

# Will COVID-19 win the Super Bowl in 2021?



Applied and Computational Epidemiological Studies (ACES), University of Hawaii



Super Bowl Sunday is fast approaching, and while many families and groups of friends have traditions to watch the big game together, the Centers for Disease Control and Prevention suggests that you may not want to do that this year because of the coronavirus pandemic. It is safer to host a virtual Super Bowl watch party and rather have an outdoor viewing party on a projector screen, strictly following COVID-19 guidelines.

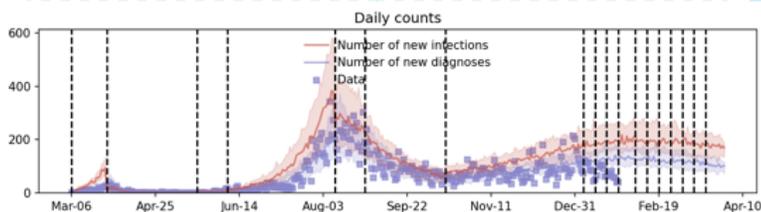
We show three scenarios forecasting the possibility for Super Bowl celebrations to be a super spreader event, once with a new more transmissible strain seeding in Hawaii and one without.

Vaccines Assumptions:

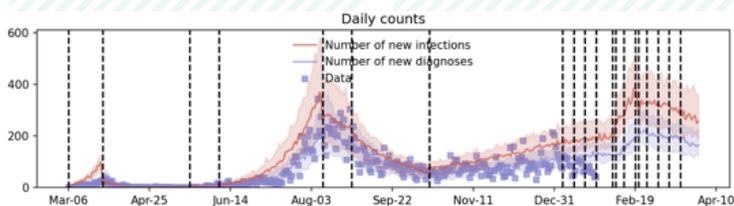
- We assume 2 doses with reduction of symptoms by 95%, and reduction in transmissibility by vaccinated people is 50%.
- We assume 60% of individuals in phase 1a and 2b of Hawaii vaccination planner vaccinated over a 3 months period with total vaccination divided in uniform weekly batches.

Super Bowl Impact: Assuming an increase in spread transmission rate during two weeks starting on Sunday to the same value Hawaii experienced after July 4.  
Strain assumption: 66% more transmissible than the current rate. Seeded in the community assuming 3 individuals per day for the first week of February.

Scenario 1: Simulation assuming no spike to Super Bowl and no new strain



Scenario 2: Simulation assuming spike to Super Bowl but no new strain



Scenario 3: Simulation assuming spike to Super Bowl and the new strain

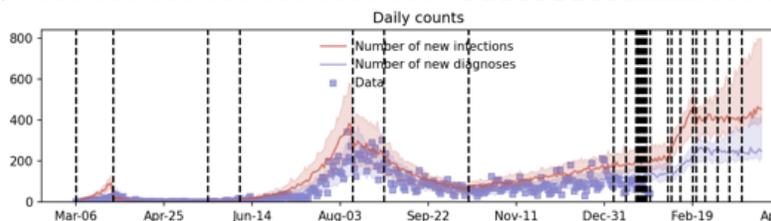


Table: Comparing the three scenarios

Scenarios	Daily Diagnosis (March)	Maximum Diagnosis	Cumulative Diagnosis	Severe Hospitalization
No Super Bowl and no strain	101	141 (Jan 25)	29949	2581
Super Bowl	165	223 (Feb 26)	33944	2835
Super Bowl + Strain	249	266 (Feb 25)	34975	2949

Conclusion!

The Super Bowl has the potential to be a 'superspreader' event, similar to July 4th last year. The daily cases would follow a spike and then decrease back to current numbers. If in addition, we assume a more transmissible strain is already seeding in the community, the impact of the vaccines on the curve would likely be canceled out, at least in the short term.

We used the COVID-19 Agent-based Simulator (Covasim), an open-source model that includes some demographic information; realistic transmission networks in different social layers; age-specific disease outcomes; and intrahost viral dynamics, including viral-load-based transmissibility. It also supports an extensive set of interventions, including vaccinations.

*Covasim: an agent-based model of COVID-19 dynamics and interventions Kerr, et al.*

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