A Quality Improvement Initiative to Improve Allocation of Anesthesia Staff in the Operating Room

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BUNDLE INTERVENTION

OBJECTIVE

To increase the proportion of cases with optimal anesthesia staff allocation, optimize revenue, and decrease unplanned staff overtime during the day.

METHODS

Study design: An observational study of non-optimal anesthesia staff allocation from June 2019 to May 2020 at a level I trauma center.

OUTCOMES

Primary outcome: Proportion of cases with optimal anesthesia staff allocation.

Secondary outcomes:

1. Change in revenue (billable units/case, unplanned staff overtime, and variance in staffing performance for non-optimal staffing)

STUDY DESIGN

We reviewed all cases during a 12-month period before and after the bundle intervention to assess the changes in staffing patterns and revenue.

RESULTS

Primary analysis:

1. Non-optimal anesthesia staff allocation most frequently during weekends (26.1% of weekend cases versus 1.9% of weekday cases; p<0.001; Figure 1)

2. Non-optimal anesthesia staff allocation occurred most frequently after normal working days (case end between 5 PM and 7 AM; 9.3% versus 1.6%; p<0.001; Figure 2)

Secondary analyses:

1. Revenue (billable units/case) was significantly higher in the post-intervention group (unadjusted difference: 1.52 billable units per operating room case; 95%CI 1.24-1.80; p<0.001 and adjusted difference: 0.60 billable units per operating room case; 95%CI 0.31-0.83; p<0.001; Figure 3).

2. Unplanned staff overtime was significantly decreased post-intervention (total overtime: 782 hours vs. 618 hours; p=0.001; Figure 4).

3. Variance in individual staff performance for non-optimal allocation was significantly decreased post-intervention (p<0.001; Figure 5).

CONCLUSION

Our bundle intervention, which included educative measures and changes in our departmental staffing model, significantly improved the proportion of cases with optimal anesthesia staff coverage, revenue, and minimized the need for unplanned overtime. Our data suggest an increased value of care after this quality improvement initiative. Next steps will involve doing a full cost-benefit analysis to determine net financial impact.