

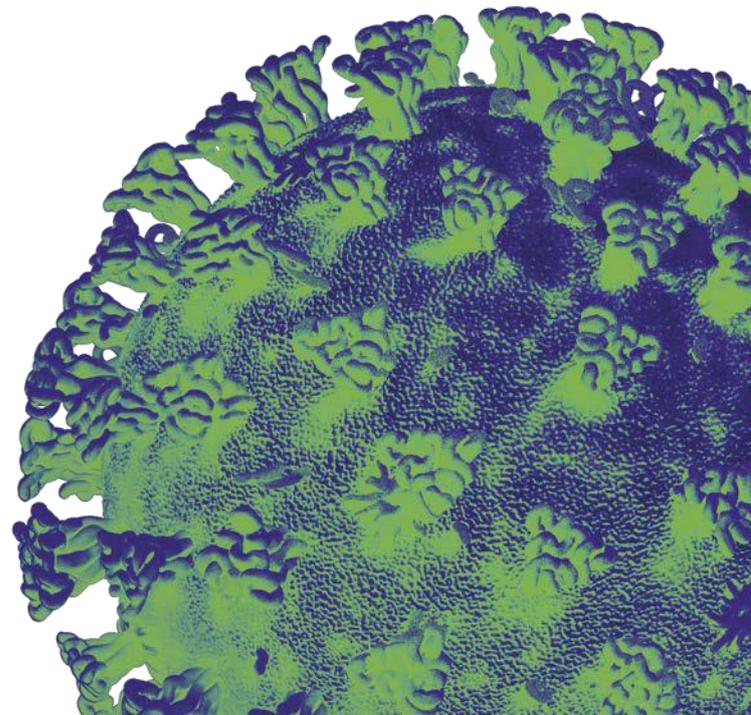
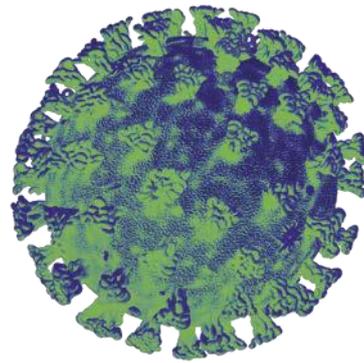
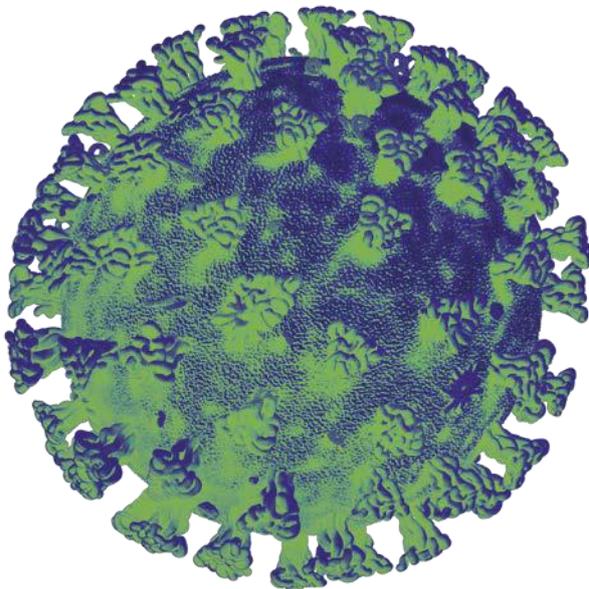


Llywodraeth Cymru  
Welsh Government

# Technical Advisory Group

## Advice for Night Clubs & Adult Entertainment Venues

9 July



# Technical Advisory Group

## Night clubs & Adult Entertainment Venues

- For the latest public health situation and risk profile, please see the latest outputs from the latest [TAG 21 day advice](#).
- Nightclubs and sexual entertainment venues (SEV's) contribute to the night-time economy and subsequent trade and employment and can provide a positive impact on people's social wellbeing and mental health. This paper focuses solely on the immediate environmental aspects of COVID-19 transmission risk. It does not consider any other harms or benefits associated with these environments. Neither does it make ethical considerations for or against this sector.
- For the purpose of this advice, the following definitions as used in regulations have been followed:
  - **Nightclub means:** *Nightclubs, discotheques, dance halls or other venues authorised for the sale or supply of alcohol where live or recorded music is provided for members of the public or members of the venue to dance.*
  - **Sexual entertainment venues (SEV's) means:** *any premises at which relevant entertainment (live performance/live display of nudity) is provided before a live audience for the financial gain of the organiser or the entertainer.*
- Most transmission of COVID-19 between individuals in these environments is likely to be via respiratory particles in the form of both droplets and aerosols which contain virus<sup>1</sup>. Once droplets containing virus have been emitted by an individual, they can be transmitted to others via a number of routes; these include:
  - Direct contact transmission<sup>1,2</sup>
    - Person-to-person
    - Droplet with direct deposition
  - Indirect contact transmission<sup>1,2</sup>
    - Contaminated fomite (e.g. surfaces)
    - Aerosol
- Individuals also shed virus up to 48 hours prior to the onset of symptoms, meaning that focusing on symptoms as a basis for preventing infection is not sufficient to prevent transmission even if everyone follows self-isolation rules. Significant transmission can therefore take place while people are pre-symptomatic<sup>3,4</sup>. There is

---

<sup>1</sup> Kutter, J. S., Spronken, M. I., Fraaij, P. L., Fouchier, R. A. M. & Herfst, S. Transmission routes of respiratory viruses among humans. *Current Opinion in Virology* vol. 28 142–151 (2018).

<sup>2</sup> Lake, M. A. What we know so far: COVID-19 current clinical knowledge and research. *Clin. Med.* 20, 124–127 (2020)

<sup>3</sup> Goldberg, S. A. et al. Presymptomatic Transmission of SARS-CoV-2 Amongst Residents and Staff at a Skilled Nursing Facility: Results of Real-Time PCR and Serologic Testing. *Clinical Infectious Diseases* (2020) doi:10.1093/cid/ciaa991.

<sup>4</sup> He, X. et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nat. Med.* 26, 672–675 (2020).

also increasing evidence that a proportion of cases (estimates range between 20%-70%) could be asymptomatic or pauci-symptomatic<sup>5</sup>.

- Transmission is strongly associated with proximity, duration and frequency of contact between individuals. The likelihood of exposure is determined by community prevalence<sup>6</sup>. When prevalence in the community is low, the probability of coming into contact with someone who is infectious reduces and vice versa.
- Transmission risk is a complex combination of environmental and human factors that are associated with the likelihood of infection (High Confidence)<sup>7</sup>. For all transmission routes the duration of time an individual spends in an environment where virus is present will increase the probability of receiving a higher dose and hence an increased transmission risk<sup>8</sup>. SAGE found that occupations which involve a higher degree of physical proximity to others over longer periods of time tend to have higher COVID-19 infection rates (High Confidence)<sup>9</sup>. Transmission of SARS-CoV-2 is strongly associated with proximity and duration of contact in indoor environments (High Confidence) and the risk increases with duration of contact<sup>8</sup>.
- Current evidence suggests that mixing indoors presents a much higher risk of transmission than outdoors (High Confidence)<sup>10</sup>. Increasing the number of people at a venue without increasing the size of the venue or otherwise mitigating appropriately will increase the risk of transmission. SAGE highlighted the highest risks of transmission are associated with poorly ventilated and crowded indoor settings (High Confidence)<sup>11</sup>.
- Respiratory particles in the form of both droplets and aerosols exist in human exhaled breath, and activities such as speaking loudly, shouting, singing, sneezing and coughing will result in greater aerosol generation. Loudness of speaking or singing is important in determining the amount of aerosol emitted. Some studies suggest singing may result in a 20-30 fold increase in particle generation<sup>12,13</sup>. The emission of aerosols increases substantially with sustained vocalization and these emissions are typically small particles able to remain aloft for prolonged periods<sup>14</sup> which influences SARS-CoV-2 transmission risks according to volume and physical activity<sup>15</sup>.
- SARS-CoV-2 transmission is underpinned by super-spreading events - in that a minority of cases are responsible for most transmission within the population. Super-spreading events assume disproportionate influence on the trajectory of the pandemic

---

<sup>5</sup> He, W., Yi, G. Y. & Zhu, Y. Estimation of the basic reproduction number, average incubation time, asymptomatic infection rate, and case fatality rate for COVID- 19: Metaanalysis and sensitivity analysis. *Journal of Medical Virology* (2020) doi:10.1002/jmv.26041

<sup>6</sup> [S1194 Transmission in hospitality retail leisure.pdf \(publishing.service.gov.uk\)](#)

<sup>7</sup> [COVID-19 risk by occupation and workplace \(publishing.service.gov.uk\)](#)

<sup>8</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/887618/EMG\\_Environmental\\_transmission-02052020\\_1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/887618/EMG_Environmental_transmission-02052020_1.pdf)

<sup>9</sup> [COVID-19 risk by occupation and workplace \(publishing.service.gov.uk\)](#)

<sup>10</sup> <https://academic.oup.com/ijt/article/223/4/550/6009483?login=true>

<sup>11</sup> [S1194 Transmission in hospitality retail leisure.pdf \(publishing.service.gov.uk\)](#)

<sup>12</sup> Reid, J. Comparing the Respirable Aerosol Concentrations and Particle Size Distributions Generated by Singing, Speaking and Breathing. doi:10.26434/chemrxiv.12789221.v1.

<sup>13</sup> Morawska, L. *et al.* Size distribution and sites of origin of droplets expelled from the human respiratory tract during expiratory activities. *Journal of Aerosol Science* vol. 40 256–269 (2009).

<sup>14</sup> <https://www.sciencedirect.com/science/article/pii/S0021850208002036>

<sup>15</sup> <https://www.sciencedirect.com/science/article/pii/S0160412020312800>

relative to their frequency, and are considered a/the major driver of the pandemic<sup>16</sup>. For example, in New Zealand super-spreading was found to be a significant contributor to the epidemic dynamics, with 20% of cases among adults responsible for 65-85% of transmission<sup>17</sup>. Activities that bring people together and by their nature involve increased respiratory particle generation present a higher probability of becoming or enabling super-spreading events. Additional environmental parameters (e.g. ventilation, temperature, humidity) may further enhance transmission in certain situations.

- Additionally, sharing of surfaces, lack of social distancing, poor ventilation, cooler temperature, and sharing of food and drinks are also characteristic of such events, offering opportunity for further transmission. It is also important to point out that while there may be evidence of an event/place being associated with a super-spreading event, transmission may have also occurred in related contexts. In some cases, for example, transmission may occur between individuals prior to reaching the event (e.g. travelling to the venue in shared vehicles or in prior visits to other hospitality venues) queuing at the venue or while entering and exiting the building<sup>18</sup>.

### **International Experience**

- In the Netherlands, it has recently been reported (early July 2021) that upon the re-opening of a nightclub, 165 out of 600 guests tested positive for COVID-19 despite having to provide proof of a negative test beforehand<sup>19</sup>. The coronavirus infection rate in the Netherlands has increased much faster than expected since society reopened almost completely on 26 June. Most infections have occurred in nightlife settings and parties with high numbers of people<sup>20</sup> and as a result, the Government has re-introduced NPI measures.
- At least 246 cases of COVID-19 have been linked to nightclubs in Seoul, South Korea. During the April 30–May 5 2020 holiday period, young adults from across the country visiting nightclubs in the city contracted COVID-19 and spread it nationally. By May 25, a total of 246 confirmed nightclub-associated cases had been reported; 96 (39%) of those were primary cases and 150 (61%) were secondary cases. The estimated attack rate among nightclub visitors was 1.74% (96/5,517). Infections related to the nightclub outbreak spread further in the community and were identified in nine different workplaces. Secondary transmission by case-patients linked to the Itaewon nightclubs led to local transmission of COVID-19 in other parts of the country. Despite the low incidence of COVID-19 in the post-peak period of the pandemic, super-spreading related to visiting nightclubs in Seoul was suggested to have had the potential to spark a resurgence of cases in South Korea<sup>21,22</sup>.
- While nightclubs and SEV's offer different services and each venue will differ to some extent, the environments in which they operate have a number of similar properties, some of which may be unique to this setting. These may include (but are not limited to):
  - Darker rooms

<sup>16</sup> [https://www.cell.com/trends/microbiology/fulltext/S0966-842X\(21\)00124-4](https://www.cell.com/trends/microbiology/fulltext/S0966-842X(21)00124-4)

<sup>17</sup> [Model-free estimation of COVID-19 transmission dynamics from a complete outbreak \(medrxiv.org\)](#)

<sup>18</sup> [Re-opening live events and large venues after Covid-19 'lockdown': Behavioural risks and their mitigations - ScienceDirect](#)

<sup>19</sup> [More positive coronavirus tests; Enschede club cluster hits 165 - DutchNews.nl](#)

<sup>20</sup> [No choice but to take summertime measures in face of rapid increase in infections | News item | Government.nl](#)

<sup>21</sup> [Coronavirus Disease Exposure and Spread from Nightclubs, South Korea \(nih.gov\)](#)

<sup>22</sup> <https://wwwnc.cdc.gov/eid/article/26/10/pdfs/20-2573.pdf>

- Louder music
  - Raising of voices for conversation to compensate for louder music
  - Closer interactions
  - Dancing
  - Singing
  - Queuing in close proximity
  - Consumption of alcohol / drugs
  - Greater degree of mixing and venue hopping
  - Increased humidity from activities such as group dancing
- While not unique to these settings, some venues may also find a lack of natural ventilation with limited windows and rely on mechanical ventilation, although many nightclubs do have excellent ventilation systems to remove odour, excess moisture and heat. This highlights the context-specific nature of venues within the sector and difficulties in making generalisations. Venues could look to limit the number of people in the facility. Reducing capacity in this way (whilst sustaining ventilation flows) will increase the typical current 10l/s/p flow rate of ventilation to at least 20l/s/p, as fewer people are being served by the ventilation system. Premises should ensure that ventilation systems provide 100% fresh air and do not recirculate air from one space to another. Further advice on ventilation can be seen here: [Ventilation and air conditioning during the coronavirus \(COVID-19\) pandemic \(hse.gov.uk\)](#).
  - The contribution of different settings on population infection rates will depend on both the likelihood of transmission occurring within a particular environment and the frequency with which people visit that setting. Settings associated with levels of risk that are visited frequently by many people are likely to make a bigger contribution to community level transmission<sup>23</sup>. Further, nightclubs and SEV's are likely to be visited by many people over the course of an evening and evidence presented earlier from international examples suggests they likely pose a higher risk. It is also less likely that people will only visit one venue, the greater degree of mixing across many different venues in one night possibly increasing potential for transmission and super-spreading events.
  - It could be expected that most nightclubs and SEV's play louder music to build an atmosphere which may result in raised voices for singing and conversation. This poses a risk to both visitors and staff (i.e. have to get close to bartender and raise voice in order to buy a drink). It may also be expected that those who attend are likely to dance and mix with other groups, thus reducing distance between them. In many respects, the general risks involved are similar to those highlighted in previous advice at weddings, albeit with reduced risk of inter-generational transmission; [Technical Advisory Group: current evidence relating to weddings | GOV.WALES](#)
  - Where alcohol consumption is a central element, particular risks arise<sup>24,25</sup>. For example, alcohol consumption/intoxication will also likely reduce adherence to social distancing and the implementation of personal hygiene measures. Together, these factors are likely to reduce the ability and willingness of people to distance or adhere

---

<sup>23</sup> [S1194 Transmission in hospitality retail leisure.pdf \(publishing.service.gov.uk\)](#)

<sup>24</sup> Tutenges, S., & Böhling, F. (2019). Designing drunkenness: How pubs, bars and nightclubs increase alcohol sales. *International Journal of Drug Policy*, 70, 15–21. doi:10.1016/j.drugpo.2019.04.009

<sup>25</sup> [re-opening-hospitality-alcohol-afs-stirling-briefing-26-june-2020.pdf](#)

to guidance, creating an increased risk of virus transmission. This is supported by observations in Scotland where despite the efforts of bar operators and guidance from government, potentially significant risks of COVID-19 transmission persisted in a substantial minority of bars, especially when customers were intoxicated. Alcohol intoxication was observed in most sustained incidents involving multiple risks or greater numbers of customers<sup>26</sup>.

- There are also risks to be considered regarding related activities such as visiting the toilets: [Technical Advisory Group: SARS-CoV-2 transmission risk in public toilets | GOV.WALES](#)

### **Vaccination and UK-wide policy changes.**

- The evidence generated to date is nearly all in the context of unvaccinated populations. As we move to a highly vaccinated population, the risks and impacts will change. In particular, full vaccination reduces the chances of someone shedding virus, and reduces the amount of virus they shed. For any given environment, the chances of transmission to another individual are therefore lower. If the virus does transfer, the risk of severe disease is also lower. We do not yet know exactly how much lower the risk of transmission will be in different environments, such as nightclubs and SEVs; it remains the case that they are 'higher' risk due to the reasons outlined above. Furthermore, the demographic that may generally attend night clubs may be likely to be younger and more likely (currently) not to have received both vaccine doses. There is also still the threat of new Variants of Concern being introduced to the population which may have the potential ability to escape immunity.
- Restrictions in England are being relaxed as of 19 July subject to a final data review which enables nightclubs and adult entertainment venues to open alongside removal of social distancing restrictions and mandatory face coverings<sup>27</sup>. There is a risk that any difference to relaxations, timelines of restrictions and NPI's in Wales could result in people travelling to and attending places in England (which may have a different context in relation to incidence / prevalence / vaccination levels). This may result in those travelling to these settings being exposed to infection and travelling back to Wales and acting as a source of local transmission. There may also be the risk of seeing more unmanaged raves and gatherings outside of these contexts.
- It is important to note that due to limited evidence relevant to specific environments, it has been necessary to refer to a smaller numbers of studies, conducted outside of the UK and under varying levels of restrictions. Therefore, these studies may not be directly comparable to each other, or generalisable to Wales.
- Moreover, outside of controlled laboratory or experimental conditions, it is very difficult to identify exactly how, where and when an individual has been infected and therefore these studies should be treated with caution. However, due to the dynamic nature of the pandemic and timelines involved, evidence is often emerging and is revisited as more substantive peer-reviewed scientific papers and studies are published.

### **Conclusion**

---

<sup>26</sup> <https://www.jsad.com/doi/pdf/10.15288/jsad.2021.82.42>

<sup>27</sup> [Prime Minister sets out plan to ease restrictions at step 4 - GOV.UK \(www.gov.uk\)](#)

- A potential limitation with Test, Track and Protect for SEV's has been identified, with visitors possibly wishing to remain anonymous. International evidence also suggests potential issues with providing proof of a negative COVID test prior to entry, which may have resulted in a super-spreading event.
- The available evidence presented here relates to the context of an unvaccinated population. It is unclear at present what impact a fully vaccinated population would have upon the risk and probability level of infection. The biggest threat to this is higher prevalence levels and the introduction of new Variants of Concern which may have the ability to escape immunity.
- It is likely that nightclubs represent a high risk of transmission due to the factors highlighted above. In many respects SEV's have some similar risks to those of nightclubs but also have different norms and practices which may reduce the levels of transmission risk. In addition, the evidence base surrounding transmission risk in SEV's is incomplete.
- Should there be a decision to re-open, a range of potential mitigations would need to be considered to reduce risk, including:
  - Limiting the amount of people into these venues at any one time
  - Ensuring effective ventilation is enhanced in line with guidance
  - Limiting queue sizes both on entry and at bars
  - Ensuring staff members have appropriate protective equipment and physical separation barriers
  - Limiting amount of alcohol on sale and especially to those showing signs of intoxication
  - Reducing the volume of music
  - Availability of hand sanitisers
  - Identify ways to limit crowd singing and dancing
  - Ensure effective wearing of face coverings
  - Undertake risk assessments in line with guidance
  - Encourage vaccinations of staff members
  - Frequent cleansing of high contact surfaces and services in line with guidance
- As with all other advice, if a person is symptomatic, has tested positive for COVID-19, or been told to self-isolate then they should isolate in line with current guidance.