



HM 10 – Hospital Planning & Design –

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August 20, 2013

**Kahler Slater** Pte. Ltd.  
experience design



# Conference Welcome Message



19 - 21 August 2013  
Marina Bay Sands, Convention Centre, Singapore  
Organised by SingHealth

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Partnering for Healthcare Excellence

## Welcome Message



**Mr. Tan Jack Thian**  
Group Chief Operating  
Officer/Group Chief  
Procurement Officer,  
SingHealth

*“...both clinical teams and administrators play important and integral roles in delivering quality care and **the best possible experience for patients.**”*





**Are you delivering the  
best possible experience  
for your patients?**

*If not, how could it be improved?  
What are the areas that need work?*



# Kahler Slater Overview

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MARTHA JEFFERSON HOSPITAL



ST. LUKE'S MEDICAL CENTER



NUH MEDICAL CENTRE



MAYO CLINIC

# Our Singapore Experience

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YISHUN COMMUNITY HOSPITAL



GERIATRIC EDUCATION AND RESEARCH INSTITUTE



NUH MEDICAL CENTRE & NCIS

# Healthcare Expertise

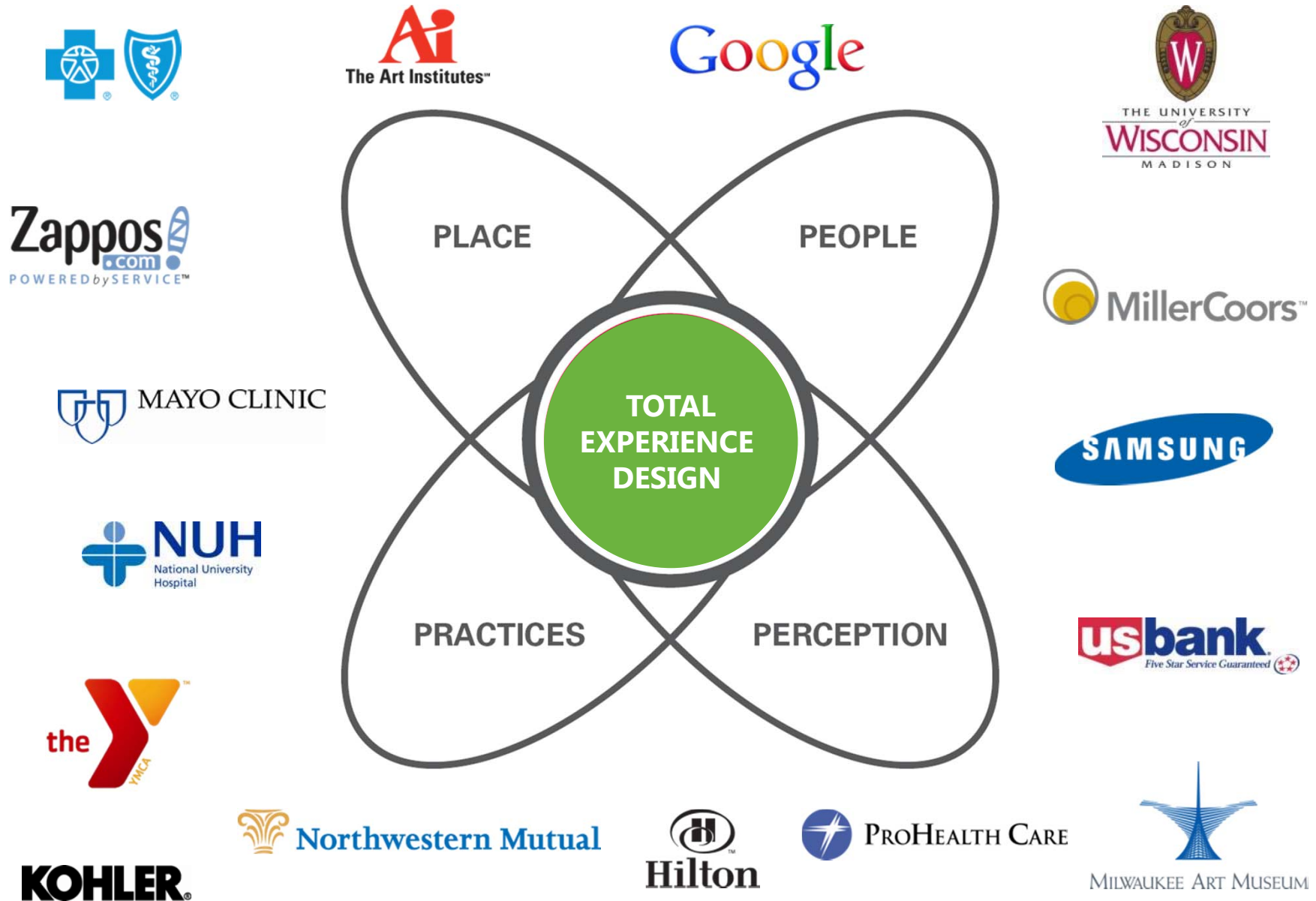


**Evidence-Based Design**





# Total Experience Design Philosophy



# Our Design Process

## DISCOVER



Where you are today

## DREAM



Where you want  
to be in the future

## DEFINE



Strategies to  
close the gaps

## DESIGN



Solutions to achieve  
your vision

## DELIVER



Making your  
vision a reality



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# BETTER MAKE IT REAL

Creating Authenticity  
in an Increasingly  
Fake World



JILL J. MORIN

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# Innovation Tools for Planning and Design

**Futurescaping**

**Mind Mapping**

**World Café**

**Benchmarking**

**Stop/Start/Continue**

**Visual Ethnography**

**Visioning  
Workshops**

**Metaphoria**

**A Day In The Life**

**Episodes Of Care**

**Cycle Of Service**

**Ideal Experience  
Mapping**

**Gap Analysis**

**Strategies To Close The  
Gaps**

**Vision Check**

**Sustainable Design  
Workshops**

**Image & Materials Survey**

**Evidence-based Design  
Workshop**

**Primary Research**

**Secondary Research**

**Safety Checklist**

**Lean Operational  
Efficiencies Workshop**

**Footsteps Analysis**

**Puzzle Play**

**Rapid Prototyping**

**Community Outreach**

**Focus Groups**

**Creativity Firedrills**

**Design Review**

**Watercolor Renderings**

**3d Computer Renderings**

**Fly-through Animations**

**Digital Mock-ups**

**Full-scale Mock-ups**

**Physical Models**



# Visioning

**Discover** the current situation

**Dream** about ideal experiences

**Define** gaps between current and ideal experiences



# Benchmarking Peers

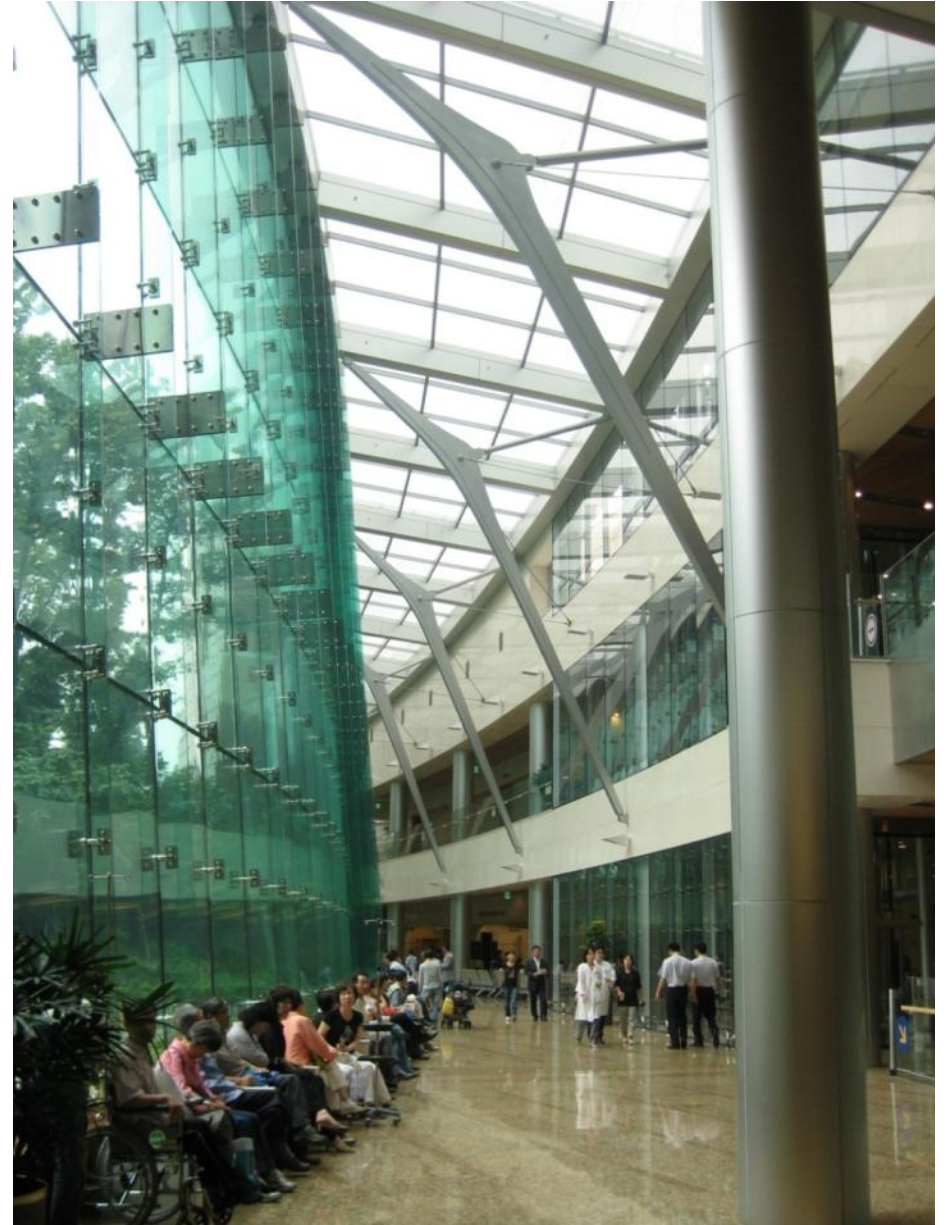
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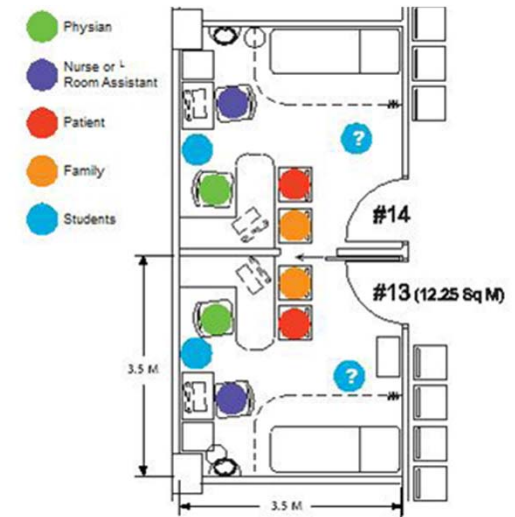


# Evidence-Based Design

*The process of basing decisions about the built environment on credible research to achieve the best possible outcomes.*



# Puzzle Play and Rapid Prototyping





# Experience Audits







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# Using Total Experience Design Approach Yields Impactful Results

**Following is a summary of some of the statistics our clients achieved after their total experience design projects were in operation:**

## **Safety**

- 80% fewer patient falls
- 39% decrease in mortality

## **Efficiency**

- 56% increase in on-time procedural starts
- 25% reduction in FTEs
- 83% reduction in staff footsteps

## **Patient Satisfaction**

- 25% overall improvement in ambulatory patient satisfaction top box scores (Avatar)
- 99<sup>th</sup> percentile for likeliness to recommend (HCAHPS)
- 99<sup>th</sup> percentile for overall satisfaction (HCAHPS)
- 37% increase in HCAHPS patient satisfaction scores

## **Staff and Physicians**

- 8.1% increase in number of Physicians
- 23% decrease in staff turnover
- 14% decrease in workers' compensation claims
- 18.2% increase in staff satisfaction (The Advisory Board Co.)

## **Financial**

- 35% energy savings
- 16% increase in admissions
- 22% increase in ER visits
- 15% increase in obstetrical deliveries

# Martha Jefferson Hospital, Charlottesville, Virginia, US

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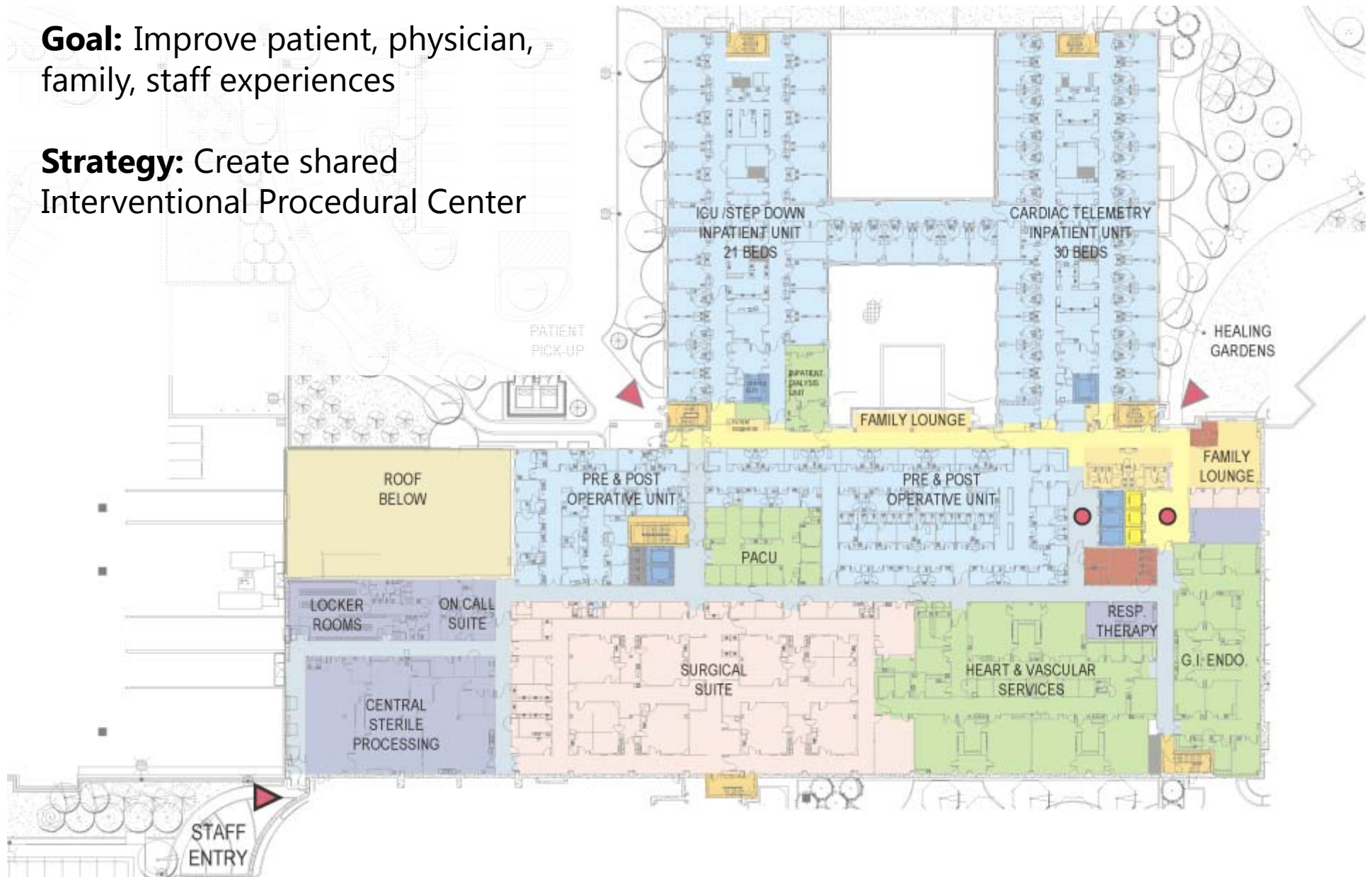


# Martha Jefferson Hospital, Charlottesville, Virginia, US

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**Goal:** Improve patient, physician, family, staff experiences

**Strategy:** Create shared Interventional Procedural Center



# Martha Jefferson Hospital, Charlottesville, Virginia, US

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# Martha Jefferson Hospital, Charlottesville, Virginia, US

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- 43% lower than national average rate for falls and injuries
- 56% increase in on-time procedural starts
- 62% decrease in procedure room turnover time
- 23% decrease in procedural center staff overtime
- 37% increase in HCAHPS patient satisfaction measures
- 8 PRC (Professional Research Consultants) patient satisfaction awards - 6 reflect top 10% performance nationally
- 18.2% increase in staff satisfaction (The Advisory Board Company)
- Ranked One of the “Best Hospitals in Virginia”, US News Best Hospitals, 2012
- “#1 Most Beautiful Hospital”, Soliant Health, 2012
- Featured as Cover Story in *Health Facilities Management*, June 2013

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# San Juan Regional Medical Center, Farmington, New Mexico, US

New Front Door, New Bed Tower, New Staff Spaces





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# San Juan Regional Medical Center, Farmington, New Mexico, US

New Front Door, New Bed Tower, New Staff Spaces

**Goal:** Fuhdwh#vshfldq#  
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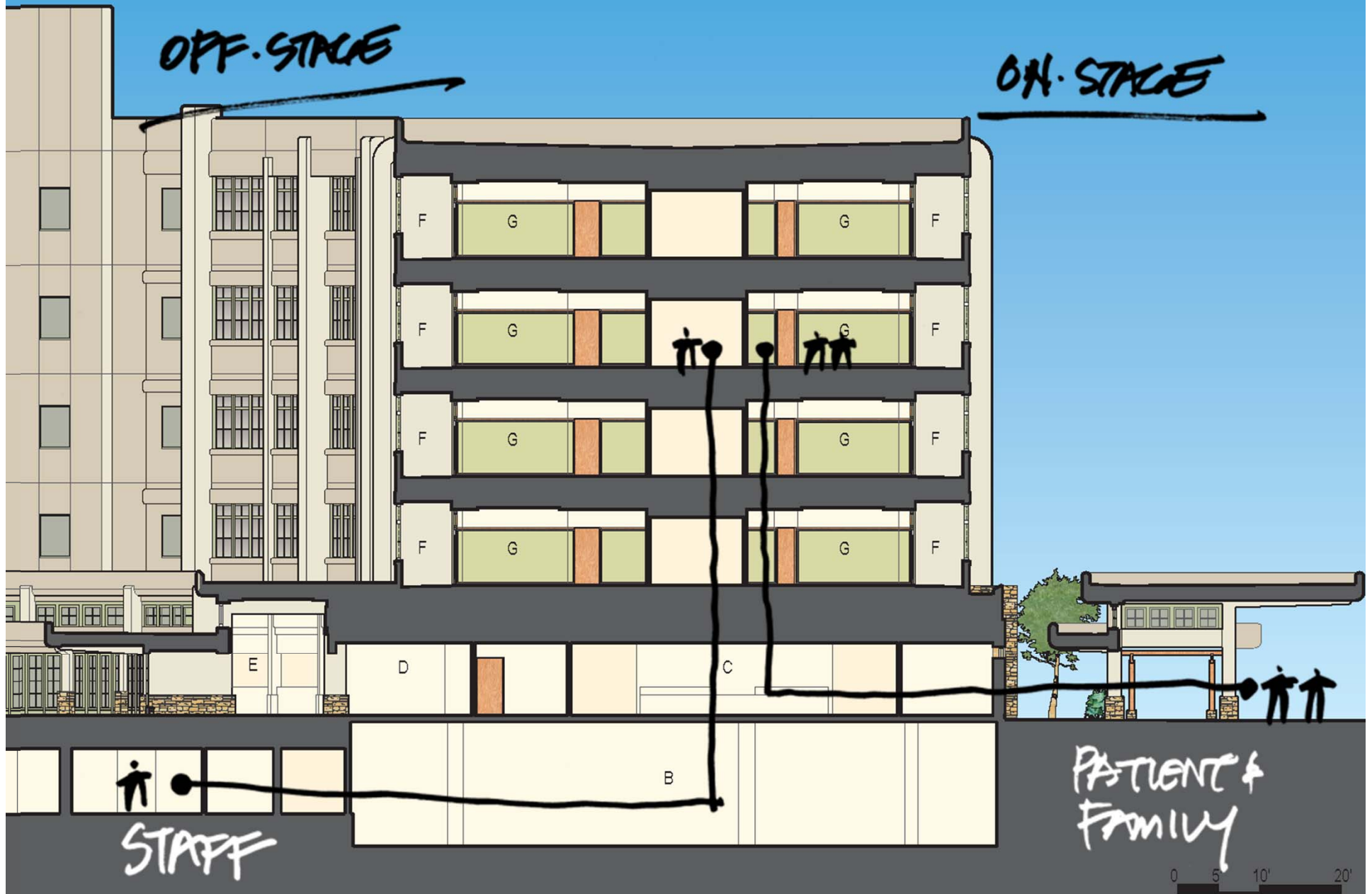
**Strategy:** Xvh#G lvqh|#frqfhs w  
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# San Juan Regional Medical Center, Farmington, New Mexico, US

New Front Door, New Bed Tower, New Staff Spaces





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## San Juan Regional Medical Center, Farmington, New Mexico, US

New Front Door, New Bed Tower, New Staff Spaces

- 39% decrease in mortality
- 26.7% decrease in morbidity
- 6.1% decrease in average length of stay
- 4.6% decrease in patient falls
- 5Db decrease in noise levels
- 23.2% decrease in staff turnover
- 14% decrease in worker's comp
- 6.5% increase in recruitment
- 8.7% increase in employee/physician satisfaction
- 8.6% above national average in hospital recommendation (HCAHPS)
- "#6 Most Beautiful Hospital," Soliant Health 2012



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# Monroe Clinic, Monroe, Wisconsin, US

Replacement Hospital integrated in existing campus





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## Monroe Clinic, Monroe, Wisconsin, US

Replacement Hospital integrated in existing campus

**Goal:** Improve efficiency and experience for patients, physicians, visitors, and staff

**Strategy:** Used Lean Six Sigma to map their current process flow for surgery outpatient procedures and identified steps to streamline



# Monroe Clinic, Monroe, Wisconsin, US

Replacement Hospital integrated in existing campus

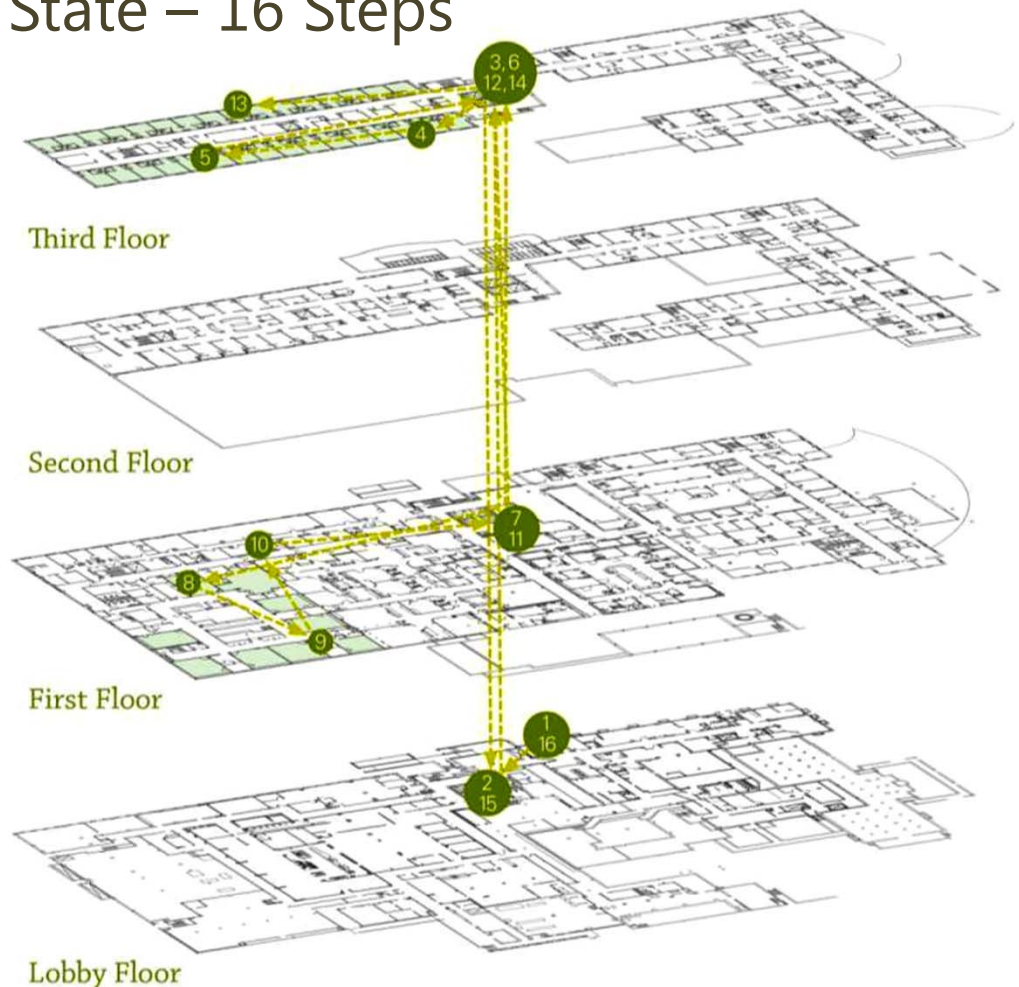
## Outpatient Surgery: Former State – 16 Steps

### Lean

- Waiting
- Material Movement
- Worker Motion

### Evidence-Based Design

- Building Layout
- Wayfinding
- Ergonomics





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## Monroe Clinic, Monroe, Wisconsin, US

Replacement Hospital integrated in existing campus

### Outpatient Surgery: New State – 6 Steps (eliminated 10 steps)



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## Monroe Clinic, Monroe, Wisconsin, US

### Replacement Hospital integrated in existing campus

Using Lean Planning, Evidence-Based Design and Sustainable Design the following has resulted:

- 5.4% increase in net patient revenue
- 7.6% increased revenue per encounter
- 11.4% increased revenue per discharge
- 7.4% Average Daily Census increased
- 7.1% Equivalent patient days increased
- 3.5% Clinic encounters increased
- 4% Adult admissions increased
- 6.2% ED volume increased
- Visitors and family satisfaction increased from 63rd percentile to 93rd percentile
- 8.1% increase in the number of physicians
- Featured in Environmental Design and Construction, April 2013
- US LEED Silver Certified





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# **St. Mary's Hospital**, Madison, Wisconsin, US

Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department



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# St, Mary's Hospital, Madison, Wisconsin, US

Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department

**Goal:** Improve Patient Satisfaction, Streamline Services, Create Cardiac Center of Excellence

**Strategy:** Meet WHO environmental guidelines in inpatient care areas.





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# St, Mary's Hospital, Madison, Wisconsin, US

Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department

## Research Brief

An observational study of an inpatient unit sound environment with the intent to develop a systemic, evidence-based design strategy for sound control in all new inpatient bed units

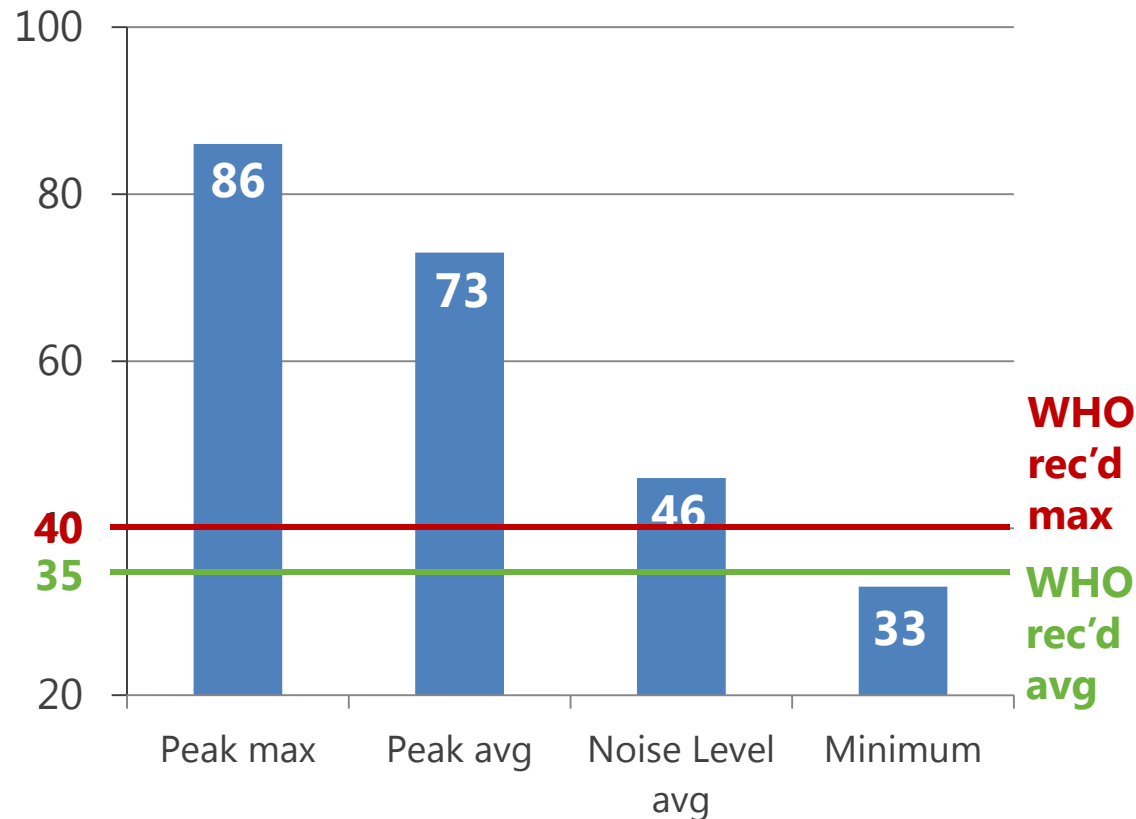
- Noise Levels
- Noise Sources
- Recommendations



# St, Mary's Hospital, Madison, Wisconsin, US

Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department

## Noise Levels and Sources



Total Number of Noise Source Types	103
Total Number of Noise Source Incidents	7142
• Architectural/ Environmental Features	3476
• Human Behavior and Interactions	3548
• Outside Sources	118

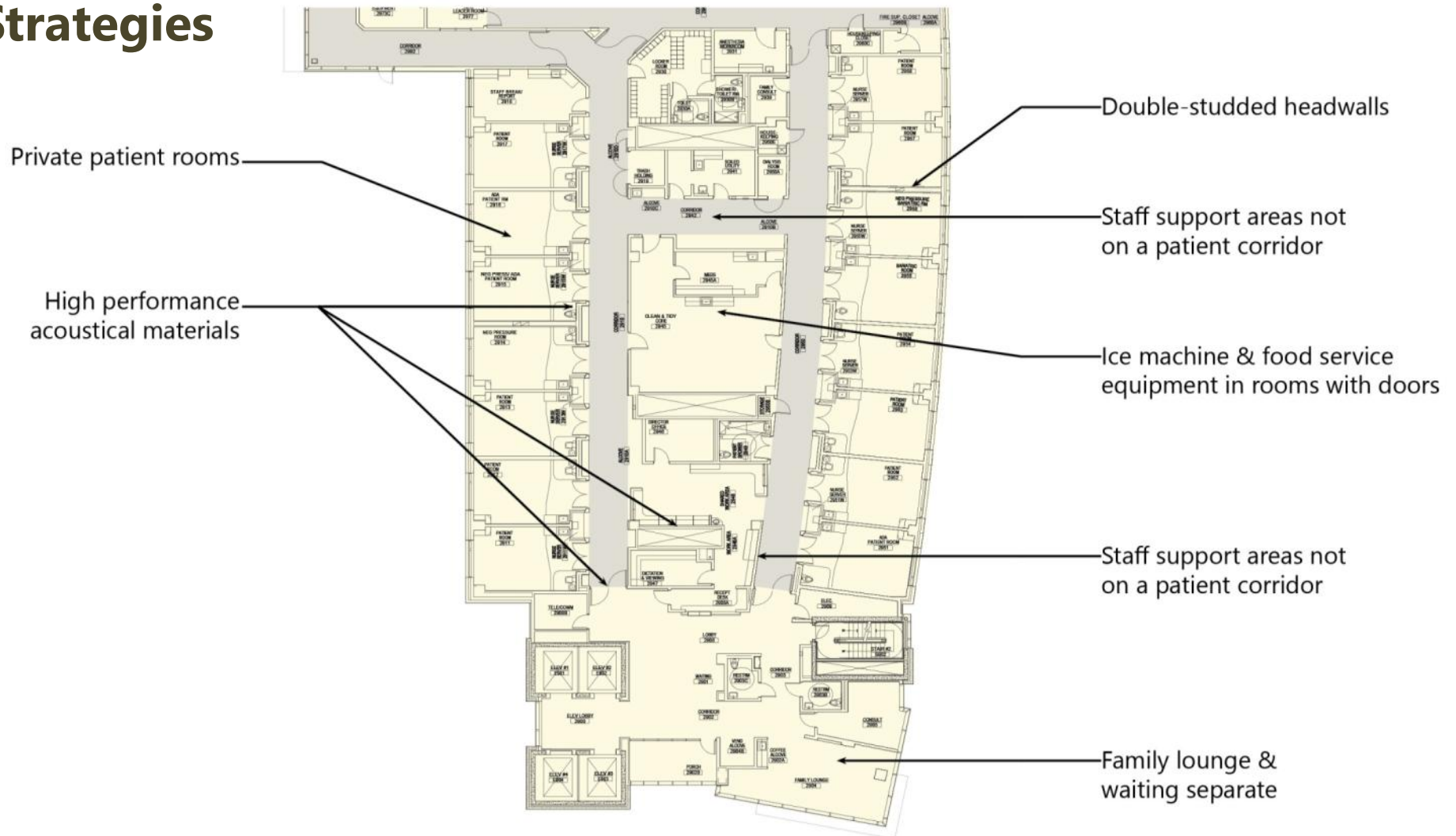
- Peaks exceeded WHO guidelines by 115% max or 83% average
- Average noise level average exceeded WHO guidelines by 31%



# St, Mary's Hospital, Madison, Wisconsin, US

## Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department

### Strategies



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# St, Mary's Hospital, Madison, Wisconsin, US

Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department

**Goal:** Improve wait times  
in Emergency Department

**Strategy:** Include clinicians  
in triage experience and  
universal rooms in the  
care environment





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**St, Mary's Hospital**, Madison, Wisconsin, US  
Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department



## St, Mary's Hospital, Madison, Wisconsin, US

Cardiac Center of Excellence, New Inpatient Tower, Renovated Emergency Department



- World's first Malcolm Baldrige National Quality Award
- Thompson Reuters Top 20% Hospital 2011
- Ranked top 50 US hospital for patient satisfaction (HCAHPS)
- 99th percentile for likeliness to recommend (HCAHPS)
- 99th percentile for overall satisfaction (HCAHPS)
- Average door-to-doc time decreased from 50 to 14 minutes
- Patient satisfaction scores increased from 50th percentile to 90th
- 13.5% above national average in quietness at night (HCAHPS)



# National University Hospital, Singapore

## Outpatient Care Center and National Cancer Institute



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# National University Hospital, Singapore

## Outpatient Care Center and National Cancer Institute

**Goals:** Create a modernized academic medical centre

**Strategy:** Create a patient focused care model with integrated clinical care, education and research.

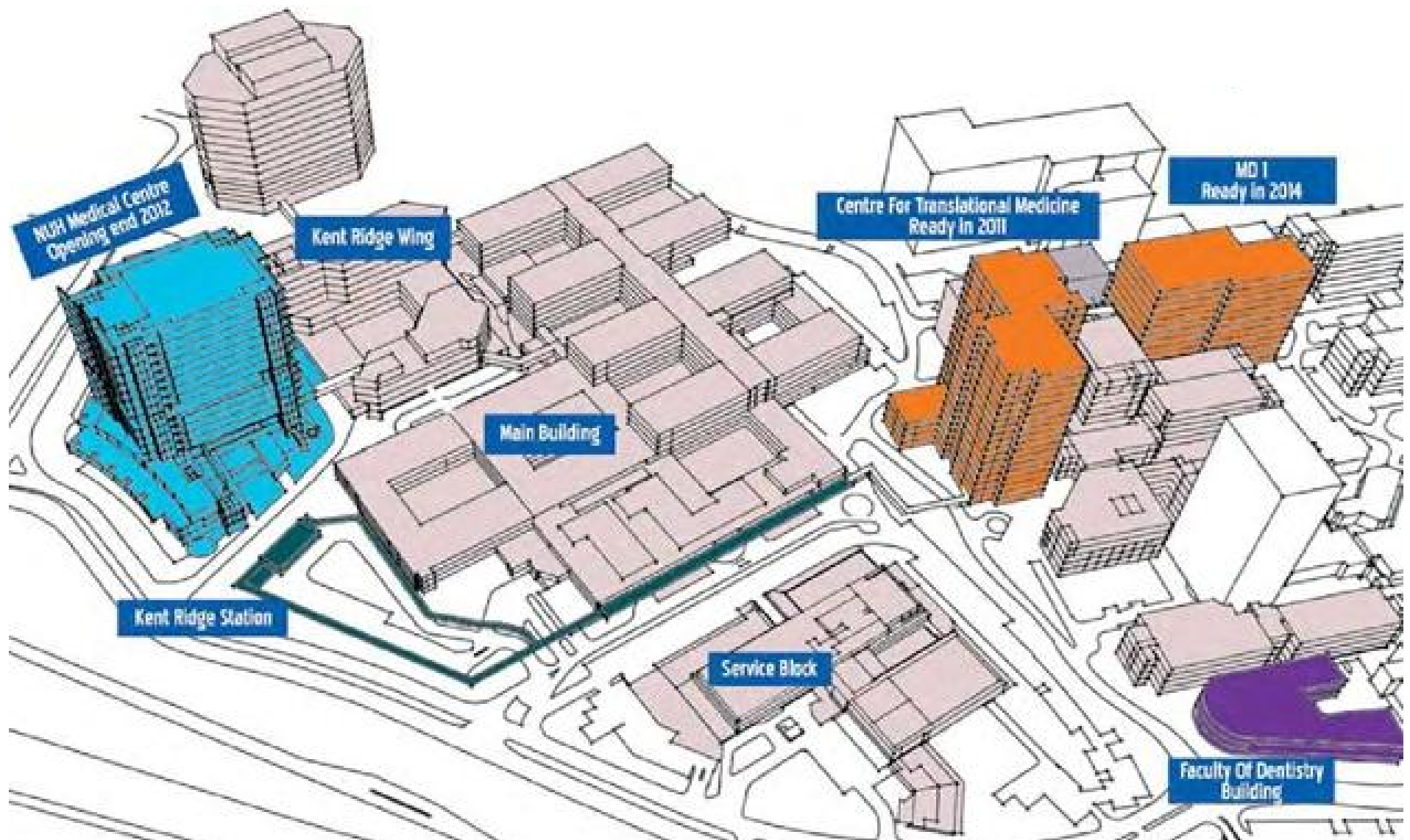




# National University Hospital, Singapore

Outpatient Care Center and National Cancer Institute

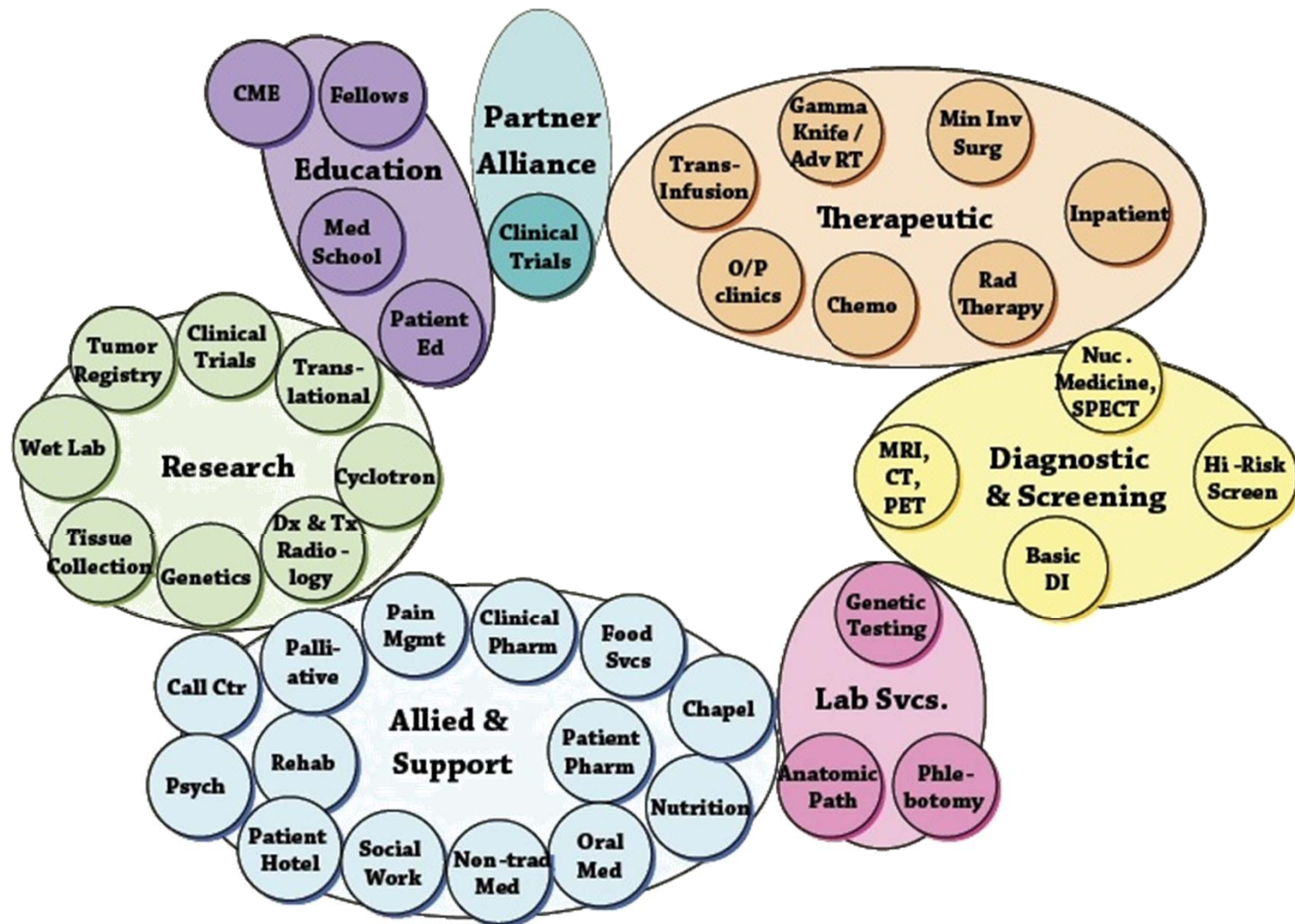
## Modernize & Expand Campus



# National University Hospital, Singapore

Outpatient Care Center and National Cancer Institute

## Shift from Department Centric

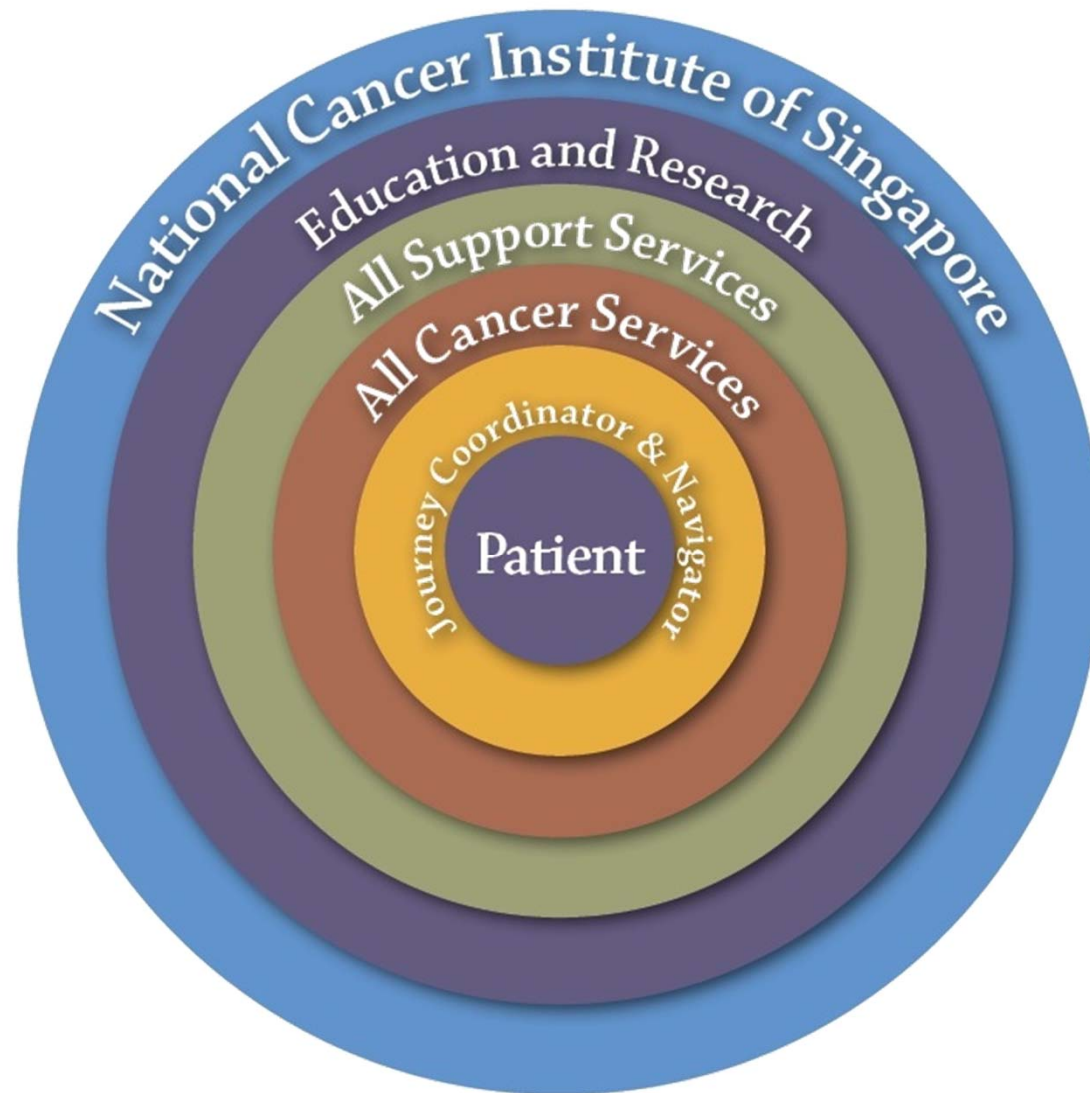




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**National University Hospital**, Singapore  
Outpatient Care Center and National Cancer Institute

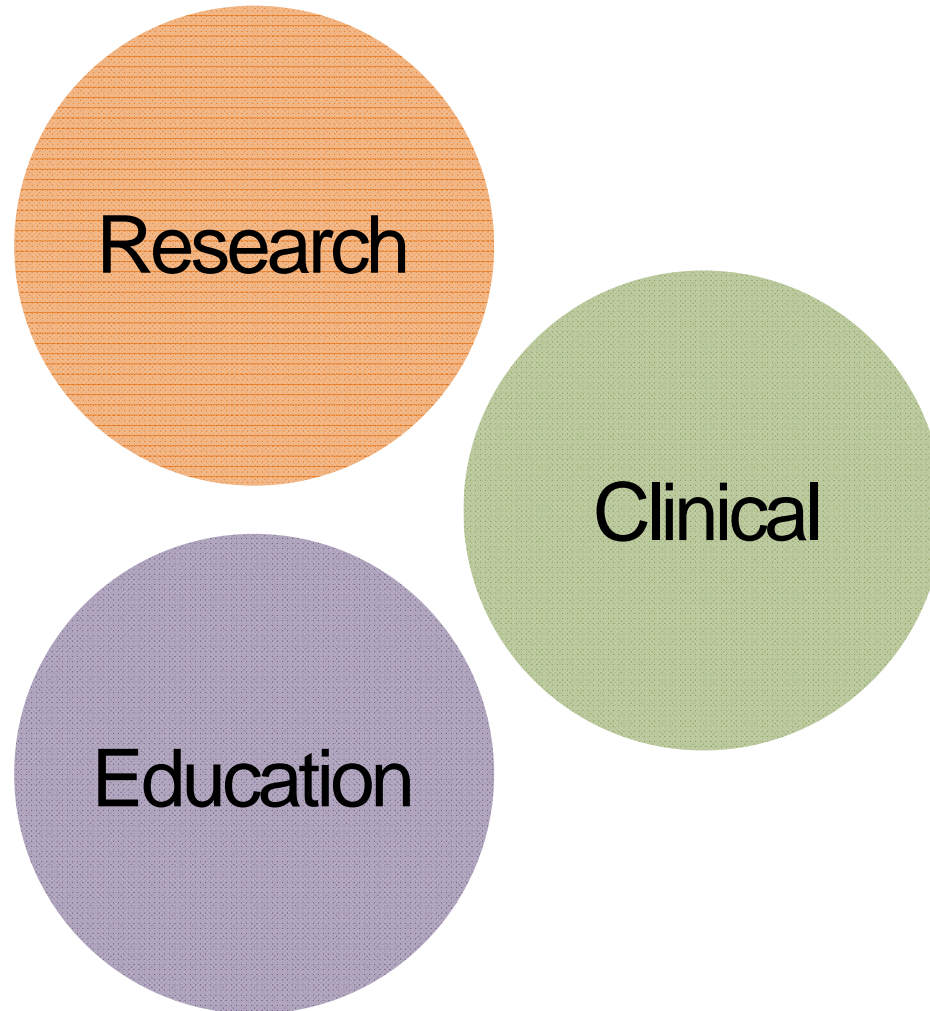
## Be Patient Centric



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**National University Hospital**, Singapore  
Outpatient Care Center and National Cancer Institute

## **De-Silo Clinical, Education, and Research**

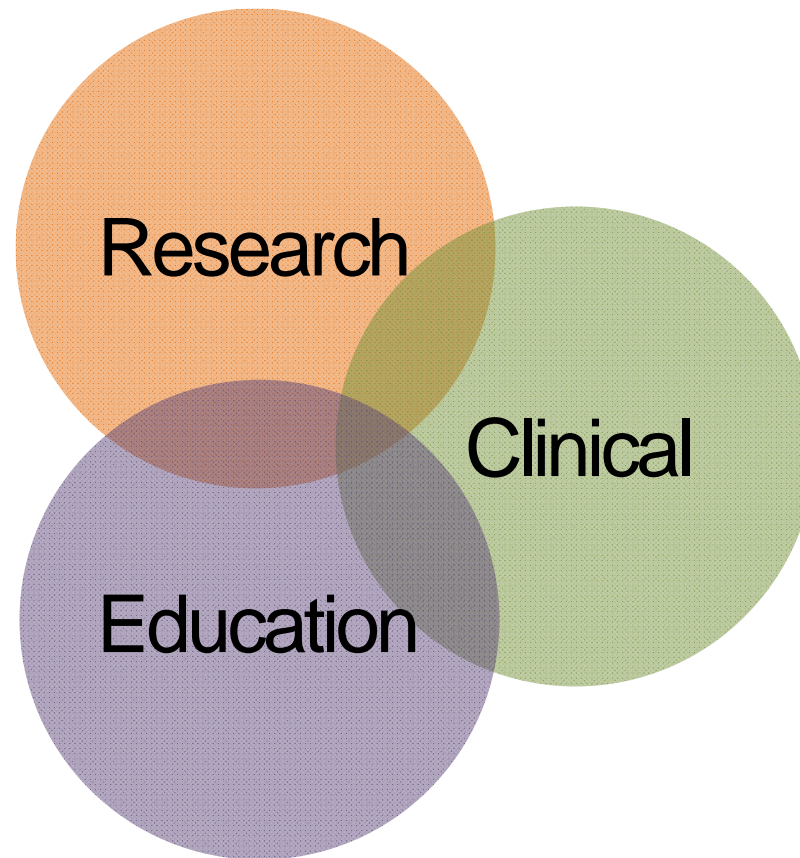




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**National University Hospital**, Singapore  
Outpatient Care Center and National Cancer Institute

## **Integrate Clinical, Education, and Research**



## Align Curriculum with Changing Health Care

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- Q hz #P rghov#ri#F duh
- Dj lqj #Srsxodwlrq
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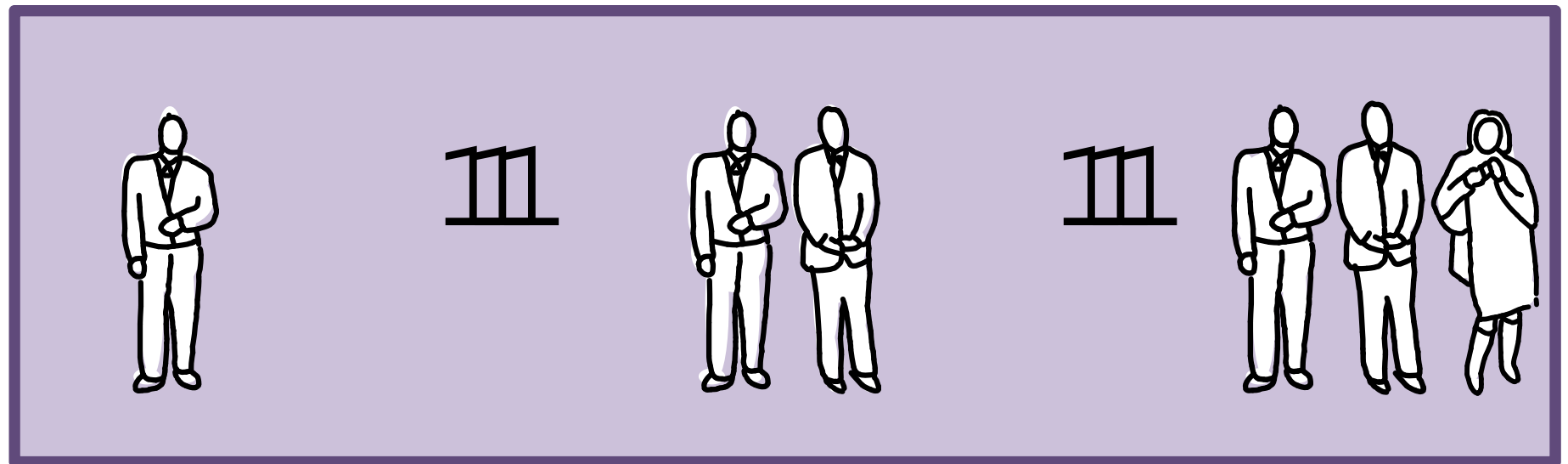
## Align Care Delivery & Education Models

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- Krvs lwd#Edvhg
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- Suredp #Edvhg
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## Reinvent Your Curriculum to...

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## Accelerate Student's Interaction with Patients Day 1

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## National University Hospital, Singapore

Outpatient Care Center and National Cancer Institute

### Include Students in the Process

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Wrs#Wxghqw
- Exlgqj#shhu#  
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**National University Hospital**, Singapore  
Outpatient Care Center and National Cancer Institute

## **Conduct Observational Research**





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**National University Hospital**, Singapore  
Outpatient Care Center and National Cancer Institute

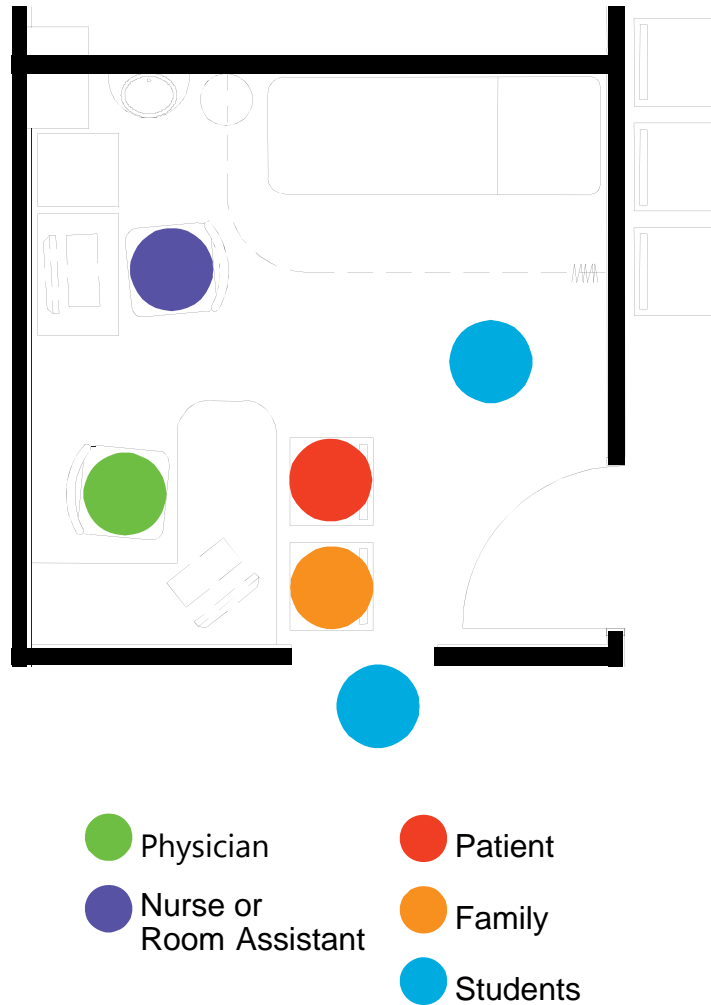
**Integrate Students into Care Giving Team**



# National University Hospital, Singapore

Outpatient Care Center and National Cancer Institute

## Map Experiences



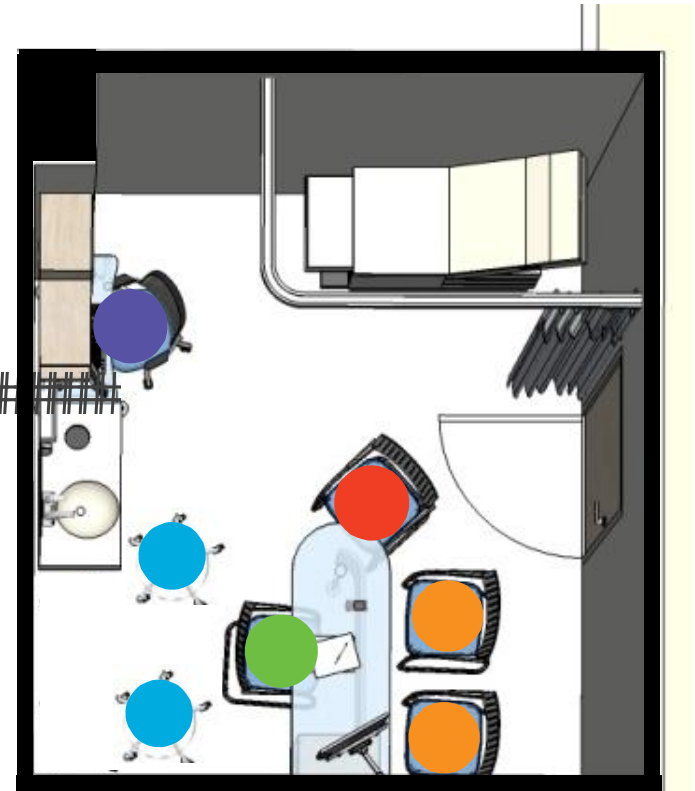
# National University Hospital, Singapore

## Outpatient Care Center and National Cancer Institute

### Increase Size of All Consult Rooms + 40%

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| <span style="color: purple;">●</span> Nurse or Room Assistant | <span style="color: orange;">●</span> Family |
|   | <span style="color: blue;">●</span> Students |



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# **National University Hospital**, Singapore

Outpatient Care Center and National Cancer Institute

## **Next Steps:**

Post Occupancy Evaluation  
after the 6 Month halo effect  
along with ongoing training



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## Yishun Community Hospital and Geriatric Education Research Institute – Singapore



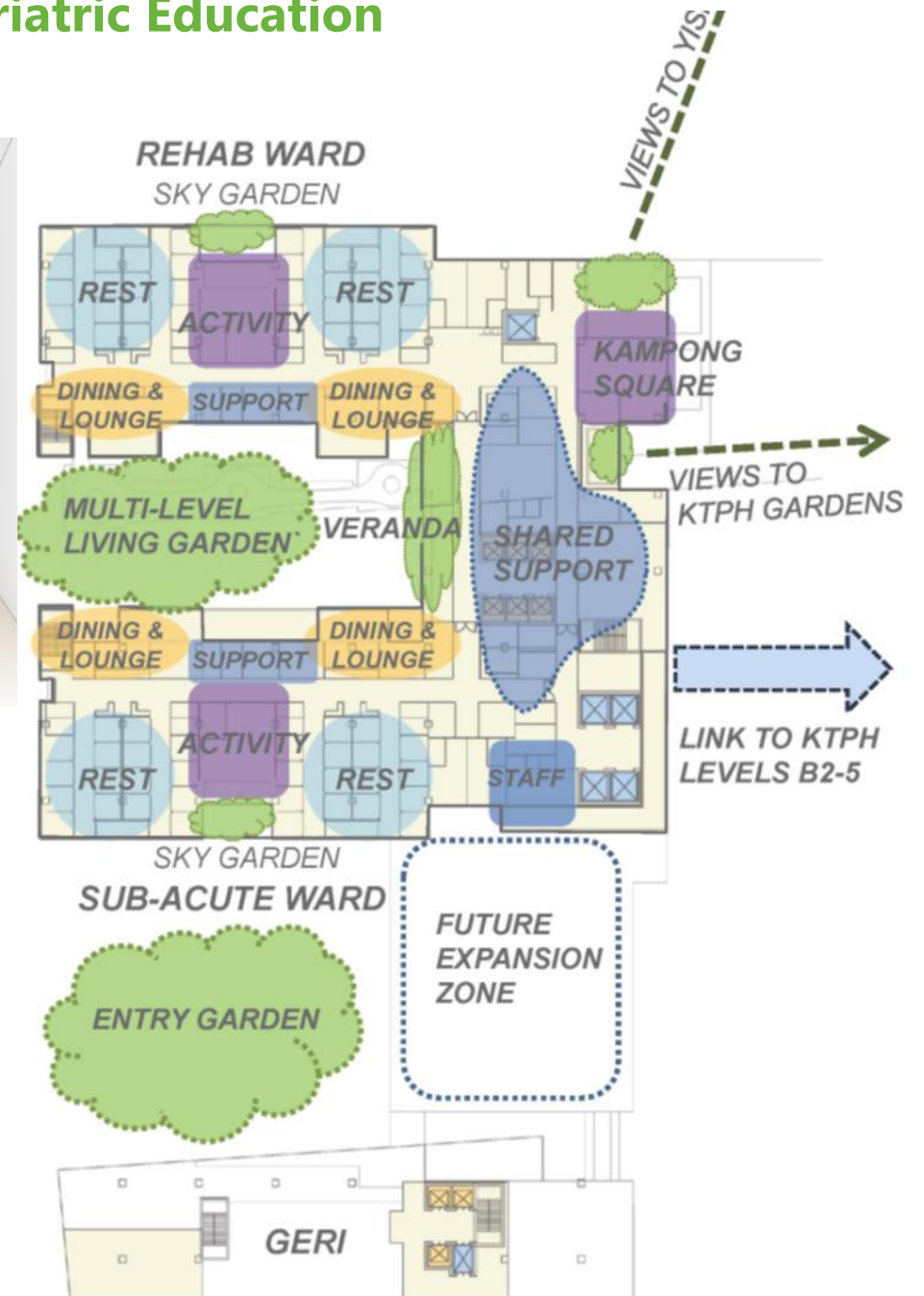
**Goals:** Reduce the length of stay, get patients home quicker, decrease re-admits and be a resource to the community.

**Strategy:** Create a stimulative rehab care experience that incents patients to recover fully and return home.





# Yishun Community Hospital and Geriatric Education Research Institute – Singapore







**Are you delivering the  
best possible experience  
for your patients?**

*If not, how could it be improved?  
What are the areas that need work?  
People, Place, Perception, Products/Services?*