Atrium Health

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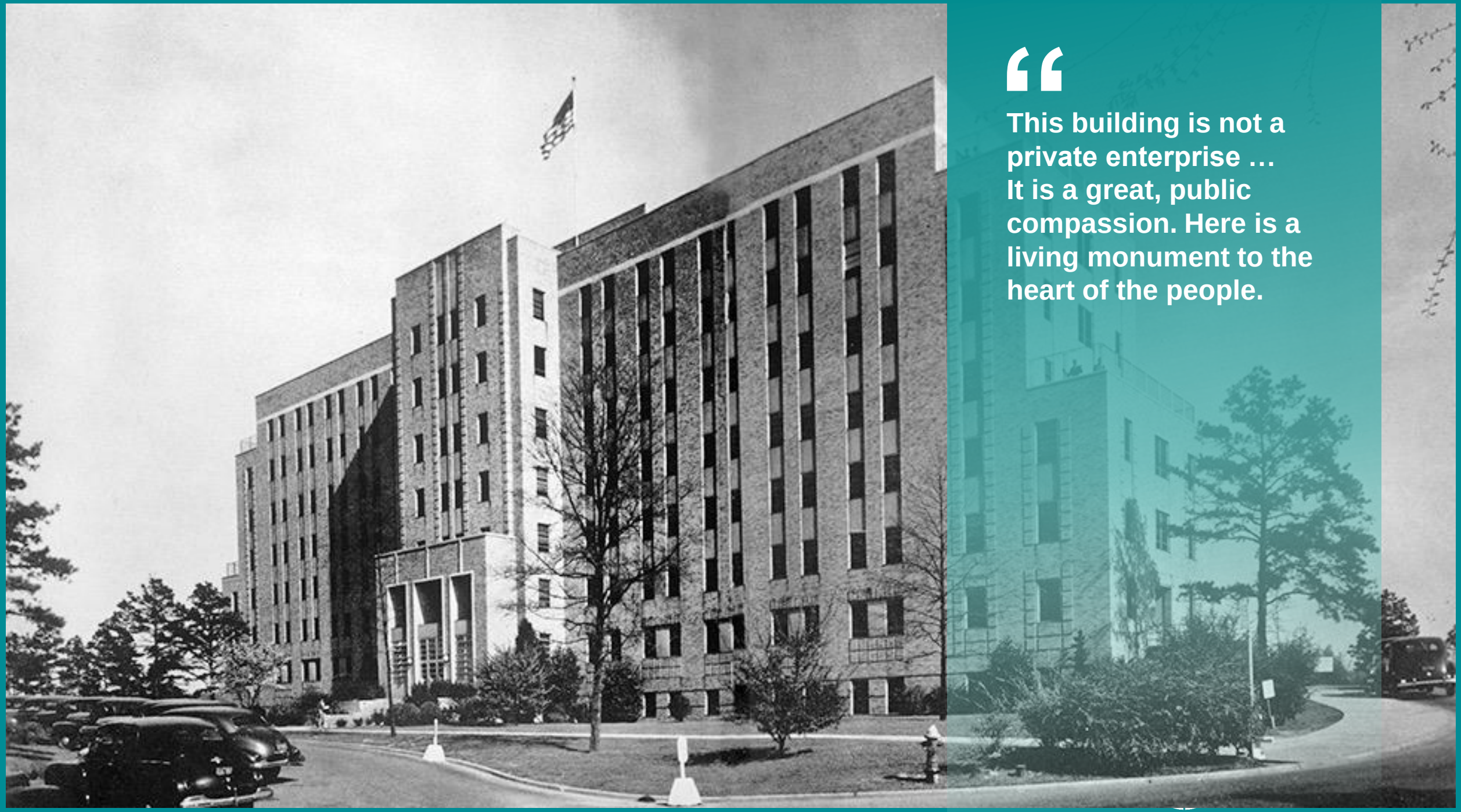
It’s quite remarkable to think back to our humble beginnings ...

when a group of ambitious, young clinicians, not being satisfied with the services available to the public, relentlessly lobbied for a new hospital to better meet the needs of the community.



“

This building is not a private enterprise … It is a great, public compassion. Here is a living monument to the heart of the people.

Who We Are Today

MISSION:

TO IMPROVE **HEALTH**
ELEVATE **HOPE**
AND ADVANCE **HEALING**
- **FOR ALL**

VISION:

TO BE THE **FIRST** AND **BEST** CHOICE FOR CARE

24 In One Day at Atrium Health

37,800 Patient Encounters (1 every 2 seconds)

25,000 Physician Visits | **3,900** ED Visits | **700** Home Health Visits

475 New Primary Care Patients | **14,000** Virtual Care Encounters

91 Babies Delivered | **635** Surgeries

$5.6 Million Each day in uncompensated care and other benefits to our community.

Size & Scope

69,800+ Teammates | **50** Hospitals

44 Urgent Care Locations | **45** EDs | **25** Cancer Care Locations

4,650+ Physicians | **17,000+** Nurses

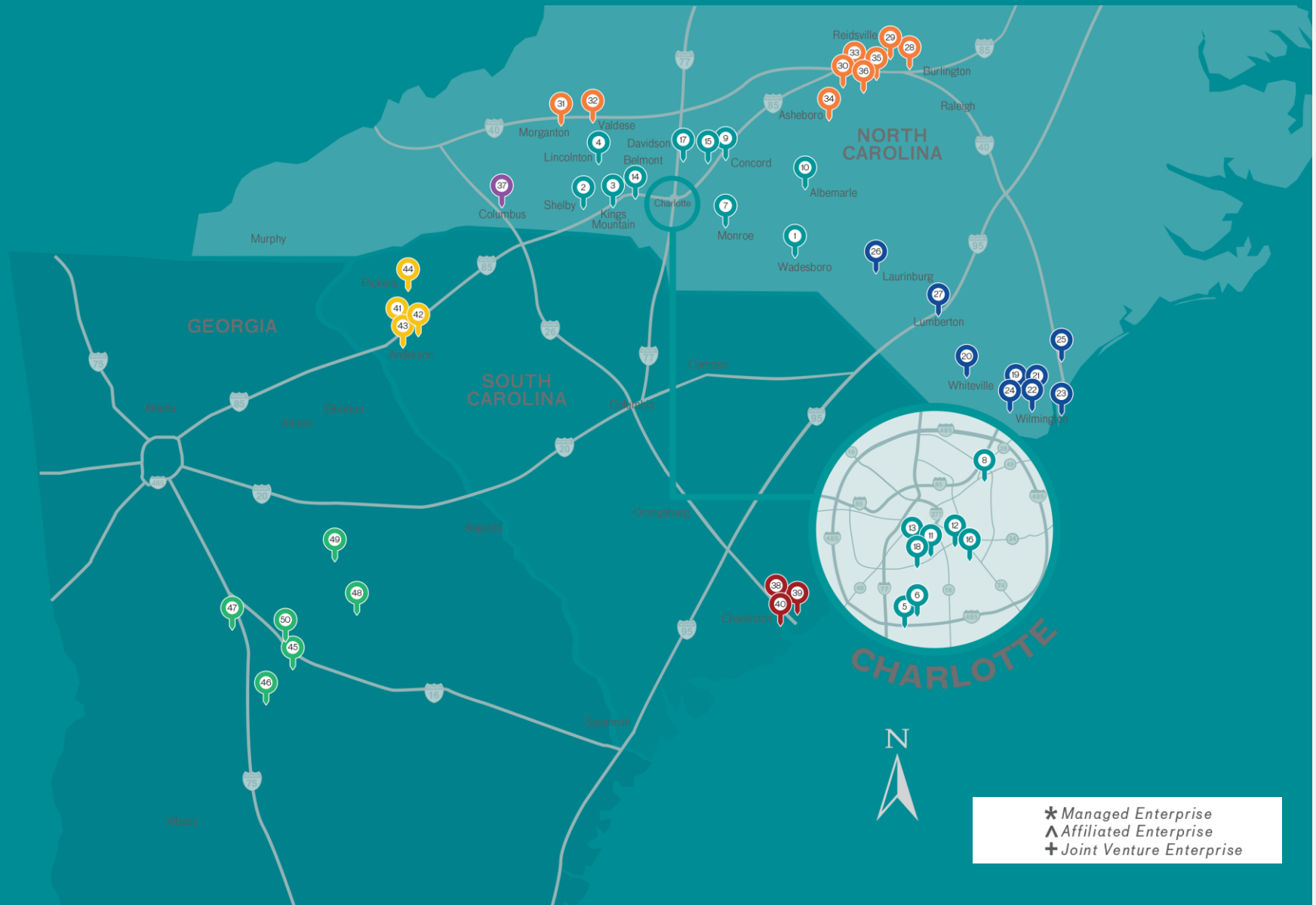
$11.1 Billion
Net Operating Revenue

$2.9 Billion
In last 5 years

Invested into renovations, new care locations, equipment upgrades and other capital projects

**Includes Joint Venture and Affiliated Enterprises*

Atrium Health | 2019 Facilities & Locations



✱ Managed Enterprise
∧ Affiliated Enterprise
✚ Joint Venture Enterprise

NORTH CAROLINA

CHARLOTTE

1. Atrium Health Anson
2. Atrium Health Cleveland
3. Atrium Health Kings Mountain
4. Atrium Health Lincoln
5. Atrium Health Pineville
6. Atrium Health Pineville Rehabilitation Hospital
7. Atrium Health Union
8. Atrium Health University City
9. Carolinas HealthCare System NorthEast
10. Carolinas HealthCare System Stanly
11. Atrium Health's Carolinas Medical Center
12. Carolinas Medical Center-Mercy
13. Carolinas Rehabilitation
14. Carolinas Rehabilitation-Mt. Holly
15. Carolinas Rehabilitation-NorthEast
16. CHS Behavioral Health-Charlotte
17. CHS Behavioral Health-Davidson
18. Levine Children's Hospital

COASTAL

19. Betty H. Cameron Women's and Children's Hospital^
20. Columbus Regional Healthcare System*
21. New Hanover Regional Medical Center^
22. New Hanover Regional Medical Center Behavioral Health^
23. New Hanover Regional Orthopedic Hospital^
24. New Hanover Regional Rehabilitation Hospital^
25. Pender Memorial Hospital^
26. Scotland Memorial Hospital*
27. Southeastern Regional Medical Center^

TRIAD

28. Alamance Regional Medical Center (Cone Health)*
29. Annie Penn Hospital*
30. Behavioral Health Hospital (Cone Health)*
31. CHS Blue Ridge-Morganton*
32. CHS Blue Ridge-Valdese*
33. Moses H. Cone Memorial Hospital (Cone Health)*
34. Randolph Hospital*
35. Wesley Long Hospital*
36. Women's Hospital (Cone Health)*

WESTERN

37. St. Luke's Hospital*

SOUTH CAROLINA

LOW COUNTRY

38. Bon Secours/St. Francis Hospital+
39. Mount Pleasant Hospital+
40. Roper Hospital+

UPSTATE

41. AnMed Health Medical Center*
42. AnMed Health Rehabilitation Hospital*
43. AnMed Health Women's and Children's Hospital*
44. Cannon Memorial Hospital (AnMed)*

GEORGIA

CENTRAL

45. The Medical Center, Navicent Health
46. Medical Center of Peach County (Navicent Health)
47. Monroe County Hospital (Navicent Health)*
48. Navicent Health Baldwin
49. Putnam General Hospital (Navicent Health)*
50. Rehabilitation Hospital, Navicent Health

FOR ALL








REPUTATION OF EXCELLENCE

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Local Problem: Reducing Sitter Utilization through Virtual Patient Observation

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Why Virtual Patient Observation (VPO)?

Hospitals traditionally assigned staff or nonmedical personnel to sit at the bedside and observe patients at risk for:

- Falls
- Safety Concerns - Self-harm/harm to others
- Behavioral/Cognitive Deficiencies
- Eating Disorders
- Elopements

Other challenges:

- Majority of physical sitters unable to intervene with patient
- Limited training/expertise with interacting with population
- Resource challenged to meet immediate sitter needs
- Application of restraints required timely, detailed documentation

FY 2016 Atrium Health:

- ✓ Spent more than $4M in labor expenses
- ✓ Utilized more than 320,000 hours of sitters

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Designing and Implementation of Virtual Patient Observer

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Overview of Virtual Health at Atrium

Vision: To **keep patients close to home**, receiving *timely* access to high *quality, safe,* care through deployment of telecommunication technologies

Guiding Principle: **Care is care**

Goal: To establish virtual care delivery as a **consistent care delivery model**

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Virtual Health Structure

Clinical Offerings

Continuing Care	Virtual Hospital	Ambulatory	Direct to Consumer	Community
-RN Handoff -Heart Failure	-Telepsychiatry -Telestroke -Teleneurology -Virtual Critical Care -Infectious Disease -Hospitalist -Patient Observer	-vBHI -Specialty -eConsults -Telegenetics	-Virtual Visits -eVisits	- School based virtual program

Physician & ACP Pool

And more... coming soon!

Infrastructure

Government Relations	Regulatory (i.e. Legal, Corporate Compliance)	Risk Management	Technology Platforms & IAS Support	Data & Analytics Support
Revenue Cycle/Billing	Contracting/ Pricing	Quality & Safety	Education/ Training	Credentialing/ Privileging/ Licensing
Financial Analysis / Business Model Design	Marketing & Communication	Call Centers	Partnerships/ Consulting Service	Project Management

Leadership & Oversight

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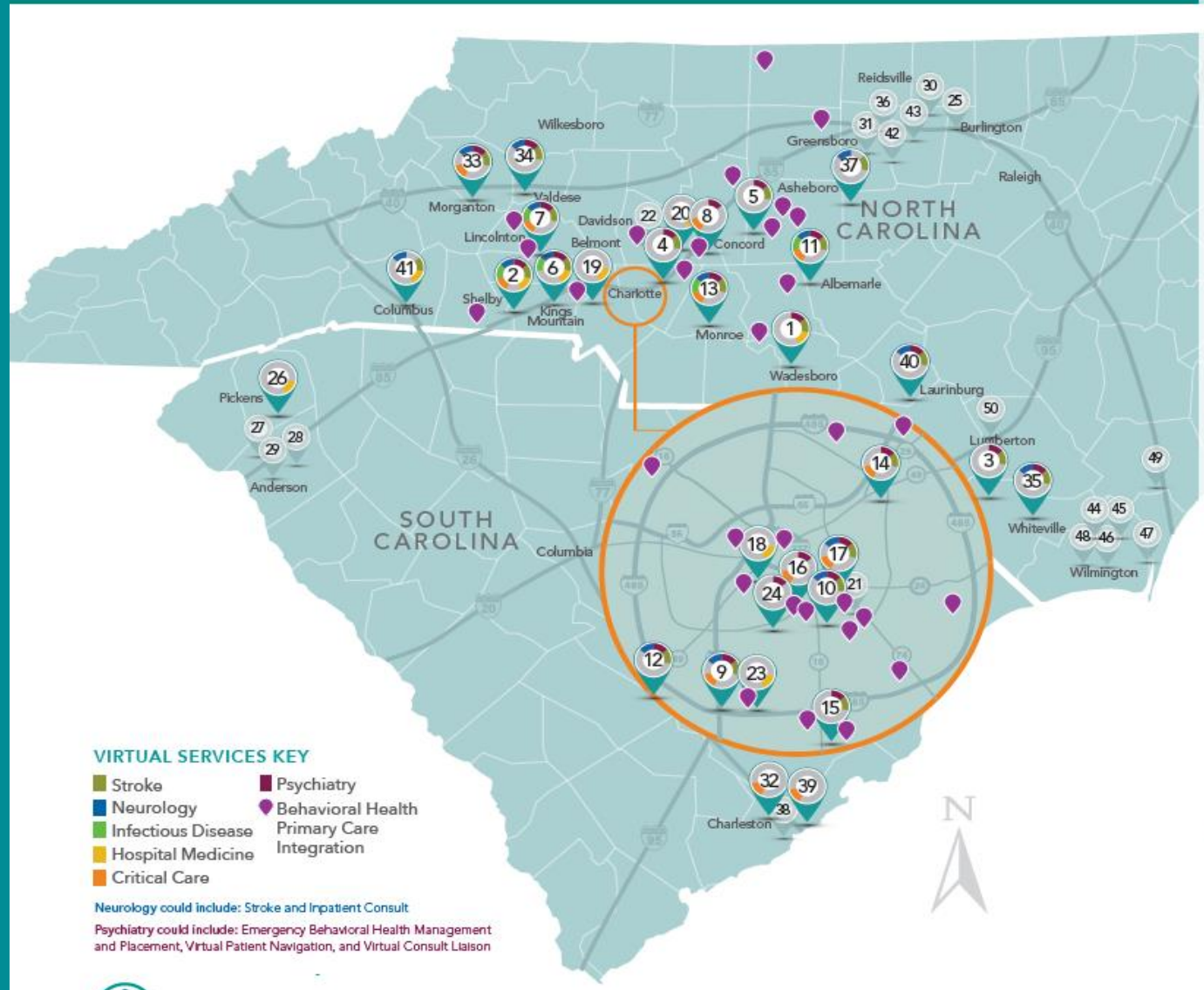
ATRIUM HEALTH **PHYSICAL AND VIRTUAL**

SERVICE LOCATIONS



VIRTUAL SERVICES KEY

- Stroke
- Neurology
- Infectious Disease
- Hospital Medicine
- Critical Care
- Psychiatry
- Behavioral Health Primary Care Integration

Neurology could include: Stroke and Inpatient Consult

Psychiatry could include: Emergency Behavioral Health Management and Placement, Virtual Patient Navigation, and Virtual Consult Liaison

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PRIMARY ENTERPRISES

1. Carolinas HealthCare System Anson
2. Carolinas HealthCare System Cleveland
3. Carolinas HealthCare System Harrisburg
4. Carolinas HealthCare System Huntersville
5. Carolinas HealthCare System Kannapolis
6. Carolinas HealthCare System Kings Mountain
7. Carolinas HealthCare System Lincoln
8. Carolinas HealthCare System NorthEast
9. Carolinas HealthCare System Pineville
10. Carolinas HealthCare System SouthPark
11. Carolinas HealthCare System Stanly
12. Carolinas HealthCare System Steele Creek
13. Carolinas HealthCare System Union
14. Carolinas HealthCare System University
15. Carolinas HealthCare System Waxhaw
16. Carolinas Medical Center
17. Carolinas Medical Center-Mercy
18. Carolinas Rehabilitation
19. Carolinas Rehabilitation-Mt. Holly
20. Carolinas Rehabilitation-NorthEast
21. CHS Behavioral Health-Charlotte
22. CHS Behavioral Health-Davidson
23. CHS Rehabilitation (Pineville)
24. Levine Children's Hospital

REGIONAL ENTERPRISES

25. Alamance Regional Medical Center
26. AnMed Health Cannon
27. AnMed Health Medical Center
28. AnMed Health Rehabilitation Hospital
29. AnMed Health Women's and Children's Hospital
30. Annie Penn Hospital
31. Behavioral Health Hospital (Cone Health)
32. Bon Secours St. Francis Hospital
33. CHS Blue Ridge-Morganton
34. CHS Blue Ridge-Valdese
35. Columbus Regional Healthcare System
36. Moses H. Cone Memorial Hospital
37. Randolph Health
38. Roper Hospital
39. Roper St. Francis Mount Pleasant Hospital
40. Scotland Memorial Hospital (coming in 2019)
41. St. Luke's Hospital
42. Wesley Long Hospital
43. Women's Hospital (Cone Health)

AFFILIATED ENTERPRISES

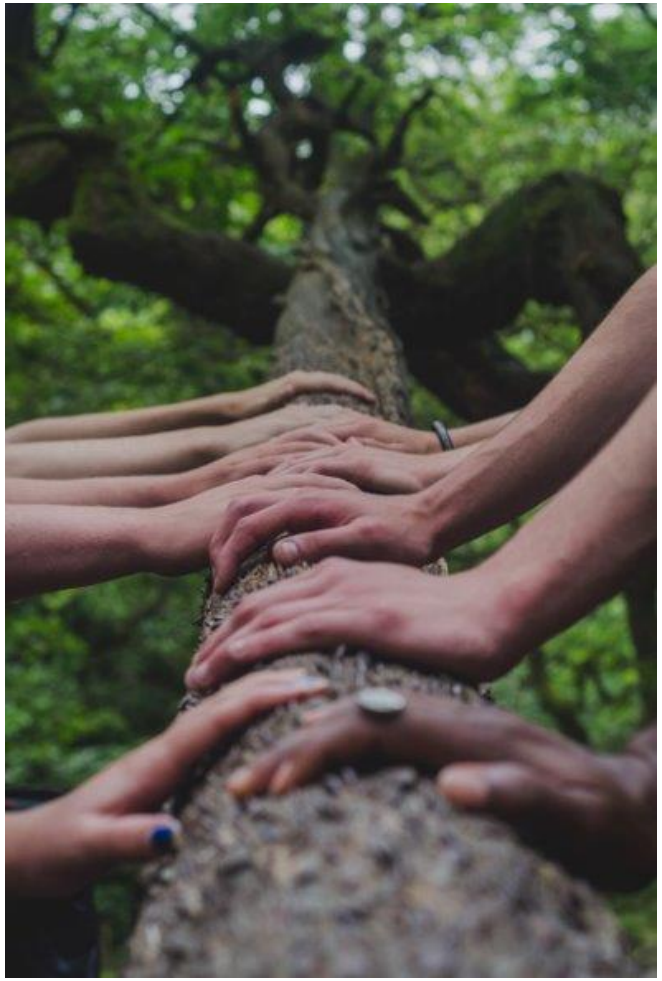
44. Betty H. Cameron Women's and Children's Hospital
45. New Hanover Regional Medical Center
46. New Hanover Regional Medical Center Behavioral Health
47. New Hanover Regional Medical Center Orthopedic Hospital
48. New Hanover Regional Rehabilitation Hospital
49. Pender Memorial Hospital
50. Southeastern Health

Pilot Development

Purpose: To assist in workflow development for clinicians, sitters, and develop ROI use case.

Site requirements:

- ✓Facilities with technology/power infrastructure readily available
- ✓Strong facility nursing leadership
- ✓A team excited to try something new!
- ✓Impact on the IT/Support Staff



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Pilot Selection: Carolinas Rehabilitation

- History of high sitter utilization
- Utilized creative workarounds to fulfill sitter requests
- Patients clinical stable, alert/oriented; can be redirected
- Willing and eager to implement the technology; supportive leadership
- Close proximity to IAS team location

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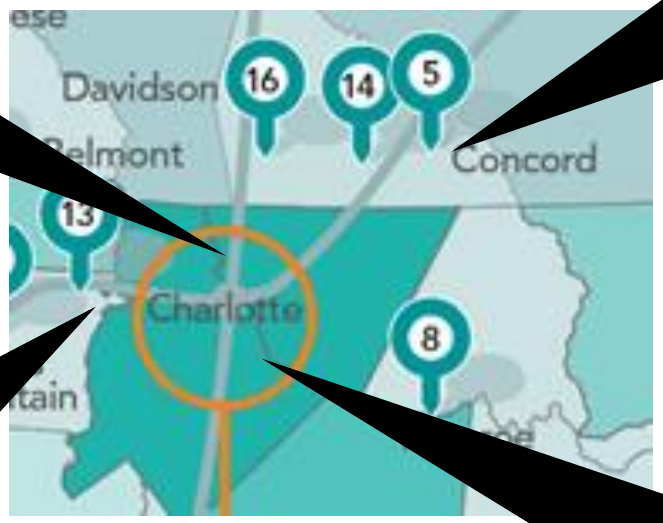
Pilot Facilities Overview – Carolinas Rehabilitation



Charlotte Locations:

CR-Charlotte
CR-Mount Holly
CR-Cabarrus
CR-Pineville

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Pilot Facilities Overview – Carolinas Rehabilitation

179 Beds and 6 units across 4 facilities:

- CR Main: 70 Beds
- CR Mount Holly: 40 Beds
- CR Cabarrus: 40 Beds
- CR Pineville: 29 Beds
- 3 inpatient rehabilitation hospitals
- 2 inpatient rehabilitation units
- 9 outpatient physician clinics
- 17 outpatient therapy locations
- Approximately 3,300 annual admissions
- Over 150,000 annual outpatient therapy visits
- Academic teaching hospital

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Pilot Goals:

- Determine workflows
- Decrease physical sitter utilization/expense
- Maintain same level of falls (or reduce)
- Maintain same utilization of restraint and net bed (Posey Bed) or reduce

Parallel operational efforts:

- Review/revise and standardize processes, policies
- Develop standardized training/competency for Nursing Assistants/Healthcare Techs

A GOAL

WITHOUT A

PLAN IS JUST

A DREAM.

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Workflow Development

Rounding:

- Virtual Sitters located in the VPO room
- Two hour rounding/observation shifts:
  - 1 “rover” tech on floor, providing care
  - 1 tech performs observations

Communication:

- Observers have access to list of direct phone numbers, for quick access to RN / roving tech
- Updated every shift

Documentation:

- Not required for any regulatory
- Needed to be short & sweet, so kept on paper (in development with Cerner) – converted to simple electronic format
- Could not be a distraction from observing

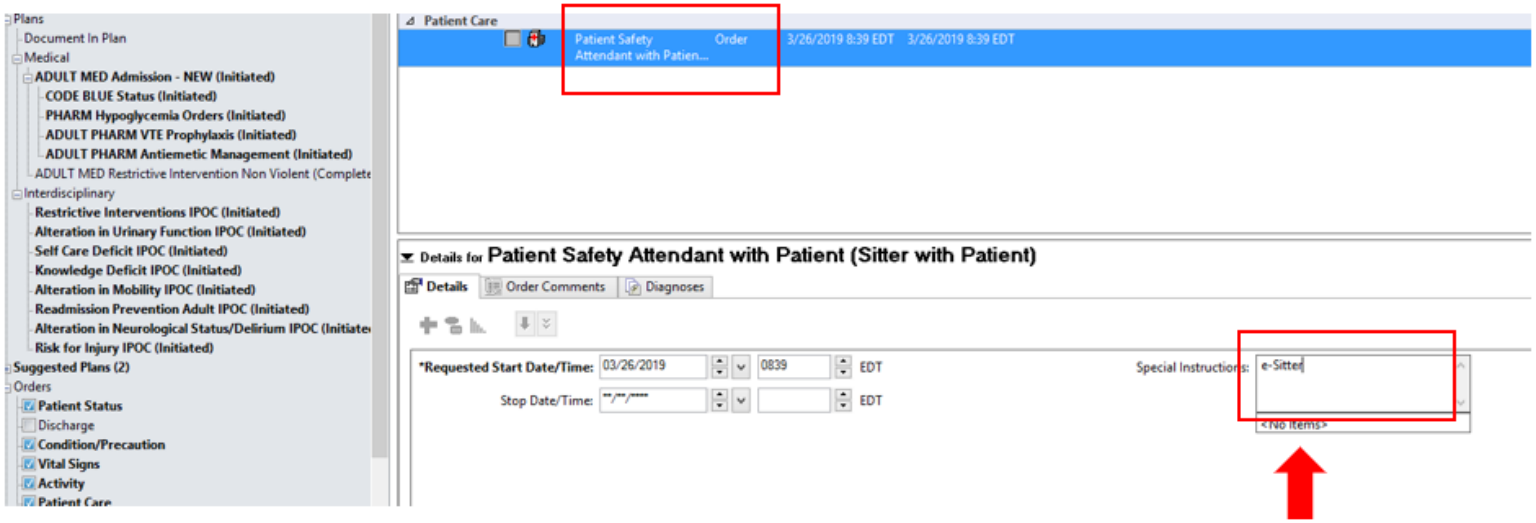
Patient / Family Engagement:

- Permission included in consent for treatment
- Information also posted on mobile carts / in room
- When setting up, RN orients patient & family to VPO

Initiating VPO: Team collaboration & provider places an order

- Without 1 clear way to order, we found MULTIPLE ways providers were placing orders
  - In Nursing communications
  - In special instructions
- Difficult to pull statistics
- DON’T DO IT THIS WAY! ☺

Order “Patient Safety Attendant with Patient (Sitter with Patient)”



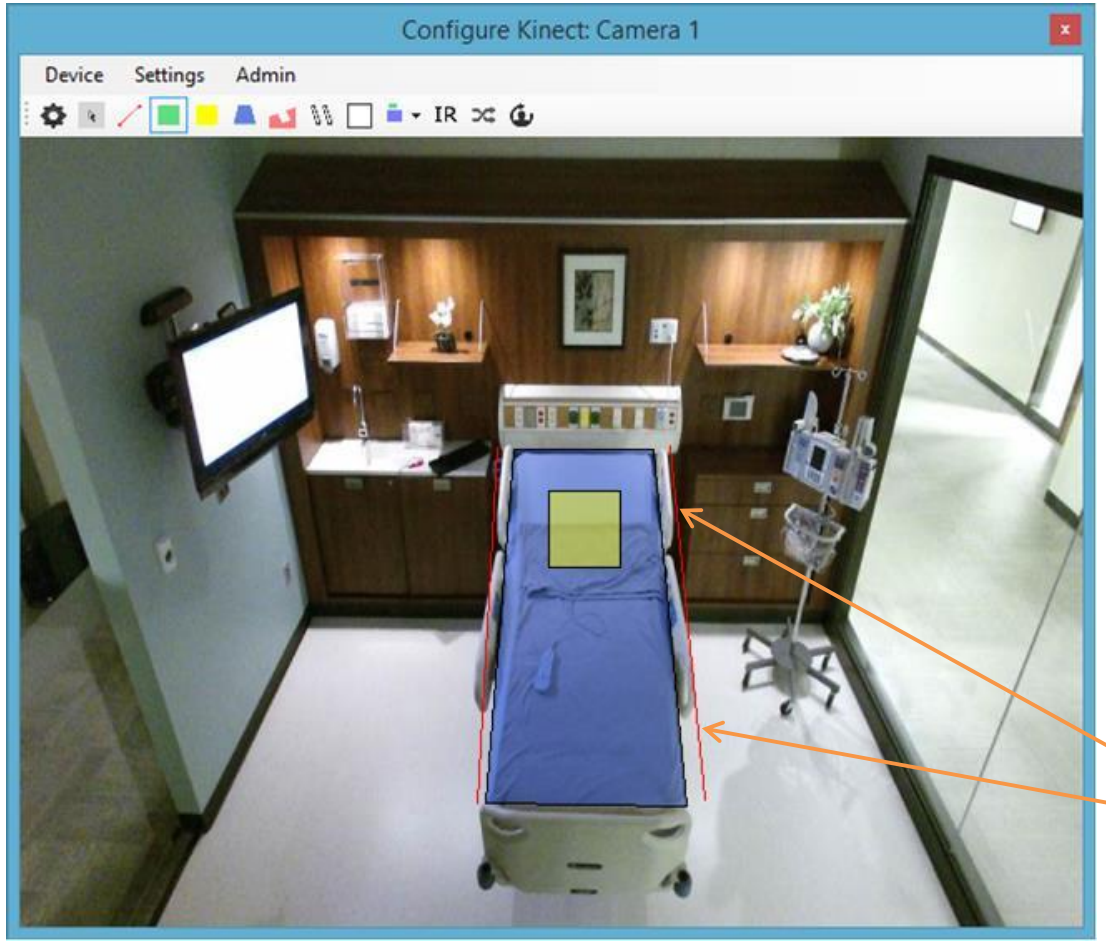
In Special Instructions, type in “e-sitter.”

Improved process:

- Order created for Virtual Patient Observer ONLY
- Less clicks
- Better reporting / statistics

- Staff discuss daily, as to continue or not:
  - Did patient status change?
  - Is patient able to be re-directed?
  - Any concerns of patient/family?
  - Did any events occur?

Patient Bed Zone Configuration



- Easy drag & drop of bed/chair motion zones to define patient location
- Alerts when motion detected in the motion zone
- Single click for the observation technician to verbally redirect the patient

Motion zones alert with movement and are easily adjusted with drag and drop

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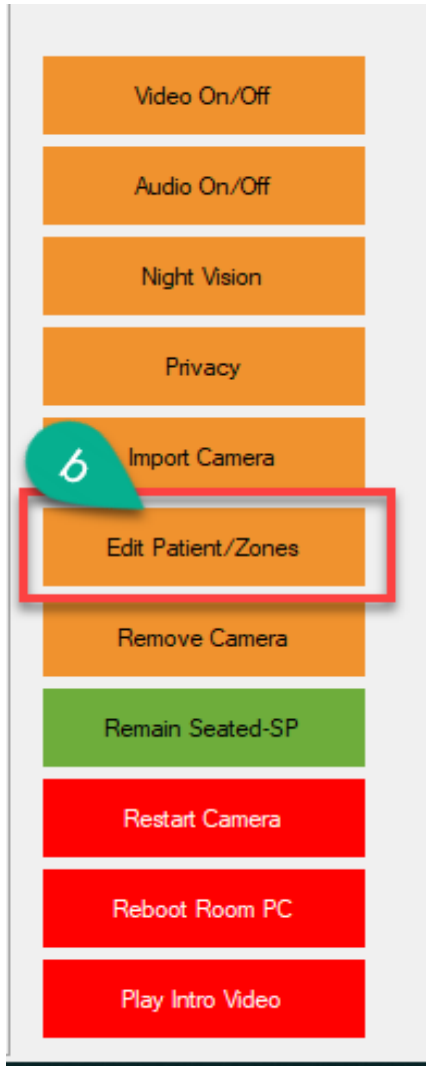
Workflow



1:12 sitter to patient ratio

Setup requires:

Computer
Touch Screen
High-Def TV
2 way Audio

Grid view

- Allows HD viewing of all patients in a larger window

OR

- Focus only on the higher risk patients

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Technology

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Design Requirements

- System agnostic
- No EHR system pre-requisites
- No server infrastructure required
- Flexibility to move cameras from one location to another

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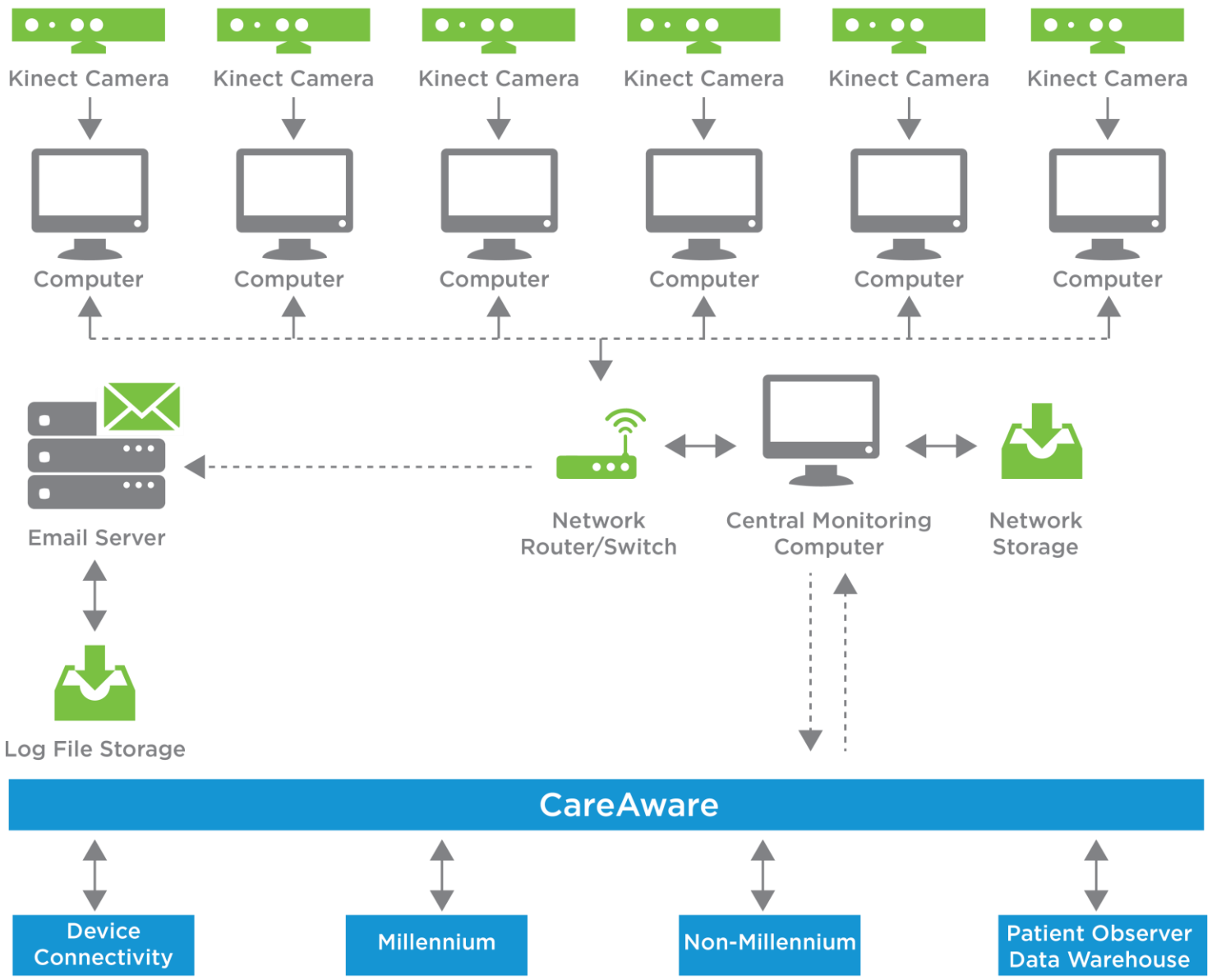
Architecture



Patient Observer Features

Differentiation

- Skeleton Tracking
  - Differentiates patient from caregiver
  - Joint specific to reduce false alerts
- 3D Camera capability
- Alert motion zones for patient safety
- Ability to integrates with iBus and alerting

Features

- Real-time patient observation
- Wide field of vision
- Built-in microphone for two way communication
- *Multi-lingual communication*
- Infrared night vision

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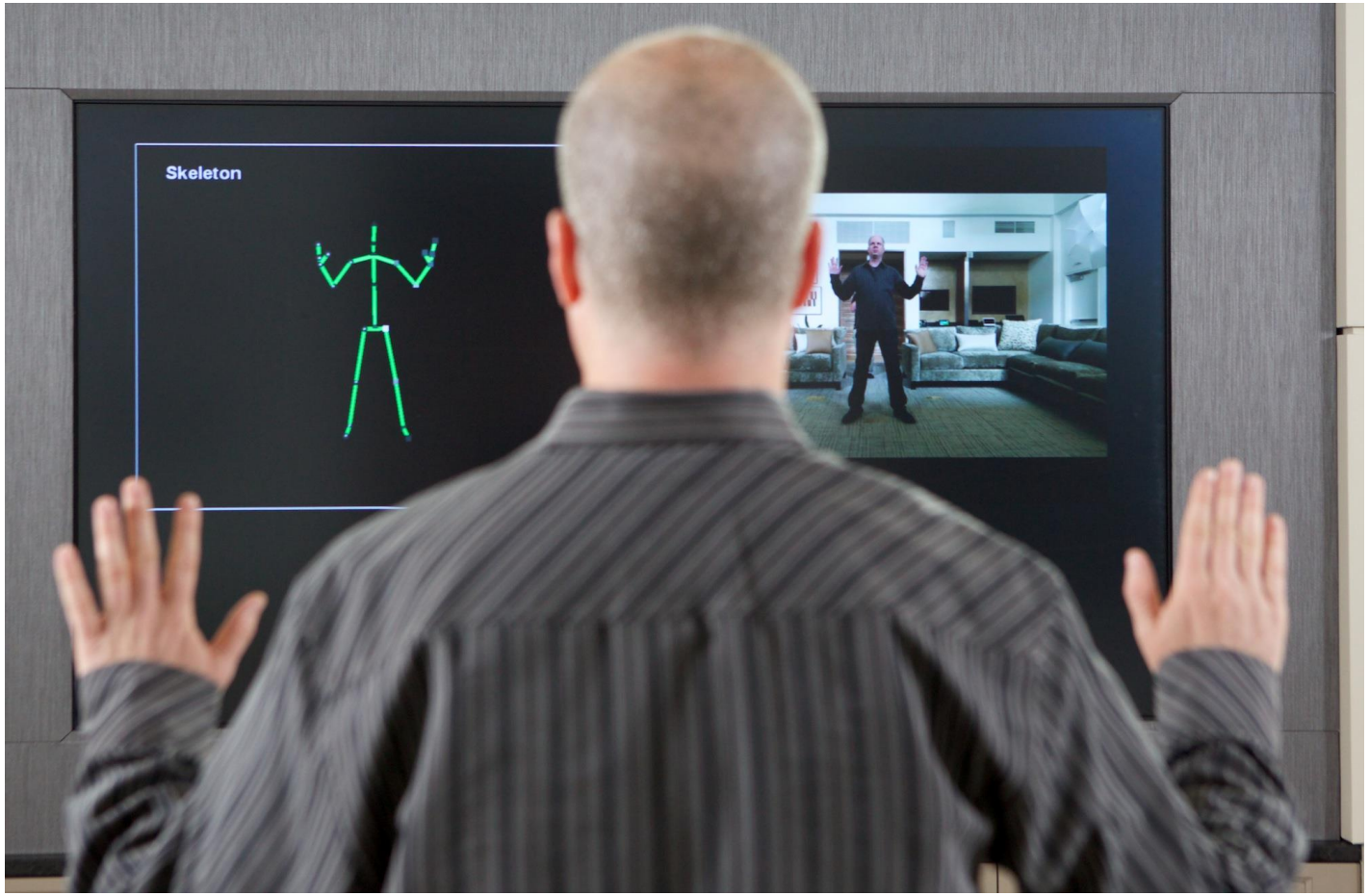
The Technology – Microsoft Kinect



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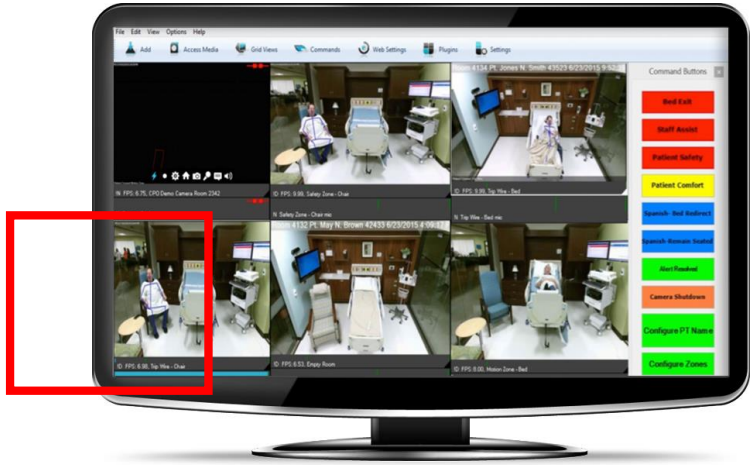
Configuration

Patient Room

2 Way Audio

Central Monitoring System



- One camera sensor per patient bed
- Patient room is highlighted when alert is triggered for pre-configured patient changes
- Audio and visual alerts presented to the monitoring technician
- Two-way room communication available to assist with patient redirects and nurse intervention

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Hardware Options: Cart or Wall Mount

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Policy and Education

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Standardized training

- Developed standardized curriculum to ensure expectations of the responsibilities (beyond VPO) across the system
- Developed standardized handoff processes between RN:tech and tech:tech
- Policies for sitters expanded to include Virtual Patient Observer

Value Derived - Measuring Success

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Pilot Results
Carolinas Rehabilitation

- $276,019 Cost Savings obtained, ROI in < 10 months for Carolinas Rehab
- 50% ↓ in Patient Falls
- 60% ↓ in Use of Restraints/Net Beds (decreased need for additional restraint documentation)
- ↓ Triggering of Aggressive Behaviors in Patients
- ↑ **Patient and Family Satisfaction**
- ↑ Staff Satisfaction

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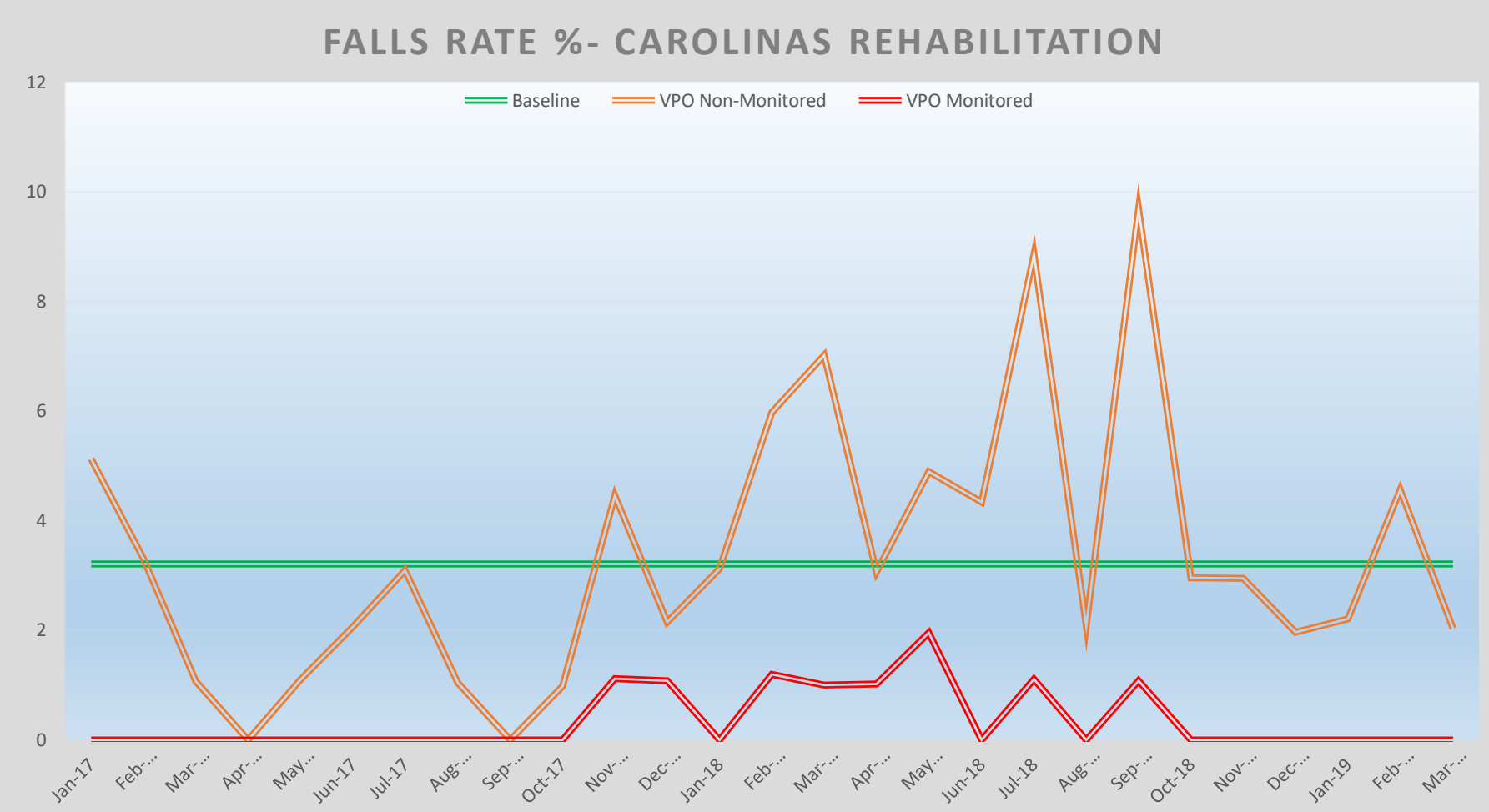
Carolinas Rehabilitation Falls Rate

VPO Monitored vs Non-Monitored



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Value Derived

Allows a trained observation technician to monitor multiple patient rooms from a Central Monitoring Station

Improves Patient Safety

- Helps to reduce the facility fall rate*, elopements and other adverse hospital events.
- Reduces risk of patient falls with injury
- Able to monitor more patients
- Real time two way communication for immediate intervention

Reduces Facility Costs

- Lowers the overall labor costs associated with 1:1 sitters
- Reduces the hospital/facility costs due to Adverse events
- Allows for more efficient staffing adjustments

Rates of falls in US hospitals range from 3.3 to 11.5 falls per 1,000 patient days (Falls among Adult Patients Hospitalized in the United States: Prevalence and Trends) J Patient Saf. Author manuscript; available in PMC 2014 March 1.*

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What's Next?
Continued rollout and expansion throughout system

- Expansion of team, shift in alignment with Resource Team
- Rollout continued throughout Atrium
  - Medical – surgical units
  - Required co-horting of patients for larger facilities
  - Unable to provide alternating shifts for off-site locations
- New partners – Navicent – monitoring patients in Georgia
- Use Case Development – Behavioral Health, Skilled Nursing, Infection Prevention
- Virtual Health services continue to expand and develop
  - Pilot process in development for roll of Pharmacy Tech, for medication reconciliation processes

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Lessons Learned and Next Steps

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VPO Timeline

2015

Development
- Partnered with Cerner to develop Patient Observer pilot
- Home-grown device developed for testing in Atrium
- Cerner engineered device created

2016

Launch
- Carolinas Rehab selected as pilot location
- Sitter/Runner model utilized

2017

New Use Case
- Expanded services to pediatric population

2018

Growth
- Enterprise expansion approved March 2019
- Centralized vSitter bunker development
- Use case expansion to Infection Prevention
- LCH expansion to JGCH

2019

Looking Ahead
- Expand to Georgia with Macon partner
- Complete enterprise expansion Q4 2019
- New use case development with Behavioral, SNF and Infection Prevention

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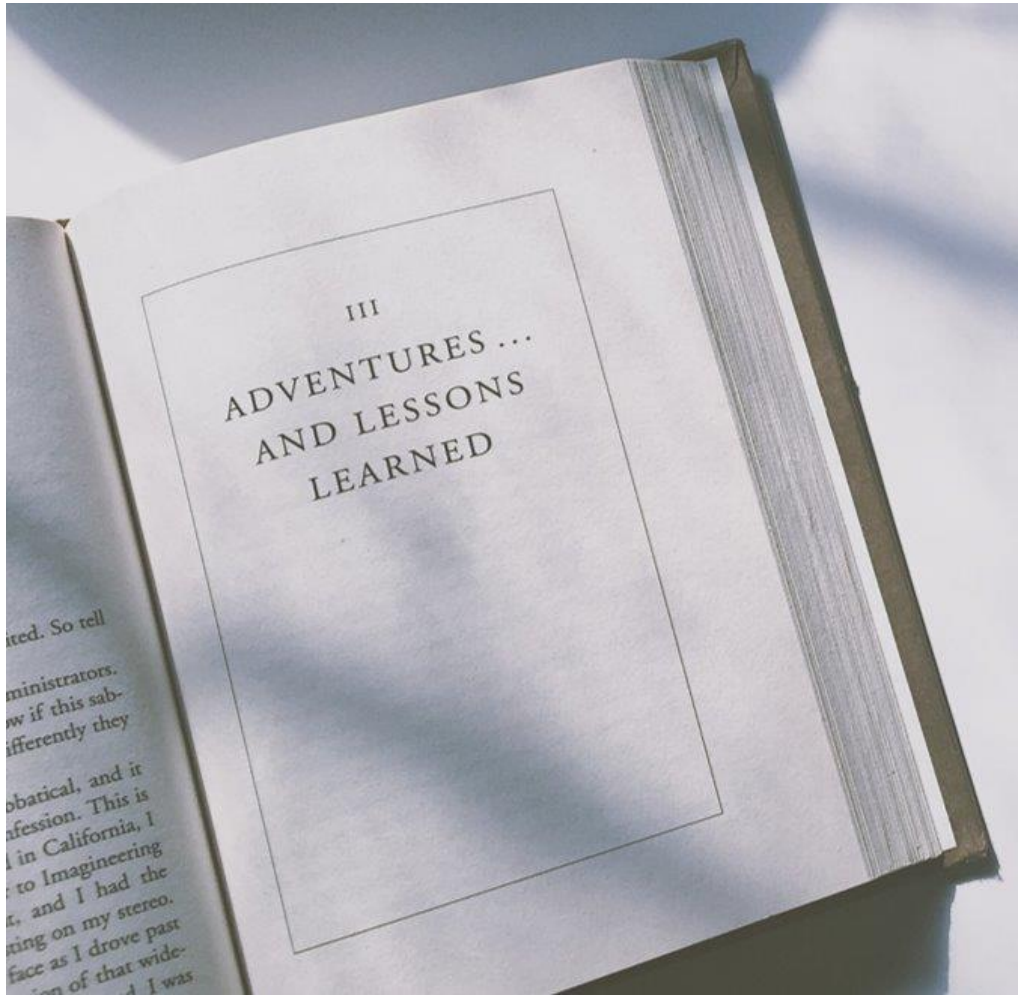
Lessons Learned

- New technology can be scary – requires teamwork!
- Take your time and <u>start small</u>, but agile to spread quickly
- May be challenging to forecast
- Workflow development
  - Create one but adapt to a second!
  - Not a one size fits all for patients / workflows



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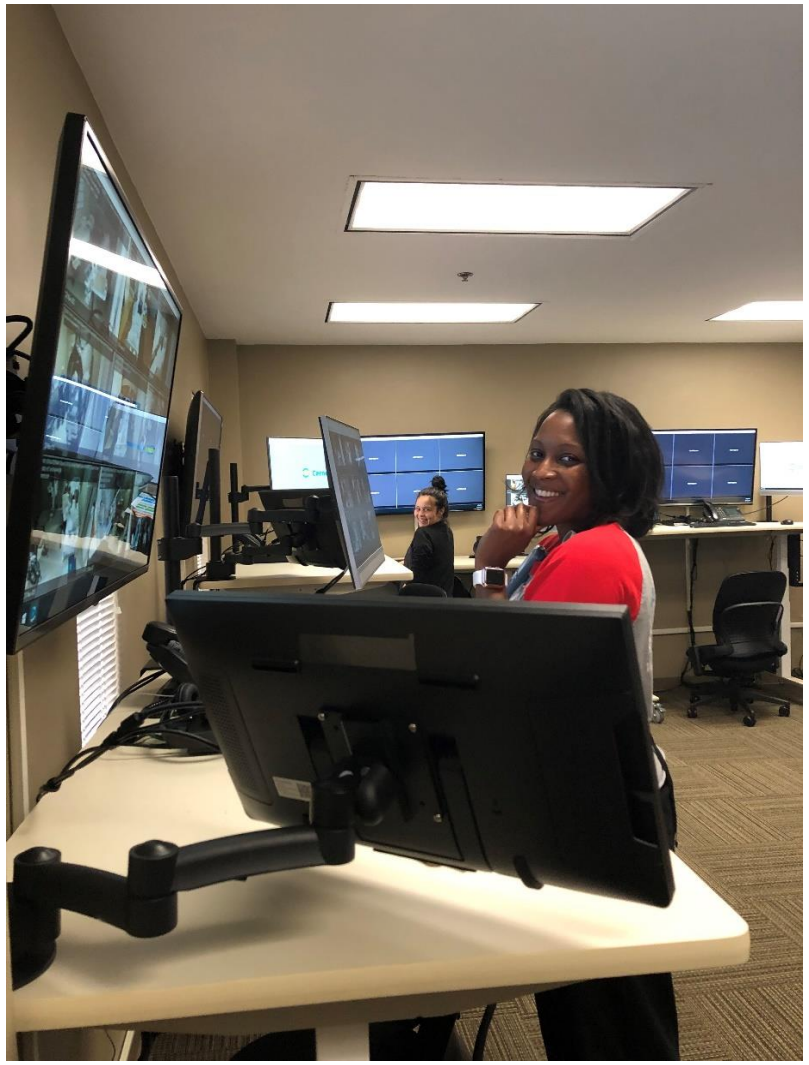
Expansion of the Virtual Sitter Bunker



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But wait, there's more…. Pediatrics!

- Local Problem: Sitter needs continued expanding for our Pediatric population

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Process Overview

LCH Video Patient Observation (VPO)Timeline

Nov 2017

LCH VPO pilot begins
- Surge pool HCTs trained by Information & Analytics
- LCH 7A opened

Jan-May 2018

VPO deployed
- Algorithm developed for sitter decision making
- Education provided to nurses and providers

May-Aug 2018

Dual sitter audits
- Deployed live and video sitters to same patients to do audits
- Separated care events as to live versus video sitter

Sep-Oct 2018

Sitter algorithm updated
- Eating disorders and NAT criteria adjusted
- Ongoing review of care events

Dec 2018

Annual review of VPO program
- Identified cost savings
- Identified next steps

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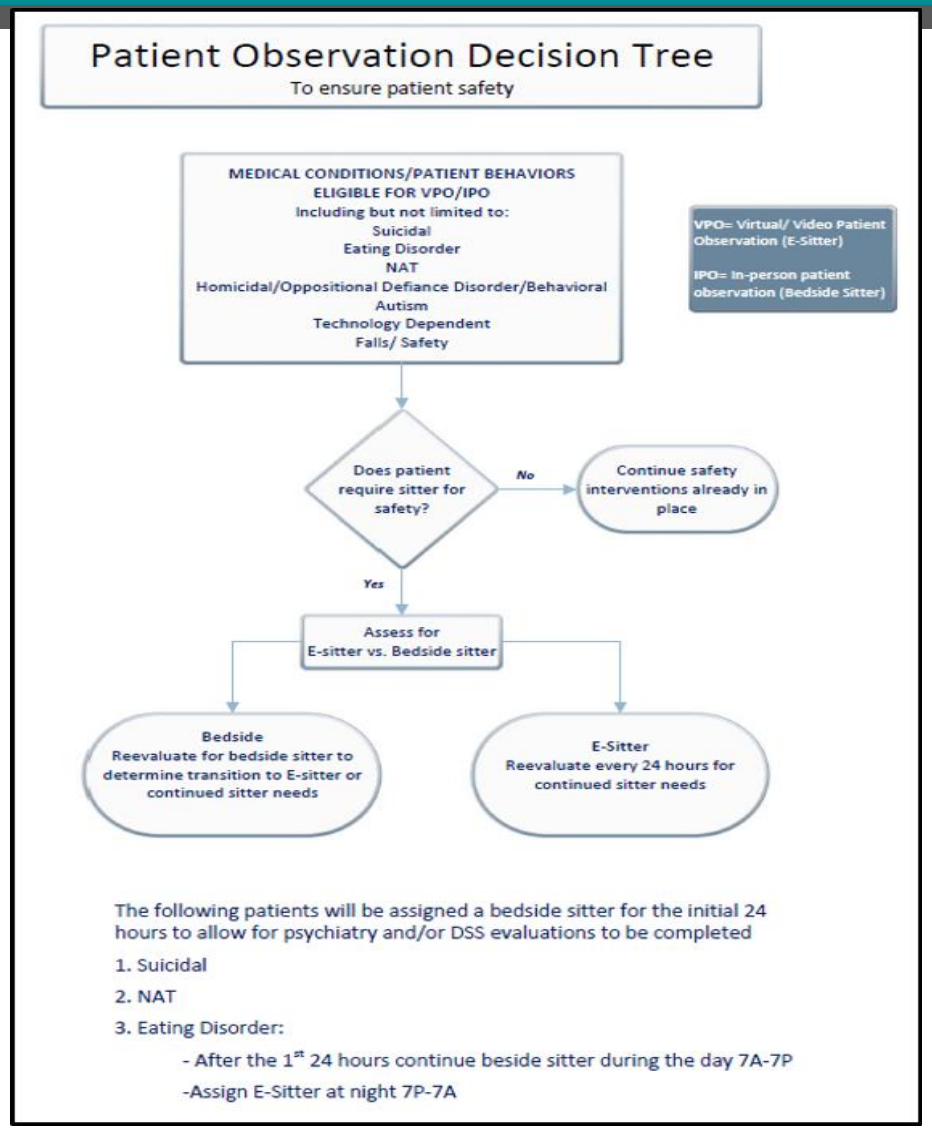
Algorithm for Sitter Decision Making



VPO/Video Patient Observation = Continual, interactive remote observation of 1 to 12 patients per shift within a central monitoring console area

IPO/In-person Patient Observation = 1 bedside PSA per patient room providing constant observation of one patient per shift

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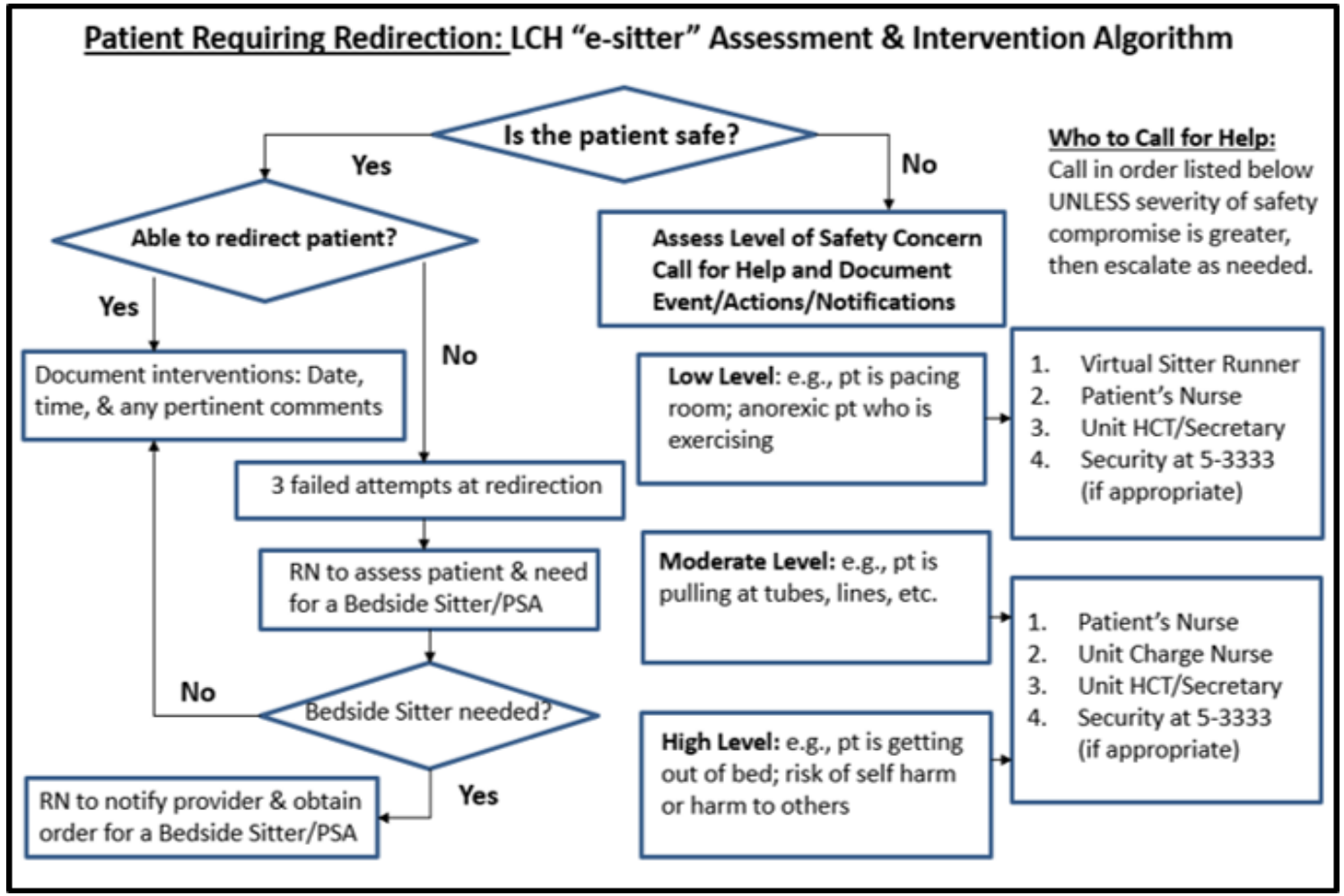
VPO Intervention Algorithm



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Provider Education: Presentation at Pediatric Grand Rounds (Jan. 2018)

E-Sitter Adaptation & Transition Plan

- Reasons to use E-Sitters
  - Monitor patient for safety
    - Falls
    - Prevention of abuse (NAT)
    - Elopement risks
    - Eating disorders (exercising, eating) *live sitter during day, E-Sitter at night initially
    - Depression
    - Autism (will need individual assessment)
    - Behavioral Health (after cleared by psychiatrist)

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Provider Education: Decision making support

What groups need a sitter?

1:1 IPO (live sitter)

- All Behavioral health (BH) pts during first 24hrs of admission, pending evaluation
- All Non-Accidental Trauma patients in the first 24hrs pending evaluation
- Active Suicidality
- Active Homicidality
- Pts w/risk of self-harm
- Pts w/risk of equipment harm
- All eating disorder patients (ED) pts during daytime hours
- All ED patients that have failed night time VPO program
- Pts in police custody (first line is police personnel)

VPO (e-sitter)

- Pts deemed flight risk
- Pts deemed fall risk
- BH pt with atypical development in which an IPO sitter my contribute to overall behavioral issues
- BH pt determined no risk of harm to self
- Non-accidental trauma after initial 24hr evaluation by med, social work, dss teams
- Pt pulling at lines/drains etc...
- Pts with Delirium
- Pts with withdrawl requiring observation
- pts on eating disorder protocol during night shifts
- Other as determined by provider

No Sitter

- Clearance by psychiatric and medical teams
- Non-accidental trauma patients w/out visitations/ persons in room (ie in custody of DSS)
- Behavioral Health Patients admitted for non-BH issues & not meeting criteria listed in IPO/VPO.
- Patients w/out parents or visitors in the room (i.e. services cannot be used for babysitting-please consider volunteer services for these patients)

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Nursing Education

PROCESS CHANGE ALERT: Initiation of Virtual Patient Observation ["e-sitters"] for select pediatric patients in LCH
December, 2017

Carolinas HealthCare System

Levine Children's Hospital

What?

LCH is initiating the use of Virtual Patient Observation **(VPO)** to increase patient safety.

Why?

To provide an alternative method of continuous monitoring of patient behaviors.

Impact on Nursing?

VPO may be initiated throughout LCH utilizing mobile monitoring cameras. Requests for and initiation of VPO should be relayed through the LCH Administrative Charge Nurse: 704-381-0341.

The VPO team consists of a Virtual Sitter Monitor **(VSM),** a Virtual Sitter Runner **(VSR)** and the Bedside Nurse. **The VSM** continuously observes the patient and can speak to/re-direct the patient as needed. **The VSR** rounds hourly on patients and assists with direct patient needs as identified by the VSM. **The role of the Bedside Nurse is to:**

- ❑ Review the Virtual Sitter process with the patient and/or caregiver and document this in the ETR.
- ❑ Promptly respond to all Ascom calls to ensure the VSM can reach them in the event that urgent patient assistance is needed.
- ❑ Be prepared to sit with the patient immediately in the event there is a software outage or glitch.

Key Contact Information:

LCH Administrative Charge Nurse: 1-0341

Virtual Sitter Monitor: 1-5345

Virtual Sitter Runner: 1-5346

IS Support : 704-780-7679

Performance Checklist: Virtual Patient Observation ("e-sitters") in LCH

I confirm that I have met all the below requirements of participation in Virtual Patient Observation in LCH:

Performance Criteria	Initials
I have received and reviewed education regarding the e-sitter process at Levine Children's Hospital.	
I have read the LCH Policy "Assignment and Use of Virtual Sitter" and understand my role in the e-sitter process.	
I understand how to educate patients and family members regarding the e-sitter process and how to document this education in the Education Teaching Record/ETR.	
I understand what to do in the event the family refuses a Virtual Sitter and the need to document this in Notifications.	
I understand that I should not move the camera or adjust its position. I will contact the Virtual Patient Monitor if I have concerns about the camera's location in the room.	
I understand the need to document in Notifications whenever I am notified by the virtual sitter monitor (VSM) or virtual sitter runner (VSR) of the need for patient intervention.	
I understand the need to promptly respond to all Ascom calls to ensure the virtual sitter monitor can reach me in the event that urgent patient assistance is needed.	
I understand that I, or a designee, may need to sit with the patient immediately in the event of a software outage or glitch until the monitoring system is restored.	

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Nursing Policy

Atrium Health Levine Children's
Policy & Clinical Practice Guidelines

ASSIGNMENT AND USE OF VIRTUAL SITTER

Written: 10/2017
Reviewed/Revised: 07/2018; 02/2019

I. POLICY
Nursing personnel will utilize the Virtual Sitter process to increase patient safety through continuous monitoring, which serves to improve recognition and response to changes in patient behaviors.

II. Exclusion Criteria
A. Actively suicidal or homicidal patients will be excluded and require a bedside sitter.

III. PERFORMED BY
Nurse Aide I, Nurse Aide II, HCT, Registered Nurse, Clinical Supervisor, or the on-call Administrative Charge Nurse

IV. DEFINITIONS
VPO = Virtual Patient Observation
VPO Area = consists of a computer station with virtual sitter software and viewing system, staffed continuously by nursing personnel
Virtual Sitter Monitor (VSM) = nursing personnel who staffs VPO Area.
Virtual Sitter Runner (VSR) = nursing personnel who is assigned to assist with direct patient needs as identified by the VSM
Designee for VSR = typically the primary Nurse Aide, HCT, or RN who is on the unit

V. EQUIPMENT
Virtual Camera Monitoring System
- Patient Room: camera mounted via wall bracket or on a portable stand strategically placed within the room by the VSR
- VPO Area: computer with monitor (and/or TV screen), observation software with linked EMR program

Designated phones for VSM and VSR

VI. INTERVENTION

A. Identify patients as per "Patient Observation Decision Tree" Sitter Algorithm (Appendix A)
B. Obtain provider order
C. Communicate the need for a virtual sitter with the on-call Administrative Charge Nurse per Sitter Algorithm (Appendix A)
D. Virtual Sitter Runner (VSR) or designee brings monitoring camera to the unit as needed. RN and/or VSR reviews Virtual Sitter process with patient and/or family or caregiver present.
   1. RN documents in ETR patient/caregiver and/or patient education (discussion about process)
E. VPO Area staffed continuously by nursing personnel when at least one patient is utilizing the Virtual Sitter process. Additional VSMs may be needed due to high patient census and/or patient acuity.
F. Nursing Personnel (Virtual Sitter Monitor) continuously view participating patient in the VPO Area using observation software, while the patient is in their assigned room.
   1. VSR and VSM will change roles intermittently every shift.
G. When patient alert is required:
   1. VSM can speak directly into the patient's room to redirect patient as needed
   2. VSM can call the VSR or RN/designee to direct them into the patient's room
   3. VSM documents patient behavior on the designated form
   4. Scan designated form into medical record
H. VPO System Interruption
   1. All sitter cases will be covered with a direct observation sitter until the VPO system is restored. Nursing units that are utilizing VPO must provide coverage immediately.
      a. This will be overseen and directed by the on-call Administrative Charge Nurse or designee
      b. The on-call Administrative Charge Nurse or designee will notify the VSM, VSR, and units as appropriate once resolution occurs and the use of VPO is again available.

VII. Appendices
A. "Patient Observation Decision Tree" Sitter Algorithm
B. Sitter Needs Decision Chart

VIII. Documentation
A. Nurse will document that they were notified by the VSM/VSR when an event requires nursing intervention or provider notification – documentation should be in EMR, events/procedures/notification tab
B. VSM documentation should be by exception.
C. VSR documentation should be on bedside sitter checklist during each time the patient is rounded on, minimally once an hour
D. Nurse will document patient/family refusal of e-Sitter use in the EMR, events/procedures/notification tab.
   1. Should a patient or family refuse the e-Sitter, a live sitter will be placed into the patient room until resolved.

IX. REFERENCES

Bradley, K. (2016). Remote video monitoring: A novel approach in fall prevention. *The Journal of Continuing Education in Nursing, 47*(11), 484.

Budsoo P. and Vento L. (2015). Sitter reduction through mobile video monitoring. *The Journal of Nursing Administration, 45*, 363 - 369.

Snyder, W., & Hewitt, D. (2015). Ministry embraces telehealth care. Health Progress (Saint Louis, Mo.), 96(1), 46.

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Sitter Education

LCH Sitter Education:

	Observation of Patients Admitted with Eating Disorders
REASON FOR ADMISSION	• Patients with eating disorders are admitted to the acute care hospital because their current weight has caused them to be medically unstable. They are kept in the hospital until their vital signs (blood pressure and heart rate) and weight are closer to normal and they are safe enough to be cared for at either a specialized outpatient facility or another unit specializing in Eating Disorders. It is important to know that patients with an eating disorder such as anorexia nervosa have a high mortality rate (10 %) and for that reason, must be monitored very carefully.
DURING HOSPITALIZATION ***Monitor for…*** 	•**Hiding or getting rid of food in usual places or ways:** In underwear, napkins (excessive wiping of mouth), sheets or pillow case, the trash can, the shower or sink, excessive spilling of caloric beverages, drooling/dribbling food, messy eating •**Obsessive exercise or "habits" after eating:** Jumping jacks in the bathroom, walking laps/pacing around the room, frequent leg or arm motion while lying in bed, playing video games excessively or aggressively, running in place in the shower, sit-ups and push-ups, yoga, dancing, lifting food or water bottles like they are free weights •**Ways that manipulate or increase daily morning weights**: Adding clothes (must remain in a hospital gown only), keeping shoes on, drinking a lot of fluid before being weighed and not going to the bathroom, eating breakfast first, hiding objects (e.g. coins or rocks) or food while being weighed (must be weighed in a hospital gown only)
IMPORTANT KEY POINTS TO REMEMBER	•Patients are not allowed to be unsupervised while eating. NO food should be left on the tray (not even 1 bite or condiment). Don't allow patient to hide food as outlined above •Patient is required to finish all meals within 30 minutes. If patient refuses or is unable to complete 100% of the dietary tray (meaning *every* bite & condiment), then he/she must drink a supplement approved by the physician & dietician. •Patient is not allowed to use the bathroom or leave the room for at least one hour after each snack/meal. •Patients are not allowed to take excessively long showers or trips to the bathroom (no more than 15 minutes) •Patients are not allowed to walk in the hallways or utilize wheelchair prior to medical team approval

Notify Virtual Sitter Runner or RN on unit for:

Notify Virtual Sitter Runner and/or RN on unit for:

- **Any of the above noted activities such as hiding food, subtle or obvious exercising**
- **Meals or snacks that are not fully consumed**
- **All patient requests to use the bathroom - bedside sitter must be present and bathroom door left open**
- **Outside meals, clothes or other items that are brought into the room**
- **Other unusual or concerning activities**

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Levine Children's Hospital

For more information on Pediatric Eating Disorders you can visit---> https://www.adolescenthealth.org/Resources/Clinical-Care-Resources/Eating-Disorders.aspx

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Sitter Education

Observation of Patients Admitted with Autism

REASON FOR ADMISSION	• **A child is not admitted for a diagnosis of autism. The two most common reasons are mental health and neurological problems. *Autism is a spectrum disorder and each child will present differently**
DURING HOSPITALIZATION ***Monitor for…*** 	• Triggers (staff entering room, loud noises, vitals/touch) • Early warning signs of agitation; change in baseline functioning • Physical aggression • Self injurious behaviors (hitting, biting, hair pulling, head hitting, slapping, chewing on thumb) These behaviors are often in response to stress in an attempt to self soothe • Identify their stressor and remove/decrease stressor • Make sure no items in room could cause harm • Physical restraint should be last resort when other less restrictive and alternative interventions are not effective or safe as it can have negative physical and emotional consequences • Expectations can be communicated through picture or written schedule and should alternate preferred and less preferred activity as children with autism may have difficulty understanding verbal instructions
IMPORTANT KEY POINTS TO REMEMBER	• **Be gentle in your approach** • **If possible, consult patient's caregiver to obtain the following; child's preferences of food, objects, activities; effective calming techniques; identify triggers to behavioral changes** • **Be kind in seeking information from the child and be patient in learning how to communicate with them. Not being able to appropriately request wants and needs is one of the most common reasons people with autism engage in problem behavior** • **Look for opportunities to teach and praise child** • **Introduce tasks and assignments in small parts or steps** • **It is not that the patient "won't or refuses to," it's a matter that he doesn't have the skills or ability to in that moment** • **Patients on the Spectrum may not be able to :** **-Respond to their name** **-Point at objects or things of interest** **-Play "pretend" games** **-be willing/able to give eye contact** • **Nonverbal does not mean the child can not or is not communicating** • **In midst of crisis situation, remain as calm as possible** • **Remind child of what he can do rather than what he can't**

Notify Virtual Sitter Runner or RN on unit for:

- **Increased agitation**
- **Self injurious behaviors**
- **Harm to self or others**
- **For more information on caring for children with autism, you can visit www.autismspeaks.org**

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Levine Children's Hospital

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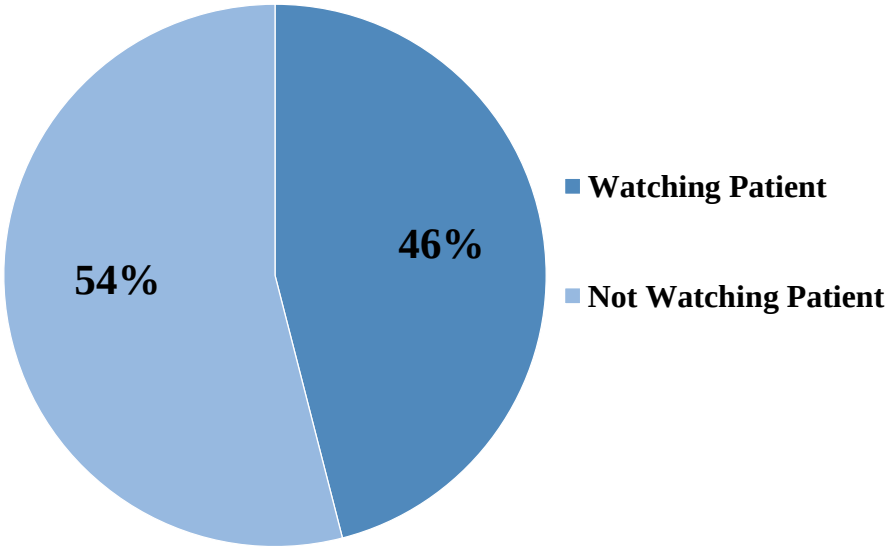
Dual Sitter Trial
(In-person patient observer & virtual patient observer)

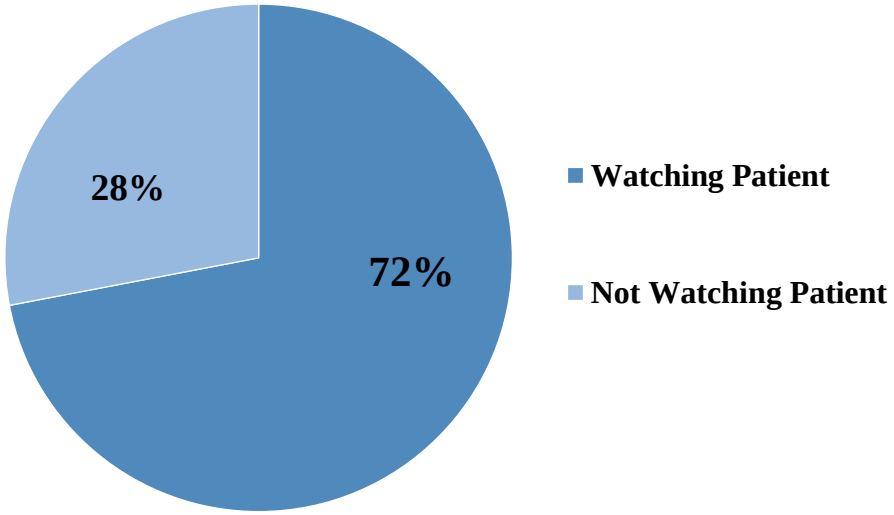
BE PREPARED TO SEE MORE THAN YOU EXPECT

Results/Outcomes: Dual Sitter Audits

IPO Observation



VPO Observation



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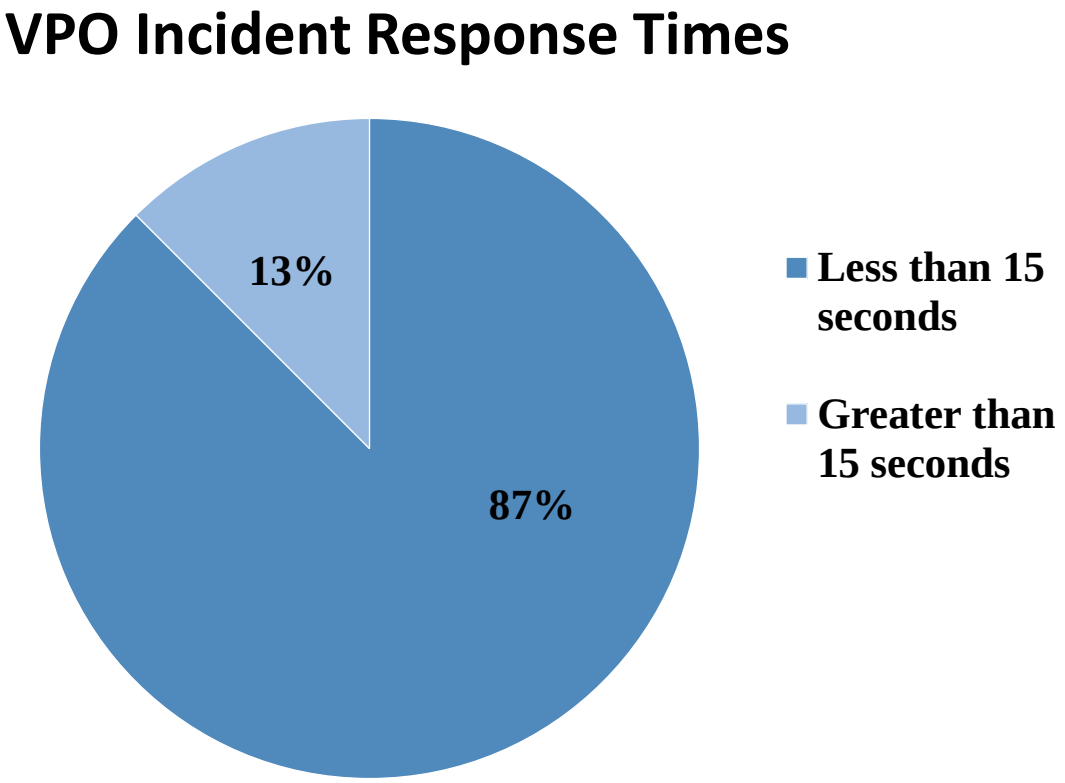
Results/Outcomes: Staff Response Times to VPO Notifications



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Process Update

Once the efficacy of VPO was established, we implemented its sole use for selected patient populations and broadened our initial inclusion criteria

Which patients need a sitter?

1:1 IPO (live sitter)

- Patients admitted with Suicide Ideation (SI)
- Patients admitted with Homicide Ideation (HI)
- Behavioral Health Patients with Risk of Self-harm or Harm to Others/Property pending evaluation by psychiatry
- Patients in Police Custody (first line is police personnel)

VPO (e-sitter)

- Patients with Flight Risk
- Patients with Fall Risk
- Behavioral Health Patients with atypical development (e.g. Autism) in which an IPO sitter may contribute to overall behavioral issues
- Eating Disorder Patients
- Patients admitted for Non-Accidental Trauma
- Pt pulling at lines, drains, tubes, etc.
- Pts with Delirium
- Pts with Withdrawal
- Other indications as determined by provider

No Sitter

- Clearance by psychiatric and medical teams
- Non-accidental trauma patients in DSS custody with restricted visitation in place
- Behavioral Health Patients admitted for non-BH issues & not meeting criteria listed in IPO/VPO.
- Children without parents or caregivers in the room - i.e. sitters cannot be used for babysitting! Consider utilizing volunteer services for these patients.

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Results/Outcomes: Cost & Labor Savings

Pediatrics – 1 yr.

Blended Model with IPO & VPO: 460 sitters used for 922 patients = 11,040 sitter hours
Traditional Model with IPO Only: 922 sitters for 922 patients = 22,128 sitter hours
Labor Savings incorporating VPO: 11,088 hours, or 5.33 FTEs
Cost Savings incorporating VPO: $169,424.64 (using an average hourly wage of $15.28 charged to our sitter cost center)

Estimated average salary dollars per patient PSA need:

Projected VPO Cost Savings									
Fiscal Year	Patients Observed (n)	Blended Model		Traditional Model		PSA Hourly Rate	Program Cost		Cost Savings
		Staff #	Hours	Staff #	Hours		Blended Program	Traditional Program	
2018	922	460	11040	922	22128	$15.28	$168,691.20	$338,115.84	$169,424.64

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Summary

- Despite the substantial initial investment to purchase video monitoring equipment and a 3-month trial period during which VPO was utilized *in conjunction* with bedside sitters, our 1st year cost analysis still yielded a positive ROI.
- Future use and spread of a VPO program has the potential to substantially reduce sitter related costs and improve patient and staff safety.

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In Summary

- **Local problem:** Virtual Patient Observation can be used to lower costs, in person sitter utilization and improve patient safety.
- **Design and Implementation**: The focus on the reducing utilization required the coordination of a “people, process, and technology” approach to ensure clinical workflows were aligned with technical requirements. An observation technician at the central monitoring station acts as a virtual room sitter to watch for and proactively alert nurses and other care givers if the following potential adverse events are about to occur.
- **Healthcare IT:** The technology included the use of Microsoft Kinect cameras with the unique ability to see in 3D, track human skeletons, recognize verbal commands, and send video streams to a central monitoring station. Orders are entered into the EHR, and workflows are driven by the patient’s response to the re-directions of the staff.
- **Value derived:** There is a significant financial and safety ROI. Sitter costs were drastically reduced, falls were decreased, the utilization of restraints decreased, staff and patient satisfaction was positive; pediatrics patients have been added as a new use case.

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Appendix

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Adult Quick View
- Patient Rounding.
- Activities of Daily Living
- Vital Signs.
- Pain Assessment Adult
- Pasero Scale
- Alterations in Comfort
- GWN Pain Management
- Incentive Spirometry
- POC Testing - Nursing
- Notification.
- Task/Treatment Not Performed
- Transport.
- Transfer to Another Inpatient Facility
- Information Proxy
- Nursing Handoff Communication

Intake An
Events
Blood Product Administration
Code Sepsis
Code Stroke

Find Item | Critical | High | Low | Abnormal | Unauth | Flag | And | Or

Result	Comments	Flag	Date	Performed By

	17:02 EDT	16:33 EDT	15:28 EDT	15:27 EDT	13:33 EDT	12:
Patient Rounding.						
Patient Status Rounding		Perform...			Perform...	Per
Patient Status Rounding Comments		Repo...				Q4
Rounding Care Provider		WALTZ , ...			WALTZ , ...	WA
Environmental Safety Implemented						Ade
Isolations in Place						Nor
Patient Specific Safety Measures						Pos
Alteration In Comfort Care						
Interpreting Source						
Use of Interpreter Details						
Activities of Daily Living						
Safety						
Safety/Alert Armbands In Place						D
Patient Refused Armband(s)						
Environmental Safety Implemented						Ade
Patient Specific Safety Measures						Pos
Manage Sensory Impairment						
Special Call Device						
Law Enforcement Restraint Loc of Shackle						
Law Enforcement Present						
Activity						
Activity Assistance						Min
Activity Tolerance						Wit
Weight Bearing Status						
Assistive Device						
Activity Status ADL						Wit
Patient Position		Head of ...			Head of ...	Hea

Environmental Safety Implemented
- Adequate room lighting
- Bed in low position
- Bed/Chair alarm in use
- Call device within reach
- Encourage family/caregiver at bedside
- Encourage handrail/safety bar use
- Encourage personal mobility support item use
- Encourage sensory support item use
- Mobility support items readily available
- Night light
- Room safety check
- Non-slip footwear
- Patient Safety Attendant
- Patient specific safety measures
- Personal items within reach
- Refused safety measures
- Sensory aids within reach
- Safest rail position for mobility
- Traffic path in room free of clutter
- Virtual monitoring
- Wheels locked

When performing purposeful hourly rounding on the patient with VPO in the room, document “virtual monitoring” in the Environmental Safety Implemented portion of the Patient Rounding band.

Sitter Metrics before VPO

Carolinas Rehab Pilot Unit*

4.33 Falls	1015 Patient Days
$8500 Net Bed Expense	**8.11** FTE Usage

$8200 In Sitter Expenses

*Average per month

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90 Day Pilot Results – CR Main

Carolinas Rehab Pilot Unit*

4.33 Falls	1015 Patient Days
$8500 Net Bed Expense	**8.11** FTE Usage

$8200 In Sitter Expenses

*Average per month

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90 Day Pilot Results – CR Main

Carolinas Rehab Pilot Unit*

4.33 Falls	1015 Patient Days
$8500 Net Bed Expense	**8.11** FTE Usage

$8200 In Sitter Expenses

*Average per month

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90 Day Pilot Results – CR Main

Carolinas Rehab Pilot Unit			
4.33 Falls*	1 Fall	1015 Patient Days*	2847 Patient Days
$8500 Net Bed Expense*	**60% Reduction in Netbeds**	8.11 FTE Usage*	**Avoided 12.3+ FTEs**

$85,000 Avoided in Sitter expenses

10x More Patients

*Average per month

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Pilot Expansion – CR All Facilities

Carolinas Rehab All Facilities*

3.49 Fall Rate	**4629** Patient Days
$8500 Net Bed Expense	**8.75** FTE Usage

$19,492 In Sitter Expenses

*Average per month

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Pilot Expansion - CR All Facilities

Carolinas Rehab All Facilities*

3.49 Fall Rate	2.53 Fall Rate	4629 Patient Days	3,561 Patient Days
$8500 Net Bed Expense	60% Reduction in Netbeds	8.75 FTE Usage	Avoided 18.85 FTEs

$276,019 in
1,464 Patients in total

*Average per month

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Results/Outcomes: Equipment and Training Costs
Pediatrics

VPO Equipment Expenses/12 cameras: $83,000

VPO Training-related Expenses/20 Trainees:

- 2-hour training session by Information & Analytics Application Specialist to learn video equipment set-up and use
- 2-hour mandatory education session: Maintaining Professional Boundaries and Population-Specific Education
- 20 trainees X 4 hours X $15.28/hour = $1222.40

Equipment + Training Costs = $84,222.40

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Results/Outcomes: Return on Investment
Pediatrics

- **1st Year Net Profit:** $169,424.64 - $84,222.40 = $85,202.24
- **1st Year Total Investment:** Equipment + Training Costs = $84,222.40
- **1st Year Return on Investment:** Net Profit ÷ Total Investment X 100

ROI: $85,202.24 ÷ $84,222.40 = 1.01X 100 = 101%

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