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# Transforming Clinical Documentation in EHRs for 2020: Recommendations from University of Minnesota's Big Data Conference Working Group

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Abstract: In 2014, a group of diverse informatics leaders from practice, academia, and the software industry 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. This presentation reports the recommendations from this Working Group geared towards a 2020 framework. The recommendations propose redesign to optimize nurses' documentation efficiency while contributing to knowledge generation and attaining a balance that ensures the capture of nursing's impact on safety, quality, yet minimizes "death by data entry."

Keywords: clinical decision support, EHR, best practice, nursing documentation, nursing informatics

## 1. Introduction

The phenomenon of "data rich, information poor" electronic health record systems (EHRs) is all too often the reality for nurses working in acute-care settings in the United States today. Despite being the largest number of health information technology (HIT) users and the discipline that documents more than any other group of health professionals in acute- and post-acute care, nurses receive a negligible amount of knowledge back to help inform their practice. This paper reports the results of the Working Group 10 that emerged from the University of Minnesota, School of Nursing's 2<sup>nd</sup> annual conference on "Nursing Knowledge: Big Data Science<sup>1-2</sup> in 2014". Over twenty conference attendees representing informatics leaders from practice, academia, knowledge content providers and the major EHR software vendors volunteered to tackle the thorny problem of transforming EHR clinical documentation for nurses and other health professionals in acute care. This working group met monthly over a 12-month period to define the themes that made EHRs current state problematic for nursing and develop recommendations that could be implemented in the near term and address the most burdensome of these themes. Another deliverable was to report out to the 2014 Big Data Conference on our findings and recommendations. Two types of documents were to be used for this succinct summary and the power point slide is included here.

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### 2. Current State

Researchers looking at documentation practices and nursing satisfaction post-EHR implementations report that nurses spend 19% to 28% of their shift time documenting; and yet for reasons that range from its lack of use for reimbursement to lack of standardized terminology, this full set of nursing documentation is often not read by other disciplines, including nurses<sup>3,4</sup>. Data entry and nursing workflow has historically been designed as though it occurs on paper, with spreadsheet formats and content driven by regulatory and quality reporting requirements, rather than capturing the "patient's story". When data entry is not linked to real-time knowledge and context of how the data fit together within the patient's story or a given problem, nurses' struggle with value received from their documentation efforts that benefit other stakeholders rather than supporting their care delivery.

Optimal workflow design, clinical decision support and documentation templates call for highly skilled and clinically knowledgeable informaticists. Yet the practice used in designing, building and implementing an EHR in the United States is that each organization does this undertaking from scratch, tapping clinical personnel to do this important work who show an interest in technology but who often have no formal education or certification in informatics. Every health care organization designs and implements its own version of an EHR, purchasing a system using the software code current at time of purchase, and customized based on local perceived needs. Vendorbased clinical content is either purchased or built by the organization on the basis of best practices defined by internal end-users or from external content provider vendors. Organizations own the responsibility for maintaining their own content and/or purchasing upgrades from their vendor. Working Group 10's members spoke with a united voice that instead of keeping this siloed approach, it would be so much more preferable to be able to leverage lessons learned from organizations that have gone before them. Ideally, a "best practice" repository would exist that holds examples of data sets complete with clinical terms mapped to standardized terminologies, such as LOINC (Logical Observation Identifiers Names and Codes) and SNOMED-CT (Systematized Nomenclature of Medicine - Clinical Terminology).

#### 3. Recommendations

Also problematic with the documentation burden is the lack of automatic integration of data results from other medical monitoring devices that require the nurse to manually enter the results into the EHR. This lack of external systems and device integration is a problem that impacts all disciplines across care settings and is addressed in the American Medical Informatics Association's recently published EHR 2020 Task Force's report <sup>5</sup>. The report's first recommendation is to simplify and speed documentation through a number of measures including building standards for device integration.

The following set of recommendations encompass multiple levels, including: new EHR functionality, new processes, standards adoption, practice changes, and boarder engagement by national nurse organizations. In developing these recommendations, Working Group 10 included the work of the HIMSS CNO/CNIO Vendor Roundtable, AMIA's Nursing Informatics Scholarship Initiatives, and AMIA's EHR 2020 Task Force Report<sup>5,6</sup>

# 3.1. Data Standards

Nurse leaders be knowledgeable of and to actively engage within their local provider organizations in support of adopting SNOMED-CT and Clinical LOINC as data standards for all nursing clinical data. These two 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<sup>7</sup>. Encoding of nursing data generated from care delivery could be available to nursing for reports on patient outcomes at the clinician level and roll up to the unit, department, and organization level. The Big Data opportunity comes with this clinical data being aggregated with other data from disparate sources, such as finance, staffing and human resources to answer questions related to costs, staffing levels and outcomes, as well as comparisons between organizations.

Coded data enable aggregation and querying to answer clinical questions and perform comparisons over time, recognize patterns, and make predictions. It enables new knowledge generation, knowledge-based learning and evidence-based practice. It is the basic building block of delivering power over its business and practice into the hands of nursing. For nursing leaders this recommendation includes investing and building an informatics team that has extensive knowledge in mapping nursing concepts to Clinical LOINC and SNOMED-CT.

# 3.2. Vendor Neutral Content Library

A source is identified to serve as a central repository for best practice clinical forms embedded in workflow with clinical decision support to include standardized assessments and interventions, evidence-based bundles and CDS rules. The proposed library would be housed by a professional body like the National Library of Medicine or the American Nurses Association with sufficient resources and commitment to build, maintain and keep it available to all. This library of resources would be vendor-neutral and freely available to all health care organizations throughout the world.

# 3.3. Documentation is simple and fast, generated from care delivery

Refocus regulatory mandates for quality and safety measures so that they use data generated from actual care delivery and do not require additional work by health professionals to support. Policymakers should require fully standardized interfaces between IT systems so that biomedical devices and external systems like laboratory, radiology and anesthesiology automatically send results to the EHR without any manual interventions required. It is also essential to create mechanisms to ensure and validate the integrity of EHR data to avoid redundancy and for the ease and simplification of documentation. For nursing to move to predictive analytics using the full power of the data science requires 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 interoperability data standards are needed to efficiently extract data, support innovation with 21<sup>st</sup> century information technology tools and to interact across multiple EHR systems <u>www.healthit.gov/sites/default/files/ptp13-700hhs\_white.pdf.</u>

3.4. Clinical documentation supports patient participation and the capture and sharing of the "patient's story

Templated document forms as they exist in today EHR systems do not allow for the voice of the patient and the full socio-economic picture of the individual patient in their home and community context to be captured nor incorporated in a plan of care that extends to health professionals in the community and home. In addition to designing more patient-centered documentation tools, enhanced patient portals that allow patients and family to be more fully engaged partners in the person's care and care plan are key mechanisms for moving to patient-centered systems and care delivery systems.

#### 4. Summary

One of the action commitments of our working group was to broadly disseminate our report recommendations and this paper submission is an effort to bring this body's work to the attention of the international community for its critique, input and informing our next step efforts to bring these recommendations to a reality. We are heading into our second year of work with priority on publications, national presentations, and engagement with our national health policy entities, and nursing associations for sponsorship, funding and support. And importantly, since our working group members include leaders from provider organizations, software vendor companies, and academia, we will also focus on getting commitment from these sectors to embrace standards and to invest in developing mapping terminologies skills in our informatics workforce. We look forward to reporting the progress on our goal of setting up a library repository for best practices, content, and terminology mapping of data sets available to help all implement based on lessons learned and optimal system design. Next steps involve building the business case through a proof of concept pilot and to obtain funding. This 2015-2016 focus will be completed for report out for the NI2016 meetings.

**Transform Nursing Documentation** ata Rich and Infor ation Poor Factor of Nursing Clinica Accomplishments Recommendations ped Set of Reco Spread best practices for EHR documentation, decision support & data visualization D members successfully gain nt state. Issues and describ untered by front line nurses loped set of recommendatio ccessfully gained c occumentation, decision support a data fivalization provide knowledge at the point of care to paging evidence based practice Design clinical content with dynamic links th using all data collected using all data collected datess care gaps across the continuum Build care plans that are patient continuum Build care plans that are patient centered, inter-disciplinary, dynamic & transparent Utilize predictive analytics tools to present changes in patients storus Provide links to knowledge sources, calculators, libraries, protocols in real time Display information across disciplines, progress toward goals Eliminate duplicate documentation as of docu Objectives Determine infrastructures needed within EHRs and repositories to enable the storage, aggregation, an querying of nursing data at an organizational level se schange data at a national or international level support quality outcomes, practice benefits and report. owhere the second secon a set of recommendations to =-knowledge into care decisions inities to support the nursing proest climical sources to support me num-se opportunities to support me num-n EHRs and capture nursing's contrib bushly reliable care and patient eng Next Steps Action Plan nate duplicate do rsonalize care based on evider actice, patient needs, preference lop | Plan | Ope ze | Dis: ry of Best Pra rate with other Big Data Wo king Groups ould include examples and design principles fo onical forms and workflow; examples of clinical cumentation forms; use of standardized minology experience in the standard of the standard of the standard standard of the stan hared decision making Seek guidance identifying re-national nursing repository o evidence based bundles, CE nable to improve Make information actio ncy/usat terminology showing mapping to SNOMED-C LOINC; CDS – multiple types; and reporting Work with NI community of experts and orga to generate, collect content Present business case through conference cDS ng to SNOMED-CT & n mapping EHR terms to SNOMED-CT & LOINC Standardize processes; keep vendor neutral usiness case through conference ions and publications – Nursing, Health Teach competencies in Nursing Inform BS and MS levels.

Figure 1. Summary of Working Group 10's findings and recommendations on transformation of clinical documentation

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