Patient Safety and Ventilator Setting Adjustments

By

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Disclosures

Relationships with:

American Association for Respiratory Care
CPC, Inc.
TherOx, Inc.
Outcome Solutions LLC
Tri-Anim, Inc. (Sponsor of poster).
Roche, Inc. (honoraria)
MAHEC (honoraria)
Opti-Medical, Inc. : Sponsored Research

Objectives: Following this presentation, the participant will:

1. Cite 2 patient safety issues associated with non-Respiratory Therapists adjusting mechanical ventilator settings.
2. Summarize NCRCB actions in response to state- wide survey research.
3. Identify Joint Commission recommendations for preventing patient injury and death during mechanical ventilation.
4. Identify resources for developing an action plan to improve patient safety in your hospital.

Outline:

1. Background
2. Methods
3. NCRCB Survey Results
4. Executive Summary
5. NCRCB Actions
6. Using this Information in Your Hospital to Improve Patient Safety

Background of Patient Safety and Ventilator Adustments

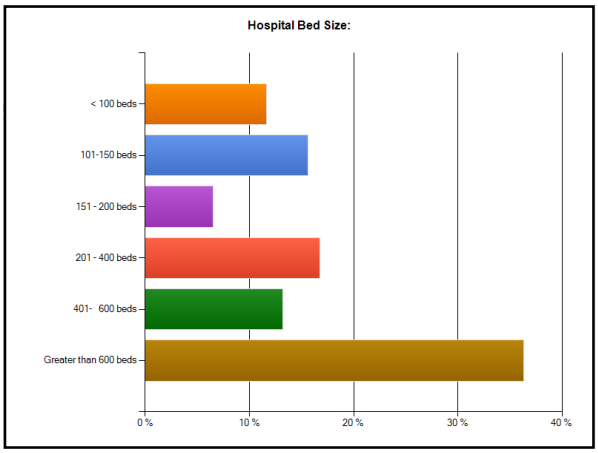
The issue surfaced during NCRCB investigative and disciplinary committee --researched 2 patient care complaints in fall 2010. RCP's stated that others had changed ventilator settings, and no hospital policy for adjusting ventilator settings.

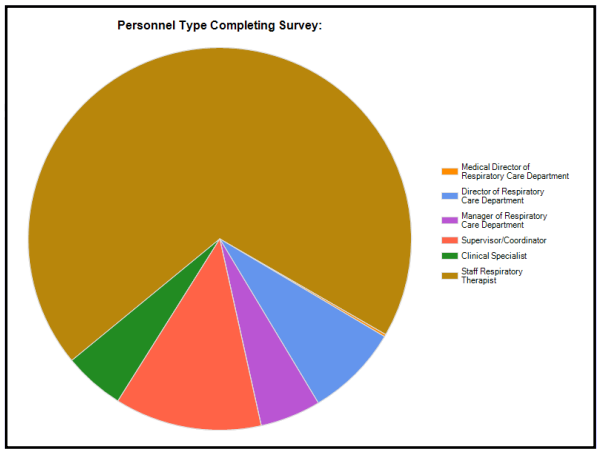
Scope : Evaluated patient safety and cost issues associated with ventilator adjustments in hospital setting without prior communication or written orders for Respiratory Therapists.

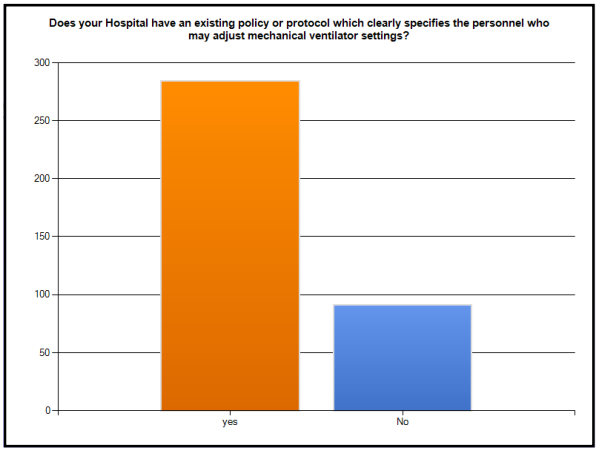
Methods

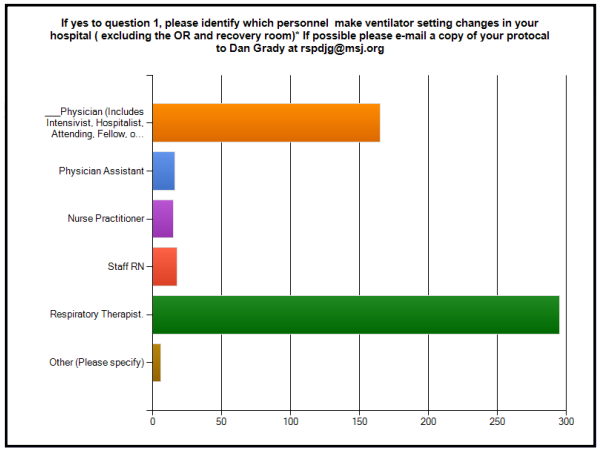
- Voluntary survey was mailed to all active, licensed Respiratory Care Practitioners in the state of North Carolina (n = 4,348).
- Purpose of survey was to evaluate the scope , depth, and cost of patient safety issues associated with changes made in ventilator settings without notification of RCP's.
- A total of 533 RCP's (n = 533) responded to Survey.

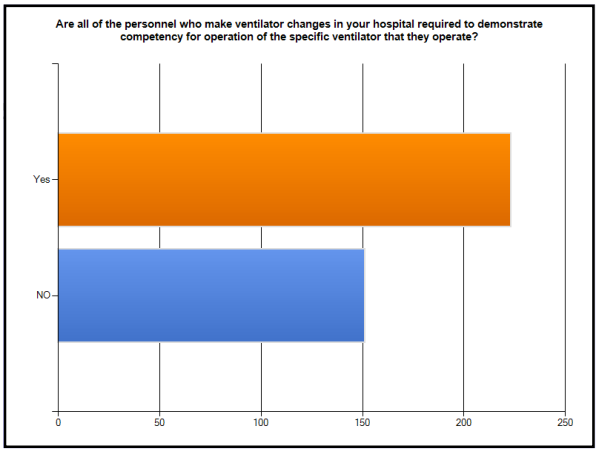
* A separate request was sent to all Medical Directors.

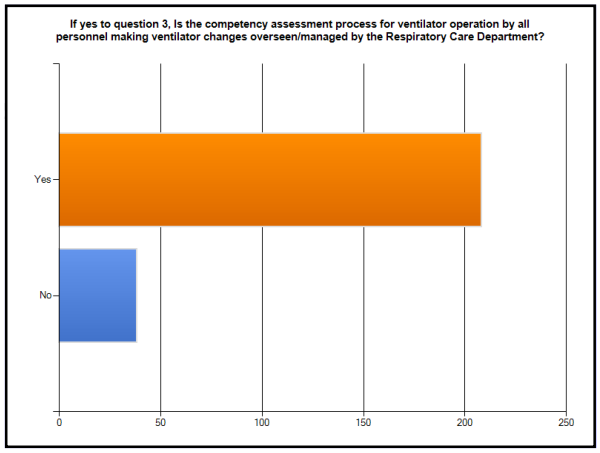

Hospital Bed Size:
< 100 beds
101-150 beds
151 - 200 beds
201 - 400 beds
401- 600 beds
Greater than 600 beds
0 %
10 %
20 %
30 %
40 %

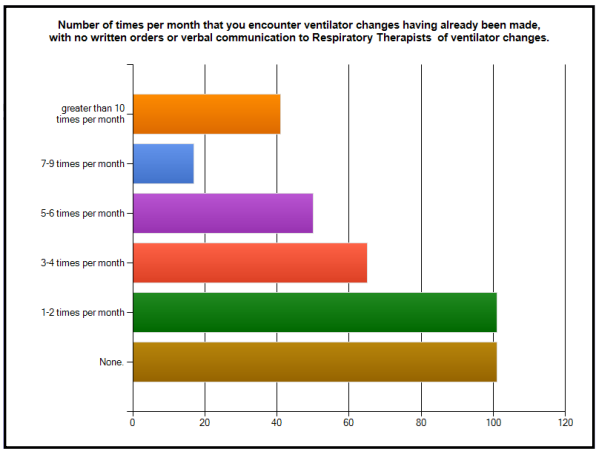

Personnel Type Completing Survey:
Medical Director of Respiratory Care Department
Director of Respiratory Care Department
Manager of Respiratory Care Department
Supervisor/Coordinator
Clinical Specialist
Staff Respiratory Therapist

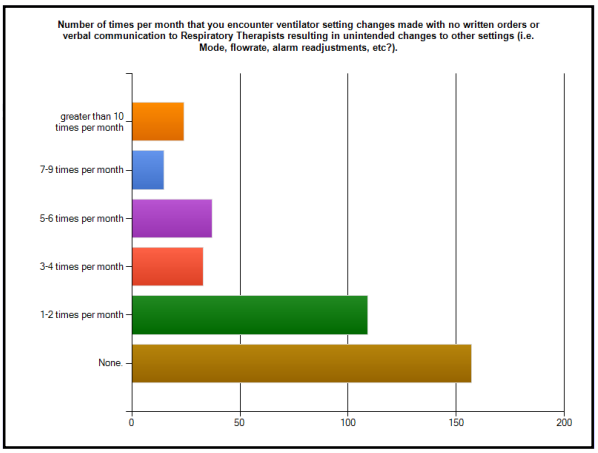

Does your Hospital have an existing policy or protocol which clearly specifies the personnel who may adjust mechanical ventilator settings?
300
250
200
150
100
50
0
yes
No

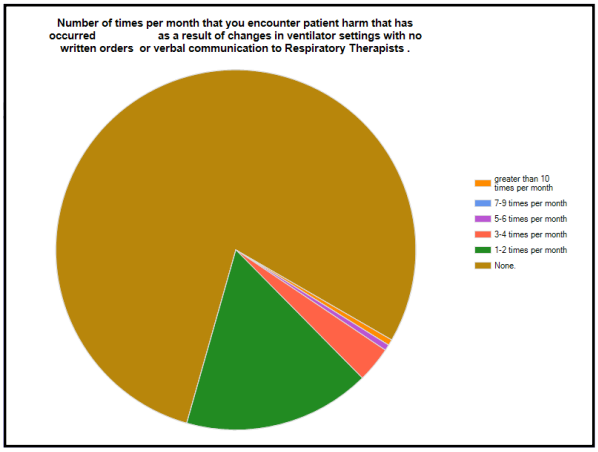

If yes to question 1, please identify which personnel make ventilator setting changes in your hospital (excluding the OR and recovery room)" If possible please e-mail a copy of your protocal to Dan Grady at rspdjg@msj.org
Physician (Includes Intensivist, Hospitalist, Attending, Fellow, o...
Physician Assistant
Nurse Practitioner
Staff RN
Respiratory Therapist.
Other (Please specify)
0
50
100
150
200
250
300

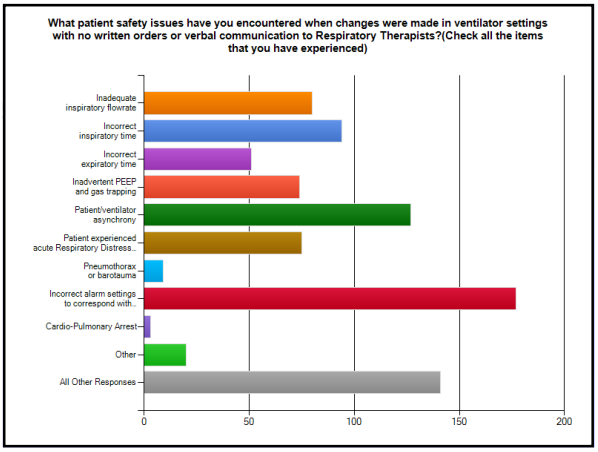

Are all of the personnel who make ventilator changes in your hospital required to demonstrate competency for operation of the specific ventilator that they operate?
Yes
NO
0
50
100
150
200
250


If yes to question 3, Is the competency assessment process for ventilator operation by all personnel making ventilator changes overseen/managed by the Respiratory Care Department?
Yes
No
0
50
100
150
200
250









State-wide Patient Harm Summary

***Barotrauma (n = 10)**

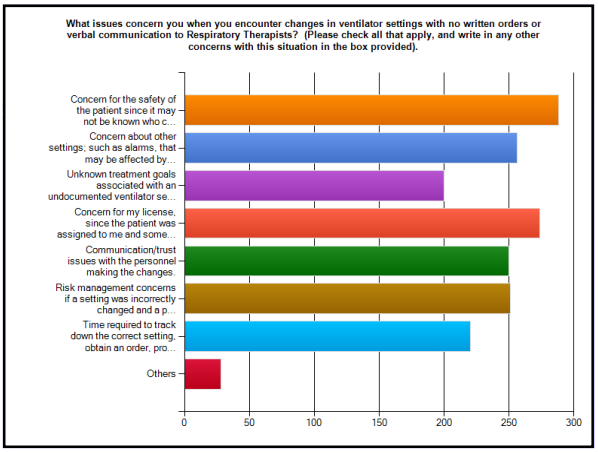
***Incorrect Alarm settings (n = 196)**

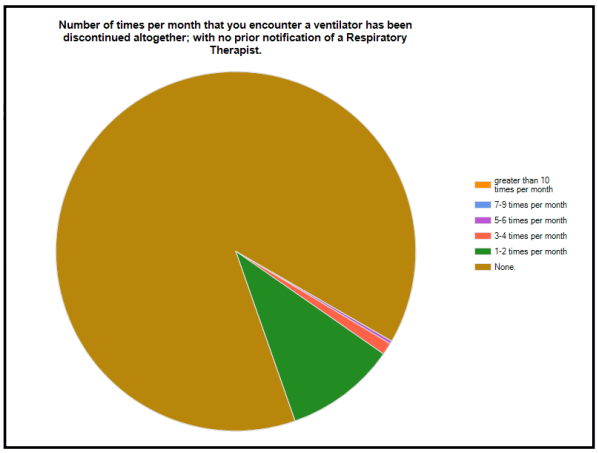
***Patient/Ventilator Asynchrony (n = 144)**

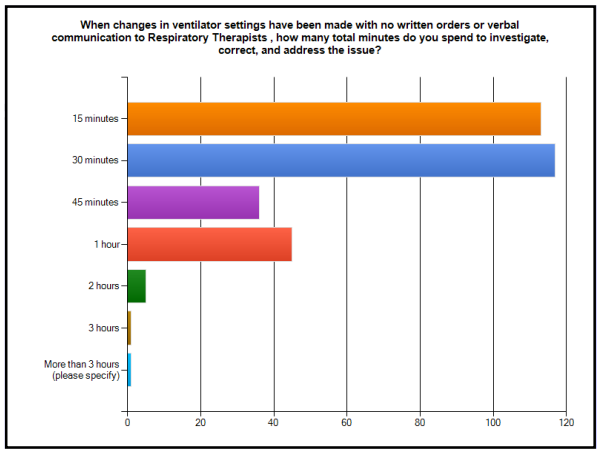
***Incorrect Flowrate, Itime or Etime settings.** (n =254)

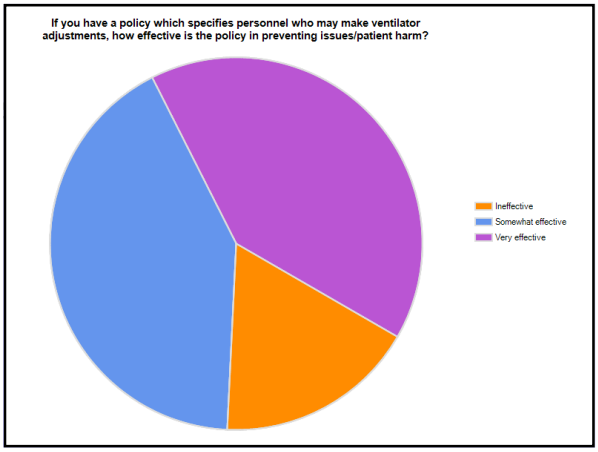
***Patient experienced Acute Respiratory Distress (n = 85)**

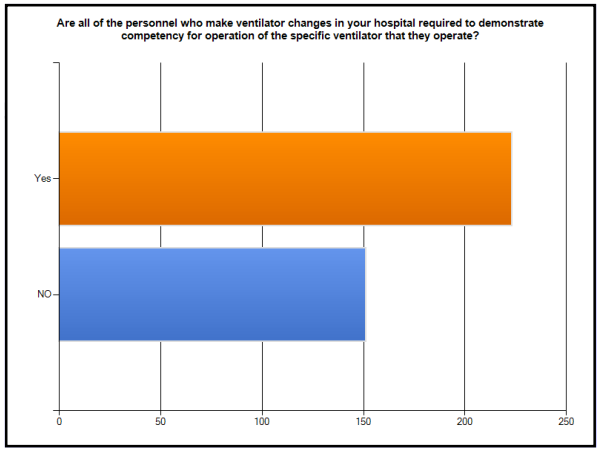
***Cardio-Pulmonary Arrest (n = 5)**











Data Summary:

- Total number of times/month that ventilator settings are changed without communication/orders to RT:
- **State-wide Total = 1,129 - 1,389 times/mo**

Data Summary:

- Total number of times/month that ventilator settings are changed without communication/orders to RT resulting in unintended ventilator changes:
- **State-wide Total = 761 - 979 times/month**

Data Summary:

- Total number of times/month that ventilator settings are changed without communication/orders to RT **resulting in patient harm:**
- **State-wide Total = 133 - 212 times /month**

Data Summary:

- Total number of times/month that ventilators are discontinued without communication/orders to RT:

State-wide Total = 51-93 times /month

Data Summary:

- Total state-wide time/month spent investigating, obtaining an order, processing the order, etc when ventilator settings are changed without communication/orders to RT:
- **State-wide Total = 184 hours month**

State-wide Monthly Costs Associated with tracking down Ventilator Setting Changes:

Total Monthly Costs Between 5 million and 6 million Dollars/month !

184 hrs/month x $ *25.00/hr x 1129 incidents/mo =

$ 5,119,045 /month

184 hrs/month x $ *25.00/hr x 1389 incidents/mo =

$ 6,396,345 /month

(*average RT salary of $ 25.00/hr)

Preventing Ventilator Deaths and Injuries

- **The Joint Commission**
- **Sentinel Event Alert**
- February 26, 2002
- **Issue 25 - February 26, 2002**

TJC Root causes of Ventilator Deaths and Injuries:

- Root cause analysis of the 23 cases reveals the following contributing factors:
- **Staffing**
- Inadequate orientation/training process 87 percent
- Insufficient staffing levels 35 percent
- **Communication breakdown**
- Among staff members 70 percent

RCP Comments Summary:

1. Policy and Position Statement from NCRCB needed.
2. Education and policy enforcement with disciplinary action needed for those who ignore policy.
3. Recommend a Technology solution: (ventilator lock-out).

Survey Study Limitations

- *Bias
- *Self-Report
- *Non-Restricted Entry to Study
- *Sample Size
- *Multiple reports of Same incident possible

Executive Summary

1. Significant patient safety issues exist state-wide when ventilators are adjusted without prior communication or written orders to RT's.
2. Significant Risk Management issues exist state-wide with status quo. (incidents occur > 1,000 times/month)
3. Competency assurance is not consistently addressed for ventilator adjustments.
4. Very significant increased costs associated with tracking down changes and locating correct order . (**state-wide costs greater than 5 million dollars/month dealing with this issue).** Duplication of services cause of increased cost and risk management issues.
5. Some hospitals have addressed and completely corrected this issue with an enforced policy of "RCP's Only" to Adjust ventilator settings.

Recommendations

- Based upon the survey data, the following are recommended actions by the NCRCB:
- 1. Adopt a position statement regarding patient safety and ventilator adjustments by RCP's.
- 2. Provide a model policy for hospitals to adopt.
- 3. Adopt the Society for Critical Care Medicine Best Practices Role Model Statement for Respiratory Therapists to eliminate role confusion and duplication of services.
- 4. Physician to physician communication, education, and support requested regarding the issue with NC Society for Critical Care Medicine, etc.

NCRCB Actions

1. Physicians presented data to the NC Medical Society.
2. Presentation of data to NC Hospital Association.
3. Legal Review and recommendations.
4. Adoption of Position Statement by the NC Respiratory Care Board.
5. Goal of Position Statement is to improve patient safety and prevent errors.

Using This Information to Improve Patient Safety

1. Review the NCRCB Position Statement and distribute to your hospital administration, risk management, and RC Medical Director.
2. Obtain copy of TJC Sentinel Event Alert.
3. Develop a written policy for ventilator adjustments, have medical director sign off.
4. Implement your policy, require communication of ventilator changes!

Acknowledgements

- Thanks to the following for their expert advice and assistance:

- Dr. Joseph Coyle, MD
- Dr. Ed Bratzke, MD
- Dr. Ron Perkin, MD
- Floyd Boyer, RRT
- Kathy Short, RRT, RN
- Chuck Kimble, RRT
- Terry Smith , RRT
- Bill Kiger, RRT
- Tim Saffley, RRT
- Dr. Kim Clark, RRT
- Myra Stearns, RRT
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