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Caring Dimension: Caring for Others

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Strategy:

Carolinas HealthCare System Northeast and the Cardiovascular Division developed a nurse-driven telemetry removal protocol to reduce telemetry utilization within our hospital. The protocol was created as part of a Cardiac Redesign project to improve patient flow, improve nurse/provider collaboration, reduce cost, and improve quality of care. The Cardiac Redesign project has many components, including the nurse-driven protocol which is designed to reduce unnecessary utilization of telemetry while combining a shared decision-making approach between the nurse and provider as to when to remove the monitor. The Medical Staff supports this initiative through the approval of the protocol and pilot as well as through the “Choosing Wisely Campaign” that promotes the delivery of high quality, cost effective care to patients.

In April and June 2015, the Cardiac Division at Carolinas HealthCare System NorthEast trialed the nurse-driven telemetry removal protocol on a medical unit. This protocol allows nurses to evaluate the need for telemetry every 24 hours and if indicated, remove it per protocol. Development of the protocol was based on practice standards from the American Heart Association (2004) and the American College of Cardiology (1991) and was vetted through the Regional Medical Director for Sanger Heart and Vascular Institute, and Cardiovascular EAGLE Council. Final approval was obtained through the facility Medical Executive Committee.

Nursing often reports difficulty with managing numerous patients on telemetry and often have no clear reason for the telemetry order. Telemetry utilization on non-cardiac units (medical telemetry) accounts for 54% of telemetry orders at our facility. Cardiac telemetry accounts for the other 46%. During times of high census, it is often difficult to obtain telemetry monitors for patients that truly need this equipment, which negatively impacts flow throughout the facility. The purpose of this project was to optimize telemetry monitoring through implementation of a protocol which would allow nursing staff to assess for telemetry necessity on a daily basis and remove this equipment if not indicated. It was hypothesized that a reduction in telemetry utilization (measured in telemetry days) would be observed after implementation of the nurse-drive telemetry removal protocol. A reduction in telemetry days reduces LOS, lowers costs and charges to the patient, and allocates essential resources like telemetry monitors to the appropriate patients.

Daily assessment of telemetry need is performed using the protocol as a reference. Patients must have been on telemetry for at least 48 hours before the protocol could be utilized. There are two components to the protocol: A nurse-driven section and a provider-directed section. If the patient meets criteria for nurse-driven telemetry removal, then a courtesy call is made to the provider and an order is not required. If the patient meets the criteria on the provider-directed
protocol, then the nurse must call and obtain an order from the provider prior to removal. The protocol serves as a guide to the nursing staff in that it describes what types of conditions would meet nurse-driven removal and what conditions, arrhythmias, or medical history would constitute discussion with the provider and an order to remove telemetry.

**Outcome Data for the Strategy:**

The nurse-driven telemetry removal protocol (Figure 1 & 2) was trialed on the Family Medicine and Clinical Decision unit in April and June of 2015. Outcomes to be measured included telemetry utilization (measured in telemetry days), number of patients with telemetry removed per nurse-driven protocol, number of patients with telemetry removed per provider order, and nurse perception of the protocol. A major outcome that the team was hoping to observe was a reduction in telemetry utilization (measured in telemetry days) after implementation of the protocol.

Baseline data was collected in March. During the month of March, 255 patients were admitted to the trial unit. Of those patients, 95 were on telemetry. A randomized sample of 60 patients was evaluated and cumulative telemetry days calculated. This value was found to be 177.21 days, which would equate to an average of 2.95 telemetry days per patient.

Trial 1 occurred in April of 2015 and a total of 61 patients were assessed with the protocol. Of the 61, 12 (19%) had telemetry removed by the nurse per protocol and 16 (26%) had telemetry removed via provider order. 16 (26%) patients were discharged home prior to a length of stay of 48 hours and 12 (19%) patients had telemetry removed at discharge (Table 1 & Graph 1). Cumulative telemetry days for trial 1 was 130.73 days with a mean of 2.14 telemetry days per patient (Table 2).

Trial 2 occurred in June of 2015 and a total of 59 patients were assessed with the protocol. Of the 59, 10 (17%) patients had telemetry removed by the nurse per the protocol and 8 (14%) had telemetry removed via provider order. 21 (36%) patients were discharged home prior to a length of stay of 48 hours and 16 (27%) patients had telemetry removed at discharge (Table 1 & Graph 1). Cumulative telemetry days for trial 2 was 120.3 days with a mean of 2.11 telemetry days per patient (Table 2).

It was exciting to see that 30-40% of patients assessed for telemetry removal during each trial had telemetry removed per protocol. Whether telemetry was removed via the nurse-driven pathway of the protocol or the provider-directed pathway of the protocol, the patients were assessed by nursing staff and it was determined that telemetry was not necessary for the patient. This indicates that the telemetry removal protocol guidelines were utilized by the nursing staff and contributed to their sense of ownership over the telemetry monitor and order. Prior to the implementation of this protocol, nursing staff reported that they did not feel any ownership of the telemetry monitor orders and admit that this order was not always discussed with the provider. This protocol helped to promote conversations with the provider about the necessity of telemetry. Without this protocol, more patients would have remained on telemetry, potentially when not entirely necessary, thus contributing to an increase in telemetry utilization, charges to the patient, and costs to the facility. The majority of patients that did not have telemetry removed by the protocol, did not meet the length of stay requirement of 48 hours as the patient had to have been on telemetry this length of time before the protocol could be utilized to assess for necessity.
Table 1. Telemetry Removal Protocol Data Summary

<table>
<thead>
<tr>
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<th>Trial 1 – April 2015</th>
<th>Trial 2 – June 2015</th>
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</thead>
<tbody>
<tr>
<td># Patients Assessed with Protocol</td>
<td>61</td>
<td>59</td>
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<tr>
<td># Patients with RN-Driven Removal of Telemetry (Protocol)</td>
<td>12 (19%)</td>
<td>10 (17%)</td>
</tr>
<tr>
<td># Patients with Provider Order for Removal of Telemetry (Protocol)</td>
<td>16 (26%)</td>
<td>8 (14%)</td>
</tr>
<tr>
<td># Patients D/Cd home prior to 48 Hours Length of Stay</td>
<td>16 (26%)</td>
<td>21 (36%)</td>
</tr>
<tr>
<td># Patients with Telemetry Removed at Discharge</td>
<td>12 (19%)</td>
<td>16 (27%)</td>
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A reduction in cumulative telemetry days and mean telemetry days per patient was observed in trial 1 and 2 when compared to the baseline data collected in March. In trial 1, there was a difference in cumulative telemetry days from baseline of 30.2% or 46.48 days. In trial 2, there was a
difference in cumulative telemetry days from baseline of 38.3% or 56.91 days. This data supports the hypothesis that after introduction of a telemetry removal protocol, cumulative telemetry days and mean telemetry days per patient, would decrease.

There were no instances or reports of adverse outcomes or negative provider feedback. Nursing staff were surveyed after both trials to determine whether the protocol and education for use of the protocol was effective and that they had the equipment and resources needed. A Likert-type scale was utilized and responses were rated from 1 to 5 (1 meaning strongly disagree and 5 indicating strongly agree). Scores were then averaged and those results are displayed in Table 3. The survey results indicate that nursing staff felt that the guidelines were simple to follow, the education related to the implementation of the protocol helped prepare them for its use, and their unit had adequate supplies and equipment.

<table>
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<th>Table 3. Nurse Survey Response Results (Average)</th>
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<tr>
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<tr>
<td><strong>Guidelines Simple to Follow</strong></td>
</tr>
<tr>
<td>Trial 1 – April 2015: 3.64</td>
</tr>
<tr>
<td>Trial 2 – June 2015: 3.86</td>
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<tr>
<td><strong>Education Prepared Me to Utilize Protocol</strong></td>
</tr>
<tr>
<td>Trial 1 – April 2015: 3.81</td>
</tr>
<tr>
<td>Trial 2 – June 2015: 4</td>
</tr>
<tr>
<td><strong>Unit has Adequate Supplies and Equipment</strong></td>
</tr>
<tr>
<td>Trial 1 – April 2015: 4.19</td>
</tr>
<tr>
<td>Trial 2 – June 2015: 4.29</td>
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</table>

Cost savings and charges incurred by patients related to telemetry monitoring was another consideration of this project. Currently, it costs $2,402 per day for room and board. Out of that value, $1,076 is the charge for telemetry monitoring. For the month of March there were 177.21 cumulative telemetry days, which equates to a total telemetry charge for these patients of $190,677.96. The total charges for telemetry monitoring for the patients from trial 1 and 2 equaled $140,665.48 and $129,442.80 respectively. When compared with the charge of telemetry for the patients in the baseline group, Trial 1 demonstrated a reduction of $50,002.48 from the baseline charge while a reduction of $61,235.16 from the baseline charge was observed during Trial 2.

It is estimated that the cost of telemetry monitoring to the hospital is approximately 15% of the charge for telemetry. In March, there was an estimated cost to the hospital for telemetry monitoring for patients included in the baseline measurement of $28,601.70. Estimated costs to the hospital for trial 1 and 2 were $21,099.82 and $19,416.42, respectively. It is apparent from the information above that charges to the patient and costs incurred by the hospital were reduced after the implementation of this nurse-drive telemetry removal pilot.

The implementation of a nurse-driven telemetry removal protocol on a medical unit turned out to produce some wonderful results. The team was pleased to see a reduction in cumulative telemetry days, charge to the patient and hospital cost after the two trials. The nursing staff were crucial to the success of this project because of their dedication and willingness to utilize the protocol.
and collaborate with providers if needed. Nursing staff reported that it was nice to be able to assess for telemetry need on a daily basis and then make a decision to continue the equipment if necessary, as guided by the protocol or in collaboration with the provider.

In our world today, healthcare is highly scrutinized and is challenged to create innovative ways to reduce cost while maintaining a high level of quality. This evidence-based nurse-driven protocol contributes to that initiative by promoting the reduction in unnecessary orders for telemetry monitors, encouraging critical thinking and appropriate telemetry utilization among nursing staff and providers.

Carolinas HealthCare System Northeast is leading the way within our system to demonstrate value for the patient, nurse and organization through this nurse-driven protocol. The goal is to spread the initiative across our facility and throughout the system. The impact this protocol can have for nursing practice, the autonomy it fosters, and the invaluable partnership that it promotes between the nurse and provider is astounding. Not only does this protocol create and encourage innovative thinking and autonomy, but it demonstrates the importance of the appropriate use of resources, and at that point, everybody wins.

References


Figure 1. Telemetry Removal Protocol – 2015

Guidelines to Discontinue Telemetry Monitoring
Non-Cardiac Departments

- Patient placed on Telemetry Monitoring as defined by provider order.
- RN to assess continued need for telemetry (during ADDO Rounds) beginning after 48 hours of initial monitoring.
- Document on the “Daily Telemetry Assessment” form.

Has the patient been on telemetry for 48 hours?

NO

Continue monitoring, reassess in 24 hours and document on the “Daily Telemetry Assessment” form.

YES

Does the patient meet the following criteria?
- Normal Sinus Rhythm rate 50-120 for 48 hrs
- Patient with asymptomatic PVCs not hospitalized for cardiac reasons
- DNR documented, not a candidate for arrhythmia treatment
- Patient admitted with respiratory diagnosis (COPD, Asthma or pneumonia) without an active cardiac diagnosis this admission

NO

IF NO, does the patient meet one of the following medical diagnosis:
- Identified non-cardiac cause of syncope, near syncope, or dizziness
- Stable CHF (compensated 24 hours after IV diuretics)
- Chronic Stable Atrial Fibrillation-rate less than 100, on anticoagulation

YES

Continue monitoring: Reassess in 24 hours and document on the “Daily Telemetry Assessment” form.

Order Obtained from provider to DC tele:
- Complete Daily Telemetry Assessment Form
- Notify the Arrhythmia Center
- D/C Telemetry and enter D/C order into Cerner – “Verbal” or “Phone”
- Return Telemetry box to the Arrhythmia Center

NO order obtained from provider:
- Continue monitoring: Reassess in 24 hours and document on the “Daily Telemetry Assessment” form.

Notify physician to OBTAIN ORDER for discontinuing telemetry
- If no order obtained, RN to ask physician to consider cardiology consult

Color Legend:
Blue Boxes: “Nurse Driven Pathway”
Red Boxes: “Physician Order Pathway”
Figure 2. Daily Telemetry Assessment Form - 2015

Nurse Driven Telemetry Removal Pilot – Phase 2
Daily Telemetry Assessment – Non Cardiac Units

Telemetry Assessment:
1. RN to review “Guidelines for Telemetry Monitoring” following 48 hours of initial telemetry monitoring with clinical supervisor/charge nurse.
2. Identify the reason to maintain or remove telemetry.
3. Sign and countersign the “Daily Telemetry Assessment Form” starting on Admission

Primary Diagnosis: ___________________________ Date/Time of Admission: ___________________________

Initial Reason for Telemetry: ___________________________ Date/Time Tele Started: ___________________________

Daily Assessment of Cardiac Monitoring:

Date/Time: ___________________ RN Signature: ___________________________

Clinical Supervisor/Chg. Nurse Signature: ___________________________

☐ No changes, continue to monitor Reason ___________________________

☐ D/C Telemetry Reason ___________________________

Date/Time: ___________________ RN Signature: ___________________________

Clinical Supervisor/Chg. Nurse Signature: ___________________________

☐ No changes, continue to monitor Reason ___________________________

☐ D/C Telemetry Reason ___________________________

Date/Time: ___________________ RN Signature: ___________________________

Clinical Supervisor/Chg. Nurse Signature: ___________________________

☐ No changes, continue to monitor Reason ___________________________

☐ D/C Telemetry Reason ___________________________

Date/Time: ___________________ RN Signature: ___________________________

Clinical Supervisor/Chg. Nurse Signature: ___________________________

☐ No changes, continue to monitor Reason ___________________________

☐ D/C Telemetry Reason ___________________________