Measuring Acute Care Nurses' EHR Use Patterns, EHR Satisfaction, and Relationship to Nurse Burnout

HENRY FORD HOSPITAL SYSTEM
UNIVERSITY OF DETROIT MERCY

Study Purpose

Specific AIMS:
1. To determine EHR patterns of use by acute care nurses, including average EHR use time per shift, by time spent in specific areas of the EHR (flowsheets, care plans, medication record, etc.)
2. To examine acute care nurse satisfaction with the EHR
3. To determine if there is a relationship between EHR use and nurse satisfaction and burnout

Background

• Widespread adoption of the EHR since 2009 has dramatically changed the way acute care nurses manage patient information
• Nurses are generally dissatisfied with EHRs and report multi-level concerns (Topaz et. Al, 2016)
• In Physicians, a linkage has been found between EHR use and professional burnout. (Dhanafelt et al., 2016)
• Nurses comprise the largest group of EHR end users, and more must be known about use patterns, satisfaction, & burnout

Study Methods

• Quasi-experimental cross-sectional study
• Acute care staff nurses from across HFHS were invited via email to complete a voluntary anonymous survey
• Use patterns were measured using an efficiency assessment survey

Instruments: Survey (KLAS)

• Industry standard for EHR satisfaction (used by 200+ organizations)
• Has measured physician burnout, modified to measure nurse burnout for this study
• Part of our organization’s broader EHR satisfaction survey
  • sent to 1571 staff nurses (non-leaders) systemwide
  • 361 acute care nurses used for this study
  • Limited to units where Epic Nursing Efficiency Assessment Tool was applied

Research Team

DONNA SUMMERS, MSN, RN-BC
• Chief Nursing Information Officer for Henry Ford Health System

JULIA STOCKER SCHNEIDER, PHD, RN
• Associate Professor at University of Detroit Mercy

Special Assistance:
• Tom Delind RRT, Clinical Informatics Liaison HFHS
• Ed Peterson Senior Scientist, Public Health Services HFHS

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**Satisfaction Measurement (KLAS Tool): NET EHR Experience**

THE EPIC EHR:

1. Enables me to deliver high quality care
2. Makes me as efficient as possible
3. Is available when I need it
4. Has the functionality I expect
5. Provides the integration within our organization I expect
6. Provides the integration with outside organizations I expect
7. Has the fast system response time I expect
8. Is easy to learn
9. Provides the analytics and reporting I need
10. Keeps my patients safe
11. Allows me to deliver patient-centered care

**Burnout (KLAS Tool)**

Using your own definition of burnout, select one of the answers below:

- I enjoy my work, I have no symptoms of burnout
- I am under stress and don’t always have as much energy as I did, but I don’t feel burned out
- I am definitely burning out and have one or more symptoms of burnout (e.g. emotional exhaustion)
- The symptoms of burnout that I am experiencing aren’t grasping, I think about work frustrations a lot
- I feel completely burned out. I am at the point where I may need to seek help.

**Demographics**

n=361

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Education Level</th>
<th>Specialty</th>
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<tbody>
<tr>
<td>Detroit</td>
<td>ADN/Diploma</td>
<td>Adult Critical Care</td>
</tr>
<tr>
<td>HFMH</td>
<td>Bachelor’s</td>
<td>MAU Stepdown</td>
</tr>
<tr>
<td>AFWH</td>
<td>Master’s</td>
<td>Med-Surg</td>
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<tr>
<td>HFWB</td>
<td>Doctorate</td>
<td>Observation</td>
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<table>
<thead>
<tr>
<th>Age</th>
<th>Nursing Experience</th>
<th>EHR Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>18‐34</td>
<td>0‐4 yrs</td>
<td>0.82 ± 0.23</td>
</tr>
<tr>
<td>35‐44</td>
<td>5‐14 yrs</td>
<td>0.64 ± 0.17</td>
</tr>
<tr>
<td>45‐54</td>
<td>15‐24 yrs</td>
<td>0.59 ± 0.35</td>
</tr>
<tr>
<td>55‐64</td>
<td>≥ 25 yrs</td>
<td>0.51 ± 0.27</td>
</tr>
<tr>
<td>≥65</td>
<td>11 yrs</td>
<td>0.51 ± 0.11</td>
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</tbody>
</table>

**Instruments: EHR Use Patterns Report**

-Nursing Efficiency Assessment Tool (NEAT) – Epic report

- Measures nursing active time spent in documentation/review activities within the EMR (User action log)
- Report that is scheduled for a defined period
- Raw data is at user level and includes department information
- Metrics are calculated by day/shift
- Data in graphs are “usage by the hour”
- Focus areas were identified using the department level information in the user data
Relationship of EHR Use (Time) and Nurse EHR Satisfaction and Burnout

- Total EHR use time was 13.82 mean min/hr ± 1.68 min
- Correlation of EHR time with acute care nurse EHR satisfaction was not significant (r = 0.04, p-value = 0.87)
- Correlation of EHR use time with burnout was not significant (r = 0.15, p-value = 0.52)
- No significant relationship was found between EHR use time and nurse satisfaction with EHR or burnout

Acute Care Nurse Satisfaction with EHR

- No correlation found with age, education level, EHR years, hours worked, practice area, hospital, or f/u training
- Statistically significant correlation found with years nursing experience:

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<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>0-4 yrs</td>
<td>107</td>
<td>56.7</td>
<td>42.7</td>
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<tr>
<td>5-14 yrs</td>
<td>117</td>
<td>50.6</td>
<td>48.3</td>
</tr>
<tr>
<td>15-24 yrs</td>
<td>68</td>
<td>46.4</td>
<td>44.9</td>
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<tr>
<td>≥ 25 yrs</td>
<td>57</td>
<td>30.1</td>
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*p=0.022*
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Acute Care Nurse Burnout

- No correlation found with age, education level, EHR years, hours worked, practice area, hospital, or f/u training
- Statistically significant correlation found with Nurse EHR Satisfaction:

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<table>
<thead>
<tr>
<th>Nurse EHR Satisfaction and Burnout</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>No Burnout</td>
<td>326</td>
<td>49.9</td>
<td>47.4</td>
</tr>
<tr>
<td>Burnout</td>
<td>23</td>
<td>25.9</td>
<td>54.6</td>
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*p=0.045*
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Study Limitations

- Findings apply to acute care nurses only
- Sample size
- Convenience sample
- Survey and efficiency tool match

Nursing Implications

- Further examine experienced nurses’ dissatification with EHR
- Involve experienced nurses in EHR process implementation
- Provide increased support to experienced nurses when implementing new EHR processes
- Efforts should be made to improve nurse satisfaction with the EHR to prevent it as a contributor to nurse burnout

Implications on Nursing Care at the Bedside

- Knowledge of acute care nurse EHR use patterns
- Type and extent of EHR dissatisfaction is necessary to drive EHR improvements:
  - Care quality
  - Nurse engagement
  - Clinical Decision Support
  - Documentation efficiencies
  - Simplified workflow
Strategies for Improvement

NEW EHR TOOLS
- The Brain
- The LDA Avatar (Lines, Drains, Airways)
- Wound Care Module
- Care Planning Improvements

OTHER PROCESS IMPROVEMENTS
- Flow sheet clean up
- Work list guidelines
- Rigor and governance for clinical decision support (decreased 9% of alerts)
- Streamlines workflows and documentation (Fall prevention and patient belongings)
- Required Documentation

Questions for Discussion
1. In light of the findings related to less EHR satisfaction in the experienced nursing group, what strategies have you or do you intend to use to support these nurses?
2. What strategies have you implemented to improve efficiencies for nursing that had measurable impact?
3. In your experience, what do you feel is the linkage between EHR use and nurse burnout?

References