Delirium:

Let’s Clear Up the CAMfusion

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Tisch Hospital
- Academic Medical Center
- 705-Bed Acute-Care Tertiary Facility
- 18 Medical ICU Beds
- 9 Surgical ICU Beds
- Magnet Recognized (3 consecutive times)
Purpose and Goals

- Educate staff on proper use and implementation of Confusion Assessment Method (CAM) and CAM-ICU delirium assessment tools
- Improve accuracy and compliance with delirium assessments
- Increase interdisciplinary communication and validation of delirium as significant to plan of care
- Heighten staff and family awareness of delirium
- Identify methods to properly recognize, prevent, and treat delirium
Key Delirium Statistics

- Undiagnosed in > 66% of patients\(^1\)
- Associated mortality rate is 35% – 40%\(^2\)
- Prevalence in ICU patients is 70% – 87%\(^2\)
- Incidence in ICU patients is 30% – 50%\(^2\)
- Up to $6.9 billion in annual Medicare hospital expenditures\(^2\)
- Associated with 39% higher ICU costs\(^3\)
Key Activities and Dates

- Improve education, accuracy, and compliance regarding delirium assessments
  - Staff education started: March 18, 2014 (88% of staff educated)
  - Online eLearning modules approved: September 2014
- Heighten awareness of delirium and its effects
  - Interdisciplinary Checklist: February 2014
  - Educational tools for staff and families: June 2014
- Implement preventive and treatment measures
  - Quiet Time pre-data: February 2014, post-data: September 2014
  - Nursing interventions reinforced: started March 2014
Activity Timeline

- **Sep 2013**
  - Literature Review & Baseline Data

- **Oct 2013**
  - Engage Stakeholders & Interdisciplinary Team

- **Nov 2013**
  - Establish Staff Competency

- **Dec 2013**
  - EHR Configuration and Report Data Establishment

- **Jan 2014**
  - Advertised project & initiatives

- **Feb 2014**
  - Partnership and Collaboration with NICHE and Hartford Institute

- **Mar 2014**
  - Staff Education

- **Apr 2014**
  - Family Education

- **May 2014**
  - Noise Level Baseline Data Collection

- **Jun 2014**
  - Developed Additional Learning Tools: Brochures, Posters, Mouse pads

- **Jul 2014**
  - Data Collection: Compliance, Accuracy, and Incidence

- **Aug 2014**
  - Revised Interdisciplinary Checklist

- **Sep 2014**
  - PT/OT’s ICU Early Mobilization Project

- **Oct 2014**
  - “ADCDEF” Initiatives
Budget and Expenditures
$10,000 Grant Itemization

- Advertising Poster
- Noise Detector Device
- Quiet Time Posters and Brochures (+Design/Labor)
- Pens, Mousepads, Badge Reels (+Design/Labor)
- Kick-Off Party
- In-service events (w/ food+beverages)
- *Additional brochures
- *Various Gift Cards
- *Penlights
- Advertising Poster (Logo)
- Alloted for RN Salary
Measured Goals

Awareness and Education of Staff

- Individual and group inservices
- Pre/Post-Delirium Competency Test (modified Hartford Institute Exam)
- ICU-based scenario case study questions
- Pre/Post-Education Questionnaire

CAM/CAM-ICU Education

- Pre-Test: 81.4
- Post-Test: 97.1
CAM/CAM-ICU Pre/Post-Education Questionnaire Results

**Question #1:** Are you comfortable using the CAM/CAM-ICU tool?
- Yes: 13
- No: 23
- Blank: 2

**Question #2:** Do you know the difference between CAM and CAM-ICU?
- Yes: 35
- No: 4
- Blank: 2

**Question #3:** Do you know which nursing interventions decrease delirium?

(*n=41)
Custom Learning Tool

CAM-ICU Algorithm Mouse Pads

Let's Clear Up the CAMfusion!

**FEATURE 4 ACTIVITY LIST**

**Questions**
1) Does a stone float on water?
2) Are there fish in the sea?
3) Does one pound weigh more than two?
4) Can you use a hammer to pound a nail?

**Commands**
1) "Hold up this many fingers" (Show, do not say amount)
2a) "Do the same with the other hand" (Do not demonstrate)
2b) "Add another finger." (If patient is unable to hold up other hand)

If patient is unable to move either arm, use questions only

**FEATURE 1**

Acute Onset or Fluctuation
Has there been a change in Mental Status in the last 24 hours?
If No
If Yes

**FEATURE 2**

Inattention
"SAFEHAART" — Squeeze my hand anytime I say the letter ‘A’
If ≤ 2 errors
If > 2 errors

**FEATURE 3**

Level of Consciousness
(Use RASS score)
If RASS ≤ 0
If RASS > 0

**FEATURE 4**

Disorganized Thinking
4 Questions and 2 Commands
(see Feature 4 Activity List)

**START**
What is the RASS Score?
If ≥ 0
If ≤ 0

**STOP**
Ineligible for CAM-ICU
CAM-ICU NEGATIVE
CAM-ICU POSITIVE
Measured Goals (cont.)

Awareness and Education of Family

- Posters placed around unit for awareness
- Educational brochures developed and distributed
  - Assessed national literacy rate
  - 4th grade reading level to ensure comprehension
Measured Goals (cont.)

Appropriate Documentation

- Electronic health record report logs and chart audits
- Spot checks
CAM/CAM-ICU Documentation Compliance
March 24, 2014 – May 31, 2014

Day Shift

- Days Documented at least one CAM/CAM-ICU (n= 656)
- Days - No Documentation (n= 94)

Night Shift

- Nights Documented at least one CAM/CAM-ICU (n= 572)
- Nights - No Documentation (n= 178)

n = 750 (expected documentation based on daily unit census)
CAM/CAM-ICU Documentation Accuracy
March 24, 2014 – May 31, 2014

Day Shift

- Correct - Days (n= 781)
- Incorrect - Days (n= 313)

Night Shift

- Correct - Nights (n= 588)
- Incorrect - Nights (n= 201)

Total # of Times Documented (n=1094)

- 71%
- 29%

Total # of Times Documented (n=789)

- 75%
- 25%
CAM/CAM-ICU Documentation
Night Shift - Compliance & Accuracy
March 24th - May 31st, 2014

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<th>Accuracy - Nights</th>
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<tr>
<td>10</td>
<td>81%</td>
<td>71%</td>
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Measured Goals (Cont.)

Noise Levels

- Noise detector device to measure sound levels on unit
- Tracks occurrence of loud moments
  - Average ICU sound level: 50 dB – 75 dB
  - Optimal sound level for sleep: < 30 dB
- Data collected before Quiet Time implementation
  - February 27, 2014 – May 29, 2014
  - From 2 a.m. – 4 a.m.
  - Tracked number of loud occurrences > 50 dB

*Noise detector’s lowest threshold is limited to 50 dB
Noise Levels: Pre-Quiet Time
March 20, 2014 – April 30, 2014: 2 a.m. – 4 a.m.

Mean = 22.2 times
* 18 randomized days throughout = 1 month period
Noise Levels: Post-Quiet Time

September 6, 2014 – October 1, 2014: 2 a.m. – 4 a.m.

Mean = 16.9 times
* 18 randomized days throughout ≈ 1 month period
NYULMC MICU Fiscal Impact

January 2013 – January 2014

- Total MICU census: 1,080 patients
- Average length of stay in MICU: 4.81 days
- Average cost of ICU bed per day (direct + indirect costs): $3,495
- Average total ICU cost of each case: $16,810
  - Potentially save up to 39% ≈ $6,556 per case
  - Incidence of delirium is about 30% – 50% of patients

Total Potential Savings

$3.3 million per year (with 30% incidence)  $5.5 million per year (with 50% incidence)

Note: A decrease in LOS cannot be solely attributed to the CSI project; however, decreasing delirium is a significant contributor to LOS.
NYULMC MICU Fiscal Impact (Cont.)

Unable to identify Institutional Fiscal Impact at this time due to:

- Lack of baseline data
- Lack of manpower
- Lack of time
Challenges and Solutions

Nursing

- Sparking Interest: “How is this going to make a difference?”
  - Created relatable unit-based scenario/education packets
  - Increased marketing and advertising of project
- Time for Nursing Education and Assessment
  - 1-on-1 or small group inservices < 10 minutes
  - Increased applicability by using common unit-based patient scenarios
- Sustainability
  - Develop and maintain tool’s hospital-wide annual competency
  - Incorporate tool in unit meetings/AM huddles to maintain awareness of practice
Challenges and Solutions (Cont.)

Interdisciplinary

- Lack of Baseline Data/Limited Knowledge
  - Our project data collection = baseline data for NYULMC
  - Worked with IT to generate daily CAM/CAM-ICU reports
- Not Discussed in Rounds
  - Revised our Interdisciplinary Rounds Checklist
  - Interdisciplinary team partnerships – Physical Therapy, Occupational Therapy, and Respiratory Therapy
- Lack of Evidence-Based Treatment
  - Enhanced alignment with ABCDEF bundle
  - Focus on nursing interventions to prevent delirium
Challenges and Solutions (Cont.)

Personal

▪ Time and Resources
  ▪ Designated unit champions to help reinforce and maintain project initiatives

▪ School, Job/Role Changes, Family
  ▪ Maintained personal responsibility to project and team
  ▪ Worked closely with critical care director and nurse manager to schedule time to work on project

▪ Loss of Project Coach
  ▪ Connected with people from established relationships to find an interim coach
Primary Outcomes and Improvements

- Demonstrated positive outcomes associated with staff education
- Established qualitative data that staff comfort with assessment tool affects proper use and implementation
- Improved interdisciplinary communication by including delirium assessment in daily rounds
Primary Outcomes and Improvements (Cont.)

- Established baseline data using electronic health records and means of tracking
- Increased staff and family awareness of delirium and its effects
- Increased documentation compliance and accuracy of CAM and CAM-ICU
- Decreased average noise level overnight in ICU
Secondary Outcomes

Enhanced Nurse-Driven Partnerships
- Engagement with Hartford Institute for Geriatric Nursing
- Participation in NYU’s Nurses Improving Care for Healthsystem Elders (NICHE) Steering Committee
- Geriatric Nurse Practitioner Marilyn Lopez and geriatric consults
- Physical Therapy – ABCDEF Bundle (Early Mobility)
- Respiratory Therapy – ABCDEF Bundle (Awakening & Breathing Coordination)
Secondary Outcomes (Cont.)

- Revision of Interdisciplinary Rounds Checklist
- Identification of gap in electronic health system with documentation using CAM/CAM-ICU
- Validation of CAM/CAM-ICU as a required education competency
- Expert panel discussion with NYU’s 2014 McClure Scholar, Dr. Linda Cronenwett
- Featured in article: ADVANCE for Nurses, March 2014
Maintenance and Sustainability

- Hospital-wide e-learning modules as annual competency
- Maintain annual hands-on competencies for CAM/CAM-ICU tool
- Evolve relationship with NICHE committee, and collaborate with Geriatric Consult Team
- Integrate Interdisciplinary Rounds Checklist house-wide
Maintenance and Sustainability (Cont.)

- Educate unit champions
- Hold competency fairs
- Present at conferences
- Continue to develop goals and report outcomes
- Collaborate with research team to monitor and track data
Project Takeaways and Learning

- Assessing for delirium and its effects using CAM/CAM-ICU tool
- What it takes to be a change agent
- How to overcome barriers and challenges
- How to change a culture
- Identifying key stakeholders, and developing working relationships
- Seeing the hospital function as a business
- Appreciating expertise of others
Thank You

Thank you to the following people for their efforts and continuing support of our project:

AACN CSI Head Coaches:
- Marian Altman, RN, MS, CNS-BC, ANP
- Debbie Brinker, MSN, RN, CNS
Thank You *(Cont.)*

**NYULMC**

- Judy Dillworth, MA, RN, CCRN, NEA-BC, FCCM
  - Director of Critical Care (Coach)
- Natalie Fucito, BSN, RN, CCRN
  - Nurse Manager – Medical ICU
- Kimberly Glassman, PhD, RN, NEA-BC
  - Chief Nursing Officer
- Marilyn Lopez, RN, MA, GNP-BC
  - Geriatric Nurse Practitioner
- Peri Rosenfeld, PhD
  - Director of Outcomes Research & Program Evaluation (Interim Coach)
References