

KEEP YOUR DISTANCE: Is two metres too far or not far enough to protect from COVID-19 and who benefits and who loses if it is reduced ?

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Summary

1. Scientific evidence from 2020s and not 1930 and 1940s indicates in some settings and some circumstances there is a case for extending the 2-metre social distancing guidance
2. Current evidence supports the 2-metre guidance in many locations, occupations & industries because of airborne as well as large droplet transmission. ILO, Canada & Spain support 2m. Past research underestimates not over-estimates viral airborne risks. Evidence from clusters supports more caution. The R rate is lowered because of 2m as a key factor
3. Current evidence supports the general importance of the combined use of social distancing, use of masks and other PPE and handwashing not removing or reducing parts of this strategy
4. Those who run the risks of any changes in social distancing should be fully involved in any proposed changes of policy. Often those making decisions about risk rarely run them
5. There must be continued employment, wage protection & suspension of punitive sickness absence and performance management system, to encourage safe practices including self-isolation
6. Workers & the public need to be confident that fully staffed & resourced regulatory bodies (HSE & local authority health & safety inspectors) & local public health bodies are inspecting & capable of identifying cases & clusters if any changes at all are made in social distancing. This has not happened to date. Workplace COVID-19 clusters in the UK have emerged which for example led to recent school closures because of the risks
7. Proposed changes to reduce the 2-metre rule need to be based on sound evidence and demonstrate any control measures will be effective, The health & safety hierarchy should be applied by removing risks first, then using engineering controls & enhanced cleaning etc. PPE that is appropriate is a last resort. The science to justify dropping 2m is not evident.
8. Any reductions in 2-metre guidance must be based on detailed, validated policies & procedures able to effectively protect vulnerable workers, children & the wider public
9. Test, trace and isolate systems need to be fit for purpose, fully functioning, resourced, staffed and efficient, along the lines for example of the Guernsey model, before any changes are made on social distancing. At present in the UK this is not the case.

Contents

Introduction

The Issues

The Science

Ramifications of any decisions taken

Conclusions

References

Introduction

A great deal of attention and more importantly weight will be attached by various interests to the UK Government's review of the 2-metre (2m hereafter) social distance guidance expected to report this week to assist the phased ending of the COVID lockdown. The review may call for a reduction to 1 m across the board or, more likely, it will argue for sector-specific relaxations and reductions with a range of new or more extensive safeguards built in to justify those changes. There is still a strong case for keeping 2m. Whatever the outcome of the review, it is clear that the case for maintaining or even extending the 2m guide has been swamped by politicians who would like to see its demise.

There are already differences emerging across the UK in the maintenance of the guidance in different sectors with Northern Ireland adopting a 1m social distance in returning schools in August 2020. There are powerful public health and well-being reasons for wanting our society to return to normal. There are equally powerful public health and also economic reasons for moving with great caution to weaken our social distancing and other control policies. New clusters and spikes will damage economies. If relaxation of 2m occurs, some may benefit economically and some may see their health risks increased. It is not risk averse to seek a more detailed discussion about who will gain and who will lose from changes and how, if necessary, better safeguards for all can be introduced.

The critics of 2m are not, it appears, engaged in or even advocating evidence-based policy making. They are strong on opinion and ideology, and those opinions are from a limited range of interests, or so it seems, and weak on facts. How to ease the lockdown is of course challenging for everyone and highly problematic for the service sector. So any decisions that may jeopardise public health and lead to new pandemic clusters, which in turn will damage our economy again, should not be taken lightly and should consult all parties involved. The R rate, we should remember, is low partly due to the existence of the 2m guidance.

It is also vital to set the 2m science in the wider context of the policies, structures and resources available to monitor any changes in lockdown relaxation.

The Issues

For months a highly effective public campaign has been waged to reduce the 2metre (2m hereafter) social distance in the COVID lockdown. It has been strong on opinion and weak on fact and often appeared more of a political position than an economic case partly because politicians played such a large part in presenting it. Even SAGE advisors who now support the reduction frequently refer to the 'political case' for changes and not the economic case.

This has happened against the backdrop of major and legitimate worries about the considerable damage done and being done to the economy by the pandemic and particularly about the effects of 2m on re-opening schools for all or a majority of pupils. Considerable political pressure has been exerted to relax that guidance across all sectors and across the whole of the UK. The media and newspapers have been bombarded by voices calling for an end to the 2m restriction. Far less but some mentions and coverage have been made of the damage that may be done to public health and economy by reducing the 2-metre guidance and the possibility of new spikes and even pandemic waves occurring. In this respect the debate has been quite unbalanced and 'fact poor'.

What should be central to the UK-wide pandemic strategy is maintaining and extending employment and wage protection. This will enable self-isolation and other necessary steps to be taken that are necessary to protect workers from forced returns to dangerous workplaces if social distancing changes are introduced. Suspension of punitive sickness absence and performance management system will also reduce these pressures.

The UK government guidance on social distancing including the 2 m guide has remained clear and the same for many weeks (UK Government 2020). SAGE reported in June that people would need face coverings and would have to minimise contact time if they sat together closer than 2m (Sample et al 2020). The question of face coverings and masks then becomes an integral part of calculations about reducing 2m. In the US, authoritative voices such as the former head of the US Government Occupational Safety and Health Administration, David Michaels, have pointed out that in that country “reliance on surgical masks has no doubt led to many workers being infected,” adding that other workers like meatpackers also needed the higher level of protection” but current WHO guidelines do not recommend respirators for all health care workers caring for infected patients (Madavilla A 2020). WHO flawed advice on masks that do not protect health care workers has been widely detailed globally and plays into concerns about lowering the 2m figure (O’Neill 2020)

In the UK others have pointed out the UK follows neither HSE’s preventive hierarchy nor the masks requirement the evidence indicates is required to protect health care workers from inhaled SARS-CoV-2 (Cherrie et al 2020). So, the issues surrounding PPE not just for high risk groups like health care workers but other high-risk workers like meat packers will be considerable. If 2m social distancing is abandoned, then the type and effectiveness of face coverings and masks available in other workplaces and other settings will require much more attention than it is currently getting

As we have seen with health social care staff, what is suitable and effective PPE for various tasks is not always a straightforward issue and involves supply, use, fitting, maintenance and supply. At this stage in the pandemic it is worrying for example that the HSE recently issues a warning about certain imported PPE – face masks supposedly of FFP2 standard - not being of the standard claimed and hence offering inadequate protection.

In the pandemic, serious weaknesses in UK public health, NHS and workplace health and safety funding, staffing and policies, structures and practices have been revealed. These must be corrected and demonstrated as fit for purpose before any major changes are made on social distancing and other elements of lockdown relaxation. Central to sector and workplace-specific changes should be effective risk assessment and risk management policies to give confidence to workers, the public, pupils and consumers about changes in place. Yet evidence is already emerging in England from some sources, following the UK government policy of allowing more sectors to open for business , that over a third of employees who were at home but had returned to work had not seen their employers’ risk assessments (TUC 2020). The consequences of failing to manage changes in risks in ‘COVID-safe’ workplaces could be potentially enormous. This is discussed in more detail in the next section.

The science

Multiple factors are in play when looking at whether or not the 2m guidance should change and in which direction. Those factors link partly to the science particularly of aerosols and droplets, the

epidemiology of COVID-19 but also to occupational hygiene and health surveillance, test and trace and regulatory oversight or its lack in workplaces and schools. They will also involve understanding how long people will be in contact with each other, in what settings and engaged in what activity. This can be a highly complex process requiring sophisticated risk assessment and risk management to ensure duration/activity/location issues.

One of the valid arguments made about SARS-CoV-2 is that there are significant gaps in our knowledge about the new virus and we must fill them. There are significant limits to all the studies looking at or involving 2m and social distancing. There are no big epidemiological studies, no randomised control trials and often only small lab based or clinical and experimental studies. Studies have been interpreted in different way by different sides in the argument and no consensus. The one recent systematic review and meta-analysis on masks and social distance which has been heavily attacked itself noted the lack of robust randomised trials needed to better inform the evidence about this topic and highlighted only interim guidance could be offered in June 2020 .

However, gaps have been filled in the last 3 months that have offered further support for the 2m distance. It is striking the critics of the distance do not appear to mention this body of work. In addition, key SAGE advisors in the past, Professors Whitty and Vallance, have also felt that the data they had available enabled them to state and repeatedly re-iterate with confidence that cutting the 2m guide to 1 metre would increase the risks of contracting COVID-19 by 10 to 30 times. Canada is maintaining its 2m distancing (D'Amore 2020) . In Spain 2m also applies , unless there are closes spaces in public where it is obligatory to wear masks if 2m distancing is not physically possible. Spanish Government health directors in May 2020 announced, 'the best face mask is a 2m distance' (Sevillano 2020) The US Centre for Disease Control continues to advocate the public keep 6 feet apart (1.8m) in 2020 (CDC nd). The International Labour Organization also supports the 2m figure wherever possible (ILO 2020).

SAGE has done a great deal of work on all aspects of lockdown release. However, it is of concern that at least in the public domain, statements have been made for example about the low risk of contracting COVID due to ventilation systems in for example restaurants. In an air-conditioned restaurant in Guangzhou, China, with 1m between tables, there were 3 family clusters of COVID-19 reported involving 10 people (Lu et al 2020). The researchers found the airflow direction in the building was consistent with droplet transmission. To prevent the spread of the virus in restaurants, they recommended increasing the distance between tables and improving ventilation. Discussion of these types of reports and their strengths and weaknesses is needed because part of the process of relaxing the UK lockdown and gaining public confidence needs to be full transparency. With it should come proper engagement with community and all stakeholders in workplaces not just business interests and this appears lacking at present.

The WHO advocates keeping at least 1m apart. This is the argument most used by the critics of the 2m guidance to abandon that measure. However, there are difficulties with relying on that measure and in recent weeks, the WHO has been asked by international trade union organisations to explain and provide the evidence it used for the 1m figure. It appears it has been difficult for the WHO to do so. The WHO funded review study recently published in the Lancet (Chu et al 2020) has attempted to answer the question and concluded a physical distancing requirement of 2m is twice as protective as WHO's 'at least 1m' recommendation. The Chu paper has now been attacked by all sides as being too flawed in arguing the case for either 1m or 2m. Macintyre and Wang in a Lancet commentary on the Chu paper noted " . "The 1–2 m distance rule in most hospital guidelines is based on out-of-date findings from the 1940s, with studies from 2020 showing that large droplets

can travel as far as 8m. To separate droplet and airborne transmission is probably somewhat artificial, with both routes most likely part of a continuum for respiratory transmissible infections.”

This is where the precautionary principle should come into play particularly in a pandemic setting. If there is limited evidence, err on the side of public health. If there is no evidence, err on the side of public health. Fail to safety and not to danger. The Lancet study would seem to indicate benefit from 2m and the argument then comes about the size of the benefit. In a large population, a small benefit or a small risk assumes real public health significance. So moving slowly until more evidence or better control technologies are available, the case for keeping 2m is clear as we edge out of lockdown.

Small studies on the physics of particles would indicate the need for caution in abandoning 2m (Dbouk et al 2020). They have argued 2 metres would be insufficient in an open space in some circumstances. It would be acceptable if there was no wind or very little wind but would need to be greater otherwise because saliva droplets may travel a great distance. This is why there is concern about reducing the 2 metres for beer gardens and outdoor cafes and restaurants where people may also be spending a considerable time sitting. Masks would not be an effective alternative in many of these settings.

This may be where a debate about how low the R factor should be to protect the majority of the public and the workforce in these settings without masks or social distancing. In New Zealand and Guernsey it looks like an R close to zero and not 0.7-0.9 is the one that works. Germany's 1.5m social distancing figure is only practicable where other measures and particularly a low R rate mean exposure is overall less likely. However, this does not necessarily apply in workplace settings, where Germany has experienced ongoing outbreaks in meatpacking facilities.

In June, researchers flagged the fact science had explained SARS-CoV-2 transport and provided evidence of a significant route of infection in indoor environments from small droplets in the air . Despite this, no countries or authorities consider airborne spread of COVID-19 in their regulations to prevent infections transmission indoors (Morawska et al 2020). They noted the limits of both handwashing and social distancing in dealing with these airborne droplets and considered WHO advice should examine the need for better control measures all together. They noted no countries or authorities fully considered airborne spread of COVID-19 in their regulations to prevent infections transmission indoors.

Based on laser light scattering techniques, researchers found a substantial probability that normal speaking causes airborne virus transmission in confined environments (Stadnytsky et al 2020) . Such research suggests that certain work and leisure settings including schools and indoor sports facilities could present risks to the public, the workforce and pupils unless very stringent and demonstrably effective alternative control measures are in place.

For health workers, there is evidence of SARS-CoV 2 transmission well beyond 8 metres in some cases (Bahl et al 2020) . So with asymptomatic people, albeit not in a hospital setting, there is evidence of the potential for considerable transmission of droplets. Also in a health work setting, Santarpia et al (2020). collected air and surface samples from 11 isolation rooms that were used to care for patients infected with SARSCoV- 2. Included in that study were high volume air samples and low volume personal air samples. The collectors positioned more than 6 feet from each of two

patients yielded samples positive for viral RNA when evaluated using RT-PCR, as did air samplers placed outside patient rooms in the hallways. Personal collectors worn by samplers also were positive even though patients were not coughing while samplers were present. When the NRC reviewed this and other similar research, they concluded that while the current SARS-CoV-2 specific research was limited, the results of available studies were consistent with aerosolization of virus from normal breathing. (NRC USA 2020). Such findings relating to viral airborne transmission need careful consideration when looking at reducing distances below 2 metres.

Evidence for the potential for airborne transmission of SARS-CoV-19 therefore continues to accumulate, with important implications for healthcare workers, as well as the general public and have been highlighted in a number of very recent preprint and not always peer reviewed papers at this stage (Allen et al 2020). There are other researchers who argue that even 2 metres or 6 feet is not sufficient and that masks should be worn even when this distance is kept (Setti et al 2020). Some stressed the Covid-19 risks from both droplet and aerosol (or airborne) transmission. It noted "Aerosol transmission of viruses must be acknowledged as a key factor leading to the spread of infectious respiratory diseases." It notes: "Masks and testing are necessary to combat asymptomatic spread in aerosols and droplets."

This is important, as much of the current international and national guidance is based on a model of droplet transmission only. Aerosol transmission means more workers are routinely at risk, and there is a wider need for personal protective equipment and greater physical distancing, with at least 2 metres separation between workers wherever possible.

In May US researchers in a study with weaknesses that it acknowledges looked at this pathway and concluded "wearing of face masks in public corresponds to the most effective means to prevent interhuman transmission, and this inexpensive practice, in conjunction with simultaneous social distancing, quarantine, and contact tracing, represents the most likely fighting opportunity to stop the COVID-19 pandemic " (Zhang et al 2020). Hand sanitising would not of course protect against respiratory exposure to the virus. So again a belt and braces approach is emphasised - with 6-foot social distancing in the US - based on a study combining work on particle physics, the impact of face coverings and an analysis of US and global pandemic trends.

Ramifications of policy changes that must occur before any alterations in social distancing can take place based on evidence of clusters and problems already emerging in the UK and elsewhere.
Heeding early warnings.

Different employment sectors and different jobs may generate different risks. This is acknowledged by the sector-specific information that governments across the UK have produced or have in draft form at the moment. To ensure the health and safety of the public, children in schools and colleges and all workers during any lockdown relaxation measures, there needs to be fully staffed, fully resourced and active regulators and professionals to scrutinise the proposal and their implementation. All parties including trade unions and communities should be fully involved in this process examining risk assessments, control strategies and PPE proposals. Regulators and health professionals are necessary to inspect, inform, advise and if necessary enforce what should be effective precautions that have been produced.

In the USA, serious clusters have emerged when leisure activities took place without social distancing. Following a 2.5-hour choir practice attended by 61 persons, including a symptomatic index patient, 32 confirmed and 20 probable secondary COVID-19 cases occurred. Three patients were hospitalized, and two died. Transmission was likely to have been facilitated by close proximity,

within 6 feet, during practice and augmented by the act of singing. This case underscores the importance of physical distancing, including maintaining at least 6 feet between persons, avoiding group gatherings and crowded places, and wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain during this pandemic (Hamner et al 2020).

The problems of COVID19 in workers in particular industries, for example meat and poultry processing, has already attracted attention. US government bodies like the CDC and its epidemic intelligence service researchers recommend, whenever feasible, the workplace should be organized so that workers can be at least 6 feet (2 metres) apart (Dyal et al 2020). The recent UK clusters and the decisions in Wales to close schools around one poultry packing plant highlight the potential dangers to public health as well as occupational health from failing to keep the 2m social distance in all settings

At the moment, we have a seriously weakened HSE with minimal occupational medicine staff, albeit with dedicated field staff not capable of fulfilling these roles. Similar problems exist for local authority health and safety inspectors, again with many dedicated staff, but under-resourced at a critical time when they will be responsible for many small businesses and workplaces (Watterson 2020). One of the concerns has been that there has been too little enforcement of social distancing and this may have led to assumptions that 2m can be relaxed. Yet enforcement of the guidance to protect workers has been the very rare exception and not the rule (Goodwin 2020).

In recent weeks, clusters of COVID-19 have been reported in at least 4 UK factories with dozens of staff affected and in one instance in Wales this led to the closure of local schools because the risk of the virus spreading were considered so serious (Drury 2020). There are reports of breaches in social distancing in at least two of these clusters that merit a full investigation to identify the cause or causes of the spikes. This is why we need very effective regulatory agencies in place before changes occur and a commitment by central and local government to communicate with communities to ensure confidence in any social distance changes that might occur.

To wind down the lockdown, there is too general acceptance that a fully effective test, track, trace and isolate system needs to be up and running along the lines of that in Guernsey (Durbin 2020). In the UK, the test and trace system is still not fit for purpose and in several areas, directors of public health have expressed major concerns about the test and trace system: public health being yet another service that has been under-funded and marginalised in the last decade or more.

Environmental health professionals share many of the concerns of their public health colleagues. They have renewed calls urging the government to resist pressure to drop the 2m rule and also to reveal how the national contact tracing system is working (Coyne 2020). CIEH's Northern Ireland Director Gary McFarlane made the telling observation : " "Anecdotally it appears that already 2m is in reality only being observed loosely. If we decide to go down to 1m we may find that in practice it results in no physical distancing at all for a lot of scenarios". As groups like this are on the front line, we should listen to their views very carefully. He wants "a combination of public health measures, including both physical distancing and a robust track, test, and isolate system" (Coyne 2020). We have not got it yet.

Conclusions

The arguments for a blanket reduction of 2m in the UK economy do not stack up. A limited but growing body of scientific evidence, based on a better understanding of particle physics and aerosols and supplemented by case studies of very recent clusters, continues to support a precautionary approach to 2m and its continuation in many settings where public and worker safety is at risk and there are no effective alternatives and no vaccines. The science for lowering the 2m distance, however, appears to be limited if not absent at this stage.

The WHO and the UK government argue if there is no conclusive evidence or consensus, then we can opt for a less safe standard. This is simply not good epidemic prevention practice. Had we not taken WHO's incautious lead – and assumption that a new virus would behave like MERS and SARS – and instead set policy based on caution, the outbreak would have been more effectively tackled, particularly in workplace settings.

One of the underpinning principles in public health is to do no harm. With COVID-19, adopting 'the precautionary principle or a cautious approach is the only way to proceed. This does not mean avoiding all risks but it means acting on the basis of evidence. Where there is no or limited evidence, then a prudent and precautionary approach is needed with small steps forward. This could not be more relevant when faced with a pandemic that all responsible politicians and professionals can recognise could flare up and produce not just clusters and spikes but another wave. The Beijing food market COVID-19 upsurge should tell us all we need to know about caution and speed in relaxing lockdowns. The evidence we do have on social distancing provides the basis for not cutting 2 metres to 1 metre across the board and may suggest extending the distance beyond 2m in some circumstances.

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Note: This is a commentary on some of the issues and debates around 2 metres. It is not a review.