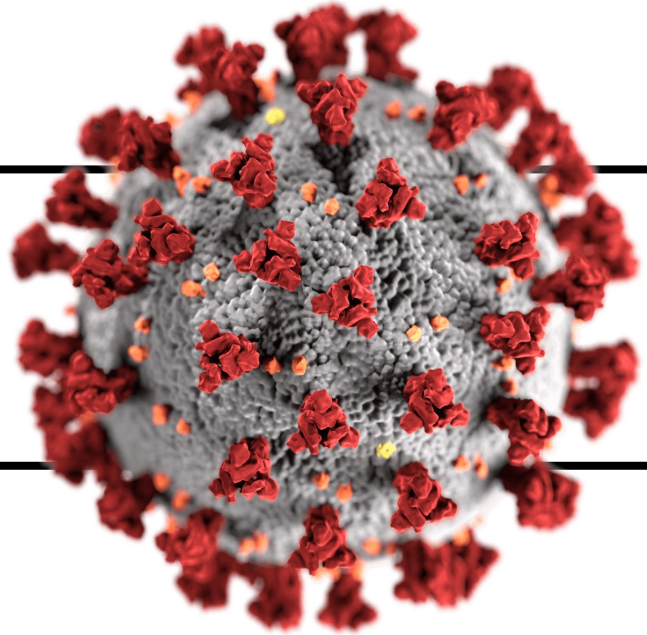
COVID-19 and the Classroom

Raney Linck
DNP, RN



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Raney Linck, DNP, RN

- **Clinical Assistant Professor**
- University of Minnesota School of Nursing
- Doctorate of Nursing Practice

- Named **2013 Minnesota Nurse of the Year in Education** by the Minnesota March of Dimes

Download PDF of slides:

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BROAD

SPECIFIC

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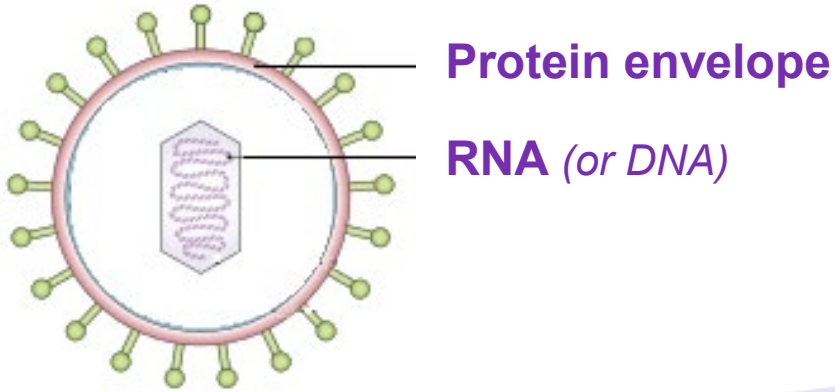
VIRUS *(obligate intracellular parasite)*

REVIEW

- **Nonliving parasite that infects a host cell**
  (in animals, plants and/or bacteria)
  - *Protein envelope contains only few dozen genes*
  - *Must be inside host cell to reproduce*
  - *Host cell becomes "virus factory", often causing symptoms.*
  - *Usually self-limiting (few days)*



Burchum & Rosenthal, 2019; *image*

Fragile viruses need
unbroken
CHAIN OF INFECTION

Chain of Infection

Next Sick Person

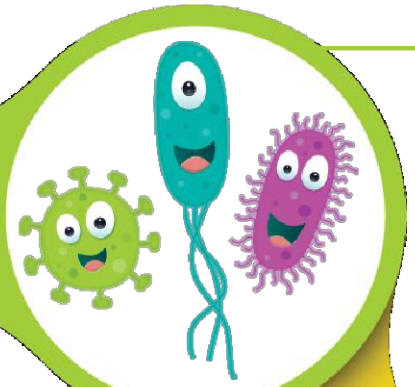
(Susceptible Host)

- Babies
- Children
- Elderly
- People with a weakened immune system
- Unimmunized people
- Anyone

Germs

(Agent)

- Bacteria
- Viruses
- Parasites



Where Germs Live

(Reservoir)

- People
- Animals/Pets (dogs, cats, reptiles)
- Wild animals
- Food
- Soil
- Water

How Germs Get Out

(Portal of Exit)

- Mouth (vomit, saliva)
- Cuts in the skin (blood)
- During diapering and toileting stool)

Germs Get Around

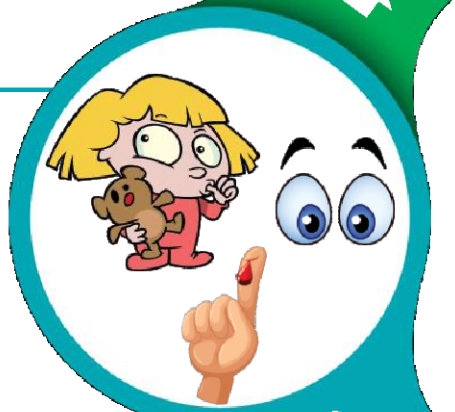
(Mode of Transmission)

- Contact (hands, toys, sand)
- Droplets (when you speak, sneeze or cough)

How Germs Get In

(Portal of Entry)

- Mouth
- Cuts in the skin
- Eyes



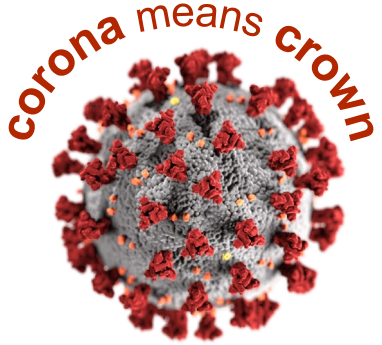
Virus	*causes*	Disease

VIRUS NAME		DISEASE NAME
rubella *also spelled rubeola*	*causes*	**measles**
SARS-CoV-2 **severe acute respiratory syndrome coronavirus 2**	*causes*	**COVID-19** **coronavirus disease 2019**

For general public, WHO often calls it "the COVID-19 virus"

Named 2019 for the year it was discovered.

World Health Organization [WHO], 2020a



What do we know about CORONAVIRUSES in humans?

Common Cold (seasonal)

- HCoV-**NL63**
- HCoV-**229E**
- HCoV-**OC43**
- HCoV-**HKU1**

Life-threatening coronaviruses

- **SARS 1** SARS-CoV — **2002**
- **MERS** MERS-CoV — **2012**
- **COVID-19** SARS-CoV-2 — **2019**

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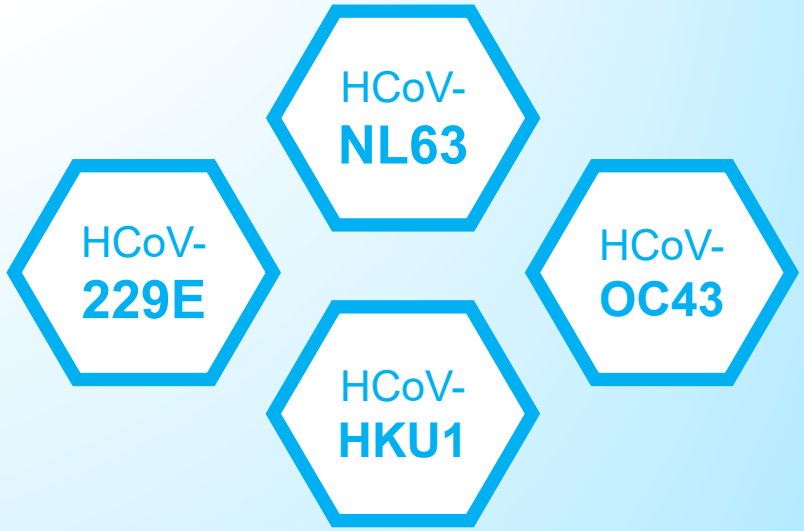
Common Cold Coronaviruses

HCoV = *human coronavirus*

These coronaviruses cause 15-20% of common colds

- Seasonal
- Ubiquitous around the world



Human body does NOT develop permanent immunity.

- **Antibody immunity rapidly wanes** – frequent reinfection

CDC, 2020h; McIntosh, 2020c; Sariol & Perlman, 2020; WebMD Medical Reference, 2019

Life-Threatening Coronoaviruses

SARS 1
SARS-CoV

2002

MERS
MERS-CoV

2012

CLINICAL COURSE *(how disease behaves over time)*

ACUTE PHASE

80% of cases are MILD

recover at home
within 2 weeks

LONGER-TERM PHASE

occurs for <u>some</u> people:

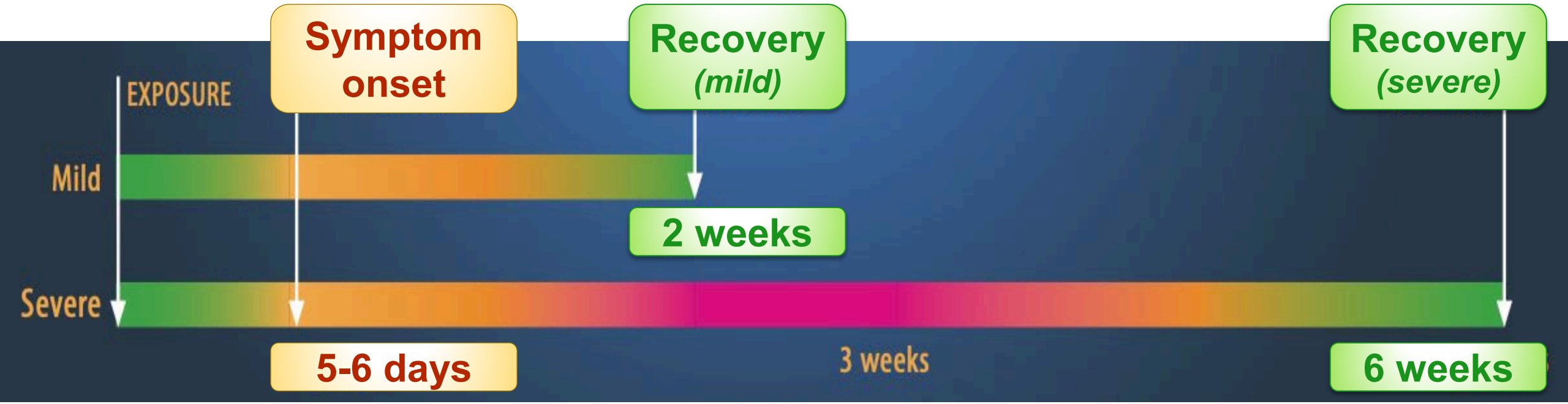
POST VIRAL SYNDROME

lingering symptoms beyond 2 wks

Tenforde et al., 2020

INCUBATION *(time between infection and first symptoms)*

- *range: 1 to 14 days* **with an average of 5 to 6 days**.



WHO, 2020b

Know the symptoms of COVID-19, which can include the following:

Cough

Fever

Chills

Muscle pain
(myalgias)

Short of breath
(dyspnea)

Sore throat

New loss of taste or smell

- **Fatigue**
- **↑ mucus production**
  (congestion or runny nose)
- **Nausea *or* Vomiting**
- **Diarrhea**

Note: people can transmit virus *without* symptoms…

CDC, 2020a; CDC, 2020b; Furukawa et al., 2020

What's the difference?

ASYMPTOMATIC:

*No symptoms **ever***

PRESYMPTOMATIC:

*No symptoms **yet***

OLIGOSYMPTOMATIC:

*Symptoms **so mild** a person probably does not realize they're sick.*

You can transmit the virus without knowing you're sick.

Apuzzo et al., 2020

Don’t be scared.

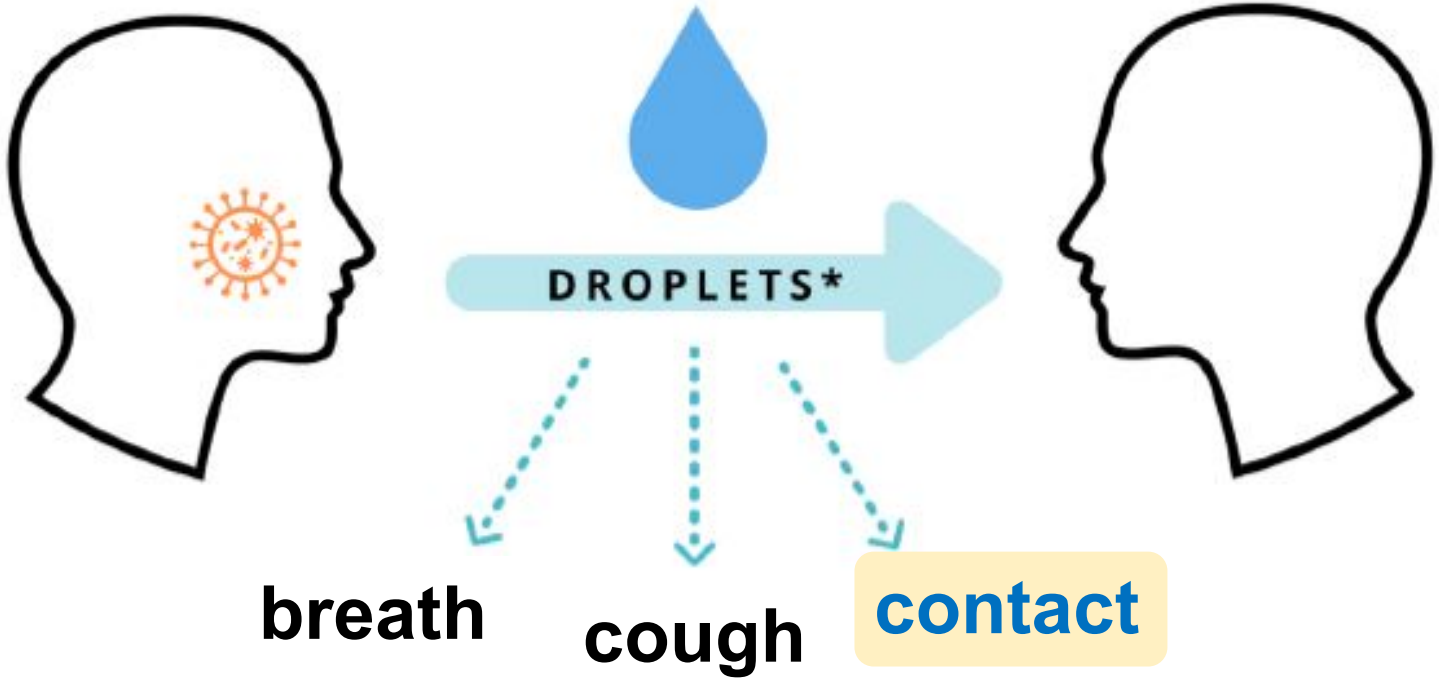
Be informed.

You can break the chain of infection.


COVID-19:
Transmission
& Precautions

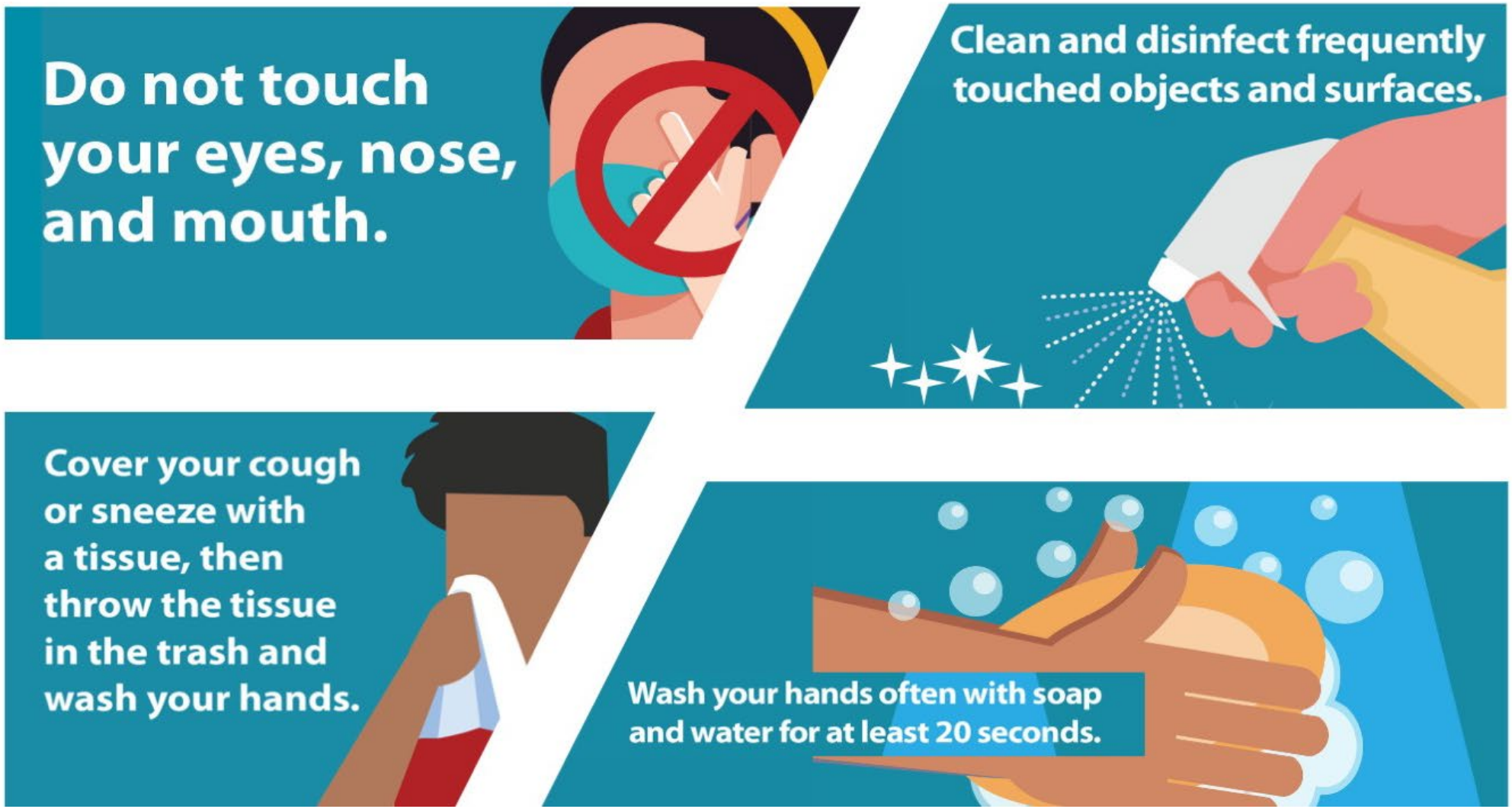
Spread by respiratory droplets

- from infected person coughing, talking, singing, etc.
- between people in close contact
- droplets (larger than 5 microns) travel up to 6 feet



Southwest Health, 2020. *sign: Winmark*

Contact precautions still matter…



Fomite:
contaminated surface or object

Indirect virus transmission
can occur by touching a fomite then touching own mouth/nose/eyes

CDC, 2020d; WHO 2020c

2

Apply soap

thumbs

Washing hands: purple paint demo

https://youtu.be/nEzJ_QKjT14

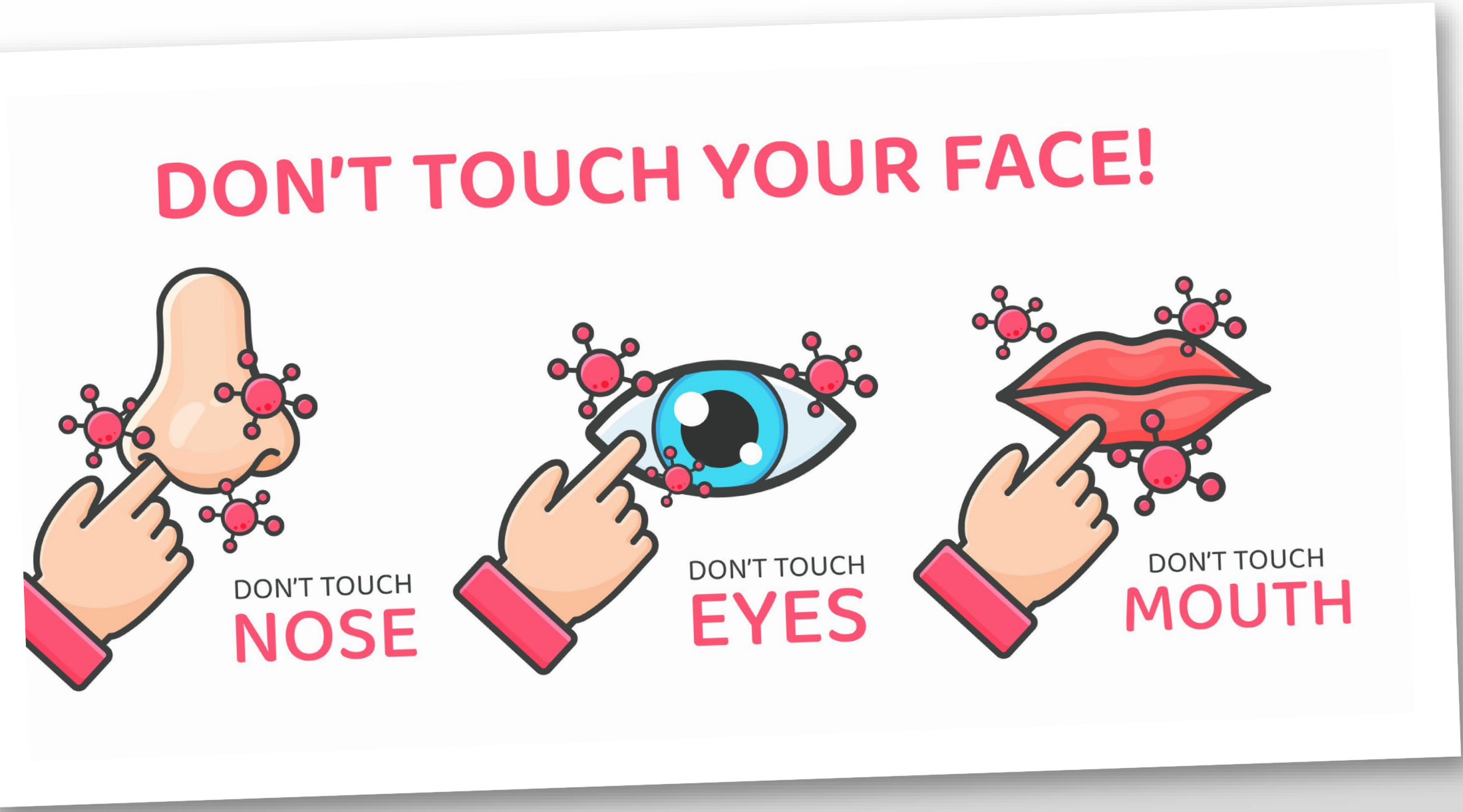


Image: Anuwat Meereewee

MINNESOTA DEPARTMENT OF HEALTH

STAY SAFE MN

Cleaning & Disinfecting for COVID-19

JUNE 16, 2020

Use chemicals safely to reduce spread

Step 1:

Clean surfaces of dirt and debris.
Using soap and water removes dirt and debris which allows disinfectants to make good contact with surfaces.

Step 2:

Disinfect surfaces, especially frequently- touched surfaces.
Disinfectants are chemicals applied to surfaces to kill bacteria, viruses, and other germs. Look for the word "disinfectant" on the label.

Cleaning and then disinfecting surfaces can reduce the spread of COVID-19. But some disinfectant products can irritate the lungs, skin, and eyes or trigger asthma.

Follow these steps to prevent health problems for you and your family when using these products at home:

- Follow all label directions. Read the product warnings listed under "precautionary statements."
- Only use the product on surfaces listed under "use sites."
- Keep disinfectants out of reach of children.
- Never mix two or more products together into one container. Using bleach with other products may release dangerous gases.
- Ensure as much ventilation as possible. Open windows. Run a bathroom or kitchen fan. Keep children in another room.

For more information about cleaning and disinfecting in homes with suspected or confirmed COVID-19 disease:

Centers for Disease Control and Prevention: Cleaning and Disinfection for Households (www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html)

U.S. Environmental Protection Agency: Disinfectants for Use Against SARS-CoV-2 (the virus that causes COVID-19) (https://www.epa.gov/pesticide-registration/list-n-disinfectants-use- against-sars-cov-2)

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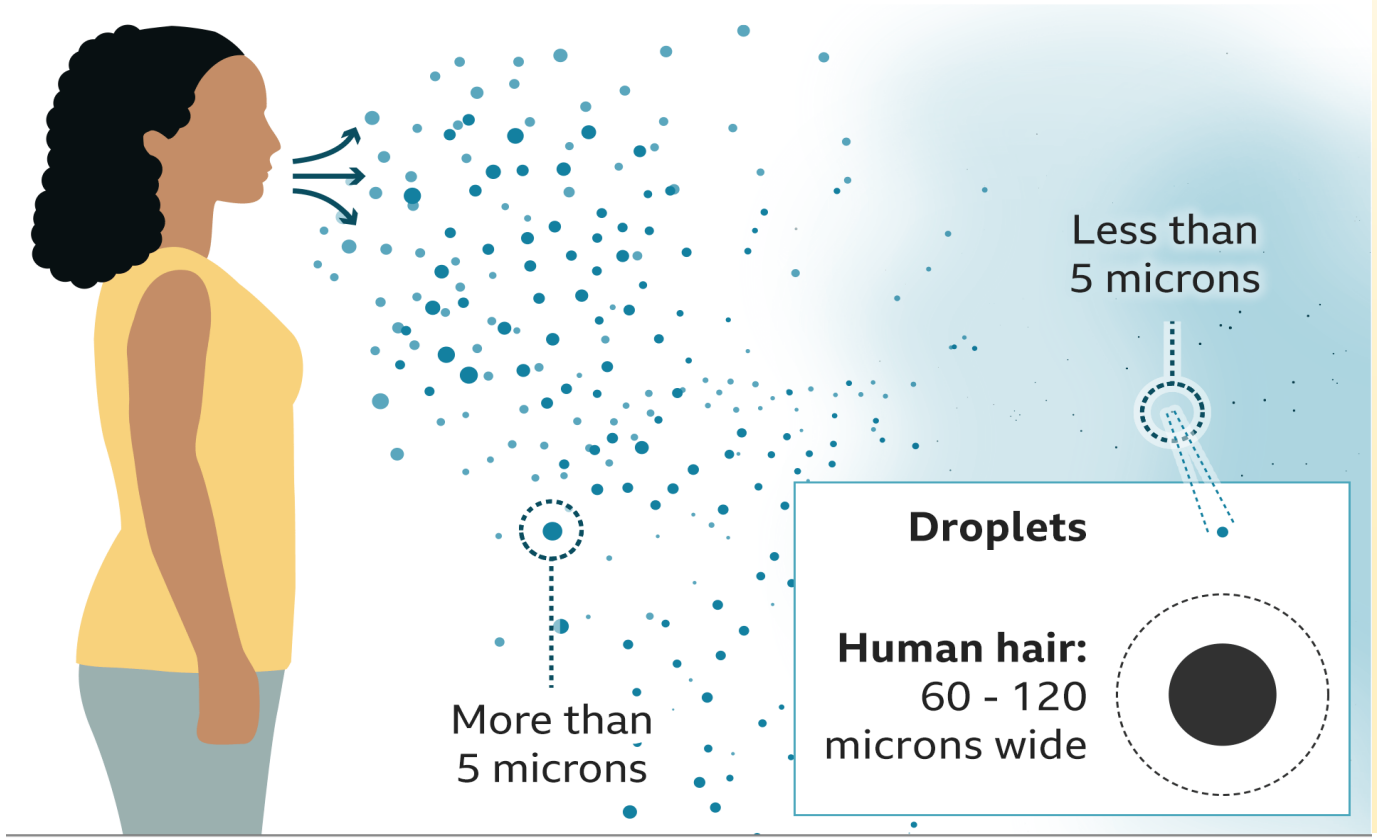
Droplet *vs.* Airborne

DROPLET

larger **than 5 microns**

spread *up to* 6 ft

examples: influenza or pertussis (whooping cough)



AIRBORNE

smaller **than 5 microns**

spread *beyond* 6 ft & stay in air longer

examples: measles, TB, or varicella (chickenpox)

Potter et al., 2020; *infographic: BBC, 2020*

Airborne Transmission

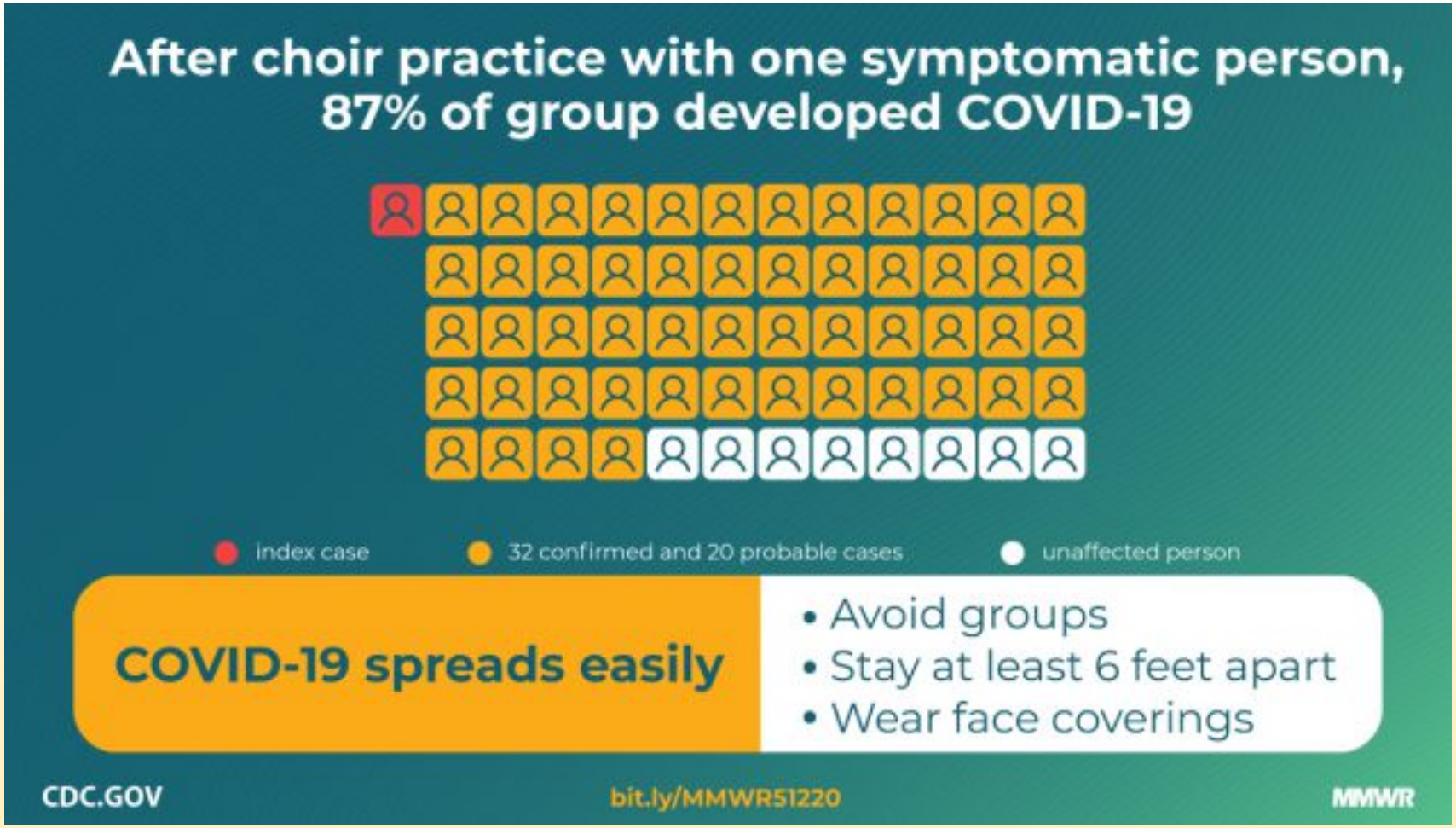
IN HEALTHCARE SETTINGS

"Aerosol-generating procedures"

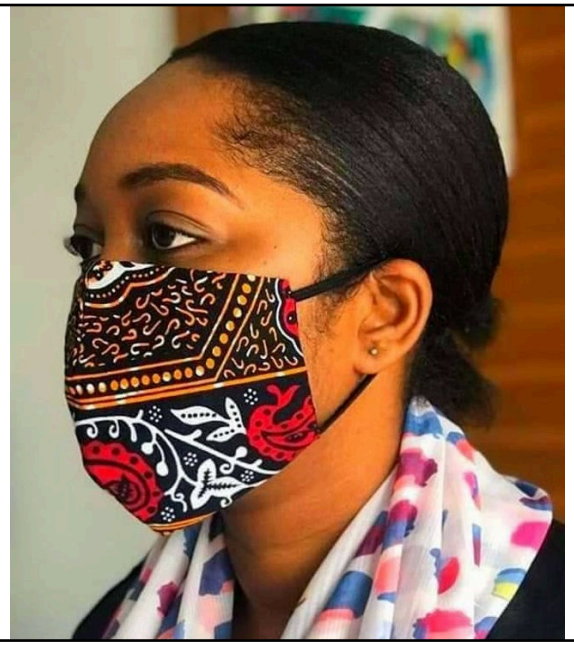
- **CPR**
- **Intubation / extubation**
- **Care of intubated patient**
- **High-flow oxygen treatment**
- **Noninvasive ventilation** *(BiPAP, CPAP)*
- **Nebulizer treatment**
- **Open airway suctioning**

Univ. of Washington Medicine, 2020; *image: Pariswestren*

Beyond healthcare: emerging evidence SARS-CoV-2 may become airborne in crowded, closed or poorly ventilated settings.



Hamner et al., 2020; Park et al., 2020; WHO 2020c; *icon*

3 types of masks	1. RESPIRATOR (N95)	2. SURGICAL MASK	3. CLOTH MASK
			
Fit	**tight to face**: *needs an initial fit test to determine size*	**loose-fitting**: *no fit testing required*	
Protection	**2-way: filters 95% of air entering & exiting wearer**	**mainly 1-way: captures particles & droplets from wearer**	**mainly 1-way: but routine use ↓ transmission by people without symptoms ↓ amt. of airborne particles in closed environments**
Use	*reserve for* **healthcare workers & caregivers** *(single-use design)*		**public** *(multiple-use design)*

adapted from AFP, 2020; photos: 1, 2, 3

photo: Forbes

HOW TO WEAR A MEDICAL MASK SAFELY

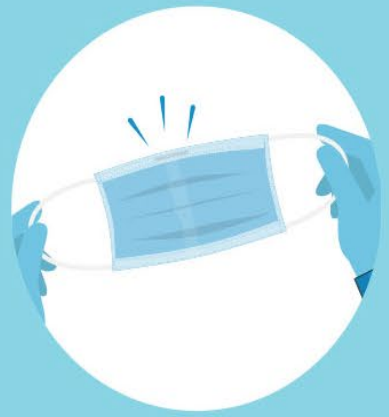
who.int/epi-win

Do's

Wash your hands before touching the mask

Inspect the mask for tears or holes

https://www.paho.org/en/documents/infographic-how-wear-mask-safely



Find the top side, where the metal piece or stiff edge is

Ensure the colored-side faces outwards

Place the metal piece or stiff edge over your nose

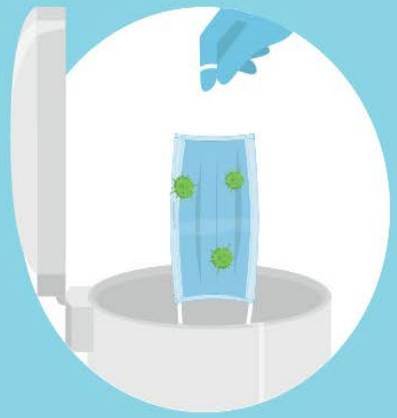
Cover your mouth, nose, and chin

Adjust the mask to your face without leaving gaps on the sides

Avoid touching the mask

Remove the mask from behind the ears or head

Keep the mask away from yourself and from surfaces while removing it



Discard the mask immediately after use, preferably into a closed bin

Wash your hands after discarding the mask

Don'ts

Do not Use a ripped or damp mask

Do not wear the mask only over mouth or nose

Do not wear a loose mask

Do not touch the front of the mask

Do not remove the mask to talk to someone or do other things that would require touching the mask

Do not leave your used mask within the reach of others

Do not re-use the mask

Remember that masks alone cannot protect you from COVID-19. Stay at least 1 meter away from others and wash your hands frequently and thoroughly, even while wearing a mask.

EPI·WiN

Pan American Health Organization
World Health Organization
Americas

PAHO

Unprecedented:

Flu was all but eliminated in South Africa this year.

How?

Measures to prevent coronavirus.

Wroughton & Bearak, 2020

ARRIVING HOME SAFELY

AMERICAN NURSES FOUNDATION

Note: These guidelines were developed for **nurses working in healthcare settings…**

but there are **good ideas** here you may want to **adapt for yourself.**

https://www.nursingworld.org/~49911e/globalassets/covid19/anf-infographic_final-5-4-20.pdf

BEFORE LEAVING WORK

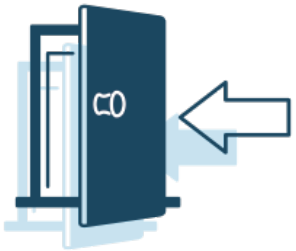
Shower if possible and change out of your work clothes

ARRIVING HOME

Wipe steering wheel, controls and door handles

AT THE FRONT DOOR

Pause. Breathe. Reset. Take your time



KNOCK ON THE DOOR

Open from the inside – step in

SHOUT HELLO

WASH YOUR HANDS

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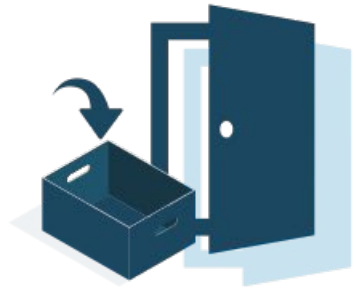
PLASTIC BOX AT THE DOOR

Drop off your work/commute shoes, outer clothes/coat/bag, keys, pen, and glasses. Wipe down with damp soapy cloth



PHONE

Kept at work in a clear zip lock bag. Empty out of bag into box – wipe phone down and throw the bag away

WORK BAG

Has to be machine washable – keep in a locker at work and a box by the front door at home

WALK STRAIGHT TO THE SINK/SHOWER

Don't touch doors, get someone else to open them for you. Wash or shower, especially hands, arms and face with soap and hot water

REST

Take time to practice self-care

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Best practices
to break chain of infection

- **Hand hygiene**
  - *20 seconds – good technique*
  - *hand sanitizer: at least 60% ethyl alcohol (no methanol)*
- **Wear mask in public**
- **6-ft. distancing**
- **Avoid crowds** *(choose outdoor settings, if possible)*
- **Be consistent…**

The emotional impact of isolation…

[image]

- **Work and school from home**
- **Avoid crowds, non-essential travel,** ***and more…***

During late June, 40% of US adults reported struggling with mental health or substance abuse

- **Anxiety/Depression Symptoms 31%**
  - **Anxiety symptoms 3 times higher** than reported in 2019.
- **Trauma/Stressor-Related Disorder Symptoms 26%**
- **Started or Increased Substance Use 13%**
- **Seriously Considered Suicide 11%**
  - **Suicidal ideation rates highest**: *unpaid caregivers for adults (31%), 18-to-24 years old (26%), Hispanic (19%), Black (15%) respondents*

Czeisler et al., 2020

How one artist has made a difference worldwide…

PPE Portrait Project

artist Mary Beth Heffernan & nurse Zoe Dewalt
Paynesville, Liberia
Ebola epidemic, 2015

nurse practitioner Michaela Agbesi
Massachusetts, USA
COVID-19 pandemic, 2020

Brown-Johnson et al., 2020; Almino, 2020; Sarah, 2020

How to Make and Apply

PPE Portraits

What you'll need

SMARTPHONE

PRINTER

LABELS or PAPER

STEP 1

CREATE PORTRAIT

- Plain background
- Lighting: indoors or shade
- Look directly into the lens—offer the smile you want patients to see
- Use Portrait Setting on smartphone

Hold phone out and use zoom

STEP 2

ORGANIZE/PRINT

- Non-glossy paper is best

Four pics per page on labels or plain paper

STEP 3

AFFIX PORTRAITS

- At chest level, 'from the heart'

SINGLE USE FOR HIGHER RISK SETTINGS

- After donning, place the portrait before entering patient area
- Discard during doffing

MULTIPLE USE IN LOWER RISK SETTINGS

- Disinfect daily like a name badge

Matte lamination, attached top and bottom

Stanford Medicine, 2020

Trauma-Informed Teaching Strategies

1. Expect unexpected responses
2. Employ thoughtful interactions
3. Be specific about relationship building
4. Promote predictability and consistency
5. Teach Strategies to “change the channel”
6. Give supportive feedback to reduce negative thinking
7. Create islands of competence
8. Limit exclusionary practices

Read full article: Minahan, J. (2019, October). Trauma-informed teaching strategies. *Educational Leadership, 77(2),* 30-35. http://www.ascd.org/publications/educational_leadership/oct19/vol77/num02/Trauma-Informed_Teaching_Strategies.aspx

SELF-CARE IS A PRECAUTION

Prioritize self-care!

How do you support healthy habits to:

- *Eat & drink regularly*
- *Vent feelings, diffuse conflict*
- *Reach out beyond isolation*
- *Promote healthy sleeping*

image: Jessica Dolce

How are you taking care of yourself?

Considerations by artistic medium

Live performance (Dance, Theater, Music, Spoken word)

- Microphones
- Outdoors, open windows
- Masks and physical exertion

Visual and studio arts

- Does each participant have own tools and materials?
- What is shared?
- Create a plan for cleaning and disinfecting

Questions and Discussion