Breaking the Chain of Infection in the Workplace: Masks

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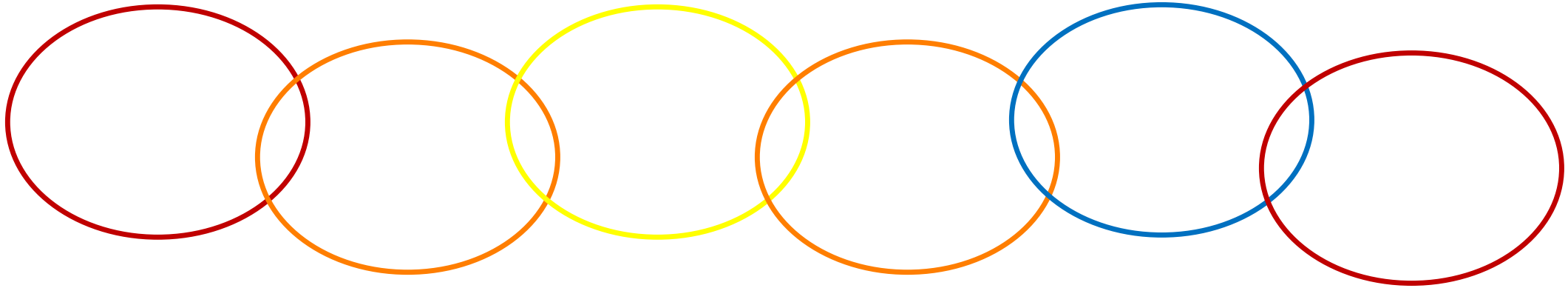
Chain of Infection



A model to conceptualize the transmission of a communicable disease from its source to a susceptible host

Can be used by health professionals to identify areas to target for prevention or management

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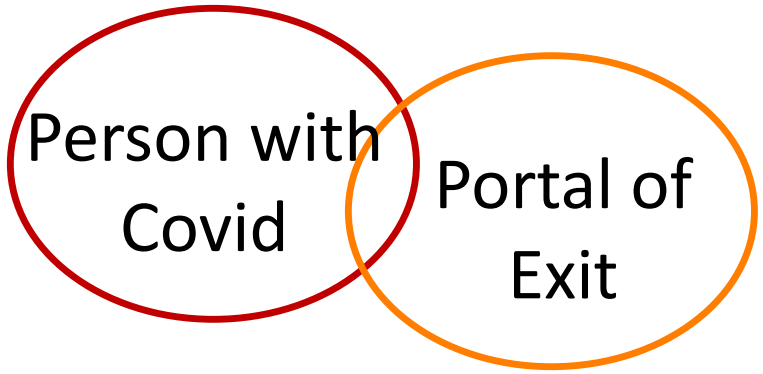
Chain of Infection

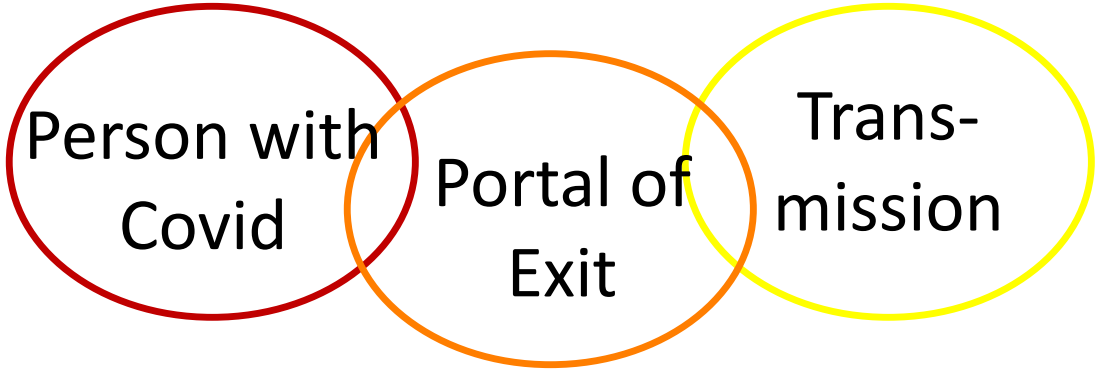
Covid-19

Reservoir – in Covid - the person who has it.

Chain of Infection



Chain of Infection



Direct

Indirect

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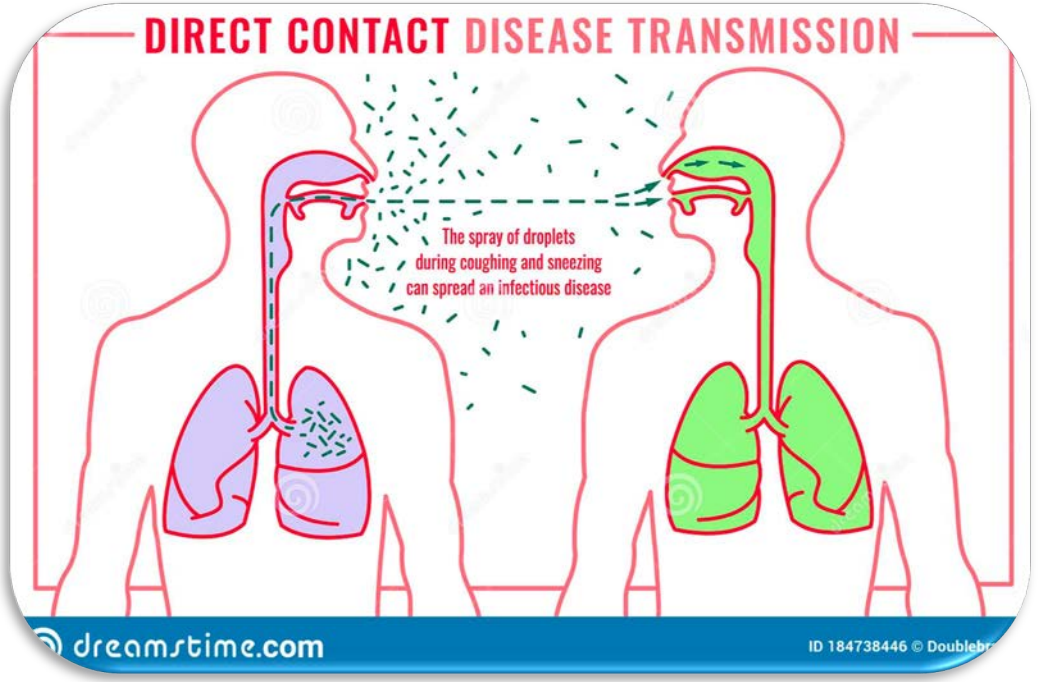
Chain of Infection

Person with Covid

Portal of Exit

Trans-mission

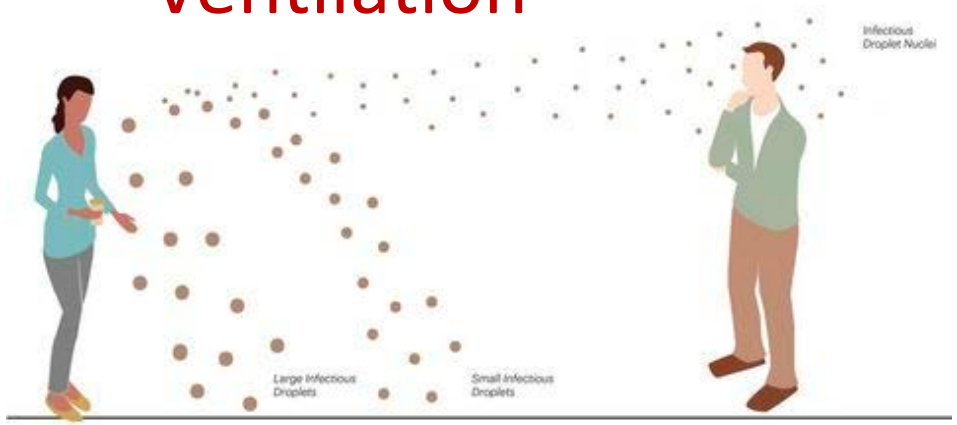
Portal of Entry



Chain of Infection

Person with Covid → Portal of Exit → Trans-mission → Portal of Entry → New Host → New Person with Covid

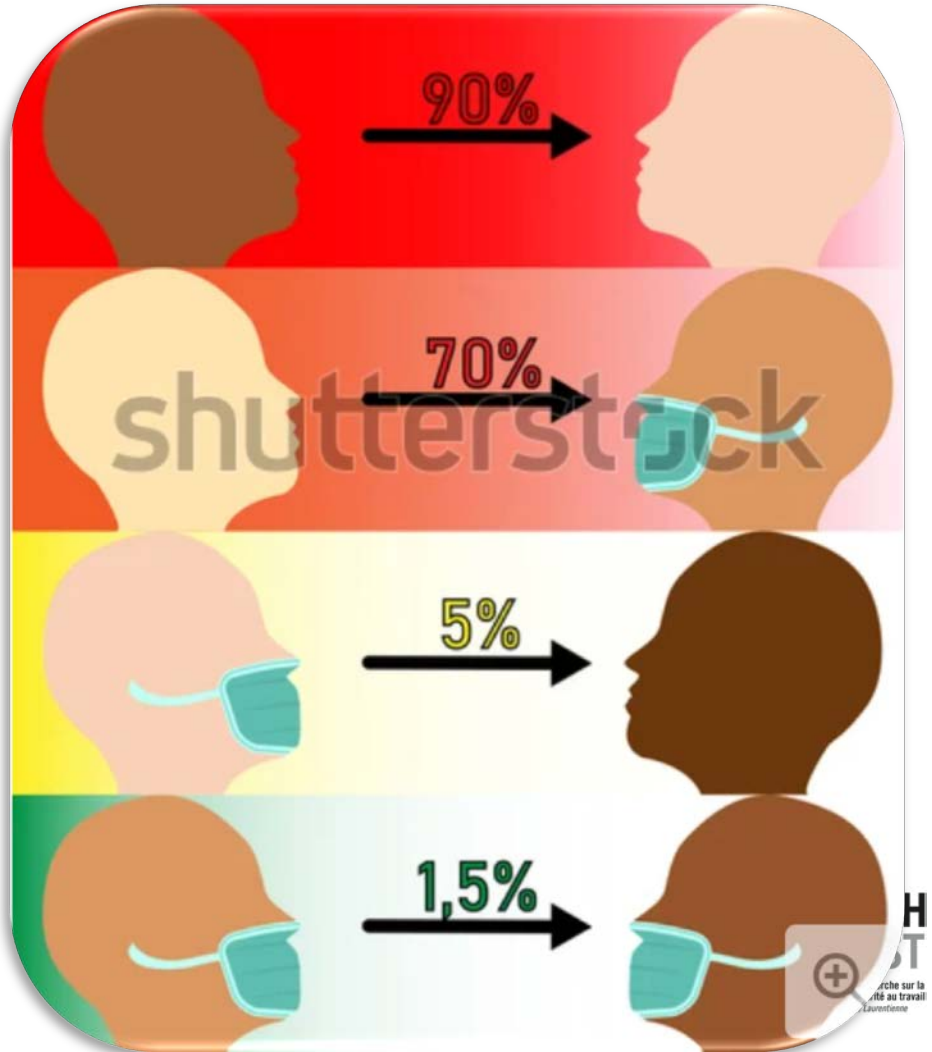
Ventilation



Role of a Mask

1. Block the Portal of Exit

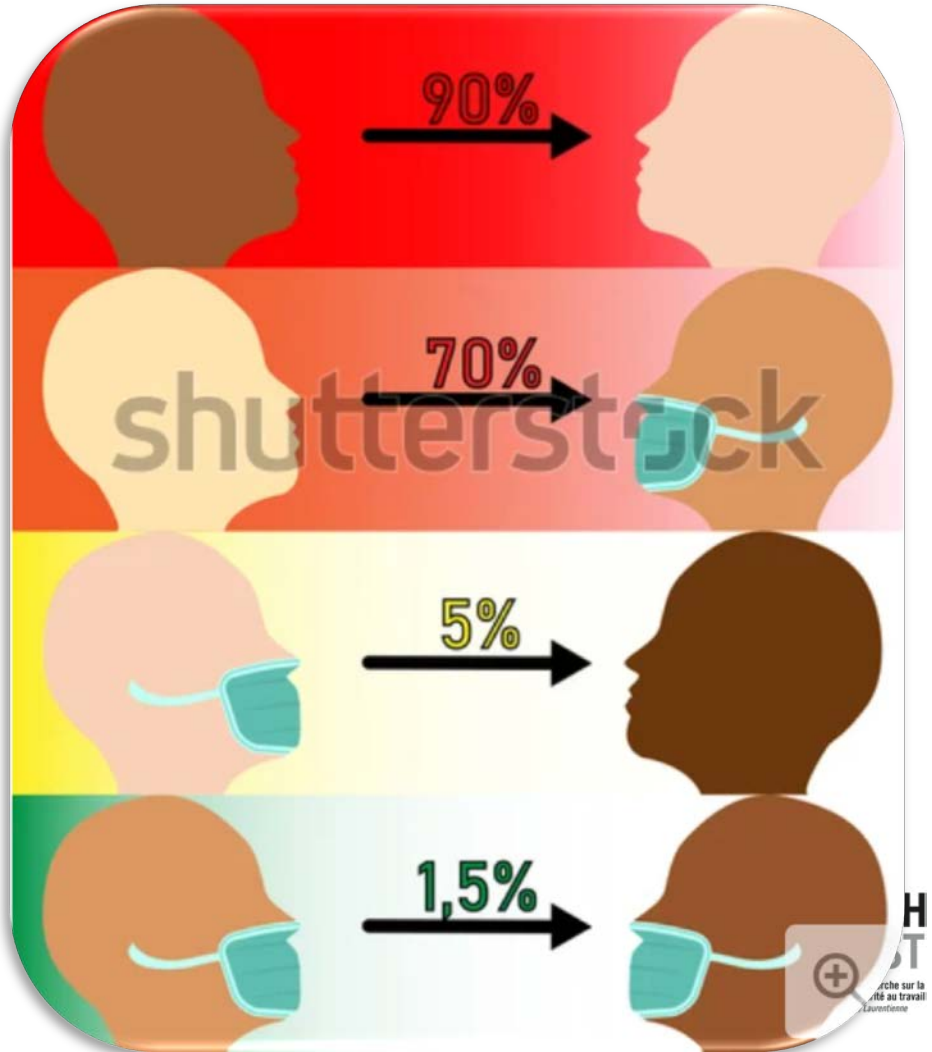
2. Block the Portal of Entry



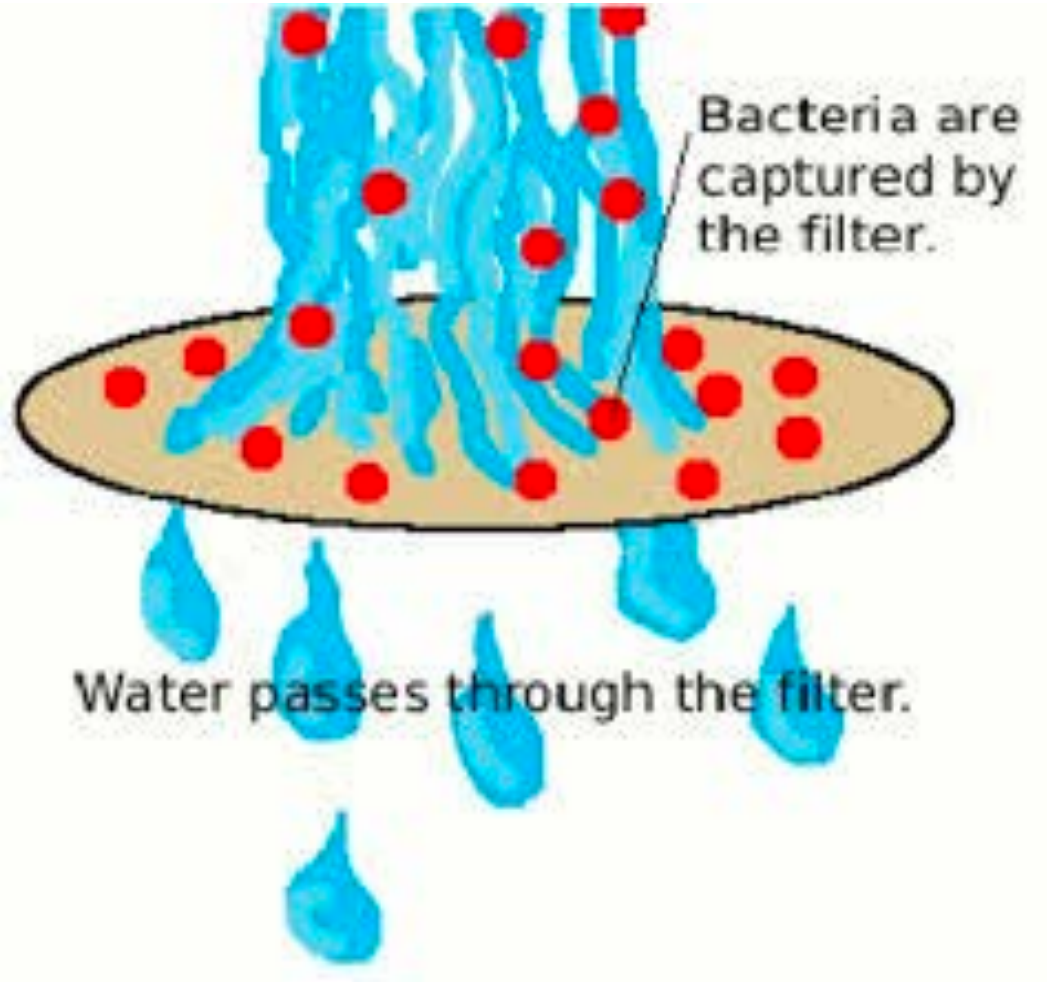
Role of a Mask

1. Protect Others

2. Protect Yourself

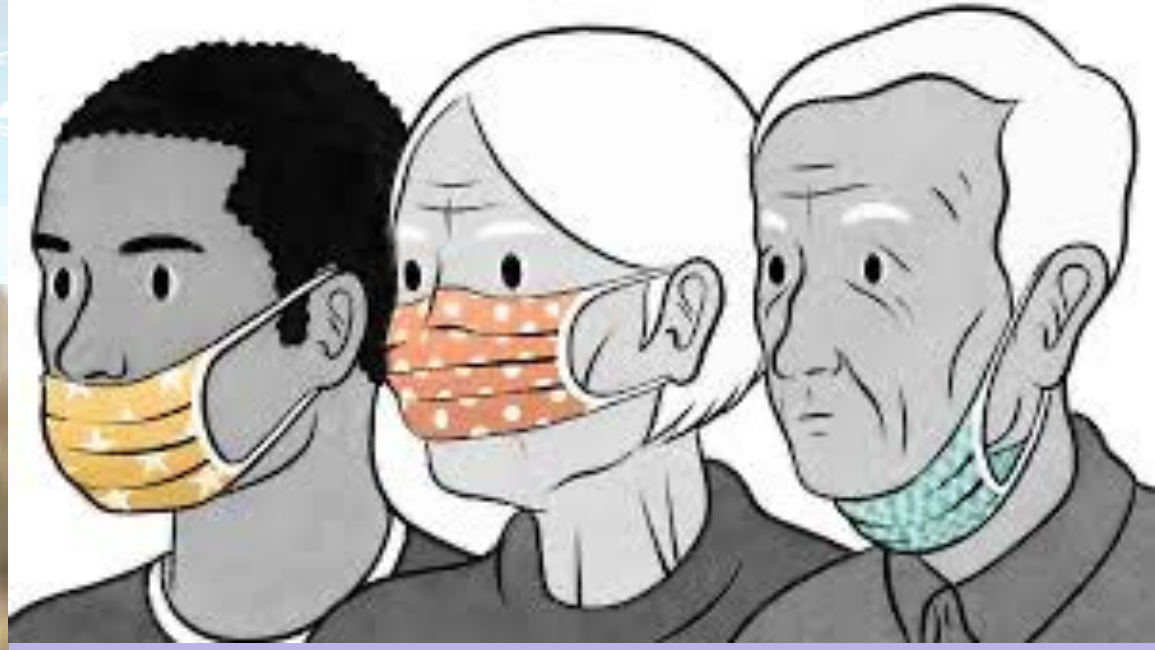


Mask Fit


Bacteria are captured by the filter.
Water passes through the filter.


miniwell

Mask Fit

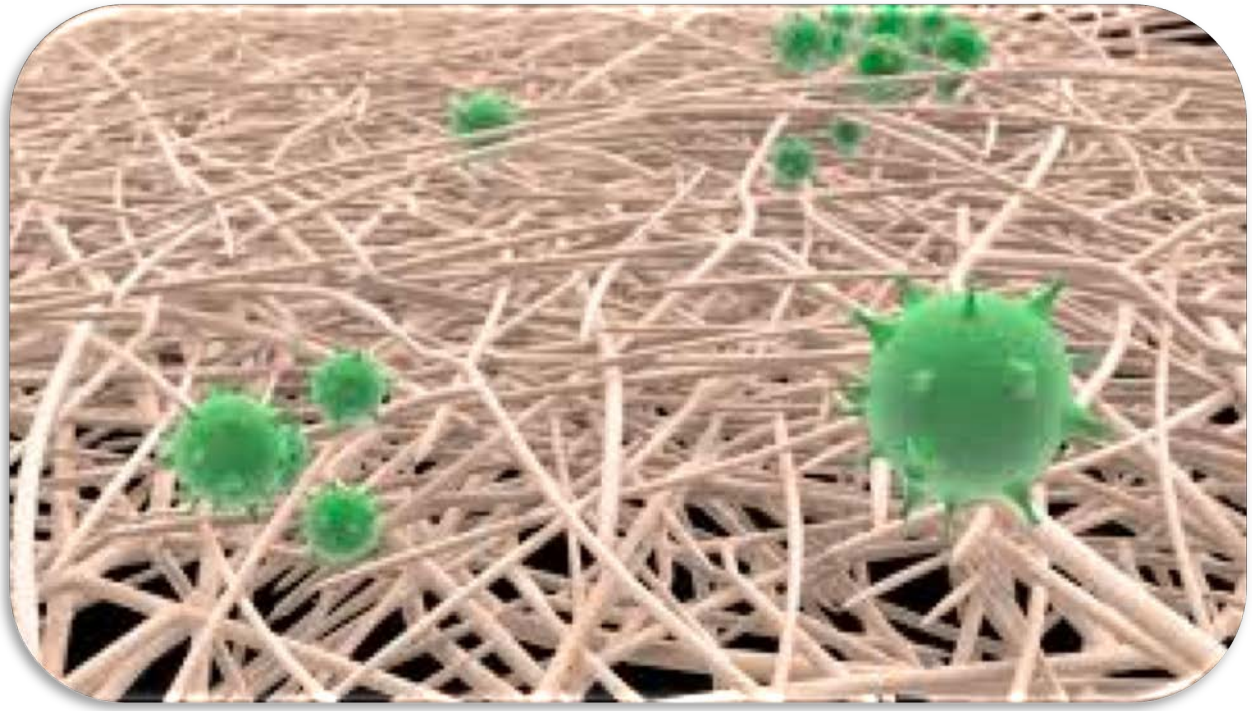



RESPIRATOR SEALING SURFACE
CLEAN SHAVEN
STUBBLE
LONG STUBBLE
FULL BEARD
FRENCH FORK

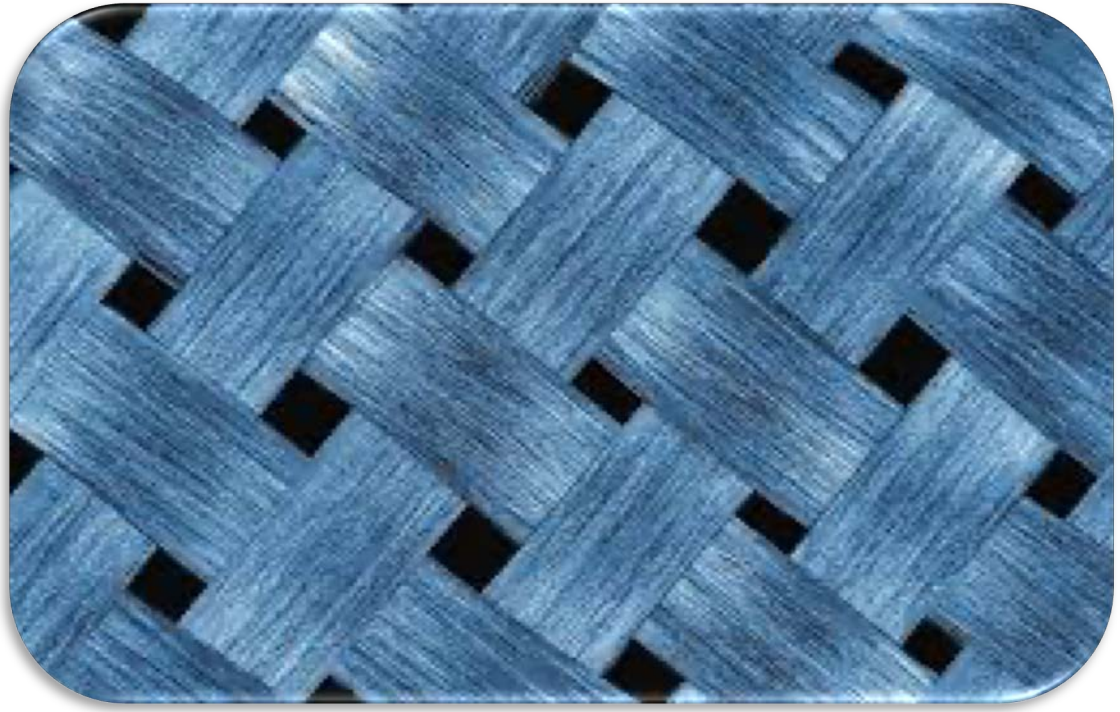
Mask Type

Filter Differences

Surgical Mask / Coffee Filter

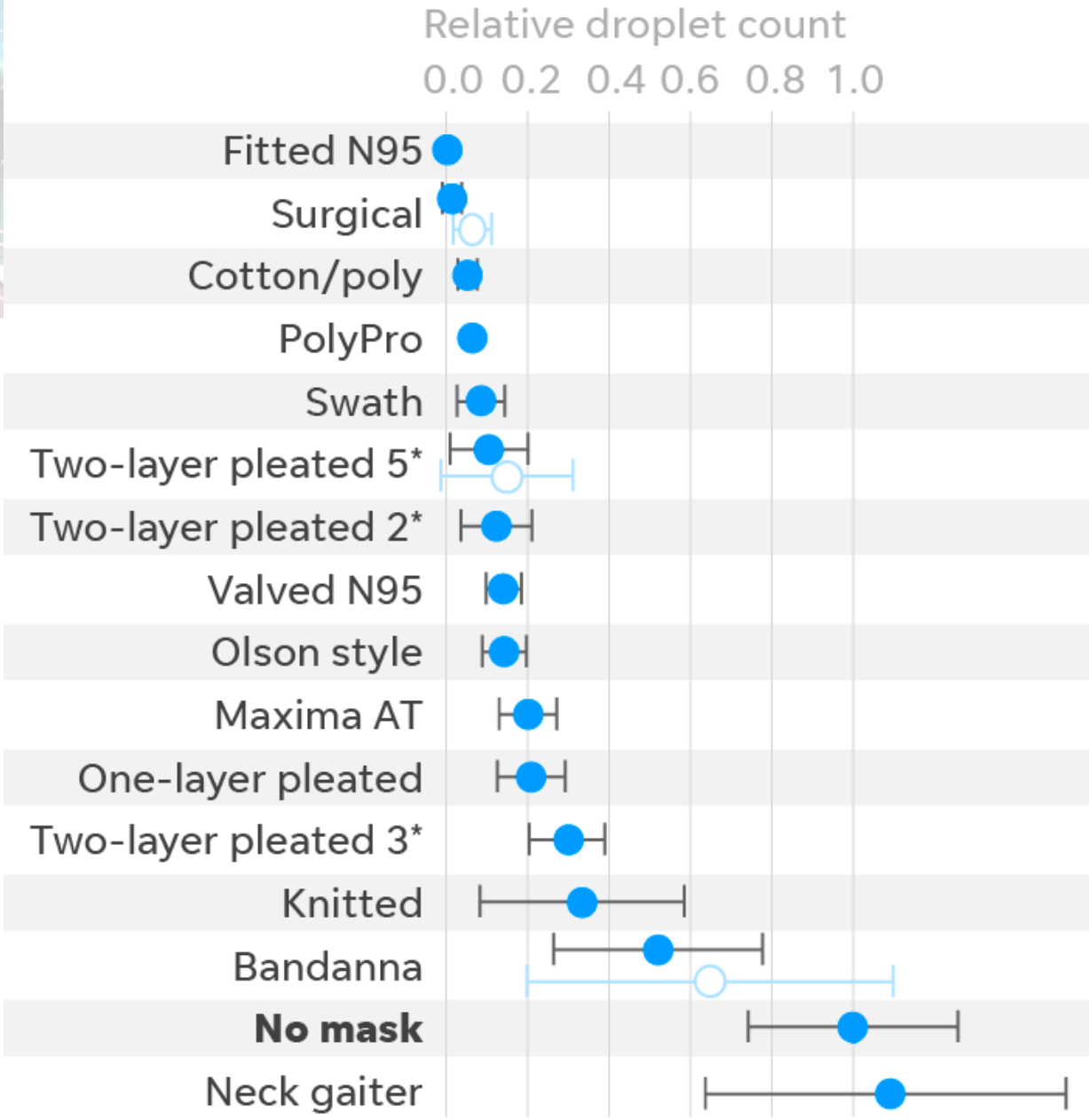


Standard Fabric - Weave



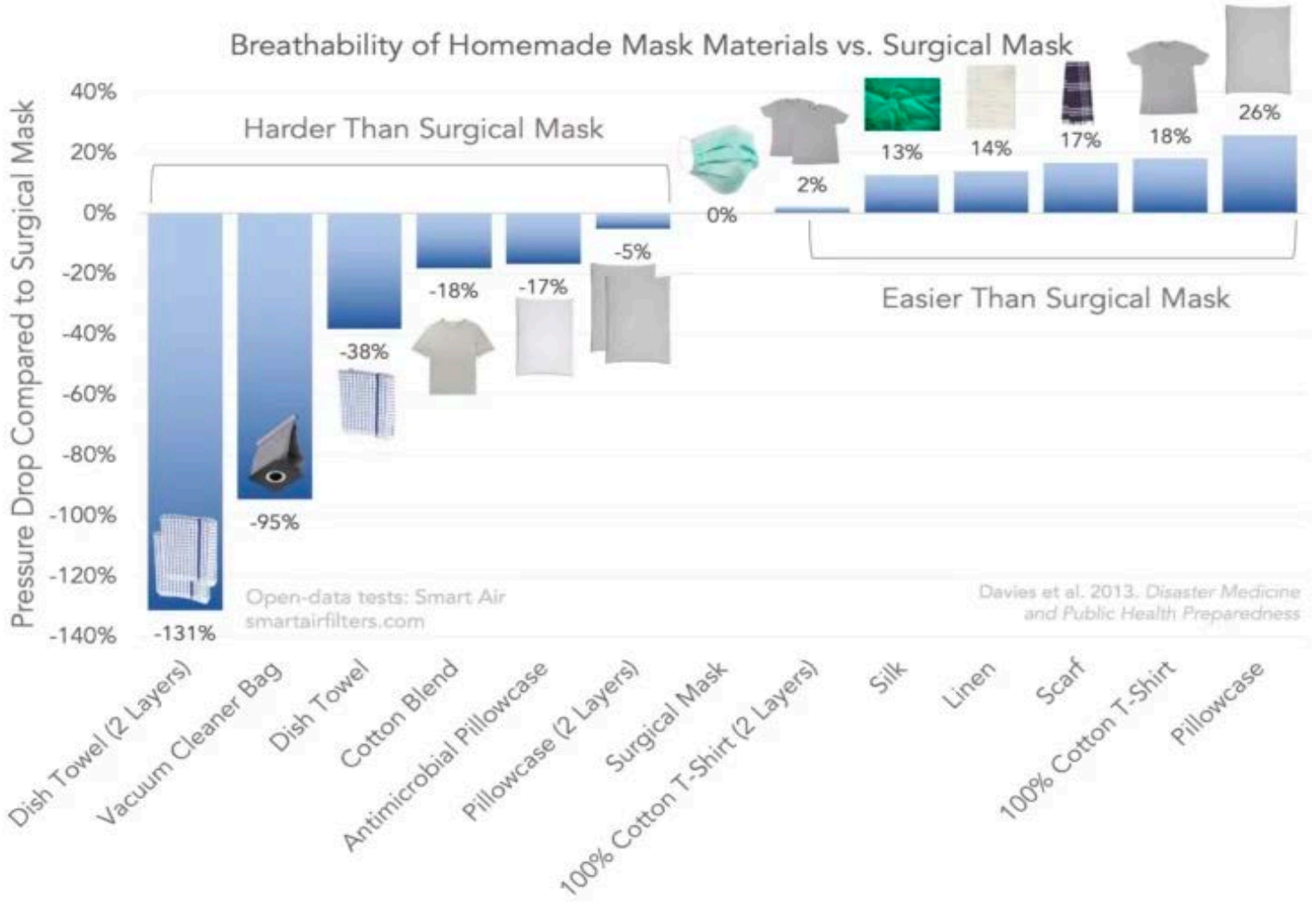
Comparing Fabrics

Ability for different fabrics to prevent particles (virus) from passing through



Fischer et al. Science Advances 2020

Breathability



smartairfilters.com

Material	Breathability
3M Disposable Floor Cleaning Cloth	++++++
Velvet Synthetic Fiber	++++++
Quick-dry T-shirt (95% Polyester + 5% Spandex)	++++++
Synthetic Brocade Sheet	++++++
Wool Scarf (100% Merino)	++++++
HEPA Filter	++++++
100% Cotton T-shirt	++++++
Non-woven Polypropylene Bag	++++++
Bandana (100% Cotton)	++++++
Wool Scarf (100% Cashmere)	++++++
Neckwarmer / Snood (100% Microfiber Polyester)	++++++
Light Scarf (100% Ramie)	++++++
Dusting Cloth	++++++
Scott's Blue Shop Towel	++++++
Canvas (0.4-0.5mm thick)	++++++
Surgical Mask	+++++
100% Cotton T-shirt (2 layers)	+++++
Bra Pad (muslin + sponge)	++++
70D Nylon	++++
Paper Towel For Hand Drying	+++
Bed sheet (100% Cotton, 120 thread)	+++
Bed sheet (100% Cotton, 80 thread)	+++
Denim (10oz, 0.6-0.8mm thick)	+++
3M N95 mask	+++
Kitchen Towel	+++
CHEMEX Coffee Filter	++
Canvas (0.7-0.8mm thick)	++
40D Nylon*	+
HERO Coffee Filter*	+
Canvas (1.0-1.2mm thick)*	+

Open Data: Smart Air

Better Than Surgical Mask

Better Than N95

Worse Than N95

Surgical Mask – Good go-to mask

Bacterial Filtration Efficiency (BFE)

Fluid Resistance

Breathability

KN95 / N95 / P100

N95 General

- Particularly if you know you are working with a person with COVID
- Should be fit tested
- If you cannot be fit tested: ensure it covers your nose and chin
- Do a seal test
- **? High activity?** – test it out on yourself

Example Cases

Example Cases

Questions:

1) WHERE: indoors or outdoors? (Ventilation)
2) WHO / HOW MANY?
3) ENGAGEMENT LEVEL? (visibility / breathability)

Further Protecting Yourself – Before and After

- How to wear a mask

- Have Hand Gel available
- Keep Spare
- Don’t wear wet

Further Protecting Yourself – Before and After

* **Especially** after engaging with a person who wasn't wearing a mask.

- Hand Hygiene

Further Protecting ourself - Face Shield / Eye Wear

Suggestion – OHS Activity

- List your most common activities (day/week)
- Pre-plan how you will manage your risk for COVID.

- **Q:** What would you do differently if you knew a person, in a specific situation, had Covid-19?
- Can you incorporate those ideas into your daily work?

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Questions?

Conference Reference

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