



SCHOOL OF
PUBLIC HEALTH
UNIVERSITY OF MINNESOTA

SARS-CoV-2 (COVID-19) Modeling (Version 3.0), May 11, 2020

Model Outcomes of Scenarios Incorporated in Public Programming Code

Impact of Model Changes

Scenario 1*	V 2.0 (incl. uncertainty)	V 3.0 (incl. uncertainty)
Weeks until peak	7 (5 to 10)	7 (6 to 7)
Weeks until ICU capacity reached	4 (2 to 5)	4 (4 to 4)
Top ICU (ventilator) demand	3,300 (2,100 to 4,800)	5,000 (2,800 to 6900) [§]
Mortality (cumulative for a year)	50,000 (34000 to 69000)	57,000 (31,000 to 80,000)
Mortality (through end of May)	N/A	42,000 (25,000, 54,000)

* No mitigation - No reduction in contacts and no expansion in statewide ICU capacity

§ Assuming infinite ICU capacity

Impact of Model Changes

Scenario 2*	V 2.0 (incl. uncertainty)	V 3.0 (incl. uncertainty)
Weeks until peak	11 (9 to 15)	10 (9 to 10)
Weeks until ICU capacity reached	10 (8 to 14)	10 (9 to 10)
Top ICU (ventilator) demand	4,500 (3,200 to 6,000)	4,900 (2,700 to 6,800) [§]
Mortality (cumulative for a year)	40,000 (23,000 to 60,000)	49,000 (25,000 to 71,000)
Mortality (through end of May)	N/A	7,800 (5,700 to 17,400)

* Stay-at-home order for two weeks (ending on April 11, 2020), followed by 3 weeks of general social distancing

§ Assuming infinite ICU capacity

Impact of Model Changes

Scenario 3*	V 2.0 (incl. uncertainty)	V 3.0 (incl. uncertainty)
Weeks until peak	11 (9 to 15)	10 (8 to 10)
Weeks until ICU capacity reached	11 (9 to 15)	10 (9 to 10)
Top ICU (ventilator) demand	3,800 (2,700 to 4,900)	3,900 (2,100 to 5,500) [§]
Mortality (cumulative for a year)	22,000 (10,000 to 36000)	30,000 (15,000 to 44,000)
Mortality (through end of May)	N/A	4,600 (3,500 to 11,000)

* Extension of Scenario 2 to include continued social distancing for vulnerable groups (60 years+) until 30 days past the state's peak in COVID-19 deaths

§ Assuming infinite ICU capacity

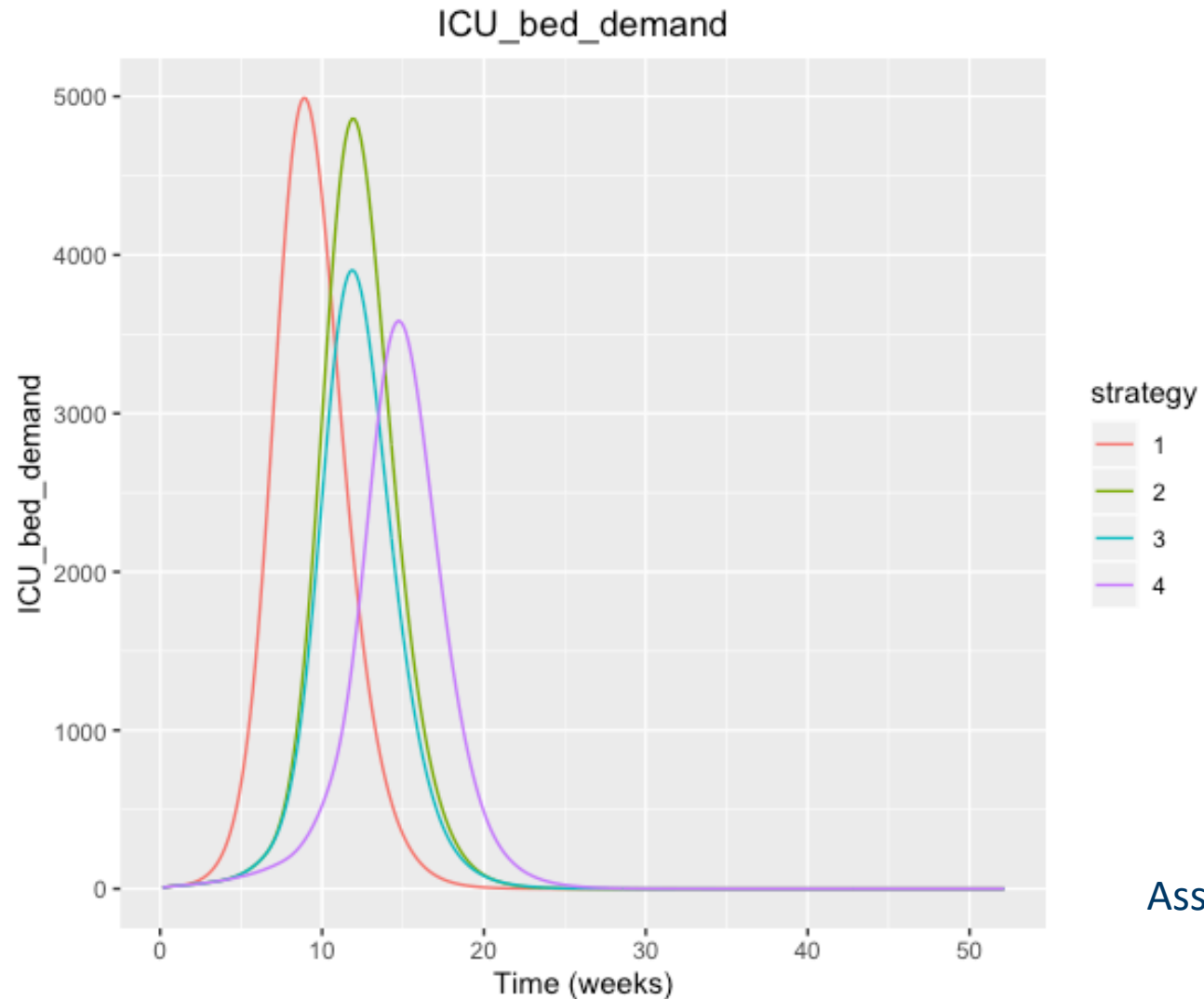
Impact of Model Changes

Scenario 4*	V 2.0 (incl. uncertainty)	V 3.0 (incl. uncertainty)
Weeks until peak	16 (13 to 21)	13 (11 to 13)
Weeks until ICU capacity reached	16 (13 to 21)	13 (12 to 13)
Top ICU (ventilator) demand	3,700 (2,700 to 4,900)	3,600 (2000 to 5,200) [§]
Mortality (cumulative for a year)	21,800 (9,900, 36,000)	29,000 (16,000 to 44,000)
Mortality (through end of May)	N/A	1,700 (1,400 to 2,000)

* Same as Scenario 3 except shelter-in-place policy remains in force for 6 weeks

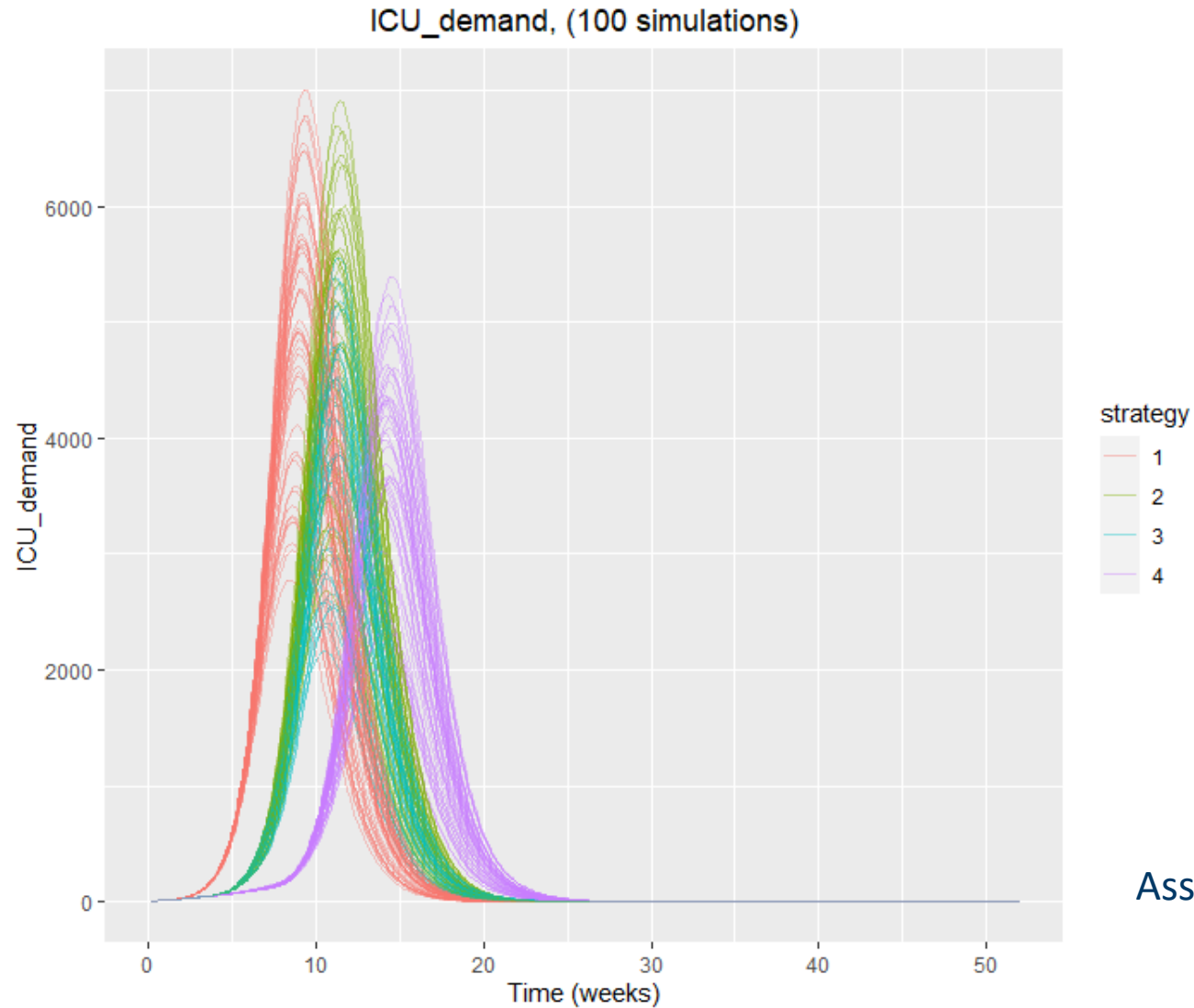
§ Assuming infinite ICU capacity

ICU Demand Curve under Base Case (v3.0)



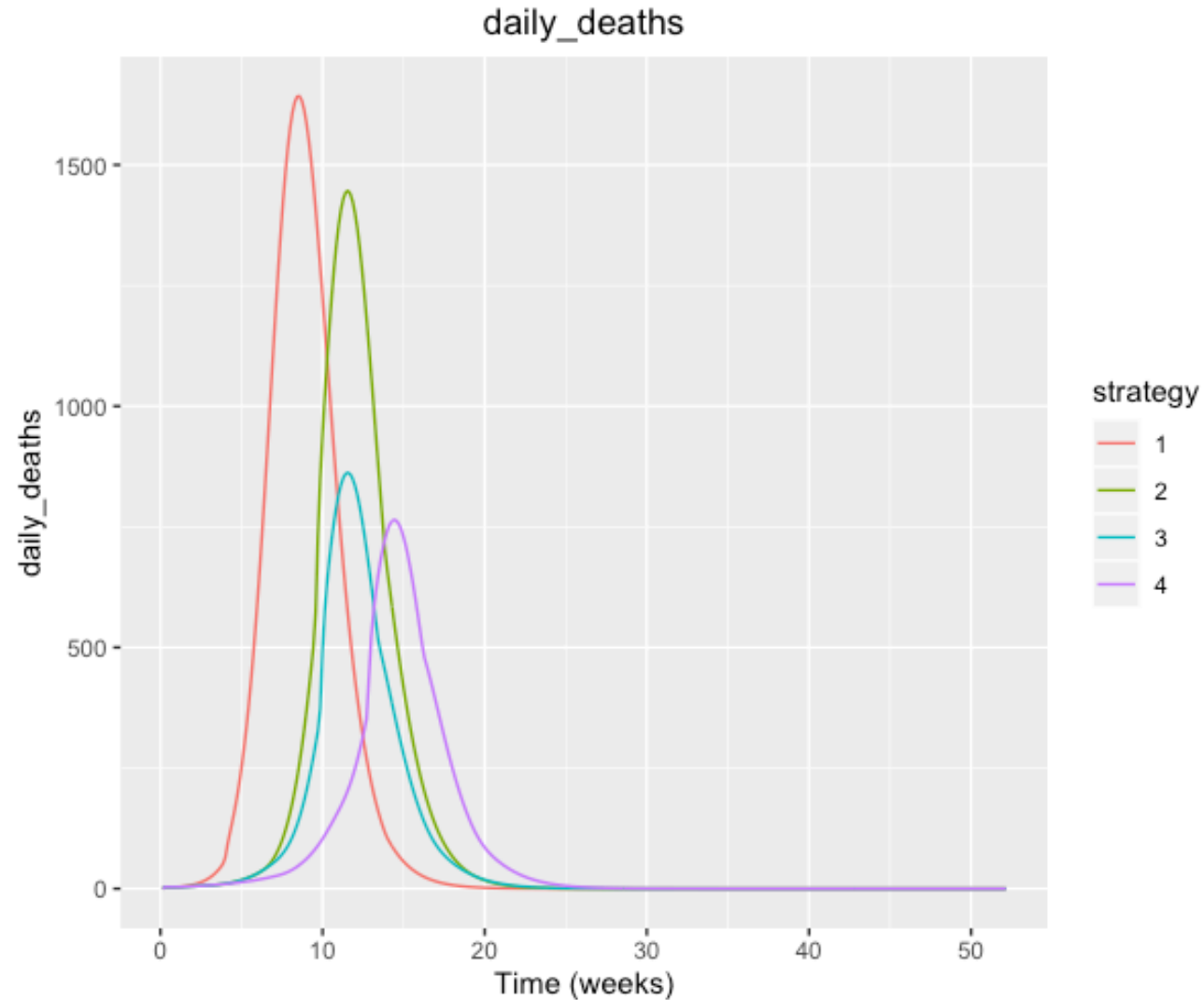
Assuming infinite ICU capacity

ICU Demand Curve with Uncertainty (v3.0)



Assuming infinite ICU capacity

Daily Deaths under Base Case (v3.0)



Daily Deaths with Uncertainty (v3.0)

