The Effects of Designated ICU Beds on Quality Care Indicators in Oncology Patients

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Background

• The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins Hospital historically managed patients with an integrated practice model of care in which the oncology team provided primary care of patients with consultation and assistance of intensivists. This helped ensure that oncologic issues were in the forefront of care and allowed patients to remain on the same unit throughout their inpatient experience.
• Leadership changes and growing acuity of non-critically ill patients led to a re-evaluation of practice in early 2014. On October 19, 2014, a new cohorting model was implemented in which critically ill inpatient and outpatient oncology patients were transferred or admitted to a unit with designated ICU beds. There, primary care is provided by physicians who worked pre- and post-implementation.

Objectives

• This QI pilot study aimed to evaluate whether the care of critically ill oncology patients was changed by the implementation of the cohort model.
• This model change involved the following adjustments in care:
  • The pulmonary/critical care intensivists acting as primary directors of critical care, with communication and consultation involvement of oncologists.
  • Advanced practitioners in oncology and critical care acting as the primary providers of care rather than medicine house staff physicians.
  • Care provided by one group of critical care trained nurses on a single designated unit.

Methods

• A random sample of eighteen patients receiving mechanical ventilation in the six months prior to implementation of the cohorting model and sixteen patients after implementation of the cohorting model were evaluated retrospectively by chart review.
• Post-implementation data were collected for patients who became critically ill at least three months after the start of cohorting to allow for a period of adjustment for staff. Six quality care indicators based on previously studied and accepted best practices for ventilated patients were reviewed (Burns, 2006; Klompas, 2015):
  • Percent of time glucose values were within desired range and the mean mobility score in the last four days.
  • The percent of time glucose values were within range and the mean mobility score in the last four days of critical illness increased post-implementation.
  • The hours of mechanical ventilation decreased post-implementation.
  • These improvements in quality care indicators post-implementation show some positive trends towards providing best practice care for ventilated patients. However, none of these changes were statistically significant at alpha = .05.
  • This study looked at only a small percentage of best practice indicators for mechanically ventilated patients.
  • The accuracy of this pilot study depends on the reliability of nurse and physician charting.

Results

Fig. 4 Significance of Quality Care Indicators

| Quality Care Indicator | Significance
|------------------------|------------------|
| Head of bed documented ≤ 4 hours | .276
| Wean screen documented ≤ 4 hours | .913
| Mouth care documented ≤ 4 hours | .373
| RASS score documented ≤ 4 hours | .446
| Glucose values within desired range (71-179) | .491
| Number of hours of mechanical ventilation | .148
| Number of hours of mechanical ventilation* | .120
| Average mobility score first four days | .965
| Average mobility score last four days | .356

*Outlier of 1998 hours removed from pre-intervention group

Conclusions

• The percent of time wean screen and RASS score were documented at least every 4 hours improved post-implementation.
• The percent of the time glucose values were within range and the mean mobility score in the last four days of critical illness increased post-implementation.
• The hours of mechanical ventilation decreased post-implementation.
• These improvements in quality care indicators post-implementation show some positive trends towards providing best practice care for ventilated patients. However, none of these changes were statistically significant at alpha = .05.
• This study looked at only a small percentage of best practice indicators for mechanically ventilated patients.
• The accuracy of this pilot study depends on the reliability of nurse and physician charting.

Future Directions

• This pilot project should be repeated and expanded as the number of critically ill patients receiving care in designated ICU beds increases to allow for a greater sample size.
• A larger sample size and additional quality care indicators will give a more comprehensive view of changes in care since the implementation of cohorting.
• Qualitative data from those oncology nurses and physicians who worked pre- and post-implementation may also be collected to supplement chart review and gain a deeper understanding of changes (or lack thereof) in care practices.

References


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[Charts and graphs not provided in text format]