Improving Patient Surveillance: Instituting a Respiratory Risk Screening Tool

Wyoming Medical Center
Sandra Maddux, RN, MSN, CNS-BC, Michelle Giffin, RN, BSN, & Patti Leglar, RN-C, BSN

Purpose

To share an evidence-based protocol that has been successfully embedded into the EMR to avert respiratory failure in patients who display signs and symptoms of respiratory compromise

Wyoming Medical Center

Problem

In 2010, a serious safety event occurred as a result of not intervening before the patient died from respiratory compromise

↓

Failure to Rescue Episode

Wyoming Medical Center

Significance

Respiratory Failure is a life-threatening condition. As early as eight hours prior to a respiratory failure event, symptoms can be detected warning care providers that the patient is entering a crisis situation

Wyoming Medical Center

At Risk Populations

- ETOH/substance abuse
- Post sedation/anesthesia
- OSA (obstructive sleep apnea)
- Enteral feedings
- Vomiting and/or failure to manage secretions
- Sepsis, pancreatitis, heart failure, shock, blunt chest & abdominal trauma
- Smoke inhalation, burns and long bone injury or surgery
- Asthmatics, COPD, myopathies
- Recent respiratory infections
- Other due to anatomy anomalies
  - Down's Syndrome, obesity, s/p cervical fusion & open airways (tracheostomy)

Wyoming Medical Center

Applying the Evidence

1. Review the literature
2. Define the parameters for screening
3. Write the protocol
4. Embed the screening tool in EMR

Wyoming Medical Center

Exclusion Criteria

- Those with endotracheal tubes
- Comfort care patients
- Emergency room patients
- Those actively undergoing moderate and deep sedation
- PACU patients

Wyoming Medical Center

Key Assessments

- Respiratory Rate
- Oxygenation
- Work of Breathing
- Airway and Secretions
- Mentation
- Skin

Wyoming Medical Center

Screening Parameters

Parameter	Low	Moderate	High
Respiratory Rate	Respiratory Rate 12-20 per min (0)	Less than 12 or Greater than 20 (2)	Less than 8 or Greater than 26 (10)
Oxygenation	R/A - 2LPM (0) 3-4 LMP (1) SpO2 Greater than or equal to 90% (0)	5-9LPM (2) SpO2 85-89% (1)	10+LPM (3) Trach/stoma (10) Artificial Airway* (10) NIVT* (16) SpO2 Less than 85% (3)
Work of Breathing	Full sentences (0) No accessory muscle use (0)	Partial Sentences (1) Upright position (1) Pursed Lips (1) Labored breathing (1) Chest tubes (5)	Single Words (2) Tripod position (2) Accessory muscle use (2)
Airway and Secretions	Able to manage secretions (0)	Structural abnormalities* (2) Difficulty managing secretions(2)	Para/Quads (4) Unable to manage secretions (4)

Wyoming Medical Center

Screening Parameters cont.

Parameter	Low	Moderate	High
Mentation	LOC at baseline (0) Appears at ease (0) PCA (3)	Agitation/Restlessness/ Anxiety (1) Frequent narcotics (every 4 hours or less) (2) Benzodiazepines (every 4 hours or less) (2) Post sedation/anesthesia in the last 4hrs (2) Epidural (3)	Lethargic (2) Obtunded (4)
Skin	At Baseline (0)	Pale (1) Diaphoretic (1) Cap Refill greater than 3 seconds(1) Peripheral mottling (1)	Cool (2) Clammy (2) Cyanotic (3) Central mottling (4)
SCORE	**Low Risk = 0 - 3**	**Moderate Risk = 4 - 25**	**High Risk = Greater than 25**

Wyoming Medical Center

Reliability & Validity of Screen

- **Reliability (consistent)**
  - Inter-rater first 25 in neonate, pediatrics, & adults
- **Validity (accurate)**
  - Content by nursing, respiratory, & medical experts
  - Content validity via Root Cause Analysis
    - Evaluated scoring and ability to detect respiratory decompensating
    - Used in over 75,000 observations
- Formal statistical reliability and validity testing of the tool is indicated as the next step

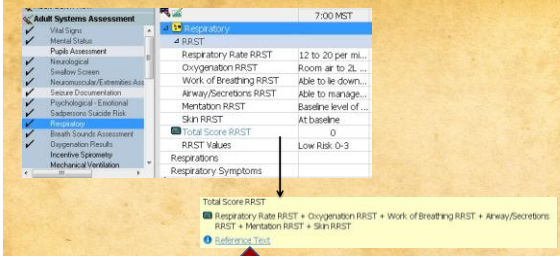
Wyoming Medical Center

When to Screen

- On admission
- Each shift
- When transferred between units
- Accepted from procedural areas after receiving anesthesia

Wyoming Medical Center

Embedded Protocol



Hyperlinked directly to written protocol

Wyoming Medical Center

Key Points in the Protocol

- **Critical Juncture** - the stage at which the patient transitions to the next risk level
  - **Cross monitoring** - a second independent assessment to validate symptomology
  - **Review best practice**-interventions to recover or prevent deterioration

Wyoming Medical Center

Low Risk Interventions Score: 0 - 3

- Continue to monitor every shift and review early warning signs of increased oxygen demand
- Give pneumovax as appropriate
- Give flu vaccination as appropriate
- Treat underlying disease state per orders
- Educate patient/family of options for assistance (i.e., Condition H)

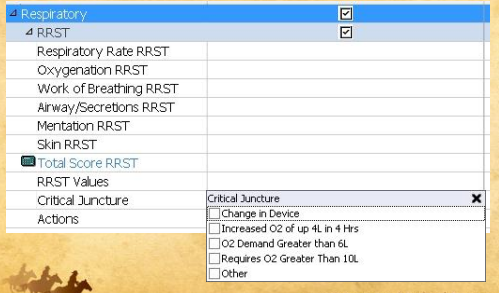
Wyoming Medical Center

Critical Juncture: Low to Moderate Risk

- **Critical Juncture**: ***Change in device*** *to accommodate O2 demand or oxygen flow of up to* ***4 LPM*** ***from baseline in less than four hours or greater than 6 LPM.***
  - Charge nurse and RT notified that patient moved to **Moderate Risk**
  - At the discretion of the nurse to have cross-monitor

Wyoming Medical Center

Critical Juncture Documentation



Wyoming Medical Center

Moderate Risk Interventions Score: 4-25

In addition to low risk interventions:

- Titrate oxygen to 88-90% (except those who live below)
- Keep patient in position to maintain optimal lung expansion
- Monitor for fluid volume overload
- Consult RT
- Increase observation and assessment frequency Q4

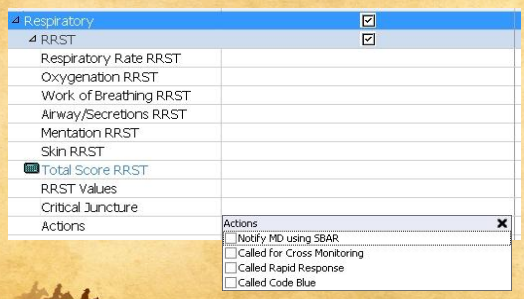
Wyoming Medical Center

Critical Juncture: Moderate to High Risk

- **Critical Juncture:** ***Change in device*** *to accommodate O2 demand or oxygen flow greater than* ***10 LPM***
  - Notify physician/designee of **High Risk** using SBAR
  - Notify Charge of high Risk & need for cross monitoring
  - Call Rapid Response if:
    - No MD response to RN within 15 minutes
    - Condition worsens
    - Need immediate assistance (code blue for intubation)
  - Transfer to higher level of care if patient requires cardiac monitoring/ centrally monitored continuous oximetry or specialized nursing care

Wyoming Medical Center

Actions Documentation



Wyoming Medical Center

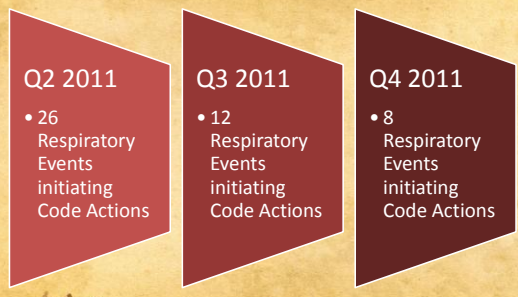
High Risk Interventions Score: 26+

In addition to Moderate Risk Interventions:

- Increase surveillance Q2 (room placement)
- Notify charge nurse
- Collaborate with RT
- Move to higher level of care with fluctuation in symptoms
- Provide emotional support and stay with patient until stabilized
- Consider Morphine or Anxiolytic in acute phase
- All high risk patients **REQUIRE** RN/RT presence during transport
- Call Code Blue, if airway or oxygen status compromised

Wyoming Medical Center

Nine Month Measurement



Wyoming Medical Center

Clinical Outcome

- **70%** reduction in respiratory events triggering code situations:
  - Rapid Response
  - Code Blue
  - Condition H

- **No failure to rescue episodes since implementation**

Wyoming Medical Center

Mini-Root Cause Analysis

- For each code situation (Blue, RRT, Condition H)
- Conduct an incident description
- Determine if compromised respiratory status was a contributing factor to the incident
- Review RRST scores and interventions to verify standard of practice adherence
- Initially coached staff during first year of implementation
- Now when standard not met incident sent to Peer Review

Wyoming Medical Center

IMPLICATIONS FOR PRACTICE

- Nurses play a significant role in patient rescue
  - The RRST is easy to use and sensitive in detecting early respiratory failure
    - The EMR serves as a platform for standardizing practice and guiding nurses to early detection & intervention

Wyoming Medical Center