

The impact of banning sporting events and other leisure activities on the COVID-19 epidemic.

Nick Davies, Roz Eggo, Adam Kucharski and John Edmunds
on behalf of CMMID COVID-19 Modelling Team
London School of Hygiene and Tropical Medicine
11th March 2020

Background

There is currently much interest in banning mass gatherings as a way to mitigate the COVID-19 epidemic. We assessed the likely impact of these measures.

Methods

We use the LSHTM age-structured stochastic transmission dynamic model. We look at the impact of 2 different policies:

- 1) Banning all major sporting events.
- 2) Reducing all leisure-related contacts (pubs and bars, restaurants, cinema, etc) by 75%.

To estimate the impact of banning sporting events, we used estimates of the cumulative attendance at these events across the UK in 2019 (<https://twocircles.com/gb-en/articles/uk-named-world-capital-of-live-sport-following-new-attendance-analysis/>). The average person in the UK makes 10.9 contacts per day, 3.7 of which are “other”, of which 1.8 are “leisure” (Mossong et al 2008). Given a UK population of 67,530,172 in 2019 (same year as sports analysis), this means there are 250,536,938 “other” contacts per day. Attendance at UK sporting events is 75,100,000 per year, which works out to 205,753 per day. If individuals make 5 contacts per event, this is 1,028,767 contacts per day. Accordingly, banning sporting events should reduce “other” contacts by $1,028,767 / 250,536,938 = 0.41\%$. We reduced “other” contacts by this amount for the “banning spectator sports” scenario.

Conversely, reducing “leisure” contacts by 75% should reduce “other” contacts by $(0.75 \times 1.79) / 3.71 = 36.2\%$. We reduced “other” contacts by this amount for the “clampdown on leisure activities” scenario.

Both of these strategies are applied to:

- a) An uncontrolled epidemic.
- b) A partially mitigated epidemic in which case isolation and cocooning of the elderly (65+) are in place for 7 months, starting from mid March.

Results

The figure below shows the impact of the different measures. Banning attendance of sporting events has an imperceptible impact on the epidemic.