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EHR Documentation

The Hype and the Hope for Improving Nursing Satisfaction and Quality Outcomes

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The phenomenon of "data rich, information poor" in today's electronic health records (EHRs) is too often the reality for nursing. This article proposes the redesign of nursing documentation to leverage EHR data and clinical intelligence tools to support evidence-based, personalized nursing care across the continuum. The principles consider the need to optimize nurses' documentation efficiency while contributing to knowledge generation. The nursing process must be supported by EHRs through integration of best care practices: seamless workflows that display the right tools, evidence-based content, and information at the right time for optimal clinical decision making. Design of EHR documentation must attain a balance that ensures the capture of nursing's impact on safety, quality, highly reliable care, patient engagement, and satisfaction, yet minimizes "death by data entry." In 2014, a group of diverse informatics leaders from practice, academia, and the vendor community formed to address how best to transform electronic documentation to provide knowledge at the point of care and to deliver value to front line nurses and nurse leaders. As our health care system moves toward reimbursement on the basis of quality outcomes and prevention, the value of nursing data in this business proposition will become a key differentiator for health care organizations' economic success. **Key words:** *clinical decision support, electronic health record, evidence-based practice, nursing documentation*

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THE GOAL set forth by the Institute of Medicine is that by the year 2020, 90% of clinical decisions will be supported by accurate, timely, and up-to-date information and will reflect the best evidence available.[1] However, care that is important is often not delivered and care that is delivered is often not important.[2] This is partly because of the failure to apply the evidence that is most effective. The Health Information Technology for Economic and Clinical Health Act,[3] enacted as part of the American Recovery and Reinvestment Act of 2009, was successful in incentivizing health care organizations to implement electronic health records (EHRs). As a nation, the United States is early in the journey of realizing the benefits of digitizing health care. Although the transition to EHRs was intended

to promote ubiquitous access to patient information and the delivery of best evidence-based care, the design has increased the documentation burden and decreased the ability to see the big picture of the patient's story, problems, and goals.

The phenomenon of "data rich, information poor" in today's EHRs is all too often the reality for nursing. Despite being the largest users of health information technology and the discipline that documents more than any other group of health professionals in acute care organizations, nurses receive a negligible amount of knowledge to help inform their practice. In 2014, a group of diverse informatics leaders from practice, academia, and the vendor community formed to address how best to transform electronic documentation to support highly reliable, evidence-based practice (EBP) and improve knowledge at the point of care. This article describes the results of the year-long collaboration (Workgroup 10 from the Nursing Knowledge Big Data Conference at the University of Minnesota): the creation of a set of principles and recommendations for nursing leaders on optimizing EHRs to improve the processes of care delivery and to generate actionable information for nursing care decisions and quality outcomes improvement at the patient, unit, and organizational level.

The Institute of Medicine recently described the mounting complexity of modern health care, rising costs, and over- and underdelivery of key services and called for substantial change.[2] The federally funded Health Information Technology for Economic and Clinical Health (2009) Act began providing financial incentives in 2009 to support the widescale purchase and adoption of EHRs and the "meaningful use" of interoperable data for health information exchange and the improvement of health outcomes.[3] Since that time, the implementation of EHR systems in acute care hospitals rose significantly from 13% in 2008 to 83% by the end of 2014.[4] In 2014, reports indicated that a small number (8%) of hospitals implemented "basic" EHRs with patient demographics, problem list, medication list, discharge summary, medication order entry and laboratory, radiology, and other diagnostic tests result reporting.[4] More (41%) organizations implemented "basic systems with clinical notes" including basic functionality, physician notes, and nursing assessments.[4] Only 34% of nonfederal acute care hospitals implemented a "comprehensive" EHR with basic functionality, clinical notes and computer provider order entry, nursing orders, advance directive, imaging, and clinical decision support (CDS) functionality.[4] The meaningful use initiative has largely focused on physician documentation to drive clinical decisions and share data, with less attention to nursing data or patient outcomes.

CURRENT STATE OF ELECTRONIC NURSING DOCUMENTATION

Nursing care and documentation have been evaluated using a variety of methods. Time and motion researchers using sampling methods to describe how medical surgical nurses spent their time reported the percentage of shift time spent on documentation ranged from 19% to 35.3%.[5,6] Researchers who surveyed nurses about their perceptions of documentation processes during the transition from paper to electronic systems reported concerns regarding redundancy, excessive time away from direct patient care, and the use of overtime for completing documentation, concerns that did not decrease with transition to electronic systems.[7] Evidence-based practice is a core competency for the nursing profession.[8,9] Current EHRs are not designed to guide the delivery of highly reliable EBP. Much of the "data rich, information poor" phenomenon occurs because each health care organization implements an EHR system without the ability to leverage lessons learned from organizations that have gone before them or access a "best practice" central repository that holds examples as data sets complete with clinical terms mapped to standardized terminologies such as clinical LOINC and SNOMED-CT. Instead,

each health care organization starts from scratch. Often, the clinical personnel tapped to design and build the new clinical system are nurses, physicians, and health professionals who show an interest but have no formal education or certification. Thus, system and workflow builds are commonly a combination of the organization's current state and the vendor's template forms, resulting in a shoe that fits very poorly. This is a call for action to identify and improve the problematic areas of electronic nursing documentation.

Data entry burden

The process of nursing documentation within EHRs is primarily data entry into discrete fields in flow sheet rows and columns similar to a spreadsheet. When data entry is not intrinsically linked with real-time knowledge and context of how the data fit together within the patient's story or a potential problem, nurses feel like "data entry clerks." Regulatory and accreditation requirements increase the documentation burden for nurses and contribute to data redundancy (eg, manual auditing of pressure ulcers because the EHR does not collect data in the way needed for multiple external reporting requirements). The growing demand for nursing-based documentation has been described as a "burden"—a word describing something that is carried, like a load, a duty, or a responsibility, and perceived as oppressive or worrisome.[10,11] The American Medical Informatics Association (AMIA) recently released a set of recommendations for EHRs by 2020, and the first recommendation was to simplify and speed documentation to decrease this burden.[12] Documentation expectations of nurses continue to rise, yet nurses need and want more time for interacting with patients and families and coordinating care—actions that may significantly influence patient/family engagement and satisfaction.

System design

Other researchers evaluating perceptions of EHR implementation reported that perceptions were less positive after 6 months and that users may need more time and training to acclimate to new systems and changes in workflow.[13] Every health care organization designs and implements its own version of an EHR, purchasing a system using the software code used at the time of purchase, and customized based on local perceived needs. Vendor-based clinical content is either purchased or built by the organization on the basis of best practices from internal end users or input from external sources. Organizations are typically responsible for updating content or purchasing upgrades from the vendor.

Inattention to nursing workflow

Historically, EHR systems have been designed to ensure that organizations are able to meet existing regulatory reporting and reimbursement requirements. Nursing content is often conceptualized as though it occurs on paper with limited considerations about how it supports nursing-based decision making or patient engagement. Nurses must "remember where to go next" in an EHR, rather than having essential data provided to them at key decision points in the workflow. Electronic health record design may increase the workload complexity and decrease time for clinician face-to-face communication. Physiologic monitors, ventilators, low acuity vital sign machines, anesthesia machines, and other point-of-care devices are rarely fully integrated with the EHR, requiring nurses to manually enter electronic device data into the EHR. This manual transcription creates more work that adds no value to patient care.

Lack of CDS

Efforts to create, standardize, and share effective Clinical Decision Support (CDS) tools for supporting nurse-based patient care are limited. Clinical decision support technology should make it easier to operationalize evidence for point-of-care nursing, especially if the tools are positioned within the workflow.[14] The use of EBP or quality bundles by nurses often requires implementation

and use of tools including checklists, workflow planning, reminders, online resources, education, and mentoring to ensure consistent use in daily practice.[10,15] In addition to using CDS to support patient care, these tools are also useful in facilitating oversight and outcome management. Nurse leaders have a strategic role in facilitating and regulating the use of EBP, but nurse managers do not currently monitor guideline adherence as routine practice.[16] Clinical decision support–based reports and near real-time dashboards provide managers with an efficient way to monitor EHR-derived data and support them in overseeing the care and outcomes on their units.

Effective CDS and data analytics rely on accurate and complete data entry. Data integrity may be influenced by the heavy burden of documentation and a limited understanding by individual nurses who may not value data beyond "getting through the day." Limited leader oversight of documentation may also impact the integrity and limit the value of the data and reports that are produced. The availability of nursing-sensitive data in the clinical data repository for every acute care hospital suggests that all these data could be extracted and analyzed to generate sophisticated outcome measurements for evaluating the nursing contribution to patient outcomes and testing the effectiveness of nursing interventions using practice-based evidence. Barriers have been identified that limit the use of these data, including a lack of data standardization and harmonization, differences related to code version control, other local customizations, varied documentation policies, data quality issues, and interface design.[17,18] Data quality may also be influenced by system design and end user performance. Ideally, EHRs should be designed with optimal usability concepts in mind, including consistency, effective information presentation, naturalness, efficiency, flexibility, and feedback to support users and prevent errors.[19] Many organizations have not yet found a way to provide and maintain access to current standards and knowledge sources from inside the EHR. Access to "info buttons" or focused evidence summaries is often available from library sources outside the EHR and requires an organization subscription for access. It is difficult to create and maintain access to the right information at just the right time in the workflow, personalized to each patient.

Shareability and Comparability

Historically, nursing clinical content in the EHR has been designed and implemented by consensus to meet organizational goals, regulatory requirements, or EHR vendor recommendations. Organizational data can be used to create real-time and retrospective tools for decision support, quality improvement, research, and administrative decision making, but the benefits of these data do not easily extend beyond organizational boundaries. One notable positive example is the sharing of nursing-sensitive data between venues using electronic summary reports in benchmarking on the basis of the specifications and submitting them to external organizations such as the National Database for Nursing Quality Indicators.

Missing concepts

National efforts are in progress to evaluate granular nursing content across organizations and define and map content to standardized clinical terminologies, including LOINC and SNOMED-CT, the de facto terminologies promulgated by Centers for Medicare and Medicaid Services and Office of the National Coordinator for Health Information Technology. It must be recognized that standardized terminologies may not contain all concepts reflecting nursing care, and requests must be frequently submitted to ensure that terminologies are robust enough to capture nursing's contribution to quality, safety, and affordability.

VISION

The Institute of Medicine encourages the adoption of a new vision for the health care system, providing Americans with superior care at lower cost.[20] The ideal future state of the new "learning health care system"

involves generating and applying the best evidence for the collaborative health care choices for each patient and provider; driving the process of discovery as a natural outgrowth of patient care; and ensuring innovation, quality, safety, and value in health care.[20] The EHR for this new system must be patient-centered, accessible, transparent, and interoperable and support or enable EBP, performance improvement, and interprofessional team-based care for better patient outcomes. Workgroup members embraced the new vision and identified that the ideal state would have the following characteristics:

- Documentation is simple and fast with a focus on relevant content with minimal redundancy, capturing the essence of care.
- The EHR captures the needs, wishes, and preferences of the patient/family and drives and coordinates the plan of care; patients are codesigners of the plan.
- A source is identified to serve as a central repository for best practice clinical forms, standardized assessments and interventions, evidence-based bundles, and CDS rules. This library of resources would be vendor-neutral and freely available to all health care organizations.
- Nurses and interprofessional colleagues are engaged in EHR design and build content and CDS to support surveillance, audit, outcomes measurement, patient engagement, and research.
- Data are standardized, actionable, and interoperable between inpatient, ambulatory, skilled nursing facility, home care, and community care services and connect disparate care episodes, integrating care settings and community providers with patients and patient-generated health data.
- Biomedical devices are integrated to support accurate and timely data capture and use.
- Clinicians have access to accurate, timely, relevant clinical information from multiple sources with well-designed, efficient, and standardized workflows and CDS tools that support the nursing process and evidence-based care.
- Nurses and nurse leader decisions are supported by dashboards that include EHR-generated analytics for operations, patient and program outcomes, benchmarking, and other needs and relevant data from the broader social environment.

The workgroup developed these recommendations informed by the HIMSS CNO/CNIO Vendor Roundtable, Big Data Principles Workgroup and the AMIA Nursing Informatics Scholarship Initiatives, as well as AMIA's EHR 2020 Task Force report.[12,21] For optimal results, system designs must be simple, effective, and efficient, and produce accurate and usable data for extraction. This process can be enabled by ensuring that nursing assessment and interventions are mapped to terminology standards to enable sharable, comparable nursing data. It is essential to create mechanisms to ensure and validate the integrity of EHR data. The transition to predictive analytics requires nursing data that are accurate, complete, and timely. The business case and road map for these recommendations are defined in the JASON Report commissioned by the office of the national coordinator, in which the task force stipulates that these standards are needed to efficiently extract data, support innovation with 21st century information technology tools, and interact across multiple commercial EHRs.[22]

Another strategic recommendation is for nurse leaders to be knowledgeable of and to actively engage at their local organizations in support of adopting SNOMED-CT and Clinical LOINC as data standards for all nursing clinical data. These 2 terminology standards have been endorsed by nursing informatics leaders in HIMSS and AMIA and serve as the international standards across the Commonwealth countries and continental Europe as well.[23] Encoding of nursing data in a standard way means that nursing data generated from care delivery would be available to nursing for generating reports on patient outcomes from the clinician level to the unit, department, or

organization level. In addition, clinical data could be aggregated with other data from disparate sources, such as finance and human resources, to answer questions related to costs, staffing levels and outcomes, and comparisons between organizations. This single step of achieving standardized, coded nursing data is the biggest mover of the value proposition for front line nurses and nurse executives. For the first time, nurses would be able to access their own clinical quality metrics and compare them against benchmark peer groups, as well as trend them over time. Nurse executives would have the data to discover best practices, outcomes, and most cost-effective care delivery. Coded data enable aggregation and querying to answer clinical questions and perform comparisons over time or across organizations. It is the basic building block of delivering power over its business and practice into the hands of nursing. The task of nurse executives is to build an informatics team that has extensive knowledge in mapping nursing concepts to Clinical LOINC and SNOMED CT.

In closing, 2 important health information technology policy conversations are happening in the halls of Congress as this article is going to press that carry important implications and opportunities for improving the value of health information technology for nursing and patients. The first urges a refocus on regulatory mandates for quality and safety measures that use data generated from actual care delivery and require no extraneous work on the part of health professionals. The second initiative pertains to requiring EHR vendors to use pubic standards-based Application Programming Interfaces (API) and data standards to be more open to innovators, developers, researchers, and patients.

SUMMARY

The current state of EHRs has increased the burden of documentation and provided limited support for nurses and nurse leaders to identify individual needs of patients and deliver personalized, highly reliable, evidence-based, efficient patient care. Nurse leaders and their nursing informatics partners must be engaged at all levels to ensure that the redesign is interdisciplinary, integrates best evidence with seamless workflows, includes the capture of coded nursing data, and leverages CDS tools to support patient safety, quality outcomes, and nursing satisfaction. Guidance for nurse leaders and managers is proposed with a focus on key strategic differentiators and investments needed in building an informatics team with the skills to deliver optimum value for nursing.

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