



# COVID19: The Benefits and Consequences of Non-Pharmaceutical Intervention Strategies

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## INTRODUCTION

- Emerging research shows benefits of non-pharmaceutical interventions (NPIs) on slowing down spread of COVID19
- NPIs include **shelter-in-place (SIP)**, **school closure (SC)**, and **voluntary quarantine (VQ)** (entire household staying home if someone in the household is experiencing symptoms)

## DISCUSSION

- SC** (Scenario 2) reduced percentage of infected population by less than 10% but more than doubled peak number of adults homebound
- SIP** (Scenarios 5a-c) caused a significant number of adults homebound with minimal reduction in infections/deaths
- VQ** (Scenarios 3a-c, 4a-c) compliance provided greatest benefits in terms of reduction in infections/deaths compared to number of adults homebound

## ACKNOWLEDGMENTS AND FUNDING

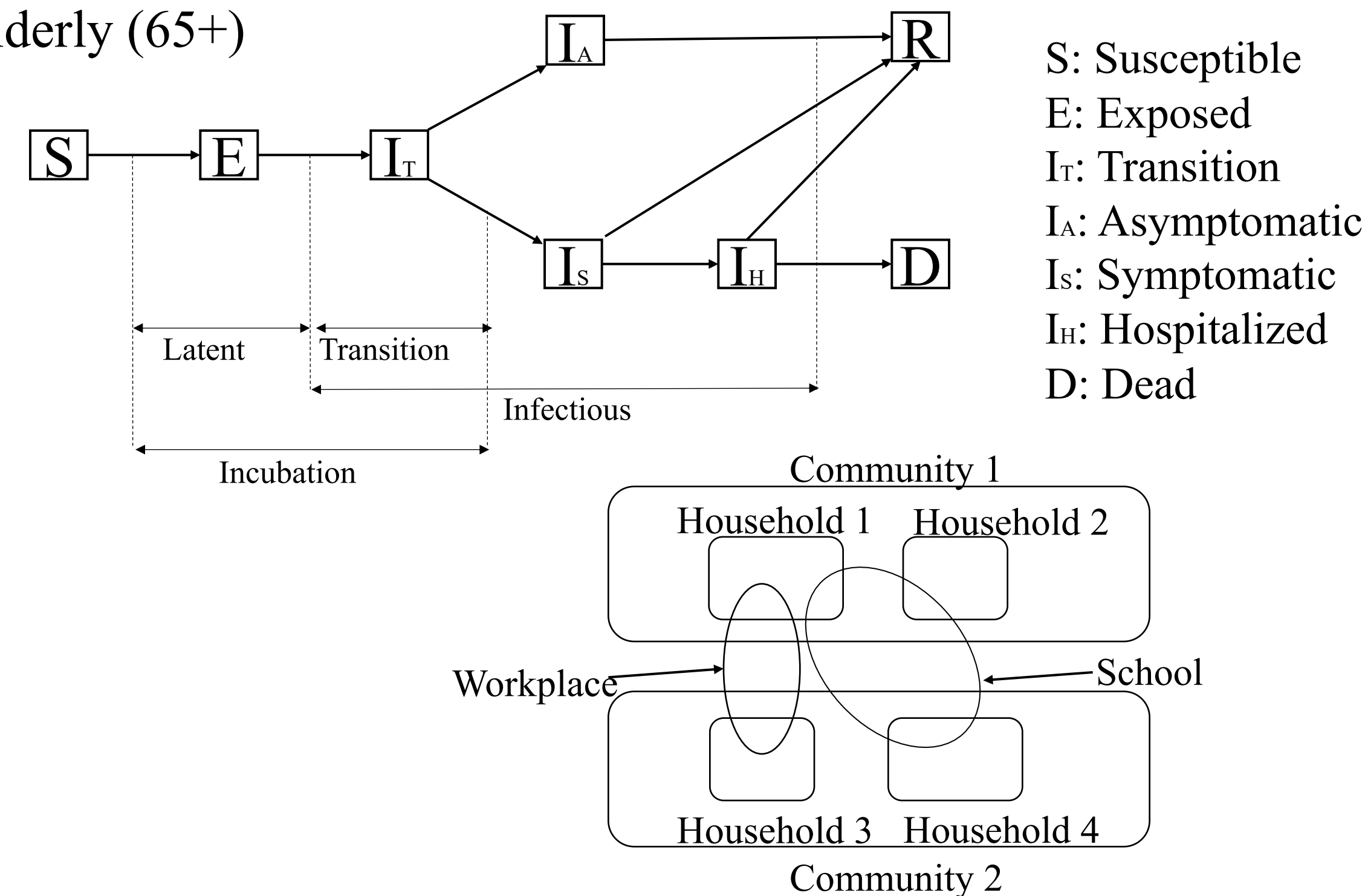
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## GOAL, METHODS, AND MAIN RESULTS

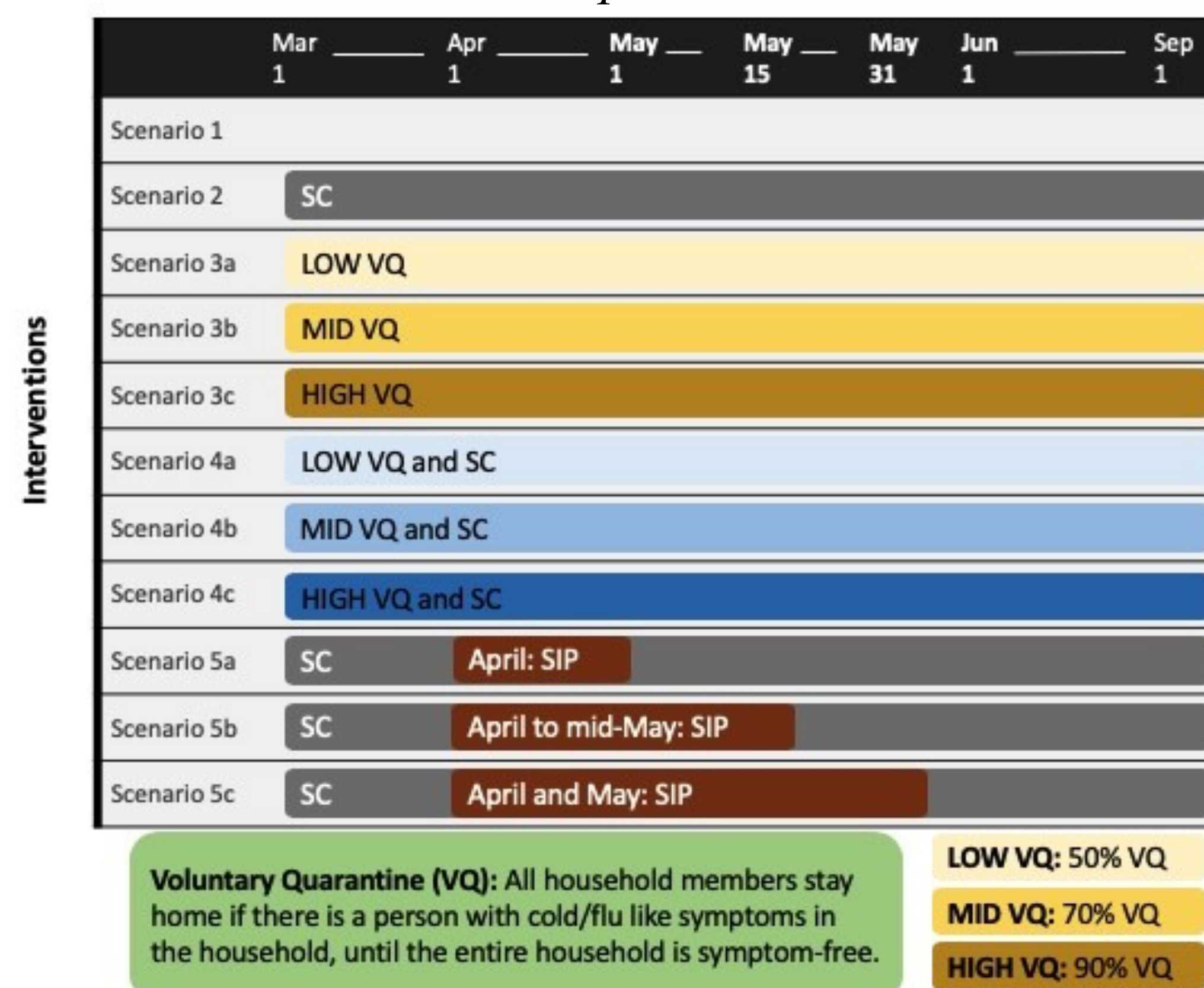
**GOAL:** Evaluate trade-offs between public health impact (e.g., number of cases and deaths) and number of homebound people in the state of Georgia under NPI scenarios.

### METHODS

- Agent-based simulation model with heterogeneous mixing<sup>1</sup>
- Contact network of interactions in peer groups (e.g., household, workplaces) with different rates of transmission
- Model includes COVID19-specific parameters and Georgia data<sup>2,3</sup>
- Population: children (0-9), youth (10-19), adults (20-64), and elderly (65+)

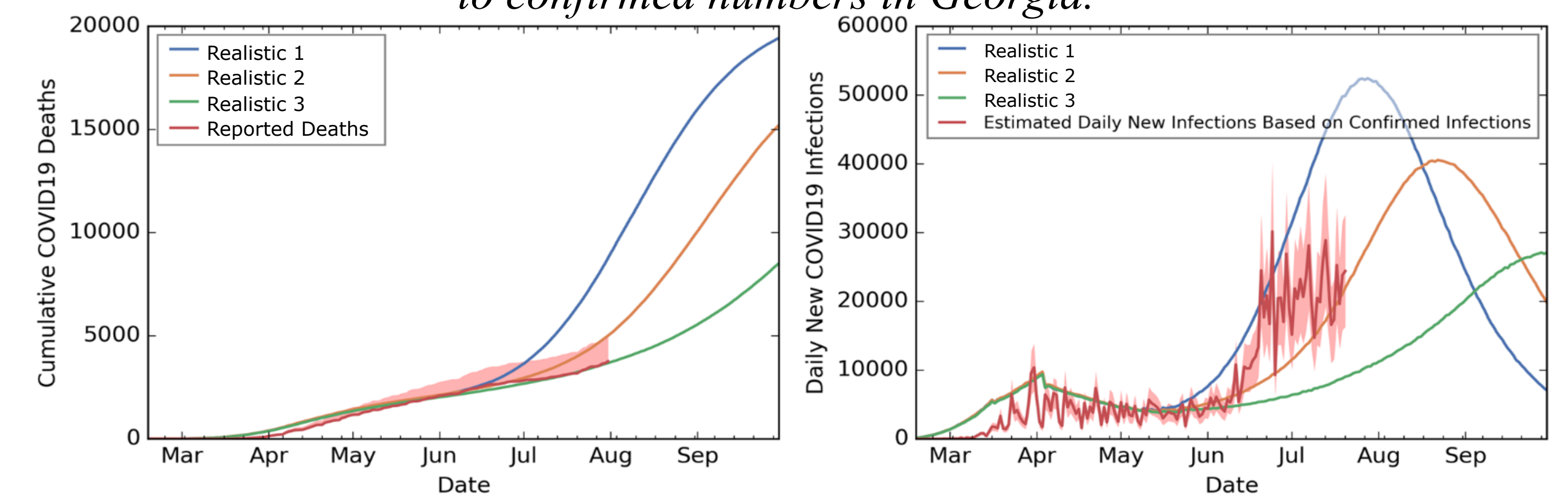


**Figure 1:** Intervention scenarios considered in the study from March 1 – September 1, 2020.



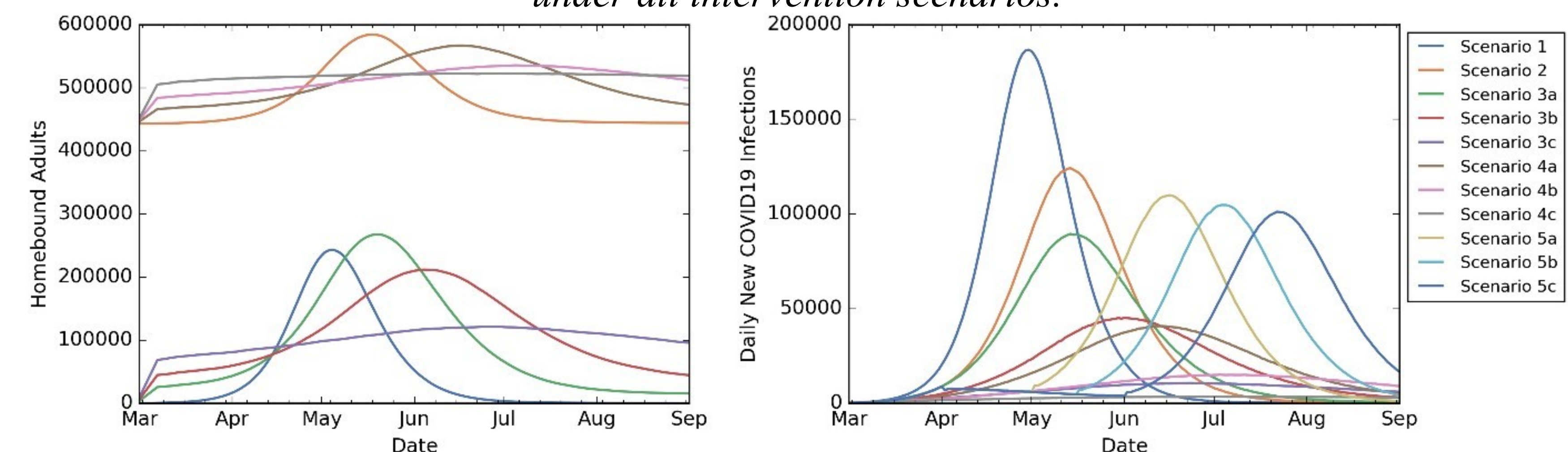
### RESULTS

**Figure 2:** Cumulative number of COVID19 deaths (left) and infections (right) with respect to confirmed numbers in Georgia.

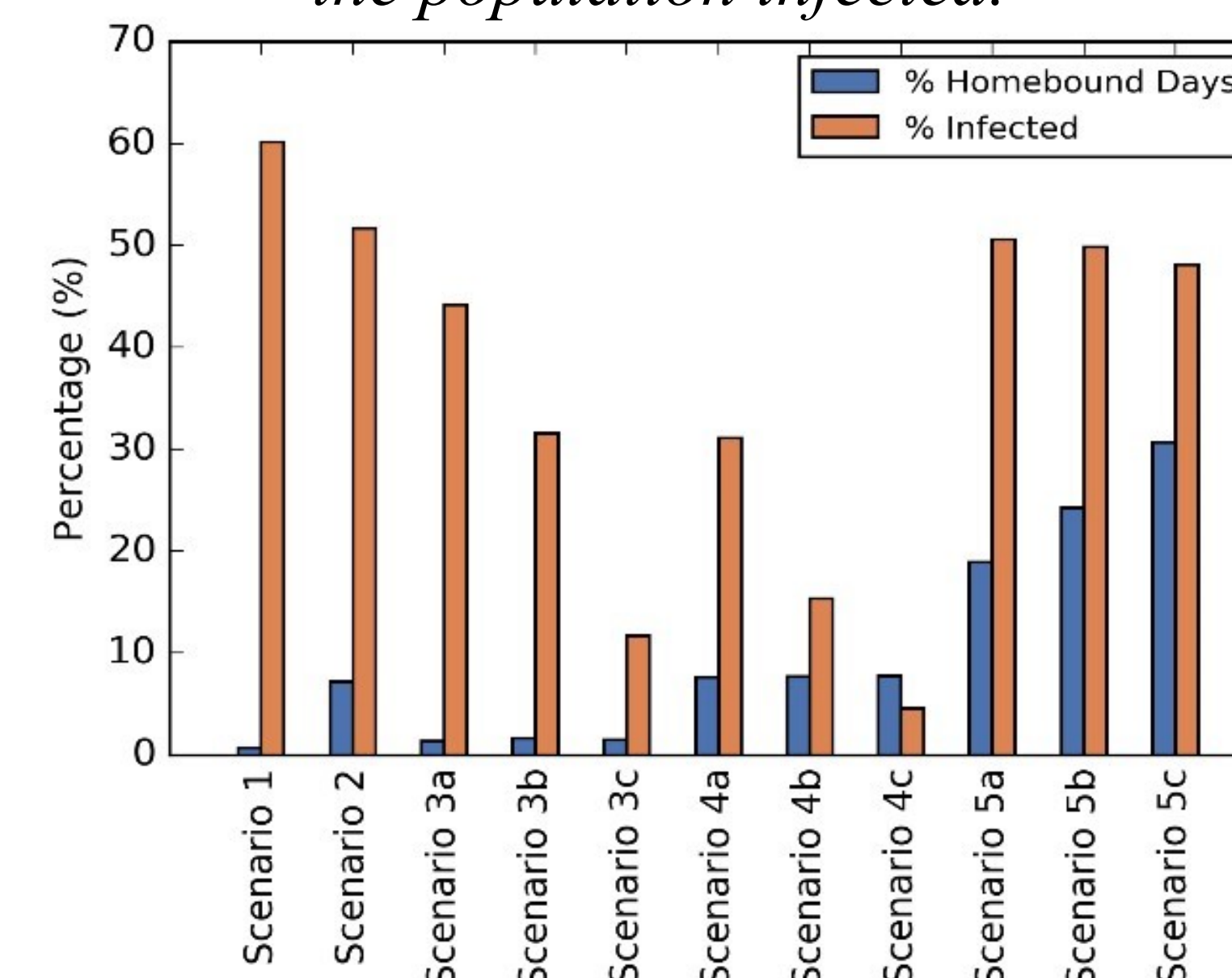


**HOMEBOUND:** Staying home due to VQ, symptoms, SIP, childcare, or SC.

**Figure 3:** Homebound adults (left plot) and daily new infections (right plot) over time under all intervention scenarios.



**Figure 4:** Percentage of days adults homebound compared to percentage of the population infected.



**Figure 5:** Homebound days to prevent an infection.

