

Using Surveillance Monitoring as a Catalyst for Change: Decreasing Over-Utilization of Telemetry Monitoring

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Background

Over-utilization of remote telemetry on medical-surgical units is well documented in the literature, despite published recommendations from the American Heart Association (AHA) (2017) and others^{2,3,4}. Overuse of telemetry increases hospital costs, delays patient flow, and increases nursing time with various tasks¹.

From June to July 2017, a chart review was performed on patients admitted to two medical units at CHS NorthEast. 125 medical records were reviewed to determine if patients met AHA criteria for telemetry monitoring. Over 40% of patients on telemetry did not meet AHA criteria.

Table 1. Background Data: Over-Utilization of Telemetry

Medical Units:	Internal Pulmonary	Internal Medicine
# of Beds	28	44
% of patients on Telemetry	39.28%	18.07%
% over-utilization of Telemetry (Patients who did not meet AHA criteria)	48.33%	46.03%

*Data over 16 day period on two inpatient units at CHS NorthEast

There is a lack of current research evaluating alternative approaches to telemetry monitoring. Patient Safety Net (PSN) is a device that has been in use at CHS NorthEast since 2012 and offers an alternative to remote telemetry by providing continuous heart rate (HR) and pulse oximetry (SpO₂) monitoring surveillance to prevent adverse outcomes. PSN is considered a standard of care on medical-surgical units at our facility. In June 2018, CHS NorthEast upgraded PSN to a wireless device that allows patients more freedom with ambulation while their SpO₂ and HR are being monitored. The upgraded device allows nurses to admit their patients from the bedside using barcode scanning technology and sends alerts related to abnormal values directly to their companion phone.

Goal

The goal of this project was to decrease inappropriate telemetry utilization over a 6-month period through substitution of surveillance monitoring with PSN and implementation of a nurse-driven intervention based on AHA electrocardiographic (ECG) monitoring criteria.

Primary aims of the project were to:

1. Improve utilization of Patient Safety Net
2. Decrease telemetry utilization among low-risk medical patients
3. Maintain or improve recognition of patient deterioration

Methods

Nursing Scientific Advisory Council (NSAC) and Institutional Review Board (IRB) approval for this two-phase pilot study was obtained.

Phase 1 (Started June 11th, 2018)

- PSN equipment upgraded to a wireless device and education on new equipment provided to nursing staff
- Once utilization of PSN reached 90% for two weeks the study moved into Phase 2

Phase 2 (Started September 24th, 2018)

- Nurses were educated on AHA criteria for telemetry monitoring and telemetry removal forms
- If nursing determined indication for telemetry did not meet AHA criteria, telemetry monitoring was discontinued, or never applied
- Telemetry removal forms completed by nursing staff for each patient with telemetry monitoring discontinued

Data was collected for the following metrics before phase 1, and after phase 1 and 2:

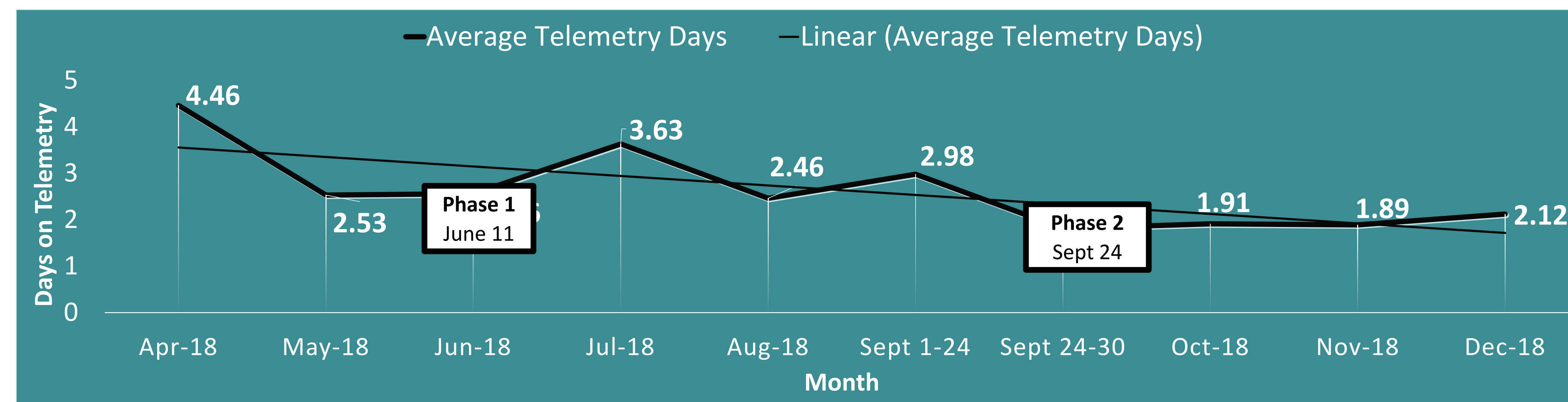
- Total number of patients on telemetry
- PSN utilization through point prevalence (total number of patients on PSN device at a moment in time compared to unit census)
- Total number of patients on telemetry that did not meet AHA guidelines for telemetry monitoring

For the duration of the pilot study, the primary investigator compiled the total number of rapid response calls with HR or SpO₂ issues

Key stakeholders met throughout the pilot study to provide updates on progress, identify barriers for nursing staff, and opportunities for improvement.

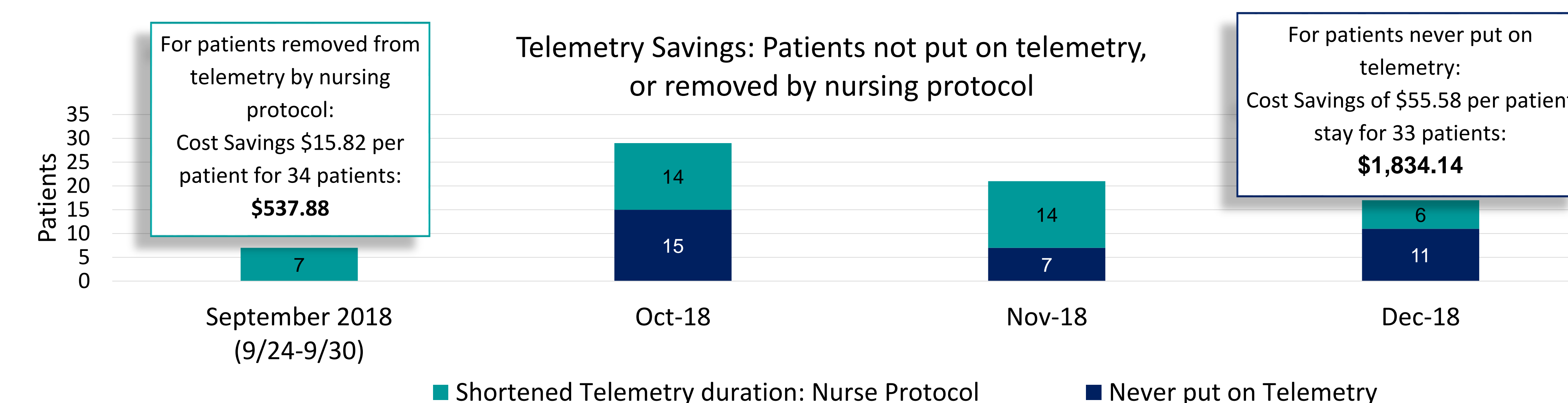
Results

Figure 1. Average Days on Telemetry



Average days on telemetry decreased from 4.46 to 2.12 days during pilot. This is attributed to appropriate utilization of telemetry monitoring through knowledge of and adherence to the AHA criteria, and empowering nursing staff to remove telemetry if not supported by these evidence-based standards.

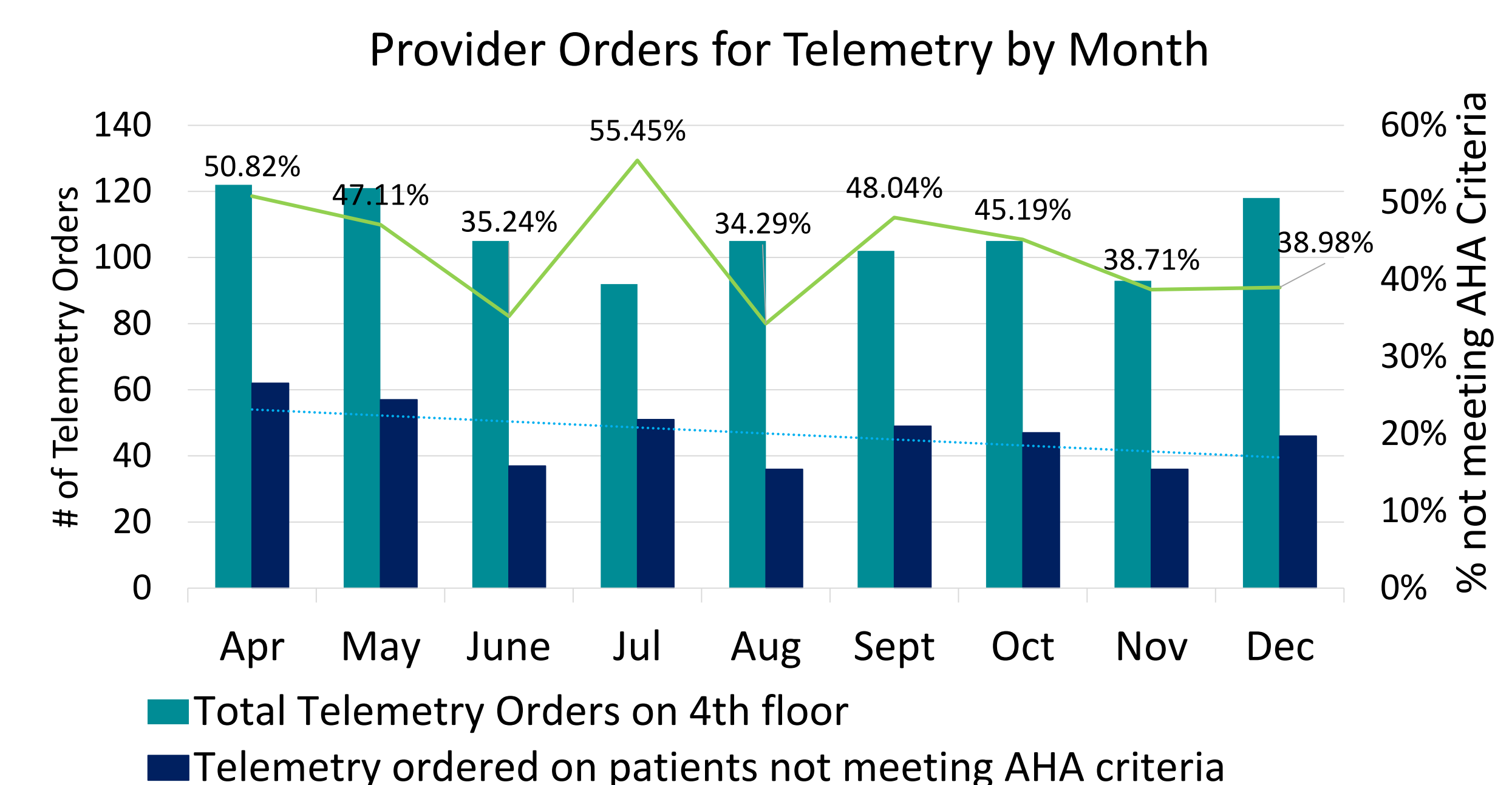
Figure 2. Telemetry Avoidance



During Phase 2, 33 patients were not placed on telemetry at all, resulting in telemetry avoidance. Additionally, 34 patients that did not meet AHA criteria had telemetry discontinued by nursing protocol.

Results

Figure 3: Provider Orders for Telemetry by Month



There has been a slight decrease in overall telemetry ordering over 6 months; however around 40% of patients throughout the study still did not meet criteria for telemetry monitoring

Table 2. Rapid Response Data on Pilot Unit

	Respiratory	Cardiac
Total Events	35	33
Captured by PSN	93.9%	94.3%

*Data from June 2018 to Dec. 2018 – 158 rapid responses on pilot unit
*18 cardiac events captured by PSN on patients not on telemetry

The cardiac events included decreased heart rate and increased heart rate due to Supraventricular Tachycardia (SVT) and new onset Atrial Fibrillation. No adverse patient events were reported.

Conclusion

In conclusion, PSN wireless surveillance technology has proven to be an acceptable alternative to telemetry monitoring in medical-surgical patients. Telemetry monitoring is over-utilized across our hospital system, and technology like PSN can be utilized to decrease costs and nursing time while maintaining patient safety and providing surveillance for clinical deterioration. As a result of this pilot study, four units were upgraded with the wireless PSN device and there is continued work to determine PSN impact on hospital flow and patient throughput, which are often negatively impacted by the lack of remote telemetry monitor availability. Further research on provider ordering habits and rationale for ordering telemetry outside AHA criteria could add value to this clinical topic.

References

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