Project Title: Reducing Alarm Fatigue and Capturing Patients Telemetry Events

Date of Project: 11/2019- present

Applicant's Role in Project (Lead, Co-Lead, Active Participant, etc.): Co- Lead

Other team members involved:

Name	Title	Role in Project
Amanda Mazer	CNII	Co-lead
Shamia Wyche	CNII	Co-lead
Rachel Maranzano	SCNII	Participant

Plan: The Transplant IMC is located on 8 Gudelsky, it is a 27 bed intermediate care unit that serves patients pre-liver transplant, immediately after kidney or pancreas transplant, and for any abdominal organ transplant readmission. The unit acuity runs high as patients commonly have altered mental status, require titrating medications, and have high post transplant education demands on top of routine medical and surgical care. Telemetry monitoring is important on our unit because it gives clinicians real-time data on how hemodynamically stable or unstable their patient is while they are taking care of other patients. It also alerts all nurses of patient deterioration if the primary nurse is in with another patient. Alarms will sound if a blood pressure is too low, cardiac rhythm is irregular, heart rate is out of the normal parameters, or if the patient is in respiratory distress. The need for this project related to telemetry monitoring became evident very quickly. The impact that not using the telemetry monitors appropriately indicated a need for prompt intervention. Due to this threat to patient safety, we did not collect any background or baseline data. However, there was a UMMSafe report that also supported the need for process improvement. One UMMSafe report is enough to trigger change.

One day, the cardiology team was reviewing telemetry events for a patient on the central monitor. The patient they were consulted on was not properly admitted to the central monitor. The team was attempting to review days prior events to determine the correct treatment plan for the patient, but since the patient was not admitted properly to the telemetry system the team was unsuccessful. This specific part of admitting patients to the central monitor became a key focus of our process improvement, in addition to addressing alarms.

The alarms were constant on our unit, there was never a moment of silence. With alarms constantly sounding for non urgent events like connect 'SpO2 probe' or 'leads fail', staff are less likely to respond to actual patient events like apnea or desaturation. Apnea and oxygen desaturation alarms are not "crisis" alarms and do not draw your attention as much as arrhythmia or cardiac event alarms. 8 Gudelksy has been lucky that we did not have a patient event occur due to lack of alarm response. This project was put into place to prevent any sentinel events from occurring.

Do: Step one in creating a new culture and mindfulness around the alarms was to decrease any knowledge gap that existed in the staff. An education tool was made to sign off every staff member including nurses, PCTs, student nurses (SN), secretaries, mobility techs (MT) and patient family care liason. Since every discipline answers patient call lights, having basic knowledge of the central monitor

would assist in promptly attending to patient needs. Secretaries also can help play a role in ensuring patients are admitted to the central monitor properly. On our unit, PCTs and SNs take the routine vital signs. Having this group of team members properly silence alarms after vital signs was one of the biggest contributors to decreasing alarms.

Having another initiative to get staff signed off on can be overwhelming to all parties involved. It is a very large undertaking to get all staff signed off on new education by three people. We hit a lull with new sign offs when COVID hit. To climb over this hurdle, I made getting all charge nurses signed off a priority. I had a "check in" on alarm sign offs added to the agenda at two consecutive monthly charge nurse meetings. After the second meeting with this action item on the agenda, all charge nurses completed the education.

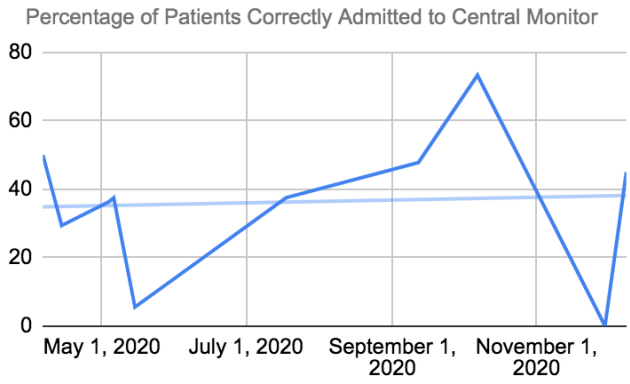
The second step was to create an audit tool to measure success of having patients accurately admitted and having alarms being addressed promptly. See the attached audit tool in the publications tab. Audits began when staff sign-offs were started (DATE) and are still being completed. Real time audit feedback is given to the nurses and PCTs.

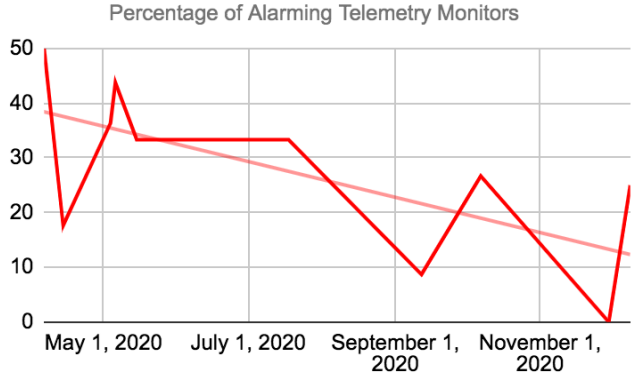
A new grad cohort group initiated 'quiet hour' on 8 Gudelsky while we were implementing this intervention. Each project had a different goal but aligned together well. From 1400-1500 there is a hyperfocus on alarms while 'quiet hour' is underway.

Shamia Wyche, RN and I teamed up to tackle his multifaceted issue. Shamia focused on the documentation of telemetry alarm parameters and telemetry measurement documentation in EPIC, provider communication to standardized alarm parameters.

Study (or Check): For the most part, the change has been successful. Just like with any new initiative, the effort remains on going. The audit tool findings are our quantitative measurement of success and change. See the graph below for a visual demonstration of the change this project has made. The table shows audit data. The graph in blue shows the percentage of patients correctly admitted, the higher the number the better. The trendline for this shows that there has not been much change made. The graph in red shows the percentage of patients telemetry monitors that are currently alarming. The lower the number would show that more change has been made. As you can see, the trendline here shows there has been a substantial reduction in the number of alarms.

	Percentage of Patients Correctly Admitted	Percentage of Alarming Telemetry Monitors
April 6, 2020	50	50
April 14, 2020	29.41	17.65
May 4, 2020	36.36	36.36
May 6, 2020	37.5	43.75
May 15, 2020	5.55	33.33
July 18, 2020	37.5	33.33
September 12, 2020	47.82	8.69
October 7, 2020	73.33	26.67
November 30, 2020	0	0
December 9, 2020	45	25
January 4, 2021	--	6.67





In this project, there is a qualitative measure of success as well. This would represent a change in unit culture and practice. When giving audit feedback, no staff members are confused. At the beginning, some staff would say things like, “You are really sensitive to the noise” or, “Those alarms must really bother you.” There would also be a lot of staff members stating they didn’t know or were not ever shown how to use the alarms effectively. To date, there have not been any telemetry related UMMSafe reports filed.

Act (or Adjust): To continue moving towards a safety focused nursing practice, we will continue to implement this initiative on silencing alarms, reducing alarm fatigue, and admitting patients to the central monitor properly. I plan to continue the audits and provide real time feedback to staff. Since Shamia and Rachel also audit the central monitors, I will be adding a column to write which staff member was given feedback for each error.

In order to capture all new hires, I plan to meet with our unit educator and orientation process developers to get central alarms and telemetry education added to the Transplant IMC Orientation Blueprint. I will also monitor all UMMSafe reports for any telemetry and alarm related issues. Lastly, we are having a charge nurse meeting on January 6, 2021 where Shamia and I will be giving an update on our project. Since there has not been much change in admitting the patients to the central monitor and it is a task that takes five minutes to complete for the entire unit, the charge nurses will start checking the monitor at the start of every shift. This check will be added on to checking the crash carts. See audit checklist for charge nurses.

I think that all units throughout the Medical Center could use this initiative, but we must develop a concrete plan on the Transplant IMC before moving to that step.