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Quality of Care Initiative: Blood glucose timing, food delivery and insulin administration

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BACKGROUND

We investigated the timing problems associated with insulin administration, blood glucose (BG) monitoring and meal tray delivery on a sub-acute medical surgical unit in the only Academic Medical Center, Level 1 Trauma Center in the state of New Mexico. It was noted that BG monitoring did not coincide with meal delivery. Insulin administration was not coordinated with meal delivery and or BG monitoring and often would occur greater than 30 minutes after the delivery of the meal tray. There were no protocols in place for standards of practice regarding BG timing and insulin administration. We believed these process discrepancies were resulting in worse BG outcomes.

METHODS

This was a quality improvement workflow project on an adult inpatient unit where approximately one-third of patients receive insulin. We used time-in-motion studies and process mapping to quantitate and define our current process and to assist in creating effective interventions. We designed and instituted interventions including standardization of processes and meal delivery times. We developed a standardized nursing protocol for insulin delivery and BG monitoring. In the last stage we instituted nurse driven processes including glucose monitoring, meal delivery, and insulin administration. Process and outcomes measures were collected over one year.

BASELINE MEASURES

We found a number of discrepancies with BG timing, meal tray delivery and insulin administration. Staff obtained BGs >30 minutes prior to meal 49% of the time, ranging from 166 minutes before meal to 98 minutes after meal. Mean timing was inconsistent; delivery to floor varied by 15-30 minutes each day, followed by tray audits taking ≥15 minutes on average. Outcomes measures for these same time periods showed a decrease in mean BG from 160.40 to 150.64. Other significant results shown in graphics to right.

results

CONCLUSIONS

1. Nurse Driven process of BG monitoring, meal delivery and insulin administration coupled with education, policies, and process changes resulted in significant improvement in timing between BG monitoring and insulin administration and near 100% adherence to guidelines

LIMITATIONS

1. The time in motion studies took place over 5 days and BG numbers were utilized as the n value. 2. Only a sub acute unit was studied, may not be generalizeable to other units. 3. Study completed in an Academic Level 1 Trauma medical center and results may not be generalized to other centers. 4. Staff were aware of when the study was conducted. 5. Study tools were rudimentary and not precise. Cell phones used for timing