



# Reduction of Non-Behavioral Restraints in an Intensive Care Unit

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## Introduction

- Sentara CarePlex Hospital (SCH), part of a 12-hospital system, has a 24-bed intensive care unit (ICU).
- Review of non-behavioral patient restraint data revealed that the SCH had the highest restraint use prevalence in the health system. SCH’s incident rate at the end of 2013 was 6.77% against a system average of 4.22%.
- **Restraints were most frequently used to prevent patient unplanned extubations and falls.** However, these patients may have benefitted from less restrictive means.
- 8 out of 11 unplanned extubations that occurred between Oct 2013- June 2014 were restrained at the time of extubation.

## Background and Significance

- Non-behavioral patient restraints are widely used in the ICU, posing unique challenges to patient quality and safety.
- Unplanned extubations occur frequently in the ICU, but the use of restraints are not always effective and can create more safety hazards (Chang, Wang & Chao, 2008).
- A restraint management bundle (RMB), as a patient safety strategy, may provide opportunities to balance risks and benefits of restraint use for this vulnerable population.
- Alternative patient management strategies should be explored prior to restraint application, and restraints should be discontinued as soon as possible to avoid complications.

## Project Aims

- This study aims to explore differences in the incidence of restraints when a RMB is implemented in an intensive care patient population. Research questions include:
- Will the incidence or restraint episodes per patient day and the number of patients in restraints per patient day decrease after the implementation of a restraint management bundle?
  - Will the rate of unplanned extubations and falls increase as a result of a decrease in restraint utilization?

## Methodology

- In August 2014, SCH ICU instituted an RMB to improve patient quality and safety, and minimize patient harm. RMB components included:
- Number of restrained patients reported daily to hospital leadership, with focus on restraint use greater than 72 hours
  - Bi-daily audits to verify orders and nursing documentation (see Figure 1)
  - Safety partner use at the bedside, when available and appropriate
  - Audit results reported at staffing huddle
  - Staff education on least restrictive devices

| DNV Audit Tool  |  |               |               |               |               |               |               |               |               |               |               |               |
|---|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Name: _____ Unit: _____ Date Audit Performed: _____   |  |               |               |               |               |               |               |               |               |               |               |               |
| <b>NC1-7 Restraint Documentation NON-BEHAVORIAL</b>   |  | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) |
| <input type="checkbox"/> Documentation indicates that the patient was monitored every 1.5-2.5 hours on "Non-Behavioral" Flow-sheet.   |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> Evidence of alternatives tried (or that they were documented as inappropriate) prior to restraint use. Location: Notes and/or Alternatives Row in Restraint Flow-sheet/PT Care Summary Safety Section) and must be charted prior to Restraint initiation (unless Emergent) |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> Indication for restraint use does not conflict against documented level of consciousness and/or sedation score.  |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> An order exists for every episode of restraint use. No PRN Orders.   |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> Ensure that Restraint Order includes specific behaviors to indicate restraint use is justified.  |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> Validate type of Restraints ordered is the type placed on patient and documented against in Restraint Flow-sheet.  |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <b>NC1-7 Restraint Documentation BEHAVIORAL</b>   |  | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) | (Patient MR#) |
| <input type="checkbox"/> Clear nursing documentation of behavior that lead to application of violent restraint matches clinical indication in physician order.  |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> Restraint Order is initiated and renewed according to policy. Order must be renewed within 4 hrs for Adults (18 or older), 2 hrs for children and adolescents 9-17, One hr for children less than 9.   |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |
| <input type="checkbox"/> Documentation indicates that the patient was monitored every 15 minutes on "Behavioral" Flow-sheet   |  | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     | YES NO NA     |

Figure 1. Bi-daily restraint audit toll.

## Significant Findings

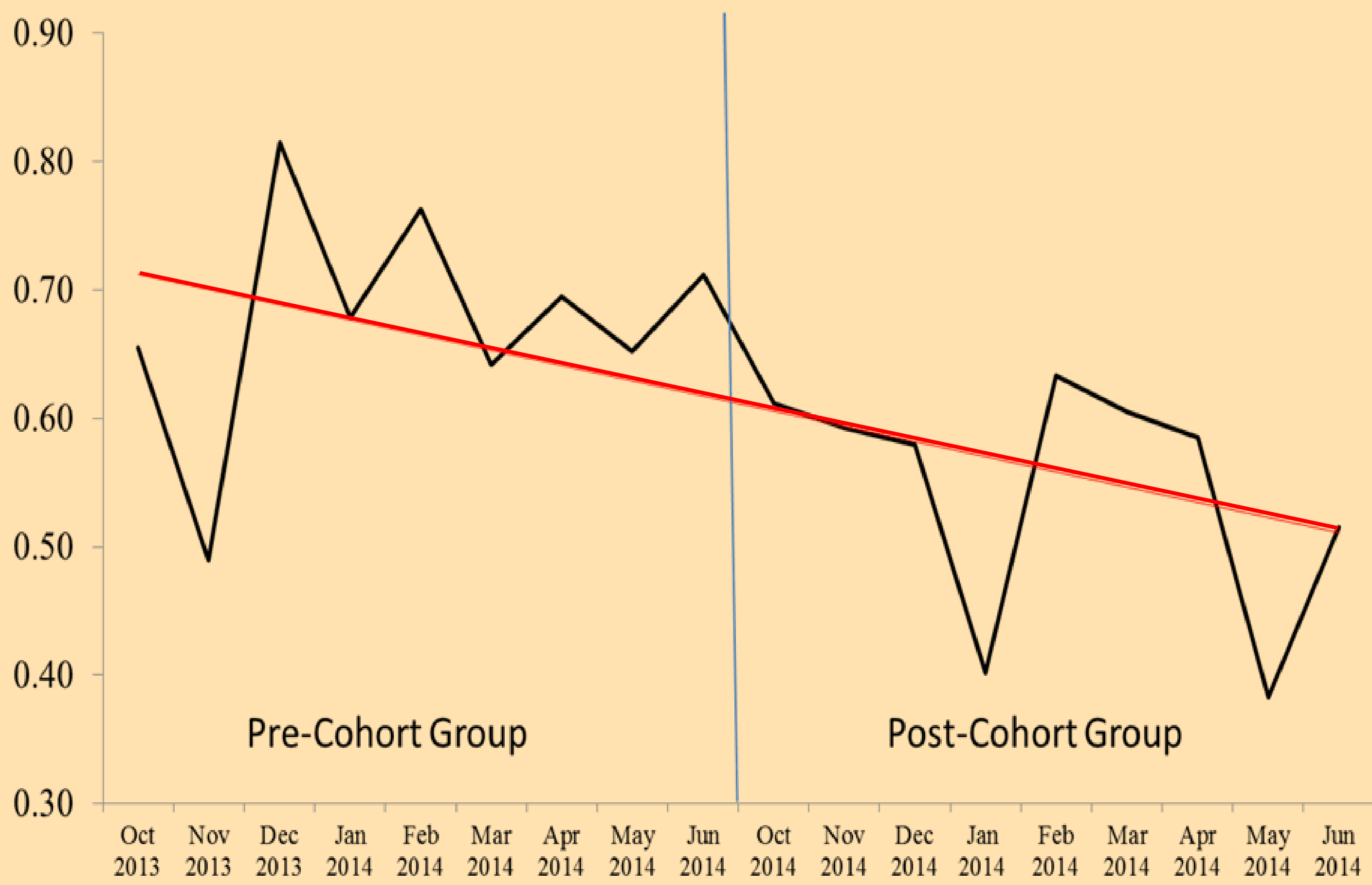


Figure 2. Average Restraint Episodes per Patient Day

## Results

- Patients were significantly less likely to be restrained following implementation of the RMB.
- For those patients who were restrained, significantly less restraints episodes per patient day were noted following RMB implementation.
- Differences in ICU length of stay were not significant.
- Changes in unplanned extubations and falls were not explored in this study.

## Conclusions and Implications

- The RMB was an appropriate management strategy to reduce the utilization of restraints.
- Psychological, emotional and physical risks, along with side effects of restraint use, can be minimized with appropriate restraint management. These methods are easily transferable to any inpatient setting.
- Future research should examine :
  - if the observed incidence of unplanned extubations represents a rate change based on the total number of intubations.
  - the effect of a restraint management bundle in units that have higher fall rates.
  - the different reasons for applying restraints and different types of restraints (e.g. mittens, soft wrist, roll belts, etc.)

## References

Chang, L. Y., Wang, K. W., and Chao, Y. F. (2008). Influence of physical restraint on unplanned extubation of adult intensive care patients: a case-control study. American Journal of Critical Care, 17(5), 408-415.

Rainer,N. (2014). Reducing physical restraint use in alcohol withdrawal patients: A literature review. Dimensions of Critical Care Nursing, 33(4), 201-206.

## Contact Information

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