A Retrospective Study of the Impact of Increased Nursing Staff Use of Rothman Index System on Patient Care at a Rural Midwestern Facility

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Disclosures

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Learner Objectives
Does re-education impact utilization of a patient condition tracking and trending tool?

Does use of a patient condition tracking and trending tool impact patient outcomes?
Disclosures

Employer: Blessing Healthsystem ~ Quincy Illinois

The presenter & authors declare no conflict of interests.

This project received no sponsorship or commercial support.
The research questions we asked:

- Does re-education have an impact on utilization of the patient condition tracking tool?

- Does use of the patient condition tracking tool by nursing staff improve patients’ outcomes?
History of the Patient Condition Tracking Tool

Named in memory of the mother.

This woman was an 87 year old patient who had a prosthetic aortic valve replacement.

Initially she was doing very well and continued to improve. However, a few days later while in the hospital, her condition declined to a critical state.

Her sons, data analyst experts, alerted staff to their mother’s changing condition. However staff did not identify the decline early on and intervene.
History of the Patient Condition Tracking Tool

Ultimately their mother’s condition did not improve and she passed.

Her sons were determined to use their skills to develop a tool to help alert healthcare professionals to patient conditions.
History of the Patient Condition Tracking Tool

This tracking tool is an algorithm that was built using 22,000 patient records and was validated with another 22,000 patient records.

The tracking tool assists staff to identify the early and subtle changes that occur in our patients.
The index pulls from 26 areas within the medical record and a score is calculated.

There has been an update adding “alert” lanes for staff – to help identify those patients who have had changes in the score.
The results are plotted on a graph and gives us a visual of our patient’s progress.

The tracking tool can help us see when patient status’s change at a glance.

The tracking tool can help us identify those patients who have a higher chance of a negative outcome quickly and intervene as necessary.
How it Works

- Although the tracking tool is not a predictor of mortality there is a noticeable correlation between the two.

- Changes in the tracking tool alert staff to look closer at the patient to determine if intervention is required.
Subtle changes are often not quickly noticed due to our rotating work schedules.

Staff often does not have the same patient assignment for many days in a row.

It is difficult for staff to accurately ascertain the patient baselines, for example their dietary habits, if it is the first time they have encountered that patient, thus making a determination if the patient has increased difficulty.
Here is how the score breaks down:

- **Blue Zone**
  - Low Risk
  - 100-65

- **Yellow Zone**
  - Moderate Risk
  - 64-40

- **Red Zone**
  - High Risk
  - Below 40
Notice the pink shading; this indicates the impact this measurement had on computing the score.
Determination of group makeup

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Pre-Education</th>
<th>January – July 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Mandatory Re-Education</td>
<td>August 2012</td>
</tr>
<tr>
<td>Group 2</td>
<td>Post-Education</td>
<td>September 2012-February 2013</td>
</tr>
<tr>
<td>Group 3</td>
<td>Sustained Use</td>
<td>March – August 2013</td>
</tr>
</tbody>
</table>

The three time frames were chosen to coincide with:

- Low Use – Group 1
- Post-Education Use – Group 2
- Sustained Use Post-Education – Group 3
Group 2 had significantly more (p= .008) staff views of the tracking tool than Group 1.

The number of views of the tracking tool decreased for group 3 but remained higher than Group 1, but were not statistically significant.
There was a statistical significance (p = .008) between Group 1 and Group 2 with Group 2 having fewer Rapid Response calls.

Rapid Response calls for Group 3 remained lower than Group 1 but were not statistically significant.
## Code Blue codes per 1000 patient days

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Pt Days</th>
<th>Code Blues</th>
<th>Code Blue Per 1000 Patient Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>9219</td>
<td>11</td>
<td>1.19</td>
</tr>
<tr>
<td>Group 2</td>
<td>7463</td>
<td>10</td>
<td>1.34</td>
</tr>
<tr>
<td>Group 3</td>
<td>7122</td>
<td>4</td>
<td>.56</td>
</tr>
</tbody>
</table>
Conclusion

Tracking tool graph re-education resulted in increased graph viewing by nurses. We conclude that due to increased viewing, nurses identified downward trends in the patient’s overall condition leading to earlier intervention and prevention of deterioration to the point of necessitating a rapid response or Code Blue.

Based on these patient outcomes it appears that routine re-education and requiring tracking tool graph viewing at a minimum during all hand-off reports will be standard practice. Findings of the study was shared with nursing leadership to establish graph viewing protocols – this education has now become annual.


