

ICU Restraint Reduction: Development of Evidence Based Tools to Guide Interventions

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FastTrac™ Methodology to Reduce Restraint Use and Improve NDNQI Data

Problem Statement

Restraint use in many ICUs was above the NDNQI benchmark for hospitals with 500 or more beds. It is imperative that nurses ensure patient safety and dignity as well as the basic right of a patient to be free from restraint. How can we move closer to, or get below, the NDNQI benchmark of 20.89% while still ensuring patient and staff safety?

Benefits

- Improved Patient Safety
- Improve Patient and Family Satisfaction
- Maintain Clinician Safety

Fastrac™ Team

Physician and Nursing leadership, staff nurses and nurse educators.

Significance

- **ICU patients are frequently intubated and prone to develop pain, anxiety and delirium; assessing and treating the underlying causes, is imperative**
- **Early extubation through “sedation vacation” reduces the need for restraints**
- **Managing and monitoring patients at risk using innovative tools and family involvement while maintaining patient safety can reduce the need for restraints**

Most Wanted Improvements (MWIs)TM

- **ICU Restraint Best Practices Across ICUs and within Other Similar Healthcare Organizations**
- **Develop a Family Education Brochure**
- **Ventilator Liberation Algorithm**
- **Restraint Minimization Algorithm**

ICU Best Practices

- Phone conferences conducted with similar healthcare organizations
- Inquiries on List Serves were reviewed
 - *Results- across the country: all tertiary large teaching organizations are struggling due to patient acuity. No significant best practices identified*

Family Education Brochure

Family Education Brochure

What can loved ones do to help?

- Do not manipulate, loosen or tighten the restraints once placed on your family member
- Direct all questions about the restraints towards your nurse or primary doctor.
- Find family members who are willing to stay with your family member during the most wakeful hours.
- Provide your family member with their hearing aids and/or glasses.
- Inform the nurse and/or doctor of your family members normal routine and if there is anything specific that the patient needs to do on a daily basis. Also inform the team about their routine with medications.
- Remember to remain calm and collected in their presence as much as possible.



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INFORMATIONAL PAMPHLET

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Restraints In The ICU And Your Family Member

Education to prepare you and your family member for the possible use of restraints and their stay in the Intensive Care Unit.

Family Education Brochure

What are restraints?

- A restraint is anything that will limit the movement of the patient.
- Examples are: wrist straps, ankle straps, mitts, and vests.

Who needs restraints?

- A patient who is confused and/or agitated.
- A patient who is at risk of removing medical devices. For example: breathing tubes, IV lines, other catheters.

Why are they used?

- To prevent patients from scratching or pulling at incisions and dressings.
- To protect the patient from hurting themselves or others.

Are there alternatives?

- Family members can stay with the patient to help orient the patient and assist with behavior.
- Keeping the environment of the room calm, quiet, and relaxed.
- Distracting the patient with activities.
- Utilizing a bed and chair alarm.
- Offer your family member objects to distract them, ie personal objects, toys, pictures, stress balls, etc.
- Read and have conversations with them.
- Listen to calming or their favorite music.
- Watch TV with them.
- Ensure that their pain is treated and controlled so that it is tolerable for your family member.

Who can remove the restraints?

- The nurse that is taking care of the patient at that time.
- The nurse should also involve the family, the doctor, and any other assisting personal in the decision to remove the restraints

When will the restraints be removed?

- As soon as possible, when the patient is safe from harm and the reason that the restraints had been applied has been adequately resolved.
- Occasionally, restraints will have to be reapplied shortly after removal because the staff may feel the patient isn't safe enough to be unrestrained.

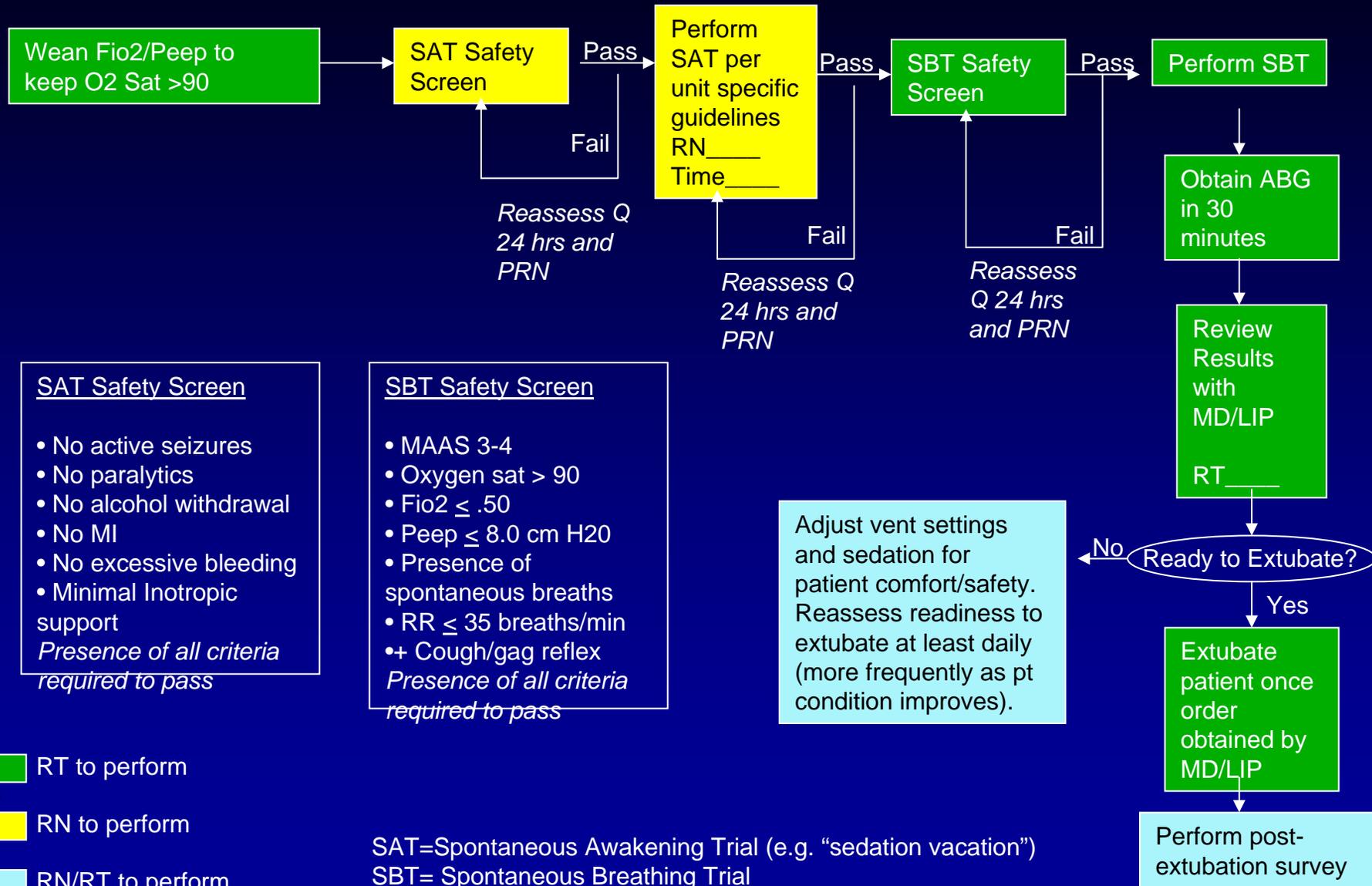
Ventilator Liberation

Algorithm

Early Weaning and Extubation

Ventilator Liberation Process

Patient Sticker



SAT Safety Screen

- No active seizures
- No paralytics
- No alcohol withdrawal
- No MI
- No excessive bleeding
- Minimal Inotropic support

Presence of all criteria required to pass

SBT Safety Screen

- MAAS 3-4
- Oxygen sat > 90
- Fio2 ≤ .50
- Peep ≤ 8.0 cm H2O
- Presence of spontaneous breaths
- RR ≤ 35 breaths/min
- + Cough/gag reflex

Presence of all criteria required to pass

Adjust vent settings and sedation for patient comfort/safety. Reassess readiness to extubate at least daily (more frequently as pt condition improves).

RT to perform

RN to perform

RN/RT to perform

SAT=Spontaneous Awakening Trial (e.g. "sedation vacation")

SBT= Spontaneous Breathing Trial

This document is not permanent part of medical record

Algorithm References

Spontaneous Awakening Safety (SAT) Screen Failure

- Anxiety
- Agitation
- Pain
- Respiratory Rate > 35 breaths per minute
- SpO2 <88%
- Respiratory Distress
- Acute Cardiac Arrhythmia

Spontaneous Breathing Trial (SBT) Failure

- Respiratory Rate > 35 breaths per minute
- Respiratory Rate < 8 breaths per minute
- SpO2 < 88%
- Respiratory Distress
- Mental Status Change
- Acute Cardiac Arrhythmia

Post-Extubation Safety Survey

- Strong cough, Able to maintain airway/clear secretions
- Able to vocalize
- Calm and Cooperative
- Awake and Alert, Able to follow simple commands
- No Stridor
- Hemodynamically Stable
- Perform Survey Q15 mins for one hour following extubation.
- No change in mental status

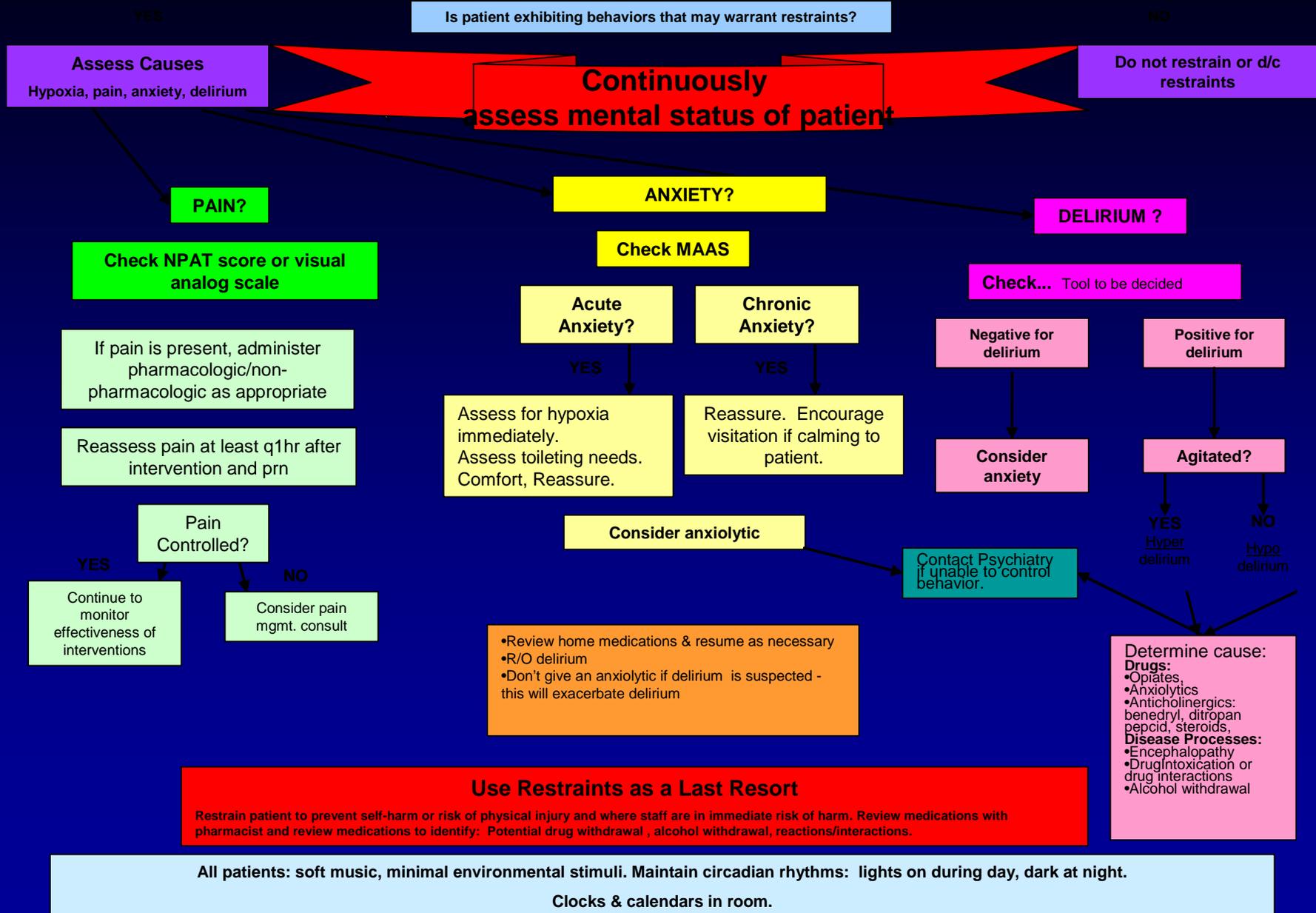
Unit-Specific Customization

Restraint Minimization

Algorithm

Decision Algorithm

ICU Restraint Minimization Algorithm



Implementation During Q4 2010

- **The final products were presented to all ICU leadership and key stakeholders**
- **To promote the use of the tools, a poster of the interventions was developed and displayed at competency days for viewing**
- **Posters were then distributed to each ICU and education provided to nursing staff by Clinical Instructors and Clinical Nurse Specialists**
- **The brochure was made available to all families of ICU patients**
- **The ventilator liberation algorithm was also distributed to ICU Respiratory Therapists and Medical Directors**

ICU Restraint Minimization Algorithm

Is patient exhibiting behaviors warranting restraints?

★ First Assess for hypoxia ★

Assess for
PAIN

Assess for
ANXIETY

Assess for
DELIRIUM



Use Restraints as a Last Resort

Restrain patient to prevent self-injury & where staff are in immediate risk of harm. Review medications to identify: Potential drug / alcohol withdrawal, or reactions/interactions.

Ventilator Liberation Process

- **Daily** Assessment of Readiness to Extubate
- **Daily** Awakening (e.g. "Sedation Vacation") & Breathing Trials per unit protocol
- **RN** and **respiratory therapist** driven process!



Restraint use in our ICU's is above the NDNQI benchmark for hospitals > 500 beds. As nurses, it is imperative that we ensure patient dignity, safety and the basic patient right to be free from restraints.

Family Brochure

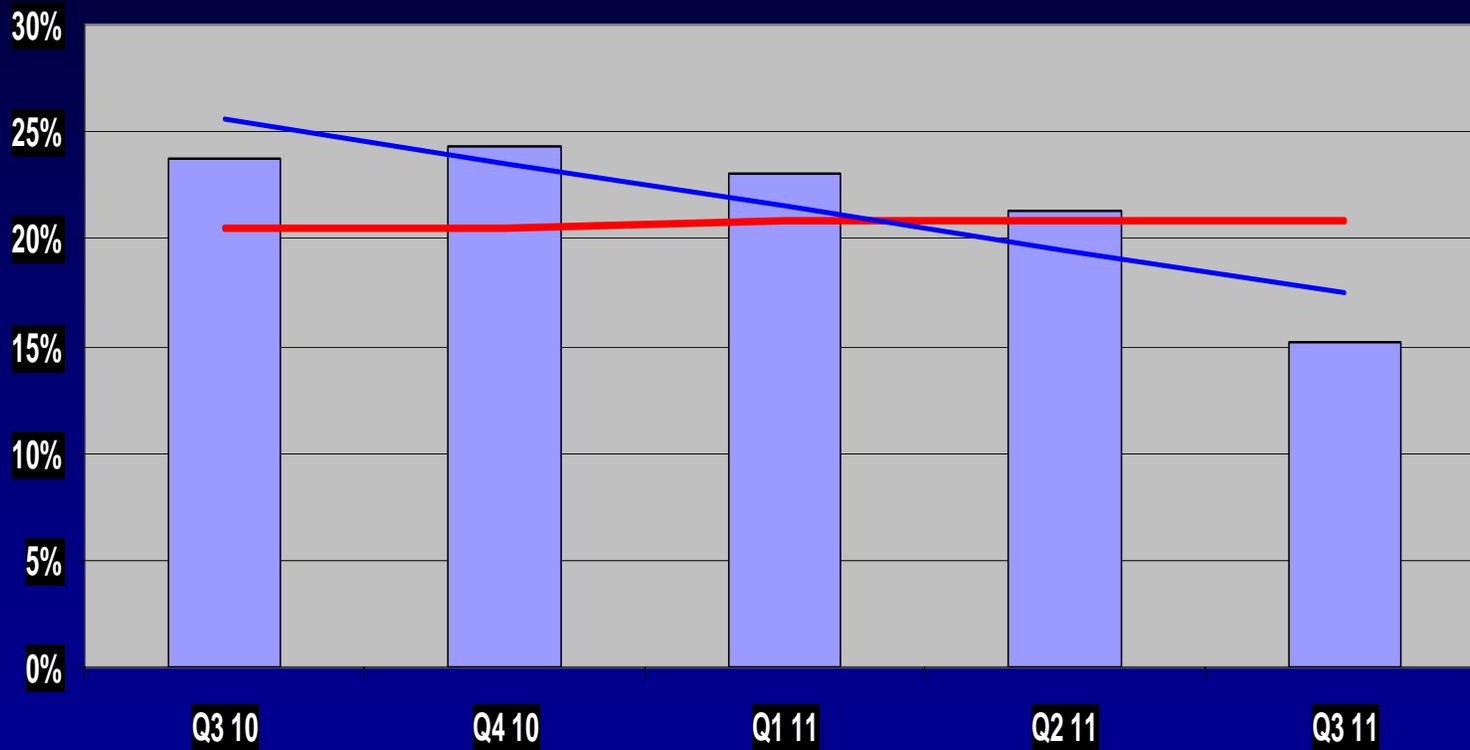
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Health Information

Restraints in the
ICU and Your
Family Member



Restraint Prevalence ICUs Q3 2010 - Q3 2011



— NDNQI Mean 08-09 20.54, 09-10 20.89 beds >500

Sustainment

- **Monthly restraint prevalence observations using the NDNQI criterion**
- **Using data to drive improvements**
 - **Distribution of monthly trend reports and quarterly NDNQI reports**
 - **Review data with bedside staff and display**

Sustainment

- **Quarterly monitoring of intubated and sedated patients that are restrained**
- **Daily rounding by Clinical Nurse Specialists to sustain the use of the tools**
- **Ongoing reinforcement of nursing education**

A Unit Story

**Neuro ICU's Journey to
Reduce Restraint Use**

Neuro ICU Unit Description

- **Combined Neurological and Neurosurgical patients**
- **Most common diagnosis**
 - **Subarachnoid Hemorrhage**
- **22 NICU Beds**
- **2 physical units**
- **2:1 Nurse to Patient Ratio**
- **Staff**
 - **1 Nurse Manager**
 - **4 Assistant Nurse Managers**
 - **1 Clinical Nurse Specialist**
 - **1 Clinical Instructor**
 - **64 Registered Nurses**
 - **11 Clinical Technicians**
- **Staff rotate between units**

How They Got There

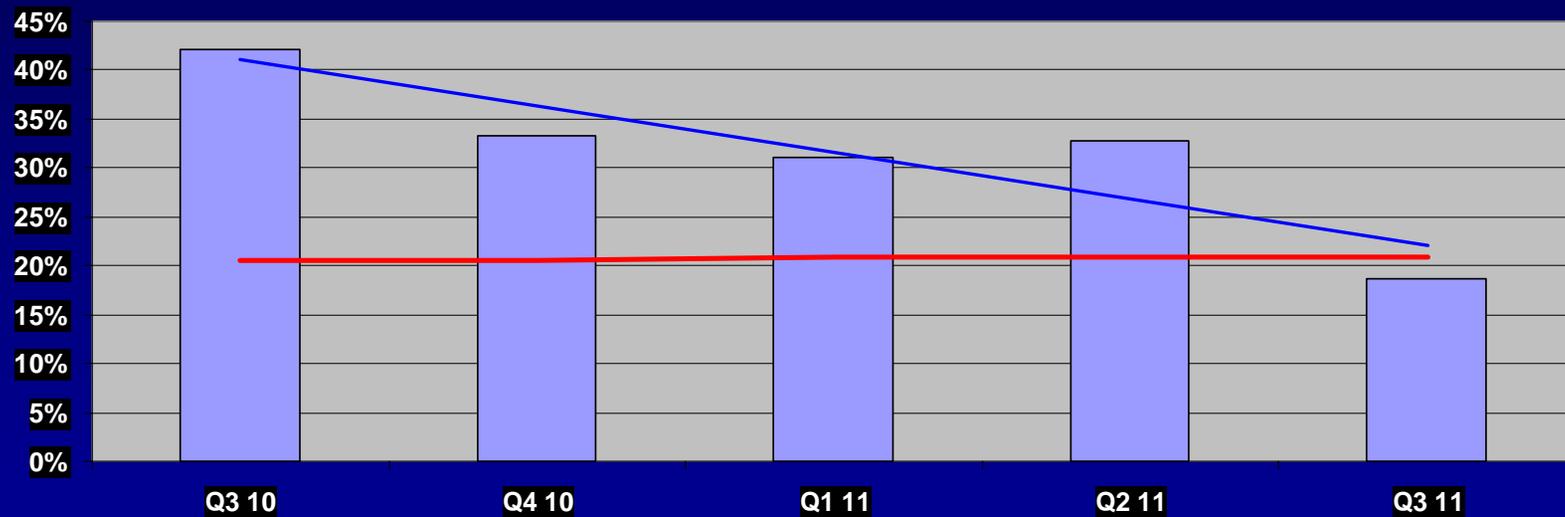
- **CNS met with Nursing Leadership and Medical Provider team to discuss current state and ensure buy in**
- **Implementation of restraint reduction algorithm, ventilator liberation algorithm, family brochure**
- **CNS began including restraint use in daily rounding**
 - **Initially targeted patients with Glasgow Coma Scale of 3-5 then increased to more challenging patients**
 - **Encouraged removal of restraints on select patients**
- **The CNS to write new restraint order if needed**

How They Got There

- **CNS reported to Nursing Leadership on regular basis**
- **Joint Nurse Manager/CNS rounds**
- **Assistant Nurse Managers include appropriate restraints use discussion in daily rounds**
- **Restraint prevalence results reviewed by Clinical Director and Nurse Manager and shared with bedside staff**

NICU Success

Restraint Prevalence NICUs
Q3 2010 - Q3 2011



— NDNQI Mean 08-09 20.54, 09-10 20.89 beds >500

Lessons Learned

- **Reducing restraint use was achieved through educating frontline staff and family involvement**
- **Assessing the need for restraints, these tools enhance nurse's decision making process by placing the focus on underlying causes for patient behaviors**
- **Appropriate interventions are chosen to improve patient outcomes**
- **ICU nurses must keep vital therapies intact while maintaining human dignity**

References

- Cole MG, Primeau FJ, Elie LM. Delirium: prevention, treatment, and outcome studies. *J Geriatric Psychiatry Neurol* 1998;11:126-37.
- Vaurio, L., Sands, L., Wang, Y., Mullen, A., & Leung, J. (2006). Postoperative delirium: The importance of pain and pain management. *Anesthesia and Analgesia*, 102, 1267–1273.
- Ely EW, Margolin R, Francis J, et al. Evaluation of delirium in critically ill patients: validation of the confusion assessment method for the intensive care unit (CAM-ICU). *Crit Care Med* 2001;29:1370-9.
- Milisen, K., Lemiengre, J., Braes, T., & Foreman, M. D. (2005). Multi-component intervention strategies for managing delirium in hospitalized older people: A systematic review. *Journal of Advanced Nursing*, 52(1), 79–90.
- [Pun BT](#), [Dunn J](#). The sedation of critically ill adults: Part 1: Assessment. The first in a two-part series focuses on assessing sedated patients in the ICU. [Am J Nurs](#). 2007 Jul;107(7):40-8
- [Pun BT](#), [Dunn J](#). The sedation of critically ill adults: part 2: management. [Am J Nurs](#). 2007 Aug;107(8):40-9
- Girard TD, Kress JP, Fuchs BD, Thomason JW, Schweickert WD, Pun BT, ,...Ely EW. (2008). Efficacy and safety of a paired sedation and ventilator weaning protocol for mechanically ventilated patients in intensive care (Awakening and Breathing Controlled trial): a randomised controlled trial. *Lancet*, 371(9607), 126-134.



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