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Environmental, Health & Safety Concerns for Agencies in a Post- Pandemic World Webinar

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Avon, IN USA

Mon, May 11, 2020 2:00 PM - 3:00 PM EDT

GUIDANCE FOR CLEANING AND DISINFECTING

PUBLIC SPACES, WORKPLACES, BUSINESSES,
SCHOOLS, AND HOMES



CENTERS FOR DISEASE
CONTROL AND PREVENTION

Where to find:

- Html Version

<https://www.cdc.gov/coronavirus/2019-ncov/community/reopen-guidance.html>

- Pdf Version

https://www.cdc.gov/coronavirus/2019-ncov/community/pdf/Reopening_America_Guidance.pdf

Key Aspects

- Read the Guidance Document
- Develop your plan
- Implement your plan
- Maintain and revise your plan

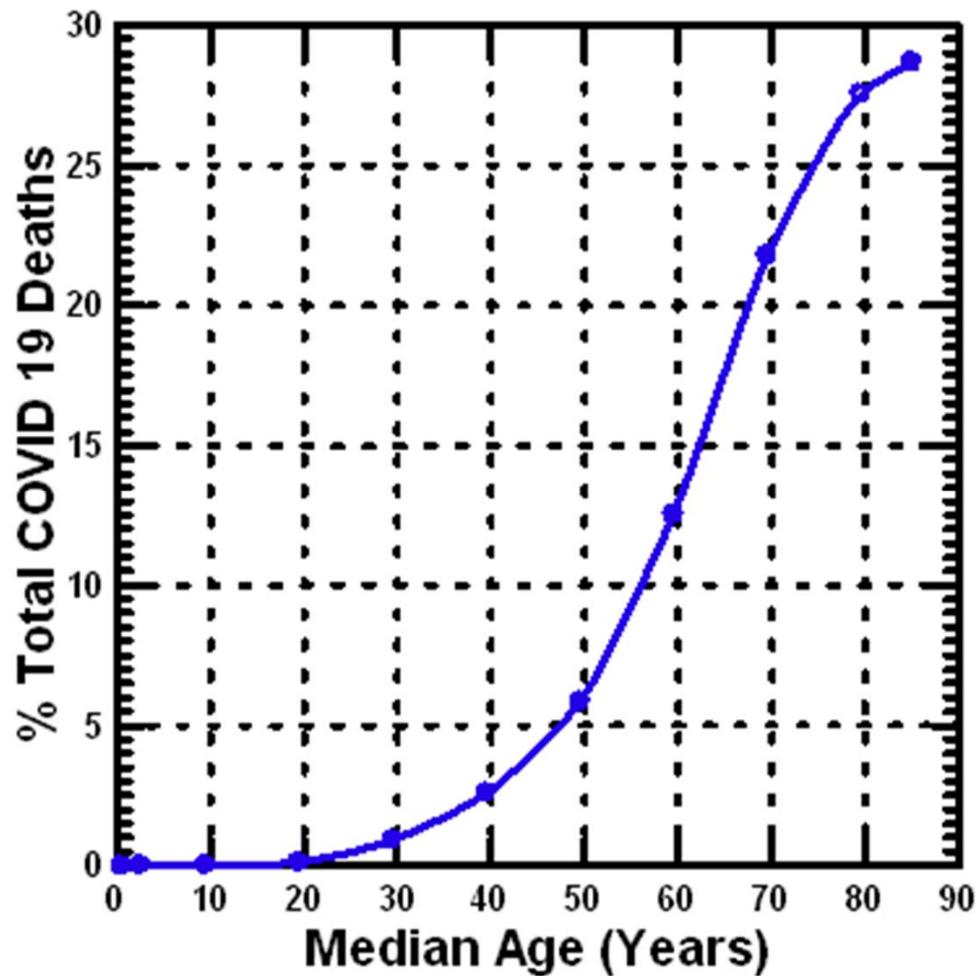
Basic Focus:

- Normal routine cleaning with soap and water will decrease how much of the virus is on surfaces and objects, which reduces the risk of exposure.
- Disinfection using EPA-approved disinfectants against COVID-19 can also help reduce the risk. Frequent disinfection of surfaces and objects touched by multiple people is important.
- When EPA-approved disinfectants are not available, alternative disinfectants can be used (for example, 1/3 cup of bleach added to 1 gallon of water, or 70% alcohol solutions). Do not mix bleach or other cleaning and disinfection products together--this can cause fumes that may be very dangerous to breathe in. Keep all disinfectants out of the reach of children.

Susceptibility

- **≥ 65 years old**
- **Hypertension (49.7%)**
- **Obesity (48.3 %)**
- **Chronic Metabolic Disease (36.1%)**
 - Diabetes (28.3%)
- **Chronic Lung Disease (34.6%)**
 - Asthma (17.0%)
 - COPD (10.7%)
- **Cardiovascular Disease (27.8%)**
 - Coronary Artery Disease (14.2%)
 - Congestive Heart Failure (6.8%)
- **Neurological Disease (24.0%)**
- **Renal Disease (23.1%)**
- **Immunosuppressive condition (9.6%)**

Deaths by Age



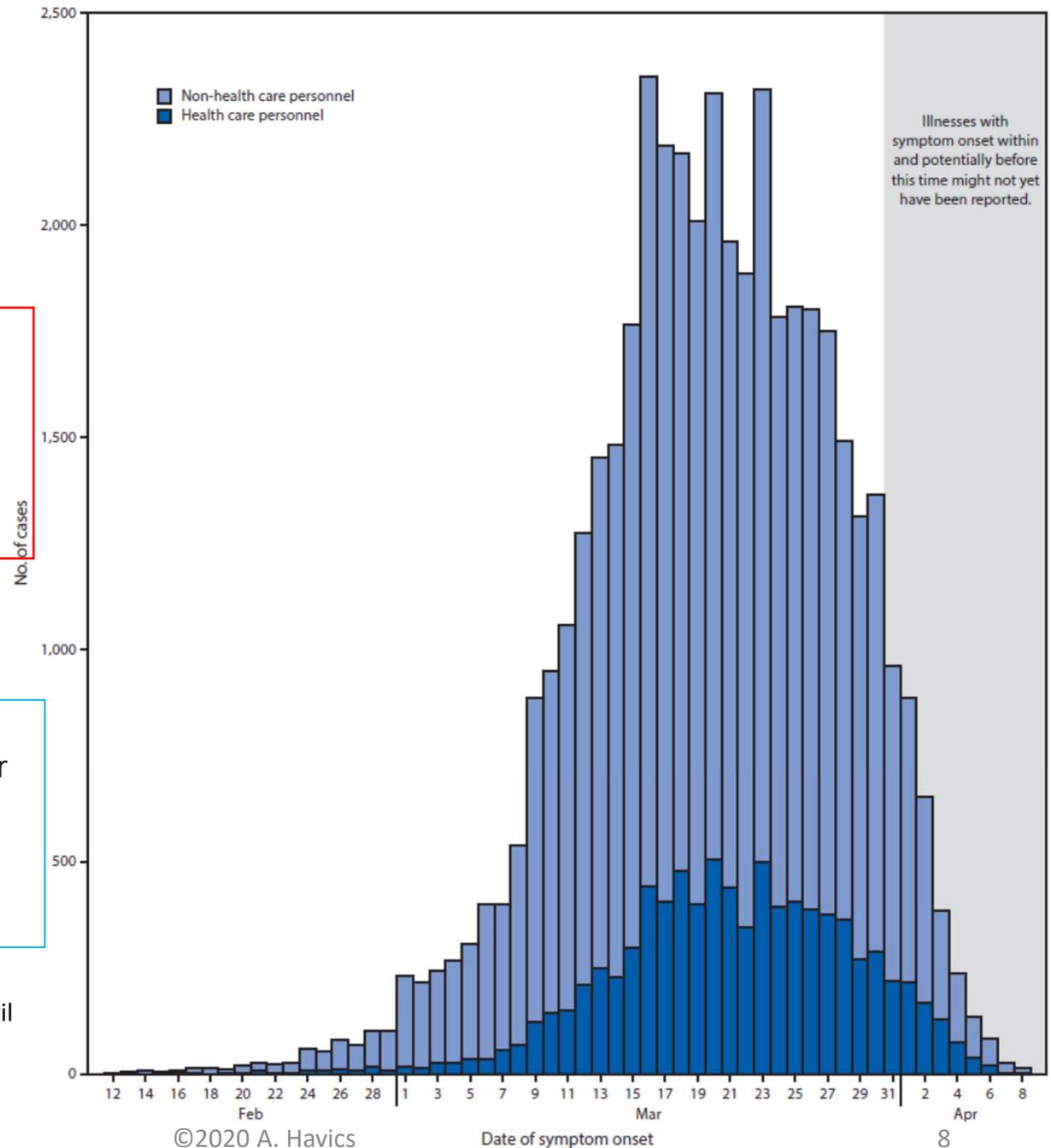
Medical Personnel

N = 43,986 Total Cases
 N = 9,282 Medical Personnel
 ~ 21%

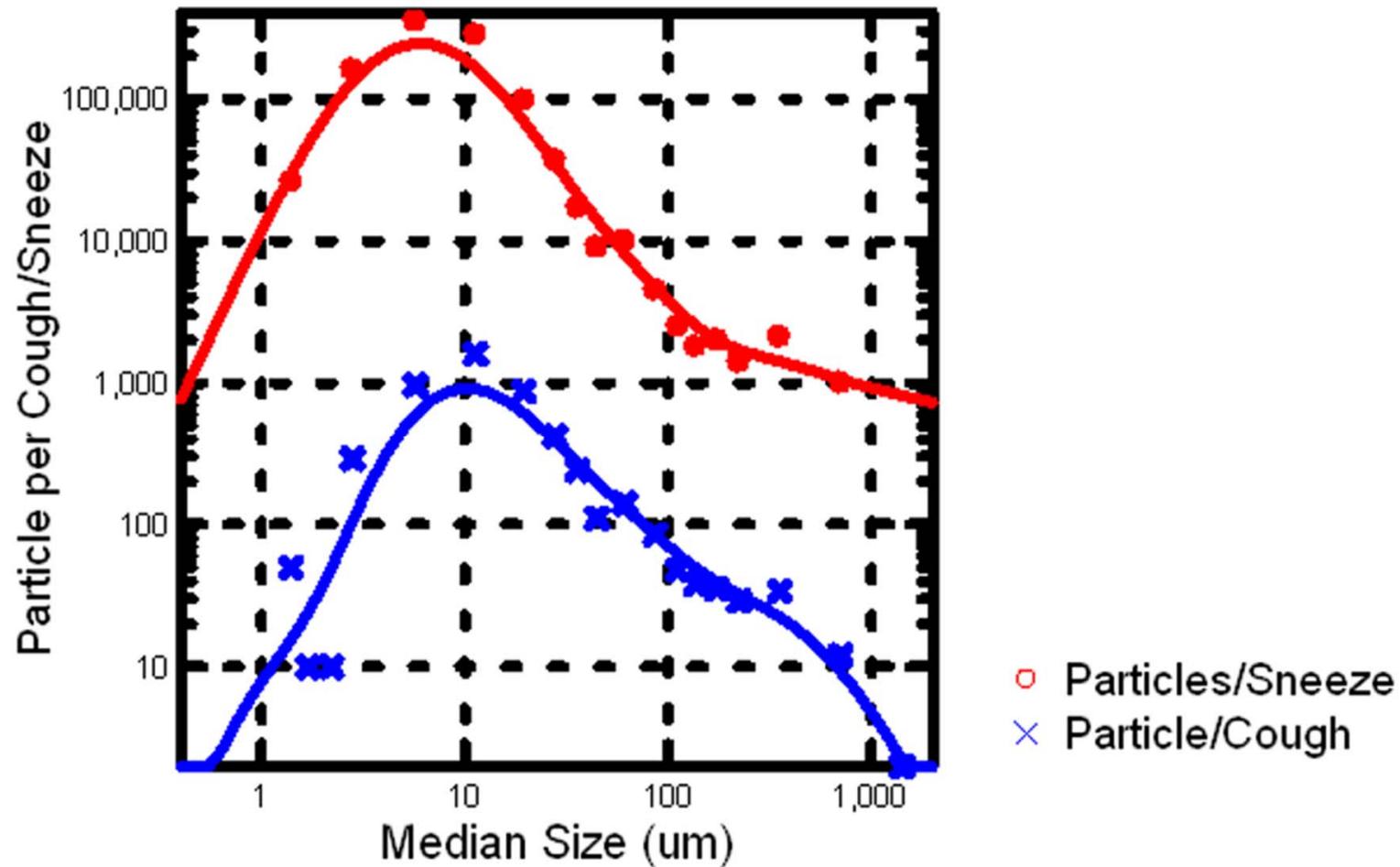
CRT, Characteristics of Health Care Personnel with COVID-19 — USA, February 12–April 9, 2020, MMWR, 6(15): 477-481, 2020

Compare to:
 Beef, bison, lamb, pork, poultry, other
 115 plants
 130,578 workers
 4,913 (3.0%) Pos. cases
 20 (0.4%) Deaths

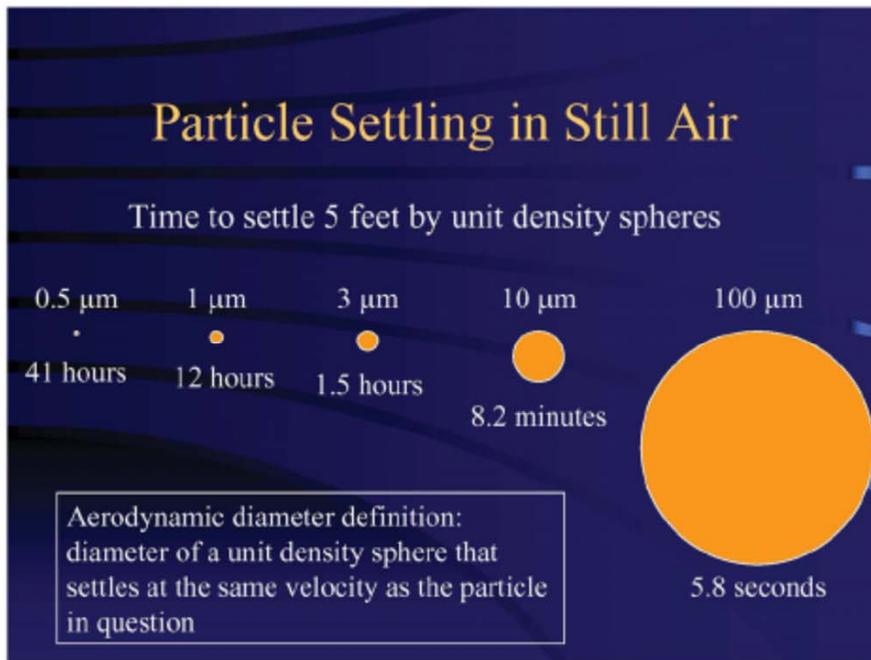
Dyal, COVID-19 Among Workers in Meat and Poultry Processing Facilities — 19 States, April 2020, MMWR, 69, 18, e3, 1-5, 2020



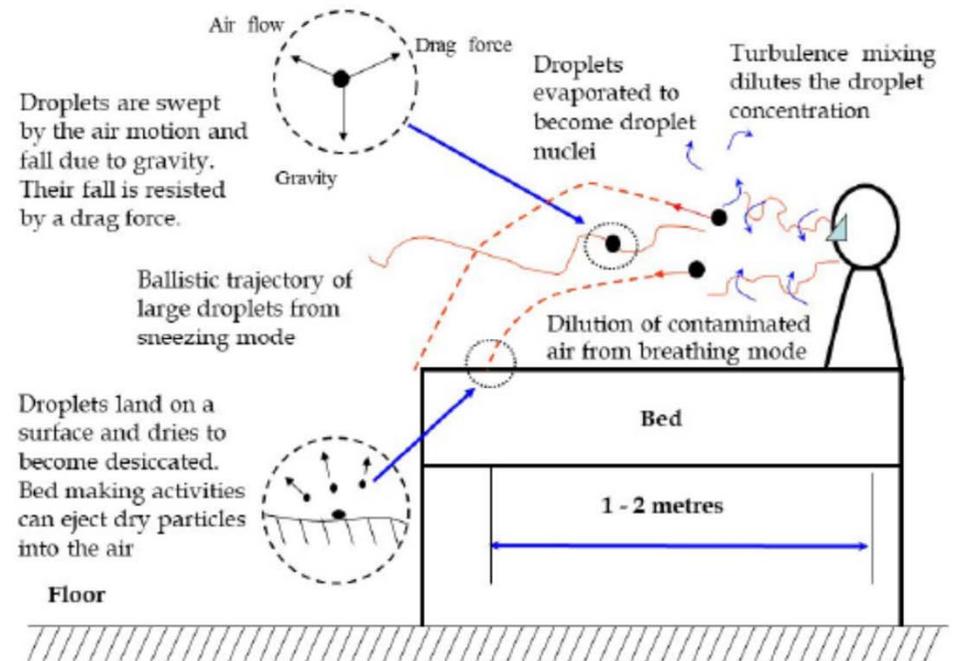
Droplets & Aerosol Production



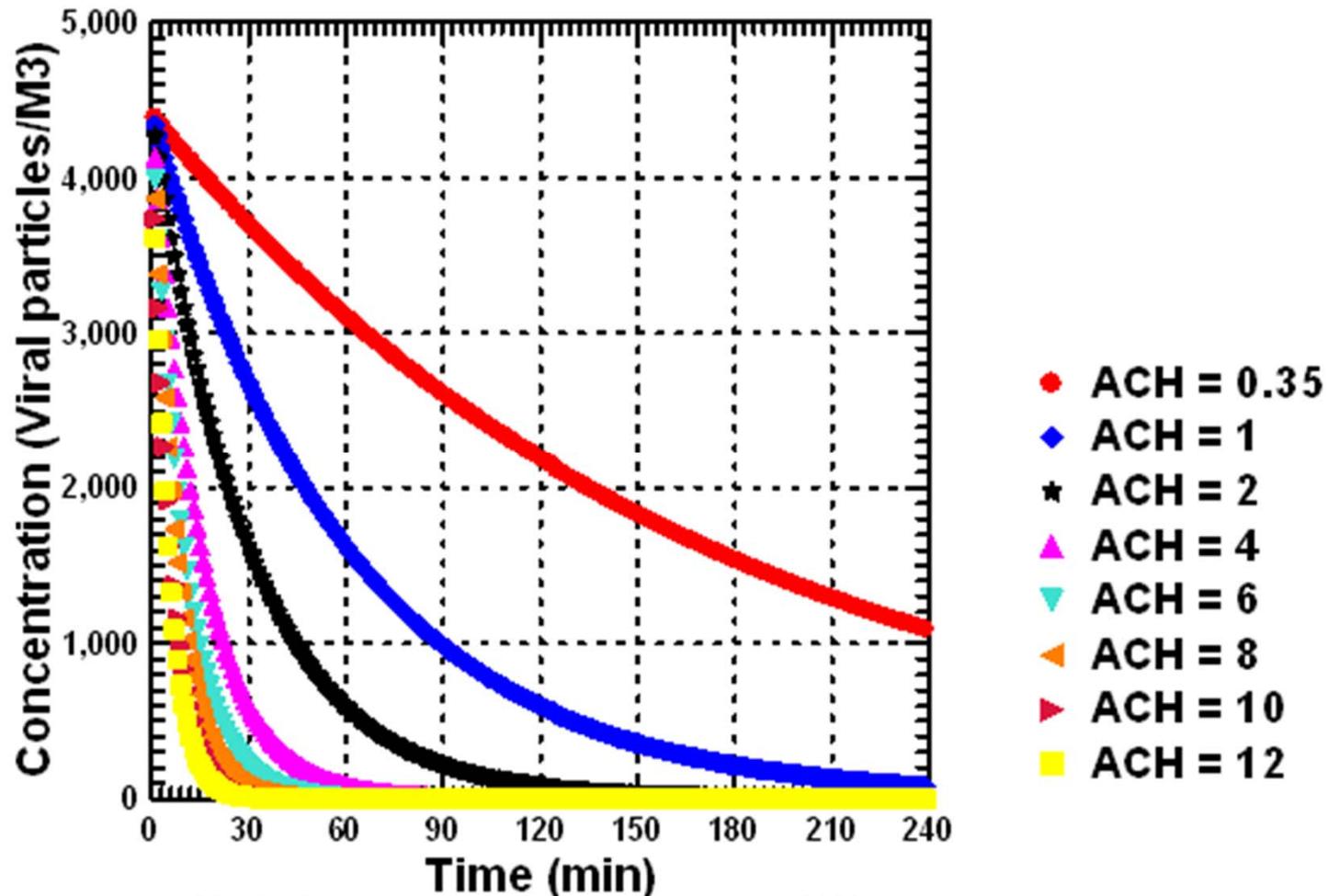
Droplets & Settling Behavior



ASHRAE, ASHRAE Position Document on Infectious Aerosols, 2020

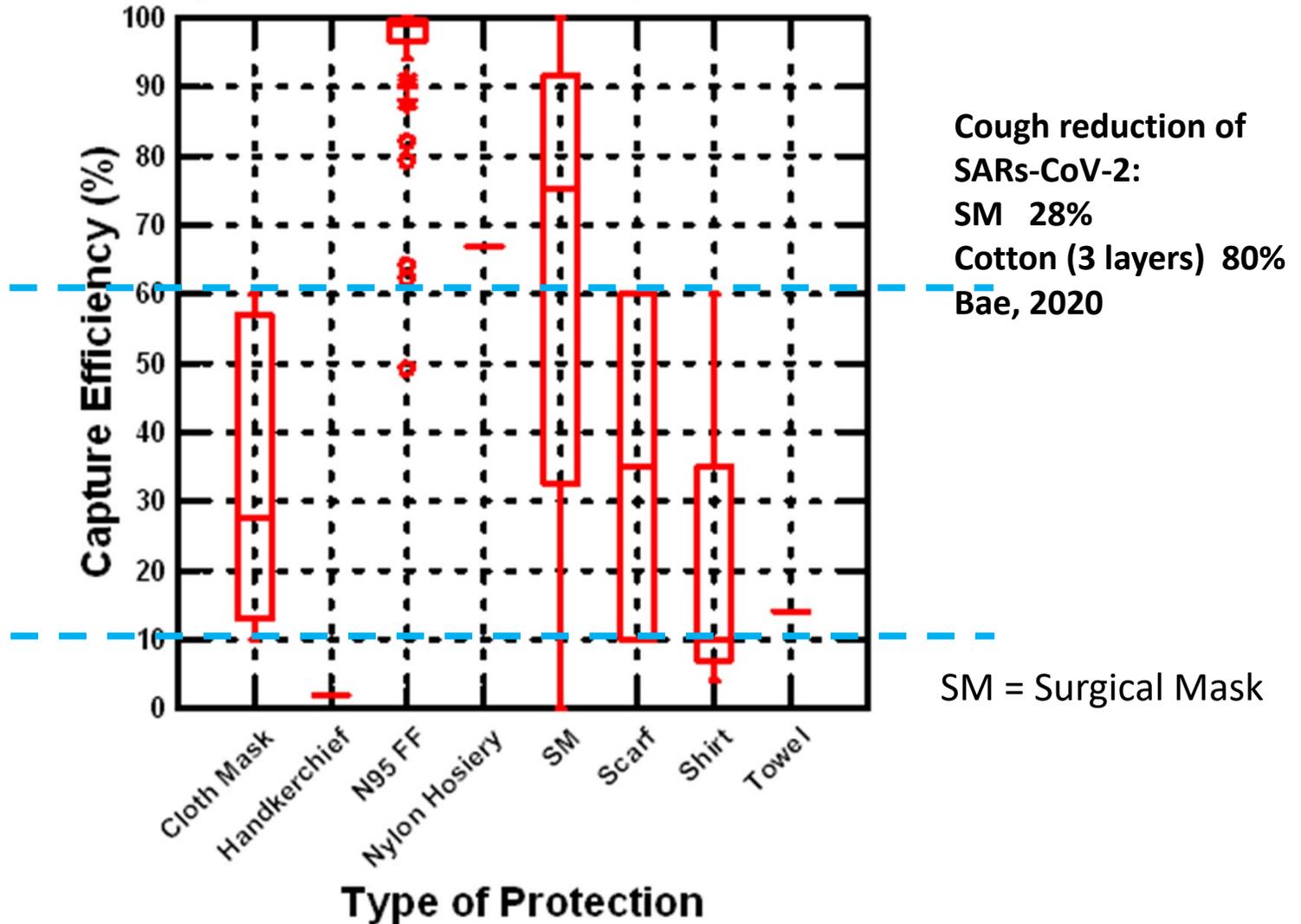


Building Air Exchange Rates & Dilution



Filtering Ability of Masks & Respiratory Protection (for the USER)

All of these masks reduced droplet emission generated by speech to background level
 Source: Adriaan Bax, National Institutes of Health, April 4, 2020



Recommended Respiratory Protection

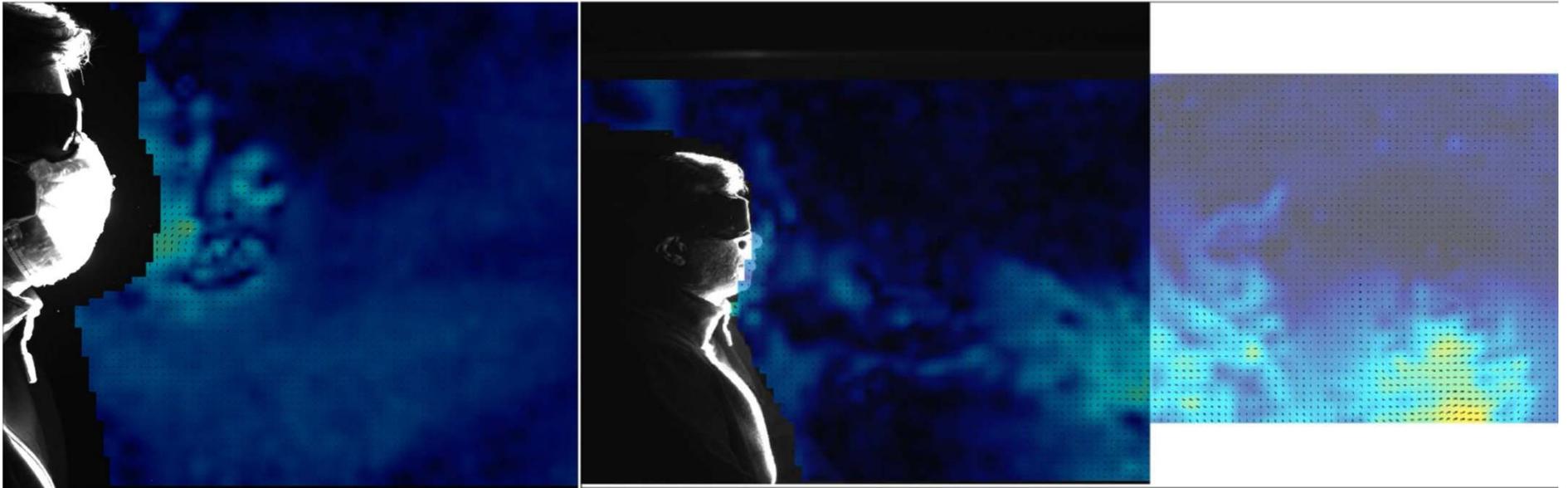
Class	Population	Working Example	Recommended Respiratory Protection	Optional
1	Individuals in Direct Contact with Infected Persons	CDC High Risk = Level 1 Health Care with routine hands on contact	1A Preferred ½-face P100 1B Preferred splash resistant N95‡ 1C Acceptable N95	Full-Face NPR PAPR
2	Individual in rooms adjacent to Infected Persons	CDC Medium Risk = Level 2 Health Care without routine hands on contact	N95	½-face w min P100
3	Individuals with Indirect Risk	CDC Low Risk = Level 3 General Business with occasion of casual contact with symptomatic person	None	N95
4	General Public	CDC Very Low Risk = Level 4 General Business with occasion of casual contact with asymptomatic persons	None	Any Mouth Covering

Havics, A.A.: A Look at COVID 19 in terms of: 8. Cleaning Verification. (2020).

https://www.researchgate.net/publication/340997461_A_Look_at_COVID_19_in_terms_of_12_Cleaning_Cleaning_Verification

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Cough Suppression with poor mask



*Flow field during coughing
with mouth and nose
protection*

Flow field when coughing without mask

Kahler: Flow analyses to validate SARS-CoV-2 protective masks About distance rules, mouth-nose protection, particle filtering respiratory protection manufacturing, University of the Bundeswehr Munich, 2020

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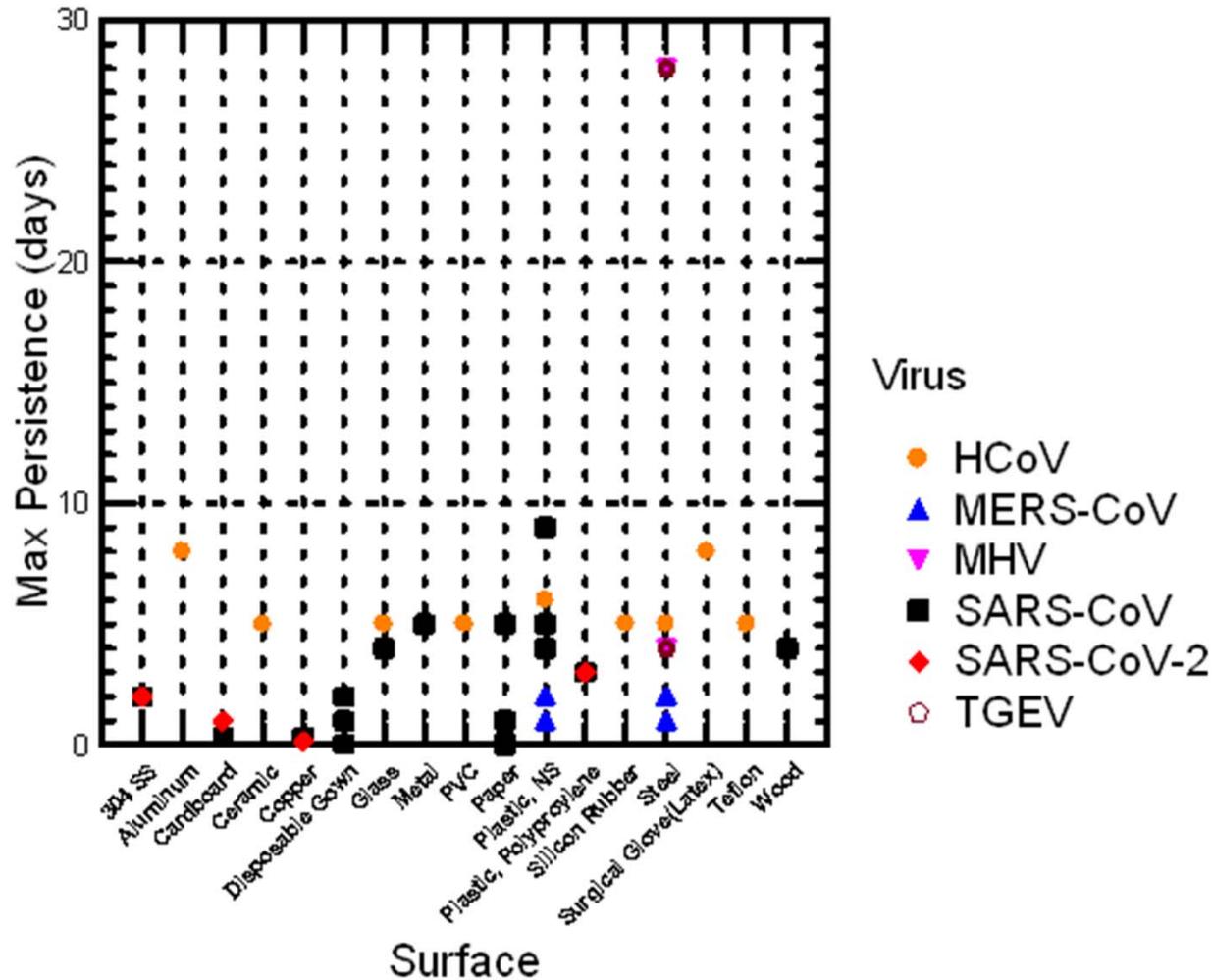
Personal Hygiene

- Handwashing
- Disinfection
 - 60% Ethanol
 - 70 IPA



Survivability on Surfaces

ID	Virus
HCoV	Human Coronavirus
MERS-CoV	Middle Eastern Respiratory Syndrome Coronavirus
SARS-CoV	Severe Acute Respiratory Syndrome Coronavirus
TGEV	Transmissible Gastroenteritis Virus
MHV	Mouse Hepatitis Virus
SARS-CoV-2	COVID 19



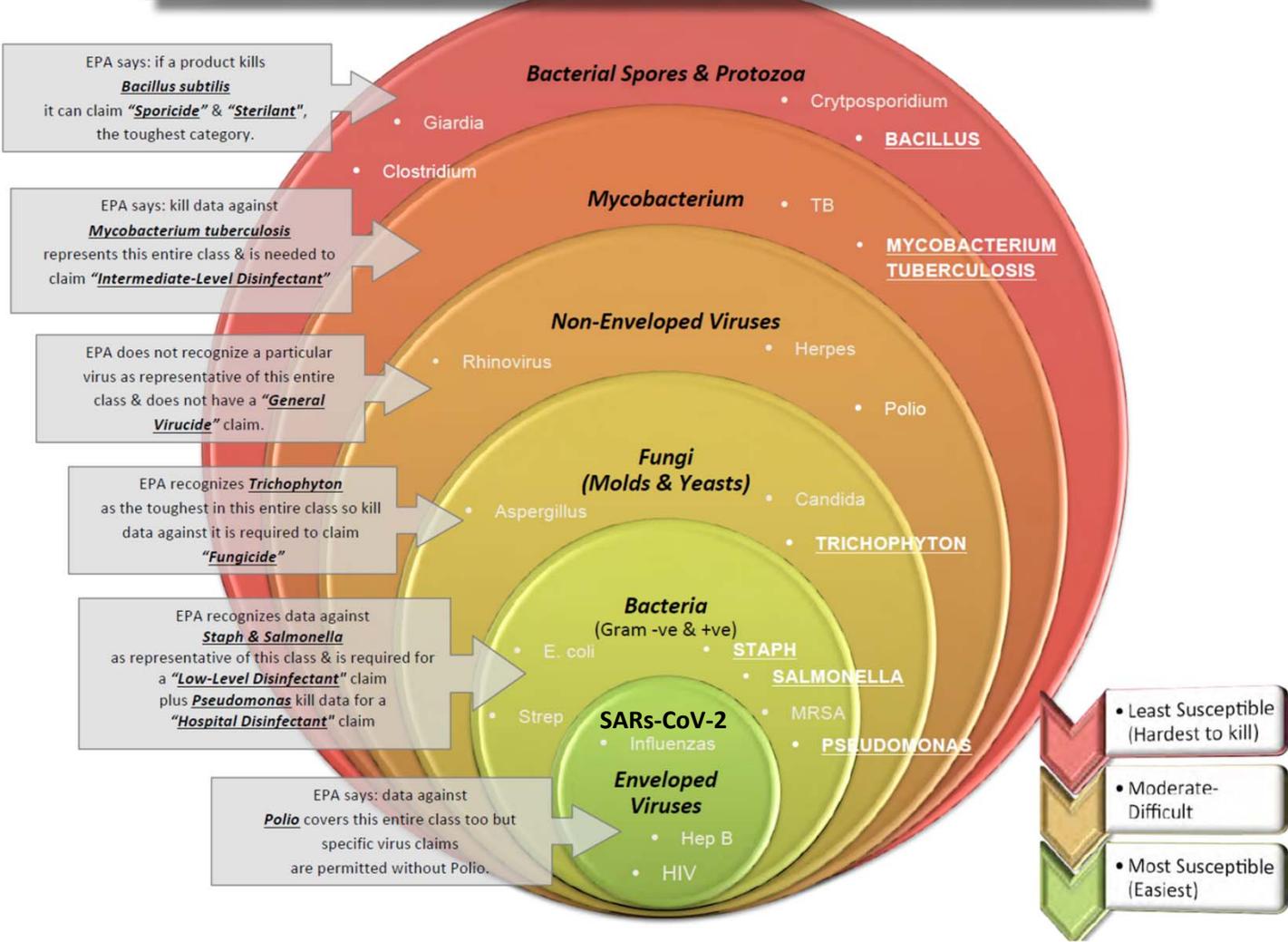
pH₂Havics, A.A.: A Look at COVID 19 in terms of: 8. Cleaning Verification. (2020).

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Disinfection of Microbial Components

Classes of Microorganisms Ranked According to Susceptibility to Disinfectants



Building Cleaning

Classes	Description	Example	After 10 days of Non-Use
1	4+ Cases	Hospital Nursing Home	NA unless isolation room returned to general use. Standard Cleaning & Disinfection§ per CDC IC Guidelines ^(68, 69) to prepare for reuse
2	A. 1-3 Cases	Medical Facility	Standard Cleaning & Disinfection§ per CDC IC Guidelines ^(68, 69) to prepare for reuse
	B. High Probability of Multiple Symptomatic Cases (known & suspect occupants)	B. Commercial Business; Manufacturing Facility	Examine HVAC coils & drip pans & filters; clean and replace as necessary If desired, supplementary: - Clean Carpets by applying Disinfectant - Liquid Aerosol Spray Disinfection
3	A.1 Sentinel Case (SC)	A. Commercial Business; Manufacturing Facility	Examine HVAC coils & drip pans & filters; clean and replace as necessary If desired supplementary: - Clean Carpets with Disinfectant - Liquid Aerosol Spray Disinfection
	B. High Probability of Symptomatic Case	B. Food Establishment; Grocery Store	Normal Hygiene
4	No Cases	Commercial Business Manufacturing Facility	Normal Hygiene

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Class	Description	Example	< 10 Days Since Last Case
1	4+ Cases	Hospital Nursing Home	Cleaning then Disinfection§ per CDC IC Guidelines ^(68, 69)
2	A. 1-3 Cases	Medical Facility	A. Clean All Contact Surfaces‡ in rooms of contact by SC and any adjacent connecting rooms with cleaning agent, then Disinfectant§. Clean high traffic areas* Clean Carpets by applying Disinfectant ^a If in 10 ft of VAV box that has local return air, clean coils and drip pan; clean return grills. Wash soft goods in hot water
	B. High Probability of Multiple Symptomatic Cases (known & suspect occupants)	B. Commercial Business; Manufacturing Facility	B. Clean All Contact Surfaces† in rooms of contact (including high traffic areas*) by Known & Suspect SC then Disinfect§. Clean Carpets by applying Disinfectant ^a If in 10 ft of VAV box that has local return air, clean coils and drip pan; clean return grills. Wash soft goods in hot water 72 Hours Wait
3	A.1 Sentinel Case (SC)	A. Commercial Business; Manufacturing Facility	A. Clean High Contact Surfaces† in rooms of contact (including high traffic areas*) by SC with cleaning agent, then Disinfectant. Clean Carpets by applying Disinfectant ^a If in 10 ft of VAV box that has local return air, clean coils and drip pan; clean return grills 72 Hours Wait Optional supplement: Liquid Aerosol Spray first to drop particle count. Liquid Aerosol Spray post cleaning for disinfection§.
	B. High Probability of Symptomatic Case	B. Food Establishment; Grocery Store	B. Clean floors every night Clean contact surfaces every night Optional supplement: Disinfect § after cleaning
4	No Cases	Commercial Business Manufacturing Facility	©2020 A. Havics

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EPA-CDC Guidance

Critical Infrastructure Employees	Interim Guidance for Critical Infrastructure Employees
	Cleaning and Disinfecting your Facility
Schools and childcare programs	K-12 and Childcare Interim Guidance
	Cleaning and Disinfecting your Facility
	FAQ for Administrators
Businesses	Interim Guidance for Businesses
	Cleaning and Disinfecting your Facility

<https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html>

COMMUNITY LOCATIONS	community events	Interim Guidance for Mass Gatherings and Events
		Election Polling Location Guidance
		Events FAQ
	Community- and faith-based organizations	Interim Guidance for Organizations
		Cleaning and Disinfecting your Facility
	Businesses	Interim Guidance for Businesses
	Parks & Rec Facilities	Guidance for Administrators of Parks

Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19)

- **Perform routine environmental cleaning and disinfection:**
 - Routinely clean and disinfect all frequently touched surfaces in the workplace, such as workstations, keyboards, telephones, handrails, and doorknobs
 - Discourage workers from using other workers' phones, desks, offices, or other work tools and equipment, when possible. If necessary, clean and disinfect them before and after use
 - Provide disposable wipes so that commonly used surfaces (for example, doorknobs, keyboards, remote controls, desks, other work tools and equipment) can be wiped down by employees before each use. To disinfect, use [products that meet EPA's criteria for use against SARS-Cov-2](#)
- **Perform enhanced cleaning and disinfection after persons suspected/confirmed to have COVID-19 have been in the facility:**
 - If a sick employee is suspected or confirmed to have COVID-19, follow the [CDC cleaning and disinfection recommendations](#).

Frequent Contact Surfaces

- tables
- doorknobs
- light switches
- countertops
- handles
- desks
- phones
- keyboards
- toilets
- faucets and sinks
- gas pump handles
- touch screens
- ATM machines.



Protecting Worker Health

**Workplace Cleaning
for COVID-19**

<https://www.backtoworksafely.org/>

**Reopening:
Guidance for **At-Home
Service Providers****

**Reopening:
Guidance for **General
Office Settings****

**Reopening:
Guidance for the
Restaurant Industry**

**Reopening:
Guidance for the
Retail Industry**

**Reopening:
Guidance for
Hair and Nail Salons**

**Reopening:
Guidance for **Gyms and
Workout Facilities****

**Returning to Work:
**Construction
Environment****

**Returning to Work:
**Rideshare, Taxi, Limo,
and other Passenger
Drivers-for-Hire****

Maintain safe behavioral practices

- social distancing (specifically, staying 6 feet away from others when you must go into a shared space)
- frequently washing hands or use alcohol-based (at least 60% ethyl alcohol or 70% IPA) hand sanitizer when soap and water are not available
- wearing cloth face coverings
- avoiding touching eyes, nose, and mouth
- staying home when sick
- cleaning and disinfecting frequently touched objects and surfaces

Hazard Communication

- Symptomology of COVID 19
- Risk factors
- Processes
 - Temperature (≥ 100.4 F per CDC)
 - Questionnaire on Symptoms
 - Cleaning & Disinfection
- SDS for Cleaning & Disinfection Products
 - Chemicals
 - Symptoms of overexposure
 - Protective measures (gloves, eye protection, Resp Prot)
 - Proper use

Symptomology of COVID 19

- **Cough (86.1%)**
- **Fever/Chills (85.0%)**
- **Shortness of Breath (80.0%)**
- Myalgia [muscle pain] (34.4%)
- Diarrhea (26.7%)
- Nausea/Vomiting (24.4%)
- Sore Throat (17.8 %)
- Headache (16.1 %)
- Nasal Congestion/Rhinorrhea (16.1 %)
- Chest Pain (15.0%)

Garg, Hospitalization Rates and Characteristics of Patients Hospitalized with Lab-Confirmed Coronavirus Dis 2019 COVID-NET, 14 States, MMWR, 69, 15e3-H, April 8, 2020

Non-COVID 19 Issues

- Water Systems
- Sewer/Drain
- HVAC
 - Condensing Coils
 - Drip Pans
 - Exhaust Fans
 - Refrigerant
- Pumps, Hydraulics, Gears, Compressors
- Fuel
- Walk-In Freezers/Coolers

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- <https://www.researchgate.net/project/COVID-19-H-S>
- References