

APPLICATION FORM

Title of Entry: Achieving Operational Excellence in the Oncology Intensive Care Unit

Division: Small Organizations

Award: Optimal Operations

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Date Implemented: 01/05/2014
Date Results Achieved: 12/30/2016

Team Members: Jason Brash, BSN, CCRN, CPAN *Staff Nurse*
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Executive Summary

Title of Entry: Achieving Operational Excellence in the Oncology Intensive Care Unit

Description of the problem/opportunity, including goal and target audience & evidence:

Developing and maintaining a culture of safety and quality in delivering patient care is critical in the intensive care unit (ICU) especially an oncology ICU. Utilization of Lean Six Sigma improves patient safety, quality, and outcomes by eliminating life threatening errors. Lean Six Sigma focuses on eradicating defects. In an ICU a defect can be the difference between life and death. Lean also focuses on eliminating waste in healthcare. Several studies have shown that a culture that incorporates lean daily management enables and empowers the entire health care team of leaders, providers, and staff to continuously improve care for the patient's benefit. The objective of this initiative was to improve patient care by meeting quality metrics, decreasing hospital acquired infections, and increasing nursing engagement and professional practice. This empowered nurses to take ownership of departmental financials and sought opportunities to decrease expenses such as supply and linen waste.

Baseline Data: Historical data denotes medication scanning rate of 75%, falls rates at 1.32/1000 patient days, venous thromboembolism prophylaxis (VTE) 77%, Hospital acquired pressure ulcers (HAPU) 1/1000 patient days, Ventilator associated events (VAE's) 1/1000 patient days, central line associated blood stream infections (CLABSI's) 0.3/1000 patient days. Expectation of nursing continuing education and certification by front line staff was unstructured at baseline. Unit journal club participation was 12 per year. We then compared these metrics with the post lean daily management initiative.

Intervention: A small group of ICU nurses met with the expert from lean six sigma to create process reliability and connect value streams through standardization and stabilization of operating procedures on the unit. She engaged the team to take a deep dive into evaluating what was necessary and most valuable to patient care and outcomes in their practice as critical care nurses. The group designed a working lean daily management board from this discussion consisting of five areas most impactful to patient care and daily operations; Safety, quality, engagement, innovation, and growth/finance. They placed metrics within each category that became the focus of data collection and team discussion every day, every shift. This team created a document with points of discussion to be utilized at the board so that every point was addressed consistently. They began the pilot January 2014 and within the first year dramatic improvement in all areas was observed. The nurses continued to collect data as implementation of the board matured. This resulted in further improvements in each category throughout 2016.

Results: Analysis of the data demonstrated an increase in medication scanning by 23.9% from 75% to 98.9% in 2015 and remained high at 99.06% in 2016. Falls rates remained consistent at 1/1000 patient days, VTE prophylaxis improved by 23% from 77% to 100% in 2015 and remained consistent through 2016. HAPU's decreased from 1 to 0.6/1000 patient days, VAE's were reduced and sustained from 2 in 2014 to 1 in 2015 and to 0 in 2016. CLABSI rates

dropped from 0.3 to 0. Specialty item charge capture improved from \$0 to \$4200 monthly. Nursing professional specialty certification rose from 28% to 47% in 2015 and climbed to 57% in 2016. Stakeholders engaged in journal club doubled from 12 to 24 in the first year and soared to 41 last year. Two hundred fifteen educational events were provided or attended by the nursing team, exceeding the goal of 64.

Assessment: Developing and maintaining a culture of safety and quality is critical in our oncology ICU. The Journey to Operational Excellence was introduced to build a foundational operating framework in the ICU, create process reliability and connect value streams through standardization and stabilization, and to systematically increase the value to patients, stakeholders, partners, and community. Drickhamer (2016) has shown that A3 tools, such as the aforementioned, can build a more widespread culture of improvement. The purpose of this retrospective investigation was for the ICU team, along with Lean Six Sigma, to focus, examine and eradicate defects. Five areas; Safety, Quality, Engagement, Innovation, and Growth/Finance, were determined to be the most impactful and aligned with the unit's key performance indicators. Metrics, such as medication scanning, patient falls, VTE, HAPU, VAE's, and CLABSI's became the focus of data collection and daily discussion.

Intervention: A small group of ICU nurses met with a Lean Six Sigma expert to create process reliability and value streams. The Lean Six Sigma expert engaged the nurses by having them evaluate the most valuable aspects to patient care in comparison to outcomes in their practice as critical care nurses. She then educated the team in Lean Six Sigma theory. The group designed a Lean Daily Management Board from multiple discussions regarding outcomes. The following categories were determined to be of importance: Safety, Quality, Engagement, Innovation, and Growth/Finance. Among the categories selected, five metrics were chosen and became the focus of data collection and daily routine team discussion per shift. The five metrics consist of medication scanning, patient falls, VTE, HAPU, VAE's, and CLABSI's. The group then created a document based upon the metrics to include 12 questions to be utilized at the Balanced Scoreboard. The questions were generated to ensure consistency and accuracy of documentation every shift. The group began the pilot in January 2014 and within the first year of implementation, improvements dramatically improved in all areas observed. The nurses continued data collection as the board matured and the results further indicated improvements in each category throughout 2016.

Protocol: The ICU team consisting of nurses, respiratory therapists, managers and intensivists centralize at the lean daily management board once each twelve hour shift. The board is located directly on the unit to allow full participation without interruption in patient monitoring. All participants are required to stand during this 10 to 15 minute session to ensure

full engagement of every stakeholder. A nurse will then volunteer to read each of the 12 questions, receiving an answer to each from the charge nurse. Another team member is responsible to document all findings onto the applicable forms on the lean board. Any deviation from targeted goal metric is addressed using a problem solving tool which is then posted to increase awareness across shifts and ensure corrective action. Educational opportunities, journal club sessions, and team building projects are discussed.

Results: Lean Daily management empowered staff nurses to drive quality and safety in the ICU. They became accountable for implementation of evidence based patient care practices and guidelines, process improvement, and supply utilization and waste. Communication about professional certifications and degrees encouraged staff to pursue these goals. Discussions about recurrent patient issues or failure to meet metrics fostered research in new care protocols and guidelines. Analysis of the data demonstrated an increase in medication scanning by 23.9% from 75% to 98.9% in 2015 and remained high at 99.06% in 2016. Falls rates remained consistent at 1/1000 patient days, at 1/1000 patient days, VTE prophylaxis improved by 23% from 77% to 100% in 2015 and remained consistent through 2016. HAPU's decreased from 1 to 0.6/1000 patient days, VAE's were reduced and sustained from 2 in 2014 to 1 in 2015 and to 0 in 2016. CLABSI rates dropped from 0.3 to 0. Specialty item charge capture improved from \$0 to an average of \$4200 monthly. Nursing professional specialty certification rose from 28% to 47% in 2015 and climbed to 57% in 2016. Stakeholders engaged in journal club doubled from 12 to 24 in the first year and soared to 41 last year. Two hundred fifteen educational events were provided or attended by the nursing team, exceeding the goal of 64.

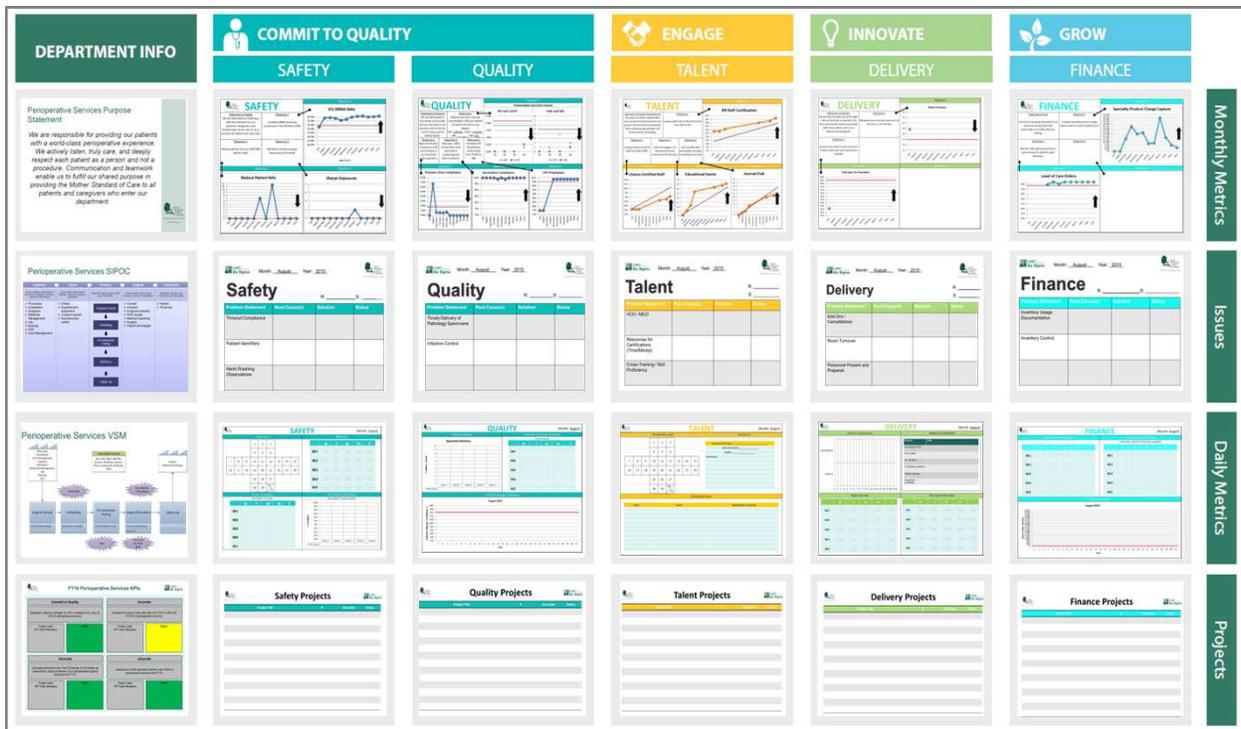
Adaptability: The potential to replicate our initiative is possible in any acute care setting seeking to improve patient safety, quality and outcomes. It is important to conduct a needs assessment within the specific unit by the front line staff in order to analyze current practices and barriers to those practices. The specific questions utilized must be designed by the team to guarantee relevance and applicability. This process was utilized by each unit and rolled out individually under the guidance and support of the Lean Six Sigma expert. All inpatient nursing units in our hospital engage with the board every shift which has assisted in meeting fiscal year key performance indicators, enhanced patient safety and quality of care delivered, and encouraged research projects to further improve patient outcomes. The results on every unit mimicked those obtained in the ICU.

Accountability: The Board is large and located in an open area in the ICU. All daily metrics are written on the board for everyone to acknowledge including managers and executives. Incomplete documentation was initially addressed by the nurse managers and developed into staff nurses taking accountability for completion. Focusing on pertinent metric results every

shift every day fostered professional accountability in every staff nurse in the ICU. Upon encountering a deviation in desired performance the staff nurses are expected to investigate and propose corrective action which is then initiated with approval from the manager. The meeting enhanced team unity in collective ownership of quality safe patient care, engagement in the unit and professional practice, innovation through research on the unit, and fiscal responsibility.

Relevance: The entire team was fully engaged in the meeting each shift. As they saw improvements in outcomes such as fall and infection rates, compliance to protocols, and increased number of certifications and conference presentations they independently utilized the board and have even made amendments to it based upon newly identified problems or consistent success with a previous metric. This lean tool enabled the ICU to meet the fiscal year's key performance indicators since its inception.

Visual Management Board



References

Drickhamer, D. (2015). Transforming healthcare: what matters most? How the Cleveland Clinic is cultivating a problem-solving mindset and building a culture of improvement. *Lean Enterprise Institute*.

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