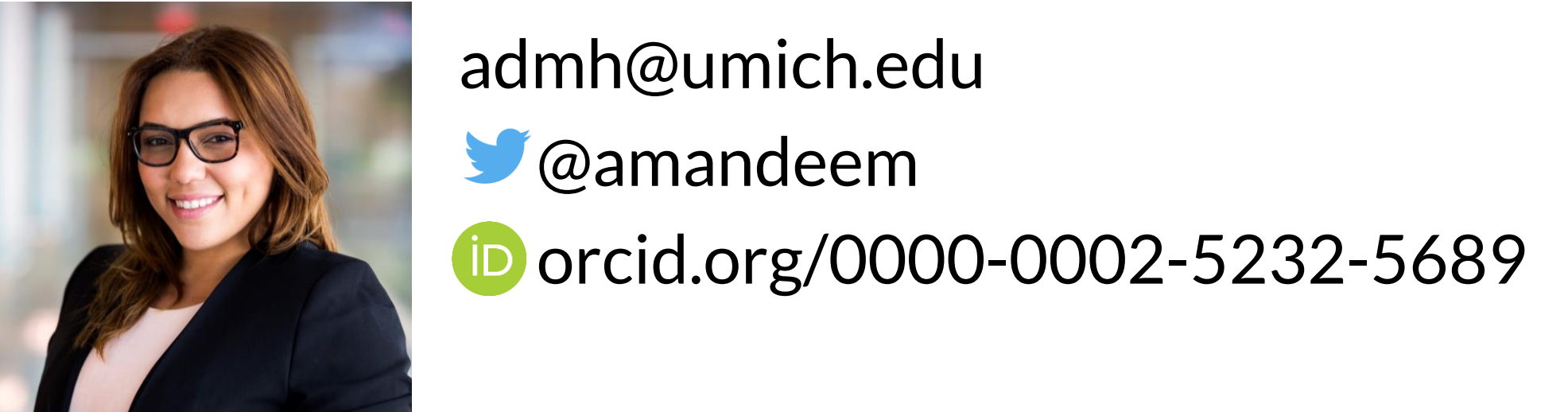


# Simulating the Flow of Patients with Aortic Dissection Through a Cardiac Intensive Care Unit

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## Introduction:

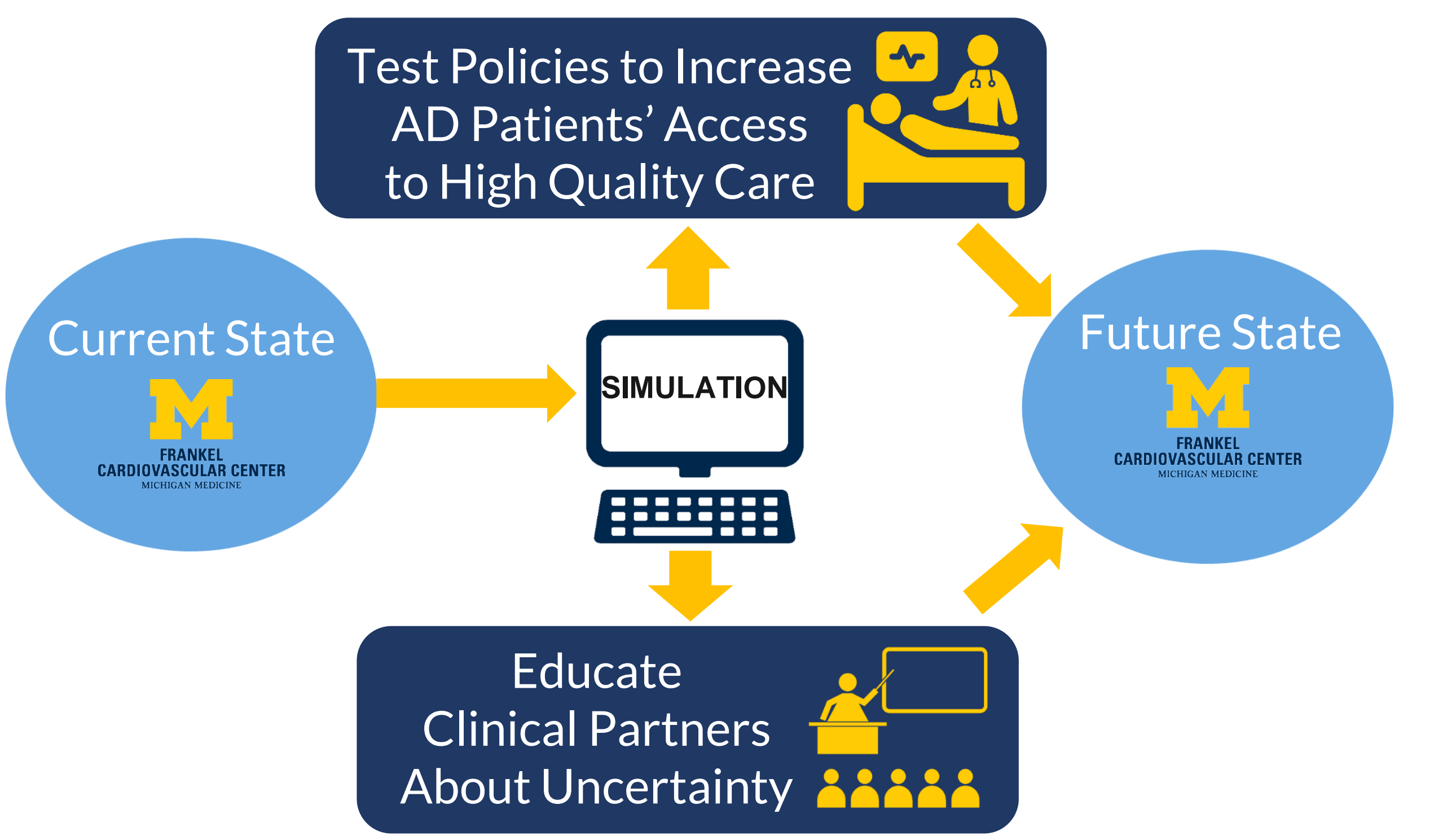
Aortic dissection (AD) is an emergency cardiovascular condition affecting the aorta.

Mortality rate for AD increases 1% per hour and 20% of AD individuals die before reaching the hospital.

AD patients receive care among other cardiovascular surgery patients, which represent the most common surgery in the United States.

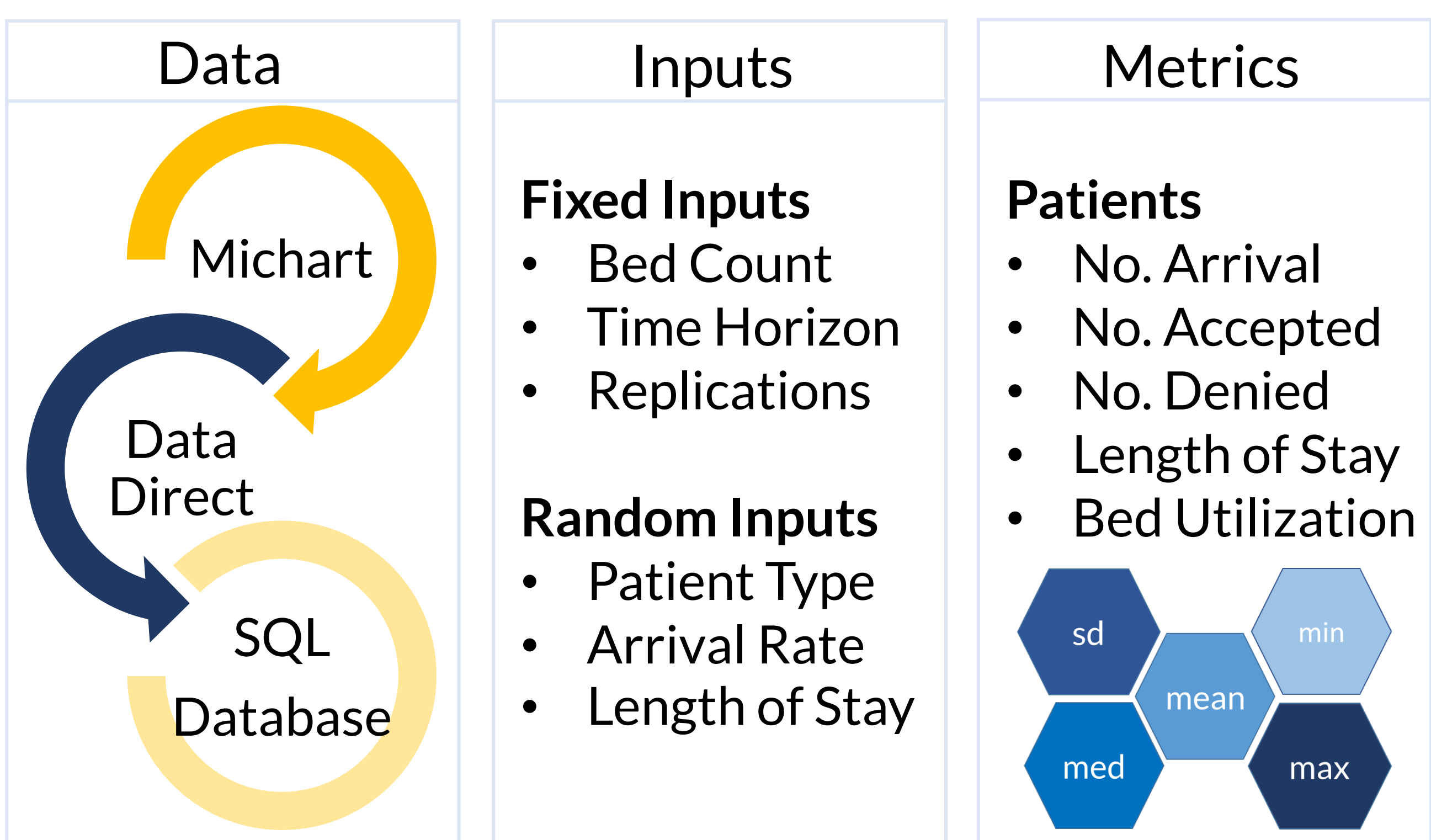
Preliminary analysis showed that the most common reason for AD patient deferral was due to an unavailable ICU bed.

## Methods:

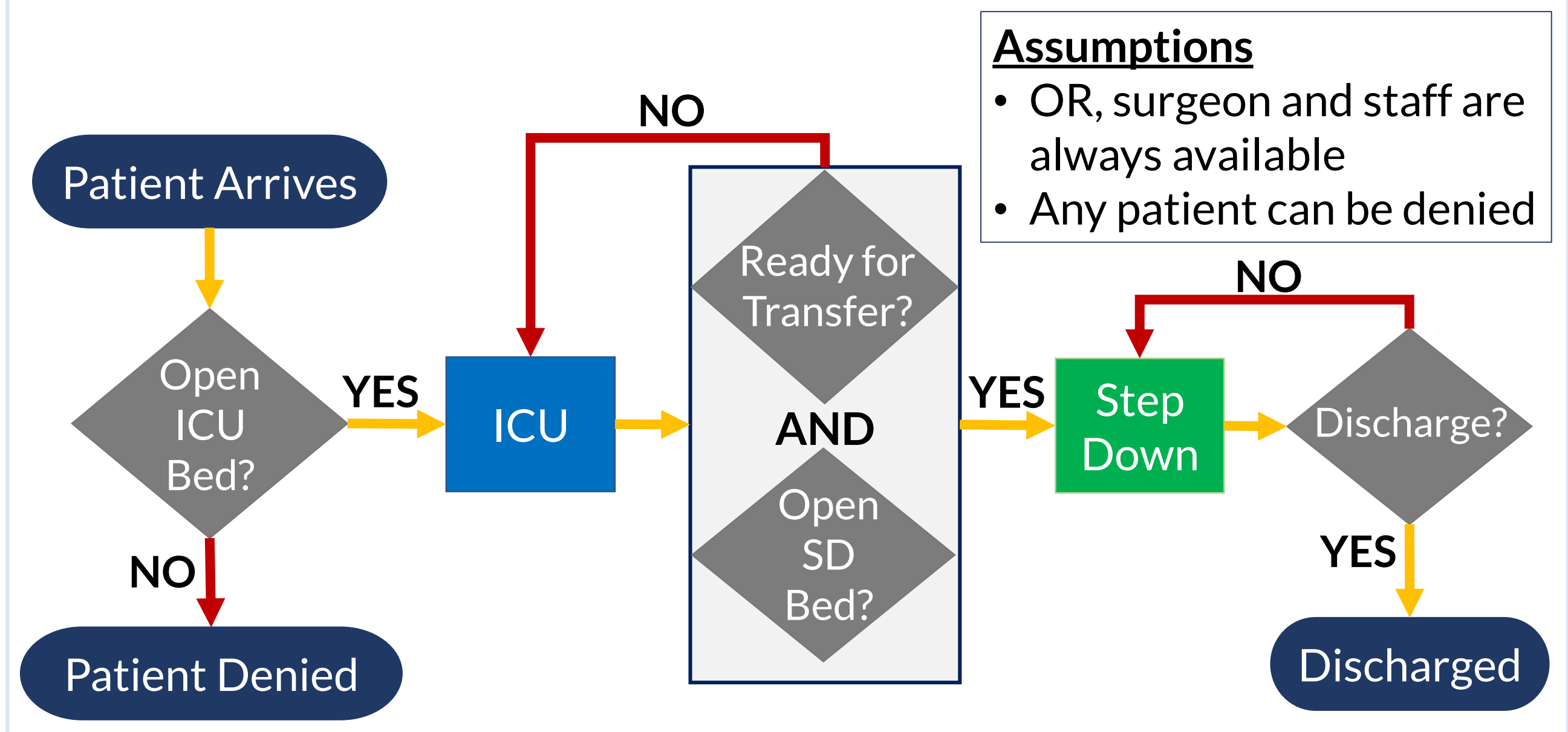


# SIMULATION can help us to assess ways to REDUCE deferral of patients with AORTIC DISSECTION.

## Simulation Framework:



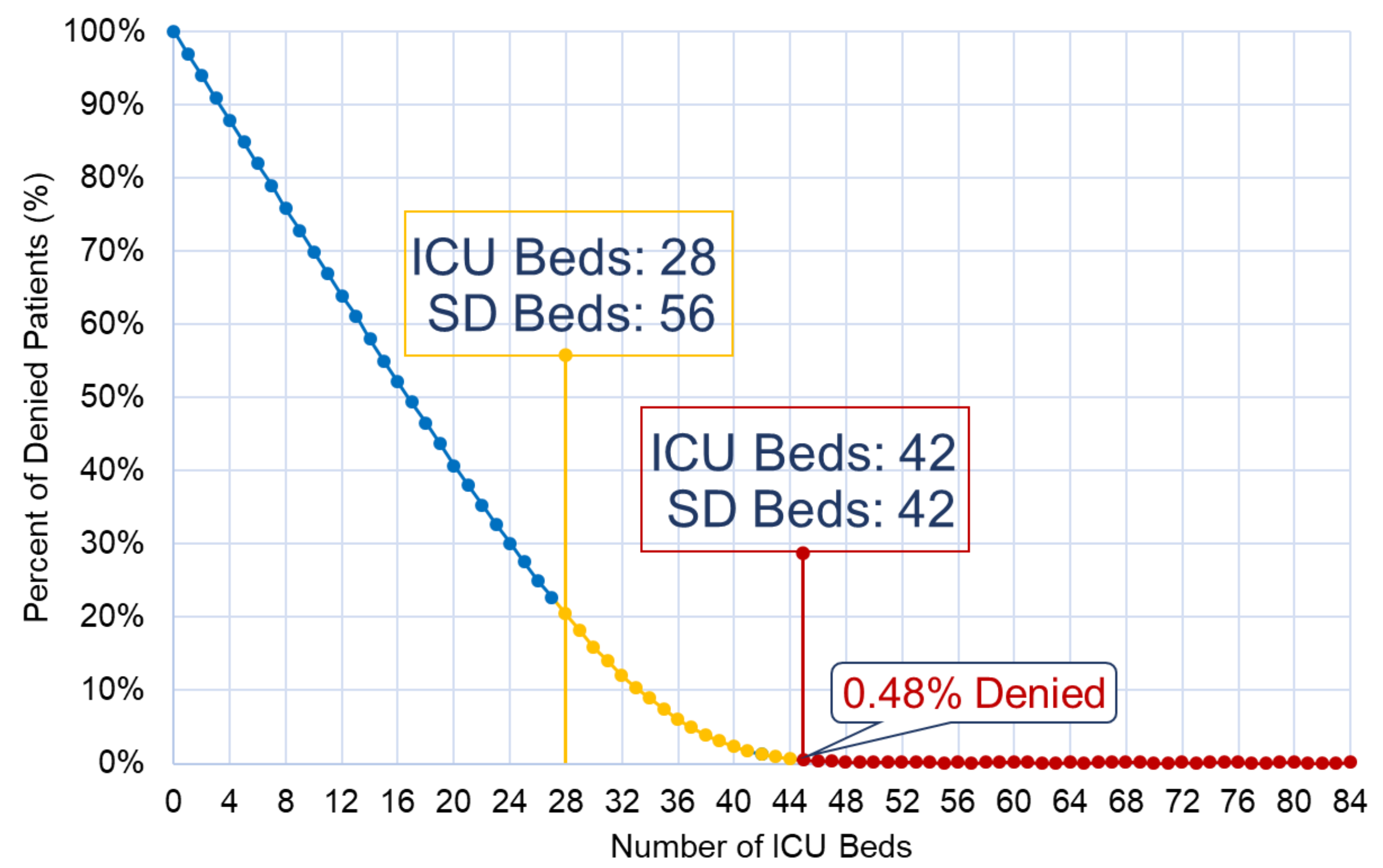
## Simulation Logic



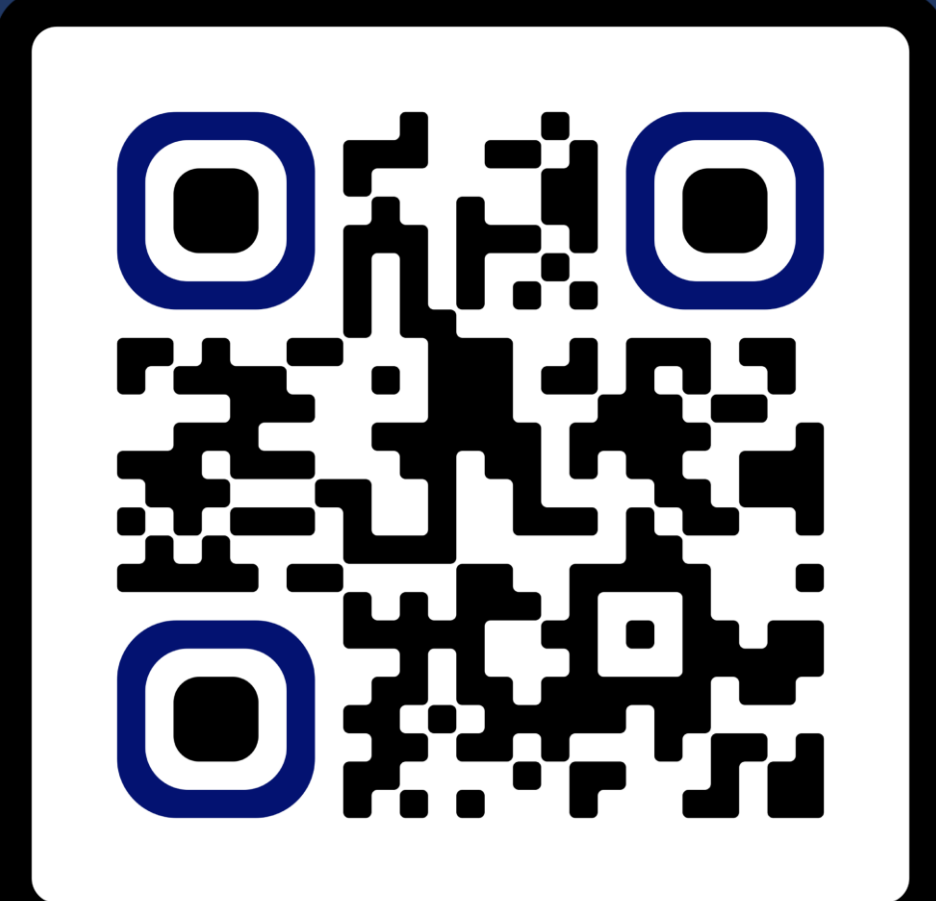
## Analysis:

Current State	Parameters
<ul style="list-style-type: none"> <li>1 Patient type</li> <li>Arrival rate = 0.31 pt/hr</li> <li>Time horizon = 1 year</li> <li>Replications = 1,000</li> </ul>	<ul style="list-style-type: none"> <li><math>P_{Transfer} = 0.22</math></li> <li><math>P_{Discharge} = 0.24</math></li> <li>32 ICU beds, 52 SD beds</li> <li>✓ 16 Dedicated SD beds</li> <li>✓ 36 Shared SD beds</li> </ul>

## Bed Trade Off Analysis



## Acknowledgments:



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