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Maximising Emergency Department Capacity Through Comprehensive Design



Jon Huddy, President
Huddy HealthCare Solutions

www.huddyhealthcare.com

Company Background



Teaming with Healthcare Organizations and Design Professionals Around the World

Data Analytics and Predictive Modeling



Strategic Planning and Market Assessment



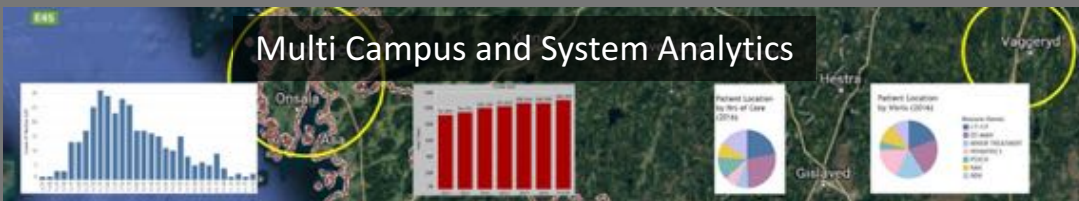
Operational Analytics and Improvement



Service Line Utilization and System Distribution



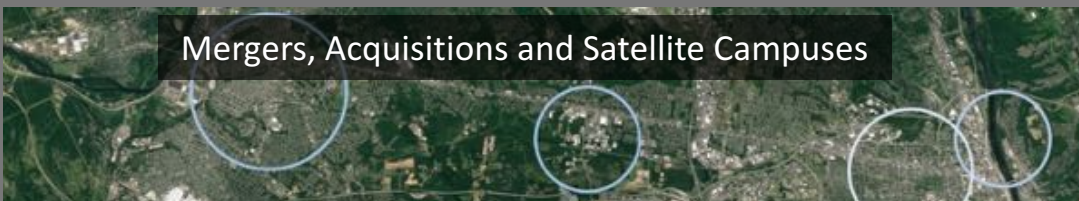
Multi Campus and System Analytics



Strategy Led Facility Master Planning



Mergers, Acquisitions and Satellite Campuses



Project Scoping and Planning Solutions





Delivering the Experience of Over 330 Emergency Department Projects

Eastern Europe, Western Europe, Middle East, North America, South America, Australia



Jon Huddy, AIA, NCARB

President, Huddy HealthCare Solutions

- Leading – Teaming – Consulting
 - Teamed with over 200 design firms
- Emergency Department Specialist
 - ED strategic planning
 - Lean operations
 - Market analysis and utilization projections
 - Scope/feasibility studies
 - Architectural design
- Author of Two ED Design books published by the American College of Emergency Physicians
- EDs from 2,000 to 200,000 visits



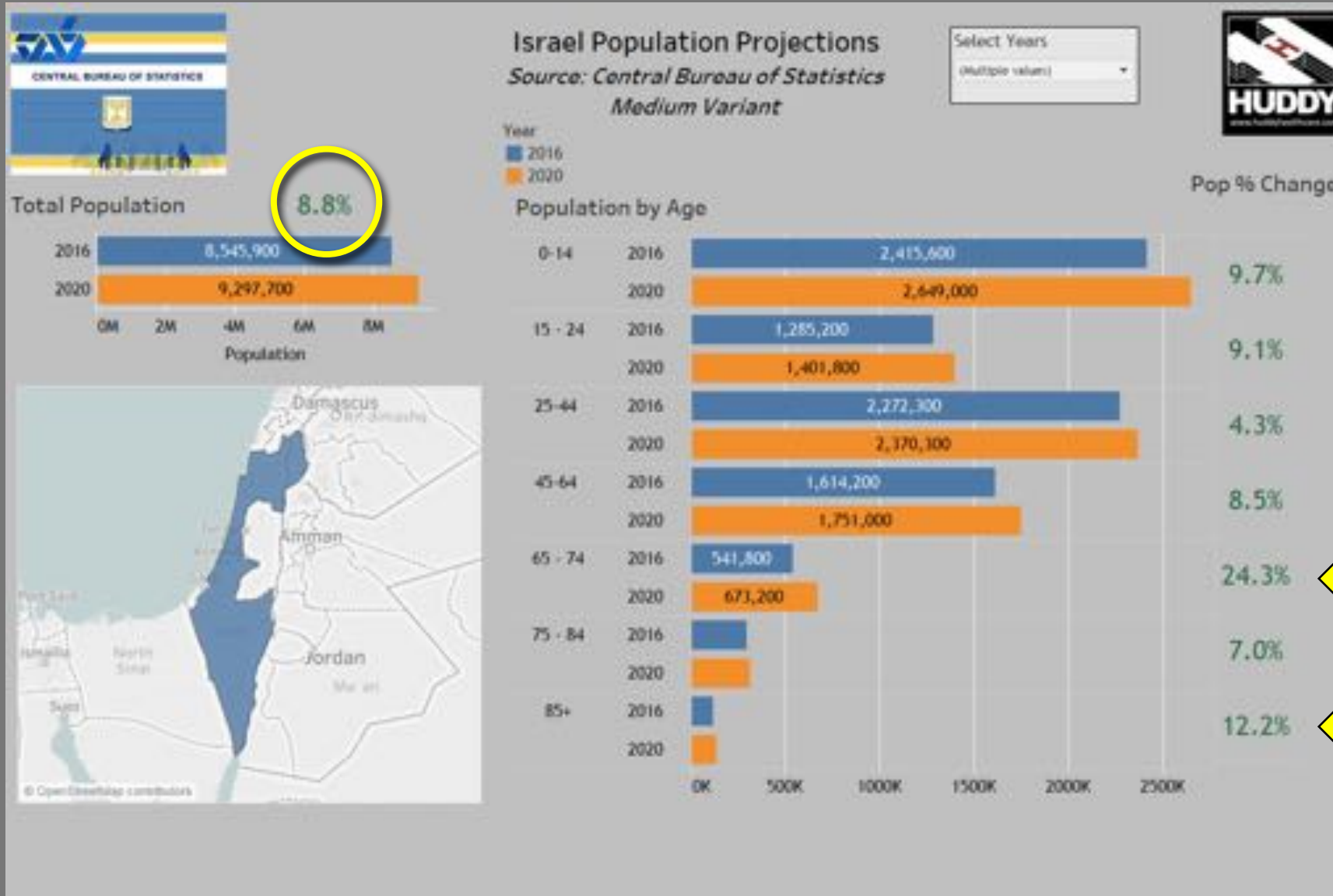
ED Use Rates Across the World

(Quantity of ED visits per 1000 population)

	ED Visits	Population	ED Use Rate	Year
Saudi Arabia	15,000,000	24,580,000	610/1000	2006
Spain	25,000,000	46,160,000	542/1000	2008
Italy	30,000,000	59,100,000	508/1000	2009
United States	141,400,000	321,000,000	440/1000	2015
Israel	2,869,000	8,060,000	356/1000	2013
Canada	12,800,000	36,290,000	353/1000	2016
England	20,458,000	65,111,143	314/1000	2015-2016
Region Halland (Sweden)	88,000	300,000	293/1000	2015
Hong Kong	2,000,000	7,072,000	283/1000	2011
Finland	1,320,000	5,313,000	248/1000	2008
Germany	12,000,000	82,270,000	146/1000	2007

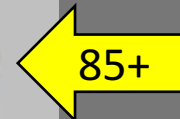
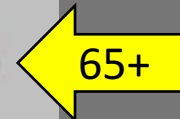
Utilisation impacts in A&E/ED

Israel Population Growth by Age



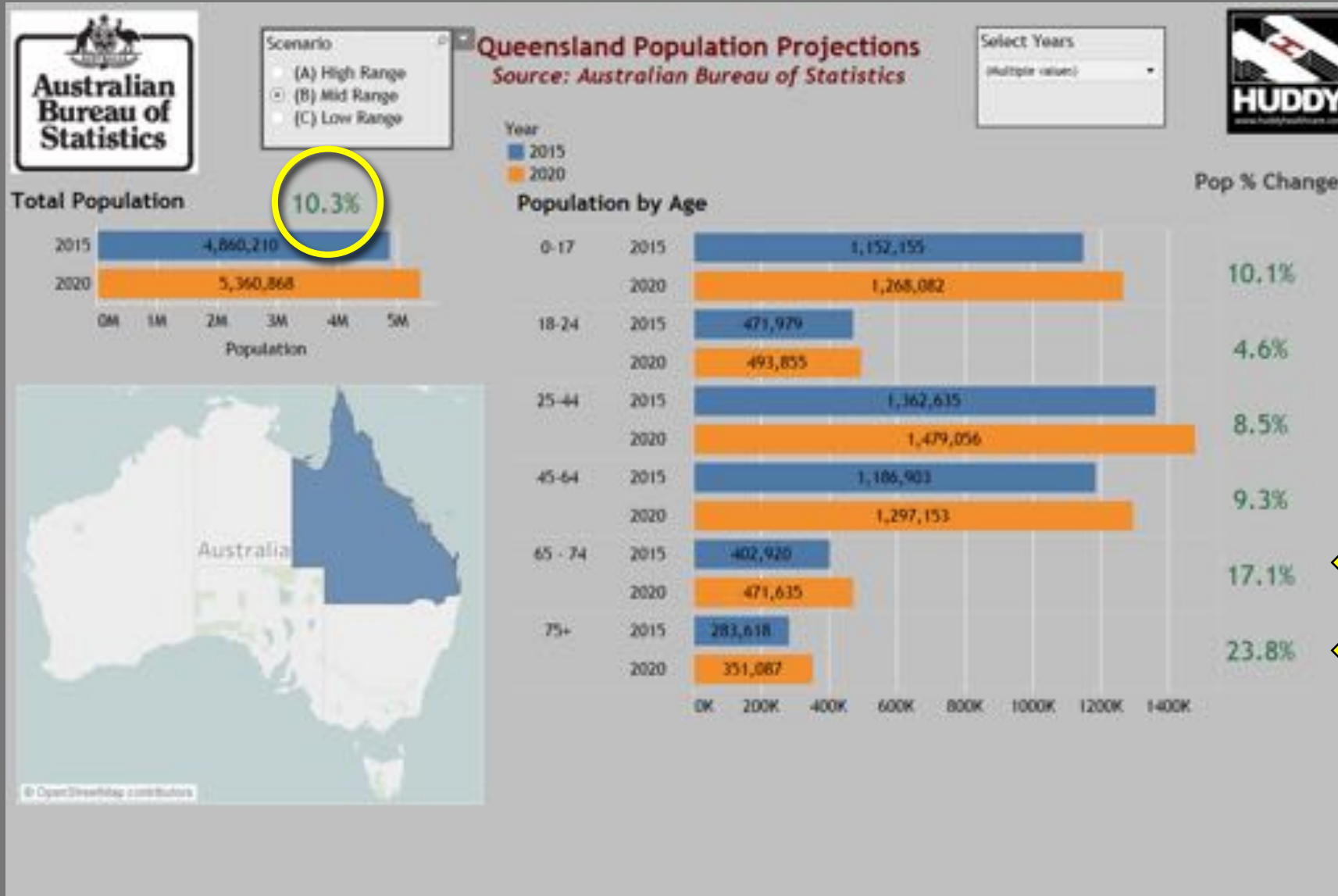
- Ageing population will likely increase ED visits as well as increase ED acuities, admission rates and LOS times.

- To increase available capacity you either need to lower volumes (good luck!), increase treatment spaces (increased capital cost) or decrease LOS



Utilisation impacts in A&E/ED

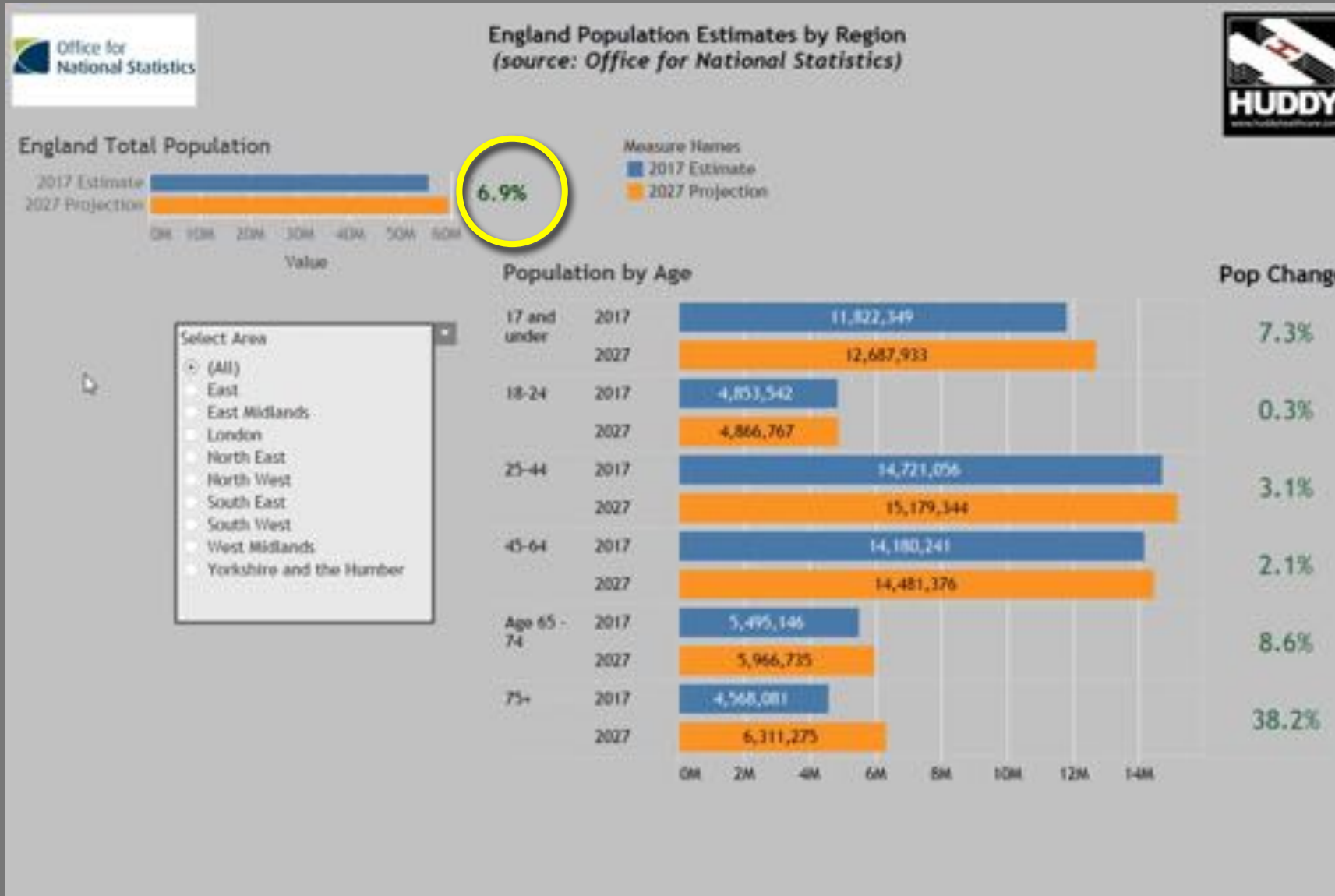
Australia Population Growth by Age



- Ageing population will likely increase ED visits as well as increase ED acuities, admission rates and LOS times.
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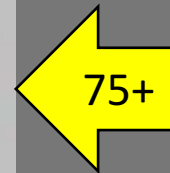
Utilisation impacts in A&E/ED

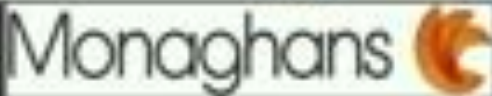
England Population Growth by Age



- Ageing population will likely increase ED visits as well as increase ED acuities, admission rates and LOS times.

- To increase available capacity you either need to lower volumes (good luck!), increase treatment spaces (increased capital cost) or decrease LOS





Population Estimates and Projections

Current Year

2018

Future Year

2036

Total Population Projections

South Kesteven

12.5%



Select Area

South Kesteven

- All
- Boston
- East Lindsey
- Lincoln
- North Kesteven
- South Holland
- South Kesteven
- West Lindsey



Population Projections by Age

South Kesteven

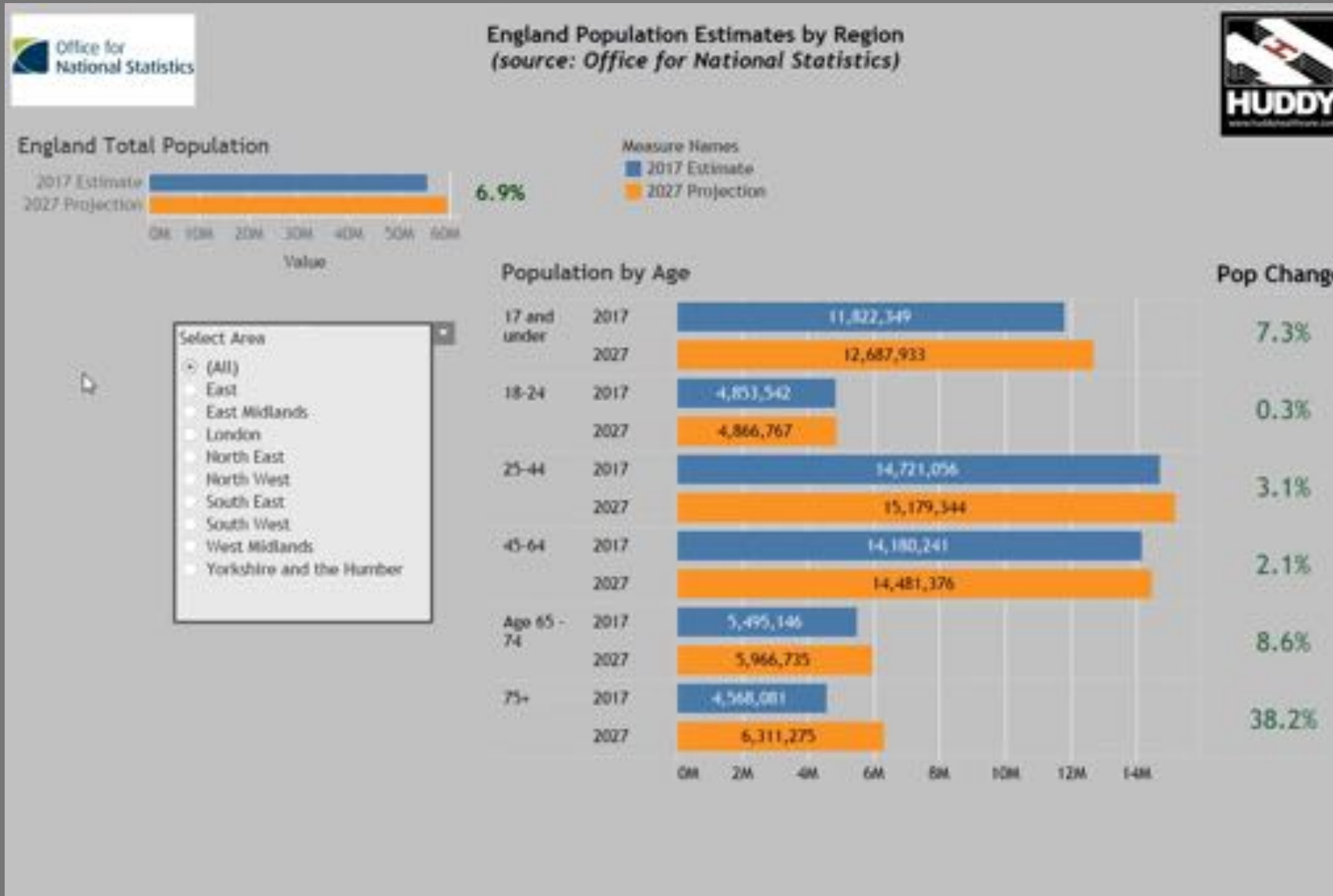


Population projection data from nomis, official labour market statistics



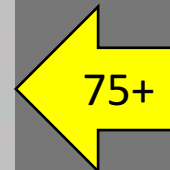
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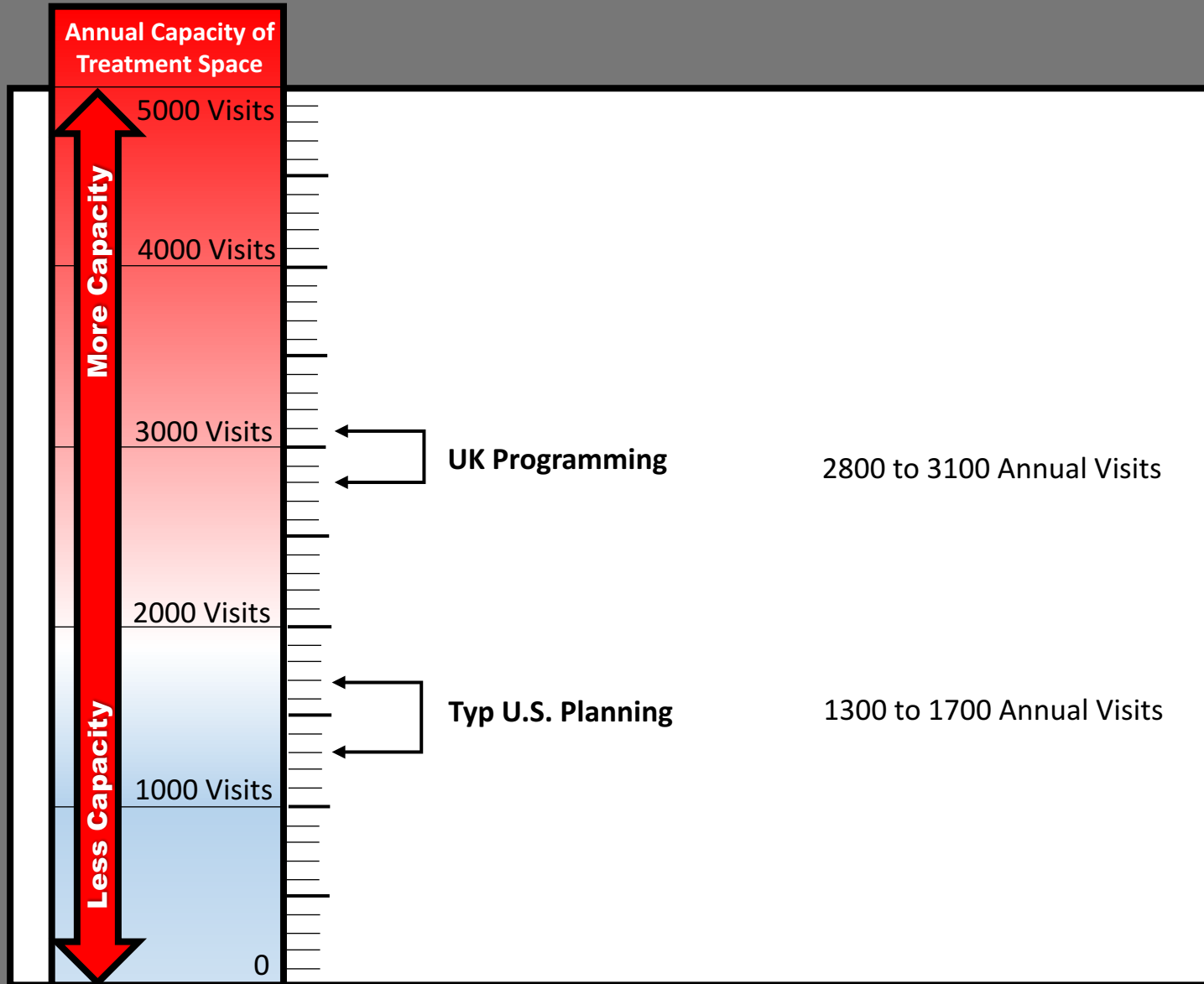
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Room Utilisation and Number of Exam Rooms

- Historical ED treatment room programming
 - Focused on average “patients per room” over the course of a year
- Attempt to split patient types by acuities and program exam space needs for each acuity level
 - Room quantities never matched actual need
- Recommended Approach:
 - Focus on “clinical room use time” for specific patient types
 - How long patients need to be “in an exam space/room” is the defining factor
 - Complex “Huddy B in B Method”

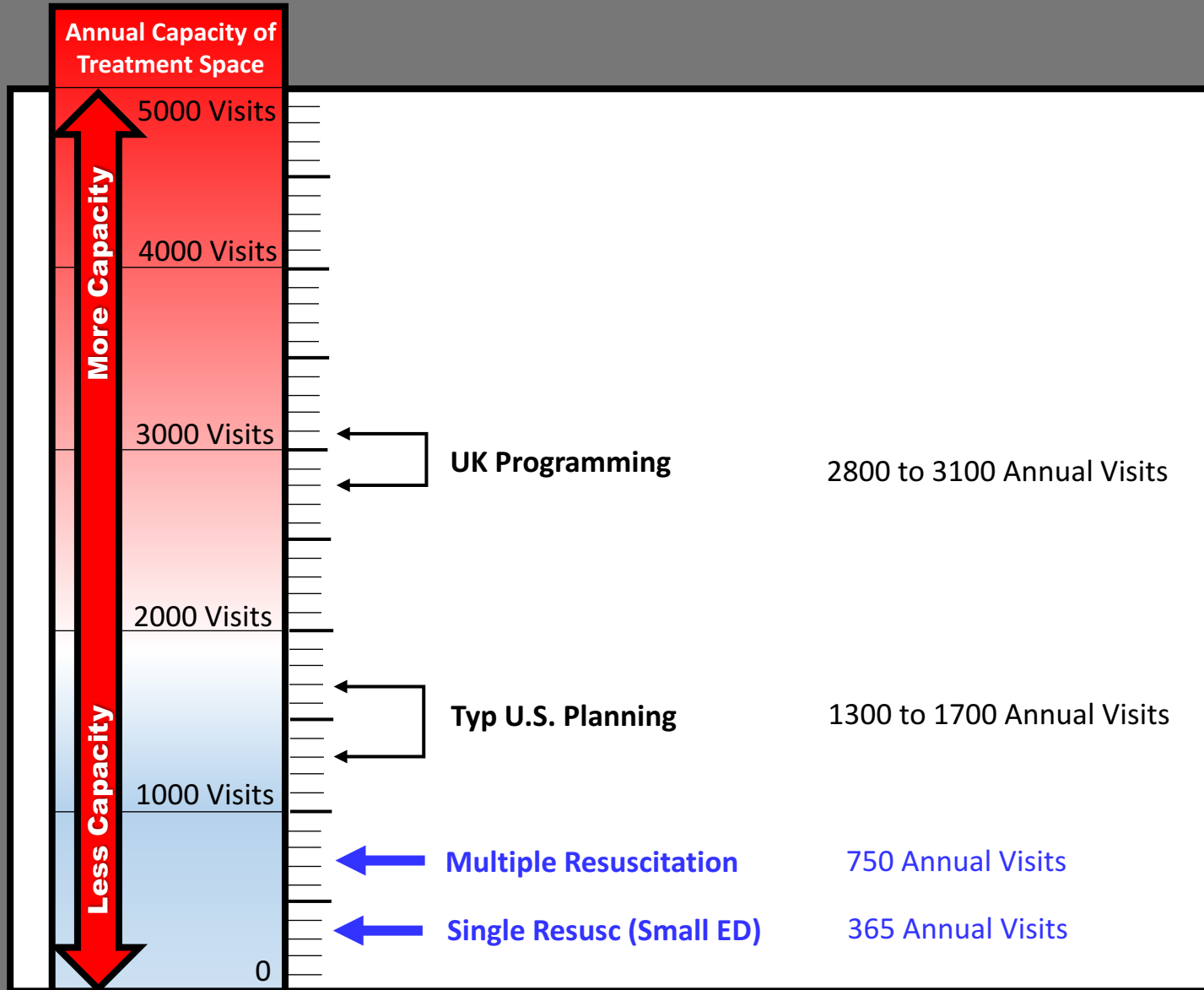
Patient Space Capacity: Operations + Facilities



Patient Space Capacity: Operations + Facilities

Resuscitation Room

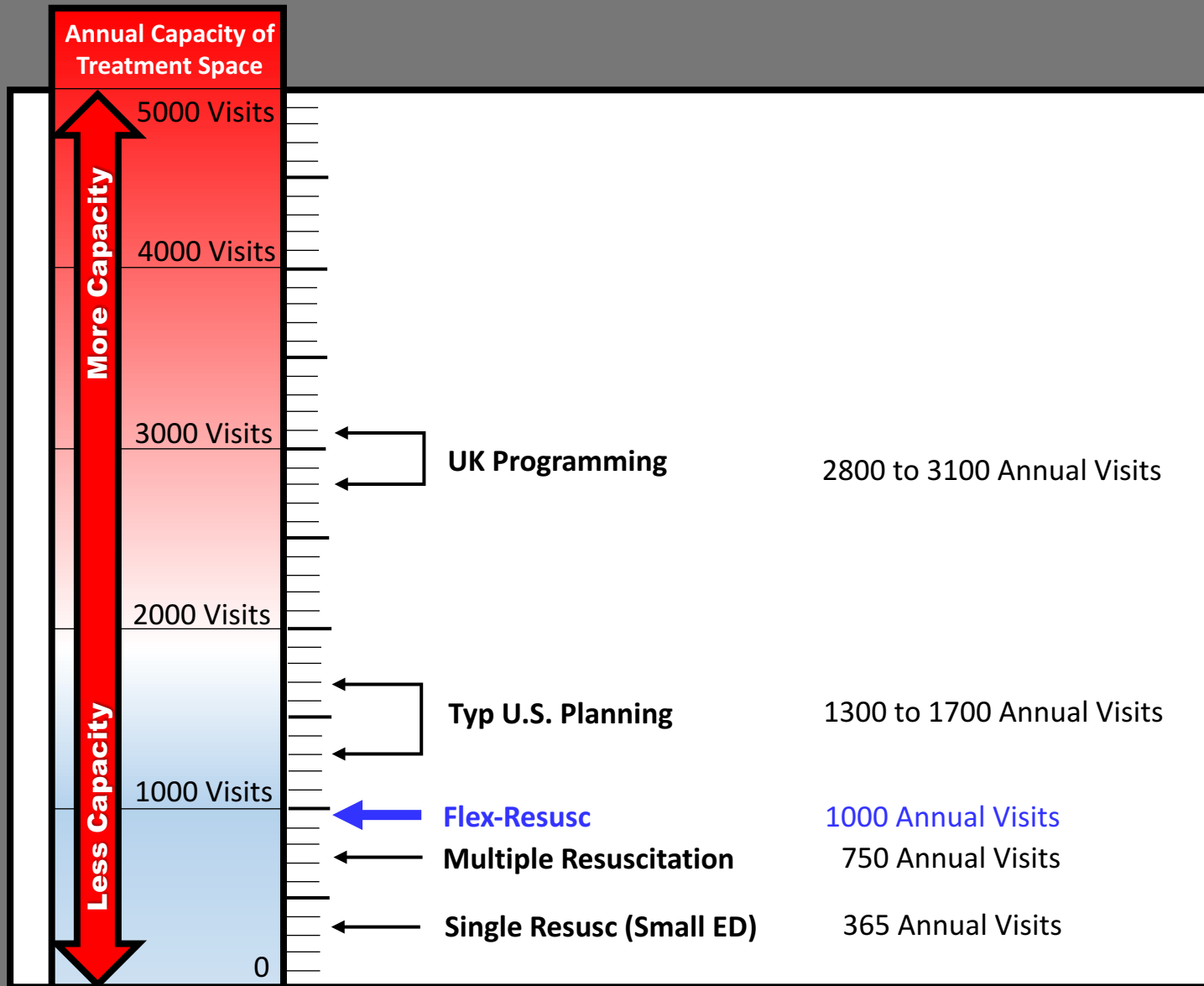
350 to 750 annual visit capacity



Resuscitation/Trauma



Patient Space Capacity: Operations + Facilities



Resuscitation with Flex Capacity

Approx 1000 annual visit capacity

- Additional gases allow for overflow utilization during surges thus increasing annual capacity



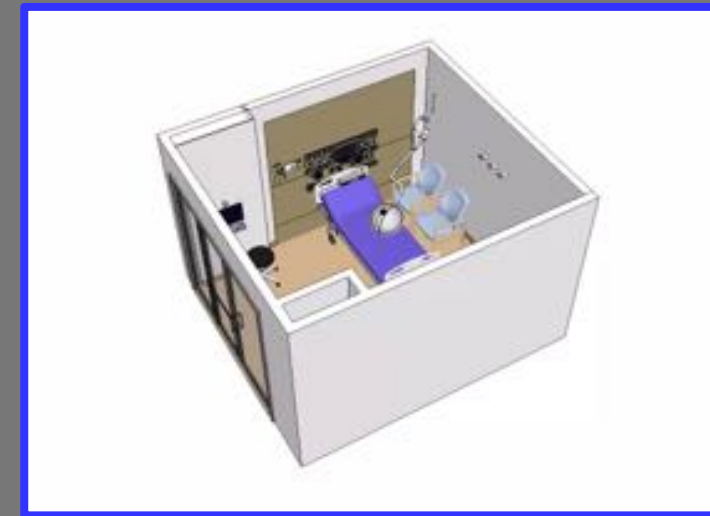
Resuscitation/Flex Room



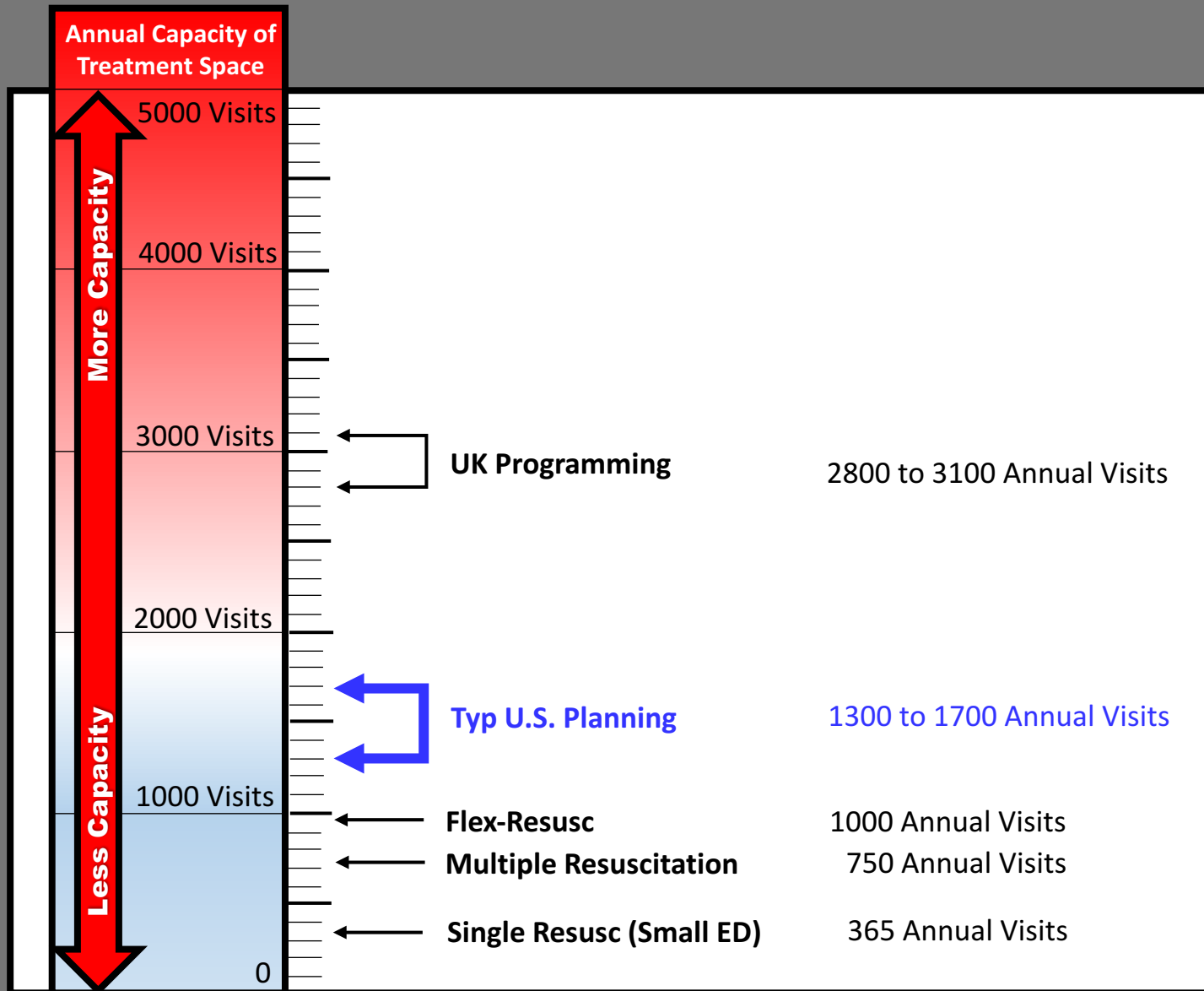
Patient Space Capacity: Operations + Facilities

Private Treatment Room

Observation: Approx 1100 visits
 US Standard: 1300 to 1500 visits
 Fast Track: 2200 to 2600 visits
 UK: 2800 to 3100 visits



Private Exam/Treatment



Private Room



Resusc Flex

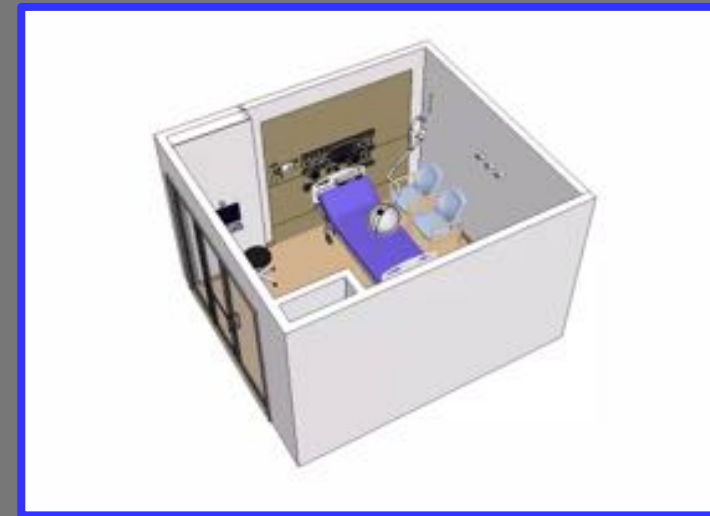


Resusc

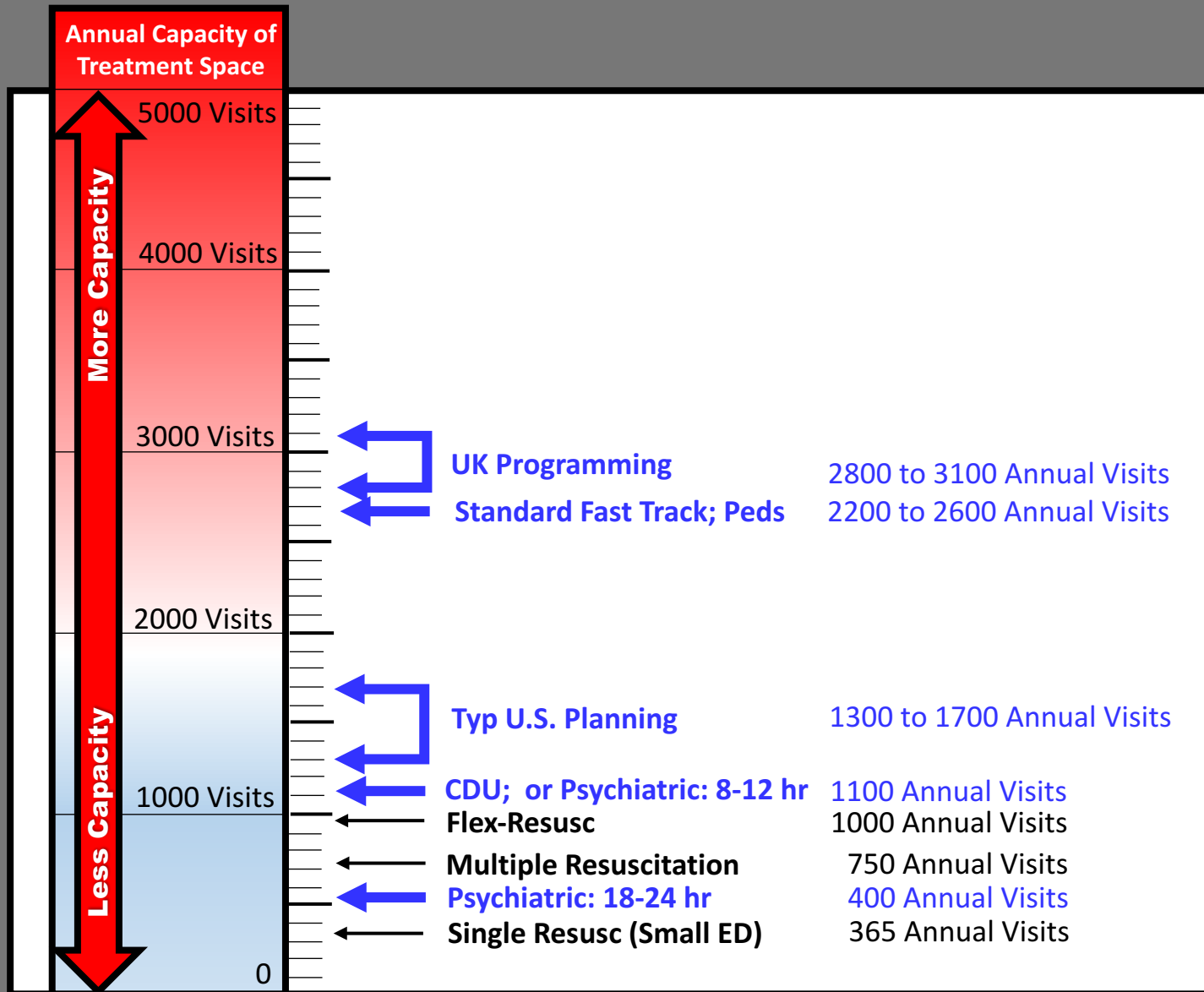
Patient Space Capacity: Operations + Facilities

Private Treatment Room

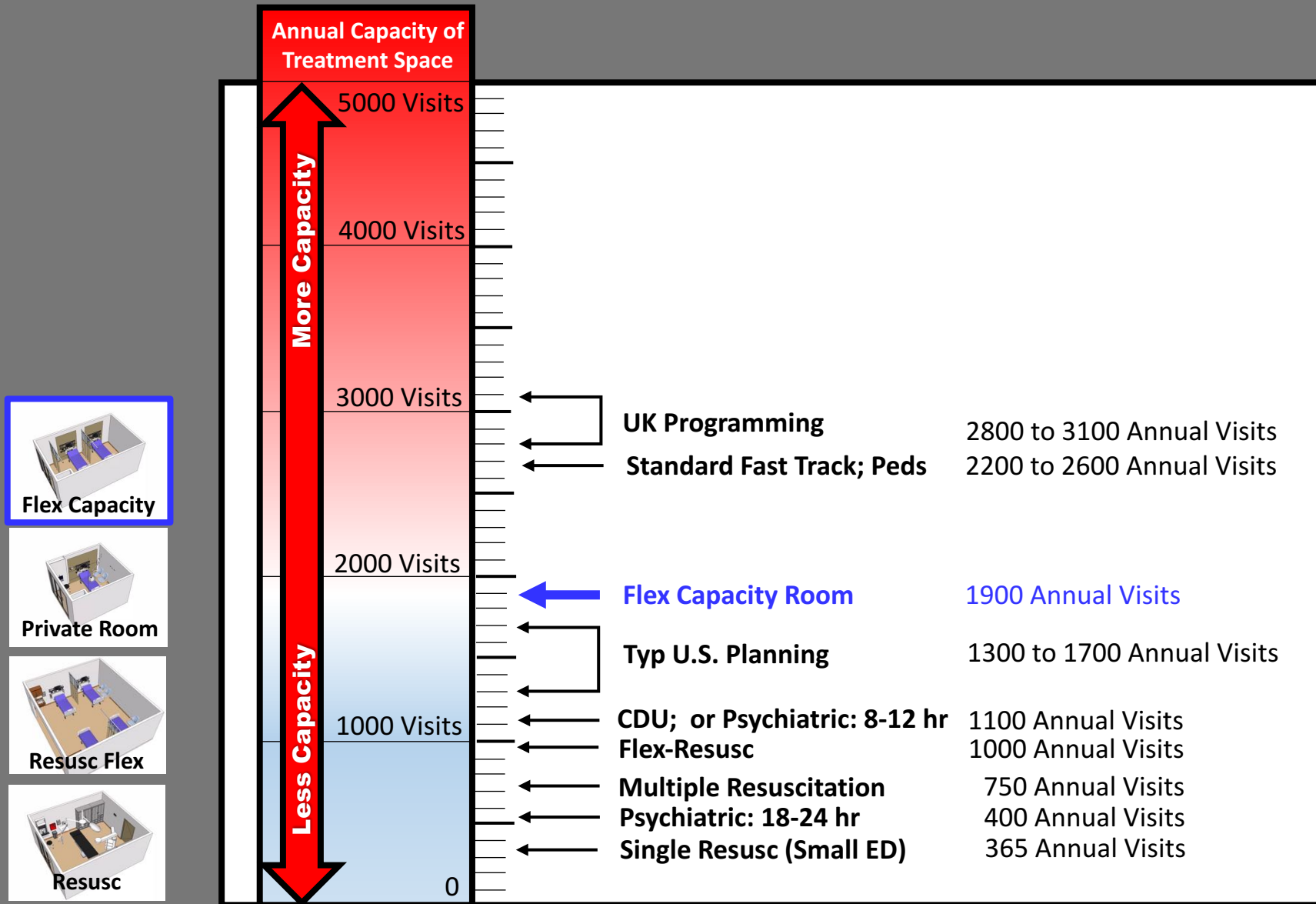
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Private Exam/Treatment



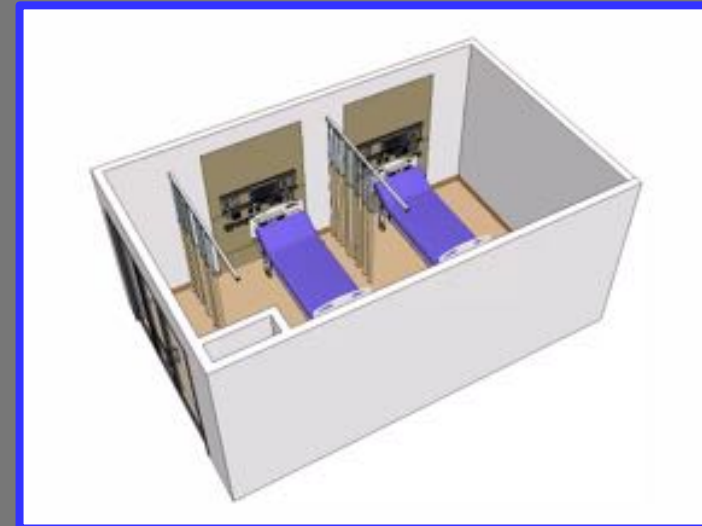
Patient Space Capacity: Operations + Facilities



Flex Capacity Room

2000 visit annual capacity

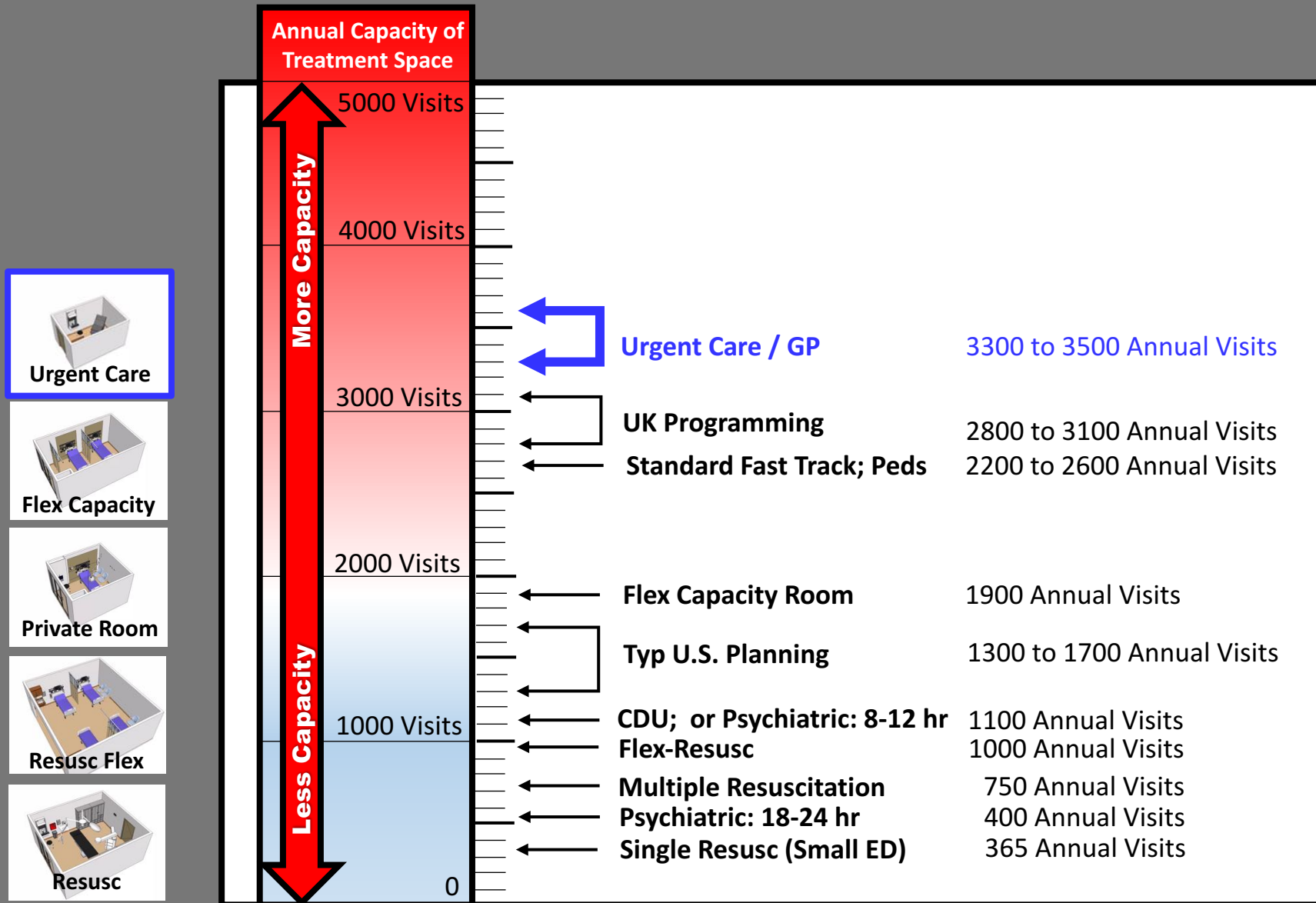
- Utilized as a private treatment room until capacity is reached or during volume surge



Flex Capacity Room



Patient Space Capacity: Operations + Facilities



Urgent Care / General Practitioner

3300 to 3500 annual visit capacity

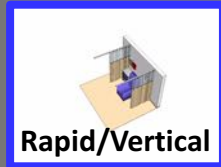
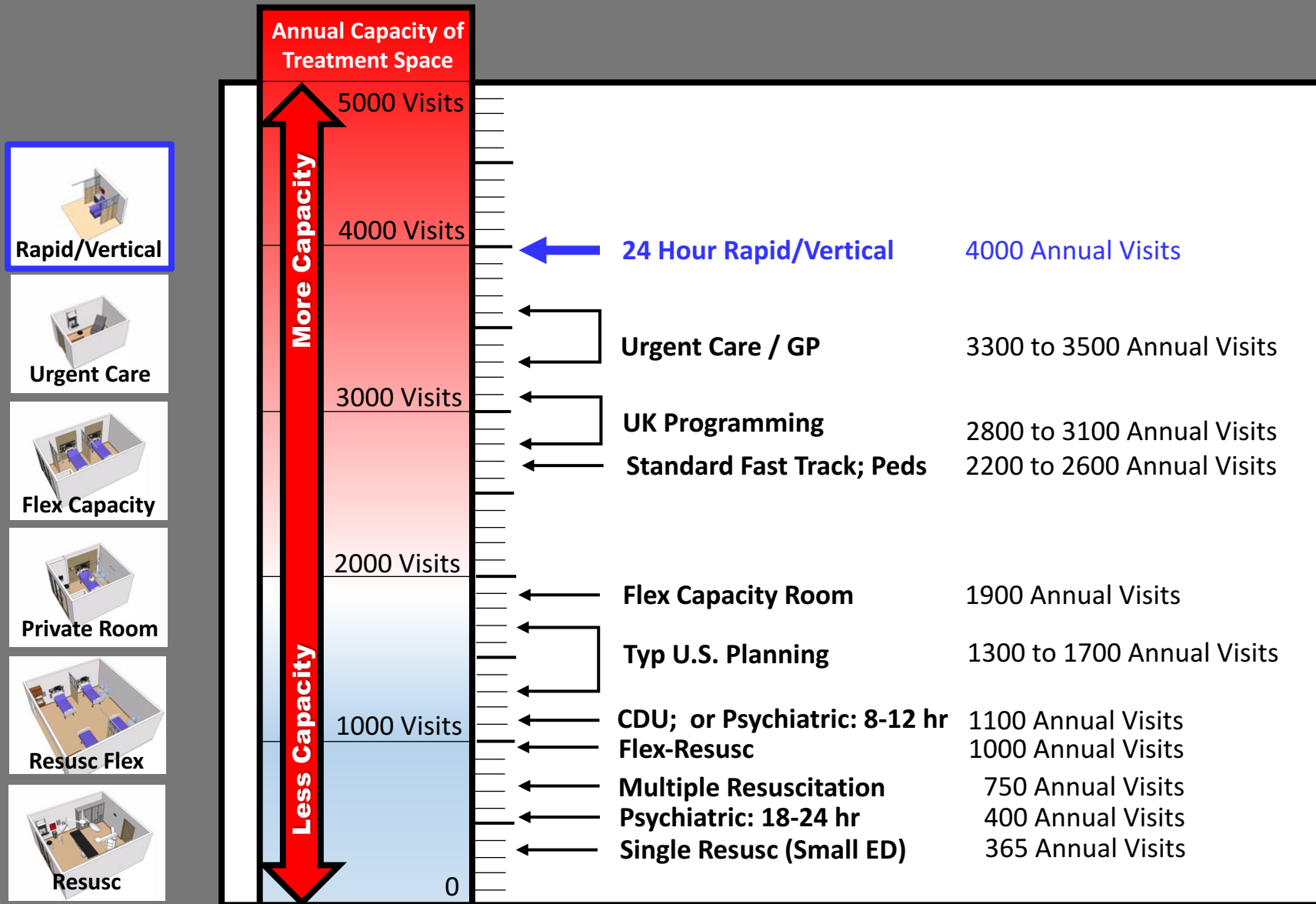
- Capacity based on hours of operation



Urgent Care / GP



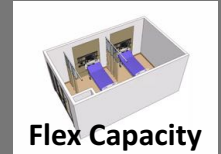
Patient Space Capacity: Operations + Facilities



Rapid/Vertical



Urgent Care



Flex Capacity



Private Room



Resusc Flex

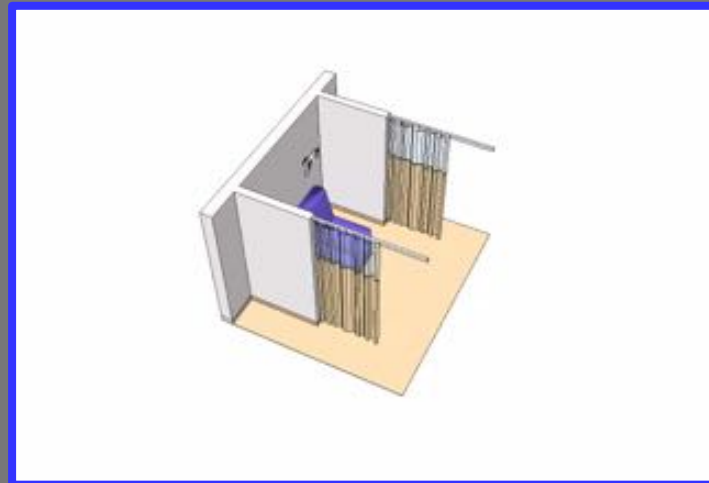


Resusc

Rapid/Vertical/Protocol Spaces

Up to 4000 annual visit capacity

- Accommodates 80% of patients in 16 hour period
- 24 hour operation increases capacity to nearly 4000 annually



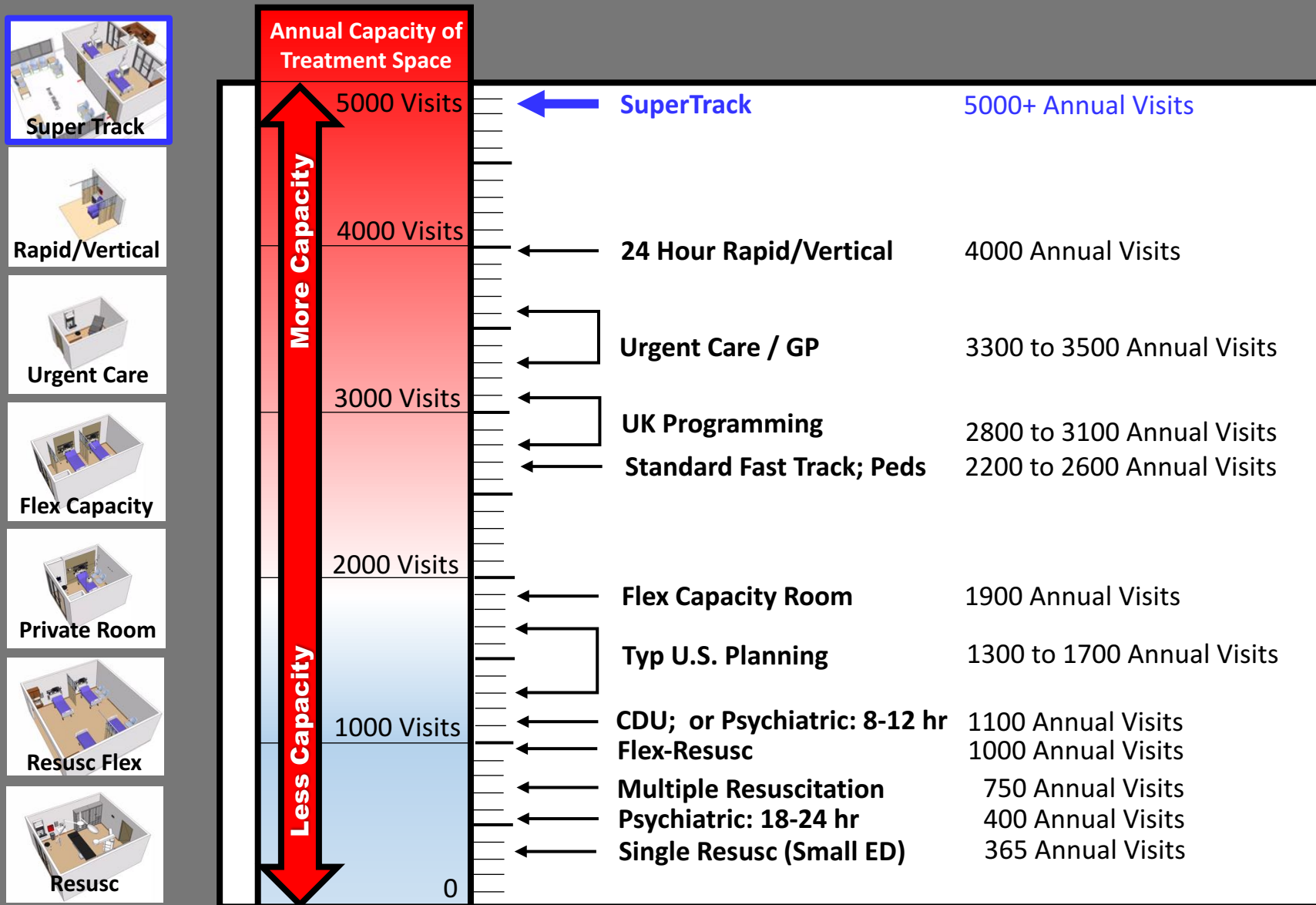
Rapid Care / Vertical



Patient Space Capacity: Operations + Facilities

SuperTrack

Up to 5000+ annual visit capacity



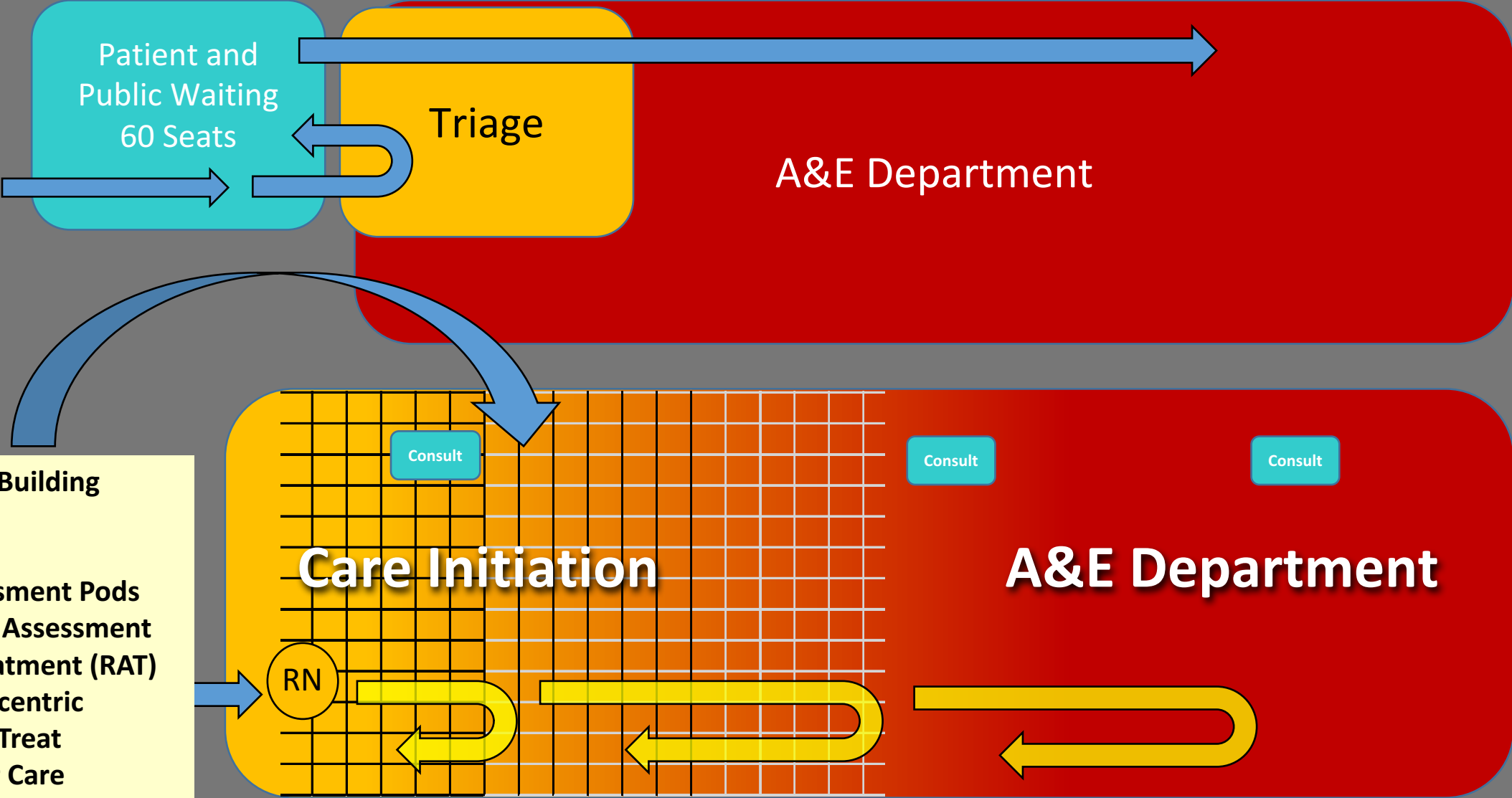
SuperTrack + Subwait



A moment of silence please.....



Redistribution of Waiting and Care Initiation



Health Building Notes:

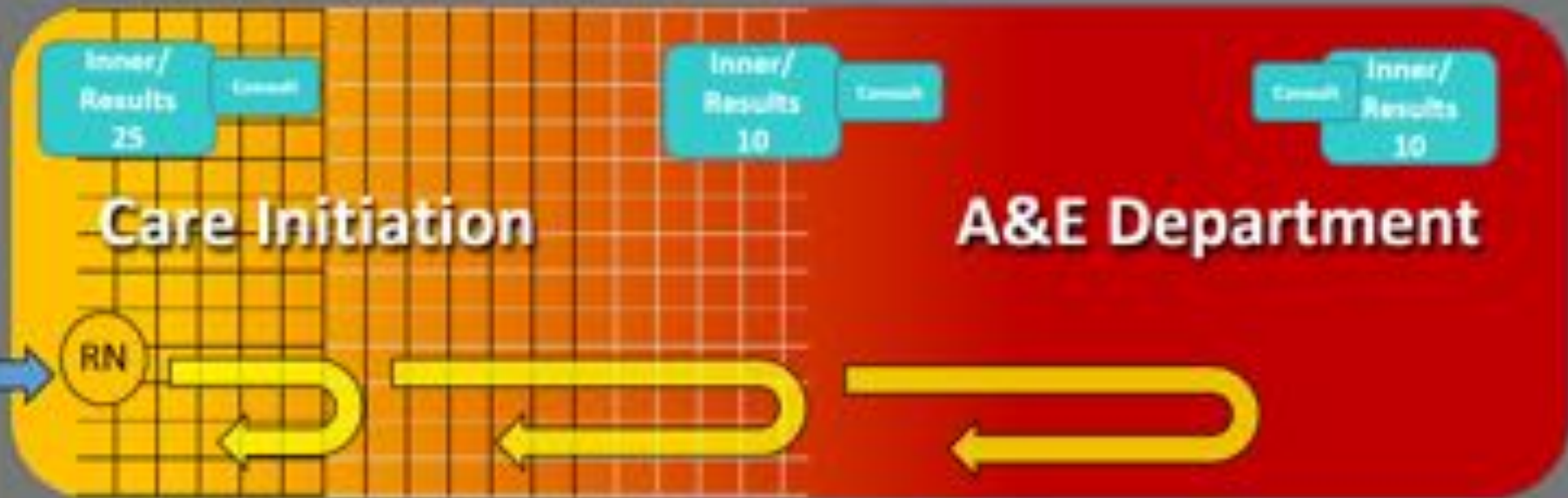
- Triage
- Assessment Pods
- Rapid Assessment & Treatment (RAT)
- Chair-centric
- See + Treat
- Minor Care



Redistribution of Waiting and Care Initiation

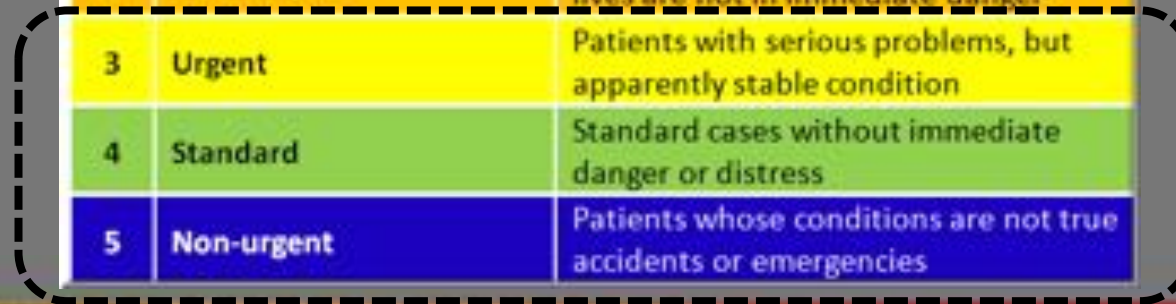


- Health Building Notes:**
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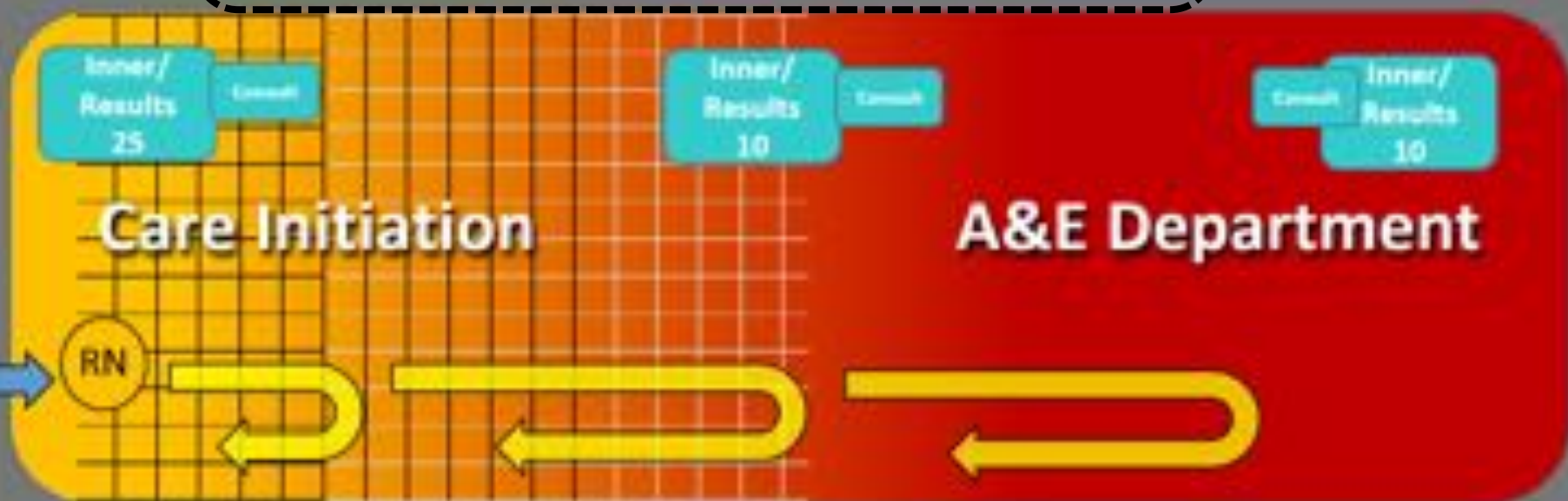


Care Initiation: Combination of Care Spaces

UK national triage scale		
1	Immediate resuscitation	Patient in need of immediate treatment for preservation of life
2	Very urgent	Seriously ill or injured patients whose lives are not in immediate danger
3	Urgent	Patients with serious problems, but apparently stable condition
4	Standard	Standard cases without immediate danger or distress
5	Non-urgent	Patients whose conditions are not true accidents or emergencies



- Health Building Notes:**
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 - Assessment Pods
 - Rapid Assessment & Treatment (RAT)
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Care Initiation: Combination of Care Spaces



Initial Assessment



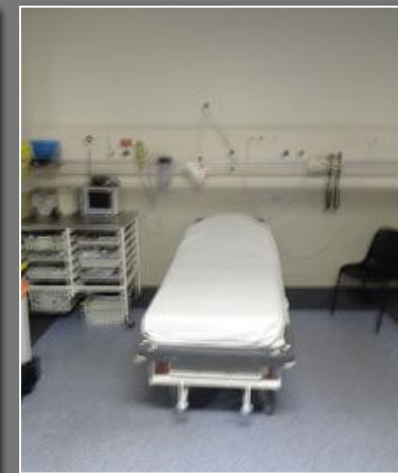
Results Waiting



Chair-Centric



Stretchers

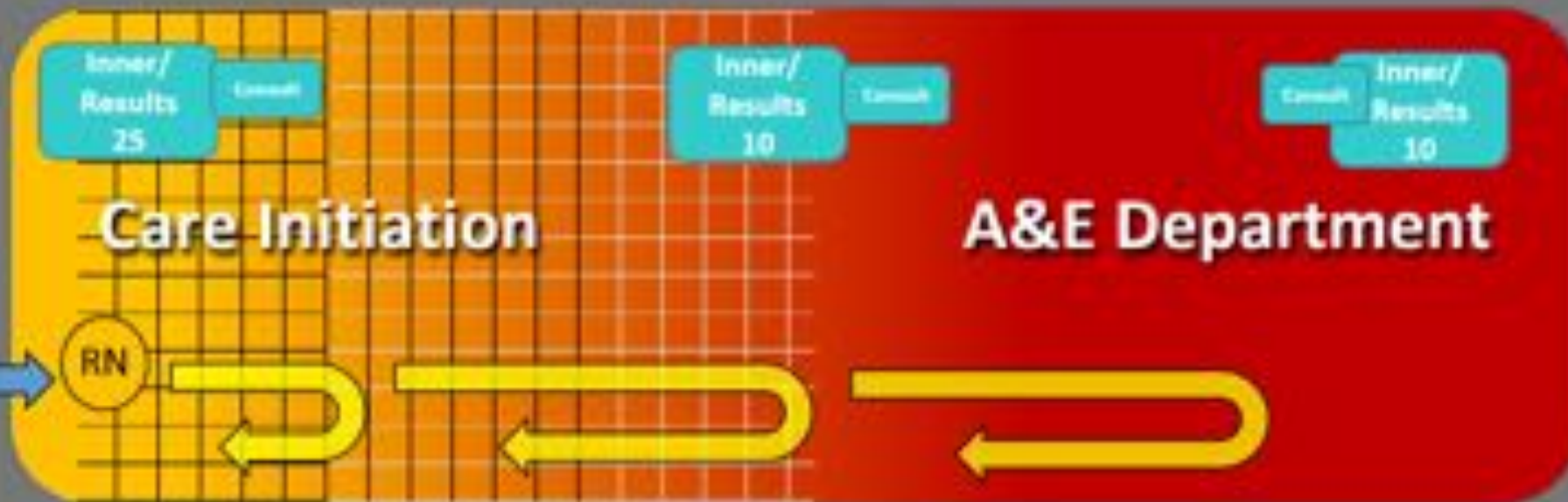


Private Spaces



Procedure Rooms

- Health Building Notes:**
- Triage
 - Assessment Pods
 - Rapid Assessment & Treatment (RAT)
 - Chair-centric
 - See + Treat
 - Minor Care



Results Pending



One of the key criteria for use of a chair-centric area is that the patient is relatively mobile. If a private discussion is necessary or the patient requires examination, an adjacent room is used. Chair-centric areas enable patients to be observed or treated using a recliner chair as opposed to remaining in a cubicle.



 DESIGNGROUP



 DCC Design

Photo courtesy DesignGroup, Columbus, OH; Ohio State University Wexner Medical Center Emergency Room Renovation

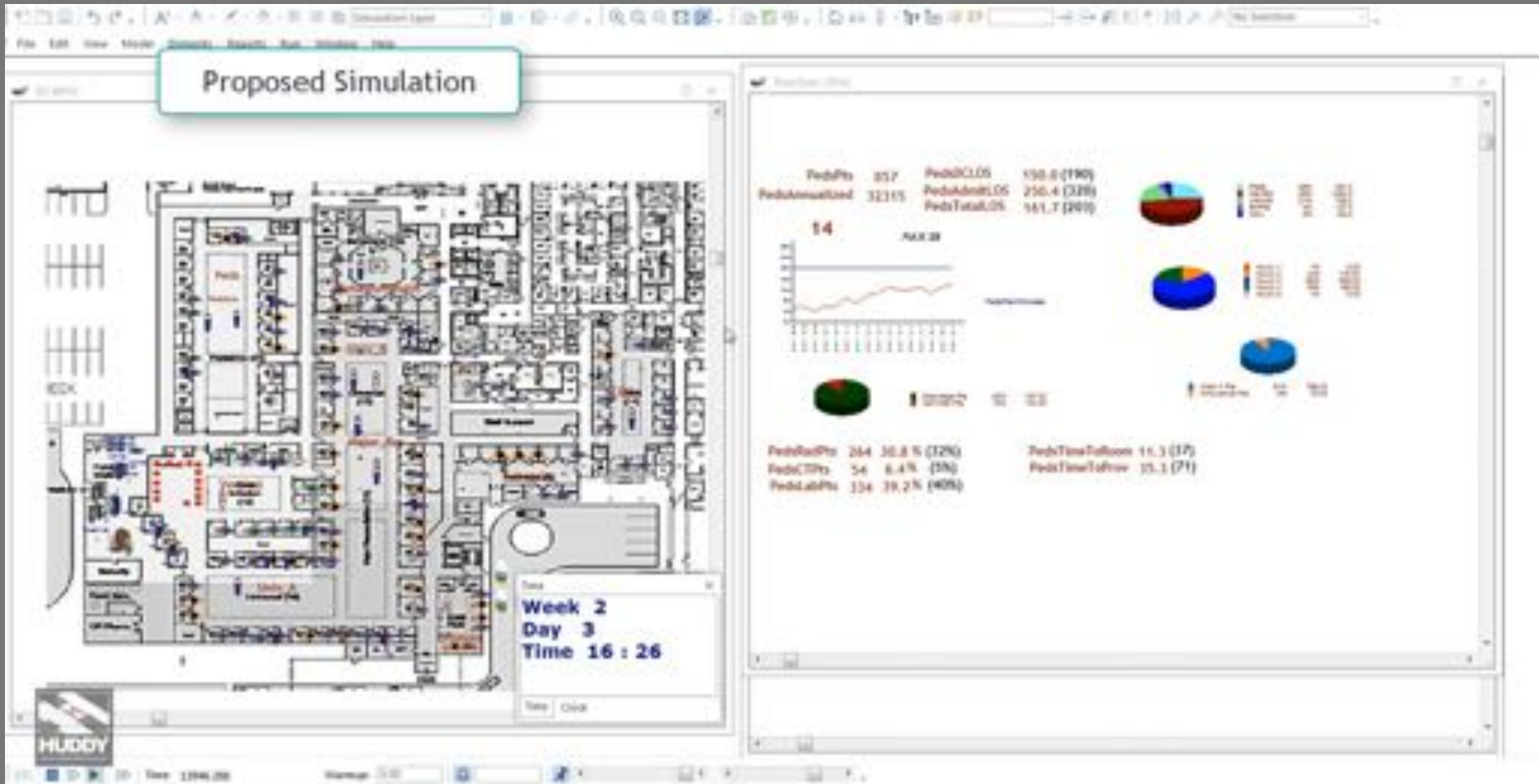


200,000 Visit Emergency Department

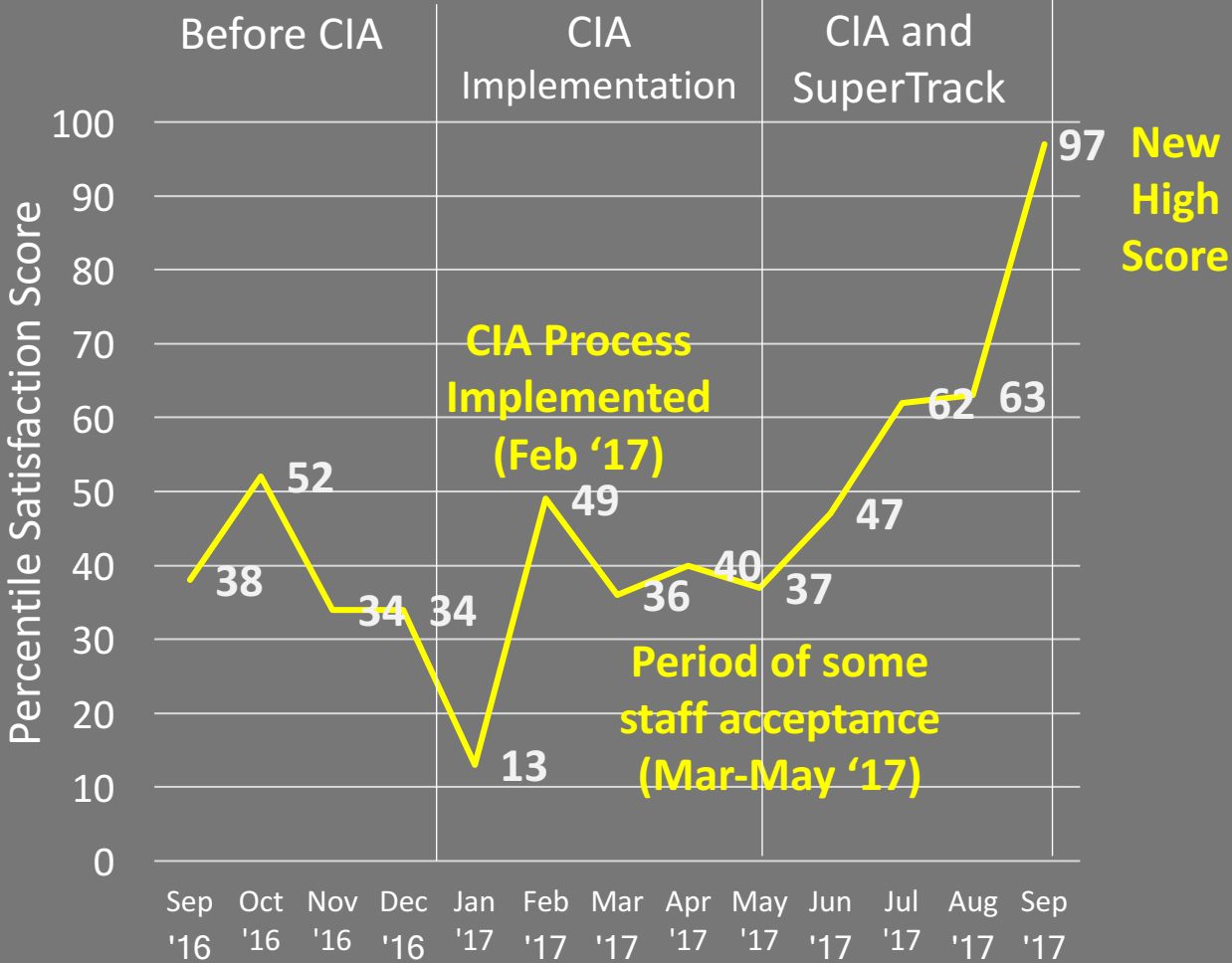
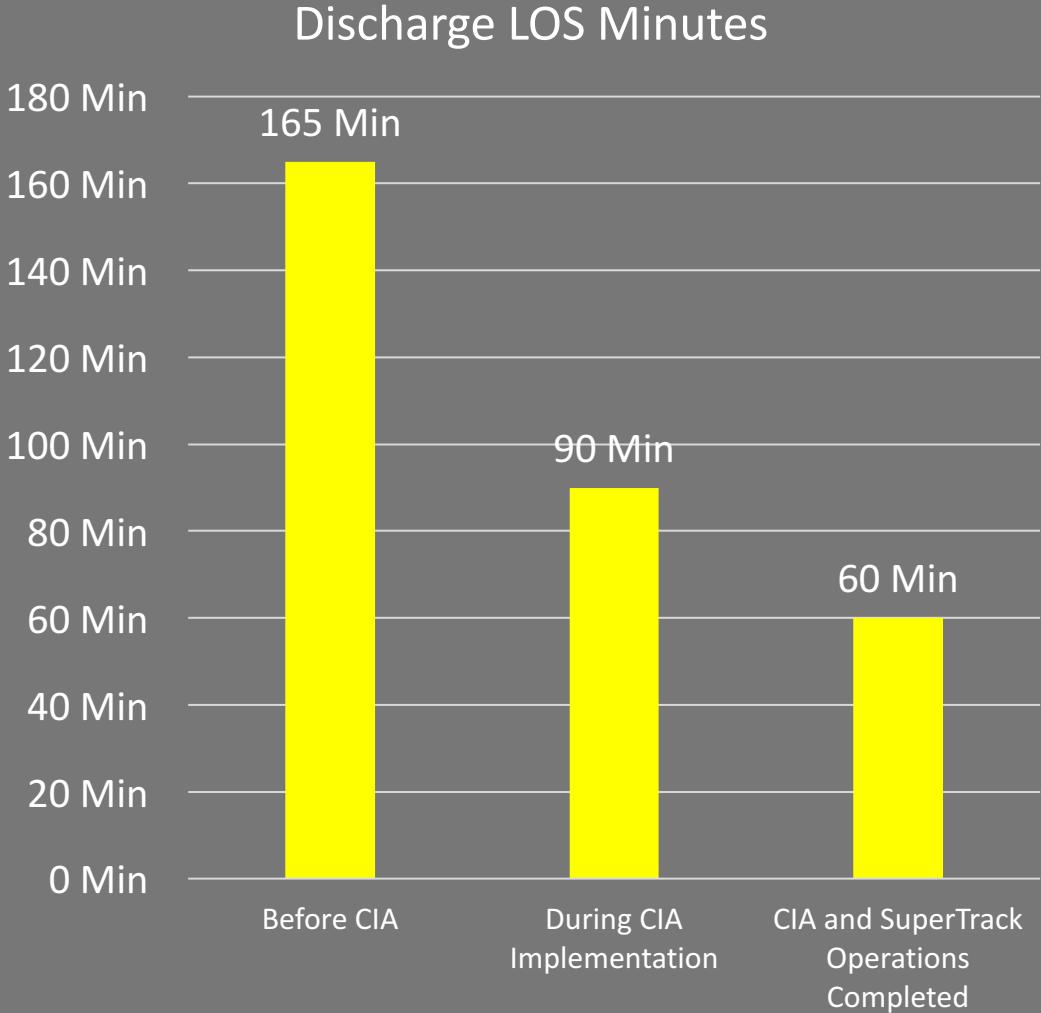
- 18 Care Initiation Spaces (4,500 patients/space)
- 20 Results Pending and 20 Family Chairs
- 81,000 Patients (40% of patients in 11% of their care spaces)



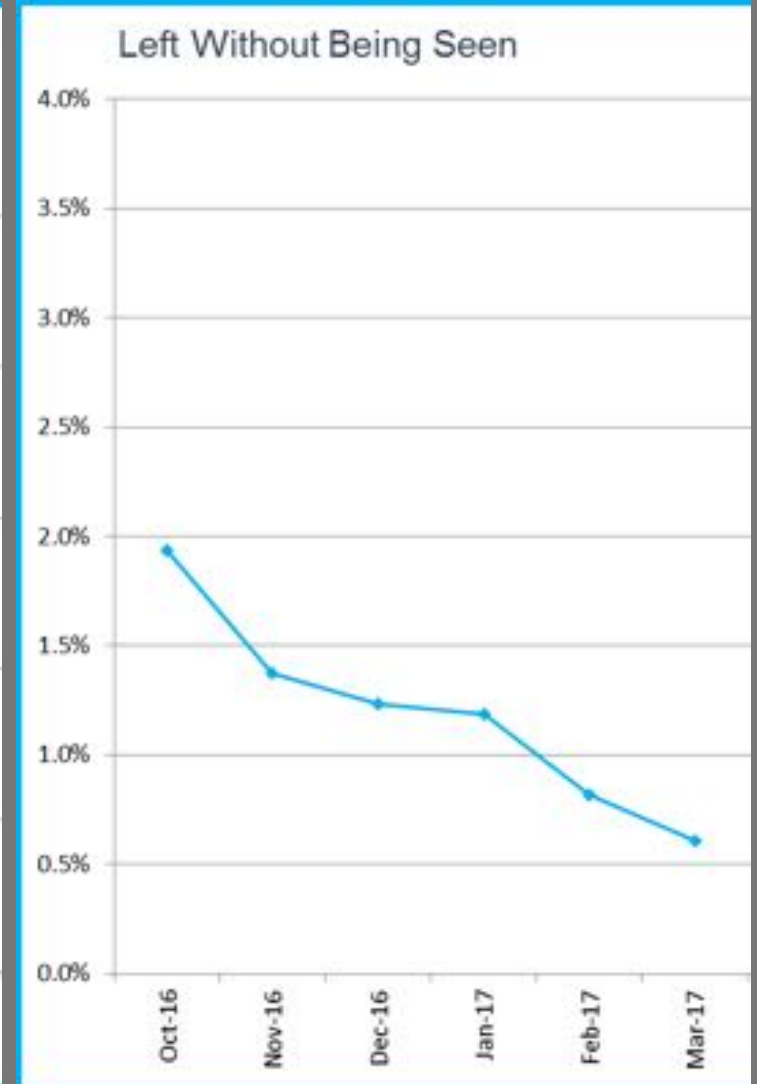
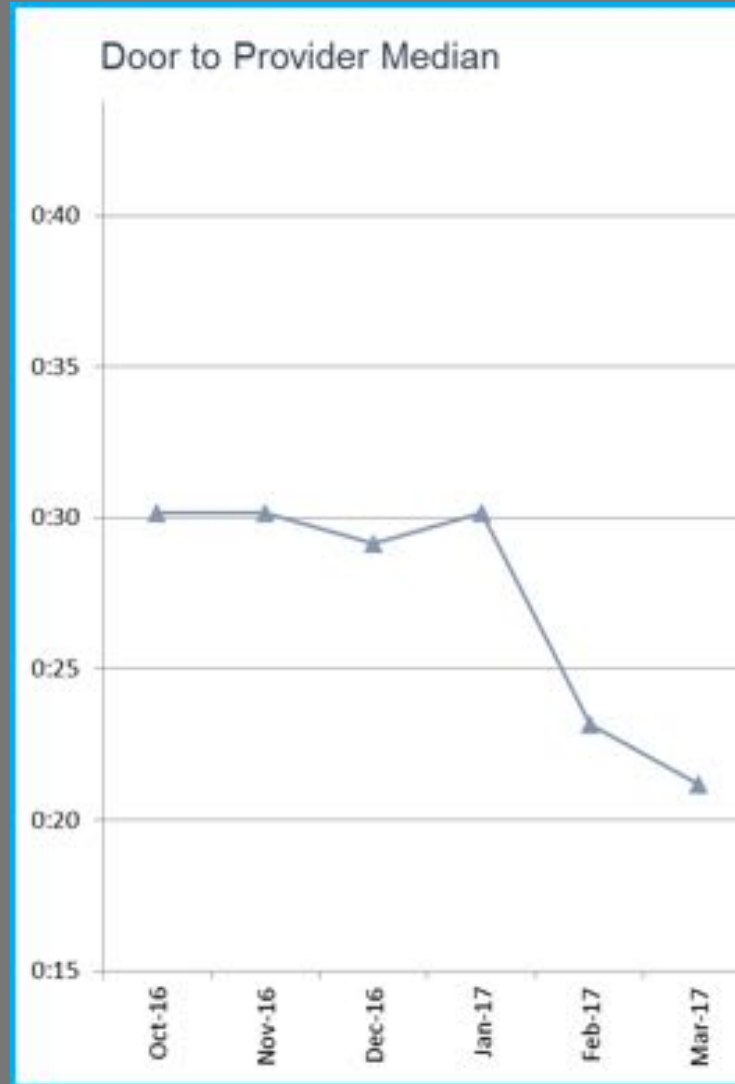
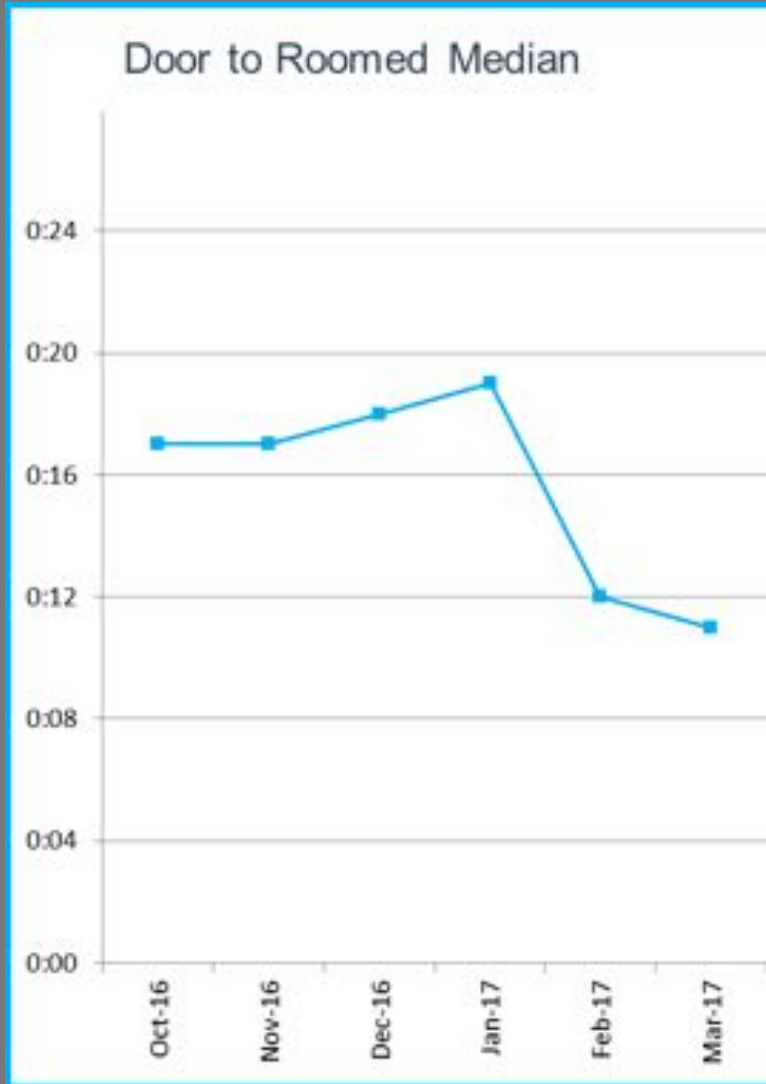
Simulation Testing to Forecast Results



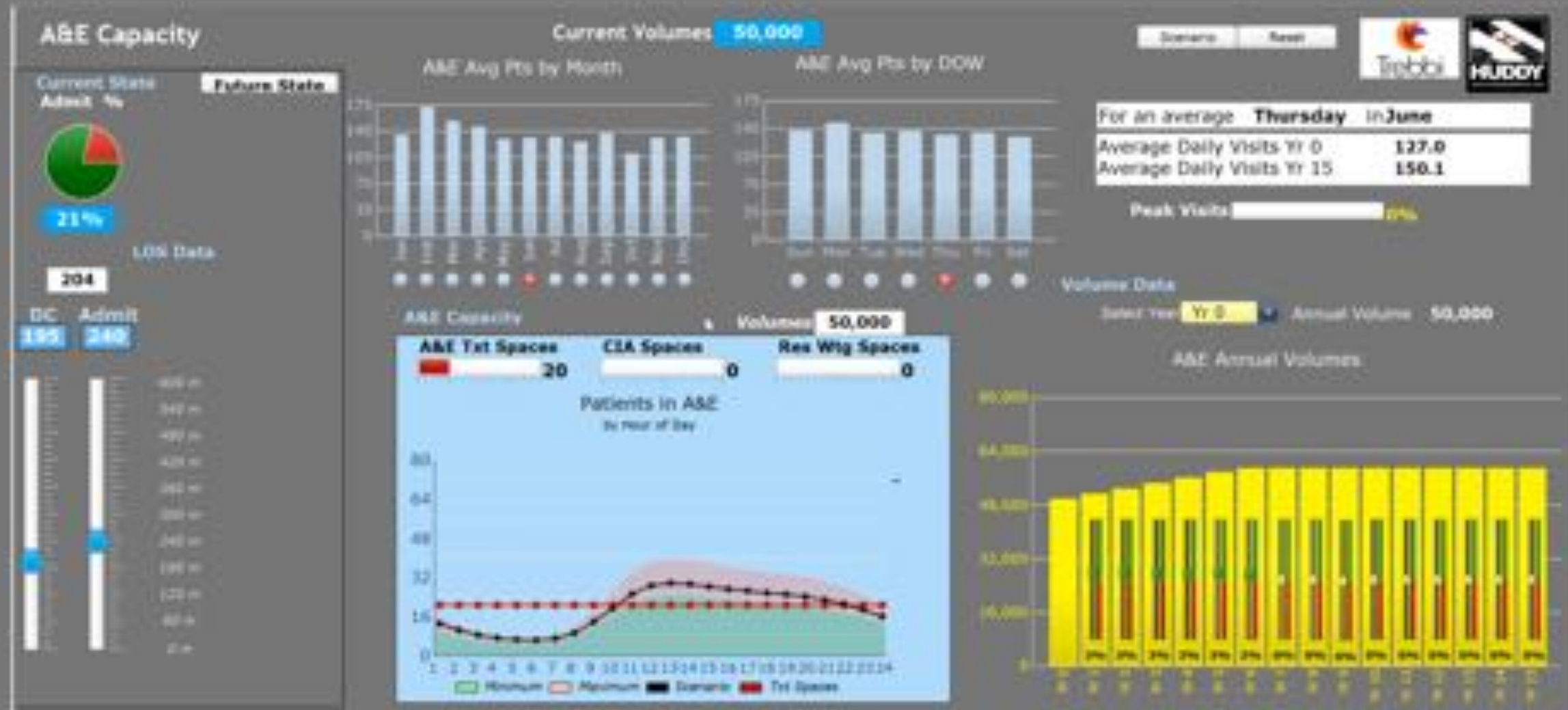
LOS and Satisfaction Impacts of Care Initiation Area (CIA)



Key Metrics Across the Entire ED

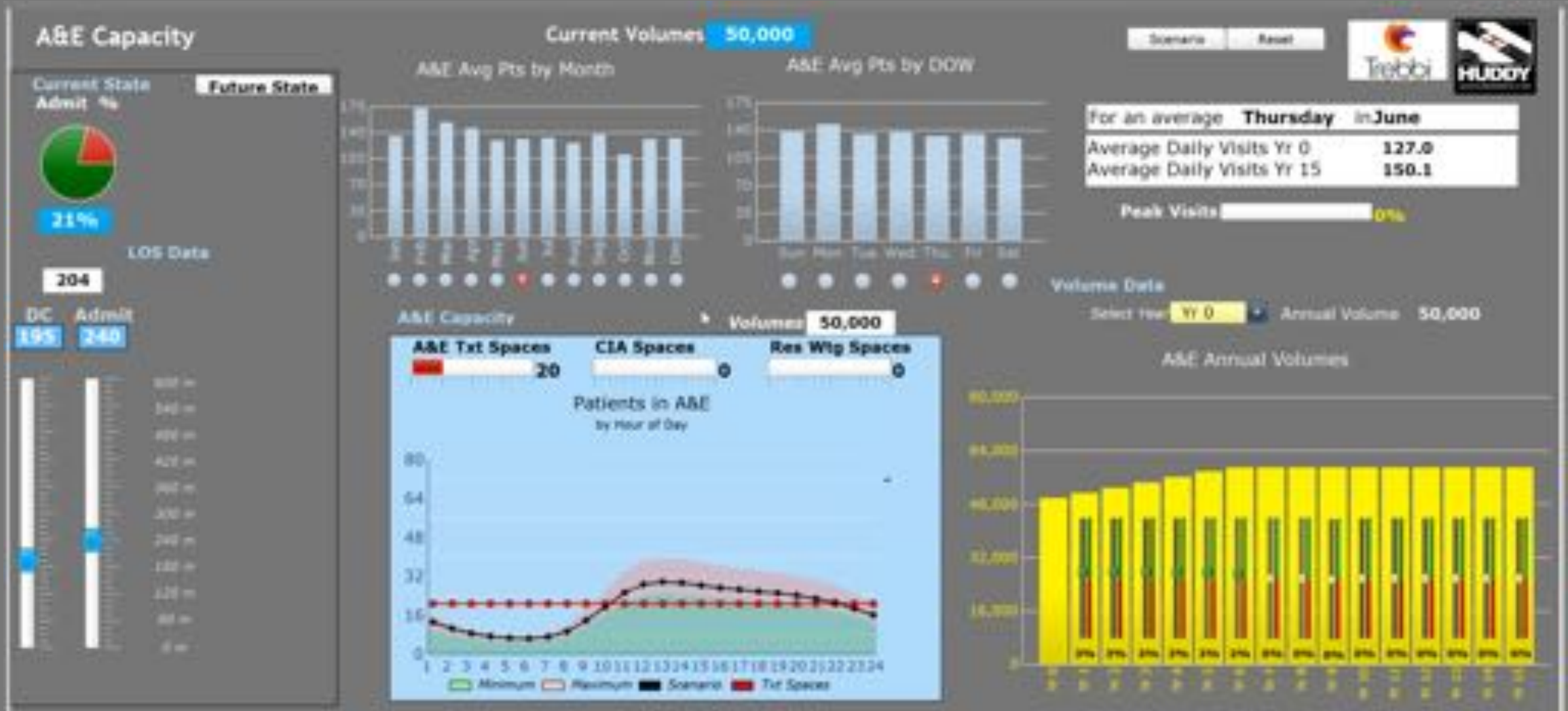


Predictive Modeling: Operations and Design



Predictive Modeling: Operations and Design

V



Challenge Yourself and Your Teams

- New ways of working
- New workflow patterns
- Use the planning “building blocks” in a new way
- Increase capacity within the same, or even less, physical space



Thank You



Jon Huddy, President
Huddy HealthCare Solutions

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