Congestive Heart Failure: implementation of a hospital-wide clinical pathway in a Type 1 Observation Unit - an ongoing effort

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**Background**

Congestive heart failure (CHF) is one of the more common diagnoses seen in hospitals and often results in repeat admissions. Innovations in healthcare have worked towards safely preventing avoidable hospital admissions. In this quality improvement endeavor, we discuss strategies to create lasting culture change in management of CHF, all with a goal of positively impacting disease management and 30 day readmission rate. At NYU Langone Tisch Hospital, a hospital-wide, evidence-based initiative was launched to effectively manage CHF in the inpatient setting and to safely prevent readmissions. This initiative was an electronic health record-imbedded “CHF pathway”. In our type 1 observation unit, a unit which also manages short-stay inpatients, utilization of the “CHF pathway” was inadequate.

**Aim**

The aim of this initiative was to implement a multifaceted intervention to increase compliance with a complex clinical pathway.

This included gaining understanding as to why compliance with the pathway was below target and providing education to all providers on the evidence basis for the “CHF pathway”.

Ultimately, the goal of improving pathway utilization was pursued in order to realize the hoped outcomes of decreased 30-day readmissions and timely outpatient follow up.

**Results (table 1)**

The results period is ongoing and will be updated prior to presentation.

- There has been a 46% increase in the appropriate weight-based diuretic dosing.
- Scheduling of follow-up appointments increased by 60%
- Return visits to the hospital within 30 days decreased by
- Use of the pathway increased by 20%
- Average length of stay was not significantly impacted.

**Table 1**

Rates of compliance with specific standards set in the “CHF pathway”

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF pathway (first 24 hrs)</td>
<td>45%</td>
<td>69%</td>
</tr>
<tr>
<td>High-dose furosemide given as initial dose</td>
<td>66%</td>
<td>99%</td>
</tr>
<tr>
<td>Specific HF diuretic</td>
<td>12%</td>
<td>99%</td>
</tr>
</tbody>
</table>

**Actions Taken**

A chart review of the management of all patients treated for CHF was completed, and those appropriately placed on the “CHF pathway” were compared with those that should have been placed and were not. This review indicated that for patients treated in accordance with the “CHF pathway”, 30 day readmissions dropped significantly. Close follow up scheduled prior to discharge also impacted 30 day readmissions. (Table 2)

The fundamentals of the “CHF Pathway”, specifically the foundation of evidence, were reviewed in multidisciplinary groups. Specifically, identification of appropriate patients for management on the pathway, use of appropriate weight-based diuretic doses as well as re-dosing of diuretics based on volume of urine output, sequencing of blood chemistries and scheduling close outpatient follow-up prior to discharge were highlighted.

Clear measures for success were identified, namely appropriate diuretic dosing, appropriate use of the pathway, and presence of clearly scheduled follow-up prior to discharge.

CHF champions were identified, and real-time feedback was given to providers based upon chart review of every patient with heart failure in the unit. CHF management was discussed in interdisciplinary team meetings, via emails, one-on-one discussions, and bulletin boards, in addition to real-time chart review with periodic feedback of goal achievement.

**Lessons Learned**

Consistent use of weight-based diuretic dosing created an initial challenge due to concerns of perceived “high” doses. Affording the opportunity for feedback of specific concerns and explaining the data supporting the efficacy of this management, in addition to ensuring that providers understood which patient’s would not be suitable for this management was essential for provider buy-in.

Real-time provider feedback on individual patient management allowed for patient-centered teaching, and reinforced best practices.

Recognizing successful pathway utilization provided positive reinforcement to individual providers and encouraged future use of the pathway.

Highlighting the essential role of all members of the team, including nursing staff and evening/overnight providers allowed for a collaborative approach to patient care and a team-based approach.

Engagement with non-clinical staff (in this case those responsible for scheduling follow up appointments) greatly improved success of this specific goal.

Continuous surveillance is necessary to ensure reliable change.

**Table 2**

Comparison of outcomes for patients treated for decompensated CHF meeting pathway standards vs failing pathway standards

<table>
<thead>
<tr>
<th>Measure</th>
<th>On the CHF Pathway</th>
<th>Appropriate First dose of Diuretic</th>
<th>Appropriate Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Average LOS</td>
<td>30 hrs.</td>
<td>37 hrs.</td>
<td>36 hrs.</td>
</tr>
<tr>
<td>Volume</td>
<td>17</td>
<td>68</td>
<td>44</td>
</tr>
<tr>
<td>30-day readmissions to EP</td>
<td>24%</td>
<td>9%</td>
<td>11%</td>
</tr>
</tbody>
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