

Using Simulation for Facility Planning in Healthcare

Graham Prellwitz MHA, CLSSBB - Lean Six Sigma Project Manager
Lance Millburg MBA, CLSSBB - System Director, Decision Sciences

Today's Discussion Topics

- How does MHS utilize SIMUL8?
- Process for creating a model
 - Know Your Inquiry
 - Know Your Process
 - Know Your Space
 - Know Your Data
- Case Studies

Why Do We Use SIMUL8?

- Care is constantly transforming
 - Trending towards an outpatient environment
 - Advancements in technology and the ways in which care is delivered
- Create a process that is safe, efficient, repeatable, and sustainable

Why Do We Use SIMUL8?

- Gives us the potential to scale-up and connect models to simulate a patients entire care continuum



KNOW YOUR INQUIRY



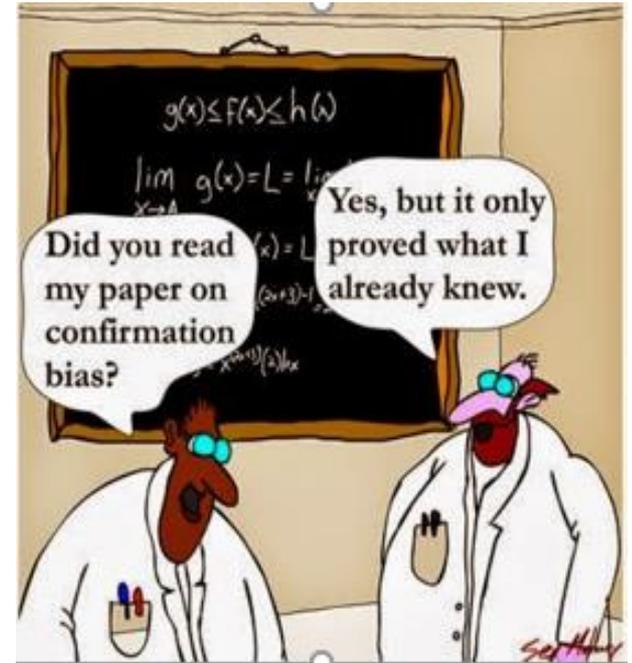
Know Your Inquiry

- What questions are you attempting to answer?
 - Building a model will not fix everyone's problems!
- Awareness of the model's purpose will save time and effort for everyone involved

Know Your Inquiry

- Confirmation bias
 - “...a tendency to search for or interpret information in a way that confirms one's preconceptions, leading to statistical errors”¹
- Try to start your model with a blank slate

1: https://www.sciencedaily.com/terms/confirmation_bias.htm



KNOW YOUR PROCESS

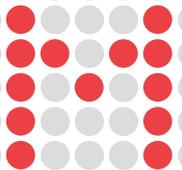


Know Your Process

- Build a process map with the stakeholders that work that process every day
 - Current state: how do we use this space now?
 - Future state: how can we redesign this space to provide the best outcomes possible?

KNOW YOUR SPACE



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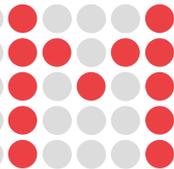
Know Your Space

- Meet with stakeholders and decision makers within your organization to determine space utilization
 - What are the physical restraints of this space?
- Identify fiscal restraints and expectations
 - You are not the architect, but you should be aware of the boundaries in place that should be accounted for in your model

Know Your Space

- Building visualization into your SIMUL8 model will make it more translatable to a wider audience
 - Utilize a background image of the floor map and building in animations that demonstrate people/items going through the model

KNOW YOUR DATA



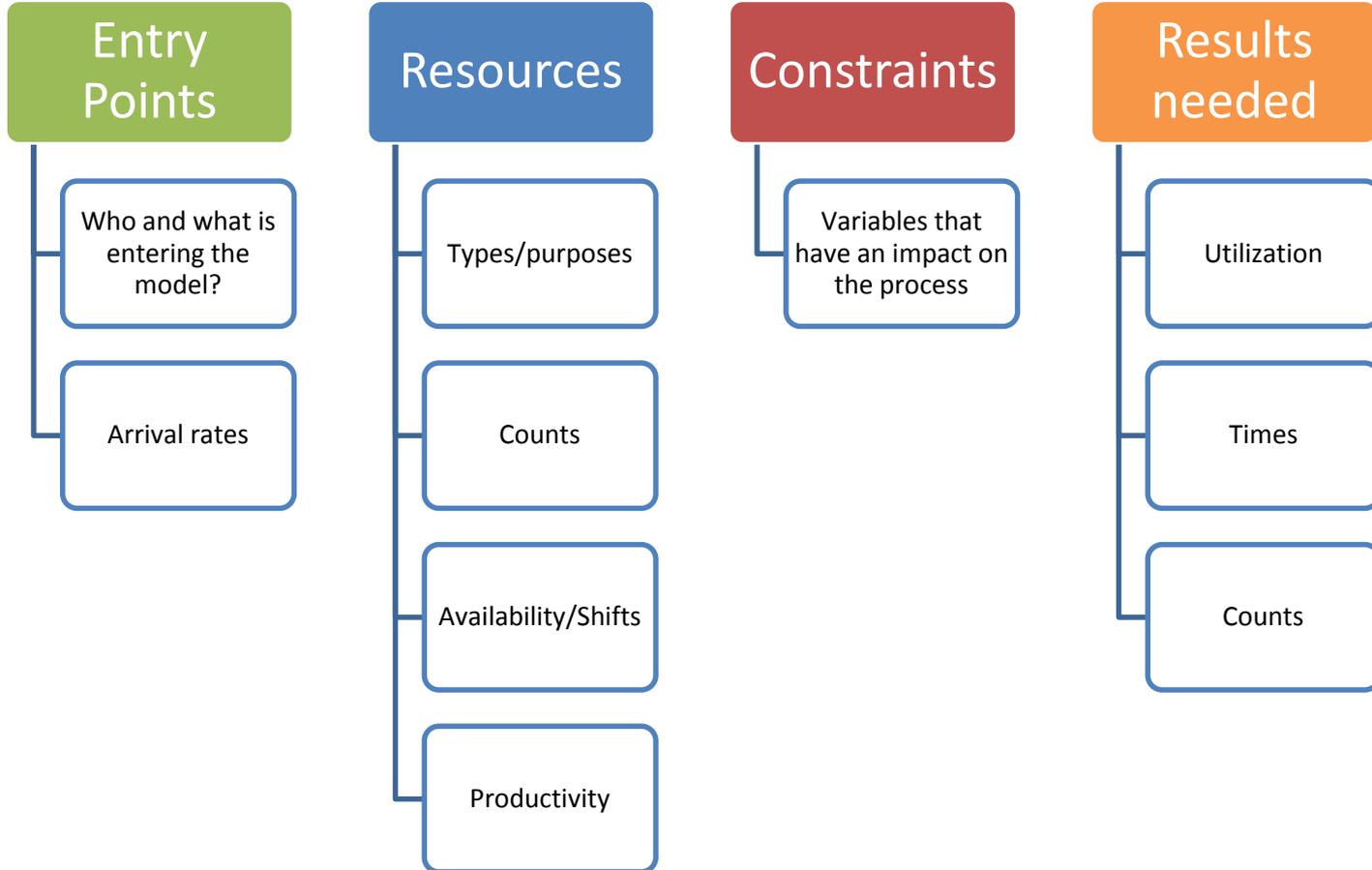
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Know Your Data

- The results from your model will only be meaningful if your data is accurate and represents your process
 - Validate the data with a person that knows the process
- Distributions give you the ability to customize the data to best represent your process

Know Your Data



CASE STUDIES AT MEMORIAL HEALTH SYSTEM

Front Circle Drive

- Background: new 114-bed patient care tower was constructed with a new front entrance and front drive access to the hospital
- Know your inquiry
 - With the current traffic volumes, what is the best way to set up the circle drive to avoid congestion and maintain safety for employees and patients being discharged?
- Know your process
 - Complimentary valet service was provided for patients and visitors with expectations of timeliness and safe driving

Front Circle Drive

- Know your space
 - Previous to construction, there were two lanes for traffic throughput
 - Goal of the model was to identify the appropriate number of lanes and staffing during hours of operation to prevent traffic back-ups
- Know your data
 - We did not have any reliable data, outside of the estimates that we received from the valet staff

Hospital Outpatient Diagnostic Testing Center

- Background: small, critical access hospital was wanting to rebuild a portion of their hospital to centralize five testing areas into one 2600 sq ft space
- Know your inquiry
 - Given the current volumes, how much space do we need dedicated to each testing area to avoid long wait times for patients?
 - Will we be able to register the patients in the room without causing significant issues with the throughput of patients?
 - Can we combine multiple services into a centralized room without creating delays in service?

Hospital Outpatient Diagnostic Testing Center

- Know your process
 - From a patient experience standpoint, leadership wanted to alter the current process to minimize waiting time in a traditional waiting room and move the registration process directly to take place in the room with the care provider
 - The current scheduling for sleep lab studies was inefficient and regular volume data would not be representative of how the current process worked

Hospital Outpatient Diagnostic Testing Center

- Know your space
 - The total space had approximately 15 rooms to be divided among the five services
 - The model wanted to explore based on volumes and work flow, which rooms and how many rooms would be required for each testing area
- Know your data
 - Small hourly volumes created obstacles in how the logic was built into the model

Results

- We were able to recommend:
 - Registrar staffing
 - # of rooms per specialty to maximize space utilization (\$500 sq/ft X 163 sq ft = **~\$81,500/room**)
 - Identify a primary exam room that could become a hybrid sleep room that would be used at night for sleep studies
 - Sleep lab scheduling process improvement could result in up to \$100K annual increase in gross revenue

- Questions?
 - Graham Prellwitz, MHA, CLSSBB
 - Lean Six Sigma Project Manager
 - prellwitz.graham@mhsil.com
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- Webinar recording will be available on **SIMUL8Healthcare.com**
- Continue the discussion on the LinkedIn group **SIMUL8 in Health**

