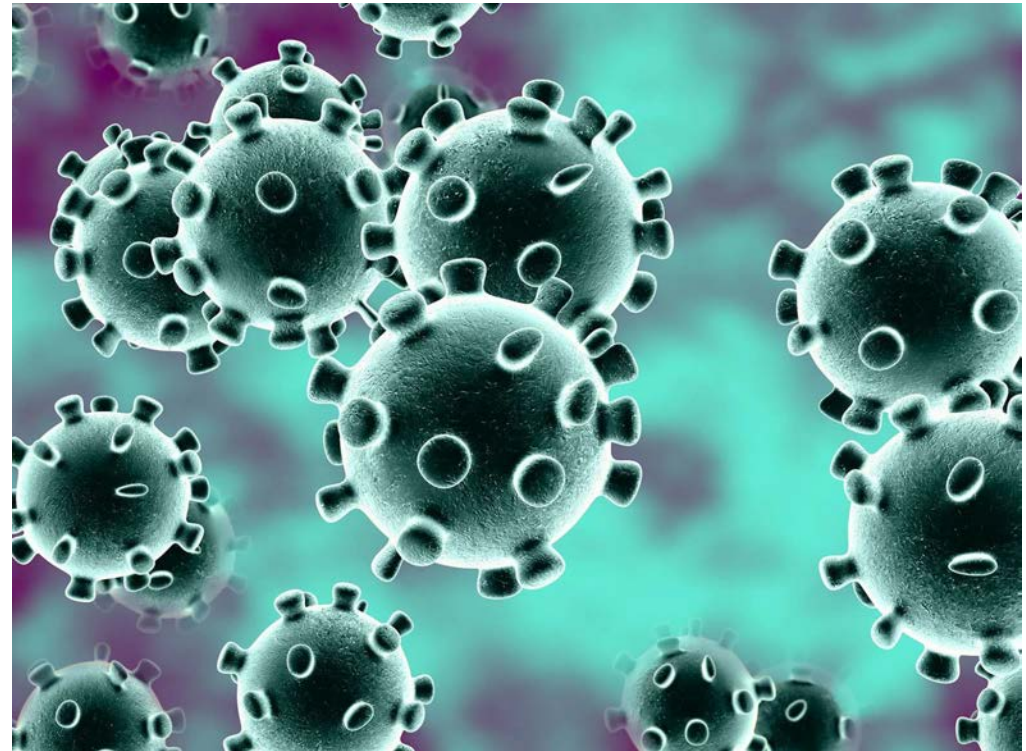# COVID - 19

Katherine West, RN, BSN, MSEd

Infection Control Consultant

Novel Coronavirus - COVID-19

- A new coronavirus
- China – 2019
- Animal to human transmission
- Human to human transmission
  - Viral illness
  - Only seriously ill develop pneumonia
  - First U.S. Case – Washington State
  - Now nationwide

Causative Organism

- SARS CoV-2 Virus

Signs & Symptoms

Fever

Cough

Tightness in chest

Shortness of breath

Risk Groups

- Older adults
- People who have serious chronic medical conditions like:
  - Heart disease
  - Diabetes
  - Lung disease
  - Immunocompromised – any age
- **Now in young adults ages – 20 to 54**

- CDC, March 9,2020

- CDC, March 19,2020

Close Contact - Defined

Being within 6 feet or within the room area for a prolonged period of time without PPE

Caring for, living with, visiting, or sharing a healthcare waiting room or room with a nCoV patient

Having direct contact with infectious secretions of a nCoV patient while not wearing PPE

COVID-19

Clinical Features

- Fever & symptoms of lower respiratory illness

- Fever or symptoms of lower respiratory infection

Epidemiologic Risk

- Travel from Wuhan City, China

- OR

- 14 days before symptoms, close contact with a person under investigation (PUI) while that person was ill

- 14 days close contact with an ill laboratory-confirmed patient

CDC Jan. 17, 2020

Mode of Transmission COVID-19/ Precautions

Respiratory – droplet precautions (WHO)

Contact Precautions – (WHO/CDC)

Droplet Precautions

- Standard Precautions

- Surgical mask use – patient
  - Within 3 feet

Contact Precautions

- Wear gloves
- Gown ?
- Clean and disinfect all contact items
  - BP cuff, stethoscope etc.,

Incubation Period

- 1-14 days after exposure

Testing Issues

Doctors order will be needed

Conflicting statements from CDC
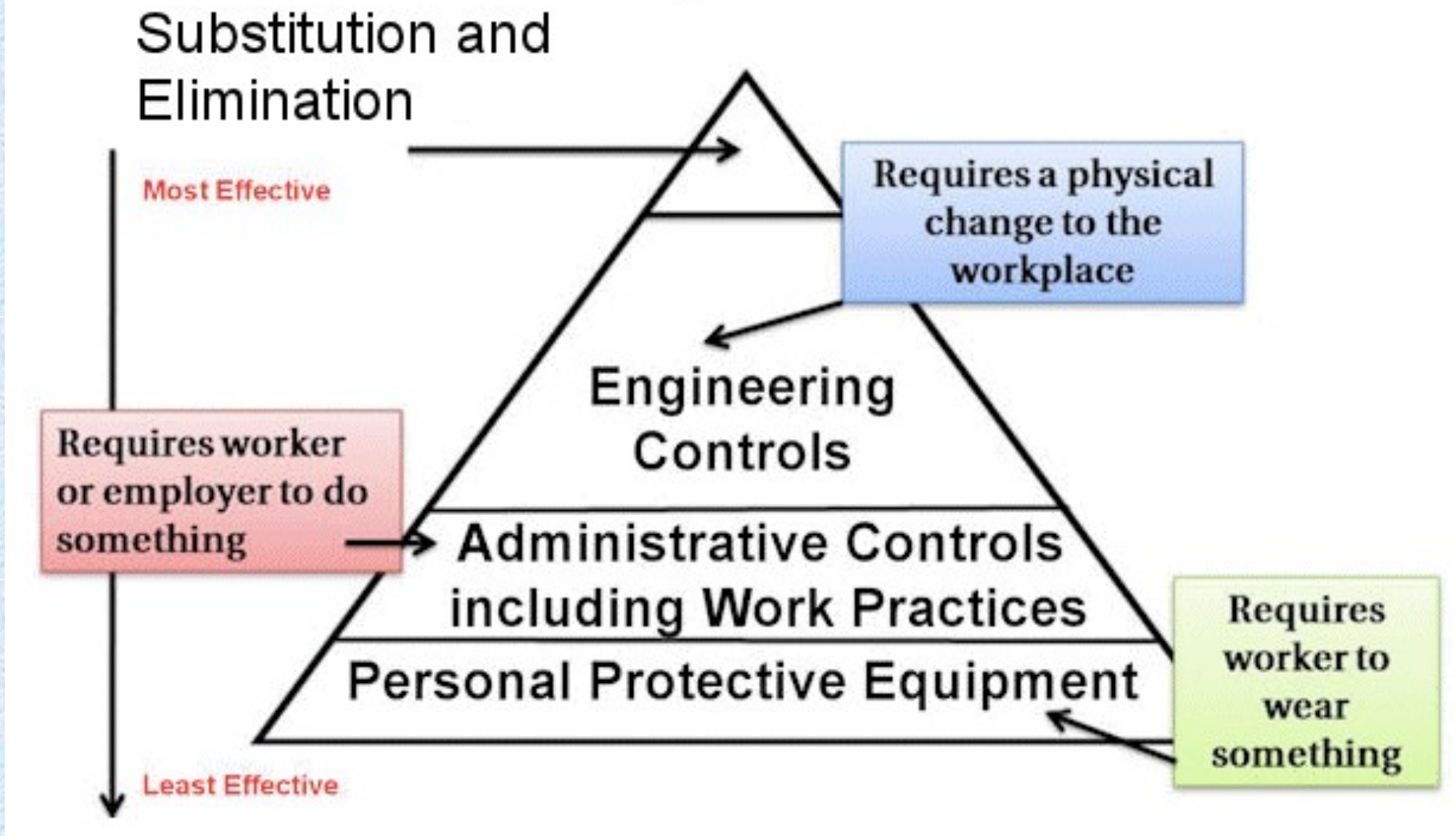
CDC - Transmission

Mixing droplet and airborne

What does that mean ?

CDC – Feb. 28, 2020

- Patient wearing a facemask which can efficiently block respiratory secretions from contaminating others and the environment

- Basic infection control – contain at the source!

Hierarchy of Controls

Substitution and Elimination

Most Effective

Requires a physical change to the workplace

Engineering Controls

Requires worker or employer to do something

Administrative Controls including Work Practices

Personal Protective Equipment

Requires worker to wear something

Least Effective

Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States

Interim EMS Guidelines – COVID-19

- CDC – <u>Review</u> EMS guidelines to <u>decide</u> PPE to be used

- Updated to address shortages

Environmental Controls

Insuring proper ventilation (exhaust fan)

Environmental cleaning – standard disinfectant agents

NIOSH Statement

- Engineering controls with regard to COVID-19 would include the use of HVAC systems in a vehicle. A recent NIOSH study showed that particle clearance could be improved by the use of the rear vent fan (when positioned on the "high" setting) in conjunction with the provision of outside air through the vehicle's main HVAC systems.

CDC Interim Guidelines for EMS

Cleaning / Disinfection

Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for SARS-CoV-2 (the virus that causes COVID-19) in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.

CDC Interim Guidelines for EMS

Cleaning

High touch items

- Clean and disinfect the vehicle in accordance with standard operating procedures. All surfaces that may have come in contact with the patient or materials contaminated during patient care (e.g., stretcher, rails, control panels, floors, walls, work surfaces) should be thoroughly cleaned and disinfected using an EPA-registered hospital grade disinfectant in accordance with the product label.

Is Cleaning First Always Needed?

This question is a key one to ask when evaluating the purchase of any automated disinfection system.

This question was recently answered by Dr. William Rutala a nationally recognized expert in disinfection and sterilization. In an interview for Healthcare Hygiene Magazine, January, 2020, Dr. Rutala stated:

" the rationale for rigorous manual cleaning/disinfection before use of UV technology, for example, is that organic material can interfere with disinfection technologies.

Thus, surfaces must be cleaned/disinfected prior to use of automated disinfection technology."

Prevention

Early recognition & control source

Place surgical mask on patient

Apply Standard precautions for all patient

Good hand hygiene

Implement – droplet and contact precautions

When applicable airborne precautions (AGPs)

- Samples for testing – lower resp., upper resp., serum specimens – open suctioning, intubation, bronchoscopy, CPR

Respiratory Protection

- Surgical mask vs. N95's
  - Depends on risk

- CDC EMS Interim Guidelines - updated

World Health Organization (WHO)

- Ambulance or transfer vehicle
  - Medical mask
  - Gowns
  - Gloves
  - Eye protection

- Drivers
  - Maintain a 3-foot distance
  - No PPE required

Rational use of PPE for COVID-19

PPE

- Gloves – double gloves are not needed
- Cover gown or coveralls
- Protective eyewear
- Surgical masks/ respirators

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE)
EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container
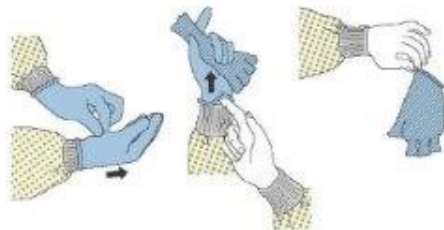
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container
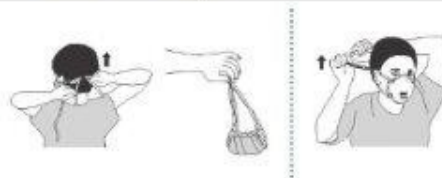
5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE

OR
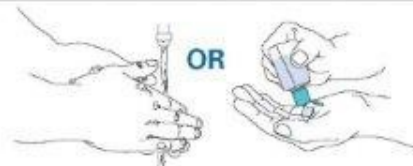
PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

CDC

Define

Exposure

Exposure

- Risk Assessment - Patient s/s and duration of exposure

  - **High Risk** – HCP performed or were present when AGPs were performed on patients with COVID-19 without use of PPE

  - **Medium Risk** – prolonged close contact with COVID-19 patients and HCP hands or mucous membranes were exposed

  - **Low Risk -** brief interaction with a patient with COVID-19 or prolonged contact with patients wearing a face-mask for source-control while HCP were wearing a face-mask or respirator

Post Exposure – High-Medium Risk

- Should undergo active monitoring, including restriction from work in any healthcare setting until 14 days after their last exposure.

- If they develop any fever (measured temperature >100.0oF or subjective fever) OR respiratory symptoms consistent with COVID-19 (e.g., cough, shortness of breath, sore throat) they should immediately self-isolate (separate themselves from others) and notify their local or state public health authority and healthcare facility promptly so that they can coordinate consultation and referral to a healthcare provider for further evaluation.

Post Exposure Low Risk

- Should perform self-monitoring with delegated supervision until 14 days after the last potential exposure.

- Asymptomatic HCP in this category are **no**t restricted from work. They should check their temperature twice daily and remain alert for respiratory symptoms consistent with COVID-19 (e.g., cough, shortness of breath, sore throat).

- They should ensure they are afebrile and asymptomatic before leaving home and reporting for work. If they do not have fever or respiratory symptoms they may report to work. If they develop fever (measured temperature $\geq$ 100.0 °F or subjective fever) OR respiratory symptoms they should immediately self-isolate (separate themselves from others) and notify their local or state public health authority or healthcare facility promptly so that they can coordinate consultation and referral to a healthcare provider for further evaluation.

- On days HCP are scheduled to work, healthcare facilities could consider measuring temperature and assessing symptoms prior to starting work. Alternatively, facilities could consider having HCP report temperature and symptoms to occupational health prior to starting work.

- Modes of communication may include telephone calls or any electronic or internet-based means of communication.

- Healthcare works should report any travel or community contact to their DICO and/or occupational health service.

Work Restriction

- EMS agencies should develop sick-leave policies for EMS personnel that are nonpunitive, flexible, and consistent with public health guidance. Ensure all EMS personnel, including staff who are not directly employed by the healthcare facility but provide essential daily services, are aware of the sick-leave policies.

- CDC EMS Interim Guidelines
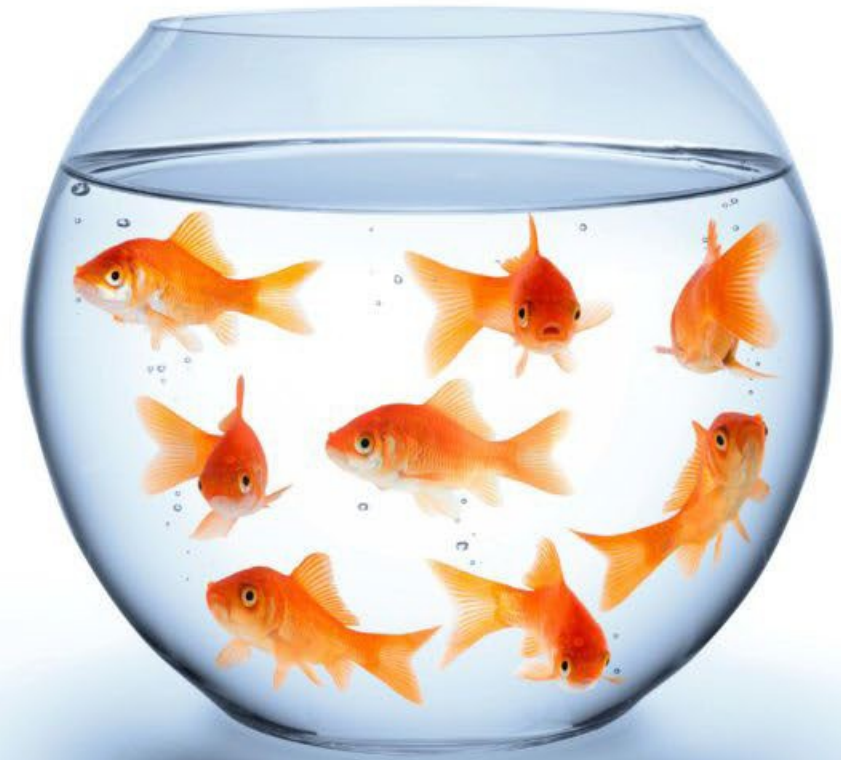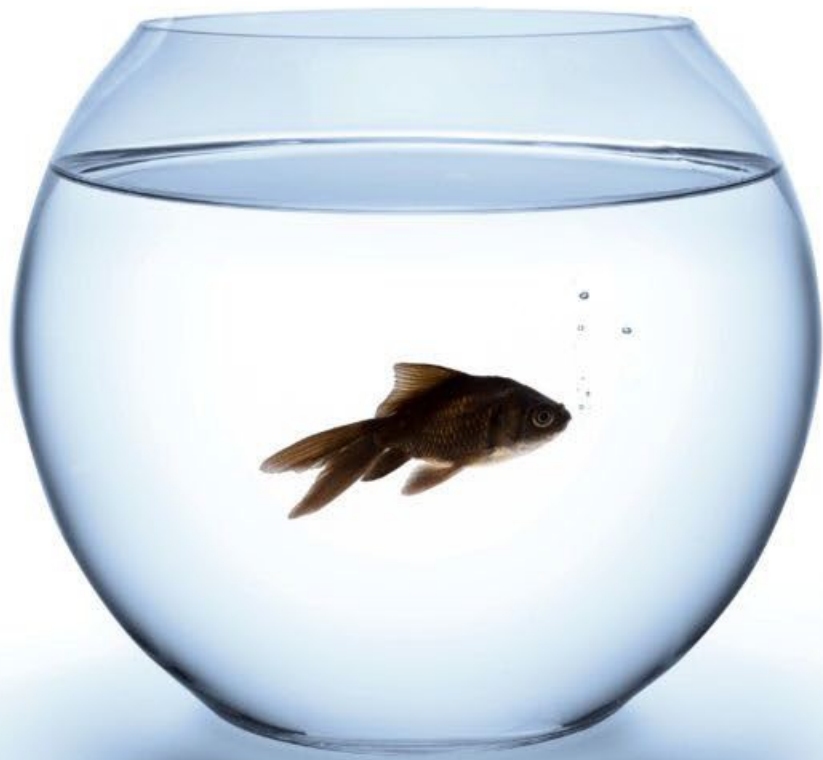
Quarantine

Treatment Possibilities

Antivirals – studies have begun!

At least 8 companies in several countries are working on a vaccine

Questions from the Infection Control Community

- Substitutions, alternatives, reuse and reprocessing of gowns, goggles, and masks/respirators to conserve supplies

- Accessing PPE for patients receiving care at home

- Education of staff and patients to prevent **misuse** and **overuse** of PPE

Unresolved Issues - Quarantine

Income loss – 14 days

Getting groceries

Getting medications

CDC – Statement of Shortage of N95s

- Interim Infection Prevention and Control Recommendations for Patients with Suspected Coronavirus Disease 2019 –

  - Update PPE –

    "Based on local and regional situational analysis of PPE supplies, facemasks are an acceptable alternative when the supply chain of respirators cannot meet the demand"

CDC, March 10, 2020

Center for Medicare & Medicaid Services

- "Today's CMS memo implements CDC guidance by stating that facemasks are an acceptable temporary alternative to respirators"…

- CMS, March 11, 2020

FDA Statement of Masks - Shortages

- **If Surgical Masks and/or Gowns Are Running Low:**
  - Extend the use of single use gowns for healthcare providers without changing the gown between patients with the same infectious disease diagnosis or exposure who are maintained in a confined area. If the gown becomes contaminated, replace it.
  - Use surgical masks and/or gowns that meet CDC recommendations and/or ANSI standards for fluid resistance and bacterial filtration efficiency.
  - Prioritize the use of unexpired FDA-cleared surgical masks for healthcare providers in procedures where it is important to protect the healthcare provider and/or the patient from risk of exposure to blood and body fluids.
  - Use surgical masks beyond the manufacturer-designated shelf life in a setting where there is a lower risk of transmission(e.g., non-surgical). The user should visibly inspect the product prior to use and, if there are concerns (such as degraded materials or visible tears), discard the product.
  - Re-use surgical masks during care for multiple patients where they are used to protect the healthcare provider from an activity with low transmission risk (such as dispensing medications) and thus do not create a risk to the healthcare provider or patient. If the mask becomes contaminated, replace it.
  - Be aware that counterfeit masks and gowns may be on the market, especially during this time of reduced supply.

Approaches to Reuse -

- Wiping down face shields and eyewear with disinfectant

- Limiting gown use to aerosol generating procedures
  - Using patient gowns / lab coats

Approaches to Reuse

- Masks
  - Have HCP how have recovered from COVID-19 provide care
  - Exclude high risk HCP from contact with know or suspect COVID-19 patients
  - Use a faceshield with no mask
  - Use of homemade masks

Strategies for Optimizing the Supply of PPE, CDC March 17,2020

Getting Medications

- There is discussion regarding extending refill times and Extending mail in service

- Nothing has been mentioned about funds to pay for medication

HealthCare Provider Role

Questions ?

703-365-8388

info@ic-ec.com