HUSH
“Quiet ICU”
American Association of Critical Care Nurses
CSI Project Grant
Marion Daku, RN, BSN, CCRN
Heather Koch RN
Eva Fox, RN, BSN
Coach Carolyn Davidson RN, PhD, CCRN, ARNP, CPHQ
Intensive Care Unit – Muhlenberg Campus

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What is CSI?
Clinical Scene Investigator Academy

- 16-month nursing excellence and leadership training program
- Designed to leverage the staff nurse's expertise to enhance patient care and decrease hospital expenses
- Helps hospitals with implementation tools and funding to groom nurse leaders who implement change initiatives
- Goal - improved patient and fiscal outcomes
Our CSI Project

- **H** – Helping
- **U** – Understand
- **S** – Sleep
- **H** – Heals
**Project Purpose**

- Improvement of HCAPHS and Press Ganey scores
- Safer decibel levels
- Increased patient sleep Quality
- Success of newly initiated “quiet times”
- At least a 60% increase in staff satisfaction with decreased noise levels by project end
- An overall decrease in controllable alarms by 50%

↓ in level of noise & number of controllable alarms to promote ↑ patient and staff satisfaction
Why We Care

↑ Noise Levels
↓
Poor Sleep Quality
↓
Slower healing, poor immune response, ↓cognitive function, ↑LOS
Background

Primary health effect of noise is disturbed sleep and rest

As much as 57% of ICU patient arousals and awakenings are due to noise

It can take as little as 24 to 48 hours for the body to react negatively to lack of sleep

Some ICU patients are disturbed every 20 minutes while trying to sleep

Sleep deprivation has been linked to:
- patient falls
- use of restraints
- confusion
- and medication

Florence Nightingale’s Environmental Theory describes noise as:
“that which damages the patient”
What Contributes to Our Noise?

- Overhead Hallway vent alarm (OFF) 90+ dB
- Portable X-ray machine 80.2 dB
- Slamming drawers 77.9 dB
- Overhead paging 74.1 dB
- Linen and food carts 66.9 dB
- Pneumatic tube station 67.5 dB
- Telephones and pagers 68.2/72.1 dB
- Opening of trash bags 69.6 dB
- Ventilator alarm 64.2 dB
- Loud staff, Patients, visitors 60.7 dB
- Empty room 42.5 dB
Activities and Key Dates

Aug 5 – Sept 8, 2013:
- Pre-project data collection
- Staff Survey
- The Learning Curve Power Point Presentation
- Decibel Measurements
- Alarm Counts
- Richards Campbell Sleep Questionnaire

Sept 9-13, 2013: Launch Week
- Spoke with staff during safety huddles
- Handed out project H.U.S.H. T-Shirts & pens
- Signage posted around unit
- Data Collection

December 2013- March 2014: Mid Project Data Collection
- Decibel Measurements
- Alarm Counts
- Richards Campbell Sleep Questionnaire
- Question/Answer Luncheon for unit and multidisciplinary staff
- LVH Quality Retreat Presentation

April 2014- July 2014: Complete post-project data collection
- Staff Survey
- Decibel Measurements
- Alarm Counts
- Richards Campbell Sleep Questionnaire
- Purchase sound machines for unit
- Magnet ® Champions Presentation
- Evidence- Based Practice /Nursing Research Council presentation

August-October 2014: Post project
- Staff Party with gift
- Sleep Saks available for patients
- Obtain "Quiet Hours" signs
- Innovations Conference
- Nursing Research & Quality Day Presentation
Key Challenges to Our Project

- Difficulty compiling data with respect to time constraints
- Underwhelming interdisciplinary support
- Lack of reporting of CAM scores at the beginning of the project
- Ability of the group to meet
- Staff turnover
- Staff compliance
Make it Happen

- Collaboration between ICU staff members and the multidisciplinary team
- Initiation of new set “quiet times:” 1am-4am and 2pm-4pm
- Use of better alarm parameters and adjustments
- Newly developed algorithms for better alarm management
- Better staff understanding of scores and survey questions

➢ RECENTLY ADDED
Increased signage
Sleep saks
Cardiac Monitor Algorithms

Bradycardia Alarm

Assess Patient

Is this a New Rhythm?

Yes

Consider Treatment

No

Is this the Patient’s Persistent HR?

Yes

Set Low HR parameter - 5 Beats Under Current Persistent HR

No

No

Consider Treatment

Tachycardia Alarm

Assess Patient

Is the cause of this alarm Artifact?

No

Is this a New Rhythm?

No

Is this the Patient’s persistent HR?

Yes

Adjust HR Alarm Setting - Increase to 10 Beats Higher Than Persistent HR

Consider Treatment

Rule Out Pain & Anxiety

No

Consider Reasons for Artifact

Yes

Yes
During “Quiet Time”

- Unit lights dimmed
- Blinds closed
- Telephone and television volumes decreased
- Headsets and earbuds provided
- Staff interact quietly and remind anyone entering the unit that “quiet time” is in progress
- Staff make every effort to limit nursing activities and not enter patient room unless necessary
- Patient doors closed if safe to do so
- Necessary therapeutic interventions performed as quietly as possible
Measurement and Evaluation Tools

- HCAHPS scores
- Press Ganey Scores
- Staff survey
- Manual alarm counts
- Decibel meter readings
- Phillips monitor alarm trigger printouts
- Richards Campbell sleep study
HCAPHS/Press Ganey

HCAPHS/Quietness target: 54.17
Press Ganey: No score if n < 7
Staff Survey - Pre Project

Rate your impact on the noise level

- 58% felt that they had no impact on the noise level

Satisfaction with noise on the unit

- 34% of staff are rarely satisfied with the noise level

How often do you think patients get > 2 hours uninterrupted rest

- 39% of staff feel that their patients get 2 hours of uninterrupted rest

How often are you distracted by alarms during your shift

- 53% of staff are always or often distracted by alarms
Staff Survey - Project end

- **Rate your impact on the noise level**
  - 32% felt that they had no impact on the noise level

- **Satisfaction with noise on the unit**
  - 3% of staff are rarely satisfied with the noise level

- **How often do you think patients get > 2 hours uninterrupted rest**
  - 84% of staff feel that their patients get 2 hours of uninterrupted rest

- **How often are you distracted by alarms during your shift**
  - 32% of staff are always or often distracted by alarms
# Manual Alarm Count Sheet

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<th>TIME/ALARM</th>
<th>VENT /BIPAP</th>
<th>EKG</th>
<th>All BP</th>
<th>SaO2</th>
<th>Apnea</th>
<th>IV Pump</th>
<th>Bed Alarm</th>
<th>Pt Request</th>
<th>Loud STAFF</th>
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Decibel Reader: (at least every 15 minutes during count)
What we have Learned

False alarms have been decreased by 69%

Pre-launch

Launch
We have decreased our EKG alarms by 75%.
But in turn we have increased our Pulse ox alarms by 50%.
Loudest/Quietest

Loudest - 10am-12pm (avg. dB 53.3)
Quietest - 2am-4am (avg. dB 45.6)
Length of Stay was decreased by an average of 0.74 days from July 2013-June 2014.
Richards Campbell Sleep Questionnaire (RCSQ)

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Each of these questions is answered by placing an “X” on the answer line. Place your “X” anywhere on the line that you feel best describes your sleep last night. The following are examples of the type of questions you are to answer.

**EXAMPLE A**
Right now I feel:

Very Sleepy X Not sleepy at all

If you were very sleepy, you would place an “X” as is shown at the beginning of the line next to the words “Very Sleepy.”

**EXAMPLE B**
Right now I feel:

Very Sleepy X Not sleepy at all

If you were somewhat sleepy, you would place an “X” near the center of the line. Mark the answer line near the center to indicate the answer “Somewhat Sleepy.”

**EXAMPLE C**
Right now I feel:

Very Sleepy X Not sleepy at all

If you were not sleepy at all, you would place an “X” at the end of the line next to the words “Not Sleepy At All.”

Please turn to next page
What the RCSQ scores tell us

- Nursing rated patients sleep deeper than patients by 8%
- Patients fell asleep faster than nursing thought by 6%
- Nursing felt patients were awake longer than they were by 6%
- Nursing felt that patients got back to sleep faster by 3.7%
- Patients rated their night’s sleep better than nursing by 13%
- RCSQ score was higher for nursing than patients by 3.5%

*** Patients slept better than we thought

Question 6: Very Quiet  0 -- 100  Very Noisy

- Nursing rates the noise level at night: 37
- Patients rate the noise level at night: 41

Nursing rates the unit slightly quieter at night than the patients do.
Unintended Successes

- Patients are thankful for “nap time”
- During Quiet Time, nursing is able to catch up on documentation, chart review, orders and other tasks
- Visibility of decibel meter may have influenced awareness
- Future collaboration with hospital wide Night Shift Nurse Council working on decreasing noise
- Opportunity to work with summer Research Scholar
- Multiple Presentations of our project outside our Hospital Network
Continue to Stress... for Success

- Customize Alarms to the patient
- Alarm Fatigue
- Lack of Sleep and Health Risks
- Safer Decibel Levels
- HCAPHS Press Ganey

Better Outcomes

Quiet Time

Patient and Staff Satisfaction
Maintaining & Sustaining

- Include interventions within unit orientation
- Reinforce quiet times to family, staff and interprofessional colleagues
- Designate unit champions
- Hardwire expectations into daily practice
Potential Fiscal Savings

CMS Reimbursement
- LVHN in jeopardy of losing 1.5 million dollars if HCAHPS scores do not reach set benchmarks
- Muhlenberg responsible for 20% ($300,000)
  - ICUM responsible for 4% ($12,000)

Job Retention for RNs
- Nursing turnover can cost a hospital approximately $88,000 per nurse, when an RN leaves their position
Length of Stay
- Length of Stay in ICUM has decreased by 0.74 days
  - The reduction in LOS cannot be solely attributed to the CSI project, as there are many factors that impact LOS, including sleep
- Savings of $2,590 per patient (based on average cost of $3,500 per ICU day)
- July 2013-July 2014 census was 1,948
  - Projected annual savings of 5,045,320.

Patient Safety and Loyalty
- Unable to place $ on this
References


References


Questions?