

# COVID-19 Prevention in the Outpatient Setting

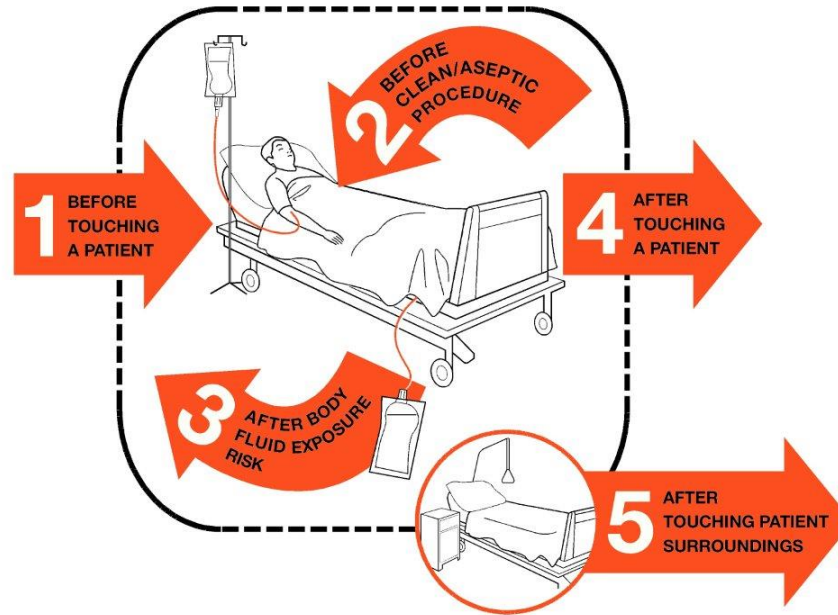
Heather Young MD  
Medical Director of Infection  
Prevention  
September 9, 2020

# Objectives

- \* Review CDC recommendations for PPE, air flow, and cleaning in outpatient settings
  
- \* Answer your questions

# WHAT ARE PPE RECOMMENDATIONS?

# Your 5 Moments for Hand Hygiene



<b>1</b>	<b>BEFORE TOUCHING A PATIENT</b>	<b>WHEN?</b>	Clean your hands before touching a patient when approaching him/her.
		<b>WHY?</b>	To protect the patient against harmful germs carried on your hands.
<b>2</b>	<b>BEFORE CLEAN/ASEPTIC PROCEDURE</b>	<b>WHEN?</b>	Clean your hands immediately before performing a clean/aseptic procedure.
		<b>WHY?</b>	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
<b>3</b>	<b>AFTER BODY FLUID EXPOSURE RISK</b>	<b>WHEN?</b>	Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		<b>WHY?</b>	To protect yourself and the health-care environment from harmful patient germs.
<b>4</b>	<b>AFTER TOUCHING A PATIENT</b>	<b>WHEN?</b>	Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		<b>WHY?</b>	To protect yourself and the health-care environment from harmful patient germs.
<b>5</b>	<b>AFTER TOUCHING PATIENT SURROUNDINGS</b>	<b>WHEN?</b>	Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		<b>WHY?</b>	To protect yourself and the health-care environment from harmful patient germs.



**World Health Organization**

**Patient Safety**

A World Alliance for Safer Health Care

**SAVE LIVES**  
Clean Your Hands

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CDC  
PPE

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# CDC Recommendations for PPE with non-COVID suspects

- \* Medical mask, face shield
- \* Hand hygiene by 5 moments and before/after touching mask
- \* Social distancing, >6 feet as much as possible
- \* Standard rooms can be turned over immediately

# Do These Measures Work?

- \* Meta-analysis: SARS, MERS, COVID-19
- \* 172 observational studies
- \* 16 countries, 6 continents
- \* 44 comparative studies

# Meta-analysis: SARS, MERS, COVID-19

Intervention	Pooled OR	Confidence Interval	Estimated transmission decrease
<b>Distance, &gt;1m</b>	0.18 <b>82% reduction in risk</b>	0.09-0.38	-10.2% 12.8% vs 2.6%
<b>Mask (healthcare setting)</b>	0.30 <b>70% reduction in risk</b>	0.07-0.34	-14.3% 17.4% vs 3.1%
<b>Eye protection</b>	0.22 <b>78% reduction in risk</b>	0.12-0.39	-10.6% 16.0% vs 5.5%

# YOUR QUESTIONS



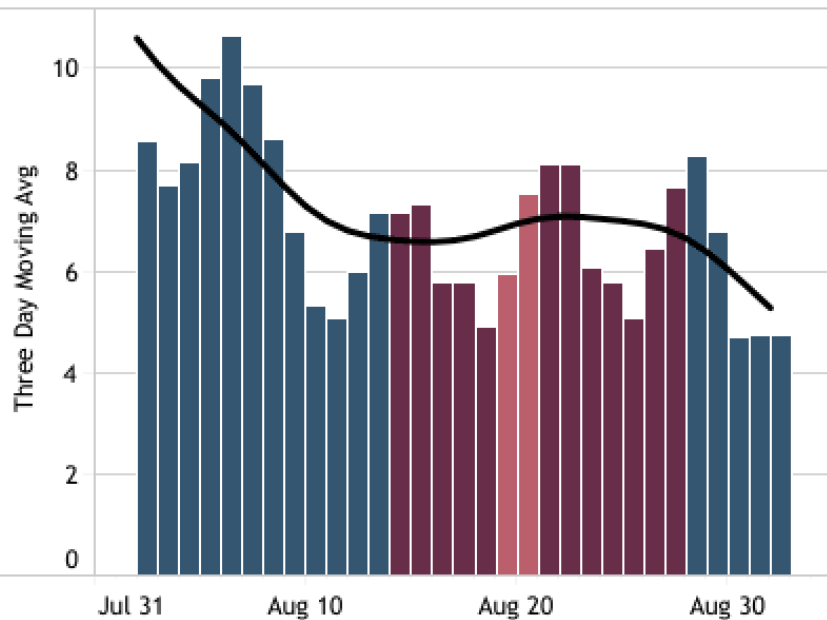
# Face Shields

- \* **What took you so long to roll these out?**
- \* Are they mandatory?
- \* Can I wear goggles instead?
- \* How should I store my face shield when not in use?

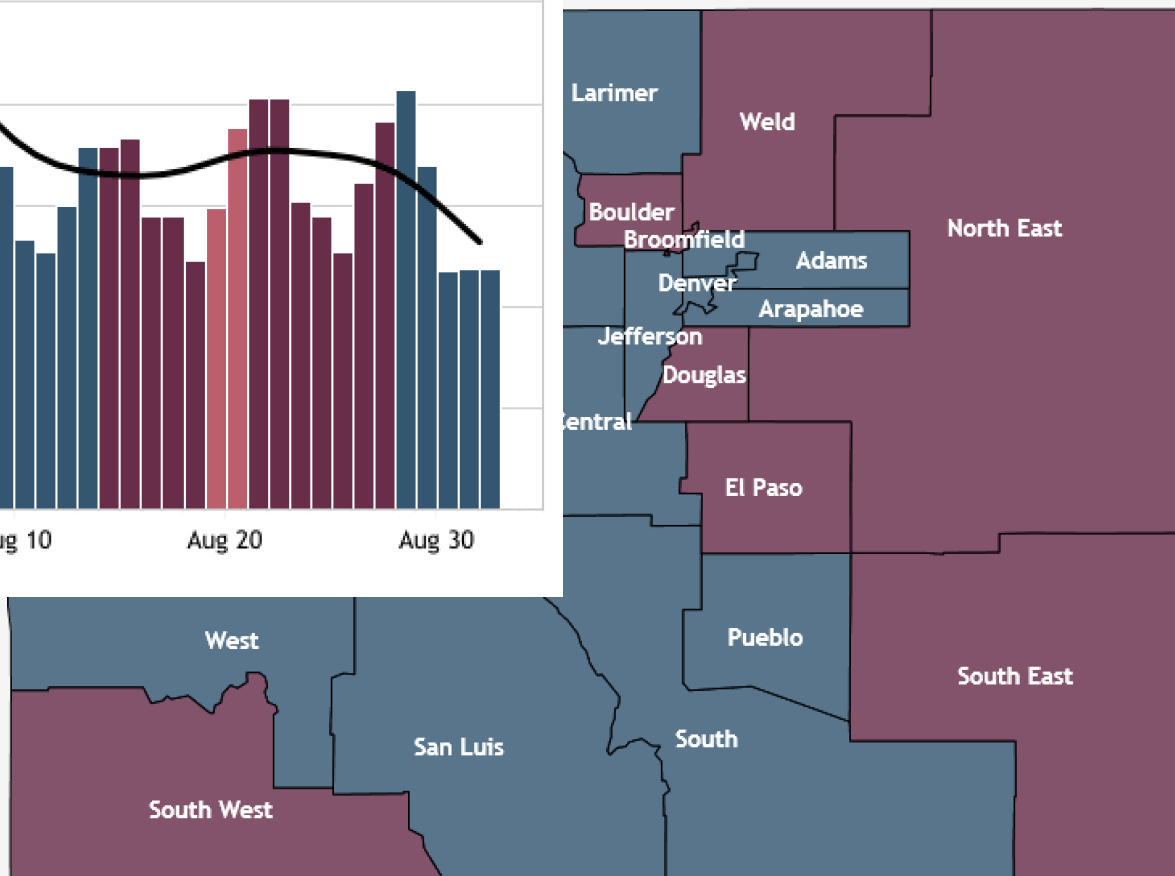
# Current Epidemic Curve

## Denver

### Sustained decline



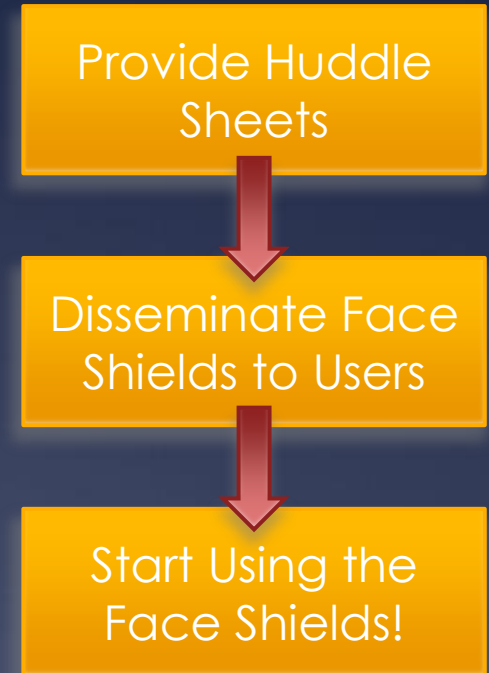
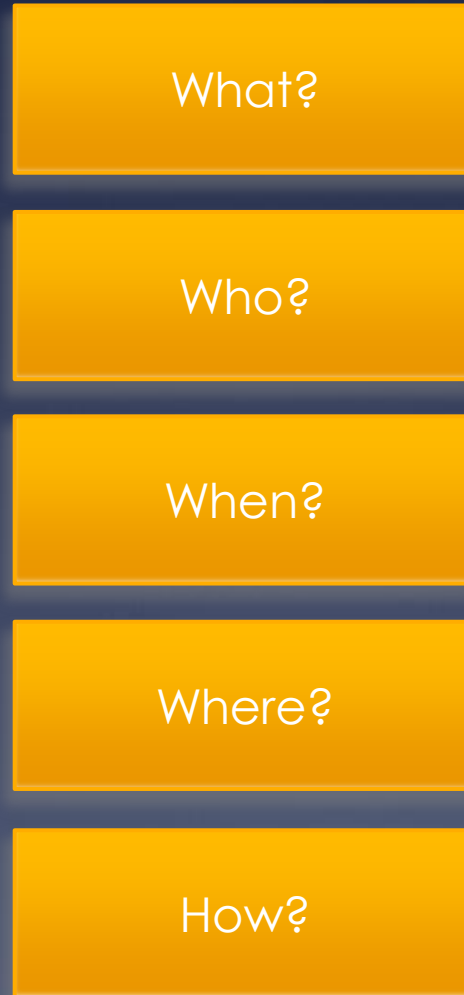
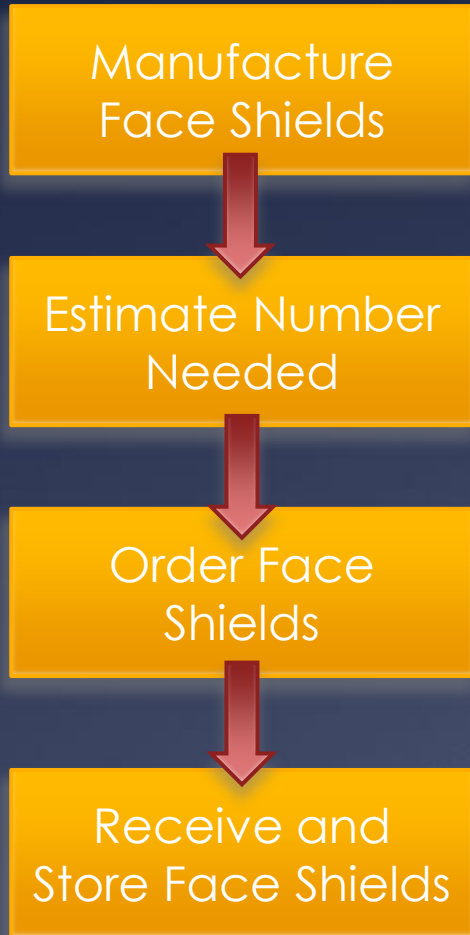
ed view into the burden of illness in each region, and the trajectory of n  
 ast 2 weeks Aug 19, 2020 - Sept 1, 2020 and the current day's change in  
 ad more than 10 new cases per 100,000 in the past two weeks.



# How Beneficial is a Face Shield?



# Process of Implementing Face shields



# Face Shields

- \* What took you so long to roll these out?
- \* **Are they mandatory?**

goggles instead?  
any fac

**YES**  
they are required for  
patients with suspected  
or confirmed COVID-19  
infection

**NO**  
they are recommended  
for all other patients

# Face Shields

- \* What took you so long to roll these out?
- \* Are they mandatory?
- \* **Can I wear goggles instead?**

- \* How should I store my face shield when not in use?



# Face Shields

- \* What took you so long to roll these out?
- \* Are they mandatory?
- \* Can I wear goggles instead?
- \* **How should I store my face shield when not in use?**



# Masks

- \* **How long can I wear a surgical or N95 mask before it should be changed?**

Less if soiled, damaged, or otherwise doesn't fit face well anymore

**One  
Day**

More if you didn't wear it much during the day, it still fits, and it remains in good condition

- \* Can my mask transmit COVID-19 from one patient to another?
- \* Are PAPR available? Should I consider wearing one?



# Masks

- \* How long can I wear a surgical or N95 mask before it should be changed?
- \* **Can I use an N95 mask for sick patients and a medical mask for healthy patients?**
- \* I participated in the RESPECT study, and the mask was different. Is our yellow medical mask equivalent to the one that I used back then?
- \* Can my mask transmit COVID-19 from one patient to another?
- \* Are PAPR available? Should I consider wearing one?

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# ASTM F2100-11: Standard Specification for Performance of Materials Used in Medical Face Masks

TEST	LEVEL 1 BARRIER	LEVEL 2 BARRIER	LEVEL 3 BARRIER
Fluid Resistance	80 mmHg	120 mmHg	160 mmHg
Breathability	< 4 mm H <sub>2</sub> O	< 5 mm H <sub>2</sub> O	< 5 mm H <sub>2</sub> O
Bacterial Filtration 3µm	≥ 95%	≥ 98%	≥ 98%
Particle Filtration 1µm	≥ 95% @ 0.1 micron	≥ 98% @ 0.1 micron	≥ 98% @ 0.1 micron
Flammability	Class 1	Class 1	Class 1

Current masks
ResPECT masks

# Masks

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# COVID-19 Transmission



# Masks

## OPTIONS:

1. visit COSH during business hours to be fit tested to another mask;
2. consider a surgical mask plus faceshield if you do not perform AGP;
3. talk with your supervisor about alternate patient assignments; and
4. ask Central Supply if a reprocessed mask is available for you.

**\* Are PAPR available? Should I consider wearing one?**

# Personal Protective Equipment

- \* **How effective is PPE?**
- \* **What is my risk of developing COVID-19 if I wore a medical mask, and the patient ended up having COVID-19?**
- \* How can I get one-on-one PPE training?
- \* What PPE needs to be worn for
  - \* Taking vital signs
  - \* Measuring height and weight
  - \* Drawing labs

# WHEN EVERYTHING GOES WRONG

I didn't wear  
**ANY** mask.

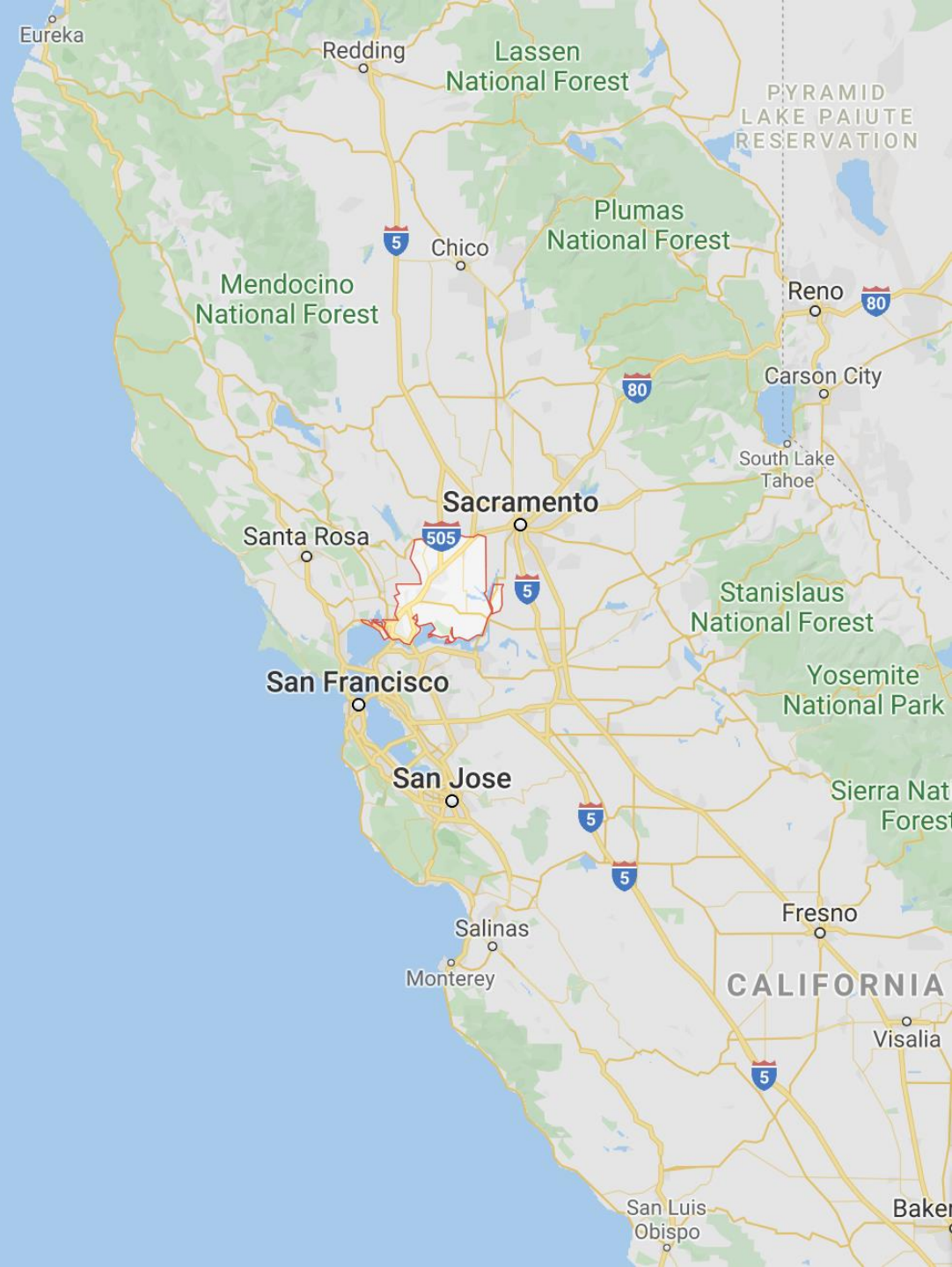


I wore the  
**WRONG**  
mask.



# HCW Transmission, Solano County

- \* 121 HCW exposed to first recognized US patient w COVID-19
- \* 43 develop symptoms; 3 tested positive (2.5%)



# HCW Transmission, Solano County

**TABLE 3. Reported personal protective equipment (PPE) use and exposure characteristics among 37 health care personnel (HCP) who were tested for SARS-CoV-2 and participated in interviews — Solano County, California, February 2020**

Exposures	No./Total no. (%)		p-value
	HCP with COVID-19	HCP without COVID-19	
<b>Reported always* using specified PPE during AGPs<sup>†,§</sup> with index patient</b>			
Gloves	2/2 (100)	10/16 (63)	0.53
Facemask	0/2 (0)	3/16 (19)	1.00
<b>Reported always* using specified PPE during non-AGP activities<sup>†</sup> with index patient</b>			
Gloves	3/3 (100)	21/34 (62)	0.54
Facemask	0/3 (0)	3/34 (9)	1.00
<b>Duration of exposure to index patient</b>			
<b>Longest single duration of time in room (mins)</b>			
<2	0/3 (0)	2/34 (6)	0.70
2–30	2/3 (67)	23/34 (68)	
31–60	0/3 (0)	4/34 (12)	
>60	1/3 (33)	3/34 (9)	
<b>Median (IQR) total estimated time in patient room, mins</b>	120 (120–420)	25 (10–50)	0.06
<b>Median (IQR) total estimated time in patient room during AGPs, mins<sup>¶</sup></b>	95 (0–160)	0 (0–3)	0.13
<b>Came within 6 ft of index patient</b>	3/3 (100)	30/34 (91)	1.00
<b>Reported direct skin-to-skin contact with index patient</b>	0/3 (0)	8/34 (24)	1.00
<b>Index patient either masked or on closed-system ventilator when contact occurred</b>			
Always	0/3 (0)	7/34 (23)	0.58
Sometimes	2/3 (67)	10/34 (32)	
Never	1/3 (33)	14/34 (45)	

**Abbreviations:** AGPs = aerosol-generating procedures; COVID-19 = coronavirus disease 2019; IQR = interquartile range.

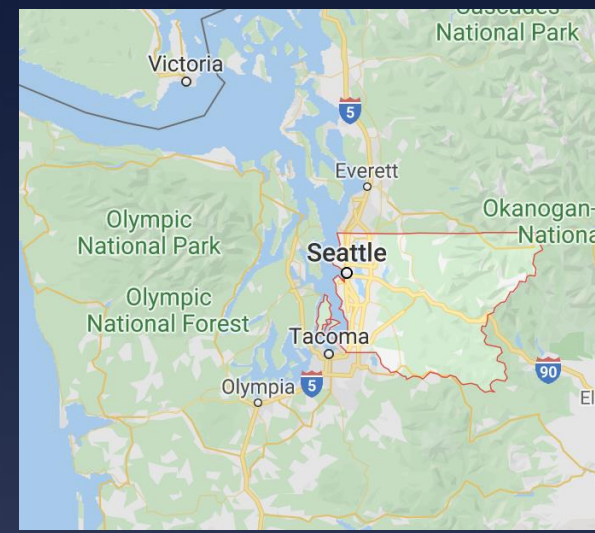
\* Versus sometimes or never.

† No HCP reported use of gowns, N95 respirators, powered air-purifying respirators (PAPRs), or eye protection during any patient care activities for index patient.

§ Denominators for PPE use during AGPs are numbers of HCP exposed to AGPs.

¶ This was estimated by asking each interviewed staff member to report the number and average duration of each exposure to the patient during AGPs. Total estimated duration for each AGP was calculated by multiplying the number of exposures by average duration of exposure during that AGP. Total estimated exposure time for

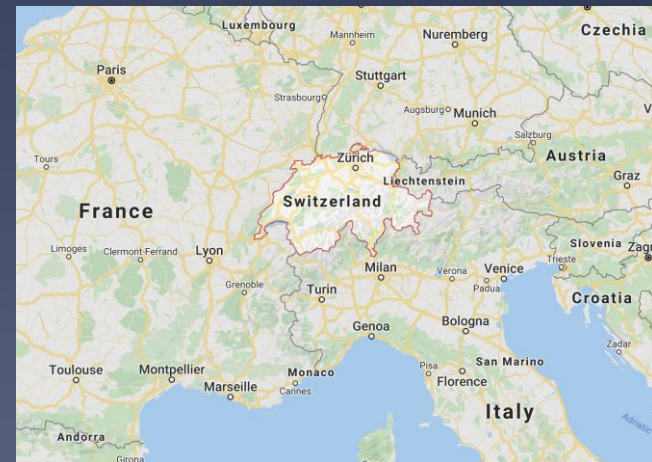
# HCW Transmission, King County WA



- \* Long term care facility
- \* Feb 28: 1 resident and 1 HCW were diagnosed w COVID-19
- \* Mar 13: 167 people associated with the facility diagnosed w COVID-19 including 50 HCW
- \* Staff worked while ill, unfamiliar w PPE, didn't use PPE regularly, reported PPE shortages (particularly eye protection), worked at multiple facilities

# Exposure in Primary Care, Switzerland

- \* Index case exposed 21 HCW
- \* None of HCW wore masks (or any PPE)
- \* 10 HCW had at least 15 minutes of face-to-face contact with patient
- \* Three HCW developed symptoms, none tested positive
- \* All 21 HCW were tested at 7 days, none were positive



# Transmission to HCW

**I didn't wear ANY  
mask.**

Transmission from patients  
can occur, but it is not very  
common

Associated with long  
durations of unprotected  
exposure, particularly during  
AGP



# WHEN EVERYTHING GOES WRONG



I didn't wear  
**ANY** mask.



I wore the  
**WRONG**  
mask.

# ResPECT study

- \* N95 vs medical mask
- \* Cluster-randomized multisite study, 2011-2016

Outcome	N95 mask n = 2,243	Medical mask n = 2,446	Odds ratio	95% CI
Lab confirmed influenza	8.2%	7.2%	1.14	NS
Acute respiratory illness	61.9%	64.1%	0.99	NS
Influenza-like illness	5.1%	6.2%	0.87	NS
Lab-confirmed respiratory illness	14.8%	15.6%	0.97	NS
Lab-detected respiratory infection	27.0%	27.9%	0.99	NS

# Meta-analysis: acute respiratory infection

- \* Articles published between 1990 and 2014
- \* 6 clinical and 23 surrogate exposure studies
- \* N95 vs medical mask
  
- \* Lab-confirmed resp infection: OR 0.89 (NS)
- \* Influenza-like illness: OR 0.51 (NS)
- \* Workplace absenteeism: OR 0.92 (NS)



# Transmission to HCW

**I wore the WRONG  
mask.**

Studies show a slight trend toward better protection with N95 mask, but no results have been statistically significant.

I didn't  
wear  
**ANY**  
mask.

I wore  
the  
**WRONG**  
mask.

## WHEN EVERYTHING GOES WRONG

Take a few deep breaths!

A Mask is better than No Mask.

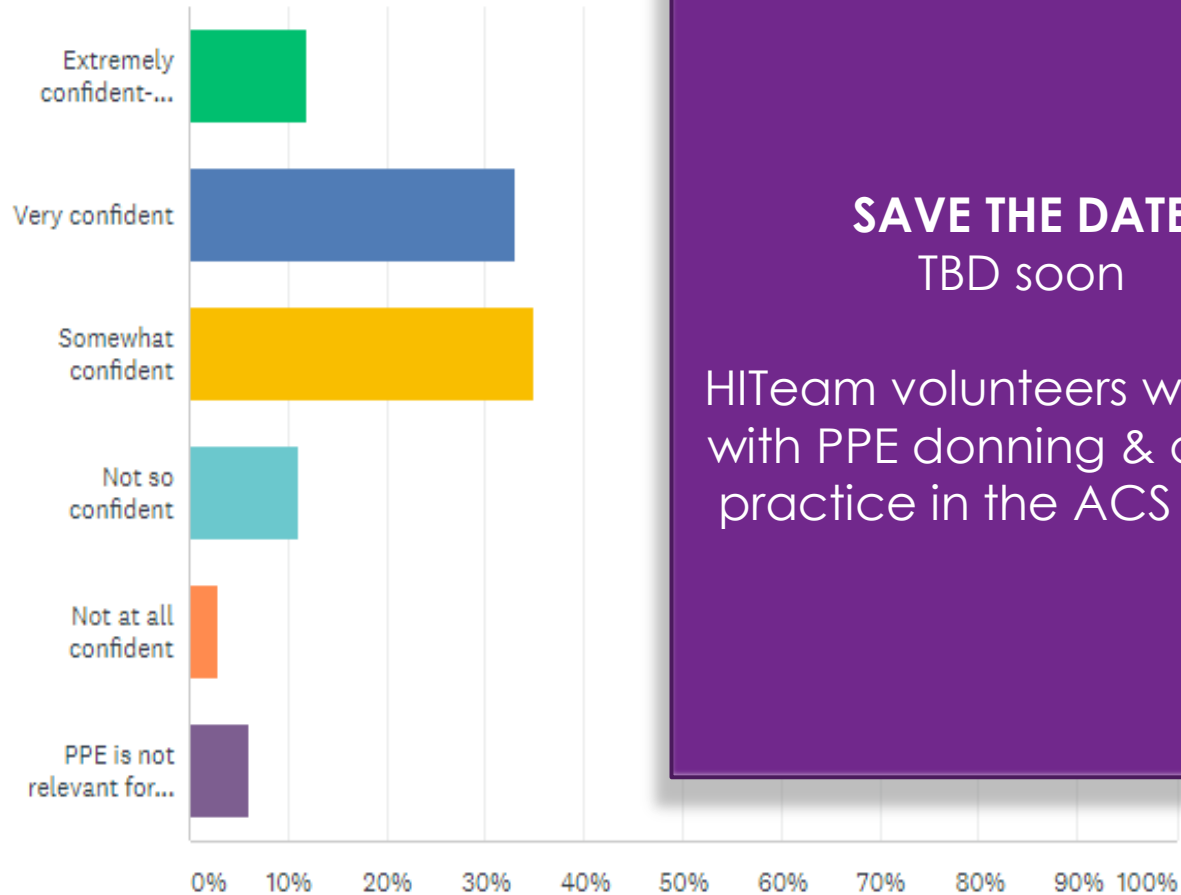
Even without a mask, you probably need to have prolonged contact to develop COVID-19

# Personal Protective Equipment

- \* How effective is PPE?
- \* What is my risk of developing COVID-19 if I wore a medical mask, and the patient ended up having COVID-19?
- \* **How can I get one-on-one PPE training?**
- \* What PPE needs to be worn for
  - \* Taking vital signs
  - \* Measuring height and weight
  - \* Drawing labs

# How confident are you with using personal protective equipment (PPE) (including properly putting it on and taking it off) to keep yourself safe?

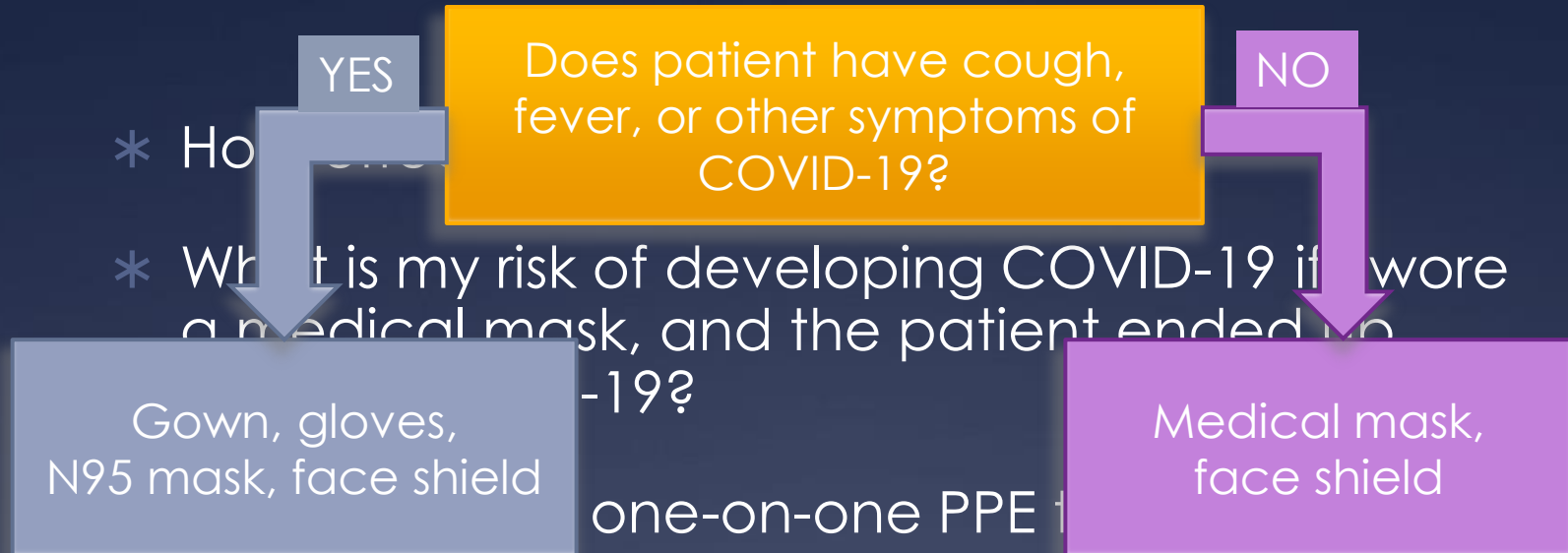
Answered: 100 Skipped: 0



**SAVE THE DATE**  
TBD soon

HiTeam volunteers will assist with PPE donning & doffing practice in the ACS clinics

# Personal Protective Equipment



- \* **What PPE needs to be worn for**
  - \* **Taking vital signs**
  - \* **Measuring height and weight**
  - \* **Drawing labs**

# Social Distancing

- \* How close can staff sit together if we are all wearing masks?
- \* How can I address a coworker who doesn't wear their mask?



$$\text{Area} = \pi r^2 = \pi \times 3^2 = \sim 28 \text{ ft}^2$$

**25-30 ft<sup>2</sup> per person**

# Social Distancing

I understand how hard it is to wear a mask all the time. If you need a break from your mask, would you mind stepping outside until you're ready to wear it again?

I wish that we could go back to normal interactions, but we aren't there yet. Could you please put your mask on to keep everyone safe?

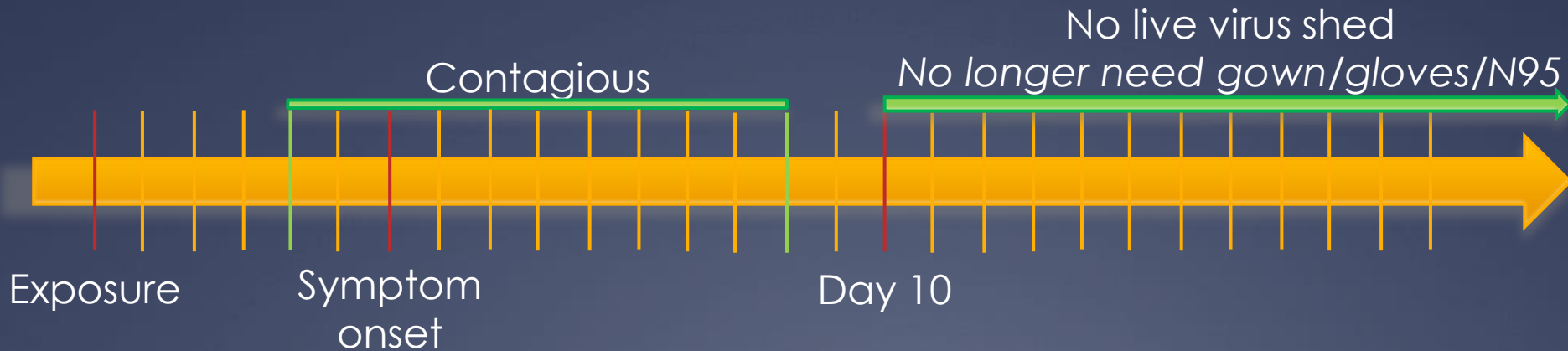
## PRINCIPLES:

- 1) Set a good example
- 2) Be polite
- 3) Acknowledge it's a hard time
- 4) Say something when it really matters

I know it's uncomfortable to wear a mask all day, but COVID isn't gone yet. Would you mind putting your mask back on?

# Contagious Questions

- \* When is a patient considered contagious with COVID-19?
- \* When is a patient considered to be no longer contagious with COVID-19?





# Other

- \* **Are antibody tests available to Denver Health employees?**

Lab offers an antibody test.

Your PCP can order it.

**How do you use the results of the test?**

# Other

## WHAT I KNOW

- 1) CDPHE is working on a prioritization process to determine who would benefit most from a COVID-19 vaccine, in the case of limited vaccine availability
- 2) Denver Health is planning for how to provide a COVID-19 vaccine to employees if/when one is available; we would model after flu vaccine administration.

## WHAT I DON'T KNOW

- I don't know if it will be required.
- I don't know when it will be available.
- I don't know if it is an annual vaccine or a one-time.
- I don't know if it is free.
- I don't know who would be eligible to get it first.

Privacy of the individual is important!

Prevention Practices Do Not Change.

- 1) Wear a mask
- 2) Stay 6 feet apart whenever possible
- 3) Wash hands in accordance with 5 Moments of WHO
- 4) Report any symptoms consistent with COVID to the Employee Survey

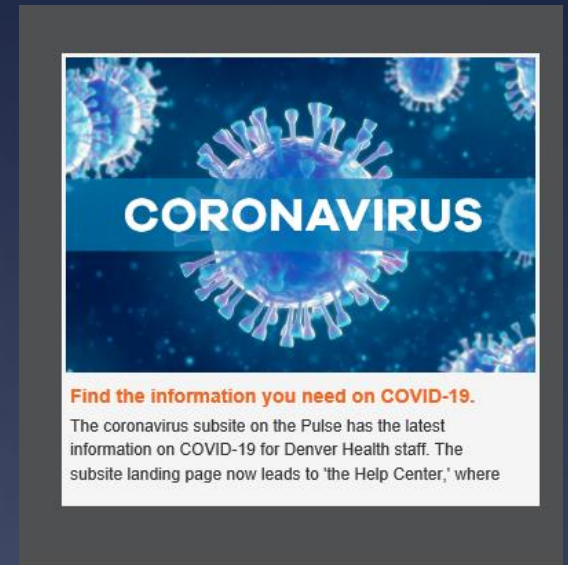
\* **Why are we not notified if a patient or coworker develops COVID-19?**

A circular graphic with a blue background. At the top, the text "STAFF HEALTH SURVEY" is written in a white arc. In the center, there is a white silhouette of a person wearing a face mask and holding their hand to their face. Below the silhouette, the text "Feeling symptoms?" is written in white. At the bottom of the circle, there is a red rectangular button with the white text "TAKE THE SURVEY".

**Report any new symptoms before your shift.**  
All Denver Health staff members—including full-time and part-time employees, contractors, students, residents, and volunteers, are required to self-monitor for COVID-19

# Other Resources

- \* COVID-19 subsite of the Pulse
- \* Infection Prevention  
[InfectionPrevention@dhha.org](mailto:InfectionPrevention@dhha.org)  
x 2BUGS
- \* [COVID-19@dhha.org](mailto:COVID-19@dhha.org)



THANK YOU!