CI Research 4 Social Change REU

Codeathon Presentations

June 9th, 2023

TEAM AVEE

Team Members

A vey

V ernonika

M ilia

E ileen

GOAL....

To analyze data on how social distancing mitigates disease propagation.

MITIGATION REFERENCE:

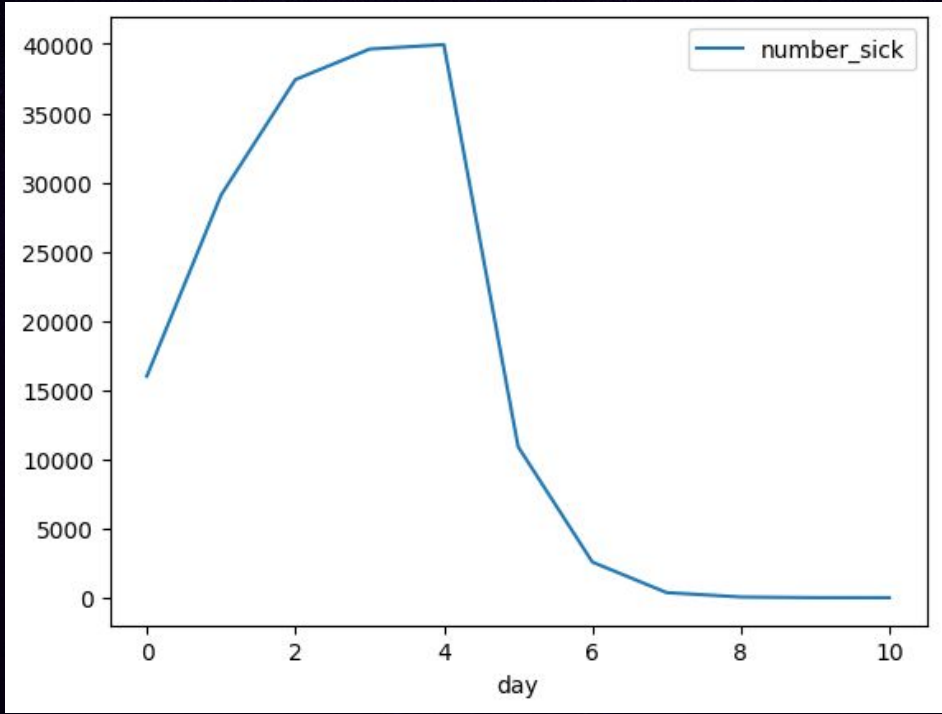
Findings:

"In this systematic review and meta-analysis of 95 unique studies with **29 776 306** individuals undergoing testing, the pooled percentage of asymptomatic infections was **40.50%** among the population with confirmed COVID-19." (Ma et. al.,2021)

Source:

Ma, Q., Liu, J., Liu, Q., Kang, L., Liu, R., Jing, W., ... & Liu, M. (2021). Global percentage of asymptomatic SARS-CoV-2 infections among the tested population and individuals with confirmed COVID-19 diagnosis: a systematic review and meta-analysis. JAMA network open, 4(12), e2137257-e2137257.

RESULTS


number_sick
40000
35000
30000
25000
20000
15000
10000
5000
0
0
2
4
6
8
10
day

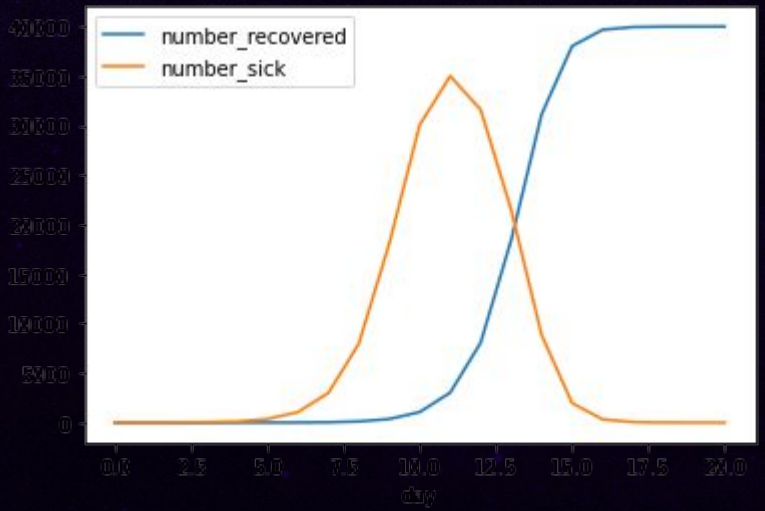
DDES

Team Goal

Our goal is to see the effectiveness of the Moderna, Pfizer, and CoronaVac vaccine in lowering the infection rate

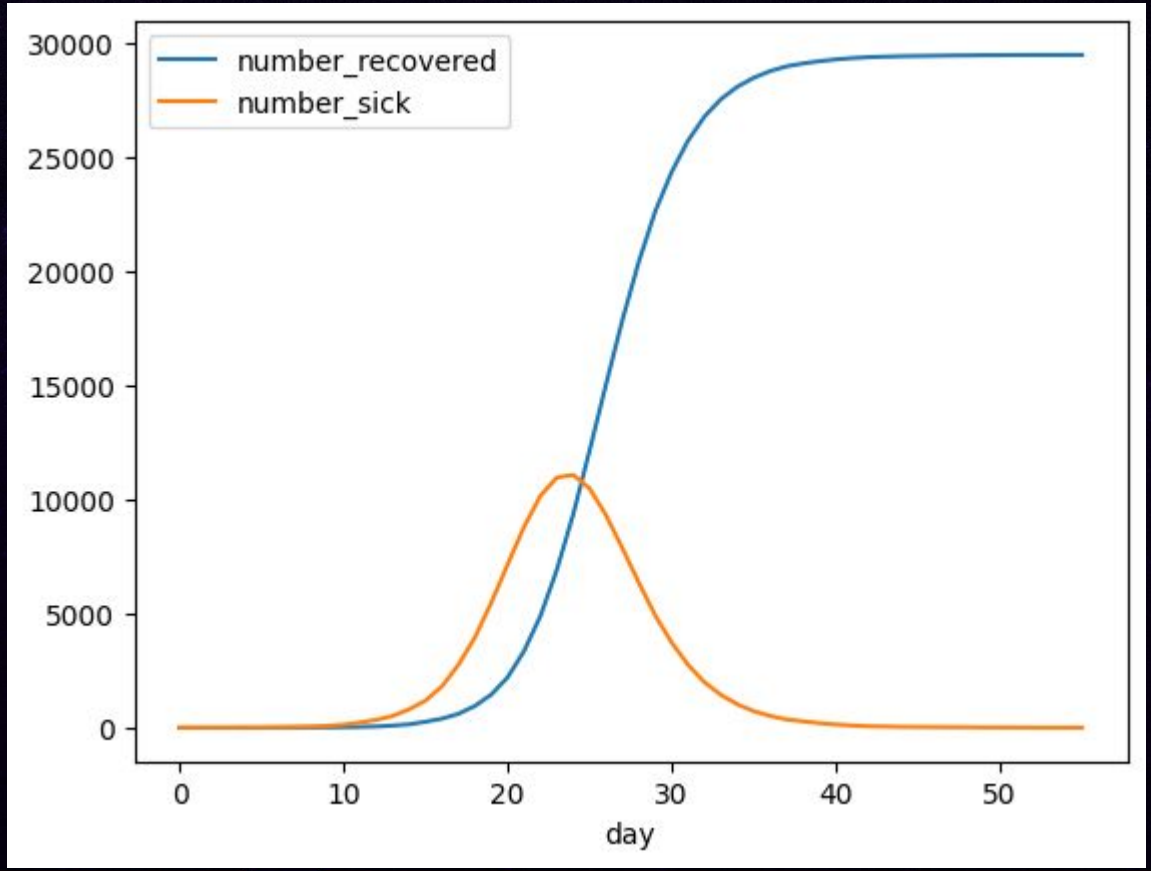
Base Value

2%


number_recovered
number_sick
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
day

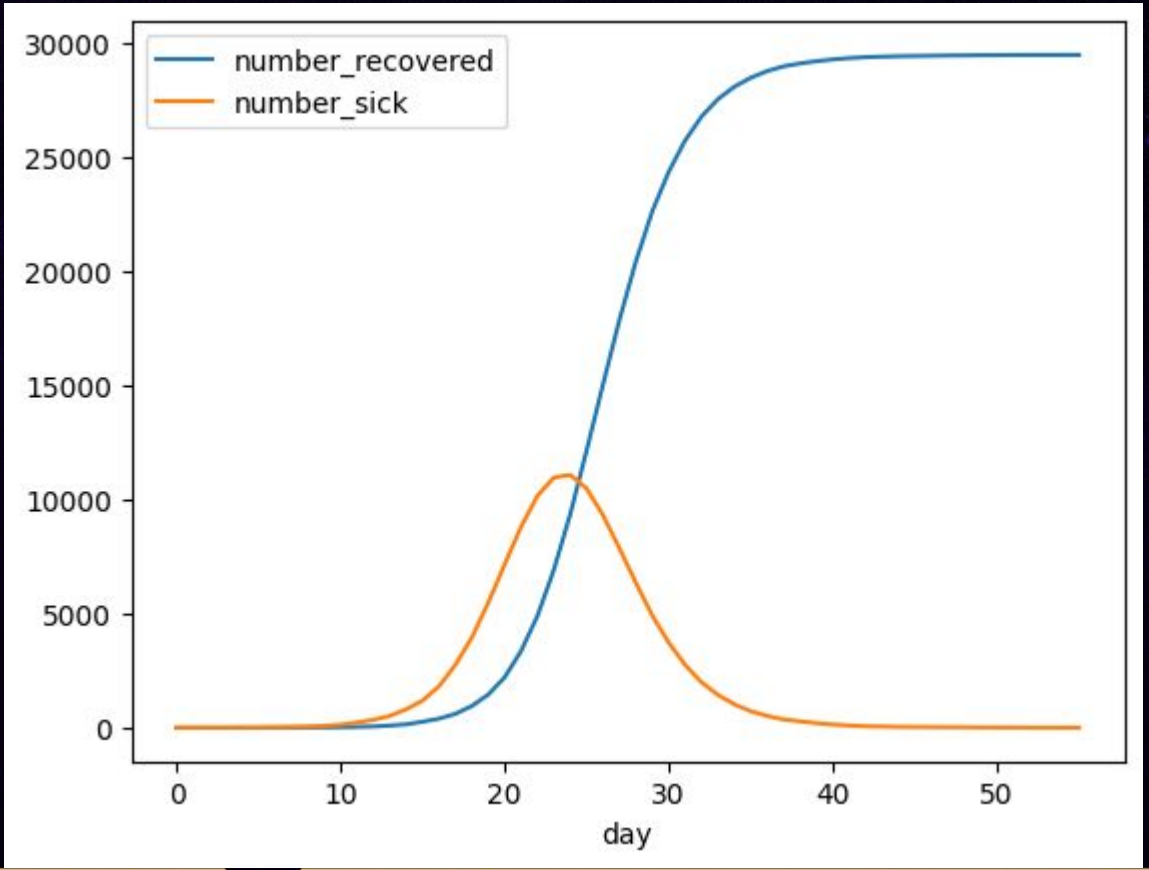
Moderna Vaccine

98.1% effectiveness



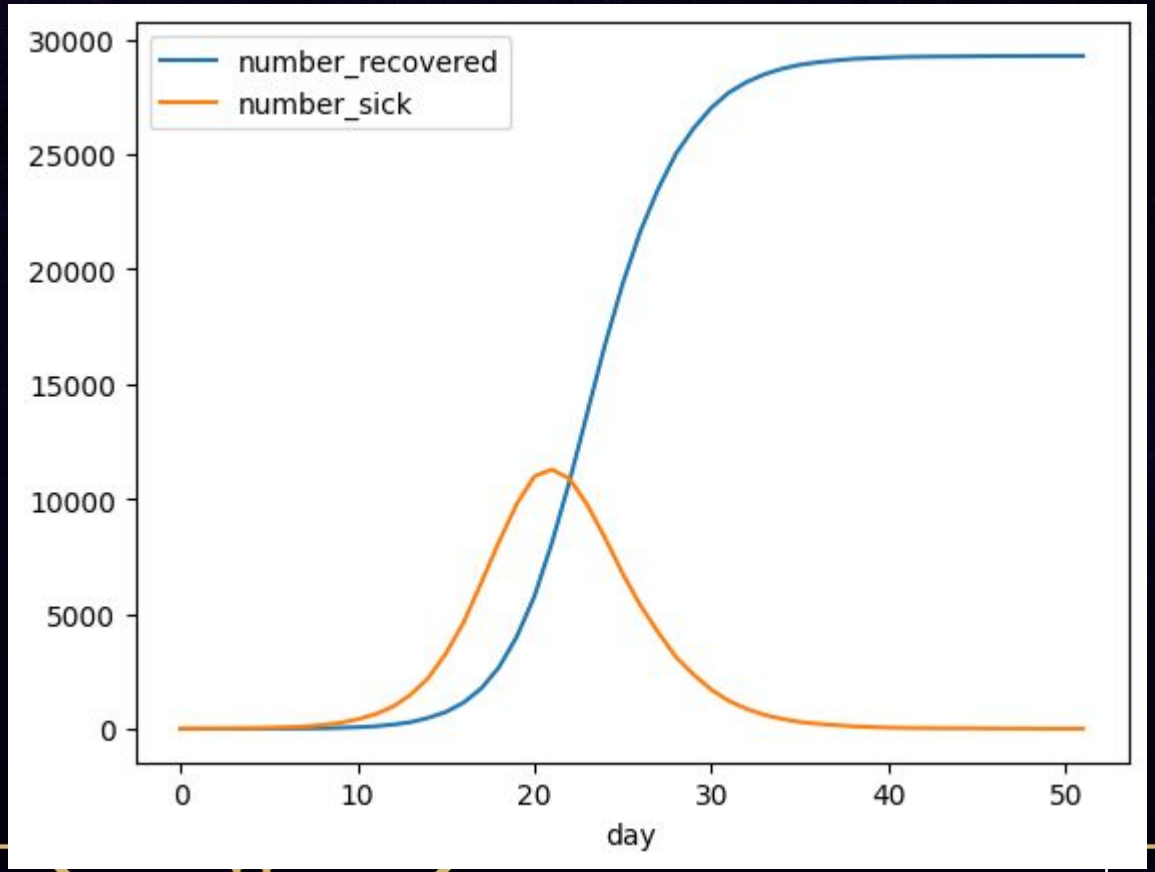
Pfizer Vaccine

91.2% effectiveness



CoronaVac Vaccine

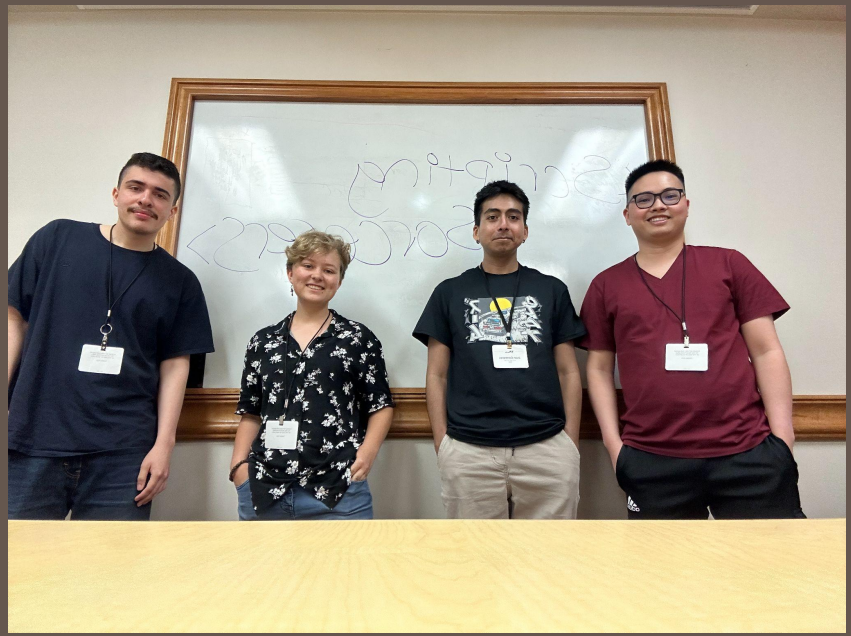
65.7% effectiveness



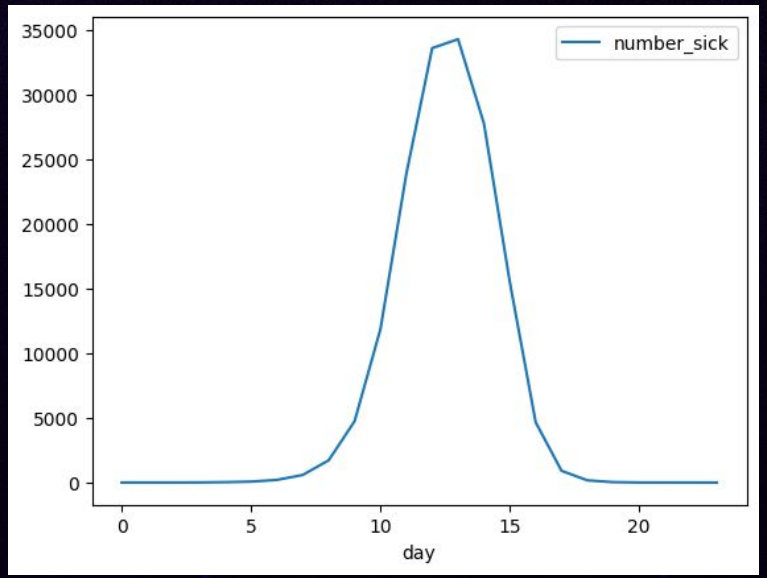
Mitigation Reference

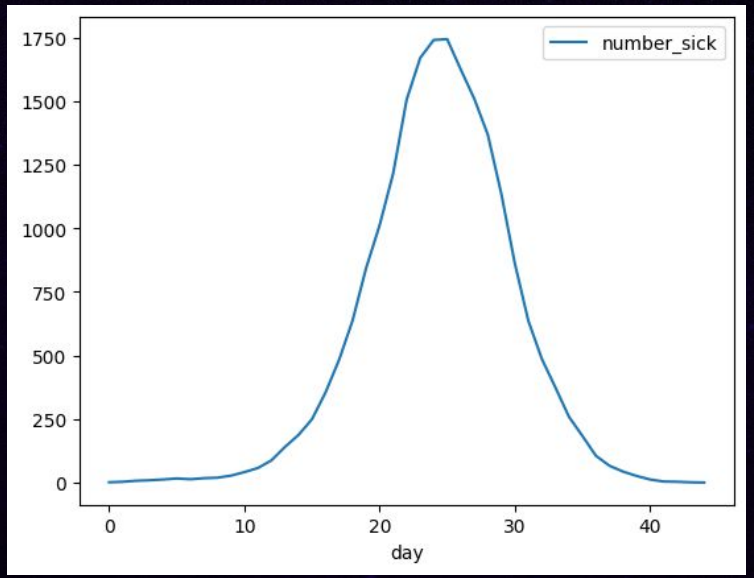
Zheng, C., Shao, W., Chen, X., Zhang, B., Wang, G., & Zhang, W. (2021, November 17). *Real-world effectiveness of covid-19 vaccines: A literature review and meta-analysis*. International Journal of Infectious Diseases. https://www.sciencedirect.com/science/article/pii/S1201971221008572#cebibl1

SCRIPTING SORCERERS



Team Goal: Effectiveness of N95 mask combined with Moderna and J&J vaccines on reducing number of people infected.





Effectiveness of N95 respirators versus surgical masks against influenza: A systematic review and meta-analysis - Long - 2020 - Journal of Evidence-Based Medicine - Wiley Online Library

Mask use during COVID-19: A risk adjusted strategy

CCAT

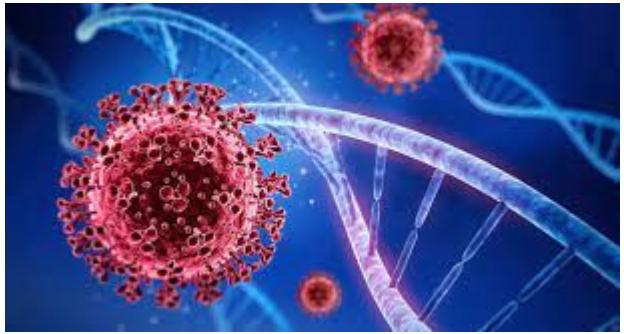

TACC
TEXAS ADVANCED COMPUTING CENTER
TEXAS
The University of Texas at Austin

CCAT

Team Members:
Andrew, Connor, Kole, Emma

Team Goal:

Our team goal is to look at the mitigation of COVID-19 outbreaks with the vaccine. Specifically, focusing on the transmission rates and recovery rates.

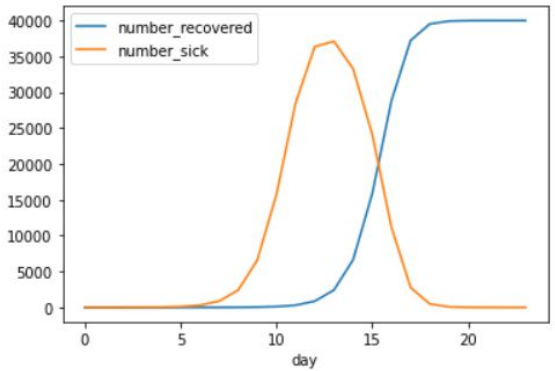


Results

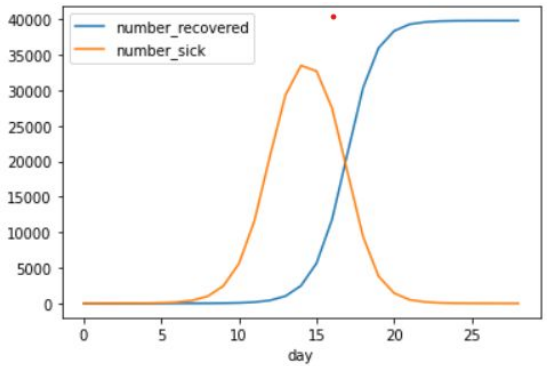
The curve has flattened, demonstrating a decrease in the instances of COVID cases per day with a vaccine vs without. The curve also flattens based on the percentage of the population vaccinated.

Population: 40,000
Interaction a day: 5

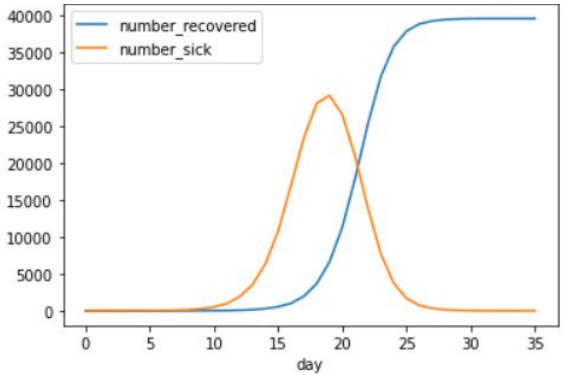
0% Vaccinated



50% vaccinated in the population



100% Vaccinated

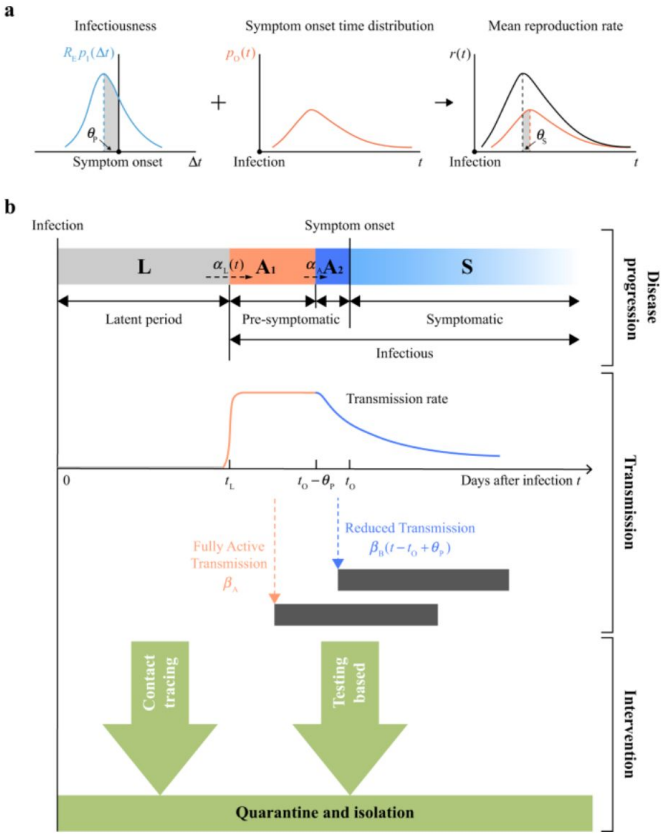


Outside of our scope:)

Mitigation Reference

https://www.nature.com/articles/s41467-021-21385-z

Fig. 1: A stochastic model for COVID-19 disease progression, transmission and intervention.



The BeeHives

Team member: Nimo, Rachel, Davis

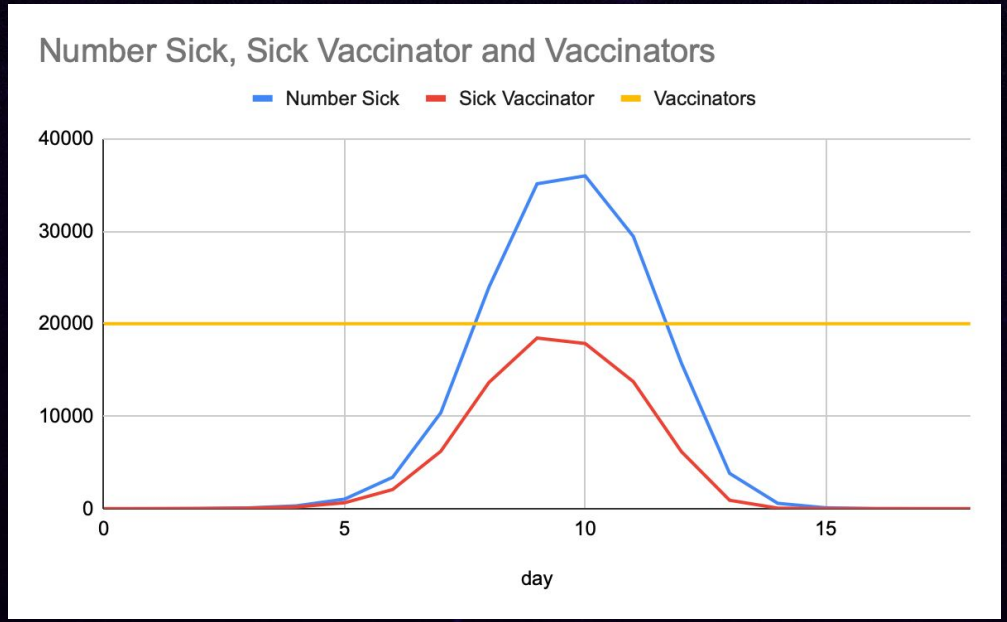
Team goal: Finding of the effe iveness of Johnson-Johnson

Team Goal

Testing the effectiveness of the vaccination, Johnson and Johnson against covid-19 during the pandemic. We will focus on how the J & J vaccine affects the infection rate of our population.

Results

day	Number Sick	Sick Vaccinator	Vaccinators
0	1	0	20000
1	5	3	20000
2	22	14	20000
3	83	53	20000
4	305	191	20000
5	1031	638	20000
6	3398	2070	20000
7	10370	6208	20000
8	23948	13649	20000
9	35127	18449	20000
10	35987	17859	20000
11	29438	13736	20000
12	15717	6160	20000
13	3819	910	20000
14	578	57	20000
15	94	3	20000
16	15	0	20000
17	3	0	20000
18	0	0	20000



Mitigation Reference

https://jamanetwork.com/journals/jama/article-abstract/2777172