Consistent Infection Prevention Measures for Maintenance and EVS in the Time of COVID-19

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Learning Objectives

At the completion of this discussion participants will be able to:

- Identify how hand hygiene fits in the hierarchy of infection prevention for COVID 19
- Define safe hand sanitizers
- Review hand hygiene fun facts
- Describe ongoing challenges for proper sanitation
- Select PPE protection for staff
- List tips for ongoing education and compliance

KEEP CALM AND WASH YOUR HANDS

Safety is Our Mission

Responsibilities:

- legal
- regulatory
- fiscal
- ethical

To provide and maintain safe services and environment for patients, their family, staff and practitioners

To partner with Infection Prevention and enforce hand hygiene programs - every person, every task, every day!

This is a team sport!

Influenza Seasonal/Pandemic and Coronavirus

Seasonal influenza – caused by influenza group A or B viruses

• Seasonal vaccine available; most people have some immunity

Pandemic influenza – novel group A influenza mutations usually from animals, ducks, chickens, pigs, whales, horses, seals, and cats; H1N1 and Spanish flu (1918)

Coronavirus – alpha and beta coronavirus found in bats, camels, cats, and cattle; SARS (Severe Acute Respiratory Syndrome came from bats to civets to humans), MERS (Middle East Respiratory Syndrome)

SARS-CoV-2 COVID-19

- Very pathogenic
- No immunity, readily spread
- Increased global travel
- Infectious without being symptomatic
- The disease it causes is called COVID-19



CDC image

How Contagious is the COVID-19 Virus?

Spreads very easily from person to person, especially in homes, hospitals and other close quarters

Travels through the air, in tiny respiratory droplets that are produced when a sick person breathes, talks, coughs or sneezes

While other coronaviruses cause common colds, nobody has/had immunity to COVID-19

Studies estimate one COVID-19 patient is likely to spread the virus to 2.2 - 2.5 others

Incubation time 2-14 days, average ~ 6 days

Geometric spread





Lily Pad Pond Riddle – Exponential Growth

In a pond, there is a patch of lily pads,

Each day, the lily pads double in size,

If it takes the lily pads 48 days to cover the whole pond,

How many days does it take to cover half the pond?



OSHA Policies Preventing Exposure to Occupational Hazards

General Duty Clause Engineering controls Administrative/work practice controls Personal protective equipment

Written plans with annual review Training and education Documentation





Engineering Controls

Isolate people from the hazard

Selective use of airborne infection isolation rooms

- Used for aerosolizing procedures
- Use of physical barriers
 - Plexiglass barriers
- Properly maintained ventilation systems
 - Continue to ensure pressure relationships

Remote triage facilities and screening areas





Administrative/Work Practice Controls

Change the way people work

- Hand hygiene
- Cleaning and disinfecting surfaces/equipment
- Cloth face coverings
- Directional traffic
- Telemedicine
- Temperature checks
- Social distancing









Hand Washing/Hygiene as a Non-Pharmaceutical Defense

During this COVID-19 pandemic, all we have are non-pharmaceutical interventions that can be easily implemented

There are few FDA approved pharmaceutical interventions

There is no vaccine (yet)

Empower people to lower their risk:

"It's simple. It's right there and doesn't cost anything. Wash your hands with soap before you touch your mouth, your nose or your eyes."

Miryam Wahrman, Professor of Biology

William Patterson University, New Jersey







Corona Virus

C. diff

There are two layers of organisms on your hands

- Transient flora most likely to transmit disease easily disrupted by hand hygiene
- Resident flora less likely to transmit disease less likely to be removed by hand hygiene
 Around 33% of people don't use soap when washing their hands
 - Damp hands are 1,000x more likely to spread bacteria than dry hands
 - Only about 20% of people dry their hands after washing them.
 - Most people only wash their hands for 6 seconds

Elevator buttons harbor 22% more bacteria than toilet seats –Toronto survey, 2014

Wash Your Hands at These Key Times

CDC recommends soap and water, 20 seconds, tepid water, all surfaces:

- Before, during, and after preparing food; before eating food
- After using the toilet
- After blowing your nose, coughing, or sneezing
- Before and after work and work breaks
- After touching surfaces such as desks, door handles, clipboards, pens, cameras, cell phones, laptops, keyboards, electronic tablets, elevator buttons, etc.
- After putting on, touching, or removing cloth face coverings

https://www.cdc.gov/coronavirus/2019-ncov/downloads/stop-thespread-of-germs.pdf









Most Frequently Missed Locations





Hand Hygiene Fun Facts

 > 80% of all infectious diseases are transmitted by touch
 Approximately 39% of people don't wash their hands after sneezing, coughing or after blowing their nose
 Most people wash the palms of their hands, miss everything else
 Mark Rober, NASA scientist, showed one student's contaminated hands contaminated 7 other students

- Placed Glo Germ Powder on first student,
- Each student shook hands in turn
- Contamination identified with a black light
- "How To See Germs Spread"

https://www.youtube.com/watch?v=I5-dI74zxPg&feature=youtu.be





Image credits: Mark Rober

Effective hand sanitizers should contain least 60% ethanol or 70% isopropyl alcohol

Alcohol denatures the virus proteins, disrupts lipid envelope

Hand sanitizers not effective against norovirus,

C. difficile or cryptosporidium

Hand sanitizers also may not remove harmful chemicals, such as pesticides or heavy metals ,i.e., lead

Available evidence indicates benzalkonium chloride has less reliable activity against certain bacteria and viruses than either of the alcohols

https://www.fda.gov/drugs/information-drug-class/qaconsumers-hand-sanitizers-and-covid-19



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Hand Sanitizer Safety

Ethanol and isopropyl alcohol are Class 1 B flammable liquids

Solutions give off vapors easily ignited by flame or sparks @ <72° F

60% ethanol is 120 proof – can be dangerous to vulnerable populations – e.g., children or behavioral health

Isopropyl alcohol causes serious eye irritation (refer to SDS)

> 5 gallons in storage needs to be in flammable cabinet/rated room

No more than 10 gallons in use (outside of a flammable cabinet or fire rated room in any one healthcare smoke compartment (NFPA 101-Life Safety Code) applies to all CMS participants

• One ABHR dispenser in each room does not count against the total





Methanol in Hand Sanitizers

FDA warns that some ABHS have been found to contain methanol (wood alcohol)—which is toxic when absorbed through the skin or ingested and can cause permanent blindness and death in its victims

"Bathtub gin"

As of 8/4/20, there were 135 different products on the recall list, all produced in Mexico. A current complete list can be found at <u>https://www.fda.gov/drugs/drug-</u> <u>safety-and-availability/fda-updates-hand-</u> <u>sanitizers-methanol#products</u>



16.9 FL 0Z/500 mL

Substantial Methanol Exposure

Can result in nausea, vomiting, headache, blurred vision, permanent blindness, seizures, coma, permanent damage to the nervous system or death

All persons using these products on their hands are at risk for methanol poisoning, young children who ingest these products and adolescents and adults who drink these products as an alcohol (ethanol) substitute, are most at risk.



Breaking the Chain of Transmission by...

Destroying the OrganismsBy cleaning and disinfecting

Dirty equipment/surfaces thoroughly cleaned with <u>appropriate</u> germicidal agents for the <u>appropriate</u> dwell (wet) time air dry between <u>each</u> patient

2 minutes



EPA "List N" Disinfectants for SARS-CoV-2

List of over 469 products updated with active ingredient and with **dwell** time

Effective for "hardier" viruses

When purchasing a product, check if its **EPA registration number** is included on this list: <u>https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2</u> (last updated 8/6/20)

If it is a match, the product can be used against SARS-CoV-2

Look for the EPA Reg. No. on the product label

These products may be marketed and sold under different brand names, but if they have the same EPA registration number, they are the same product





Cleaning/Disinfecting Noncritical Equipment

EVS, nursing and infection prevention decide who is going to, the frequency of the cleaning and compile a list

Staff turnover can impact process with inconsistent onboarding

The list should include:

the equipment name

the standard of cleaning (for example, after each use or when visibly soiled)

method of cleaning and type of disinfectant (including dwell time) the group responsible for cleaning and any additional comments

EPA agents should NEVER be used on humans









Exposure to Hazardous Chemicals

Protect workers from exposure to hazardous chemicals used for cleaning and disinfection

Common sanitizers and sterilizers are often sensitizers and respiratory irritants

Consult SDS for related hazards and PPE requirements

Do not aerosolize EPA disinfectants (unless it is an EPA approved method)

OSHA's Hazard Communication standard (in general industry, <u>29 CFR</u> <u>1910.1200</u>), Personal Protective Equipment standards (in general industry, <u>29</u> <u>CFR 1910 Subpart I</u>, and, in construction, <u>29 CFR 1926 Subpart E</u>), and other applicable OSHA chemical standards.

OSHA provides information about hazardous chemicals used in hospitals in the <u>Housekeeping section</u> of its <u>Hospital eTool</u>

https://www.osha.gov/SLTC/etools/hospital/housekeeping/housekeeping.html

Cloth Face Coverings are <u>Not</u> PPE

Worn to reduce the spread of potentially infectious respiratory droplets from the wearer to others (including when the wearer has the virus but does not know it)

This is known as source control

Cloth face coverings can be worn in the workplace as an administrative control

Are not appropriate substitutes for PPE such as respirators (e.g., N95 respirators) or medical face masks (e.g., surgical masks) where respirators or face masks are recommended or required to protect the wearer



Cloth Mask Face Coverings

May be disposable or reusable after proper washing

Do not provide tight face seal

Different materials provide different barrier protection

Cloth face coverings are not a substitute for social distancing measures

CDC issued guidance on wearing masks July 2020

https://www.cdc.gov/media/releases/2020/p0714-americans-to-wearmasks.html

Information about cloth face coverings is available from OSHA's COVID-19 Frequently Asked Questions webpage <u>https://www.osha.gov/SLTC/covid-19/covid-19-faq.html</u>





Regulated Medical Waste

CDC indicates that :

"Medical waste (trash) coming from healthcare facilities treating COVID-2019 patients is no different than waste coming from facilities without COVID-19 patients."

COVID-19 medical waste is not Category A waste

WI Department of Natural Resources (WDNR) requires manifesting/tracking of medical waste



Personal Protective Equipment (PPE)

Equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses

Injuries and illnesses may result from contact with chemical, biological, radiological, physical or other workplace hazards

Everyone required to wear PPE needs training – when, how to put on and take off, inspect, dispose

Must be worn!







Standards of Care and Surge Capacity

- Conventional Care Capacity day to day practices with engineering, administrative, and PPE controls implemented
- Contingency Capacity: measures may change daily contemporary practices but may not have any significant impact on the care delivered to the patient or the safety of the HCP. These practices may be used temporarily when demands exceed resources.
- Crisis Standards of Care alternate strategies that are not usual practice. These measures, or a combination of these measures, may need to be considered during periods of expected or known N95 respirator/PPE.
- <u>https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-</u> <u>strategy/?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronaviru</u> <u>s%2F2019-ncov%2Fhcp%2Frespirator-supply-strategies.html</u>

Surgical Masks:

Are typically cleared by the U.S. Food and Drug Administration as medical devices (though not all devices that look like surgical masks are actually medical-grade, cleared devices)

Are used to protect against splashes/sprays (droplets) containing potentially infectious materials. In this capacity, surgical masks are considered PPE

Under OSHA's PPE standard (<u>29 CFR 1910.132</u>), employers must provide any necessary PPE at no-cost to workers

May also be worn to contain the wearer's respiratory droplets (healthcare workers, such as surgeons, wear them to avoid contaminating surgical sites, and dentists and dental hygienists wear them to protect patients)



Surgical Masks:

Should be placed on sick individuals to prevent the transmission of respiratory infections that spread by large droplets

Includes suspect TB patients in waiting rooms and during transport

Will not protect the wearer against airborne transmissible infectious agents due to loose fit and lack of seal or inadequate filtration.

May be used by almost anyone (no medical screening or fit-testing required)

Should be properly disposed of after use



Understanding the Difference

	Surgical Mask	
	Surgical Mask	Noo Neophator
Testing and Approval	Cleared by the U.S. Food and Drug Administration (FDA)	Evaluated, tested, and approved by NIOSH as per the requirements in 42 CFR Part 84
Intended Use and Purpose	Fluid resistant and provides the wearer protection against large droplets, splashes, or sprays of bodily or other hazardous fluids. Protects the patient from the wearer's respiratory emissions.	Reduces wearer's exposure to particles including small particle aerosols and large droplets (only non-oil aerosols).
Face Seal Fit	Loose-fitting	Tight-fitting
Fit Testing Requirement	No	Yes
User Seal Check Requirement	No	Yes. Required each time the respirator is donned (put on)
Filtration	Does NOT provide the wearer with a reliable level of protection from inhaling smaller airborne particles and is not considered respiratory protection	Filters out at least 95% of airborne particles including large and small particles
Leakage	Leakage occurs around the edge of the mask when user inhales	When properly fitted and donned, minimal leakage occurs around edges of the respirator when user inhales
Use Limitations	Disposable. Discard after each patient encounter.	Ideally should be discarded after each patient encounter and after aerosol- generating procedures. It should also be discarded when it becomes damaged or deformed; no longer forms an effective seal to the face; becomes wet or visibly dirty; breathing becomes difficult; or if it becomes contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.



Respiratory Protection

When necessary to protect workers, require a respiratory protection program that is compliant with OSHA's Respiratory Protection standard (29 CFR 1910.134)

FFRs (such as N95's) may be used voluntarily, if permitted by the employer. If an employer permits voluntary use of FFRs, employees must receive the information contained in <u>Appendix D</u> of OSHA's Respiratory Protection standard (<u>29 CFR 1910.134</u>)

Filtering Facepiece Respirators (FFR)

Must be provided/used in accordance with OSHA's Respiratory Protection standard Certified by the National Institute for Occupational Safety and Health (NIOSH)

- N95's = tight fit (to prevent air leaks)
- Loose-fitting powered, air purifying respirators (PAPRs),
- Require proper training, fit testing, appropriate medical evaluations and monitoring, cleaning, and oversight by a knowledgeable staff member

OSHA has temporarily issued enforcement discretion concerning supply shortages of disposable filtering facepiece respirators (FFRs), including their extended use/reuse, use beyond their manufacturers recommended shelf life, use of equipment from certain other countries or jurisdictions, and decontamination. https://www.osha.gov/memos/2020-04-24/enforcement-guidance-decontaminationfiltering-facepiece-respirators-healthcare





Loose-Fitting Powered Air-Purifying Respirator (PAPR

N95 Masks and Shortage of PPE

Extended use

Reuse

Strategies for optimizing the supply of N95 respirators

Written respiratory protection plan required

Federal OSHA issued temporary enforcement guidance for N95 annual fit testing (<u>www.osha.gov</u>, 3/14/20 and extended to all occupations 4/18/20)

<u>https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-</u> <u>strategy/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fc</u> <u>oronavirus%2F2019-ncov%2Fhcp%2Frespirator-supply-strategies.html</u> (updated 4/2/20)

Three Key Factors Required for a Respirator to be Effective



- The respirator must be put on correctly and worn during the exposure.

2 The respirator must fit snugly against the user's face to ensure that there are no gaps between the user's skin and respirator seal.

(3) The respirator filter must capture more than 95% of the particles from the air that passes through it.



"If your respirator has a metal bar or a molded nose cushion, it should rest over the nose and not the chin area. 35

Potential Reasons for Non-Compliance

Don't know how Don't know it applies to them Don't have access to soap/water or hand sanitizer Choose not to comply



Education

- Share handwashing videos; soap or paint
- Water with pepper, with and without soap on fingers
- Glo germ powder with blacklight hands, high touch surfaces for cleaning demos
- Multiple clips on YouTube

Hand washing signage

Strengthen cleaning protocols

- Increase frequency for high touch surfaces
- Discussion regarding cleaning vs disinfection
- Replenish supplies in restrooms, waiting rooms
 - Soap, towels, hand sanitizers, tissues, trash removal

Assorted Topics and Late Breaking News

Legionella, opening and cleaning of medical office buildings

Ensure WMP is being implemented

Document all control measures

Ensure annual validation and review of WMP

Insurers of leased buildings are looking closely at control measures to prevent *Legionella* outbreaks as buildings are reopened



Trusted Resources for Information:

- <u>https://www.cdc.gov/coronavirus/2019-ncov/index.html</u> CDC infection prevention
- <u>https://www.osha.gov/SLTC/covid-19/controlprevention.html</u> OSHA worker protection
- <u>https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2www.epa.gov</u> EPA disinfectant information
- <u>https://www.cms.gov/outreach-education/partner-resources/coronavirus-covid-19-partner-toolkit</u> CMS partner toolkits
- <u>https://www.fda.gov/emergency-preparedness-and-response/mcm-issues/coronavirus-disease-2019-covid-19</u> FDA equipment/medications
- <u>https://www.fda.gov/drugs/drug-safety-and-availability/fda-updates-hand-sanitizers-methanol</u>
 FDA recall of hand sanitizers

Questions?

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Thank you for your time!