Organization: University of Maryland St. Joseph Medical Center

Solution Title: Timely Telemetry Re-Attachment

Program/Project Description, including Goals: Cardiac telemetry monitoring is a continuous monitoring of a patient’s heart rate and rhythm. This service is offered to patients recovering from cardiac events, patients who may be at risk of cardiac events, and patients experiencing ongoing cardiac conditions. When patients on telemetry monitoring were taken off of their unit for tests or procedures and then return there was inconsistent re-application and confirmation of the monitoring with our central monitoring room. This was potentially placing patients at great risk of experiencing an unmonitored cardiac event. The target condition/goal is re-attachment and confirmation immediately upon return to the unit on 100% of patients.

Process: Beginning in June 2012, A multi-disciplinary team was formed and co-led by the Director of Nursing for Telemetry and our Lean Sensei. Our Executive Sponsor was the Chief Nursing Officer/ VP Patient Care Services. The team consisted of the Nurse Managers from our three telemetry units, the Lead Monitor Technician from our Central Monitoring Room, the Manager of Patient Escort Services, our Patient Safety Officer, the Clinical Practice Specialists from telemetry as well as bedside RNs and CNAs from the telemetry units. Utilizing A3 problem solving methodology the team identified the current condition and mapped the process, which included identifying over 50 real and potential barriers that could impede the goal of timely re-attachment. Countermeasures/Solutions were identified and a robust implementation plan developed.

Solution: Multiple countermeasures were identified, assigned an owner and implemented over several months. Some examples include (supporting Lean principles are in parentheses):

1. Monitor Reapplication Process:
   - Disconnect the Monitor
   - Patient Off Unit
   - Reattach Monitor

   [Diagram of Monitor Reapplication Process]

   - Disconnect the Monitor from the patient's bedside
   - Patient is transported off the unit
   - Monitor is reconnected upon return to the unit

   [Diagram steps include:]
   - RN or Tech
   - Transport
   - Patient
   - CNAs
   - RNs
• Revision of Management of Patients on Radio Frequency Monitoring Protocol with accompanying mandatory staff education plan for telemetry units as well as central monitor room staff (Standard Work)

• Enhancements to our current trip ticket to include monitor status (Quality)

• Implementation of a face to face handoff between patient escort and nursing that is expected to occur at the bedside in the patients room, assisted by vocera calls from escort to nursing staff that patient is returning (Visual Cues)

• Development of escalation process for patient escort when assigned caregiver is not readily available to receive the patient (Feedback Loop)

• Revision of current central monitor room log sheet and reinforcement of the teams need to follow protocol for safety net follow up phone/vocera calls (Standard Work)

• Map process for each type of test/procedure and establish expectations regarding the level of removal of equipment (for example; telemetry stays in place when patients are being sent to dialysis, all removed for MRI, etc…) (Flow)

• Random audits of re-attachment times from all 3 telemetry units (PDCA)

**Measurable Outcomes:** The team has been able to reduce the average reattachment times by over 60%. This has been sustained over 6 months. We have had no monitor reattachment safety issues since the implementation of the countermeasures.

**Sustainability:** In April 2013 we rolled our weekly A3 team into a bi-weekly Telemetry Operations team led by the Director of Nursing for Telemetry. Random monthly audits of all 3 telemetry units are completed and results shared with the group. Any outliers identified at that time are investigated by the manager and reviewed with the staff. Monthly results are shared at each unit level staff meeting and results are proudly posted! In addition to continuing to monitor
re-attachment data, the telemetry operations team has expanded into a telemetry floor process improvement focus and have already addressed standardizing other workflow processes, for example the cleaning and storage of the telemetry monitor packs on each unit. The impact has also helped to reduce the range of reattachment times – meaning that we had far less incidents of slow reattachment.

![Range and Average](image)

**Role of Collaboration and Leadership:** Leadership support and collaboration is what drove this team to success. As barriers were identified, leadership quickly and efficiently assisted items to move through, for example when a few IT barriers were noted. Our daily safety huddle, led by the quality department in our organization recognized the progress our team was making towards improving patient safety and asked us to give periodic updates in the form of A3 presentations to the group. The Quality Committee of our Board just recently presented this team with an award for the outstanding contribution to patient safety in our organization. The team itself worked together tirelessly to hardwire the changes needed to sustain success. Some of the items hardwired such as the face to face handoff in the patient room has now been initiated on our medical-surgical floors as well because of the patient safety benefits recognized far exceeding tele re-attachment alone but to assist for example with falls reduction. While the temptation was to focus on “bad people” for the delay in reattachments, we used the Lean approach and chose to focus on our “bad processes” – realizing that we have to provide our teams with robust elegant processes.

**Innovation:** The innovative and exciting piece of this project for the team was that we self-identified the issue and went to leadership for permission to work on solutions. Although many of the solutions are not unique using the A3 problem solving method has allowed the team to methodically work through solutions. When researching best practices in the telemetry world, we
found a tremendous amount of variation in how each organization handles monitoring cardiac care. Another innovation was to apply the value stream mapping technique to understand the true scope of our process issues. As we walked the process, we realized that our reattachment problems started back when we were removing the monitor and storing it!

Related Tools and Resources:

- A3 Problem Solving Tool
- Vocera communication devices

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