

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

Research Team



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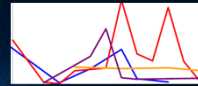
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Study Methods



- 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

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. (Shanafelt et al., 2016)
- Nurses comprise the largest group of EHR end users, and more must be known about use patterns, satisfaction, & burnout

Instruments: Survey (KLAS)

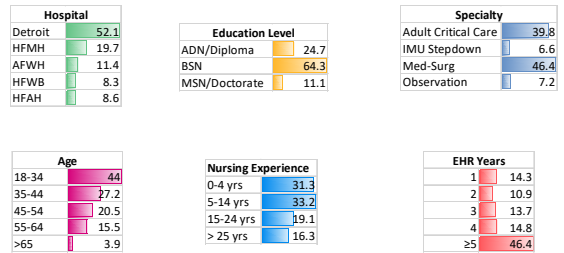
- Industry standard for EHR satisfaction (Used by 200+ organizations)
- Has measured physician burnout, modified to measure nurse burnout for this study
- Part of our organization's broader EHR satisfaction survey
 - sent to 5571 staff nurses (non-leaders) systemwide
- 361 acute care nurses used for this study
 - Limited to units where Epic Nursing Efficiency Assessment Tool was applied

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

Demographics n=361



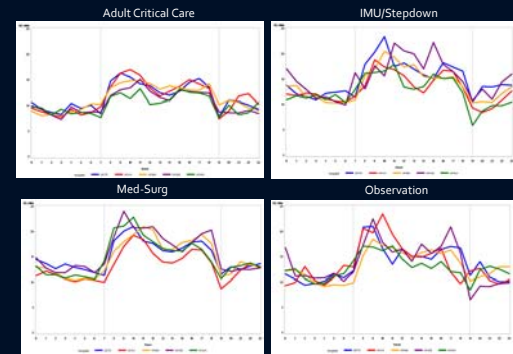
Burnout (KLAS Tool)

- 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 won't go away. I think about work frustrations a lot.
 - I feel completely burned out. I am at the point where I may need to seek help.

Activity	Mean Min/Hr	Time/12-Hr Shift	% of Shift
Total EHR Time	13.82 ± 1.68	2 hrs 45 min	23.0%
Flow Sheets	3.67 ± 0.57	44 min	6.1%
MAR	2.3 ± 0.53	28 min	3.8%
clinical review	1.35 ± 0.23	16 min	2.3%
patient lists	1.34 ± 0.46	16 min	2.2%
other	0.84 ± 0.19	10 min	1.4%
work list	0.82 ± 0.23	10 min	1.4%
notes	0.64 ± 0.17	8 min	1.1%
orders	0.59 ± 0.15	7 min	0.9%
care plan	0.51 ± 0.3	6 min	8.5%
scheduling	0.51 ± 0.27	6 min	8.5%

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 \pm 1.68 min
- Correlation of EHR time with acute care nurse EHR satisfaction was not significant (-0.04, p-value = 0.87)
- Correlation of EHR use time with burnout was not significant (-0.15, p-value = 0.52)
- No significant relationship was found between EHR use time and nurse satisfaction with EHR or burnout



Study Limitations



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

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:

Years	n	mean	SD
0-4 yrs	107	56.7	42.7
5-14 yrs	117	50.6	48.3
15-24 yrs	68	46.4	44.9
> 25 yrs	57	30.1	57.1
*p=0.022			



Nursing Implications

- Further examine experienced nurses' dissatisfaction 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

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:

Years	n	mean	SD
No Burnout	326	49.9	47.4
Burnout	23	25.9	54.6
*p=0.045			

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

References

Shanafelt, T. D., Dyrbye, L. N., Sinsky, C., Hasan, O., Satele, D., Sloan, J., & West, C. P. (2016). Relationship Between Clerical Burden and Characteristics of the Electronic Environment With Physician Burnout and Professional Satisfaction. *Mayo Clinic Proceedings*, 91(7), 836–848. <https://doi.org/10.1016/j.mayocp.2016.05.007>

Topaz, M., Ronquillo, C., Peltonen, L., Pruinelli, L., Sarmiento, R. F., Badger, M. K., ... Lee, Y. (2017). Nurse Informaticians Report Low Satisfaction and Multi-level Concerns with Electronic Health Records : Results from an International Survey. *AMIA Annual Symposium Proceedings, eCollection*, 2016–2025.

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?

