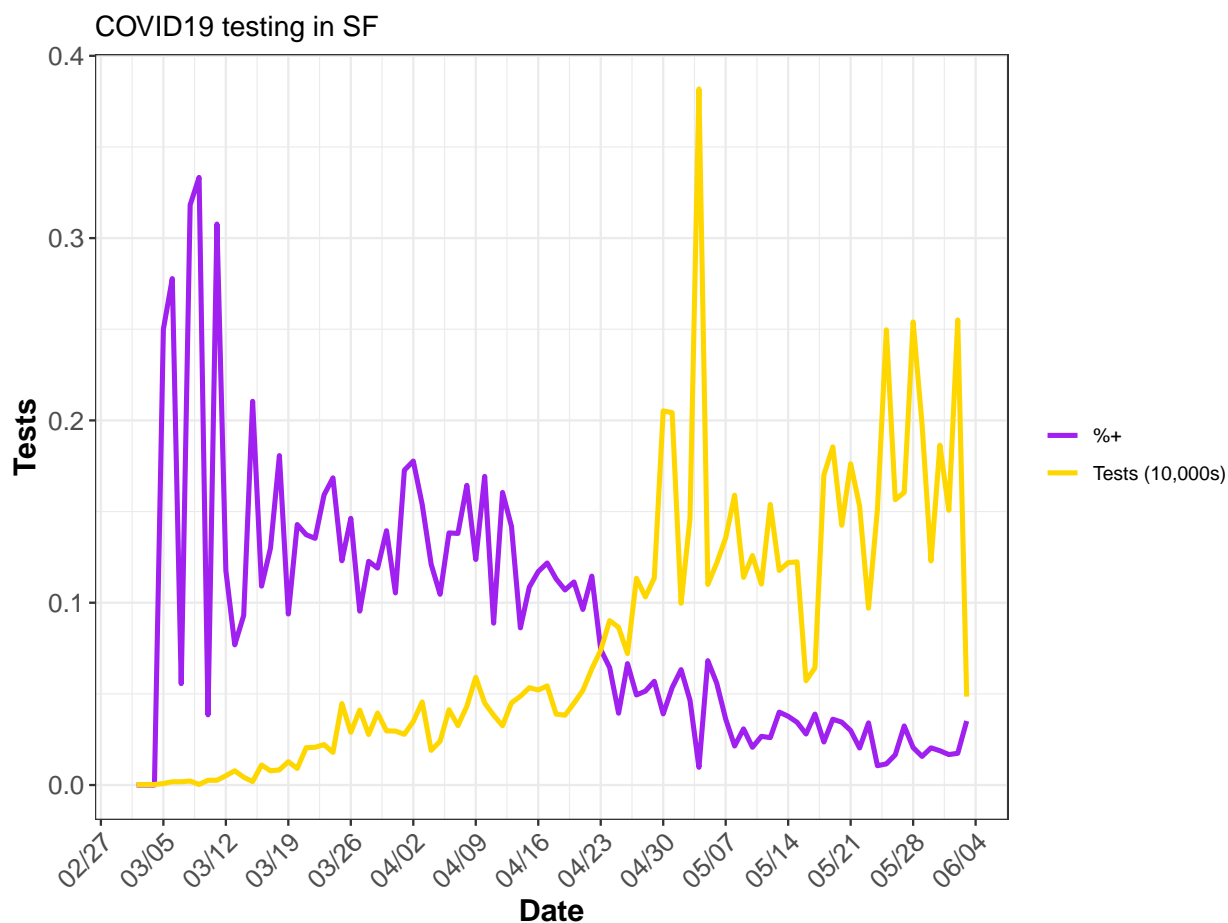


Shelter in Place Triggers

Chris Hoover

6/4/2020

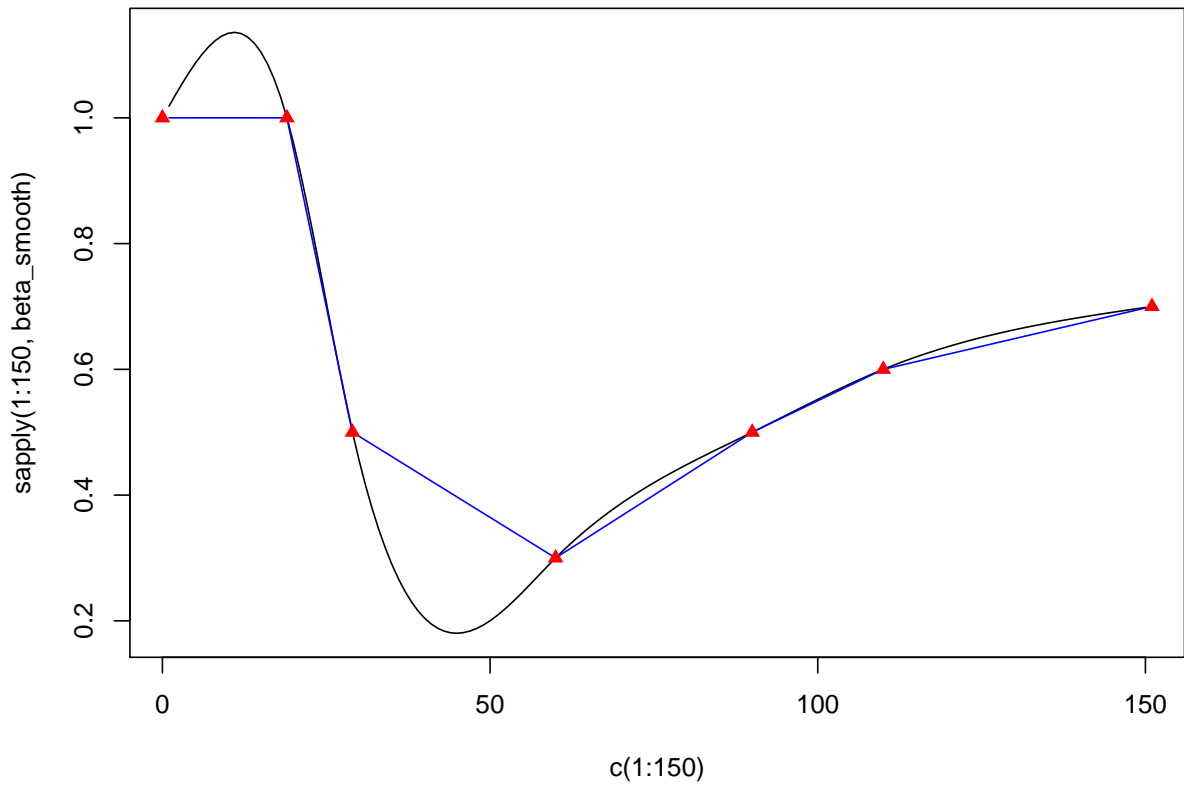
Testing



Model

We use a slight tweak to LEMMA to add an explicit deaths compartment in order to fit to deaths data in addition to hospitalizations

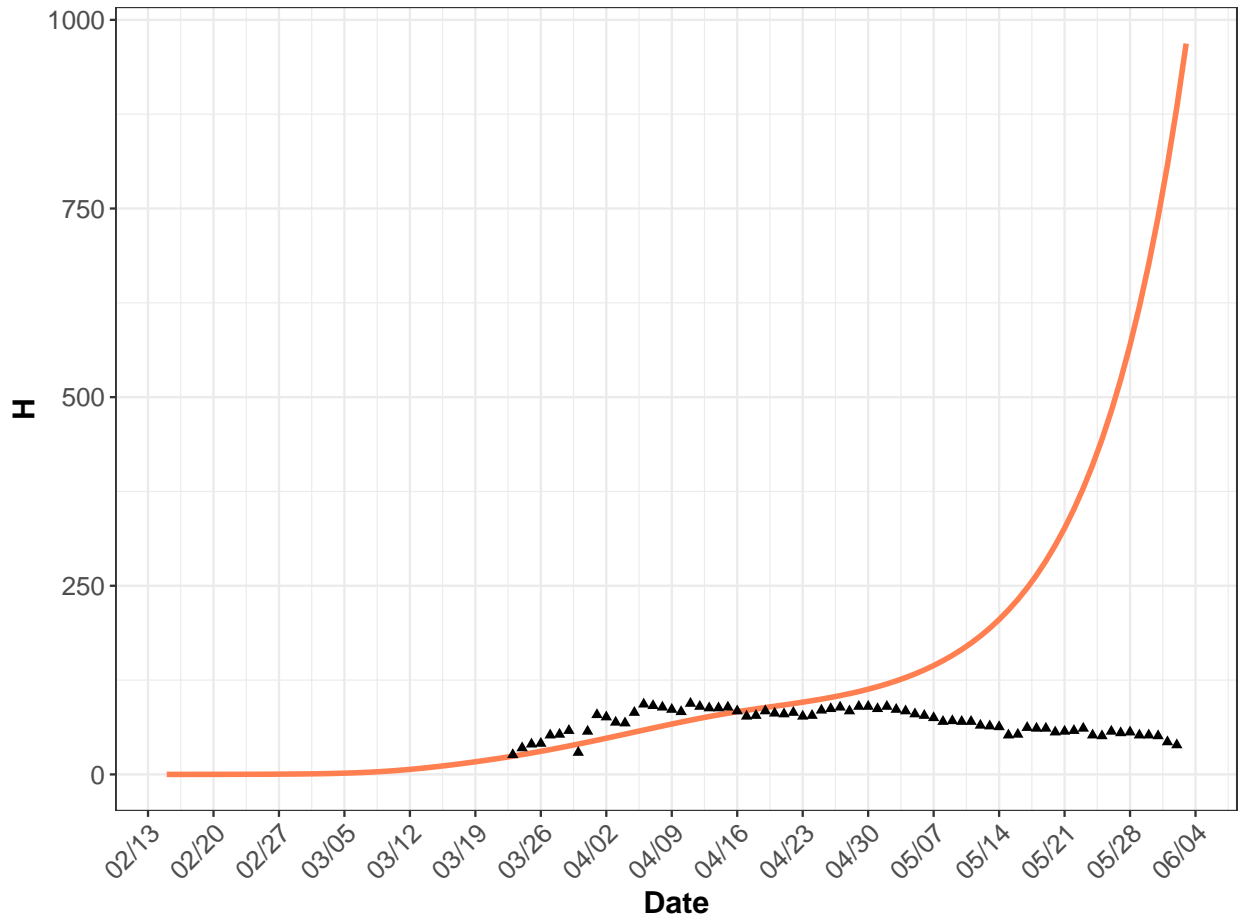
$$\begin{aligned}
\dot{S} &= -\beta S(I_R + I_H)/N \\
\dot{E} &= \beta S(I_R + I_H)/N - \sigma E \\
\dot{I}_R &= \sigma(1 - \alpha)E - \gamma_R I_R \\
\dot{I}_H &= \sigma \alpha E - \rho I_H \\
\dot{H} &= \rho I_H - \gamma_H H \\
\dot{D} &= \gamma_H \mu H \\
\dot{R} &= \gamma_R I_R + \gamma_H (1 - \mu) H
\end{aligned}$$



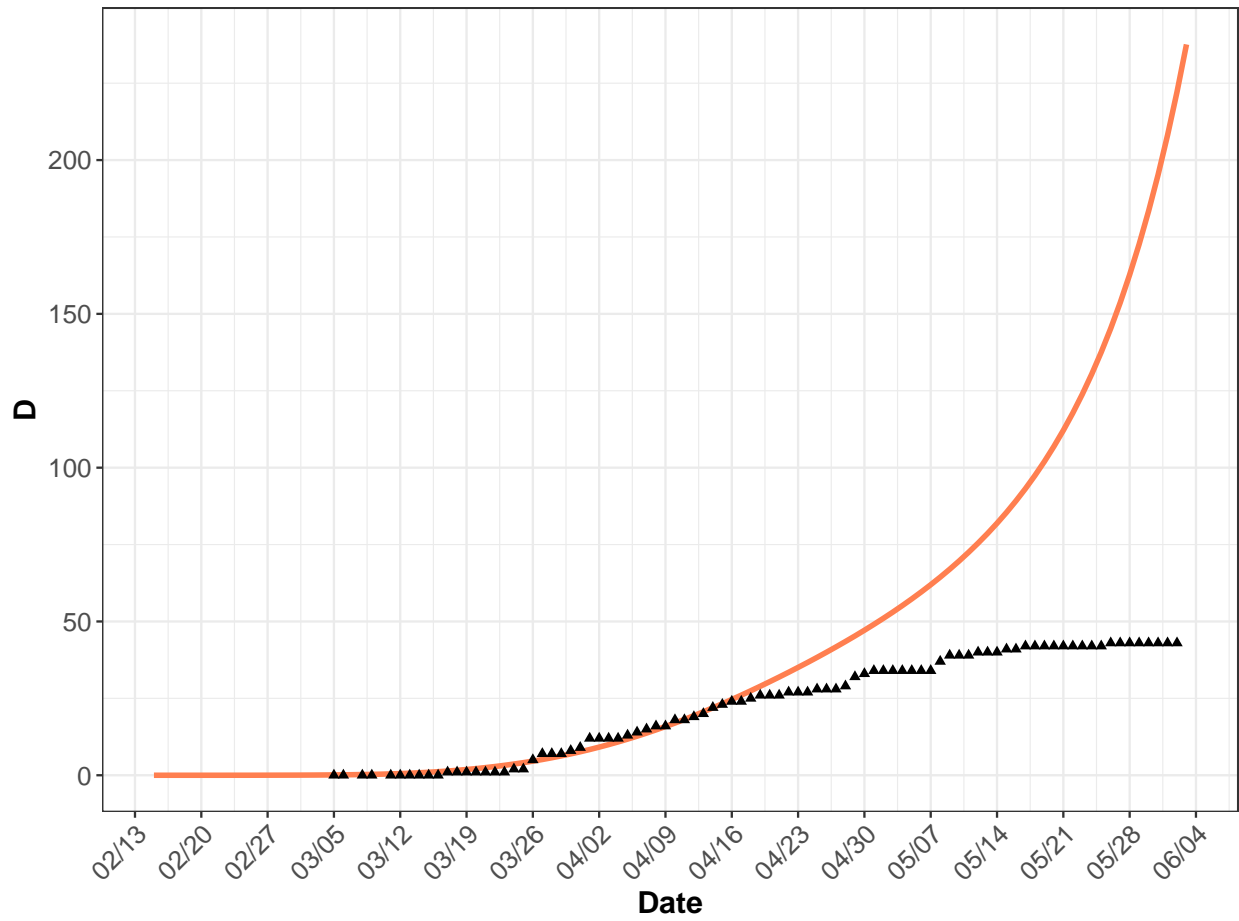
Warning: Removed 22 rows containing missing values (geom_point).

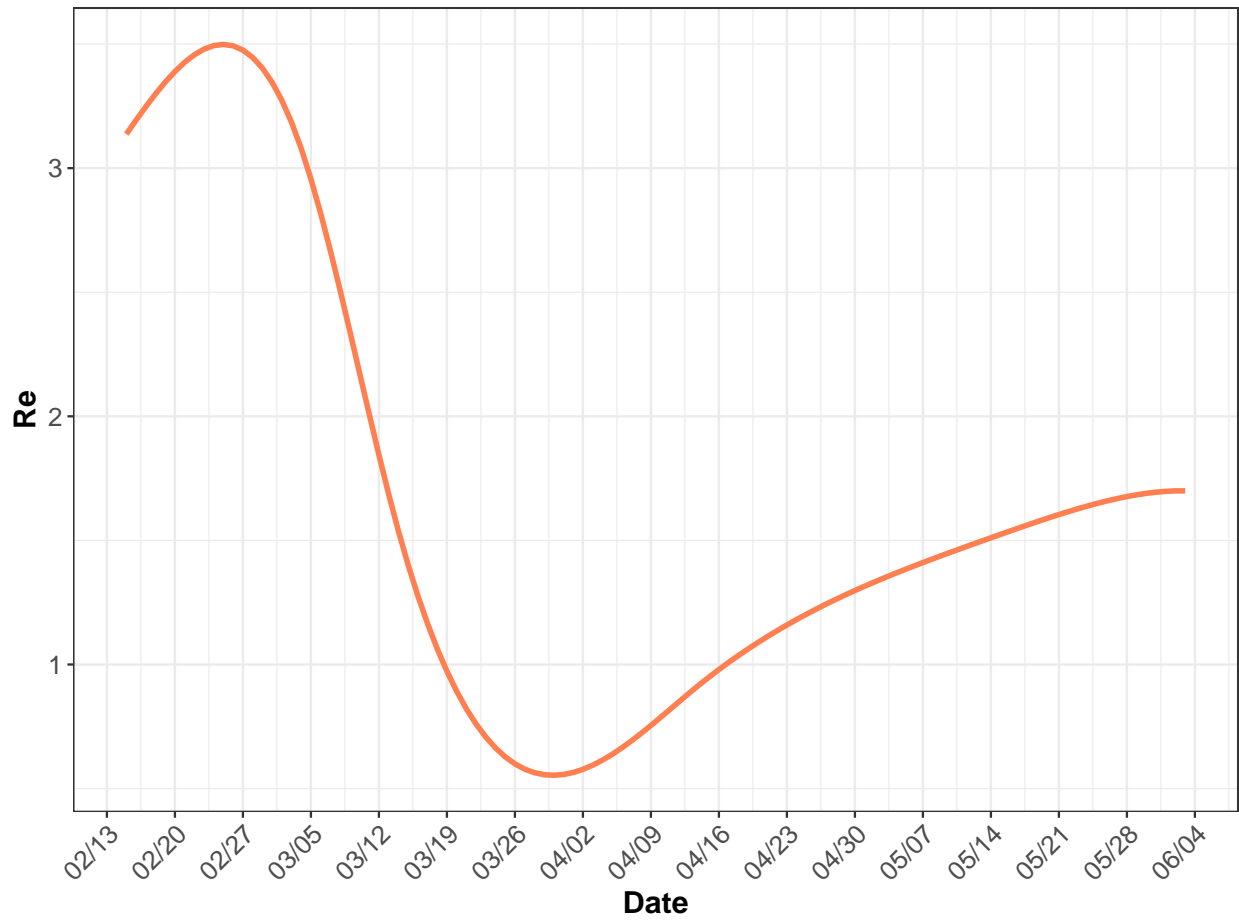
Table 1: Parameter values and descriptions used in the model

	Value	Definition
N	883305	population size
t.sim	110	time to run simulation
E_0	2	starting number of exposed
β	0.7	baseline transmission rate
c_r	1	Relative contact rate between S and Ir
c_h	1	Relative contact rate between S and Ih
σ	0.333	1/serial interval
α	0.05	proportion severely symptomatic (will be hospitalized)
ρ	0.25	time between symptom onset and hospitalization
γ_r	0.2	1/time to recovery (non-infectiousness) for mildly symptomatic
γ_h	0.083	1/time hospitalized
μ	0.2	proportion of hospitalized cases who die

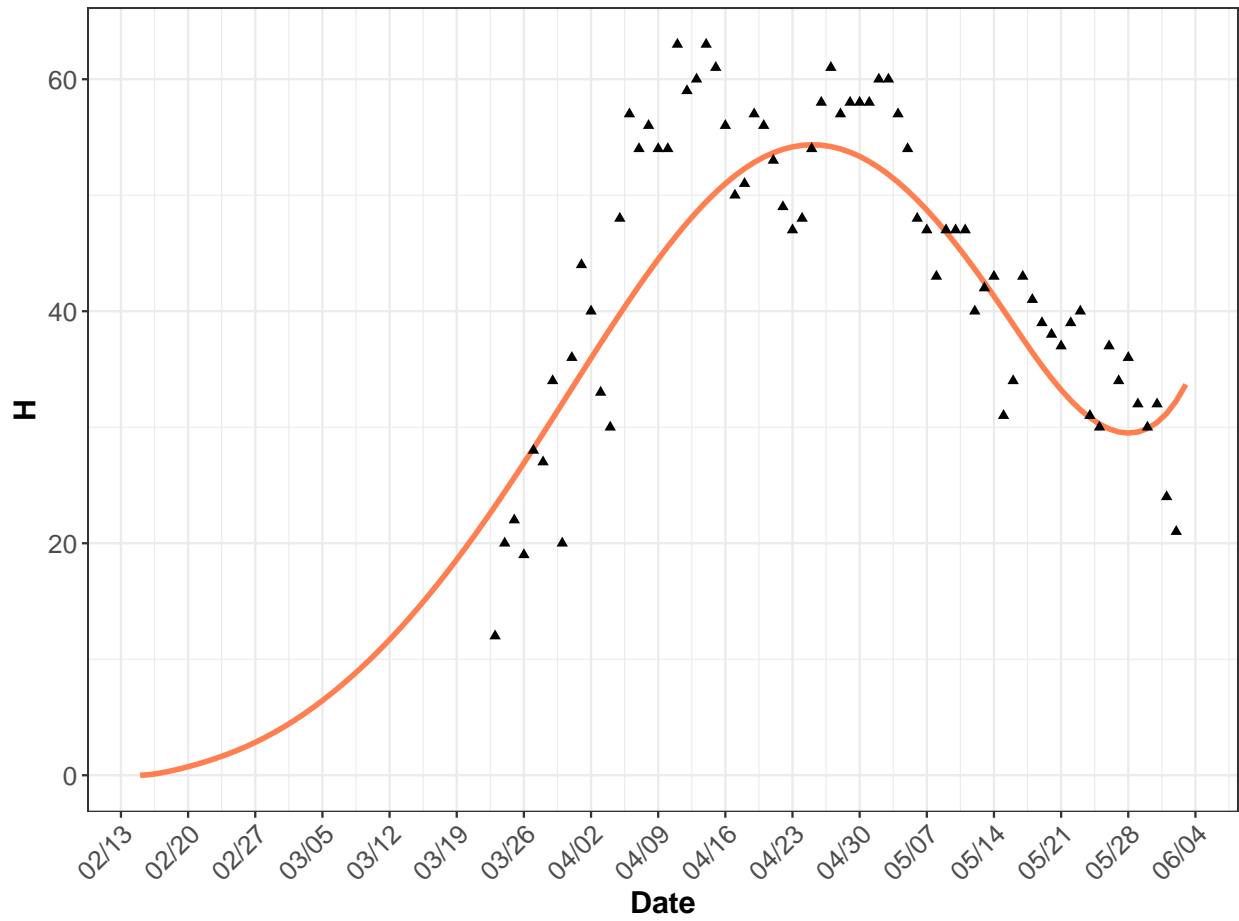


Warning: Removed 6 rows containing missing values (geom_point).

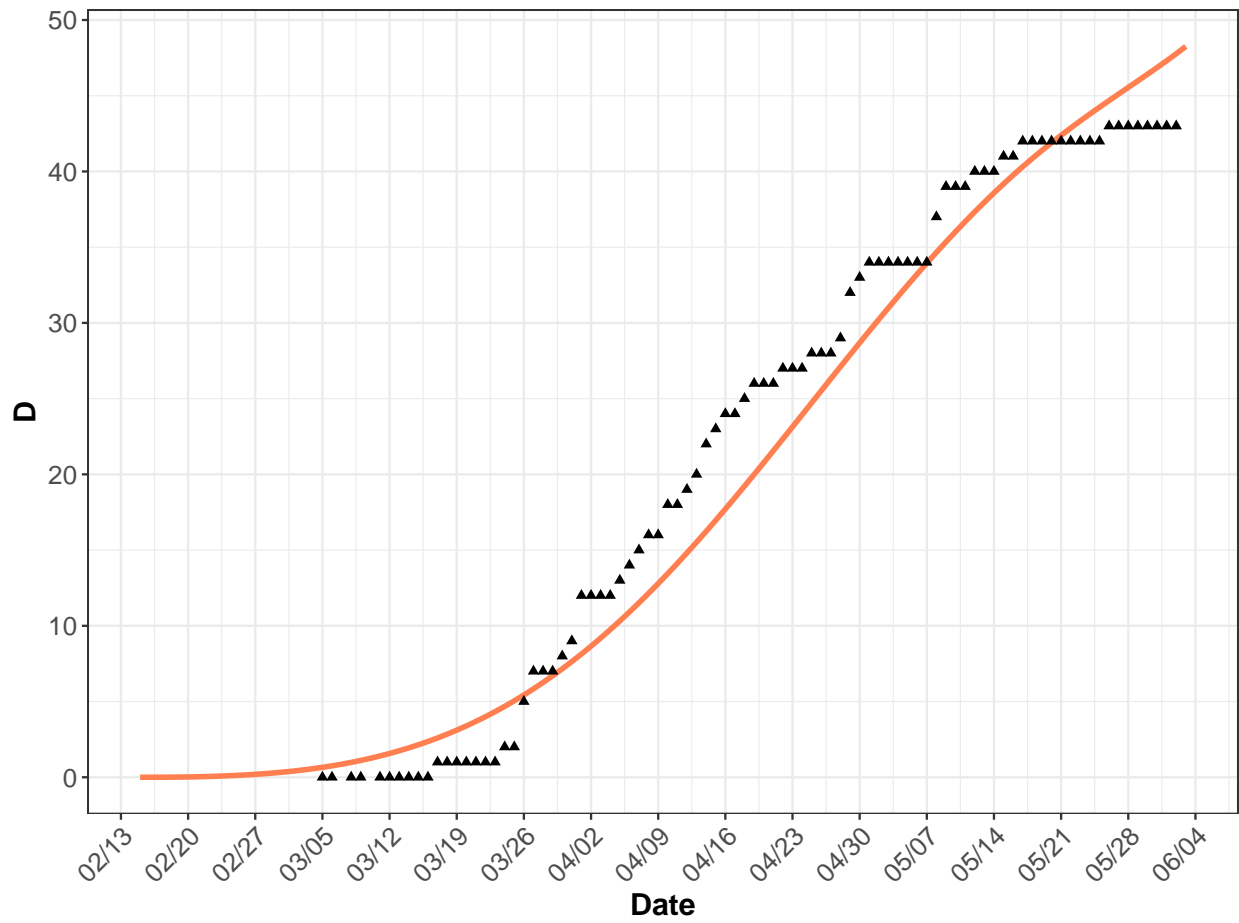




Warning: Removed 22 rows containing missing values (geom_point).



Warning: Removed 6 rows containing missing values (geom_point).



Warning: Removed 1 rows containing missing values (geom_path).

