) *Infections spread by contact include: C Diff, Norovirus, Shingles, and drug resistant organisms*
- Droplet Precautions** (large particles)– **Surgical masks**
Infections spread by Droplet include: influenza, mumps - Meningo-coccal disease, and group A strep for first 24 hours of antibiotic treatment
- Airborne Infection Isolation** – Particulate respirator *
Negative pressure isolation room also required Infections spread by Airborne include: pulmonary or laryngeal tuberculosis, rubella, measles and chicken pox
- Combinations** of the above used for: *some MDRO's as per advice of the IPCN*



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PPE Use in Healthcare Settings:



How to Safely Don, Use, and Remove PPE

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Hand Hygiene

- Social hand hygiene required for Standard Precautions and Antiseptic hand hygiene for Expanded Precautions
- Perform...
 - Before donning gloves
 - Immediately after removing gloves
 - Between patient contacts
- Decontaminate hands thoroughly using alcohol-based hand rub on physically clean hands or with soap and water

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Sequence* for Donning PPE

- Gown / Apron first
- Mask or respirator
- Goggles or face shield
- Gloves

*Combination of PPE will affect sequence - be practical

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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 gowns
 - Gown #1 ties in front
 - Gown #2 ties in back



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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



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Respiratory Protection

- Purpose – protect from inhalation of infectious aerosols (e.g. *pulmonary or laryngeal tuberculosis*)
- PPE types for respiratory protection
 - Particulate respirators
 - Half- or full-face elastomeric respirators
 - Powered air purifying respirators (PAPR)
 - Fit testing.....

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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 face



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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



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How to Don Gloves

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



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Do's and Don'ts of Glove Use

- Clean your hands before donning gloves
- Work from "clean to dirty"
- Limit opportunities for "touch contamination" - protect yourself, others, and the environment
- Remove gloves if they become torn; perform hand hygiene before donning new gloves
 - Don't touch your face or adjust PPE while wearing gloves
 - Don't touch environmental surfaces except as necessary during patient care
 - Take gloves off after use and clean your hands

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PPE Use in Healthcare Settings:

How to Safely Remove PPE

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The challenge.....

"Skin, Clothes Contaminated After Protective Gear Removed....."

During the removal of personal protective equipment (PPE), the skin and clothing of healthcare workers can become contaminated... Fran Lowry - Society for Healthcare Epidemiology of America (SHEA) Spring 2015 Conference: Abstract 7106. Presented May 15, 2015.

"Virus Transfer from Personal Protective Equipment to Healthcare Employees' Skin and Clothing..."

failure to properly use PPE was a risk factor for HCW infection
Lisa Casanova, Edie Alfano-Schaefer, William A. Rutala, David J. Weber, and Mark Schaefer

"Self-Contamination High Among Healthcare Workers"

24% of personnel caring for patients with Clostridium difficile infection...had spore contamination on their hands after glove removal..... Our findings suggest that contamination of health care personnel with pathogens occurs frequently when contaminated PPE is removed - [Lance Bortley, MD](#), (October 02, 2015)

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"Contaminated" and "Clean" Areas of 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

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Sequence for Removing PPE

- Remove **Gloves** first – and perform hand hygiene
- Face shield or goggles
- Gown
- Mask or respirator

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Where to Remove PPE

- At doorway, before leaving patient room or in anteroom* (remove gloves, apron or gown and surgical mask)
- 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

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How to Remove Gloves - Step 1



- Grasp outside edge near wrist
- Peel away from hand, turning glove inside-out
- Hold in opposite gloved hand

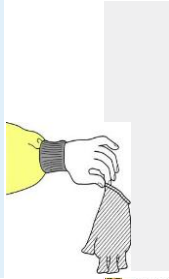
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How to Remove Gloves – Step 2



- Slide ungloved finger under the wrist of the remaining glove
- Peel off from inside, creating a bag for both gloves
- Discard



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Remove Goggles or Face Shield



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

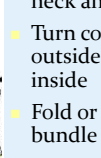


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Removing Isolation Gown



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

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Removing a Mask



- Untie the bottom, then top, tie
- Remove from face
- Discard



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Removing a Particulate Respirator

- Lift the bottom elastic over your head first
- Then lift off the top elastic
- Discard



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Disposal of PPE

It is vital that PPE is disposed of correctly:

- PPE from non-infectious patients can be disposed of in "offensive" waste - Domestic waste stream
- PPE from patients who are infectious must go into clinical infectious waste streams - Yellow bin
- PPE from cyto-toxic management must go into the cyto-toxic waste stream - Purple bin

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Enhanced PPE

- Enhanced PPE must be used with high-risk patients - e.g. ebola virus disease (EVD)
- Expert guidance on ebola is continually being updated
- A buddy is essential in high-risk care situations such as EVD
- The most up-to-date guidance information on what PPE should be considered for use in caring for patients with suspected or confirmed ebola infection available on HPSC website
- Consult local policies and procedures in their own organisations for further information.

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Key Points About PPE

- **Don PPE** 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; always remove respirator outside room
- **Immediately** perform hand hygiene
- If patients are co-horted remember to change PPE between each patient contact

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Conclusion

- **PPE** is part of Standard Precautions and part everyday healthcare
- Minimises the risks of cross-contamination between patients, and between patients and staff – protects you.... and keeps residents safe
- Donning and doffing **PPE** correctly protects you....
- **Hand hygiene** remains the cornerstone of infection prevention. All health workers must be aware that wearing PPE does not replace the need to carry out safe, hand-hygiene practices and hand decontamination

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References :

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CDC ; Respiratory Hygiene/Cough Etiquette in Healthcare Settings <http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>
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