Centralized Video Monitoring, Its Impact on Fall Prevention, Staffing and Labor Expense

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Acute Care Units
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Denver, CO
Denver Health Medical Center

- Safety Net Urban Hospital
- 525 bed Level 1 Trauma Center
- Denver’s EMS Paramedic Division
- Largest provider of care for the uninsured and Medicaid populations
- Largest provider to indigent population in Colorado (42%)
Target State

• Decrease 1:1 sitter observation by a minimum of 50% per day
• Reduce personnel expenses associated with 1:1 sitter utilization
• Decrease hospital fall rates to under NDNQI National Benchmarks
• Provide monitoring capabilities in all Acute Care nursing units
Reason for Action

- Falls – greatest number of non-fatal injuries
- Extend Length of Stay (LOS)
- Projected cost for falls in 2020 more than $43.8 billion nationally (Quigley)
- Increase pain and suffering
- 1:1 sitters were commonly used for fall prevention
- Labor expenses escalating
- Range of 20-30 sitter patients daily – 50% require 1:1 of CNAs (FTE) and agency CNAs
Discovery

- Literature search of camera surveillance technology
- Off site visit
- Telephone conversations with other hospitals
- Costs of equipment, installation and video monitoring technicians
- Staff concerns
Behind the Scenes

• Construction of Centralized Video Monitoring (CVM) room
• Ergonomics – chairs, placement of monitors
• Installations of cameras
• Information Technology, Environmental Services and Engineering
• Call system communication with patients and nursing staff
• Interdisciplinary committee meetings
• CVM signage
• Staff education
• Patient education
Centralized Video Monitoring

• 168 cameras placed above acute care beds  9/2010
• Central monitoring room with two video monitoring techs- (VMT) 24/7
• No need for a physician order or separate consent
  – Patient’s Nurse and Charge Nurse make decision
Patients' Rights and Ethical Issues

- Real time video does not record
- Legal Department
- Administrative Procedure
- Patient/Family must be informed
- Patient has right to refuse
Implementation

- Increase program awareness throughout the organization
  - Develop escalation criteria and improved communications between VMT’s and clinical staff
  - Complete staff competencies
  - House-wide education
  - Open house (monitor room)
  - Huddle sheet, Resource Guide
  - VMT Log
  - Electronic Documentation
Patient / Staff Education

- Hospital staff must be informed of the centralized video monitoring system and be able to identify the patients who are on camera-signage.
- Hospital staff must be informed their performance is not being evaluated.
- Patients must be informed of camera surveillance and provided with education sheet.
Standard Work

• Nursing:
  – Calls report to CVM room techs twice daily
    • Indicates the reason for CVM
    • Confirms patient is being monitored
  – CVM techs are informed when patient is leaving the room and when patient returns
  – Reports monitoring status during hand-offs
  – Documents and include in PSN if patient fell

• CVM Techs:
  – Report to oncoming shift
  – Use log to record near misses and interventions
  – Contacts patient at risk
  – Notifies nursing staff with “Monitor alert” or “Room xxx needs assistance” if patient is not re-directable
  – Documents in the electronic record, general interventions and if an incidence occurs
Standard Work

- Information Technology
- Help Desk Scripts
- Escalations for resolution of hardware and software issues
- Operational issues ex. Camera failure
## CVM Monitor Technician Work Log

### Patient Label

- **Date:**
- **Room No.:**

### Patient Criteria

- ☐ Meets Sitter Criteria
- ☐ Pt with Sitter

### Report Time

<table>
<thead>
<tr>
<th>Report</th>
<th>RN</th>
<th>CNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td></td>
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</tr>
</tbody>
</table>

### Diagnosis

- Fall
- Forgetful
- Flight
- Pulling Lines
- Seizures
- SMT Initials

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*Denver Health*

*Level One Care for ALL*
Nursing Documentation: Patient Care Actions

- Low Risk: Implement Low Risk Actions (as selected)
  - Cleared Obstacles
  - Encouraged Family to be With Patient
  - Encouraged Patient to Wear Glasses
  - Hourly Rounding
  - Monitored Lab Values, Oxygen Saturation
  - Oriented to Room/Bathroom
  - Placed Bed Low Position
  - Placed Call Light, Frequently Used Items Within Reach
  - Provided Adequate Lighting
  - Provided Non-skid Slippers
  - Taught Patient/Family on Medical Devices
  - Taught Patient/Family to Call for Assistance
  - Other (Please Describe)

- Moderate Risk: Implement Low and Moderate Risk Actions (as selected)
  - Assisted With Mobility
  - Bed/Chair Alarms
  - Bedside Commode/Urinal/Bedpan Available
  - Consulted Physical Therapy
  - Established Toileting Schedule
  - Notified the Physician of Risk
  - Placed Yellow Arm Band
  - Posted Yellow Risk to Fall Sign
  - Provided Diversional Activities
  - Raised 3/4 Siderails Up
  - Other (Please Describe)

- High Risk: Implement Low, Moderate and High Risk Actions (as selected)
  - Camera Surveillance
  - Increased Patient Visibility
  - Re-Oriented to Environment
  - Short-Simple Instructions Used
  - Sitter in Room
  - Used Protective Devices
  - Other (Please Describe)
## Fall De-brief Form

<table>
<thead>
<tr>
<th>Nurse:</th>
<th>Date of fall:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Who is the patient?**

- Name: 
- Room: 
- Time of last round: 
- Diagnosis:
  - Does the patient have impaired mobility? Yes ☐ No ☐
  - Is the patient in ETOH withdrawal? Yes ☐ No ☐
  - Does the patient have a cognitive impairment? Yes ☐ No ☐
  - Is the patient non-compliant with safety instructions? Yes ☐ No ☐
  - Is the patient a diabetic or insulin? Yes ☐ No ☐
  - Last blood sugar before the fall: 

**Describe what happened:**

- Were there assignment issues that may have contributed to the patient's fall (increased pt acuity, pt ratio, etc.): ☐

### What was the patient's injury level?

- None ☐
- Minor ☐
- Moderate ☐
- Major ☐
- Severe ☐

### Did the patient have any interventions / strategies in place at the time of the fall?

- Bed alarm ☐
- Camera ☐
- Chair alarm ☐
- Restraints ☐
  - wrists ☐
  - legs ☐
  - 1 SIDELAYS ☐
- Sitter ☐
- Bed in the lowest position ☐

**Where did the patient fall?**

- Room ☐
- Bathroom ☐
- Hall ☐
- Unknown ☐
- Other, please describe: 

**Where was patient going when they fell?**

- Bathroom ☐
- Commode ☐
- Hall ☐
- Other, please describe: 

**How can we prevent future falls similar to this one?**

- Bed alarm ☐
- Bedside commode ☐
- Camera ☐
- Chair alarm ☐
- Patient education ☐
- Positioning ☐
- Personal (pro-active toileting) ☐
- Placement of items close to the patient ☐

**Additional interventions put in place after the fall?**

- Ambulating aid ☐
- Bed alarm ☐
- Camera ☐
- Sitter ☐
- Remove obstacles ☐
- Other, please describe: 

**Additional Comments:**

*PT/OT Referral Guidelines following a fall: New mobility deficit; new visual difficulties associated with a fall; has sufficient...*
Insights During Pilot

- Observation of unanticipated patient needs
- Patient with inability to feed self
- Patient with decreased mobility
- Patient redirection when oxygen in use
- ETOH withdrawal
- Seizures
- Staff safety
Outcomes

• Prior to implementing program – estimate of 1:1 sitter use ranged to 30 sitter patients per day average of 11-1:1 sitter rooms /day
• The number of sitters decreased to approximately 7-1:1 sitter rooms /day
• Within first quarter of operation the $392,000 cumulative video monitoring technician deferred staff savings exceeded the original estimate of $305,000 passing the breakeven point.
Outcomes continued...

• As of September 2011, the CVM program has affected more than $1.15 million in deferred cost saving.
• Within first 3 months, 57 falls were prevented with a potential minimum savings of $24,225.
• 75% of the acute care units met or exceeded the NDNQI benchmark mean in the second quarter of 2011— the best performance in two years.
Utilization Sitter Weekly Summary

Patient Safety Monitoring Utilization Weekly Summary

Number of Distinct Rooms Where Monitored Patients had a Safety Attendant in the Room or were Only on Monitor

"Monitor Only" (green line) reflects the number of 24hr periods (two 12hr shifts) when an in-room CNA was replaced by remote monitoring.

"Monitor Only" line is ROOMS on the left axis and Dollars on the right axis. (Rooms * 24hrs * avg rate $14.51)

"Sitters" = number of CNAs assigned as safety attendant based on the nursing supervisor’s shift report (Sitters for Acute Care Units Only). "Monitor Only" rooms based on the monitor tech log.

Cost of Monitor Techs ($4,875/wk) is Subtracted from the Weekly Estimated CNA Savings

Average Daily Count of Rooms (Equivalent to 24h CNA x 7days)

Weekly Avg Monitor Only
Weekly Avg Sitters
Weekly Total CNA Savings

Weekly Total Estimated CNA Cost Savings

Week

Monday, October 31, 2011
Fall Data:

Falls / 1000 Patient Days: % of units that meet or exceed the benchmark

Injury Falls / 1000 Patient Days: % of units that meet or exceed the benchmark
## Reasons for Requesting Camera Surveillance

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elopement, Fall &amp; Patient Pulling at Lines</td>
<td>1.0%</td>
</tr>
<tr>
<td>Fall Prevention</td>
<td>50.5%</td>
</tr>
<tr>
<td>Fall and Safety</td>
<td>2.0%</td>
</tr>
<tr>
<td>Fall / OOB / Forgetful</td>
<td>2.0%</td>
</tr>
<tr>
<td>Falls and Patient Pulling Tubes / Drains</td>
<td>1.0%</td>
</tr>
<tr>
<td>Patient Safety</td>
<td>1.0%</td>
</tr>
<tr>
<td>Prevention of Elopment</td>
<td>1.9%</td>
</tr>
<tr>
<td>Staff Safety</td>
<td>2.9%</td>
</tr>
<tr>
<td>All of the Above</td>
<td>7.8%</td>
</tr>
</tbody>
</table>
CVM Tech Great Saves

• “Patient about to get out of bed, monitor alert called and staff ran to the rescue. They were in the room within 3 seconds. Patient saved from falling.”
• “Patient was leaving out of side of bed trying to get food tray, staff called and responded in seconds stopping patient from falling out of bed”.  
• “Patient took tape from rail and taped the soft wrist restraint to feet like a Greek sandal. He proceeded to start skating around room. We called nurse/front desk/ patient. Patient redirected before he could fall”.

Implications for Practice

• Legal Department must be included
• Staff must be reassured their practice is not being evaluated
• Increased need for more monitors
• Include CVM as a patient charge
• Continue to look for opportunities- falls cannot always be prevented
• Communication challenges
• Staff safety
• Secondary goal to reduce elopements- camera view is static
It Takes a Village!
A Special Thank you to:

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- Kelly Murphy, CNA – Monitoring Tech
- Jacob Pratt, CNA – Monitoring Tech
- Mike James, CNA – Monitoring Tech
- Lauren Corray, CNA – Monitoring Tech
- Joseph Hall – Desktop Team Lead
- Chris Burnett – Cabling Team Lead
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Thank you for your attention!