

#FreshAirSchools



Workplace Ventilation



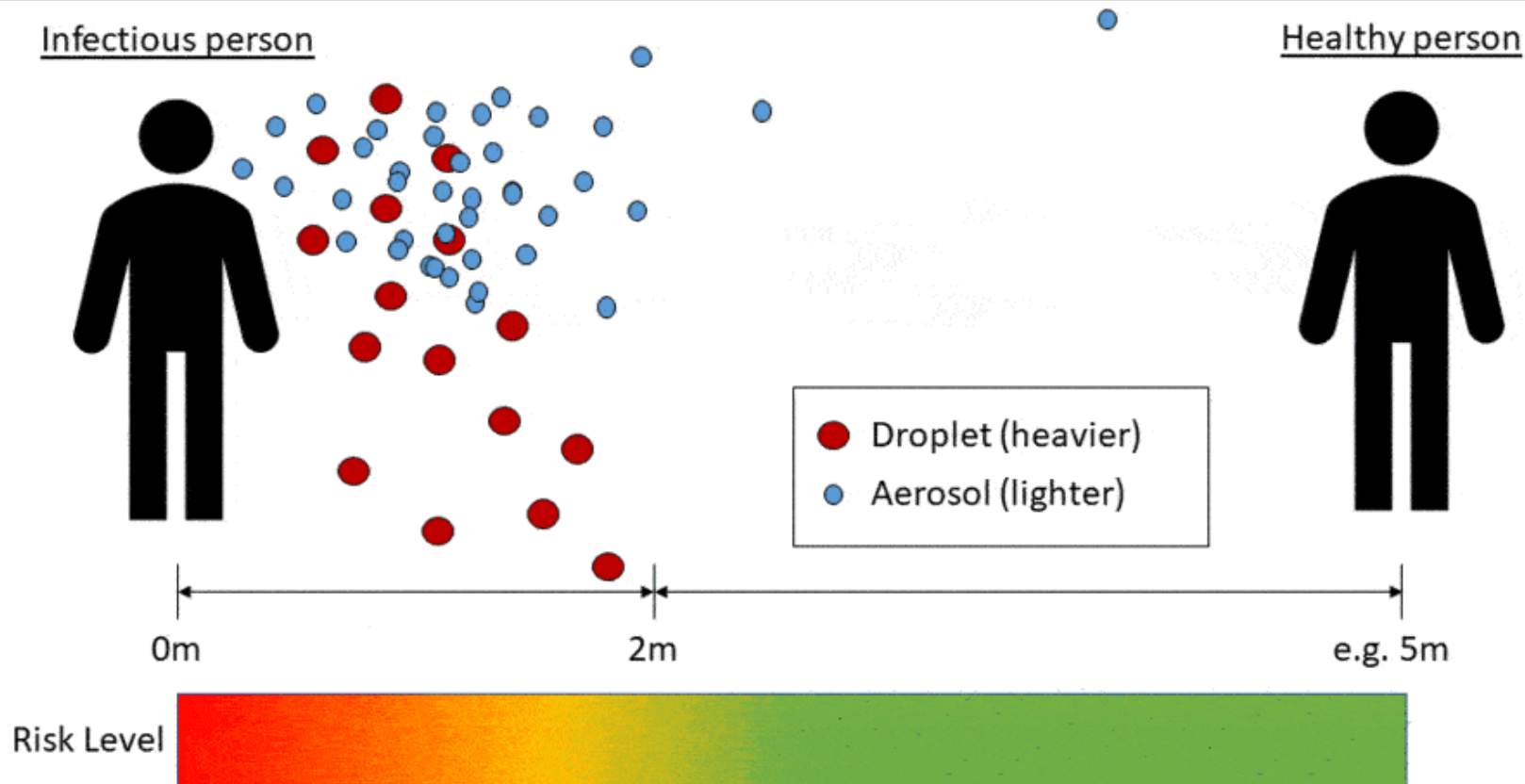
- [Parents United UK](#) - since May 2020
 - Support group - concerns about school safety during the pandemic

- CV/CEV household members - attendance, Good Law Project and Public Interest Law Centre
- Joint statement on face coverings with NEU and Deepti Gurdasani
- Open letters signed by high profile figures

- Discourage misinformation, reliable sources of information
- Studies and news stories - aerosol transmission
 - [Fresh Air Schools](#) campaign -
 - [Fresh Air NHS](#)
 - [Dr Eilir Hughes](#), [Dr Matt Butler](#) and others



Without sufficient ventilation, infectious aerosols can aggregate in the air. The greater the number of infectious aerosols in the air, the greater the risk to healthy people, even if they are further than 2m away from an infectious person.



How important is Airborne transmission?

[“Ten scientific reasons in support of airborne transmission of SARS-CoV-19”](#) - April 2021

Dominant route - indoors, asymptomatic, one person can infect many people, at distance

“an individual could potentially be infected when they inhale aerosols produced when an infected person exhales, speaks, shouts, sings, sneezes, or coughs.”

- 1) Super-spreading - long range transmission - choirs, cruise ships, meat packing factories
- 2) Room to room transmission
- 3) Approx 59% of transmission is asymptomatic or pre symptomatic - speaking few large droplets, 1000's of aerosols
- 4) Indoor much more likely than outdoor - ventilation reduces risk alot
- 5) Hospital infections where droplet and contact infection has been mitigated against

Ten Reasons

- 6) “viable SARS-CoV-2 has been detected in the air in laboratory experiments - unlike measles
- 7) Also found in hospital air filters and building ducts
- 8) Caged animal studies - cages connected by air ducts
- 9) No-one has been able to disprove it
- 10) Limited evidence to support droplet or fomite - close range transmission can also be explained by aerosols - [smoke machine](#)

[The 60-Year-Old Scientific Screwup That Helped Covid Kill](#)

Mitigating Airborne Transmission

- Face coverings helpful
- #Better Masks
 - Source control
 - [fit](#) and filter
 - [tie and tuck](#) in a pinch
 - [double masking](#)
 - face shields ineffective
 - [Plexiglass](#) - cashiers only
 - [FFP2/3, N95](#)



Figure: stills from [mask visualization video](#) showing leaks around gaps, which are major for the mask on the left, small for the mask in the middle, and not visible for the mask on the right.



Image credit @jljcolorado

Ventilation

Mechanical ventilation systems - switched to outdoor air, optimised and upgraded consult competent individual

- per [HSE](#) and [Chartered Institute of Building Services Engineers](#)

Natural Ventilation - [windows](#), trickle vents

Open vents, cross ventilation, thermal comfort open top windows small amount, purging (Lüften), fan

[NDIR CO2 monitors](#) - 800ppm good ventilation - measures rebreathed air

Risk Assessment - competent individual

Long term investment in IAQ needed

Not all outdoor air is fresh

Indoor air pollution is causing [4 million deaths a year](#)

National Engineering Policy Centre: commissioned by [Sir Patrick Vallance](#):

- [Infection Resilient Environments](#) communications for buildings managers, regulation, enforcement, retrofitting

[BESA Buildings As Safe Havens](#)

- legal standards ventilation and risk assessment approach

- “national health crisis” - cancer, lung conditions, inflammatory conditions - esp kids

- [BESA’s Introduction to Indoor Air Quality](#), [BESA’s Good Practice guide for IAQ](#) and 3rd Guide due early 2022, covering assessment and technological solutions

Independent SAGE [“Scores On The Doors”](#) proposal on public communications scheme - get involved

Air Cleaning Technologies - if ventilation is poor

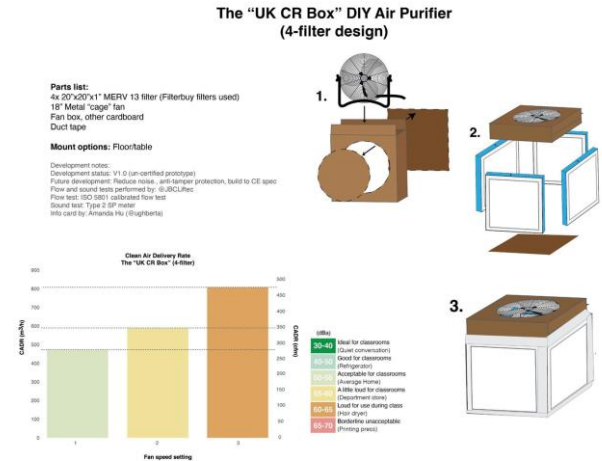
Might be integral to Mech Vent - MERV filters, UVC etc.

Portable options

- HEPA - High Efficiency Particulate Air - like a sieve!
 - UVC - must be integral not exposing people
 - Ionisation and plasma not recommended in portable units, adding chemicals to the air
 - “True HEPA” OK - “HEPA-like” no
 - Keep it simple - stick to CIBSE/HSE ventilation guidance
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- Sized to the room - [CIBSE](#) air cleaners guidance, clarified [here](#)
 - Look for the CADR of a unit - Clean Air Delivery Rate CADR m³/hour
 - 6 ACH = H x W x D in meters, multiply by 6
 - [10 litres/second/person](#) = people in the space x 36

DIY Air Filters - another option

- MERV filter/s on a fan
- First shown to be effective [filtering woodfire smoke](#)
- Cheaper and as effective a commercial unit - sizing
- Movement [sweeping the US](#) - mass builds
- Fans here are round!
- Components in US available in hardware stores
- Engineers have made [prototype design](#)
 - Instructions online
 - Science projects
 - Personal use



The Aim

Mass acceptance public buildings

- Performance including sound
- Safety and efficacy testing
- Documentation & Certification
- Aesthetics
- [World Health Network](#)
- West Berkshire NEU District branch donation - launching Crowdfunder

For more details, or if you would like to support the project [@freshairschools](#)

or <https://www.parentsunited.net/contact-us/>



More information about Fresh Air Schools available at:

www.parentsunited.net

