NENIC
Posters!
NENIC Member Highlights 2019

1. Laura Ritter-Cox
   Developing an Intensive Care Unit Acuity Tool

2. Danielle Perley
   Assessment, Creation and Adoption of a Sepsis Trigger Tool in the EHR

3. Mary Ellen Kinnealey
   Utilizing the Electronic Health Record in the Perioperative Arena in the Prevention of Pressure Injuries

4. Sarah Wright
   Implementation of Digital Whiteboard & Interactive Patient Education and Care Application

5. Naomi Mercier
   Improving User Efficiency with Plan of Care Automation
NENIC Member Highlights 2019

Developing an Intensive Care Unit Acuity Tool
Laura Ritter-Cox, MSN, RN-BC
ICU Application Administrator
Beth Israel Deaconess Med Center
Patient acuity refers to the physical and psychological complexity of patients

The Therapeutic Intervention Scoring System 28 (TISS – 28) was developed to stratify patients by severity of illness

Data from the electronic medical record can automatically calculate the TISS – 28 score

Massachusetts law requires all ICUs to have an acuity tool
Goal

➢ In accordance with Massachusetts General Law regulating nurse to patient ratios in critical care units, we developed a tool and process to approximate acuity and guide patient assignments using bio-psycho-social assessment measures.
The dashboard is used to ensure each unit is staffed appropriately.

The scores are only a guide and provide an objective measure to support nursing judgement while making patient assignments.

Patient conditions are dynamic and acuity measurement is static and only valid at the time it is measured.

Nursing judgement is still utilized ultimately for assignments.

With changing technology, constant oversight is required.

Reiterative training to assure all users are entering data consistently.
Next Steps

- Assess the need for further user education to ensure documentation accuracy
- Review how this acuity tool is being used and evaluate areas for improvement
- Reexamine the TISS-28* weighting of therapies
- Possibly interfacing with other scoring systems
- Assessing the skill mix and acuity of each ICU to better manage allocation of resources
References:


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Assessment, Creation and Adoption of a Sepsis Trigger Tool in the EHR

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Assessment, Creation and Adoption of a Sepsis Trigger Tool in the EHR

Danielle Perley, BSN, RN, CPHON
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Introduction

• One million patients diagnosed with sepsis each year\(^2\)
  – Increasing awareness
  – Increasing vigilance
  – Quick diagnosis

• Surviving Sepsis Campaign
  – Focus on identifying and providing quick appropriate care
  – Latest guidelines published in 2016\(^1\)

• Opportunity for inappropriate testing and treatments\(^3\)
Assessment/Methods

Request made to build Sepsis Trigger Tools in the EHR

Key Components to Clinical Decision Support Tools
• Increase awareness
• Protect patient from excessive testing/diagnostics

Initial Wave for Electronic Sepsis Trigger Tools:
• Intensive Care Units
• General Medical Floors
Assessment/Methods

- Assess original paper tools used for pilots
Assessment/Methods

• **Sepsis Trigger Tool Built in the EHR**
  – Build within nursing’s current workflow
  – Create a custom section in the flowsheet which included:
    • Conditional logic
    • Selection based calculations
    • Discrete fields with interpretation capability
      – 72 different interpretation scenarios built to accommodate all documentation possibilities for the ICU Sepsis Trigger Tool
The “Risk for Sepsis?” field is interpretive, it will interpret the 72 answer combinations for the previous fields for the tool and automatically determine if the patient is at risk for sepsis.

Fields denoted by a star are linked to reference text to provide clinical decision support the nurse.

This field opens the appropriate Sepsis Trigger tool for the patient location.
Assessment/Methods

EHR Utilization in Additional Areas

- Neonatal Intensive Care Unit
  - New specialized tool
- Dialysis/Therapeutic Apheresis
  - Utilizing existing acute care tool
Discussion/Conclusion

• Tool usage is monitored in the initial adoption areas
  – Intermittent chart audits
  – Data collection through our data warehouse
  – Included in our specialty views, including our new Illness Severity View.

• Sepsis Trigger Tools have been integrated into policy
  – Help to ensure it is being used to capture early signs of sepsis.
References


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NENIC Member Highlights 2019

Utilizing the Electronic Health Record in the Perioperative Arena in the Prevention of Pressure Injuries
Mary Ellen Kinnealey, RN, MSHI
Perioperative Informatics Staff Specialist
Massachusetts General Hospital
Utilizing the Electronic Health Record in the Perioperative Arena in the Prevention of Pressure Injuries

M. Ellen Kinnealey, RN, MSHI
Pamela Wrigley, RN, MS
Introduction/Background

- Pressure injuries (HAPI) cause devastating physical and emotional impact for patients and research demonstrates that many hospital-acquired injuries originate in the operating room (OR).
- The incidence rate ranges from 12% to 66%.
- The length of surgery is a significant factor.
- Patient safety literature supports the hand off communication of intraoperative patient positioning. It is a mystery to most floor nurses how the patient is positioned in the OR.
- Our project team devised a way to communicate visually the OR positioning and potential pressure injury areas electronically.
- Using EPIC functionality, “Annotated Image,” developed unique enhancements.
- The result is a shared drive with files of structured images of patient positions with arrows highlighting areas of potential pressure injury.
Methods

- This project involves the entire MGH OR staff (250 RN’s) entering the annotated image for all surgical patients and procedures, seven days a week.
- Baseline PI prevalence rate from the OR was collected from the hospital-wide PI prevalence survey.
- Prior to implementation, education included staff meeting demonstrations and tip sheet development for OR and inpatient staff.
- To encourage project compliance, members of the Skin Injury Prevention committee were recruited to provide at-the-elbow support.
- A post implementation survey was sent to the OR staff to determine clinician satisfaction and the ease of use.
- Data is currently being collected via daily random audits of 10 procedures a day along with run chart trend analysis.
Results: Annotated Image Entered in OR Record

Average Compliance Rates
(% image found in surgical charts)
Discussion/Conclusion

• This quality improvement project provides nurses electronically with an image which communicates potential skin areas that may be at risk for pressure injury due to length of surgery and intraoperative positioning.

• Implementing evidence-based nursing interventions for example, turning and repositioning post-operatively, will help prevent skin breakdown and potentially avoid a pressure injury.
Implementation of Digital Whiteboard & Interactive Patient Education and Care Application

Sarah A. Wright RN, MSN
Nursing Informatics Specialist
Nantucket Cottage Hospital
Implementation of Digital Whiteboard & Interactive Patient Education and Care Application

Sarah Wright, RN, MSN
Clinical Informatics Specialist
Introduction and Background

- With the recent completion of a new hospital, Nantucket Cottage Hospital (NCH) evaluated the advantages of utilizing new digital technology to replace the standard dry erase whiteboard in the patient rooms.

- The standard board was historically updated manually with patient demographics, key vitals, and care team information and would often lag behind with up-to-date information.

- NCH chose to implement a hardware and software solution in 14 patient rooms.
Goals

- Digitize patient information from the whiteboard and integrate it with the electronic health record (EHR).
- Assign patient education on various topics in both English and Spanish.
Methods

• On-site demos from the vendor
• Workflow observations and discussions with nursing staff
• Interdisciplinary meetings with clinical management, information technology and NCH senior leadership to reach final user interface design
• Prioritization of education videos based on most frequent diagnosis and labor and delivery patient specific needs
Results

- Whiteboard was live at the moment we welcomed the first patient into her room
- Content was integrated so updates in the EHR are viewed in real time
- The patient pillow speaker is integrated with the TV controls, as well as the nurse call system
- Nurses are able to work with each patient to “bookmark” health focused topics addressing individualized education needs
49” Smart T.V. Displays

MED SURG ROOMS

- Fall Risk Score ≥ 45
- Hearing Impaired
- Visually Impaired
- Dentures
- Braden Scale Score

LDRP ROOMS
Discussion and Conclusion

- The NCH Clinical Business and Technology team is working closely with Partners eCare EHR clinical teams to identify further patient-specific information for display.

- DocFlowsheet interface - clinical information such as Pt goals, pain scores, icons for falls, activity limitations and newborn/mother data will be pulled realtime into the patient screens.

- Further work is planned to map available educational videos to commonly chosen Plan of Care education interventions.
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Improving User Efficiency with Plan of Care Automation

Naomi Mercier, DNP, RN
Clinical Content Lead
Partners Healthcare
Improving User Efficiency with Plan of Care Automation

Naomi Mercier DNP, RN, Traynor Canny MBA, Courtney Green, RN, MS, Mary Hudson MS, RN, Christine Suchecki MSN, RN, Mary Swenson MBA, RN

Partners Healthcare Boston MA
Introduction/Background

- Evidence supports the automation of nursing care plans in the EHR
- The Partners Healthcare Nursing Informatics Council prioritized nine patient problems to automate
- The problems selected directly align with National Patient Safety Goals and NDNQI measures.

1. CAUTI – Catheter Associated Urinary Tract Infection Risk or Actual – Adult/Pediatric
2. CLABSI – Central Line Associated Bloodstream Infection, Risk or Actual – Adult/Pediatric
3. Fall Risk – Adult
4. Fall Risk – Pediatric
5. Pain, Acute/Chronic – Adult/Pediatric
6. Pressure Injury – Adult/Pediatric
7. Restraint Use – Adult/Pediatric
8. Suicide/Self-Harm – Adult/Pediatrics
9. Venous thromboembolism Risk or Actual – Adult/Pediatric
Methods

Streamlining Problems for Automation:
• Three, 2-hour Clinical Content Build-Out (CCBO) sessions were held to review, update and streamline the content.
• Subject matter experts from each entity and a variety of inpatient settings participated.
• Software limitations in the 2015 version of the system did not allow users customize goals and interventions before the problem populated the Plan of Care.
• Subject matter experts focused on including the minimum necessary goals and interventions for each problem.

Development of Automation Criteria:
• The clinical informatics team applied an Agile framework for this effort.
• User workflows were evaluated to define appropriate decision support inclusion and exclusion criteria logic to automate each problem.
• Logic for this automation include a specific order, assessment, patient class, and encounter type.
Results

- The nine problems automate for most patients during their hospital encounter.
- Requests to automate additional plans of care continue to be submitted and evaluated.
- The problem automation count correlate with the patient department.
- Perioperative departments have higher counts for CLABSI and CAUTI problems due to the number of assessments they enter for urinary and central catheters.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Count</th>
<th>Department with Highest Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Risk</td>
<td>9594 (Adult)</td>
<td>NSM Davenport 9 SH (230)</td>
</tr>
<tr>
<td></td>
<td>171 (Pedi)</td>
<td>MGH Ellison 18 Pedi (42)</td>
</tr>
<tr>
<td>Pain, Acute / Chronic</td>
<td>8895</td>
<td>MGH Perioperative (483)</td>
</tr>
<tr>
<td>Pressure Injury, Risk or Actual</td>
<td>8055</td>
<td>NSM Davenport 9 SH (222)</td>
</tr>
<tr>
<td>CAUTI, Infection Risk or Actual</td>
<td>4805</td>
<td>MGH Perioperative (986)</td>
</tr>
<tr>
<td>CLABSI, Infection Risk or Actual</td>
<td>2719</td>
<td>BWH Perioperative (221)</td>
</tr>
<tr>
<td>Venous Thromboembolism (VTE) Risk or Actual</td>
<td>2426</td>
<td>BWH Perioperative (232)</td>
</tr>
<tr>
<td>Restraint Use</td>
<td>816</td>
<td>MGH Lunder 6 Neuro ICU (53)</td>
</tr>
<tr>
<td>Suicide/Self-Harm Risk</td>
<td>94</td>
<td>MGH Ellison 18 Pedi (6)</td>
</tr>
<tr>
<td>Skin/Wound Integrity - Skilled Nursing Facility</td>
<td>79</td>
<td>SRB 1st Floor (37)</td>
</tr>
</tbody>
</table>
Discussion/Conclusion

- End user feedback is positive overall
- Nurses have evidence that their documentation and the system’s decision support is used build a relevant plan of care
- Automation saves clicks and streamlines documentation
- Concerns have been voiced that the automatically generated plans of care lack patient individualization.
- Design changes are being implemented to allow personalization of the plan of care from the Best Practice Advisory alert.
- Future work includes additional automation based on specific patient criteria.
- End user feedback and analytics inform iterative adjustments to the decision-support logic

Reference:

Agile Alliance: https://www.agilealliance.org/agile101/