



Modellierungstage: Epidemie

Mit Net Logo und Excel

Fragestellung

- Wie groß ist der Unterschied im Verlauf der Epidemie mit Social Distancing und ohne?
- Wie hoch wäre die Sterblichkeit und die Krankenhaus-Kapazität ohne Einschränkungen?

Net Logo

COVID-19 SIMULATION

Read description & click on CREATE THE TOWN at the bottom of the page.

2 people living in a town of 1000 people returns from a trip. Unfortunately, they were infected with the virus SARS-CoV-2 and they did not know that.

- Each person lives with 2 others on average. Moreover, there are common places, specifically 2 schools, a place of worship, 5 cafes/restaurants, 10 workplaces, and 15 buses in the town. Different number of people are associated with each of these respectively and use/visit them each day.

- Each day, an infected (but not severely-ill) person can infect those who live in the same house or those who share a common place, according to the transmission-probability.

- On the 21st day of her infection, a person becomes severely ill according to the severe-case-ratio.

- Each day, severely-ill people are hospitalized as long as the hospital-capacity allows.

- On the 28th day of her infection, a severe person dies or recovers according to relevant death probabilities. A recovered person is assumed to earn

PLAYGROUND

ps. once you close a common place, you cannot reopen it.

school-goers 10 person	hospital-capacity 25 person	workplaces? <input type="checkbox"/>
worship-goers 0 person	transmission-probability 30 %	church? <input type="checkbox"/>
off-ice-goers 100 person	severe-case-ratio 20 %	schools? <input type="checkbox"/>
bus-takers 100 person	death-probability-at-hospital-for-severe... 25 %	cafes? <input type="checkbox"/>
cafe-goers 0 person	death-probability-at-home-for-severe... 65 %	buses? <input type="checkbox"/>

The above parameters can be changed BEFORE town creation.

The above parameters can be changed both BEFORE and DURING the simulation.

CREATE THE TOWN

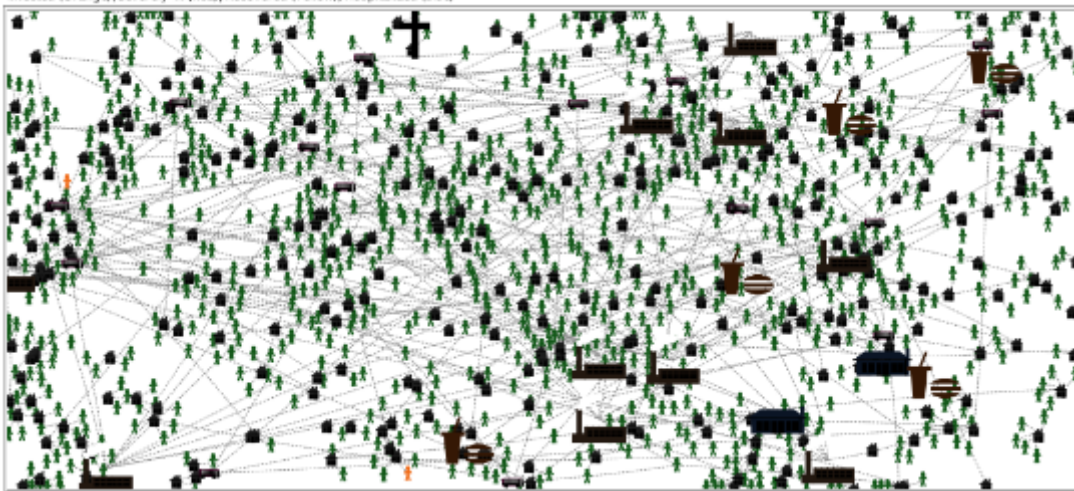
PASS ONE DAY

Day

0

Run until Day 365

infected (Orange), Severely-ill (Red), Recovered (Yellow), Hospitalized (Blue)



Living (%) 100	Dead (%) 0	
Never-got-sick (%) 99.8	Infected (%) 0.2	Recovered (%) 0
Severe (%) 0	Severe-at-home (%) 0	Severe-at-hospital (%) 0

Annahmen und Beschreibung

- 1000 Einwohner (z.B. Rothenfels)
- Zeitraum: 365 Tage
- Situation: zwei Personen kommen infiziert aus dem Urlaub zurück
- Rothenfels ist abgeschottet
- Einschränkungsmaßnahmen entsprechend der aktuellen Situation in Hamburg
- **Je weniger Kontaktbeschränkung, desto mehr Infektionen**

Infektionsverlauf

Ohne Einschränkungen

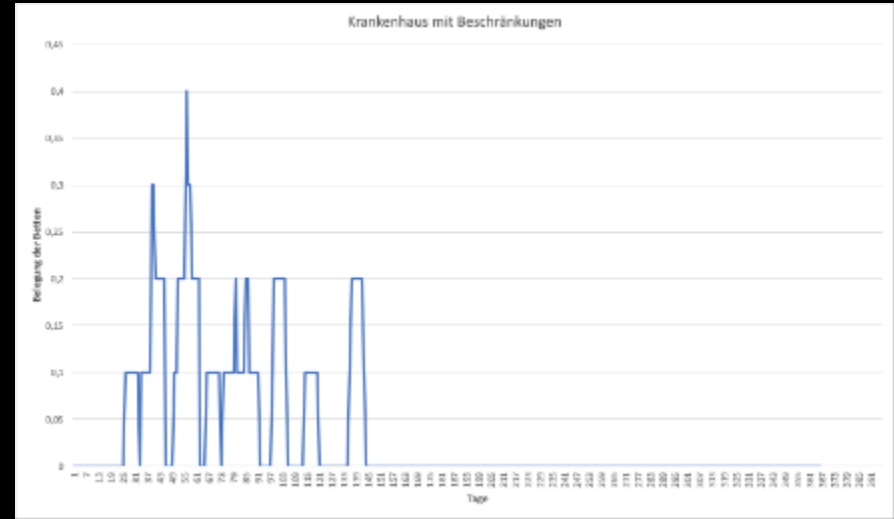
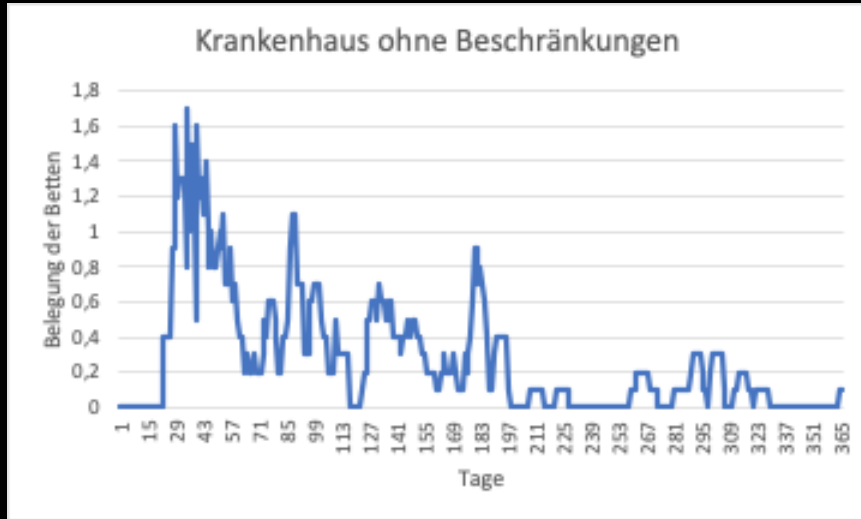
Mit Einschränkungen



Krankenhauskapazität

Ohne Einschränkungen

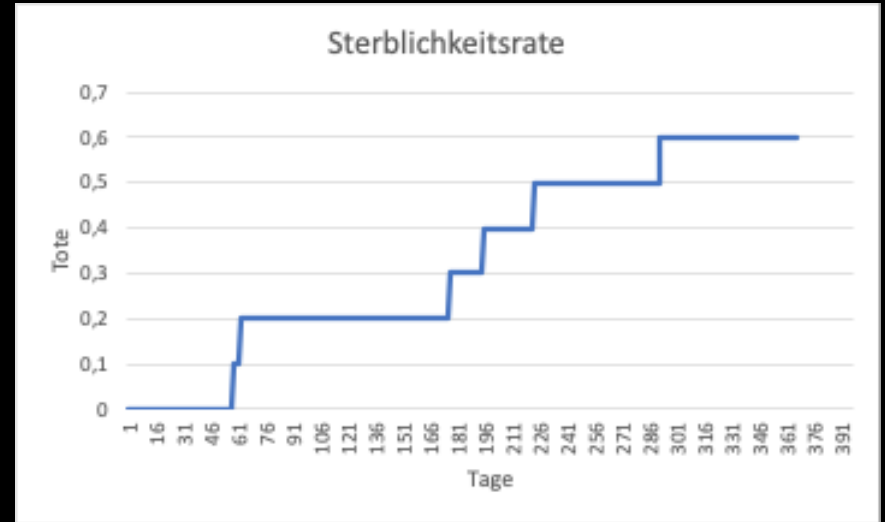
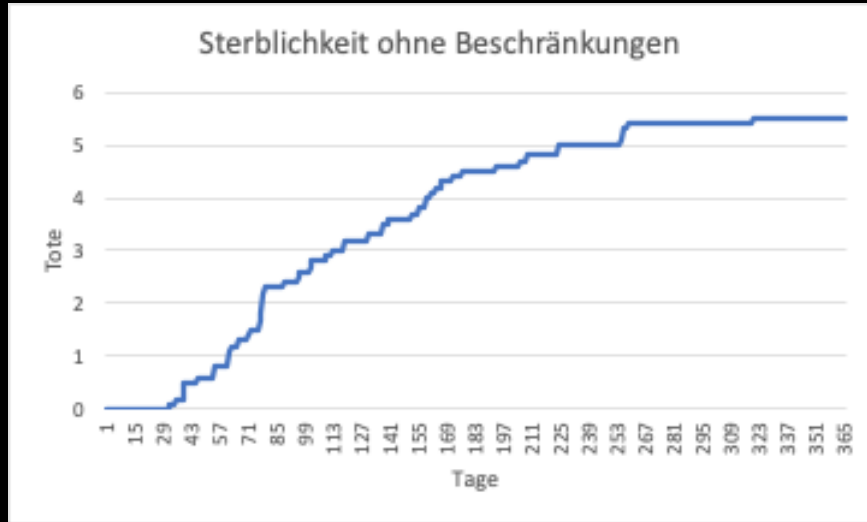
Mit Einschränkungen



Sterblichkeitsrate

Ohne Einschränkungen

Mit Einschränkungen



Reflektion

Wie könnte man weiterarbeiten?

- Auf das Alter und mögliche Vorerkrankungen der Menschen differenzierter eingehen
- Welche Maßnahmen lohnen sich?
- Wann und was bringt Impfen?