Interessante Elementen uit het document "This is a no-brainer" - airborne spread of Covid-19 and the need to change official guidance van Dr. Jonathan Fluxman

"In the mind of scientists working on this, there's absolutely no doubt that the virus spreads in the air……This is a no-brainer…… We have already lost valuable time by ignoring this method of spread and we should act on the presumption that COVID-19 is spreading on the air."
2 April 2020; Professor Lidia Morawska, International Laboratory for Air Quality and Health (ILAQH), School of Earth of Atmospheric Sciences, Queensland University of Technology, Brisbane, Australia

"A lot of the evidence has been pointing to aerosol transmission of respiratory viruses. …. Influenza …. SARS …… This particular virus (Covid-19), a lot of evidence is mounting……It's just shocking to me, quite honestly, that this has not been factored in (CDC and WHO guidance)."
27 May 2020; Dr Kimberly Prather, Scripps Institution of Oceanography, University of California San Diego.

"As long as we are sharing an airspace with someone else, breathing in the air that they exhale, airborne transmission is possible."
2 April 2020; Dr Julian Tang Consultant Virologist at the Leicester Royal Infirmary and Honorary Associate Professor in the Department of Respiratory Sciences

".....gathering unequivocal evidence for airborne transmission could take years and cost lives. We shouldn't let "perfect be the enemy of convincing"
2 April 2020; Professor Michael T. Osterholm, Regents Professor, and Director of the Centre for Infectious Disease Research and Policy at the University of Minnesota.

"It's hard to believe this pandemic could have spread the way it did so quickly around the world without the airborne route playing a role……It's a frustration for people who understand aerosols and air pollution particles that this hasn't received more attention. There are about a half-dozen people screaming about this from the rooftops."
25 June 2020; Richard L. Corsi, Dean of engineering and computer science at Portland State University and a specialist in indoor air quality.

"Risk of aerosol transmission is highest when people share poorly ventilated spaces where the viral aerosols can build up…….. Transmission by aerosol can happen at distances beyond 2m in the same enclosed space especially if the ventilation is poor and duration of exposure is sufficient…….. prevention and mitigation measures….. "should consider all of the known transmission routes together with the time that someone is exposed."
4 June 2020; Environmental Monitoring Group, report to the UK Scientific and Advisory Group for Emergencies (SAGE).

MdH: Hoofdstuk 3 van het document:

A WORD ABOUT EVIDENCE AND COVID-19

This dreadful pandemic is new for all of us, members of the public, health professionals and experts alike. We know more now, 6 months into the pandemic than we did at the beginning but there are still big gaps in our knowledge, and we have little in the way of effective treatment and as yet no vaccine.

In medicine and science generally, we are guided by evidence, i.e. facts proven to be true by scientific method and "peer reviews" (checked) by experts, to verify they are true and can be relied upon. Evidence can be high quality (e.g. from systematic reviews of randomised controlled trials [RCTs]) or low quality (e.g. from observational studies). There are various ways of assessing evidence; the Centre for Evidence Based Medicine (CEBM) in Oxford has a helpful guide to levels of evidence, (20) while the GRADE system (21) allows researchers to communicate to others the reliability of the recommendations they are making, for example high confidence, moderate, low or very low confidence.

Ideally we would want to be guided by high quality evidence, for every intervention we make, but this is not always possible, and Covid-19 poses particular challenges in this regard. It is a highly infectious deadly pathogen so RCTs are very difficult – we cannot deliberately expose one group of people to the virus and compare them to another, a control group, which has not been exposed. That is one reason why there has been so much debate about the evidence during the pandemic. Another is the difficulty of studying a new virus which spreads in a variety of ways, including by people who are asymptomatic, which is deadly to older people but miraculously spares most children.

Because of these challenges, we find ourselves sometimes having to make decisions, policies and interventions based on weak, limited, or even no direct evidence. "Weak" evidence is sometimes mistaken to mean the evidence is zero or wrong. It does not mean those things, instead it means there is some, limited evidence so far (see also absence of evidence below). So we may have to act according this limited evidence, especially in situations of great urgency, and include logic and our best judgement of what we think might work. There is also the "precautionary principle", which means essentially "better safe than sorry", which sometimes needs to be the deciding factor about an intervention, in the absence of clear evidence either way. Proponents of face coverings for example used this in arguments in favour of their use, because it was felt there was little evidence of harm and potentially much benefit from them.

If we look at the three likely routes of spread of Covid-19, there is no systematic review of the evidence that confirms the virus spreads in the ways we think it does. And when we look at the interventions we have put in place like the 2m social distancing rule [now "1m plus"], handwashing and use of face masks, there is similarly no gold standard body of evidence for any of them. If we take handwashing for example, there are no studies that confirm that this is effective in reducing contact spread of Covid-19 itself; we rely instead on evidence that handwashing kills bacteria, it is effective against SARS 1, and a study in 2001 which showed it reduced respiratory infections in soldiers. Does it work against Covid-19?

Almost certainly yes, that's why we all do it. The 2m rule is based on what is known about large droplet behavior in general, and what happens with other respiratory pathogens. There is no RCT evidence, nor are we likely to get it; but we adopt the rule because it makes sense, fits what evidence there is and appears to work.

Absence of evidence is not evidence of absence

This is an old saying in science, which means because we don't have evidence for something, it does not mean that thing does not exist or does not occur. We saw this played out over many weeks here in the UK in relation to the wearing of face coverings by the public to reduce spread of Covid-19.

The government repeatedly said this was not advisable because "the evidence was weak". Yes, there was no high quality direct evidence but there was a very large amount of supporting evidence from other countries, as well as the general principles of physics applied to air flow etc., pointing to likely benefit. For reasons which remain unknown, the government did not accept they would be helpful until late April when it relented and said they were a good idea. Face coverings were made compulsory on public transport on 15 June, and are now being promoted by the government as one of the essential measures to enable us to safely reduce social distancing to "1m plus".

We see similarities with what has happening in relation to aerosol spread of Covid-19. No gold standard evidence exists for it but everything we do know about viral transmission of respiratory diseases, what we have seen about patterns of spread of the virus, the general principles of the physics of air flow and our logic and good judgement indicates that it is very likely. And once again the precautionary principle should apply, i.e. we should intervene to reduce aerosol spread because of the incredibly high stakes involved.

The EMG takes a similar view when it stated on 4 June that "*Decisions on selection of engineering controls will inevitably need to be based on incomplete evidence as "do nothing" is not an option. Appropriate controls should be identified through collaborative risk assessments carried out between employers and employees."* It also made a "high confidence" recommendation that "*Selection of prevention and mitigation measures should consider all the potential transmission routes* (i.e. including aerosol spread) *and need to be bespoke to a setting and the activities carried out."* (emphases added)

MdH: Van alle informatie die in het stuk beschreven werden, en waarvan de meeste al bekend voor me was, vond ik deze het indringendst

TRANSMISSION ON LONDON BUSES

Recent Office of National Statistics (ONS) figures showed that bus and coach drivers have 2.5 times the average death rate from Covid-19. At least 33 bus drivers have died of Covid-19 in

London. There are no studies to determine which route of spread is responsible but if we look at what happens on a London bus, we can get a good idea.

Passengers board at the front door, “touch in” using a card reader in front of the driver and then move into the bus and sit down. The driver is separated by a Perspex screen, with small holes in it, from the passengers, and there is no hand to hand contact as paying for fares has been cashless since 2014. The contact time between passengers and the driver is very short – a few seconds, so it is highly unlikely that an infective dose of virus could be passed to the driver by passengers touching in and then taking a seat.

Passengers are not allowed to stand near the driver during travel, and while one or two passengers may talk to the driver when boarding this is infrequent and for 1-2 minutes at most. If an infected person coughed or sneezed, straight at the Perspex screen without covering their mouth and nose then conceivably enough virus could be transmitted to the driver to cause infection. This however is an unlikely and very infrequent event.

So if surface contact spread is unlikely (there are few opportunities for shared contact surfaces between passengers and the driver), and the large droplet route of spread is unlikely due to very brief contact times, this leaves aerosol spread as the likely culprit.

Average daily commuting journeys by bus are about 40-45 minutes each way according to the Trades Union Congress (10 minutes longer for BAME people) (33), so an infected passenger will be breathing virus into the air inside the bus for this period. The passenger may be talking, coughing or laughing, producing more virus. There may be more than one infected passenger on board at any one time and over the course of a working day several passengers with Covid-19 may travel on the same bus with the same driver.

For some weeks Transport for London closed the front doors on buses in an effort to reduce exposure for the drivers. But as discussed, close contact time is very short, making it very unlikely that enough virus would be spread to the driver. This measure has now been withdrawn, and numbers of passengers restricted, and face masks made compulsory for passengers, which should make a significant difference.

However, ventilation on London buses is poor. As can be seen from the photograph below, there are two small windows high up on each side, and while air will circulate when the doors are opened, the air soon becomes still again when they are closed again. Restrictions are now in place on the number of passengers allowed on each bus; 10 downstairs and 10 upstairs. The space is small however, favouring diffusion of virus throughout the air.

One bus driver stated he thought the reason so many of his colleagues died was “*We are in a capsule with all that Covidy air circulating around us*.”