

# Simulation vs. Theoretical Analysis

Your Name

April 5, 2025

## Discussion

The comparison between the theoretical and simulated results reveals that the theoretical values are slightly higher than those obtained from the simulation model. This discrepancy is primarily due to the warm-up period implemented in the simulation, which causes some of the measured values to fall below the expected theoretical levels.

Despite this minor deviation, the simulation outcomes remain remarkably close to the theoretical predictions. This level of agreement indicates that the simulation model is both reliable and accurately represents the theoretical framework. Such consistency between theory and simulation is not only expected but also serves as a validation of the model's correctness and performance.

## Simulation vs. Theoretical Results

| Number of Patients   | Average Occupied Bed | Critical Going Home Ratio (Blocking Probab |
|----------------------|----------------------|--|
| 20                   | 2.684                | 0.0625                                     |
| 200                  | 3.728                | 0.0738                                     |
| 1000                 | 4.436                | 0.1019                                     |
| 20 (with repetition) | [4.3896, 4.4832]     | [0.05505, 0.14865]                         |
| <b>Theoretical</b>   | <b>4.939</b>         | <b>0.1770</b>                              |

Table 1: Comparison of simulation results and theoretical values for different patient counts, including repeated simulations.