EAST BAY GETTING TO ZERO

The low-down on Masking Up for COVID-19

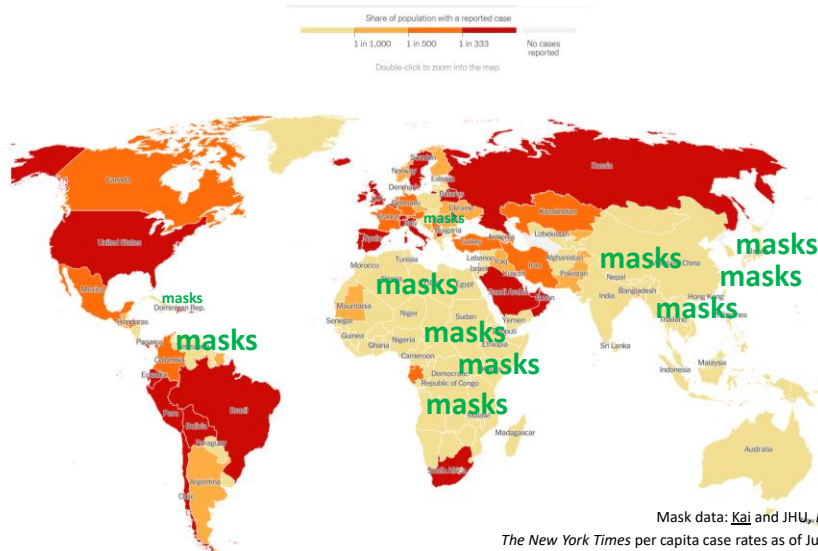The science behind masks → How to make, wear & care for masks → Ask Dr. Mask! Questions & answers

July 7, 2020
Sophy S. Wong, MD

There are lower COVID case rates in places where everyone wears masks.

Mask data: Kai and JHU, *Economist*
The New York Times per capita case rates as of July 6, 2020

Universal masking has the biggest impact of the COVID-19 harm reduction strategies studied.

Strategy	% reduction
1. Masking	60-95%
2. Distancing	53-88%
3. Eye protection	78%
4. Hand hygiene	28-45%
5. Case isolation	33%
6. Contact tracing	10-20%

Data compiled by Sophy S. Wong, MD
Icons by Freepik and Srip on Flaticon.com
Please see EBGTZ.org/resources for the complete list of sources for this table.

The top 3 things people should know about the spread of COVID-19:

People without symptoms spread COVID-19

COVID-19 is transmitted by respiratory droplets

Face coverings effectively block transmission
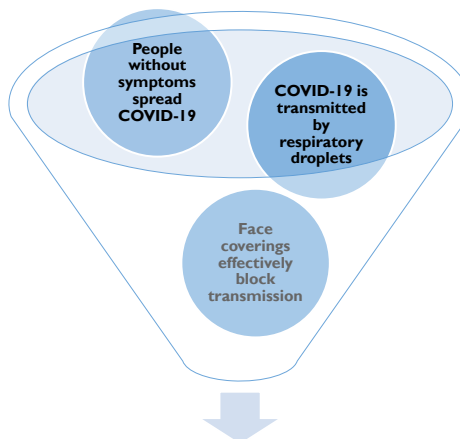
If everyone wears face coverings, we can stop the spread of COVID-19.

Many people with COVID-19 <u>do not have symptoms</u> at the time they test positive- up to 88%!

Diamond Princess: COVID-19 was hiding in plain sight

46.5% (331) of those with positive test results were asymptomatic when they were tested.

Statistical modeling suggests "that **17.9%** of infected persons **never developed symptoms.**"

Barrylb/Wikimedia Commons

MDedge News

Note: Among 3,711 passengers and crew, 712 (19.2%) tested positive for COVID-19.
Source: MMWR. 2020 Mar 23;69[early release]:1-6

COVID-19 transmission is primarily by respiratory droplets and may become airborne as microdroplets.

Microdroplet study from Morawska, *CID,* July 6, 2020; Image from *Condair UK*

Respiratory droplets can travel 30+ feet

1.5   5.5   9.5 *meters (31 feet)*
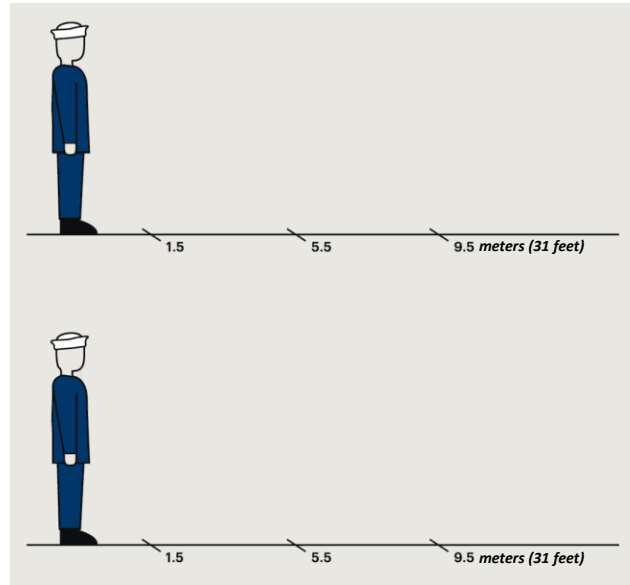
1.5   5.5   9.5 *meters (31 feet)*

Image from Dr. Atul Gawande's article in *The New Yorker*

Respiratory droplets: a sneeze at 3 feet (40,000 droplets)
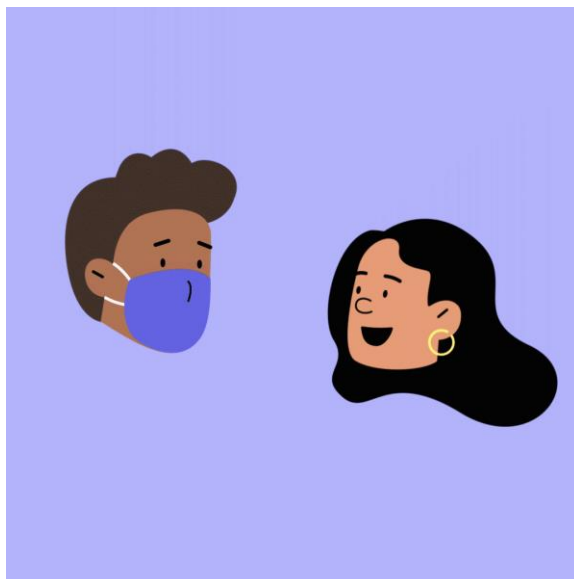

Approximately 50 cm (20 in)

Close-up view of emission within 50 cm (20 in) from a healthy person during a violent exhalation (sneeze), originally recorded at 2000 frames per second; actual duration is 0.25 seconds

Bourouiba, *JAMA*

3. Face coverings are effective in blocking droplets (even homemade ones!)

3. Face coverings are effective in blocking droplets (even homemade ones!)

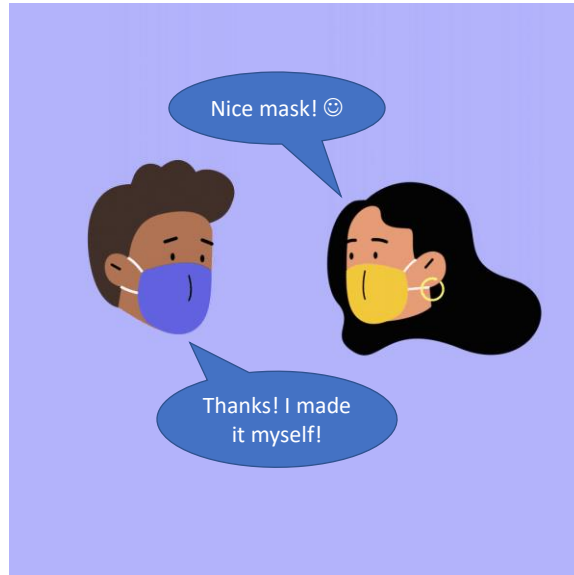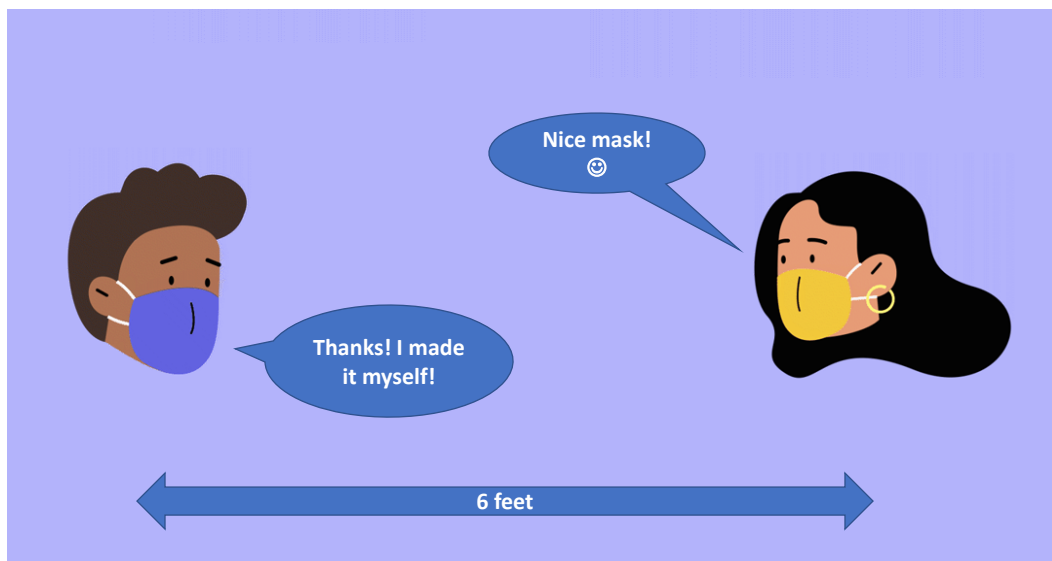**3. Face coverings are effective in blocking droplets (even homemade ones!)**

3. Face coverings are effective in blocking droplets (even homemade ones!)

3. Face coverings are effective in blocking droplets (even homemade ones!)

No masks

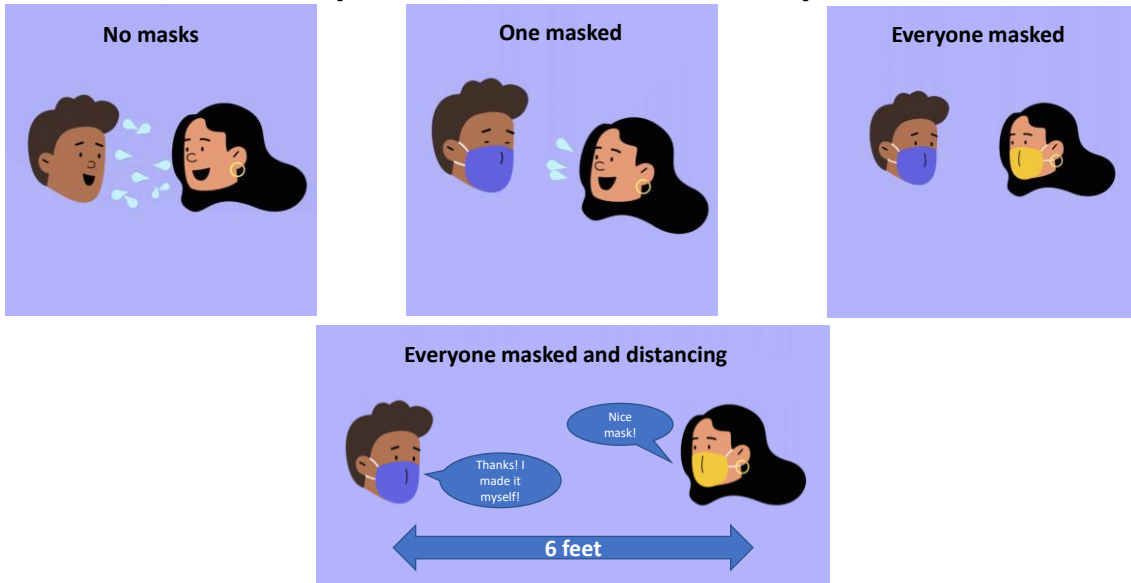**One masked**

Everyone masked

Everyone masked and distancing

Nice mask!

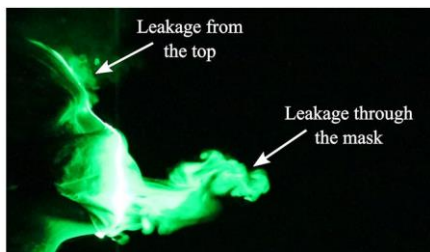Thanks! I made it myself!

6 feet

We can make our own effective masks!

DIY instructions: CDC (easy no-sew), Maker Mask (sewn, science-based), Olson Mask (sewn)

Effectiveness of homemade mask types:

Type of mask/cover	Distance droplets traveled
Uncovered cough	96 inches (8')
Bandana (knit blend)	43 inches (3'7")
Folded cotton handkerchief	15 inches (1'3")
Store-bought cone mask	8 inches
Stitched cotton mask	2.5 inches

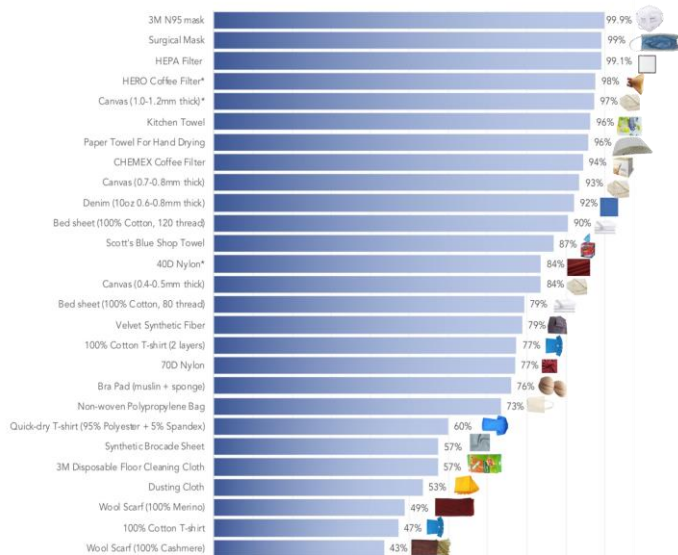**Folded handkerchief: 15"**   **cone mask: 8"**   **stitched mask: 2.5"**

Verma, *Phys. Fluids*

Filtering effectiveness of materials:

DIY Mask Materials Did Much Better At Filtering Out 1.0 Micron Paricles The Size Of Ebola Virus

Recommended materials:

←Paper towel
(as single-use filter)

←Bed sheet
(80-120 thread cotton)

←T-shirt (2 layers)
← Polypropylene

Recommended materials chosen by Sophy S. Wong, MD based on their combined effectiveness, breathability and household availability.
Image from smartairfilters.com

Recommendations for materials:

1. Wear what you're comfortable with!

2. Non-woven polypropylene (NWPP)

3. Tightly woven cotton

4. Filters: NWPP, paper towels (single-use)

Images from makermask.org and Sophy Wong, MD

Take-home points and action steps:

- **Universal masking prevents the spread of COVID-19 better than other interventions by blocking respiratory droplet transmission from people with *and* without symptoms.**

- **Make or buy masks that are comfortable to wear and ideally made out of 2-3 layers of breathable cotton and/or non-woven polypropylene.**

- **Clean your hands before and after touching your mask. Keep it fitted over your nose and mouth.**

- **Wash your masks in hot water and dry in hot dryer or sun after each use.**

EAST BAY GETTING TO ZERO
www.EBGTZ.org
#EBGTZ

ebgtz.org