Organization: Sinai Hospital of Baltimore

Solution Title: Using Real-Time Data to Impact Patient Care and Nursing Practice

The use of nursing documentation to improve care quality and increase patient safety has been supported by other hospitals. [1] Rothman and his colleagues used the electronic health record data to help make clinical decisions and improve health care delivery.[2] Also, electronic data from health records has been used for performance improvement and enhanced clinical outcomes.[1] The ability to obtain immediate feedback regarding the quality of documentation may enhance a clinician’s performance.[3]

In April 2014, the Patient Care Services (PCS) Department began a concentrated effort to provide its clinical leadership team with daily reports, which reflected information from the electronic health record documentation from the previous 24 hour period. The PCS leadership team felt that consistently using real-time data was critical to our efforts towards being a high reliability organization.

Problem: Previously, the PCS leadership group primarily received monthly or quarterly reports consisting of data mined from the electronic health record documentation. Receiving such information on a monthly or quarterly basis, while adequate for trending purposes, meant that the nurse managers and frontline nurses could not impact the outcomes of current patients. Other baseline data was obtained through a manual extraction of unit electronic health records, which often included a cross-sectional, random review across multiple units. While this practice provided some information, it did not accurately paint a picture of patient care across the hospital.

The purpose of this performance improvement initiative was to offer the leadership team daily real-time data to improve patient outcomes, impact clinical decisions and practice of frontline nursing staff. As part of adhering to regulatory requirements, the PCS leadership endorsed the philosophy that what is done needs to be documented, and routinely audited as part of a verification process. Consequently, along with the data, the PCS leadership conducted routine observation/educational audits to validate that the frontline nurses were providing the quality patient care that was reflected in their compliance with documentation.

Goals:
1. Improve patient outcomes by using data from the electronic health record documentation for current patients being treated in both inpatient and outpatient settings.
2. Provide frontline nurses with empirical evidence of their practice compliance
3. Encourage the PCS leadership team to foster opportunities to praise, guide, coach and/or mentor frontline nursing staff based on empirical data reflected in the daily reports.
Baseline: Baseline information related to integumentary assessments, pain assessments and the interdisciplinary plan of care is provided under the measureable outcomes section of this document.

Process

Rationale for Report Development: The Vice President of PCS requested that the leadership team use real-time data as one approach to gauge the quality of our nursing care. The PCS leadership team needed data that reflected the current practice of the frontline nursing staff. The information was essential to determine the performance of our nursing staff in regards to documentation and adherence to the current policies. As a result, real time data reports focused on key domains were developed. The data points included in each report were selected to improve patient safety, meet regulatory requirements for monitoring and determine adherence to policy.

Clinical Expert Collaboration: The PCS Nursing Informatics Specialist (NIS) led the effort and met with clinical experts to develop the salient data elements for each report. The process for report development required the NIS to meet with the clinical experts to discuss the data elements needed for each specific report. During the discussion, the NIS and clinical experts visually reviewed the specific documentation fields within the electronic health record. As part of the process, a screen shot of the actual data point in the documentation was captured and included in the report request. This step was critical to provide specificity to the Information Services (IS) staff assigned as the report writer.

Report Validation: Once the reports were created, and released for validation, the NIS educated PCS leadership group about the purpose of each report, and how to interpret the data. The entire leadership group spent four to six weeks validating the report. The validation included reviewing the report daily and providing feedback regarding discrepancies between what was reflected as non-compliance in the report, and what was actually in the electronic health record documentation. As discrepancies were identified, the NIS forwarded the comments to the report writer, who quickly made modifications to the parameters of the report. This helped the NIS and clinical experts to refine the report. The validation process often revealed the need for education of frontline staff nurses about policies related to the report, as well as a need to edit existing policies. This agile process resulted in several iterations of report refinement.
Solution

Domain Topic Development: The expert clinicians who helped develop the daily report were Clinical Nurse Specialist (CNS) assigned to specific domain topics and other frontline staff nurses. These domain topics included:

- Integumentary Assessment
- Pain Assessment/Reassessment
- Interdisciplinary Plan of Care Goals/Interventions
- Bar Code Management Administration (BCMA)
- Urinary Catheter Monitoring
- Vaccination Administration
- Bedside Shift Reporting

Report Structure: Each report had a similar structure and included common data elements such as unit, patient and staff information. The structure of the report was paramount to ensure that each report had the same look and feel to help staff utilize the report more efficiently, and to easily transition from one report to the next. Once the IS report write created the Power Insight report requested, the NIS distributed the daily report to the leadership group which included the directors, nurse managers, CNSs and selected clinical nurse leaders (CNLs). Also the NIS often included the Vice President of PCS to highlight that a new report had been released.

Report Implementation: Once the NIS and leadership team agreed that the report had been properly validated, the report was sent daily to an established electronic mail (e-mail) distribution group that consisted of the directors, nurse managers, CNS and clinical nurse leaders.

Measurable Outcomes: The results for three of the daily reports are provided in this section. The PCS leadership share the daily reports with the frontline staff so that they have an awareness of their documentation practice, which likely reflects their clinical practice. Our intent of sharing the data on the daily reports with the nursing staff is to foster an appreciation of the link between their care of the patient and documentation of their work. By providing empirical evidence of their efforts, the frontline staff have a richer understanding of their impact on patient safety and outcomes.

Pain Assessments: Graph 1 depicts the total number of undocumented pre-/post-assessment for pain relief medications ordered as needed. The Pain Assessment Report includes information about the patient, unit, nurse, pain medication, and instances when a pain assessment was not conducted before and after medication administration. The PCS leadership share this daily report with the frontline staff so that they have an awareness of their deficiencies, which could greatly impact patient outcomes. Since the inception of the report,
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the frontline nursing staff have shown a trend towards improving their documentation of pain scores before and after medication administration.

Graph 1. Undocumented Pain Assessments

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<tr>
<th></th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Pre-Assessment</td>
<td>7499</td>
<td>2845</td>
<td>671</td>
</tr>
<tr>
<td>Pain Post-Assessment</td>
<td>7220</td>
<td>3508</td>
<td>654</td>
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Skin Assessments: Graph 2 depicts the total number of undocumented integumentary assessments. Specifically, this documentation addresses whether the patient’s skin was intact or if there was pressure ulcer or wound present during assessment. Since the inception of the report, the frontline nursing staff have shown a trend towards improving their documentation of integumentary assessments, which links to their practice of visually inspecting the patients skin for any signs of pressure ulcers or wounds.

Graph 2. Undocumented Skin Assessments

<table>
<thead>
<tr>
<th>Month</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
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<tbody>
<tr>
<td></td>
<td>129</td>
<td>95</td>
<td>4</td>
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Interdisciplinary Plan of Care (IPOC): Graph 3 depicts the total number of system generated entries left uncorrected by our nurses. Sinai Hospital implemented an electronic IPOC in April 2014. As part of that effort, we have been collecting information about what plan of care was initiated and if incorrect patient specific goals and interventions were written. The IPOC daily report provides our staff with information about the quantity and quality of the patient specific goals and interventions. Since the inception of the report, the frontline nursing staff have generally shown a trend towards improving their plan of care documentation in regards to ensuring that the patient goals and interventions target patient specific problems.

Graph 3. Incorrect Entries for Interdisciplinary Plan of Care

System Changes and Impact on Data Quality: In October 2014, Sinai Hospital implemented a new registration/scheduling software that had an impact on the quality of our daily reports. There is no way to determine the extent of the impact of the software implementation. However, we continue to monitor and validate the quality of the reports daily to ensure that our frontline staffs have accurate data.

Sustainability: The PCS leadership team continues to receive all the reports daily. The NIS also shares the aggregated data analysis by unit and hospital level during recurring leadership meetings, so that the team is kept apprised of their daily efforts. The reports continue to be sent daily via email in an Excel format to facilitate filtering by specific units, nursing staff or other report fields. Unit managers developed their own process for reviewing the data with their frontline nurses on a recurring basis.

Some of the actions taken by the nurse managers to highlight the performance of each nurse are listed below.
• Emailed specific documentation results to individual frontline nurses for corrective action during their shift when time appropriate.
• Posted report documentation in private break rooms for frontline staff awareness.
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- Reviewed daily reports one-on-one with frontline nurses to help guide, coach and mentor towards improving patient care. The daily reports were also used as part of performance evaluations.
- Shared report during unit meetings, outcomes and practice council meetings and shift huddles to discuss how to improve patient outcomes, practice and policy/documentation compliance.

The PCS leadership plan to develop similar reports to help track falls risk assessments and restraint documentation. In general, we feel that it is too early to determine the impact of these daily reports. However, recurring analysis indicates an increase in performance improvement. The NIS continues to receive feedback when discrepancies are identified in the specific reports. These discrepancies are reviewed and discussed with the staff to help clarify the data. When appropriate, the NIS shares the discrepancies findings with the IS staff, along with requests for report enhancements.

**Role of Collaboration and Leadership:** The early success of this ongoing initiative is due to the close collaboration between the PCS Leadership, the NIS, clinical experts and the report writers on the information services staff. Additionally, feedback from the frontline nursing staff was critical in the development and refinement of all of our daily reports. The actions taken by the frontline nursing staff in response to their performance on the report has resulted in general improvement. As importantly, education and changes in practice to adhere to policies has resulted from a critical review of the daily data. Finally, the strong support for this initiative from the PCS Vice President has made this ongoing effort a success.

**Innovation:** The PCS team used real time electronic health record documentation data in several domains to engage frontline staff in understanding how their practice and documentation impact patient safety, care and outcome. As a result, the frontline nurses have a stronger appreciation of the effect of their practice and documentation on overall quality patient care.

**Related Tools and Resources**

**References**

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**Tools/Resources**
- Daily Reports
- Policies related to Report Domain Topics
- Information Services Report Writers

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