Transmission Characteristics

Working Environment

The home emerged rapidly as the setting in which most transmission occurred but the characteristics underpinning that risk were articulated more slowly (perhaps because of confounding factors) – translation to workplace characteristics was therefore slow to take place.

Workplace risk was generally described in relation to job type (e.g. meat processors) rather than work environment and activities (e.g. cold, dry conditions in which aerosols are generated) tending to silo lessons learned.

Lessons Learned for the System

- Translating evidence rapidly from non-occupational settings into guidance for the workplace should be standard, as should the implications for more widespread home working.
- The description of risk factors based on job type is less helpful than by the characteristics of the activities undertaken, which more easily allows cross sector application.

Fomite Spread & Hygiene

Fomite spread was initially thought to be more important than it turned out to be – that led to a very heavy emphasis on hand hygiene and surface cleaning. Its relative importance diminished as real-world evidence emerged but this has not been fully reflected in the official narrative.

Messages received early on in a situation tend to stick[25] so, even when evidence did change, behaviours altered to a lesser extent. Other factors promoting this phenomenon include availability bias[26], confirmation bias[27] and the framing of the messaging[28].

Lessons Learned for the System

- As evidence about transmission characteristics emerges it should be applied rapidly to amending official guidance on control measures.
- Changes in official guidance require special emphasis and reinforcement supported by a clear explanation for the shift.
- The science underpinning the psychological basis for persistent beliefs should be applied to encourage the desired behavioural changes.

Airborne Spread

SARS-CoV-2 was a novel hazard but the organism is closely related to those giving rise to SARS and MERS; evidence on transmission routes for those diseases might have been given greater consideration[29]. Aerosol transmission was underestimated significantly at the outset and for some months thereafter. Controls were therefore less effective than they could have been, notably in settings like health and social care.

Lessons Learned for the System

- All plausible routes of transmission for a novel biological agent should be considered and an initial precautionary approach to risk management should be adopted.

The place in infection control of respirators, rather than surgical masks, appears not to have featured strongly in some risk assessments early in the pandemic.

Quantification of the effectiveness of RPE against SARS-CoV-2 emerged slowly[50] even though evidence from other aerosols would have given a good indication of relative levels of protection.

Lessons Learned for the System

- Use of simple PPE was afforded undue prominence early on in the pandemic and that has had lasting consequences on perceptions of its importance as a control measure.
- In contrast the use of more effective respiratory protective equipment was downplayed in the early stages of the pandemic and that may have contributed to higher infection rates.
- Understanding of the different types of respirators and the differences between these and face coverings remains sub-optimal.
- Early and consistent messaging about the real value of PPE and face coverings should be a priority in any future pandemic involving a respiratory disease.

Vaccination

Vaccination has probably been as poorly understood in a workplace context as testing. The concept of "immunity" was, at least initially, interpreted by many in society as "invulnerability", so the view (less prevalent now than earlier in the pandemic) has been that those who have been fully vaccinated can neither catch nor transmit SARS-CoV-2. That has had profound implications for the way vaccination is viewed by many employers and workers and the impact on adherence to other control measures.

The evidence so far indicates that vaccination gives some protection against asymptomatic infection and then increasingly better protection against symptomatic infection, hospitalisation and death[51] even with the more transmissible variants. The degree to which that immunity wanes over time has become clearer during the course of the pandemic[52] and the requirement for booster doses has clouded the definition of "fully vaccinated".

In terms of impact, that means that those who have been vaccinated are less likely to experience severe consequences but the degree of protection is unquantifiable at an individual level and will probably diminish over time. Nevertheless, COVID-19 can be a dangerous condition, especially for the more vulnerable, and in comparison to other hazards would generally still rate a "high" grading for impact.

The likelihood of vaccinated people becoming infected is also lower[53], but again unquantifiable at an individual level, and that feeds into the risk assessment in relation to harm to them and the risk they present to others. However, if they do become infected, even asymptomatically, they present a risk to others, especially the unvaccinated and the vulnerable.

Employers have generally been highly supportive of the vaccination programme, in part through social responsibility but also as a business continuity issue. Nevertheless, some occupational groups have significantly lower vaccination rates than others and, troublingly, those groups include those whose work exposes them or others to a higher risk of harm[54]. Identifying barriers to vaccination, can be complex but employers can help drive up rates if supported with appropriate analysis.

Easing of workplace controls for vaccinated people is not straightforward, especially if some of the workforce remains