Healthcare Organization Commitment

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Commitment Details

Commitment Name
DEVELOPMENT AND EVALUATION OF A CONTINUOUS PATIENT SURVEILLANCE MONITORING SYSTEM ON OPIOID-INDUCED RESPIRATORY DEPRESSION AND THE IDENTIFICATION OF OBSTRUCTIVE SLEEP APNEA

Participants
Sarah Knowles

What Patient Safety Challenge does your Commitment address?
Challenge 4 - Monitoring for Opioid-Induced Respiratory Depression
How Many Hospitals Will This Commitment Represent

3

Action Plan

Issue: Death from opioid-induced respiratory depression (OIRD) may be prevented with appropriate risk assessment and monitoring. Studies show most adverse clinical events are preceded by six to eight hours of physiologic instability while early intervention correlates with avoidable morbidity. In addition, approximately 70% of patients with obstructive sleep apnea (OSA) in the adult surgical population are undiagnosed placing them at high risk for OIRD post-operative. Meta-analysis on OSA screening tools concluded most of the screening tests will miss 60% of patients with OSA. Would utilizing a surveillance monitoring system in a 25 bed Critical Access Hospital (CAH) decrease incidence of opioid-induced respiratory depression and enhance care coordination by identifying obstructive sleep apnea? Project Description: Using the Plan-Do-Check-Act (PDCA) model for continuous improvement the need to monitor patients at high risk for OIRD was identified. High risk patients were defined as those who were post-operative, receiving opioid pain medication, bariatric (BMI > 30) or known or suspected to have OSA (utilizing STOP-BANG criteria). To monitor high risk patients the Masimo Patient SafetyNet (PSN) was used to track 4 parameters – Heart Rate (HR), Respiratory Rate (RR), Oxygen Saturation (SpO2) and Pulse Index (PI). The parameters were displayed simultaneously at the patient bedside, as well as, via a central patient view monitor at the nurse’s station and in the respiratory care department. The PSN identified parameters outside defined limits and sent alerts directly to caregivers for immediate intervention. Staff and patient engagement was obtained through educational meetings and input acquired from the hospital’s Patient and Family Advisory Committee (PFAC). Results: No cardiopulmonary arrests occurred in the 881 observation and 1,180 inpatients monitored by PSN over a one year period. In that same period, there were 6 early Naloxone administrations that prevented ICU transfer. Referrals for outpatient sleep studies, for suspected OSA increased by 60% compared to previous year. Lessons Learned: Continuous monitoring with the PSN proved to be effective in early identification of clinical deterioration that is unable to be detected through intermittent vital signs monitoring. Remote patient notification of deterioration demonstrated to be crucial in the timely intervention of staff members thus preventing failure to rescue due to OIRD, the need for advanced levels of care and death. Furthermore, care coordination and population health were enhanced through detection and referral of previously undiagnosed OSA patients. Would the addition of temperature, non-invasive blood pressure and hemoglobin parameters to the PSN help to identify patients at risk for complications, such as sepsis and gastrointestinal hemorrhage, thus facilitating a hospital culture of zero harm? Submitters: A. Goel; S. Knowles; B. Best; R. Moodt; T. Johnston; J. Surbella; J. Glowczewski; A Fertig; T. Knowles University Hospitals Geneva Medical Center, Geneva, OH

Commitment Timeline

We intend to build upon the success of the implementation of the Patient SafetyNet at Geneva Medical Center in 2016 by upgrading to Root monitors with vital signs and
expanding to 2 additional hospitals in our health system. We will develop new protocols to utilize the SafetyNet to help identify Sepsis and monitor gastrointestinal hemorrhage.

Impact Details

**Lives Lost in Last Calendar Year**
30

**How many lives do you expect to spare from harm in the next calendar year?**
450

**How many lives do you expect to save in the next calendar year?**
30

**Methodology for Determining Lives Saved**
Used lives spared harm formula provided