

Rapid Scoping Review of Evidence of Outdoor  
Transmission of COVID-19  
EXECUTIVE SUMMARY



September 2020

# About the Review

This Executive Summary illustrates the findings of a rapid scoping review of evidence of outdoor transmission of COVID-19 commissioned from *spear* by *parkrun*. The review was designed to be undertaken rapidly in 15 days and to seek, evaluate and analyse evidence of incidents of outdoor transmission of COVID-19, the settings and environments of such transmission, all relevant circumstances, and the existence or otherwise of any COVID-19 mitigation measures.

## Review Aims

- Seek, evaluate and analyse evidence of incidents of outdoor transmission of COVID-19
- Understand context and caveats from the extant science and literature that should be considered in interpreting findings
- Provide considerations for hosts and organisers of events and activities that generate outdoor gatherings

The review was also designed to seek, evaluate and analyse evidence of the prevalence of outdoor transmission compared to indoor transmission, and evidence of the impact of high profile mass gatherings, both immediately before (e.g. Champions League soccer matches) and during (e.g. Black Lives Matter protests) lockdowns.

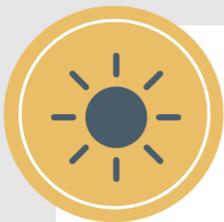
In addition, key insights from the extant science and literature are included to set the context and understand the caveats that should be considered in interpreting the review findings.

Finally, considerations for hosts and organisers of events and activities that generate outdoor gatherings are presented.



### What is the evidence of incidents of outdoor transmission of COVID-19?

- There are very few examples of outdoor transmission of COVID-19 in everyday life, suggesting a very low risk
- Risk of outdoor transmission increases when the natural social distancing of everyday life is breached, and gathering density, circulation and size increases, particularly for an extended duration
- The interaction of environment, activity and duration is important in determining risk of transmission



### Has weather impacted transmission through encouraging indoor or outdoor activity?

- There is evidence of a behavioural effect, where temperatures that encourage outdoor activity are associated with lower COVID-19 transmission



### What is the evidence for outdoor transmission of COVID-19 at mass gatherings?

- Mass gatherings may be as likely to generate transmission from the activities they prompt, such as communal travel and congregation in bars, as from outdoor transmission at the gathering itself
- Lack of surveillance and tracing systems, as well as confounding factors and variables, mean that outdoor transmission at mass gatherings has not been robustly tested
- Outdoor mass gatherings are heterogenous, and absence of evidence of outdoor transmission cannot be assumed to be evidence that outdoor transmission will not take place



### The science of transmission of COVID-19 concludes...

- the risk of COVID-19 infection is low outdoors  
...if normal conventions of personal space and natural social distancing are not breached



### Reviews of infectious disease transmission at mass gatherings conclude...

- transmission is associated with longer duration, crowdedness and indoor environments
- restrictions on mass gatherings closer to the epidemic peak may be more effective than restrictions applied further out



### Outdoor activities and events...

- are heterogenous, particularly in relation to gathering density, circulation and size
- will not generate equal risks of COVID-19 transmission nor need equal or homogenous mitigations

# COVID-19 RELATED CONSIDERATIONS FOR EVENTS & ACTIVITIES THAT GENERATE OUTDOOR GATHERINGS OF PEOPLE

1

Does the event or activity prompt other behaviours that might increase transmission risk? E.g.



Communal travel



Indoor congregation in bars, cafes or other venues



Collective stays in overnight accommodation

2

For each part of the event or activity...

How **dense** is the gathering?



How much do people **circulate** in the gathering?



How **large** is the gathering?

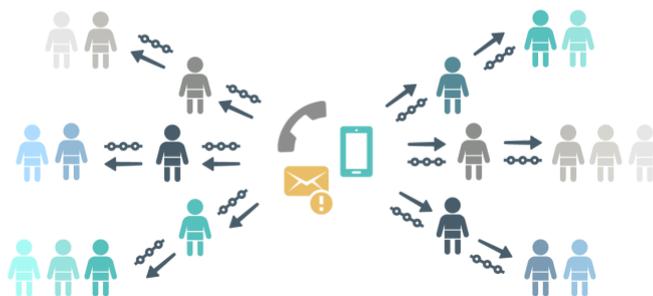


How **long** are people in the gathering?



3

Is rapid contact-tracing possible in the event of an outbreak?



# Balancing Risk for Outdoor Gatherings



## Density, Circulation, Size and Duration are the key risk factors for outdoor gatherings:

- No one risk factor presents an inherently larger risk than any other
- Risk factors mitigate each other, for example: a larger gathering would be mitigated if it is less dense, or if less time is spent in it; a more dense gathering would be mitigated if circulation or duration is low; and so on
- Risk factors should be considered in relation to the size of the underlying risk, comprising elements such as community infection rates and likely attendance of vulnerable or susceptible groups



## Risk must be balanced and mitigated across risk factors, for example:

- If the density of an outdoor gathering allows the norms of natural social distancing in everyday life to continue, then the underlying risk is largely mitigated
- If density is increased beyond the norms of natural social distancing, then risk will need to be mitigated across the other risk factors of circulation, size and duration
- Risk might be mitigated extensively by one or two risk factors, or moderately across three or four



## The risk of a cluster outbreak is mitigated by:

- The size of the underlying risk
- The extent to which density, circulation, size and/or duration are or are not increased
- How many risk factors are or are not increased



## Risk should be considered in relation to:

- Each aspect of an event or activity that has different elements
- In aggregate for the event or activity as a whole

## About *spear*

The Centre for Sport, Physical Education & Activity Research (*spear*) is located within the Faculty of Science, Engineering & Social Sciences at Canterbury Christ Church University. *spear* undertakes a range of evidence-led analyses, from critical commentaries and reflections on current policy and practice, to commissioned research, evaluation and consultancy.

The Centre's research is funded by a range of national and international funders such as the International Olympic Committee, World Health Organisation, Terre des Hommes, Department of Health, Department for Education, Mencap, Access Sport, Chance to Shine, Premiership Rugby, Youth Sport Trust, UK Sport, ukactive, Sports Coach UK, Sport England and Sport Wales. Recent work has focused on sport, physical activity, health and wellbeing in schools and communities.

Research conducted by *spear* has helped guide and inform public policy by contributing to the wider evidence base used by policymakers, providing a rationale for government and commercial investment, and steering programme improvements that enhance the experience of practitioners and participants.

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