The Impact of Video Surveillance on Patient Safety and Staffing Costs of Monitoring Patients at High Risk for Falls

Gail Boushley RN, MSN

Heather Zapata RN, BSN, CMSRN

Research Guidance Provided by

Joyce McCollum RN, BSN, MS

Purpose of the Study

- Measure the impact of video surveillance on the reduction and prevention of patient falls with and without injury.
- Determine the impact of video surveillance on staffing costs.

Driving Forces for Change

- Centers for Disease Control and Prevention estimates the average internal cost per patient fall with injury is $19,440. A fall without injury carries an internal cost of $4,000 per incident.
- Center for Medicare and Medicaid Services identifies falls with or without injury as a hospital acquired condition and will not pay for the care required post fall.

Search for a Solution

- Attending the Advisory Board Summit two hospitals, Tampa General and Poudre Valley, shared the use of video monitoring of patients needing close observation.
  - Both hospitals saw a decrease in patient falls and a decrease in use of one-to-one observation.
- A literature search resulted in one article and one letter to the editor regarding Video Surveillance to prevent or reduce patient falls.

Fall Prevention Prior to the Study

- Hendrich II Fall Risk Model© Assessment Tool
  - Evidence-based tool.
  - Considers state of mind, alterations in elimination, gender, certain medications, and ability to move.
- SAFE Program
  - Yellow slipper socks, SAFE sign at patient door, yellow arm band, yellow sticker on chart, and document fall risk in the computer documentation.
- Hourly Rounding
  - All patients are checked hourly on the day and pm shifts. Every two hours on the night shift. The Five Ps are checked, Position, Pain, Potty, Placement, and Pump.
- Patient Sitters
  - Nonclinical staff who sit with high risk for falls patients on a one-to-one basis to prevent falls.

Research Location/Participants

- The research study was done on the Bellin Hospital Medical Unit. It is a 26-bed adult unit. The Medical Unit population includes infectious disease, stroke, oncology, palliative, chronic illness, and medical psychiatric.
- 97 patients were asked to participate in the study and 92 consented. Ages of the participants ranged from 19-90.

Setting up the Study

- Equipment and Environment
  - Cameras were placed in four patient rooms, watched on one monitor.
  - Call light was used to communicate with patients.
  - Vocera (wireless phone used by staff) used to communicate with staff and call a "safety check."
  - All rooms are privates.
  - Total start up cost = $7,386.

Setting up the Study *(continued)*

- Training and Education
  - All Medical Unit Staff, Nursing Services Staff, and patient sitters were trained in Fall Prevention.
  - The Video Monitor job description and check list were completed.
  - An overview of the study was presented to the Adult Hospitalists and other physicians who admit frequently to the medical unit.

Setting up the Study *(continued)*

- Patient Selection
  - Hendrich II Tool used to determine fall risk. If patient had a score >5, the high risk for falls plan of care was implemented. Charge RN was alerted of these patients, consent obtained and then triaged to a video room. Prior to the study we also did a Hendrich II inter-rater reliability study which showed an average of 90.36% agreement.

Setting up the Study *(continued)*

- Informed Consent form, Patient Brochure, Data Collection Tool, Signage, and Communication Tools
- Submitted the research application to the Bellin Health Corporate Institutional Review Board for approval.

Low Light Camera

Video Monitoring Station

Video Monitor Tech

Challenges and Barriers

- Protection of Patient Privacy
- Changing the Mindset of Patient Care Companions and Staff
- Camera
  - Cameras needed to be adjusted throughout the study as the resolution wasn't clear for fine detail.
- Vocera
  - Technical complications occurred with Vocera; therefore, the overhead paging system was used at times.

Data Collection

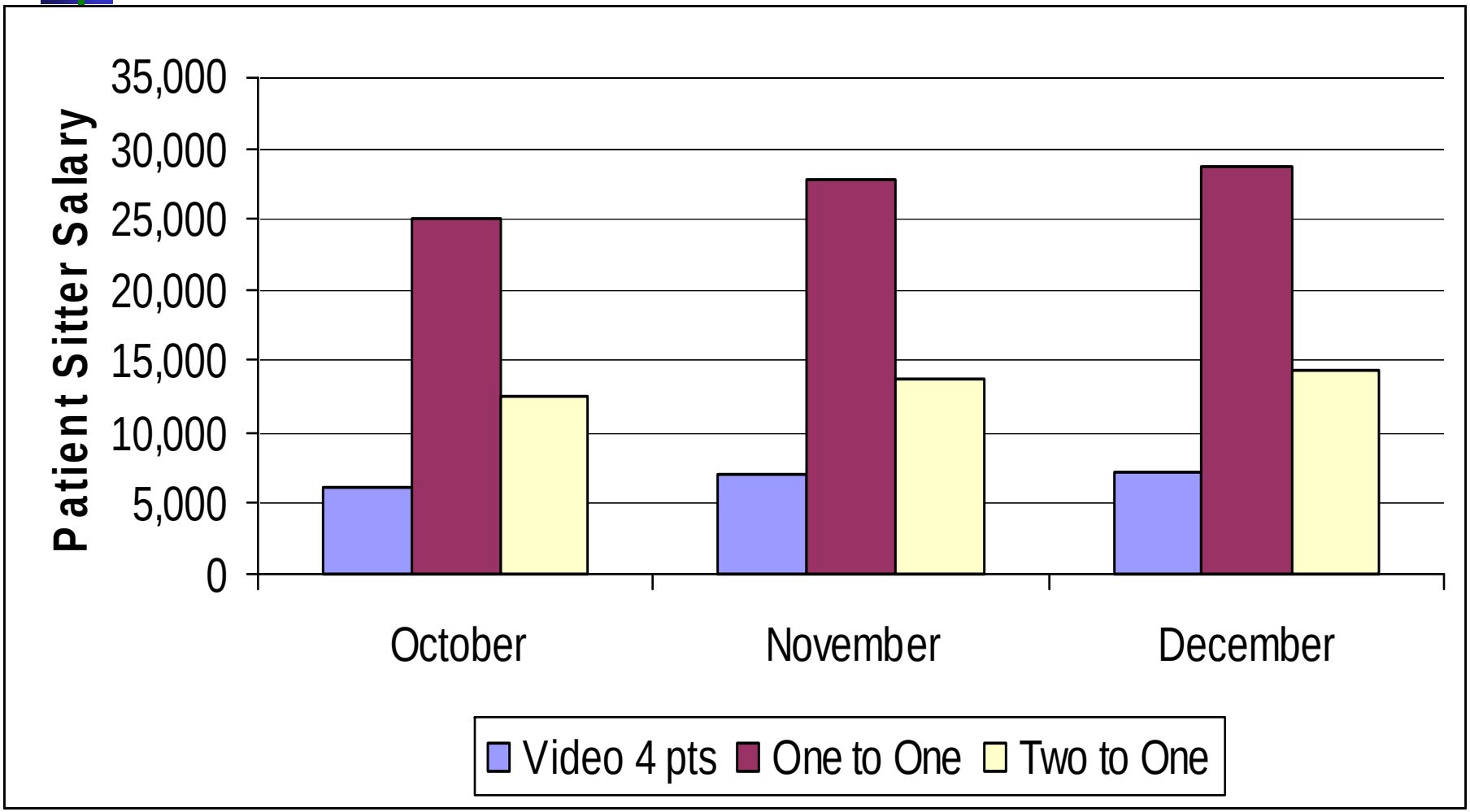
The 92 participants recorded behaviors

- 187 Occurrences of placing legs over or between rails
- 359 Picking at tubings, dressings, etc.
- 458 Restless
- 746 Attempted to get out of bed
- 241 Attempted to get out of chair
- 216 Reached for something

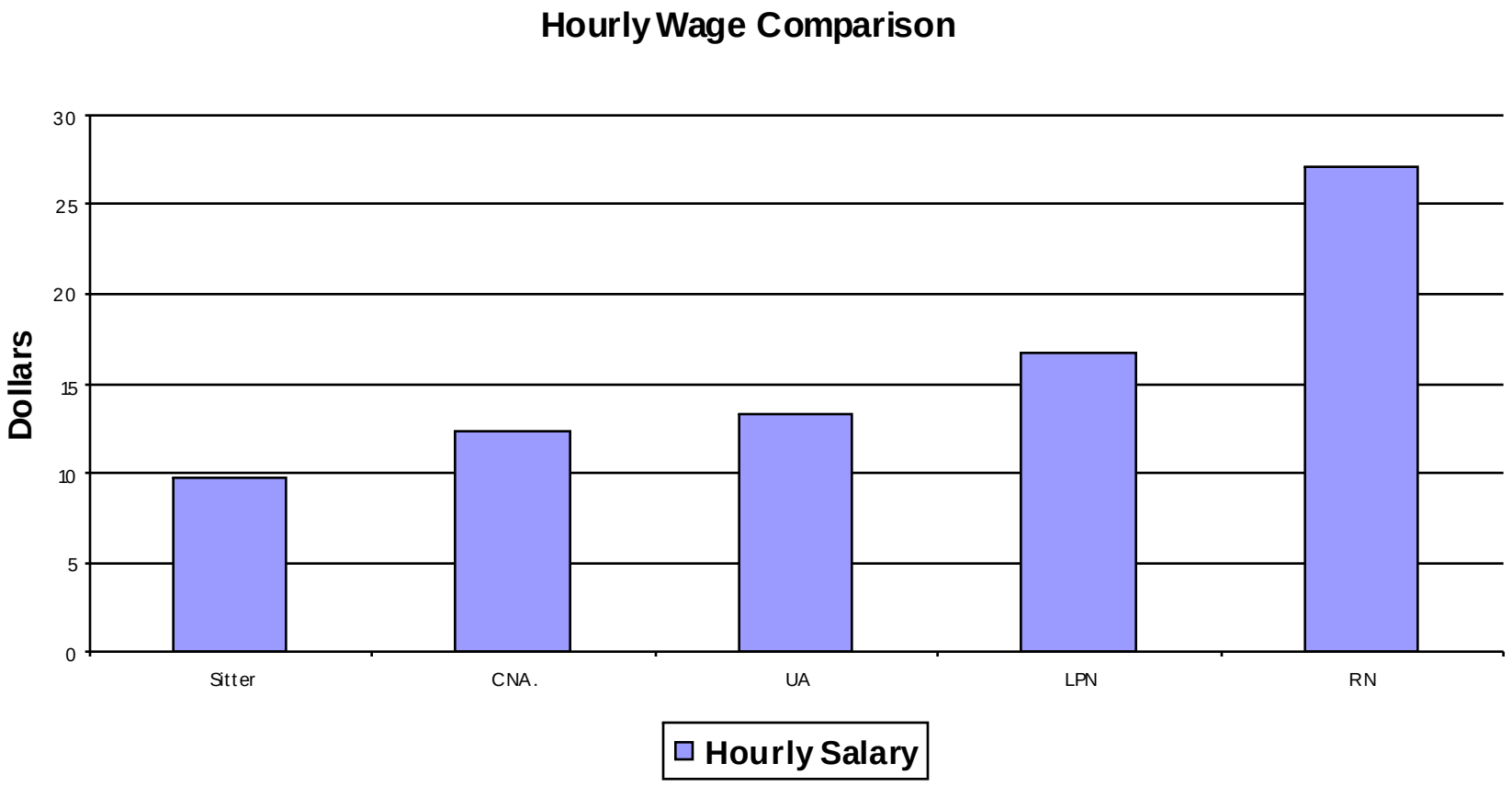
Interventions Used

- 1,024 Safety Checks were called with Vocera
  - Safety check required staff in close proximity to the patient's room to immediately go to the patient.
- 243 Calls into Patient Room using the nurse call system
- 90 times the Video Monitor Tech called a CNA/RN into Patient Room using Vocera.

Cost Comparison



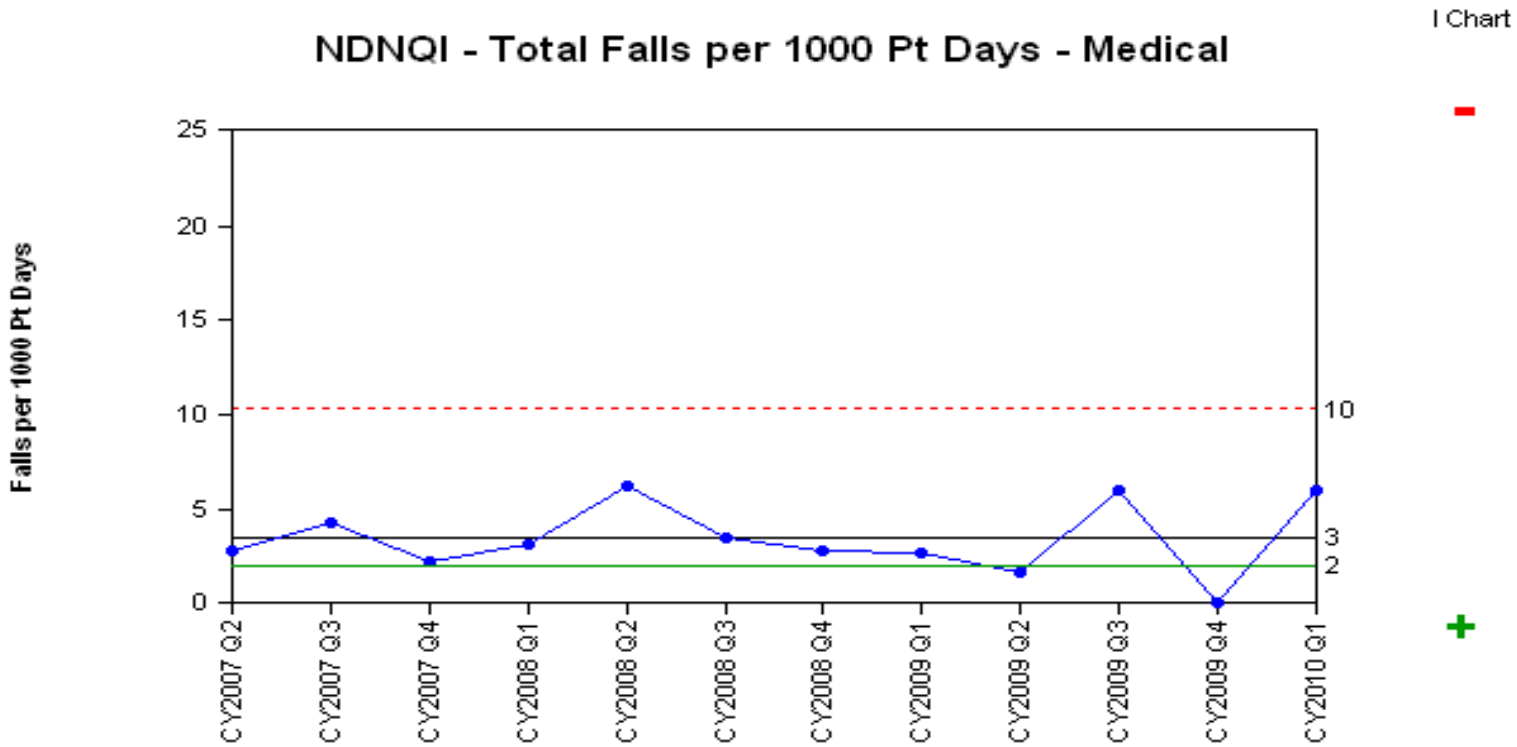
Hourly Wage Comparison



Positive Outcomes

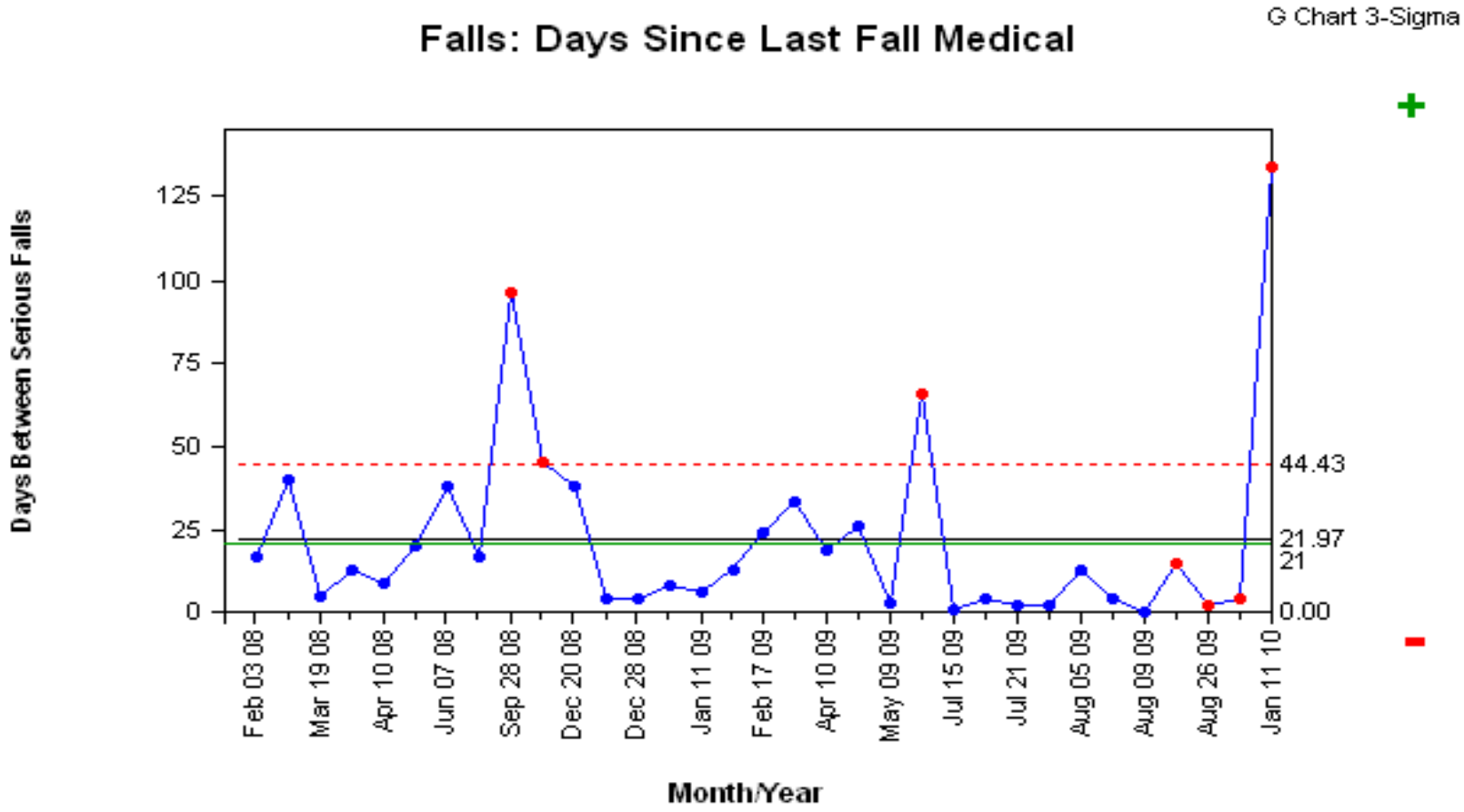
- No falls within the study population.
- 100 days without any falls all patients.
- One fall without injury on the Medical Unit during the study.
- Reduction of staffing costs approximately $69,451 (without benefits figured in).
- Family satisfaction related to loved one's safety.
- Staff satisfaction related to patient safety.

NDNQI Fall Data



	CY 07 Q2	CY 07 Q3	CY 07 Q4	CY08 Q1	CY 08 Q2	CY 08 Q 3	CY 08 Q 4	CY 09 Q1	CY 09 Q2	CY 09 Q3	CY 09 Q40	CY 10 Q1
Falls per 1000 Pt Days	3	4	2	3	6	4	3	3	2	6	0	6

Falls on the Medical Unit



Study Limitations

- Human Factor of possible inconsistency in recording observations.
- Cost data is inconsistent due to staff not using the secondary job code in time clock system.

Patient and Family Feedback

- When the monitor tech thought there was a washcloth on the floor called for a staff member to investigate. The staff member asked if she could enter the room and explained why. The son who was in the room stated, “You do what you need to do; this is an important thing you are doing with the camera.”

Patient and Family Feedback

- Patient's wife stated, "You came in at just the right time," after a safety check was called. Wife stated, "The video monitoring is very comforting."
- Patient's daughter stated, "Wow, technology these days, what a great idea. My Mom just fell last month and needed stitches. This makes me feel better with this."

Patient and Family Feedback

- Daughter of a patient with dementia stated, “I could leave knowing my Dad was being watched. What a wonderful thing to keep patients safe.”

Staff Feedback

- A nurse stated “I had a patient who was very spontaneous getting out of bed and because of the video monitoring we did not need to use a 1:1.”
- Video monitor tech, “This patient needs to be made a 1:1 because I am calling safety checks too much.” Reply from RN, “You are showing us that this is working, the patient has not fallen and the staff are responding.”

As a Result of the Study

- Created a proposal and spread plan for the creation of a Video Surveillance program for the inpatient units and received approval from senior leadership for implementation.
- House wide policy and procedure for video monitoring created from the study policy.
- Go live October 11, 2010

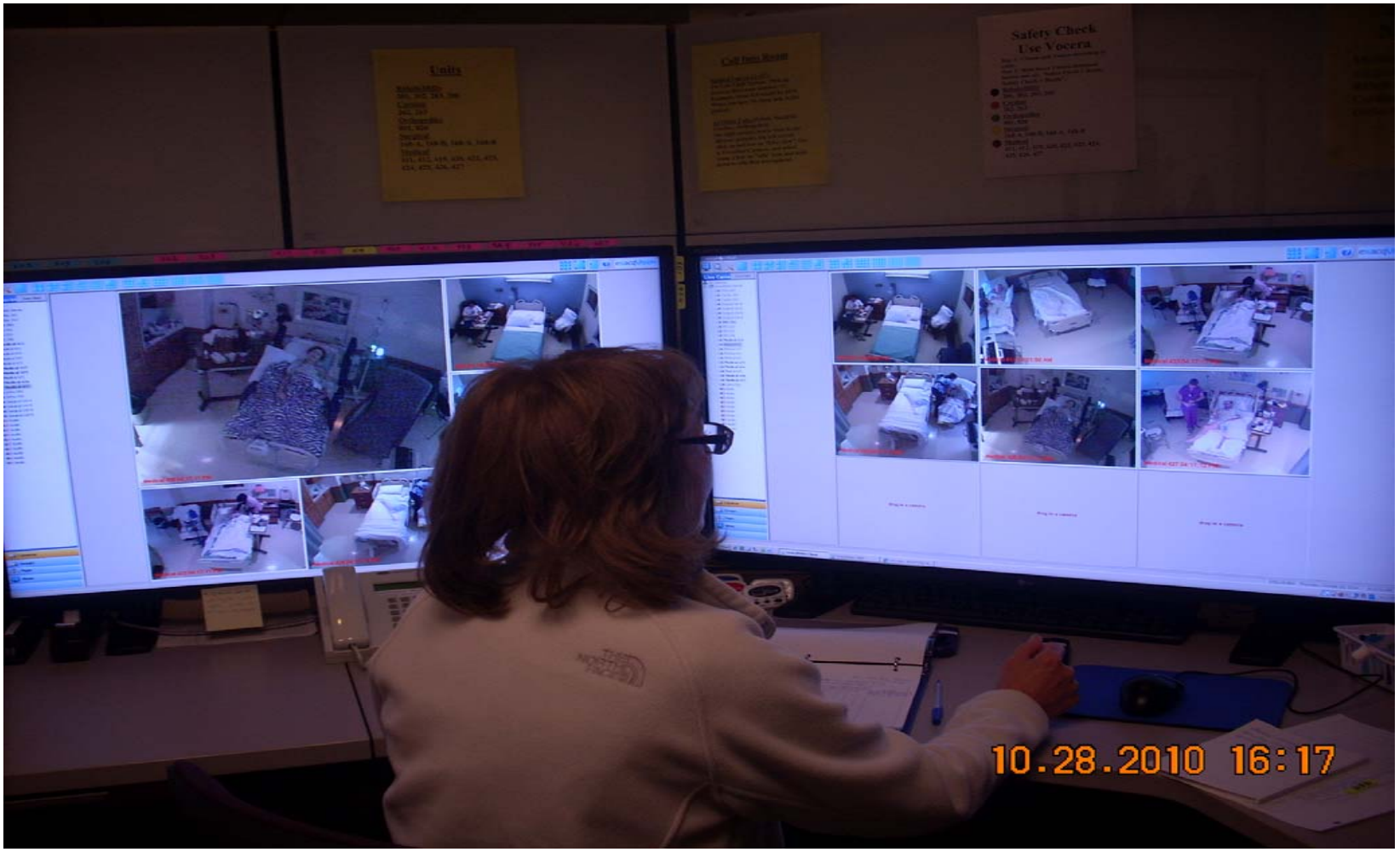
Program Expansion

- Install cameras in patient rooms on Surgical, Cardiac, Orthopedics, Inpatient Rehab, and Medical units based on sitter usage data.
  - Surgical 2 semi-private (2 cameras per room)
  - Cardiac 2 private
  - Orthopedics 2 private
  - Inpatient Rehab 4 private
  - Medical 6 additional (total of 10) private
- Reconfigured the viewing station located on the Medical unit to monitor patients on all units.

Cost to Implement

- 22 Low-light high resolution cameras
- 2 Viewing monitors
  - Equipment total $ $25,780
- Installation of cameras and monitors
  - Installation total $14,575
- FTE of 4.2 video monitoring staff
- Printed materials and in-room signage
- Education of staff on all units

Picture New System




Restricted
Area
Designated Staff
Only
For assistance please
go to main nursing
station, Thanks!
bellinhealth
10.28.2010 16:22


10.28.2010 16:17

Plans Post Implementation

- Return to the Internal Review Board for approval to Study the outcomes of the Video Monitor Implementation on Fall Reduction and Decreased Staffing Costs.
- Based on our findings create a plan for further expansion by adding more cameras.

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