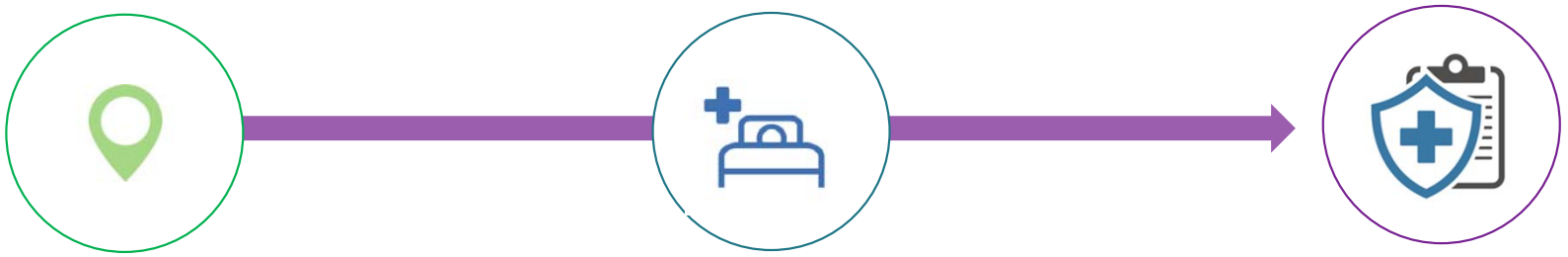
NECA • BICSI

SUMMIT 2023

Healthcare Technology Trends and Strategies

Presenters:
Spencer H. Gallo, RCDD
Joseph E. Ford, RCDD

The Past



ARRIVAL

- No online pre-admission
- Often paper-based
- Difficulty finding appointment

PATIENT STAY

- Little control over environment
- Minimal tracking of patient or staff
- Analog transfer of information (Nursing whiteboards, door flags)

DISHARGE

- Waiting in valet lines
- Standing at Pharmacy
- Packets of information to read

The Present

The pandemic acted as “the great expediter” to a change in healthcare. The continuum of care now revolves around the home. Telehealth became a norm and continues to be a preferred method for many.

Tomorrow?

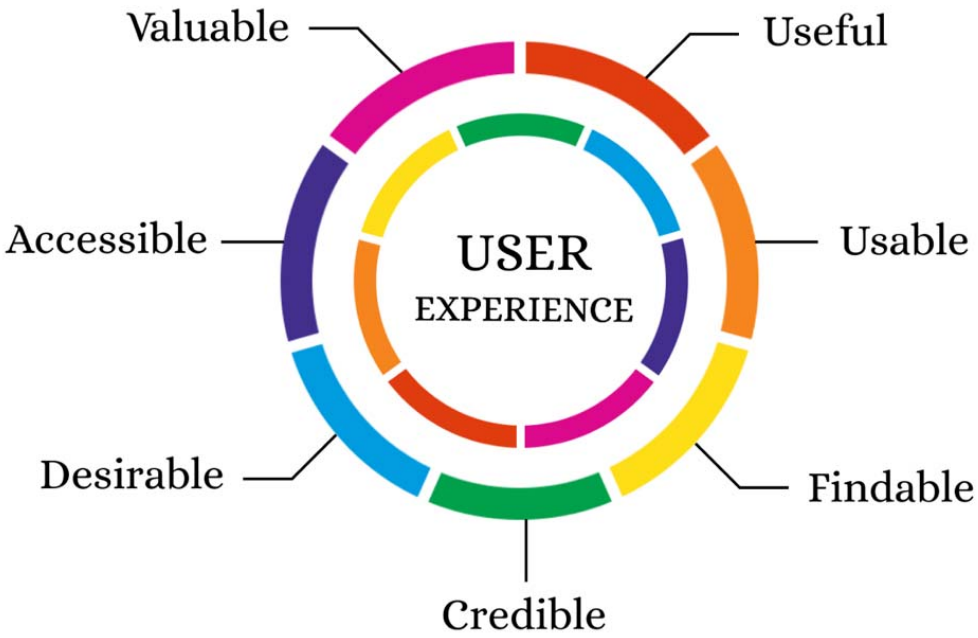
Technology resiliency planning will affect how buildings function in the future, positively or negatively is up to us. Current technologies are already outdated, our buildings need to be easily adapted when newer technologies arise.

Technology Influence in Healthcare

Healthcare Experiences

Understand Your Why?

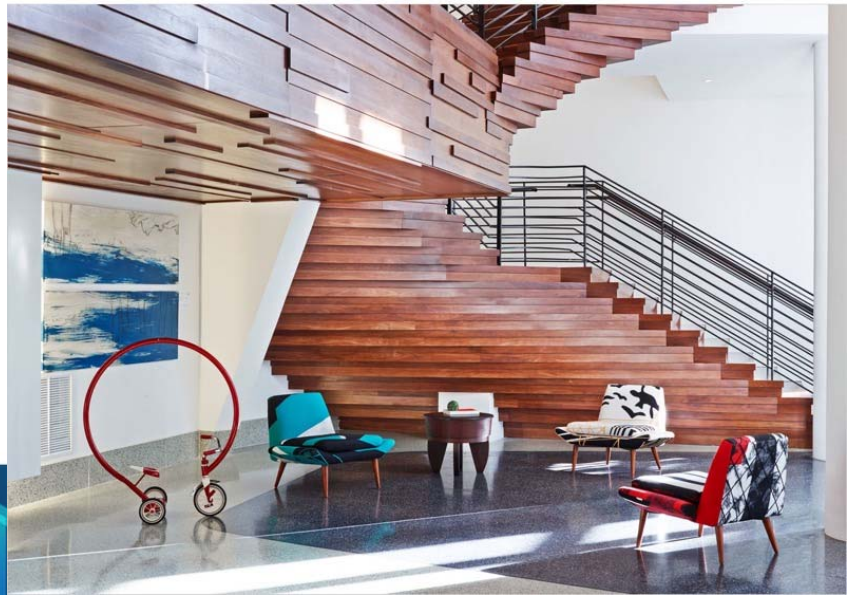
- Are you solving a problem or creating one?
- Are you focused on the user experience impacts?
- What is your source of truth?
- Are you able to plan across stakeholder silos?
- Will you act on the information you collecting?



Patient Experience

What is the patient experience?

- Control your own destiny
- Hospitality feel over hospital
- Bring Your Own Device (BYOD)
- “Like Home”
- “Smart”



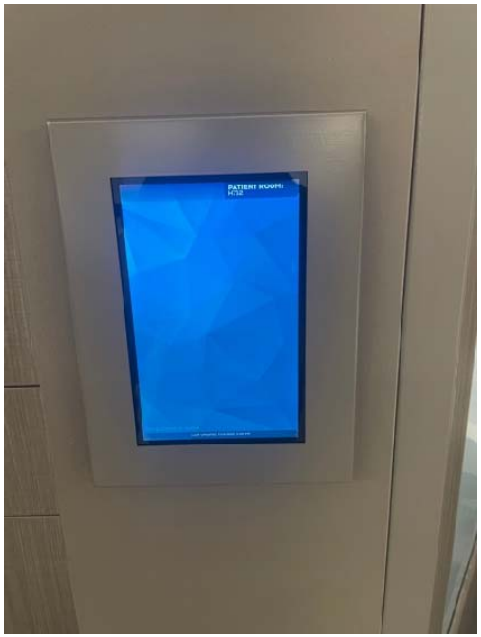
What is “Smart”?

”

A smart building delivers outstanding outcomes for ALL users, through digital technology, to exceed their evolving expectation

- WiredScore

Smart Patient Rooms

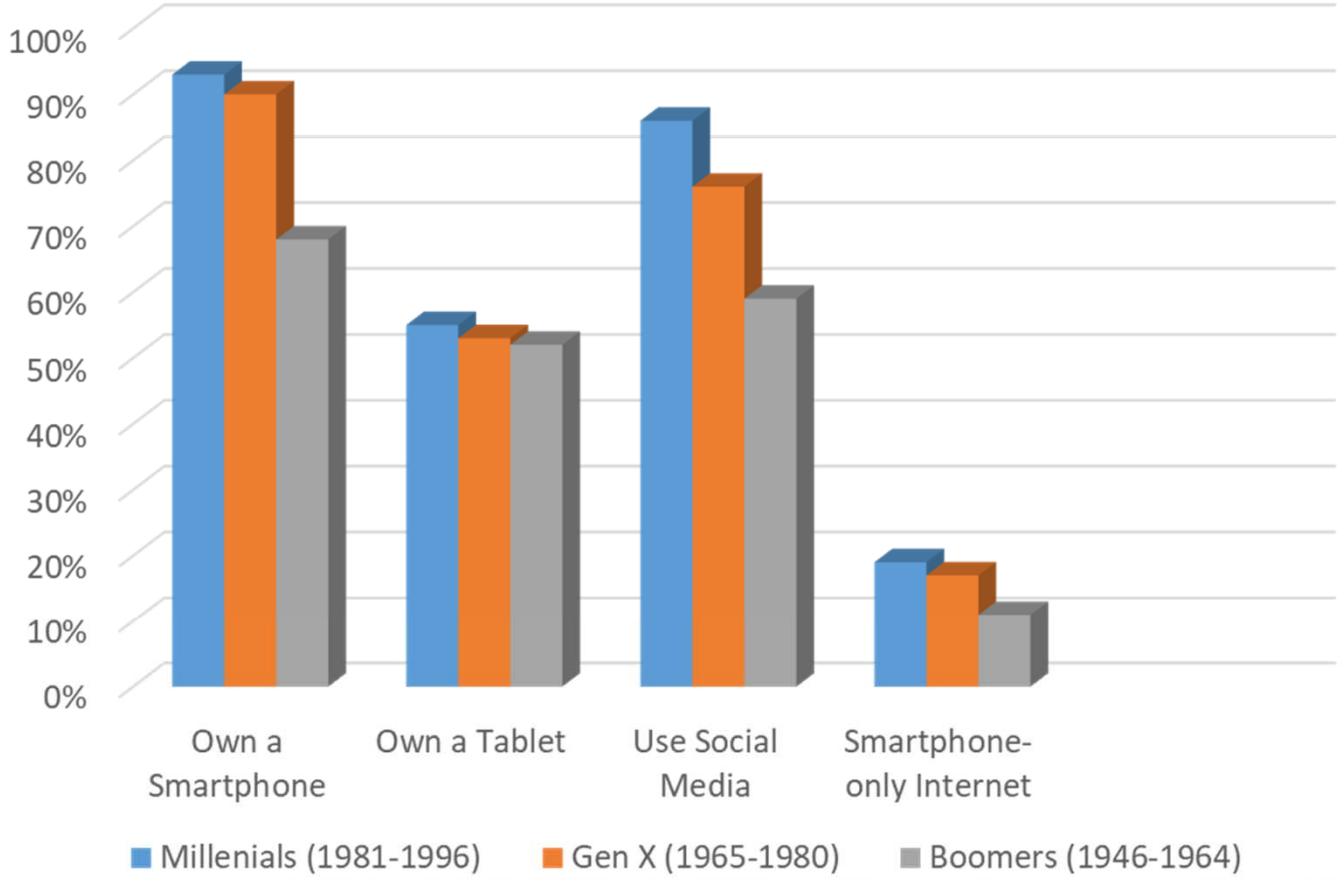


The patient room is the central focus of hospital care. Care needs to be multi-generational, but also future resilient.

Smart Patient Rooms

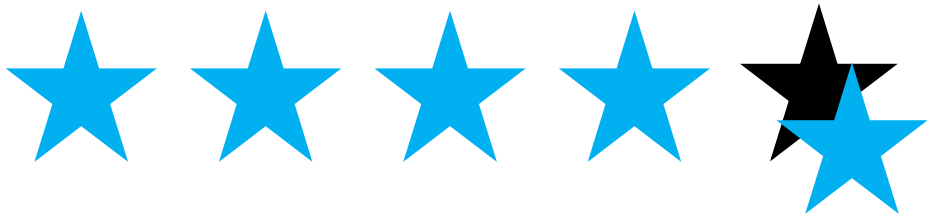
The age of complete control has begun. Patients can now control systems from room temp to lighting, shades and even the ability to have a video call with family and friends!

Technology and the Age-Gap



https://www.pewresearch.org/fact-tank/2019/09/09/us-generations-technology-use/

Patient Experience



HCAHPS survey is a national, standardized, publicly reported survey of patients' perspectives of hospital care. Facilities have long focused on the PATIENT experience to increase these scores.

- During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?

  - Through integration of the Nurse Call and RTLS systems, the facility can know exactly how long it took to respond to that call. This can lead to developments of new protocols and procedures to decrease those times. This also can lead to increases in rounding procedures, and digital rounding reports.

- Before giving you any new medicine, how often did hospital staff tell you what the medicine was for? How often did hospital staff describe possible side effects in a way you could understand?

  - Patient education and medical records can be linked so that the information on new medications is available to the patient in their room, through their footwall TV, and accessible at any hour.

Staff Experience

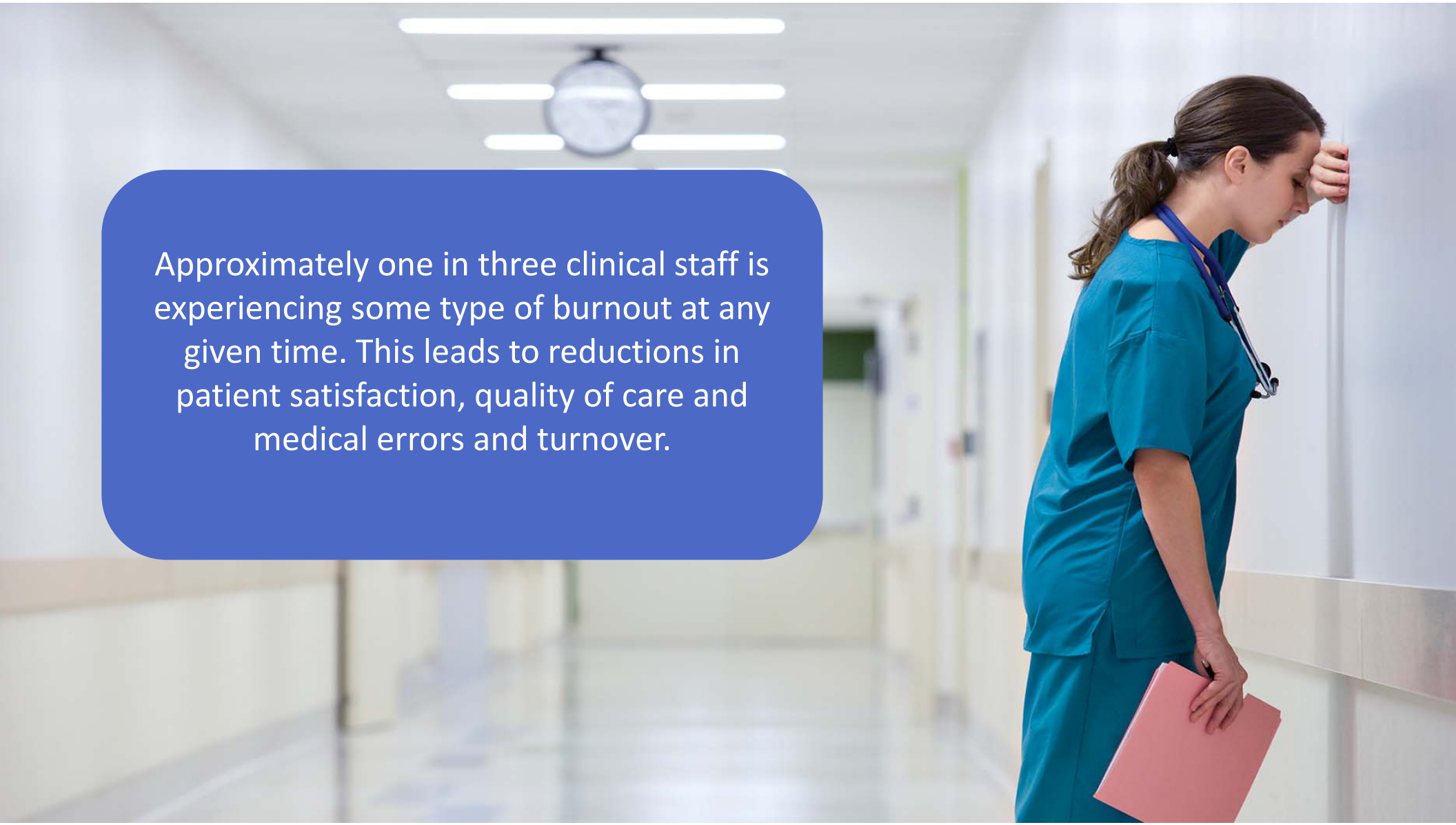
What is the Staff experience?

- Off-stage space for rest and recuperation
- Wireless/Cellular coverage
- Reduced burnout from Nurse Call
- Ease of access and movement
- Efficiency of documentation
- Increase productivity without reductions in patient care

“

I JUST TRY TO PLAY EVERY GAME LIKE IT’S GAME 7 OF THE NBA FINALS.

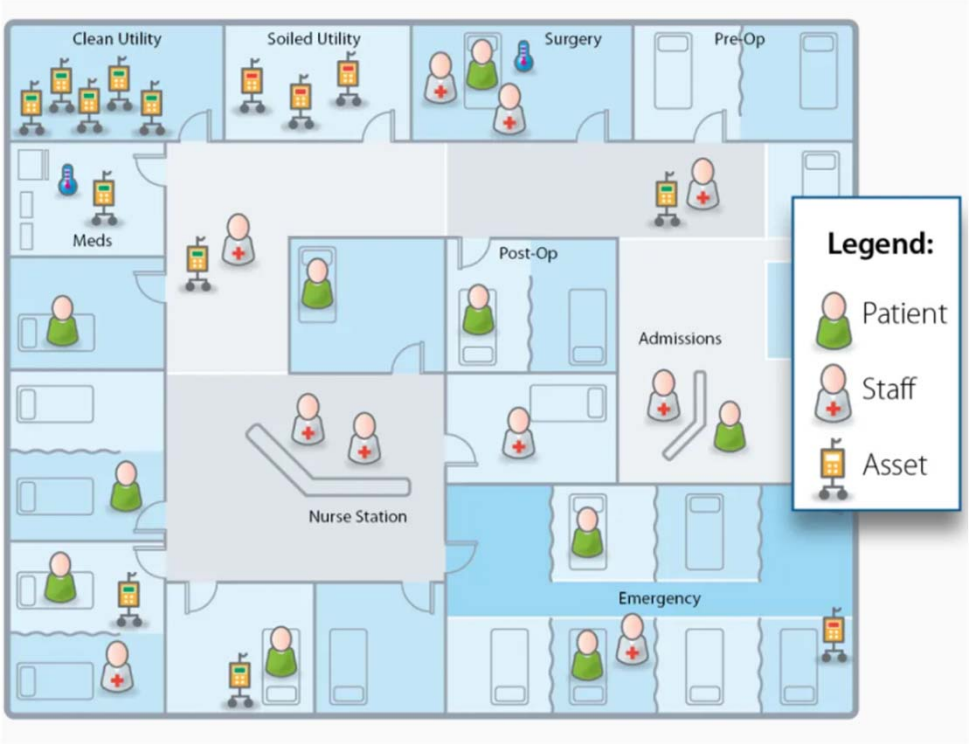
- Kawhi Leonard


Approximately one in three clinical staff is experiencing some type of burnout at any given time. This leads to reductions in patient satisfaction, quality of care and medical errors and turnover.

Real-Time Locating Systems

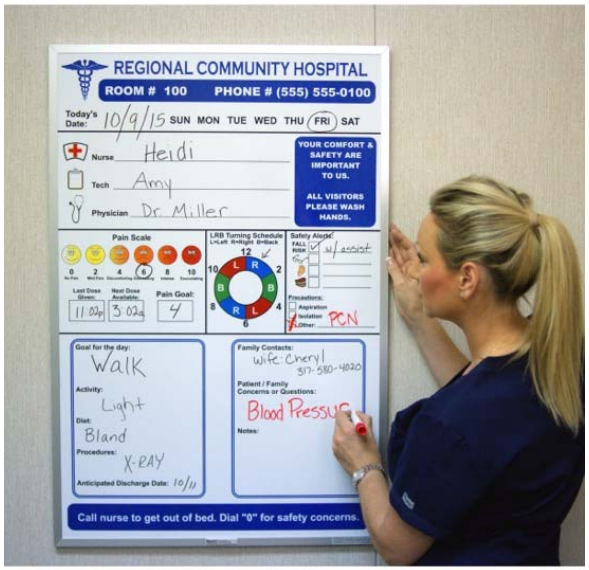
Opportunities on how it is used:

- Hand Hygiene
- Contact Tracing
- Staff Presence
- Patient Location/Elopement
- Equipment Location

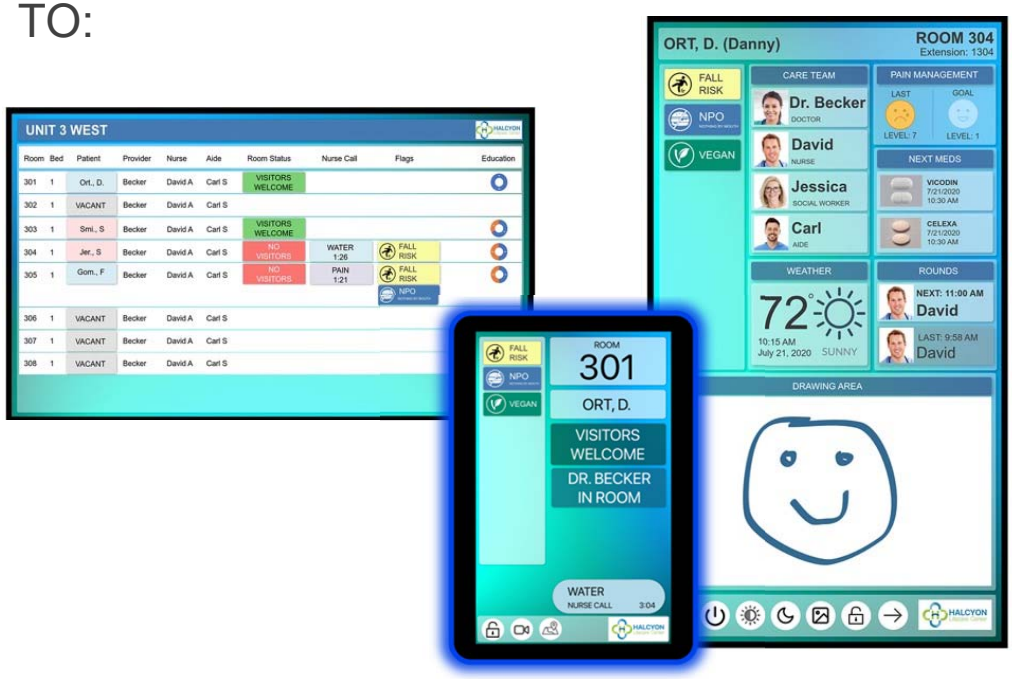


Transition to Smart

FROM:



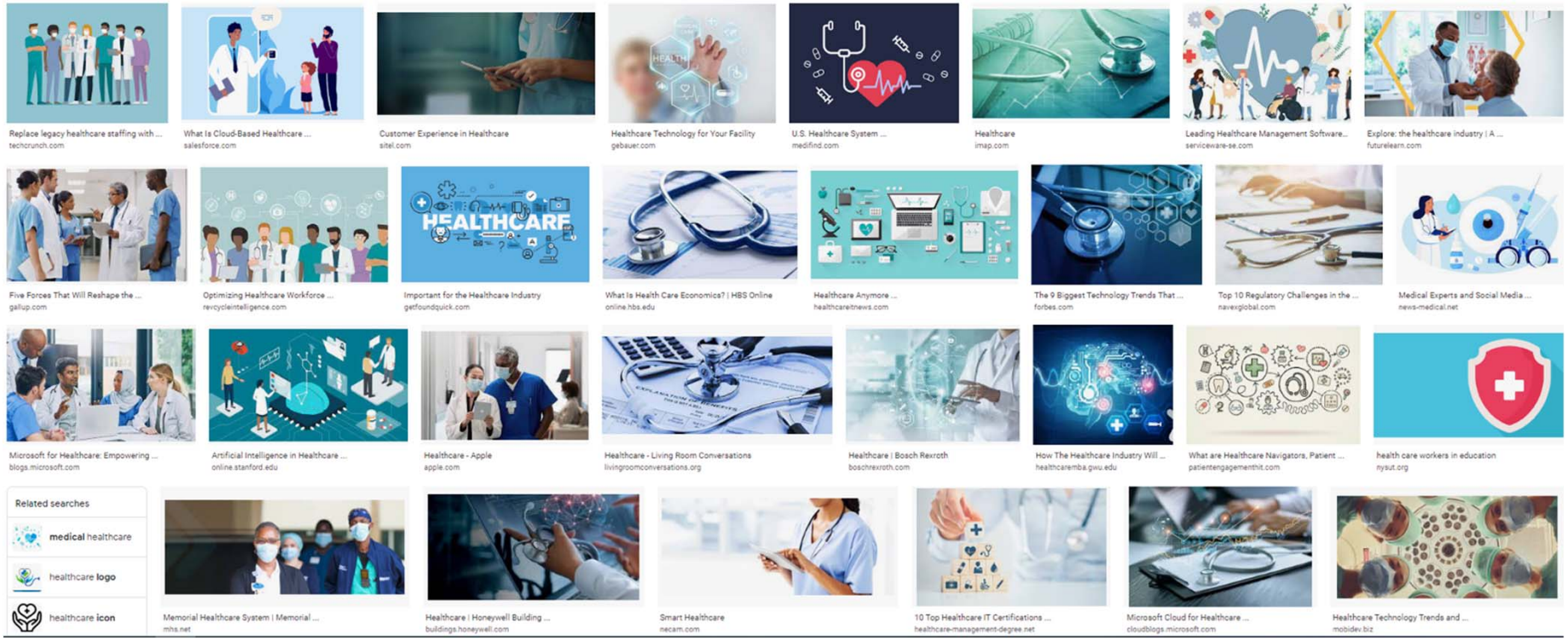
TO:



Technology can provide spaces and systems to assist staff and patients in their daily routines and experience of the building.

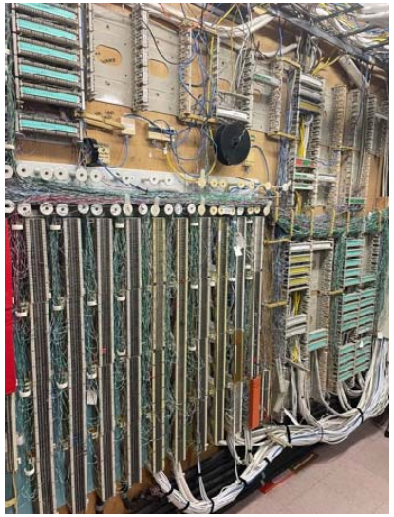
Changes in Philosophy

The Change in Healthcare



Aging Technology Standards

- Overcrowded
- Closet
- Difficult Management
- No expansion capabilities



- Decommissioned systems remain in place
- Renovations require new rooms

System Segregation

Operational Systems	Clinical Systems	Network/IT Systems	Security Systems
• Facilities Management Systems • Building Automation System • Room Scheduling • Elevator Controls • Overhead Paging • Fire Alarm	• Nurse Call System • Staff Locating • Patient Locating • Equipment Locating • Medical Records • Scheduling	• Telecommunications Network • Wireless LAN Network • Security Network • Biomedical Network • Time Clocks • Audio Visual Systems • Operating Room AV Systems	• Access Control System • Video Surveillance System • Parking Management/Controls • Visitor Management • Emergency Notification

Traditional design was silo based. There was minimal integrations and program space was rarely shared.

Building Systems Integration

Building Systems Integration

The process of bringing together individual building systems into one unified graphical interface and ensuring that these systems function together as one system. Simply put, system integration consolidates different systems into one larger system for ease of use.

No! This approach prioritizes the building over the occupants

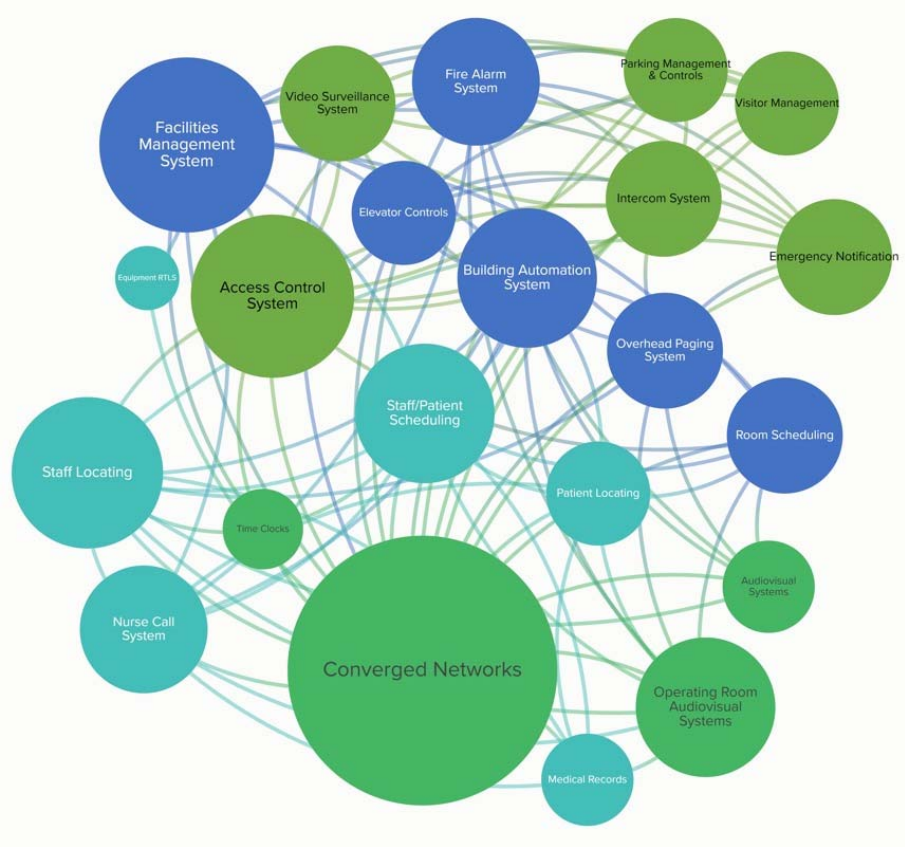
Building Systems Integration is the connection of compatible building systems to deliver an experience or functionality that would not be achievable with individual subsystems acting alone

Shift to Integrated Systems

Integrated – to bring

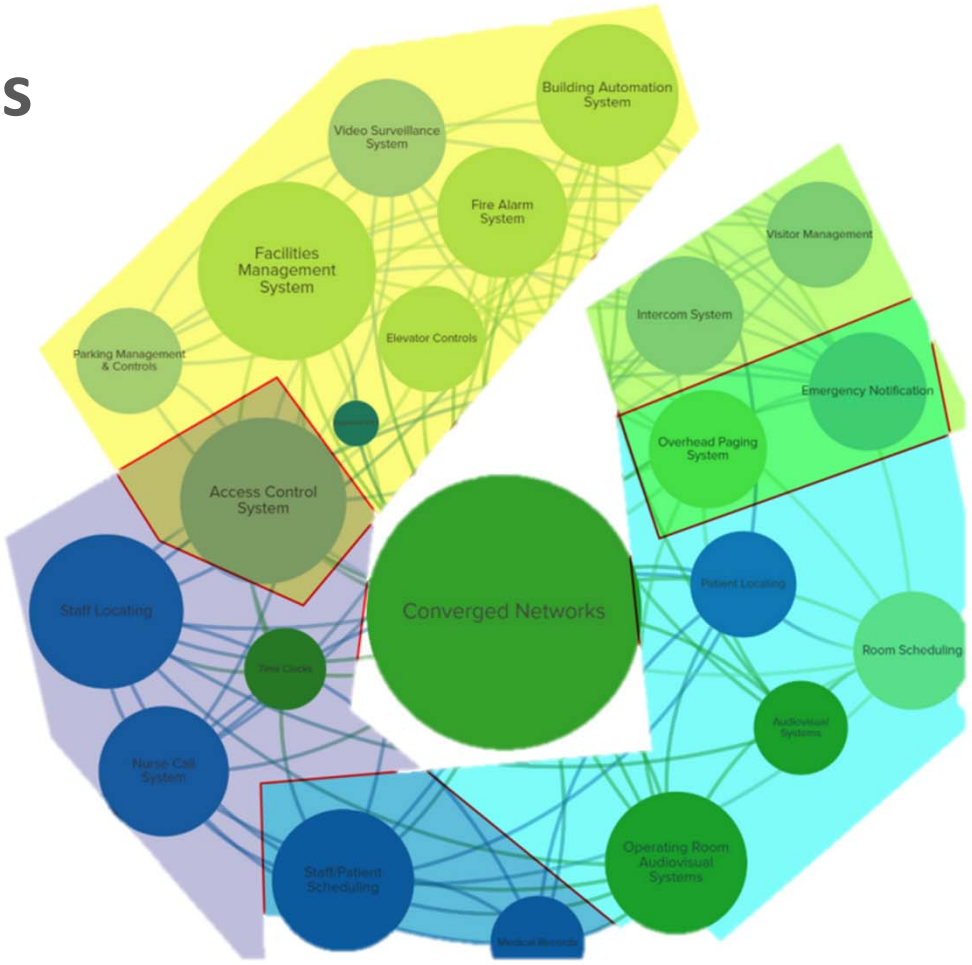
together or incorporate

parts into a whole

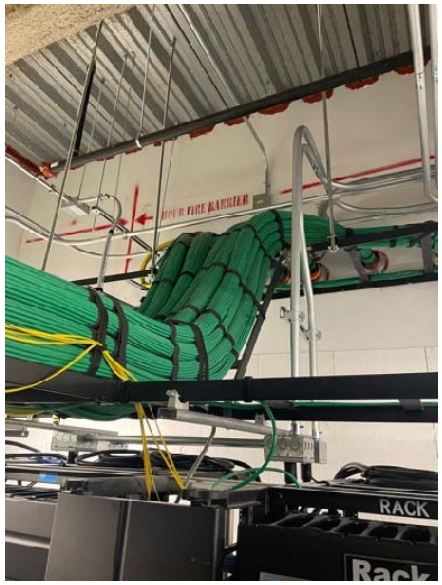


Now we utilize the Internet of Things (IoT) and an integrated technology approach to provide intelligent healthcare.

Integrated Themes



New Technology Standards



- Cable quantities in excess of 500
- Redundant backbone
- Easier organization and expansion

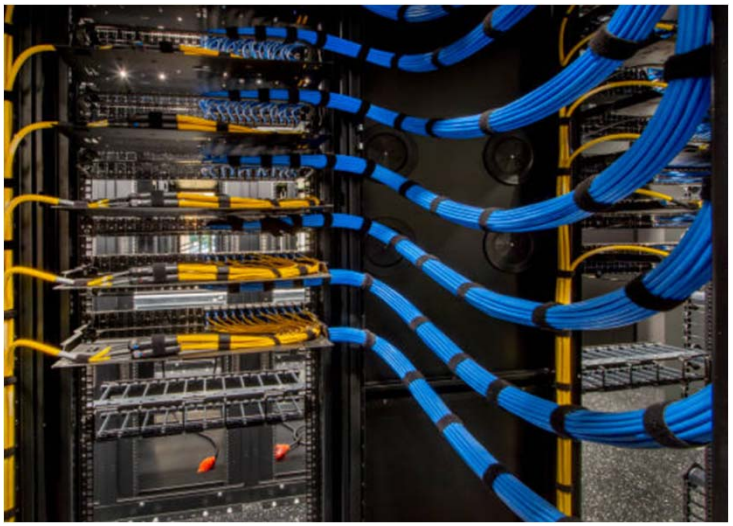
- More technologies running on IT network
- Systems communicating across software

Addressing the Program

Have a Technology First Mentality

Providing adequate space will allow buildings to handle tomorrow's technologies with minimal impact.

Technology rooms are growing, and this growth encourages integrations.



What If …

ARRIVAL

- You could use your phone to get around?
- You didn't have to check-in at a reception desk?

SURGERY

- Your patient room was more energy efficient?
- The lights were turned off, and the HVAC system could turn down for the time you were scheduled out of your room?

DISCHARGE

- Prescriptions are waiting for you on the way out?
- Your car was brought to the front door by the valet?
- Discharge paperwork was signed through a text?

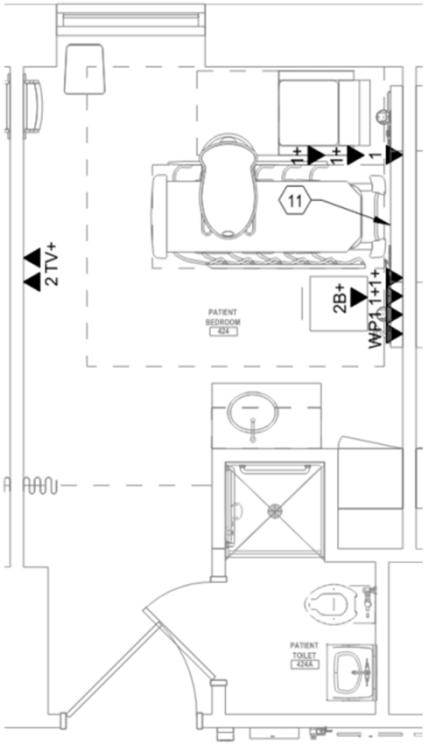
All of this is possible, through the use of existing Technology!

Addressing the Program

50% of rooms in a healthcare facility account for almost 75% of the infrastructure.

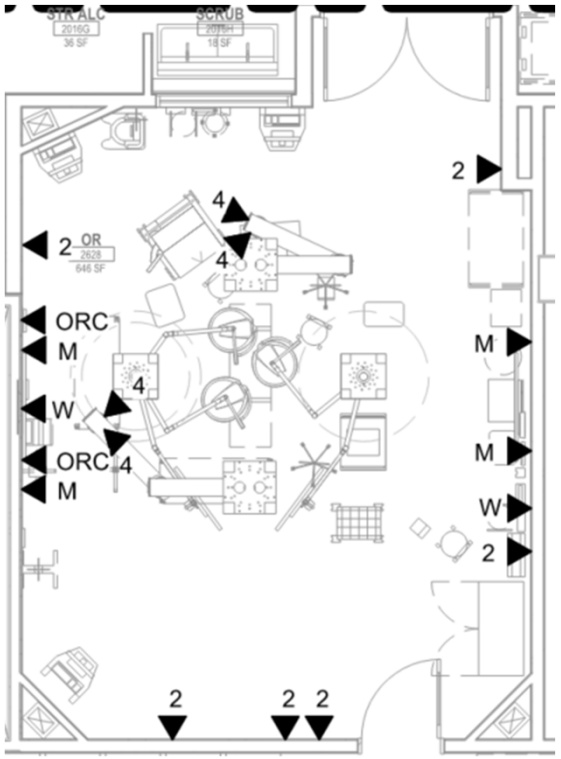
Cabling infrastructure must be designed to easily adapt to multiple use cases.

From exam rooms, patient rooms and operating theaters, to a simple move, add or change…



A typical patient room – 250 square feet

14-24 cables

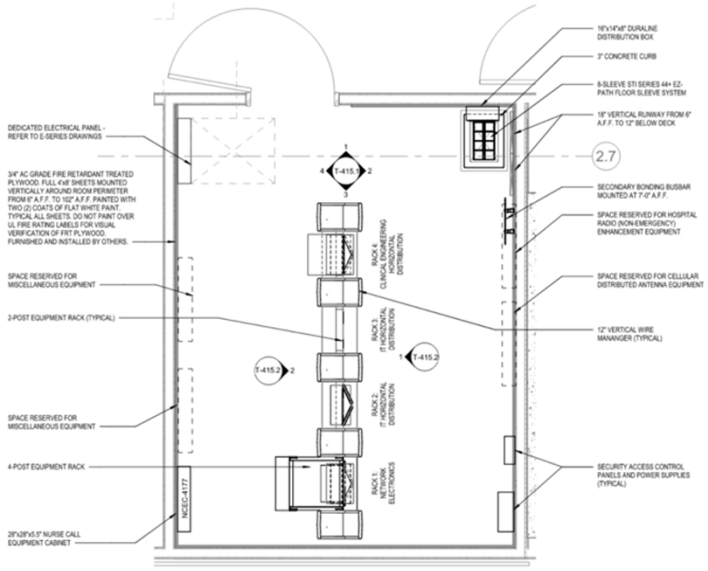


A typical operating room – 700 square feet

36-60 cables

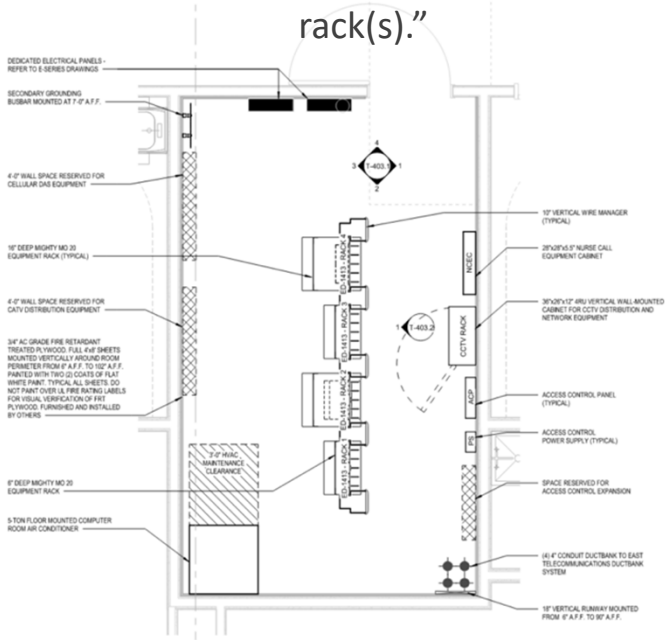
Addressing the Program

2014: "An inside dimension of 12 by 16 feet is recommended"



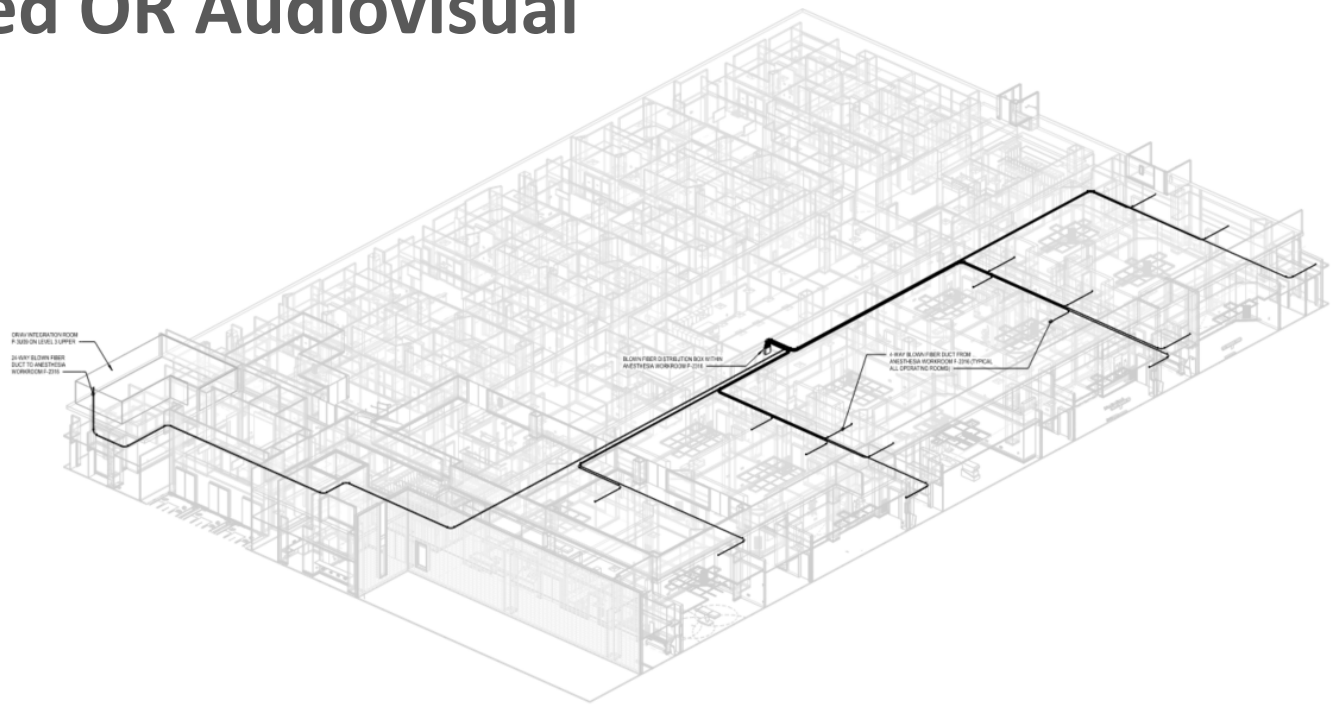
This room is at FGI recommended 12'x16'

2018: "All TDRs shall provide a minimum three-foot clearance on all sides of the equipment rack(s)."



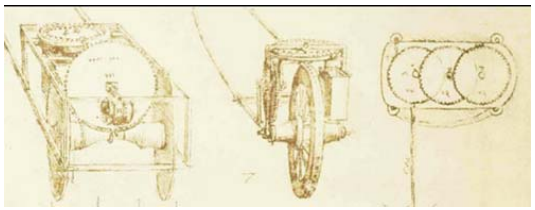
This room is per FGI requirements and 12'x19'

Centralized OR Audiovisual



Facilities are moving away from taking up real estate inside of operating rooms and leveraging fiber optics to locate OR/AV equipment in lower cost program spaces, like mechanical rooms.

What's Next?



First Pedometer:

Da Vinci – 15th Century

First Pulse Oximeter:
1935

First Fitbit: 2009

Smart Watch with ECG, GPS: 2022

First Apple Watch: 2016

With ECG: 2018

Oura Ring: 2017

24/7 monitoring: 2021

Whoop: 2015

Version 4.0: 2021

BALA

Spencer H. Gallo, RCDD
Senior Project Manager
Technology
shg@bala.com

Joseph E. Ford, RCDD
Department Manager
Technology
jef@bala.com

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Notes

- A 2001 Institute of Medicine report titled “Crossing the Quality Chasm” emphasizes the critical role of Information Technology in the design of health care systems. The six aims of care are: Safe, Effective, Efficient, Timely, Equitable and Patient-Centered.”