

SoCal ANIA Chapter Conference Using Data to Tackle the Burden of Nursing Documentation in the Electronic Health Record

Patricia Sengstack DNP, RN-BC, FAAN

patricia.r.sengstack@Vanderbilt.edu

BOTCHED OPERATION

Death By 1,000 Clicks: Where Electronic Health Records Went Wrong

The U.S. government claimed that turning American medical charts into electronic records would make health care better, safer and cheaper. Ten years and \$36 billion later, the system is an unholy mess. Inside a digital revolution that took a bad turn.

By Fred Schulte and Erika Fry, Fortune • MARCH 18, 2019

Source: <u>https://khn.org/news/death-by-a-thousand-clicks/</u>



Agenda

- Review current issues related to the burden of clinical documentation in the electronic health record
- Propose a framework to address the "Burden"
- Share emerging data and tools measuring EHR use
- Identify data driven organizational strategies to help reduce documentation burden for nurses – aka – what you can do today!



Headlines, Cartoons and Memes

MORE MEANINGLESS CLICKING

ELECTRONIC MEDICAL RECORD?

https://imgflip.com/i/15v4s7



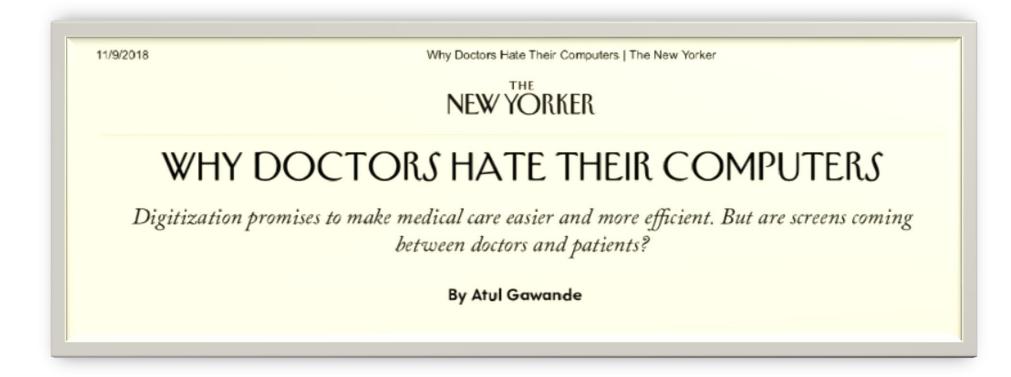
"I hear there's a new ICD-10 code for carpal tunnel syndrome caused by clicking too many times in an EMR system."

https://www.pinterest.com/pin/381961612125245061



https://www.mdmag.com/medical-news/why-are-emrs-so-terrible





https://www.newyorker.com/magazine/2018/11/12/why-doctors-hate-their-computers





ABOUT MISSIONS ADVOCACY DATA



PATIENT CARE



Tuesday, March 27, 2018 | by Gregg Breining, special to AAMCNews

Reducing the Stress Associated With Electronic Health Records

Physicians cite electronic health records (EHRs) as a leading contributor to burnout. Learn about solutions academic medicine could employ to help eliminate the stress EHRs cause.

https://news.aamc.org/patient-care/article/reducing-stress-electronic-health-records/



Innovative approaches to solve physician burnout - KevinMD.com https://www.kevinmd.com/.../innovative-approaches-to-solve-physician-burnout.html Apr 8, 2019 - Burnout is associated with higher rates of major medical errors, ... factors, such as untreated depression, stress about medical school debt, the ... or hiring IT technicians to work with clinicians to streamline use of the EHR. 4.

Google Search: "Stress, depression and burnout related to use of an EHR" 757,000 results

Physician Burnout Costs The U.S. Health Care System Billions Each ...

https://www.npr.org/sections/health-shots/2019/.../whats-doctor-burnout-costing-america May 31, 2019 - "Everybody who goes into medicine knows that it's a **stressful** career ... "Cumbersome, inefficient" **electronic health record** systems; ... "**Burnout** is highly, highly **associated with** major **depression**," she says. ... This site is protected by reCAPTCHA and the Google Privacy Policy and Terms of Service **apply**.

Handout 2018 Physician Burnout Crisis - The Doctors Company

https://www.thedoctors.com/contentassets/.../handout-2018-physician-burnout-crisis.pdf 2018 Medscape National Physician **Burnout** and **Depression** Report **associated with** clinician **stress** by sharing information ... Full **EHR Use** with Redesign.

5 Ways to Reduce Physician Burnout Caused by EHRs

https://www.softwareadvice.com/resources/reduce-physician-burnout/ ▼

Find out how you can reduce physician **burnout** resulting from **EHR usage**. ... Read about how you can reduce physicians' **stress** to help them provide better ... This can result in **severe** breach of patient data confidentiality, because multiple ...

Electronic Health Records Contribute To Major Burnout And Stress For ... https://www.techtimes.com > Home > Health > Public Health ▼

Jun 30, 2016 - Having to deal with **electronic health records** may be contributing to the ... **Electronic Health Records** Contribute To Major **Burnout** And **Stress** For Doctors ... who **use** order entry software and **electronic health records** (**EHR**) tend to become ... how to make the tools more clinically **relevant** and user-friendly





HOME ABOUT PROGRAMS ~ PUBLICATIONS ~ NEWS EVENTS ~ MEMBER HOME

Burnout Among Health Care Professionals: A Call to Explore and Address This Underrecognized Threat to Safe, High-Quality Care

By Lotte N. Dyrbye, Tait D. Shanafelt, Christine A. Sinsky, Pamela F. Cipriano, Jay Bhatt,

Alexander Ommaya, Colin P. West, and David Meyers

July 5, 2017 | Discussion Paper

https://nam.edu/burnout-among-health-care-professionals-a-call-to-explore-and-address-this-underrecognized-threat-to-safe-high-quality-care/



NAM - What Is Driving Burnout Among Health Care Professionals?

Work-Related Stress – fueling burnout and job dissatisfaction

- Excessive workload
 - _ work hours
 - _ overnight call frequency
 - _ nurse-patient ratios
- _ Moral distress
 - _ perceived powerlessness
 - _ Unnecessary/futile care
 - _ Inadequate informed consent
- _ Work process inefficiencies CPOE and Documentation

https://nam.edu/burnout-among-health-care-professionals-a-call-to-explore-and-address-this-underrecognized-threat-to-safe-high-quality-care/



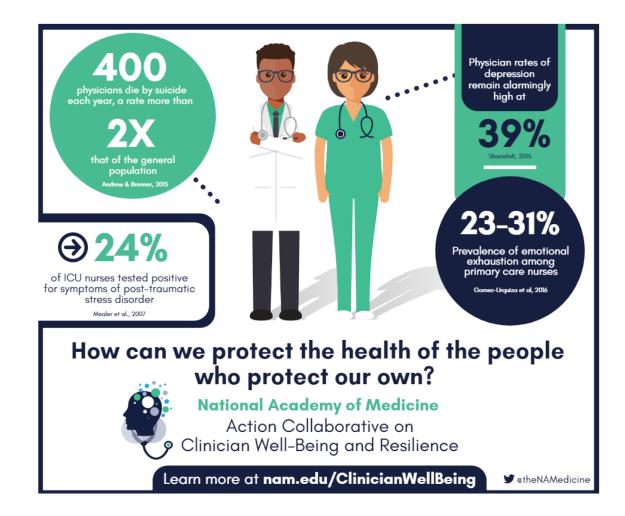
NAM - Why Should We Be Concerned About Burnout Among Health Care Professionals?

- Medical Errors
- Malpractice Suits
- Depressive Symptoms
- Decrease in Quality of Life
- Average burnout levels among hospital nurses are an independent predictor of health care–associated infection
- Emotional Exhaustion as mean emotional exhaustion levels of physicians and nurses working in intensive care units rose, so did standardized patient mortality ratios - and perceived quality of interpersonal teamwork deteriorated

https://nam.edu/burnout-among-health-care-professionals-a-call-to-explore-and-address-this-underrecognized-threat-to-safe-high-quality-care/

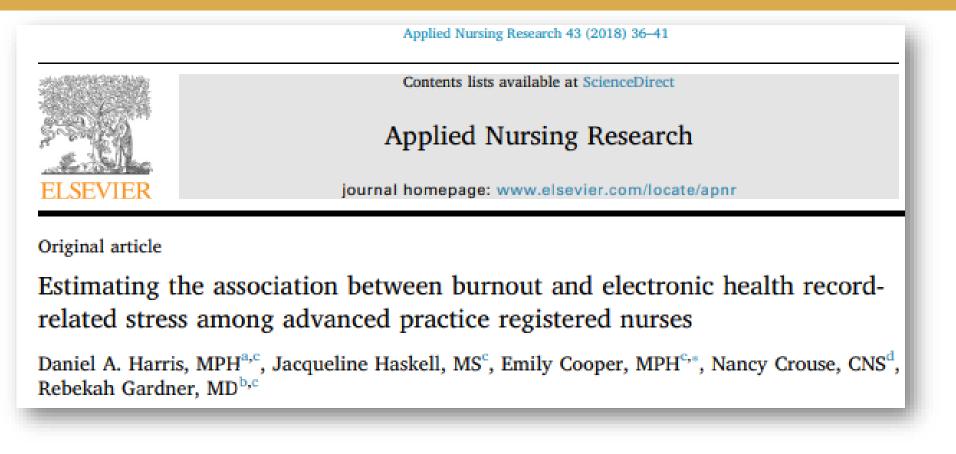


Some Stats from the National Academy of Medicine



https://nam.edu/initiatives/clinician-resilience-and-well-being/





- Administered by the Rhode Island Department of Health
- A state-wide electronic survey was sent to all 1,197 APRNs licensed and in practice in Rhode Island
- The survey period was from May 8th, 2017 to June 12th, 2017
- A total of 371 APRNs contributed data for a response rate of 31.0%



Harris, et. al. - Article Highlights

- Almost one in five APRNs are experiencing at least one burnout symptom
- Insufficient time for documentation was the strongest predictor of burnout among APRNs
- 64 (19.3%) reported spending a moderately high to excessive amount of time on their EHR <u>at home</u>
- ▶ 165 (50.1%) agreed or strongly agreed EHRs add to their daily frustration
- 97 (32.8%) reported insufficient time for documentation

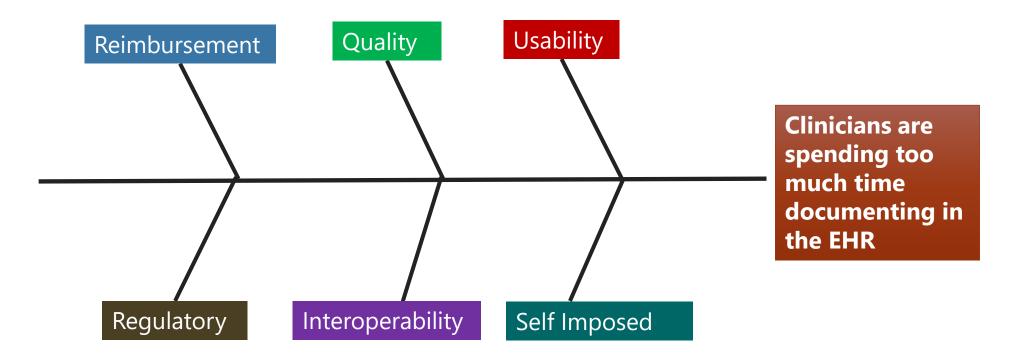
Harris, D.A., Haskell, J., Cooper, E., Crouse, N. & Gardner, R. (2018). Estimating the association between burnout and electronic health record-related stress among advanced practice registered nurses. Applied Nursing Research. 43(2018), 36-41.



What is "Burden"?

- ▶ We are hearing this term often in the literature, blogs, social media
- Merriam-Webster: Duty or responsibility, something oppressive or worrisome
- The problem no definition for burden related to health IT and documentation in the EHR.
- Need to look at burden more holistically
- Need to address the various domains of causation to help focus improvement efforts as work is conducted, evaluated, categorized and reported

Proposal – Use of a Framework to Address the Burden of Documentation in the EHR: <u>The Six Domains of Burden</u>





Reimbursement/Billing

Documentation, coding and other administrative data entry tasks required for payment
Billing and

Examples:

- Evaluation and management (E & M) documentation
- Prior authorization documentation



New payment models: Merit-based Incentive Payment System (MIPS) and the Advanced Alternate Payment Models (Advanced APMs) – require use of certified EHR technology to exchange information across providers and with patients to support improved care delivery, including patient engagement and care coordination. All requiring documentation.





ONC/CMS Reducing Documentation Burden for Reimbursement



Our top priority at CMS is putting patients first

CMS is committed to reducing unnecessary burden, increasing efficiencies, and improving the beneficiary experience.



Burden Reduction Initiatives Centers for Medicare & Medicaid Services

> Dr. Kate Goodrich Melanie Combs-Dyer



Source: Handout from ONC/CMS Meeting on Clinician Burden, February 22, 2018, Hubert Humphrey Building Auditorium, Washington, DC 20201. http://365.himss.org/sites/himss365/files/365/handouts/550400239/handout-137.pdf



Regulatory

Accreditation agency documentation requirements

- _ The Joint Commission
- _ Healthcare Facilities Accreditation Program
- _ State Regulatory Agencies







HFAP



TJC's Project Refresh

Multi-phased effort to modernize and streamline Joint Commission requirements by deleting nonvalue-added requirements and consolidating redundant requirements. Throughout 2016 and 2017, almost 300 hospital elements of performance (EPs) were removed

What is Project Refresh?

- A series of inter-related and/or interdependent process improvement initiatives underway at The Joint Commission
 - Guiding principles: Simplification,
 Relevancy, Innovation, Transparency
- Refresh projects are implemented in a phased and coordinated approach, that began in June 2016 and continue.



Quality

- Documentation required to demonstrate that quality patient care has been provided. This includes documentation requirements by the healthcare organization itself, as well as by governmental and regulatory agencies
 - _ The Hospital Inpatient Quality Reporting (IQR) Program,
 - _ The Hospital Outpatient Quality Reporting (OQR) Program,
 - _ The Physician Quality Reporting System (PQRS)
 - _ National Database of Nursing Quality Indicators (NDNQI)

CMS's Meaningful Measures initiative

- "Meaningful Measures" framework is the Centers for Medicare and Medicaid Services' new initiative which identifies the highest priorities for quality measurement and improvement. It involves only assessing those core issues that are the most critical to providing high-quality care and improving individual outcomes.
- Its purpose is to improve outcomes for patients, their families and providers while also reducing burden on clinicians and providers.



https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityInitiativesGenInfo/MMF/General-info-Sub-Page.html



Usability

- Limited and insufficient use of human factors engineering and humancomputer interface principles resulting in extra time spent entering data, scrolling, clicking and searching for pertinent information in the record
 - Lack of support of optimal workflows
 - _ Inefficient use of clinical decision support tools
 - _ Limited vendor use of human factors engineering principles and usability standards
 - inappropriate use of copy and paste functionality

National Institute on Standards and Technology (NIST)

The NIST Health IT Usability Initiative:

- Focused on establishing a framework that defines and assesses health IT usability.
- Conducted (in collaboration with ONC) and the Agency for
 Healthcare Research and Quality (AHRQ
- <u>https://www.nist.gov/programs-projects/health-it-usability</u>

NISTIR 7804-1

Technical Evaluation, Testing, and Validation of the Usability of Electronic Health Records: Empirically Based Use Cases for Validating Safety-Enhanced Usability and Guidelines for Standardization

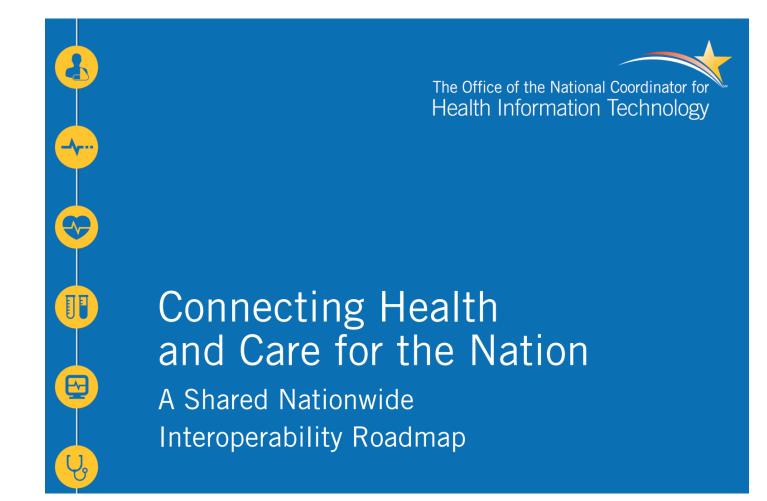


Interoperability

- Insufficient configuration standards resulting in duplication and re-entry of data even though it resides elsewhere, either internal to the organization or in an external system.
 - Duplication of documentation that's already in an organization's electronic system somewhere
 - Duplication of documentation due to inability to integrate external patient data into workflow of clinician.



ONC's Interoperability Roadmap



https://www.healthit.gov/sites/default/files/hie-interoperability/nationwide-interoperability-roadmap-final-version-1.0.pdf



Self Imposed

- Organizational culture's influence on what should be documented can exceed what is needed for patient care, including:
 - "We've always done it this way" mentality
 - Misinterpretation of regulatory standards
 - Over zealous risk managers
 - Outdated organizational policies



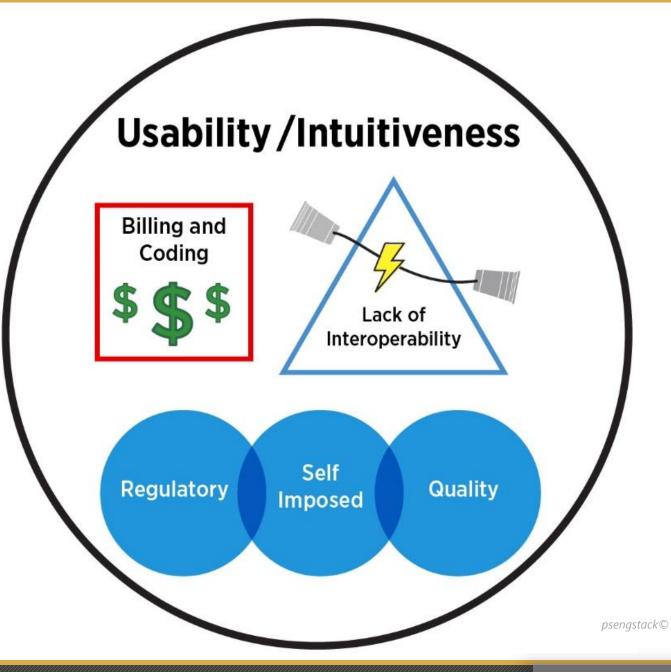


Self Imposed - Examples

- "Squeaky wheel" or powerful special interest groups want added documentation by clinicians to meet their needs.
- Excessive documentation on admission to the hospital or an initial visit to a clinic
- End users oftentimes are not aware that the functionality to improve effectiveness is available. It was not taught during initial system use training.
- Extra "CYA" charting (fear of litigation)
- The nature of nursing and the desire to capture more than necessary to provide and communicate the essentials of care



Domain Relationships

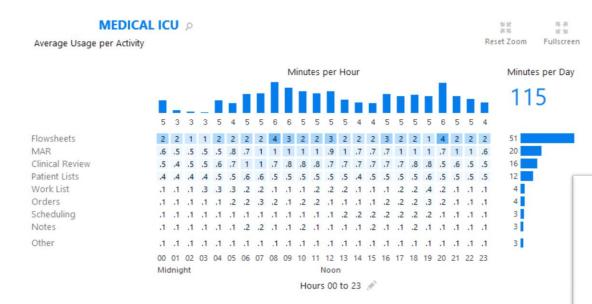


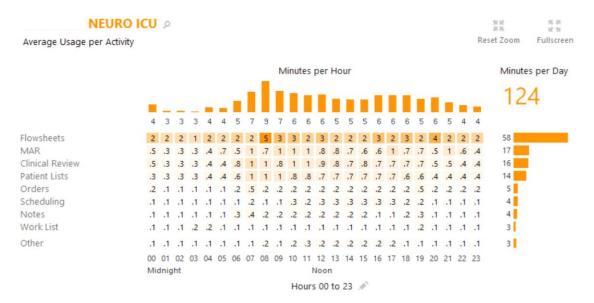


How can we use data to reduce documentation time for nurses?



Vendor supplied data





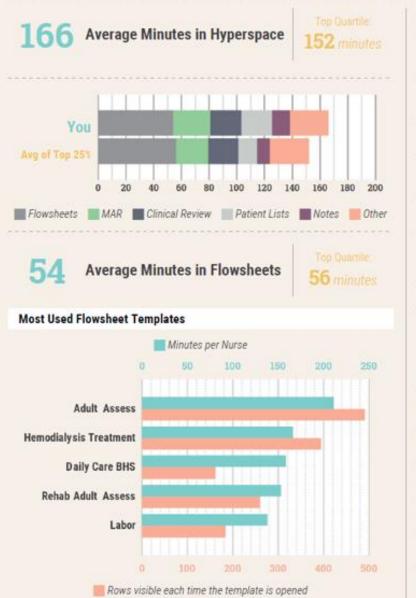
© 2019 Epic Systems Corporation. Used with permission.



TIME SPENT IN SYSTEM (Calculations from 33,545 12-hour shifts among RNs at your organization)

May 1, 2018 - July 25, 2018

Clinician active time spent in Hyperspace is collected and summarized through our <u>Nursing Efficiency and Assessment Tool</u> It can be shared with you, via your **Efficiency** Inpatient TS, on a quarterly cadence.





© 2019 Epic Systems Corporation. Used with permission.



FEATURE ARTICLE

Changes in Efficiency and Quality of Nursing Electronic Health Record Documentation After Implementation of an Admission Patient History Essential Data Set

Eva L. Karp, DHA, MBA, RN-C, FACHE, SVP, Rebecca Freeman, PhD, RN, Kit N. Simpson, DrPH, Annie N. Simpson, PhD

"Clinical informatics professionals should consider the use of EHR event files and timers to gain insight into process and workflow changes. The use of system data can substantiate the transformational value of informatics practice and inform future optimization efforts"

Karp, E., Freeman, R., Simpson, K. & Simpson, A. (2019) Changes in efficiency and quality of nursing electronic health record documentation after implementation of an admission patient history essential data set. CIN: Computers, Informatics, Nursing. 37(5):260–265, MAY 2019



Evaluate What's Currently in the System

| ADMISSION ASSESSMENT | Required regulatory field: Yes/Nc | If yes, list agency | "RN" required: Yes/No | Ask EVERY patient? | Required in first 12 hours? | Needed for discharge planning? | Displayed in patient header? |
|--|--|------------------------|--------------------------|-----------------------|-----------------------------------|--------------------------------------|------------------------------------|
| Would you like information (required if answer to 33 is "no") | N | | Y | Y | N | N | N |
| Pamphlet given to patient (required if answer to 34 is "no") | N | | N | N | N | N | N |
| If advance directive: Has your AD info changed since we last saw | | | | | | | |
| you (required if answer to 33 is "yes") | N | | N | Y | Y | Y | N |
| Type of advance directive (required if answer to 34 is "yes") | Y | | Y | Y | Y | Y | N |
| Medical durable power of attorney name and phone number | | | | | | | |
| (required if answer to 34 is "yes" - free text) | N | | N | Y | Y | N | N |
| Where is your advance directive | Y | | Y | N | N | N | N |
| Reason copy cannot be obtained (free text) | N | | N | N | N | Y | Y |
| Health History | | | | | | | |
| Admitted with IV | N | | N | N | N | Y | Y |
| Date and time of insertion (required if answer to 42 is "yes") | Y | | Y | N | N | N | Y |
| RN reviewed health history via: | Y | | Y | Y | Y | Y | Y |
| al Eller II i i | | | | | | | |



DNP Student Use of Data Collection Tool for Admission Assessment Review

| | A | В | С | D | E | F | G | н | I. | J | к | L | N C | СР | Q |
|----|---|---------------------------------------|----------------|-----------------------------|-----------------------|-----------------|-----------|---------------------------------------|---------------------------------------|---|-----------------------------|---------------------------------------|------------|-----------------------|---------------------------------------|
| 2 | | Required regulatory field: Yes/No | agency | "RN" required: Yes/No | Ask EVERY patient? | first 12 hours? | discharge | Displayed in patient header | Required for CDS: Yes/No | | Reported from this element? | | Total 🔻 | MIN number of clicks? | MAX number c clicks?2 |
| 3 | | 9 | Agency Name | 5 | 1 | 9 | 9 | 1 | 9 | 5 | 5 | 9 | N/A | Count | Count |
| | | | | | | | | | | | | | | | |
| | Information Obtained From | N | | N | Y | Y | N | N | N | N | N | N | 19 | | 2 |
| - | Admitted From | Y | TJC | N | Y | Y | Y | N | N | N | N | Y | 28 | | 1 |
| | Reason for Admission (free text) | N | | N | Y | Y | N | N | N | N | N | Y | 10 | 1 | 1 |
| _ | | | | | | | | | | | | | | | |
| | Medications Brought From Home | N | | N | Y | Y | N | N | N | N | N | Y | 10 | | 1 |
| | Medication Disposition, if yes | N | | N | Y | Y | N | N | N | N | N | Y | 10 | | 1 |
| | Source of Home Meds Information | N | | N | N | Y | N | N | N | N | N | N | 18 | | 2 |
| | Medication List Reviewed and Updated | N | | N | Y | Y | Y | N | N | Y | N | N | 33 | 1 | 1 |
| | Vaccines | | | | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · |
| 14 | Immunization Schedule Status | N | | N | Y | Y | N | N | N | Y | N | Y | 15 | 1 | 1 |
| | | 4 ' | | 4 ' | | | ' | 1 ' | 1 ' | 1 | | 1 / | | | |
| | Have you had a flu vaccine this flu season (FLU SEASON ONLY) | Y | CMS | N | Y | Y | N | N | Y | N | Y | N | 42 | | 1 |
| | Qualifies for flu vaccine (required if answer to 15 is "no") | Y | CMS | N | Y | Y | N | N | Y | N | Y | N | 42 | | 1 |
| | Have you EVER had a pneumonia vaccine | N | | N | Y | Y | N | N | Y | Y | N | Y | 24 | 1 | 1 |
| | Qualifies for pneumonia vaccine (required if answer to 17 is | · · · · · · · · · · · · · · · · · · · | | 4' | | | · · · · · | · · · · | · · · · · · · · · · · · · · · · · · · | | | ·, | | | |
| | "no") | N | | N | Y | Y | N | N | Y | Y | N | N | 33 | 0 | 1 |
| | Pregnancy Status (females only) | | | | | | | | | | | | | | |
| | Pregnant | N | | N | Y | Y | N | N | N | Y | N | Y | 15 | | 1 |
| 21 | LMP | N | | N | Y | Y | N | N | N | Y | N | Y | 15 | 0 | 2 |
| 22 | EDC | N | | N | Y | Y | N | N | N | Y | N | Y | 15 | 0 | 2 |
| | Breastfeeding | N | | N | Y | Y | N | N | N | Y | N | Y | 15 | 0 | 1 |
| | Privacy Information | | | | | | | | | | | | | | |
| | May we share information about you with persons who ask | · · · · · · · · · · · · · · · · · · · | | | | 1 | 1 | · · · · · · · · · · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | | ,, | · · · · · · · · · · · · · · · · · · · | | | |
| | about you by name | N | | N | Y | Y | N | N | N | N | N | N | 19 | 1 | 1 |
| | Who would you like to delegate (free text name) | N | | N | Y | Y | N | N | N | N | N | N | 19 | | 1 |
| | Exception person for information (name, relationship, phone) | | | N | N | N | N | N | N | N | N | Y | 0 | | 3 |
| | Allergies (may require reconciliation) | | | | | | | | | | | | | | |
| | Allergies reviewed and updated | Y | ALL | N | Y | Y | N | Y | Y | Y | N | Y | 34 | 1 | 1 |
| | Allergy to latex | N | | N | Y | Y | N | N | N | N | N | Y | 10 | | 1 |
| | Allergy to xray contrast | N | | N | Y | Y | N | N | N | N | N | Y | 10 | | 1 |
| | Advance Directives | | | | | | | | | | | | | | |
| | Do you have an advance directive | Y | CMS/TJC | N | Y | Y | N | N | Y | Y | N | Y | 33 | 1 | 2 |
| | Would you like information (required if answer to 33 is "no") | N | | N | N | N | N | N | N | N | N | N | 9 | | 2 |
| | Pamphlet given to patient (required if answer to 33 is "no") | Y | CMS/TJC | N | Y | Y | N | N | N | N | N | N | 28 | | 2 |
| | If a 've' be directive: Has your AD info changed since the 'ast | | | | A second second | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

DNP Student Use of Data Collection Tool for Admission Assessment Review – Weighting Assignments

| Criteria | Required regulatory field? | RN required? | Ask every patient ? | Required within 12 hours? | Needed for discharge planning? | Displayed in patient header? | Required for Clinical Decision Support? | Communi- cate with provider? | Reports developed from this data element? | Documented elsewhere? |
|----------|--|--|---|--|---|--|---|---|--|--|
| Weight | Yes = 9 No = 0 | Yes = 5 No = 0 | Yes = 1 No = 0 | Yes = 9 No = 0 | Yes = 9 No = 0 | Yes = 1 No = 0 | Yes = 9 No = 0 | Yes = 5 No = 0 | Yes = 5 No = 0 | Yes =0 No = 9 |
| | "Yes" if a regulation can be identified and verified as requiring documentation | "Yes" if an RN should complete this field | "Yes" if every patient needs to be asked | "Yes" if this element must be collected within 12 hours following admission | "Yes" if this element supports the discharge planning process | "Yes" if the response displays in the patient header | "Yes" if the response triggers an alrert or other clinical decision support | "Yes" if element is needed to inform clinical decision making by care team | "Yes" if response to element is required in a report | "Yes" if the element is documented somewhere else in the record. *Note – score of "0" for Yes. |
| | | | | | | | | | | |

Analysis of the Nursing Admission Assessment Data Elements

Is it imperative or required to document the data element – 10 Questions

- Is it required by a regulatory agency? (TJC, CMS, MU, Core Measure that requires documentation)
- Is an RN required to document?
- Is it something that EVERY patient must be asked?
- Is it required in the first 8 12 hours of admission?
- Is it needed for discharge planning?



Analyze the Nursing Admission Assessment Data Elements

- Is it pulled into the patient header?
- Does it trigger an alert?
- Communication of patient information to the care team?
- Is it needed for a report?
- Is it documented elsewhere in the chart?

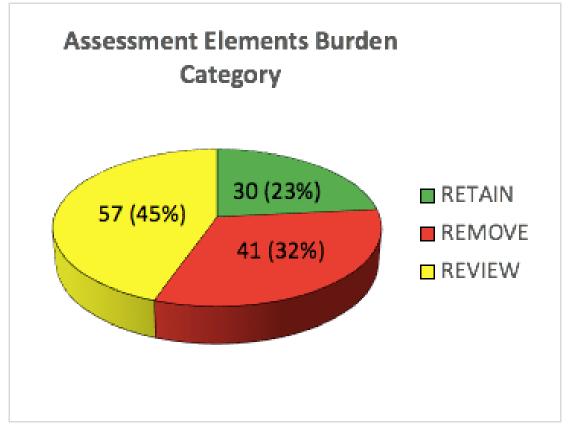


Marguerite Swietlik, DNP, NEA-BC, RN-BC, CPHIMS VP, Chief Nursing Informatics Officer Inova Health System marguerite.swietlik@inova.org



DNP Student - Overall Results

Retain if Scores: 25 – 62 Review if Scores: 15 – 24 Remove if Scores: 0 - 14



| RESULT | CRITERIA | COUNT | PERCENT |
|--------|--------------------------|-------|---------|
| RETAIN | Count if score = 25 - 62 | 30 | 24% |
| REMOVE | Count if score = 0 - 14 | 41 | 32% |
| REVIEW | Count if score = 15 - 24 | 57 | 45% |
| | Total: | 127 | |

Use Data to Make Informed Decisions

Ask for vendor provided data

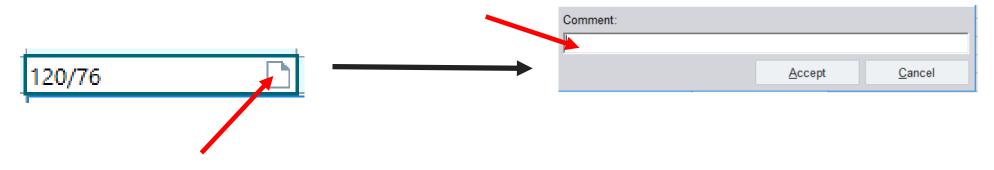
- Nursing time in chart
 - _ Time spent in various areas of the chart
 - _ With ability to compare across nurses/departments
- Flowsheet row data
 - _ Are there any flowsheets we do not use?
 - _ Are there any flowsheet row elements that have not been used?





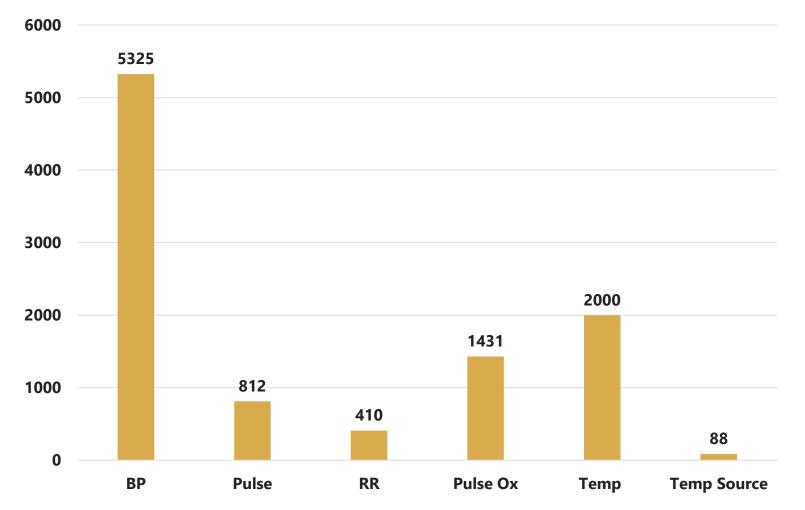
Use Data to Make Informed Decisions

- Flowsheet Usage by Department
- Flowsheet Row Comments
 - Example: Blood Pressure Comments





Number of Comments Added to Documentation of Vital Signs 2/20/18 - 3/20/18





Blood Pressure Comments

- > pt states he felt dizzy when he leaned back his head
- MD paged
- nurse notified
- 100ml bolus of ns given
- > Paged Phy. Gave pain med. Awaiting pharm. to send Catopril.
- will re-check.
- appears to be sleeping.
- > Pt screaming and crying about hedache. Will recheck
- MD notified, no new orders received at this time.
- NP notified; no HA, no worsening chest pressure c pepcid adm
- I went in to assess the pt's BP and realized the BP cuff was on the pt's left arm which had a fistula. I placed the BP cuff on the pt's right arm and reassessed the BP.
- pre-nitroglycerin paste administration
- Cuff adjusted
- right arm sitting
- manual recheck after auto read 162/105, pt refusing BP med



Call to Action

- Stay informed of changes by federal and regulatory agencies. If we don't know we can't capitalize on their efforts to streamline and reduce the documentation burden
 - _ TJC efforts Project REFRESH
 - _ CMS Patients over Paperwork
 - _ University of Minnesota's Nursing Knowledge: Big Data Science Initiative
- Re-evaluate interpretation of regulations
- Review and revise our own written policies and procedures as appropriate
- Clean up the clutter using data available
- **Work with your vendor to continue to improve usability and increase efficiencies**
- Continue to standardize where possible
- Innovate Mobile technologies, Voice recognition, Device integration
- Publish!
- Develop guiding principles for improving/enhancing clinical documentation. Such as.....



Ideas for Guiding Principles

No new documentation

Unless:

- _ Mandated
- _ Based on data/evidence
- Identified how the data entered into the new fields will be used and what actions will be taken (and by whom) based on what is entered
- The requesting or responsible party for the addition reports out on the outcomes achieved by adding the documentation - at specified time intervals (ie – 3 months, 6 months, 9 months, etc)
- _ The addition is vetted and approved via a governance process
- If adding something need to remove something



patricia.r.sengstack@vanderbilt.edu



