Nursing Knowledge: 2018 Big Data Science

Conference Proceedings

June 13-15, 2018

Minneapolis, Minnesota

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Complete Conference Information
To see the conference agenda, action plans from 2013, 2014, 2015, 2016, 2017 and 2018, abstracts and presentations, visit http://z.umn.edu/bigdata

2019 Nursing Knowledge Conference Dates
Nursing Knowledge: Big Data Science Conference will be held June 5-7, 2019, in Minneapolis

Shared Vision:
Why a Nursing Knowledge Conference Series

We share a vision of better health outcomes resulting from the standardization and integration of the information nurses gather in electronic health records and other information systems, which is increasingly the source of insights and evidence used to prevent, diagnose, treat and evaluate health conditions. The addition of contextual data, including environmental, geographical, behavioral, imaging, and more, will lead to breakthroughs for the health of individuals, families, communities and populations.

Improved Patient Care Through Sharable, Comparable Nursing Data

Conference Overview

The sixth-annual Nursing Knowledge: Big Data Science conference (NKBDS) occurred June 13-15, 2018, in Minneapolis, Minnesota. Just as the original 2013 invitational initiative attracted nursing professionals from across practice, government policy, software vendors, professional organizations, informatics, academia and research, 2018's NKBDS open conference showed the same diversity, as well as growth in numbers. The NKBDS initiative's core mission across these six years has stayed the same: to develop a roadmap for achieving sharable and comparable nurse-sensitive data and to ensure the timely adoption of big data methodologies across all of nursing's domains.

The 2018 conference kicked off with a powerful set of preconference workshops addressing key work group areas of high value topics. This year's topics were: Hands-On, Full Life Cycle Data Science; Social Media and Mobile Health Analytics; and Streamlining/Transforming EHR Documentation. These day-long sessions focused on hands-on work with new tools and demonstration case studies that gave how-to information. The preworkshop evaluations rated the applied learning value of all three sessions as very high with requests for more of the same going forward.

The structure of the NKBDS conference provides a platform for the 10 working groups to report on their accomplishments over the past year. This year's reports demonstrated the considerable evolution that has occurred over these past six years, the significant body of work completed and breadth of accomplishments achieved from the 10 working groups. A list of some of the publications generated across the working groups is available in the proceedings as well as the website. The breadth of the work spans terminology standardization – Matney/Settergren (et al.); data analytics and information modeling – Westra/Pruinelli (et al.); nursing value – Welton/Harper (et al.); and nursing informatics curriculum standards and resources – Wilson/Manos (et al.) to list just a few.

During the body of the main conference, work groups engaged in teamwork, as well as networking and collaborations with other work groups. In a summary session on the afternoon of the last day, work group chairs reported on their go forward strategies. All reports can be reviewed in the Resource Center site (www.nursingbigdata.org/node/84) and conference proceedings.

Connie White Delaney, PhD, RN, FAAN, FACMI, FNAP Dean, University of Minnesota School of Nursing

Rebecca Freeman, PhD, RN, and Kelly Cochran, MS, RN, gave a current state update on Nursing and Health IT, including go forward plans on the joint initiative between the Office of the National Coordinator and the American Nurses Association on transforming nursing electronic health records (EHR) clinical documentation. In addition, two keynotes expanded dialogue into interprofessional practice and education as well as social media. Barbara Brandt, PhD, director of the National Center for Interprofessional Practice and Education, presented an overview on the development of the inaugural national Interprofessional Practice and Education Information Exchange (IPEIE) and essential core data set. Anne Pryor, MS, certified online visibility strategist with LinkedIn, shared multiple LinkedIn tools and bold strategies to increase visibility of the individual professional work, expanded networks and power of the innovative web/LinkedIn platform supporting the Nursing Knowledge Big Data Science Initiative.

We invite all of you who have an interest in any of the work group topics to reach out to their chairs and to join in their work throughout this coming year. The networking and learning from active participation in a working group are valuable for the applied knowledge gained. We invite you to next year's Nursing Knowledge: Big Data Science Conference in Minneapolis, June 5-7, 2019! First-time attendees and students are most welcome.

Key Notes from the Keynotes

Barbara Brandt, PhD, director of the National Center for Interprofessional Practice and Education (IPE), described the history of interprofessional practice and education, which is 50 years old. She noted that interprofessional collaboration "occurs when multiple health workers and students and residents from different professional backgrounds provide comprehensive health services by working with patients, their families, caregivers and communities to deliver the highest quality of care across settings." The IPE Center is studying and advancing the way stakeholders in health work and learn together.

For too long, health professionals have been educated in silos, yet expected to practice as a team. The IPE Center is studying various ways to facilitate students/trainees "working together in clinical practice, where relationships are formed and interdependence is readily evident." The IPE Center has developed a series of tools and resources called the Nexus Learning System, designed to support teams across the country in thinking about all aspects of their interprofessional practice and education effort, from identifying key stakeholders and available resources, to working across practice and education to collaboratively design a compelling vision. The inaugural An IPE Information Exchange and Core Data Set were developed to collect core comparable data across settings to enhance a collective understanding of interprofessional practice and education.

Anne Pryor, MS, is a certified online visibility strategist with LinkedIn. She shared multiple LinkedIn tools and strategies to increase visibility of individual experts and work that is occurring through the Nursing Knowledge Big Data Science Initiative. While LinkedIn started as an employment-oriented service, it has expanded as a professional networking and social media site. Pryor identified ways to enhance a professional identity, increase visibility as a professional and expand social networks to engage others with similar interests. Pryor's engagement with national expert and Big Data leader Jane Engelbright, PhD, RN, CENP, FAAN, was featured. The University of Minnesota Nursing Knowledge Big Data Science Initiative launched the unique Big Data – Empowering Health web/LinkedIn site to foster learning communities and share Big Data articles, work group reports, presentations and other documents. It is paired with a LinkedIn group to allow discussion of posted information or Big Data topics with colleagues and peers. Find more at http://www.nursingbigdata.org/node/94.

The Big Data Science initiative continues to focus on inclusion of nurse sensitive data in big data efforts, while enlarging the scope to include patients and interprofessional partners. Expanding access to the group's work and enhancing the groups as learning communities through broader engagement of social media like LinkedIn are intensifying.

Barbara Brandt, PhD, director of the National Center for Interprofessional Practice and Education

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Care Coordination

PROJECT TEAM

Co-Leaders
Lori Popejoy, PhD, APRN, GCNS-BC, FAAN, Associate Professor, Sinclair School of Nursing, University of Missouri

Mary Hook, PhD, RN-BC, Scientist and Nursing Informatics Specialist, Aurora Health Care

Members
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Kyle Carson
Greg Craig
Laura Hermann Langford
Stephanie Hartleben
Sharon Hewner
Stephanie Johnson
Matthew Keller
Jean Scholz
Pauline Sokolow
Christine Spisla
Brooke Trainum
Nikki VandeGarde
Bonnie Wakefield

PURPOSE
Identify nursing implications related to big data associated with care coordination.

ACCOMPLISHMENTS

Used a bottoms-up approach with engaged EHR developers and clinical experts to identify essential care coordination data elements (user story) and processes (swim lanes) used to simple and complex transitions across settings

- Worked to design a swim lane diagram to illustrate the care coordination and documentation workflow using examples from home care, primary care and skilled nursing. For all examples, the beginning of the care coordination process starts with initiating the case and moves to how assessment information is obtained directly from patients using the medical record and other existing sources of information.

- Described a process to develop decision-making aides and interventions to improve outcomes. Participants stressed importance of data accuracy and working to create published standards for interoperability. Vendors reported progress on "better together" efforts, sending and receiving discreet data with longitudinal care plan development with health professional and patient facing features.
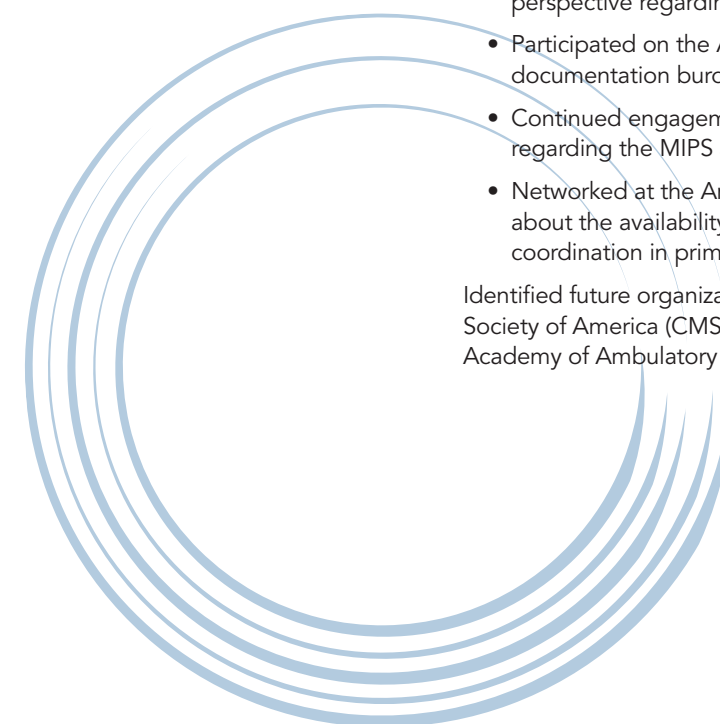
Reviewed the HL7 Domain Analysis Model (DAM) for Care Planning and storyboard use cases.

- Evaluated if these tools are consistent with care coordination concepts and swim lane processes

- Identified gaps and to support the updating of HL7 DAM Care Planning (release 2).

Networked with other groups active in Care Coordination: HL7 and the American Nurses Association (ANA).

- Engaged with Office of the National Coordinator (ONC) to provide a national nursing perspective regarding big data needs to support care coordination.

- Participated on the ANA/ONC calls regarding improving care planning and reducing documentation burden.

- Continued engagement with the Center for Medicare & Medicaid Services' (CMS) efforts regarding the MIPS and Value-based Purchasing programs continue.

- Networked at the American Geriatrics Society (AGS) conference to gather information about the availability for new CMS-based codes for capturing the work of care coordination in primary care.

Identified future organizations to network regarding Care Coordination: Care Management Society of America (CMSA), American Medical Group Association (AMGA), American Academy of Ambulatory Care Nurses (AAACN).

Clinical Data Analytics

PROJECT TEAM

Co-Leaders

Bonnie L. Westra, PhD, RN, FAAN, FACMI, Associate Professor, University of Minnesota, School of Nursing, Director, Center for Nursing Informatics

Lisiane Pruinelli, PhD, RN
Assistant Professor, University of Minnesota, School of Nursing

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Tae Youn Kim
Rachel Rickesson

Subgroup-Population Health Informatics
Co-leads
Sharon Hewner
Martha Sylvia

Subgroup-Validation of Information Models
Co-leads
Steve Johnson
Bonnie Westra

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PURPOSE

Demonstrate the value of sharable and comparable nurse-sensitive data to support practice and translational research for transforming health care and improving patient quality and safety.

ACCOMPLISHMENTS

Demonstrate the value of sharable and comparable nurse-sensitive data to support practice and translational research for transforming health care and improving patient quality and safety. The work was conducted through three subgroups, with coordination and communication across subgroups by full work group meetings. The subgroups are: Data Science, Population Health Informatics and Validation of Information Models.

DATA SCIENCE (DS) SUBGROUP

Apply data science methods, using validated information models derived from diverse sources of health care data, to address nurse-sensitive research questions that have the potential to inform nursing and multidisciplinary approaches for better patient care and outcomes.

ACCOMPLISHMENTS

- Developed a charter and work group activities roadmap with member input, commitment and guidance.
- Developed and conducted two hands-on, interactive workshops on data science. One was given at the AMIA 2018 Clinical Informatics Conference, with approximately 70 participants, and the other at the 2018 Nursing Knowledge Big Data Conference in June (Pre-Conference Track 1).
- Identified a simple and clinically relevant research question using the pain information model that is related to the opioid crisis, which is also feasible of being analyzed in the context of big data methodologies.

POPULATION HEALTH INFORMATICS (PMI) SUBGROUP

The purpose is to document the extent to which nursing data is used in population health analytics today and determine nursing care related data points that can be used to inform this process. This is informed by the larger analytic workgroup (the variables and models they are validating). Another focus is to trial new analytic methods (non-hypothesis based) for using this data in combination with traditional data sources and population health analytic processes with new nursing care related data points. Subsequently, the group will evaluate opportunities to also include the patient voice in their own care with standardized coding.

ACCOMPLISHMENTS

Publication in process.

VALIDATION OF INFORMATION MODELS (IM) SUBGROUP

Complete the validation of pain IM model concepts and value sets was completed across 10 organizations: University of Minnesota, School of Nursing/ Fairview Health Services; Partners Healthcare Systems; Kaiser Permanente; UCLA Health; Aurora Health Care; Duke University Health System; Cedars-Sinai Health System; Allina Health; North Memorial Medical Center; and Bumrungrad International. Validate the Genitourinary and Fall Prevention information models.

Clinical Data Analytics

Members, continued

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ACCOMPLISHMENTS

- Incrementally developed and used FloMap software for validation of the Genitourinary and Fall Prevention Models across 10 organizations.
- Handed off the Pain Information Model to the Encoding and Modeling Workgroup for applying LOINC and SNOMED CT codes.
- Had an article published on the process and results of the Pain Information Model.
- Revised the process for validation of information models.
- Initiated validation of the Genitourinary and Fall Prevention Information Models.

PUBLICATIONS

Abhyankar, S., Vreeman, D., Westra, B.L., Delaney, C.W. (2018). Letter to the Editor – Comments on the Use of LOINC and SNOMED CT for Representing Nursing Data International Journal of Nursing Knowledge, 29 (2), 82 – 85.

Westra, B.L., Johnson, S. G., Ali, S., Bavuso, K.M., Cruz, C.A., Collins, S., Furukawa, M.,. Hook, M.L., LaFlamme, A., Lytle, K., Pruinelli, L., Rajchel, T., Settergren, T., Westman, K.F., Whittenburg, L. (2018).Validation and Refinement of a Pain Information Model from EHR Flowsheet Data, Applied Clinical Informatics, 9:185–198.

Westra, B.L., Christie, B., Johnson, S.G., Pruinelli, L., LaFlamme, A., Sherman, S., Park, J.I., Byrne, M.D., Delaney C.W., Gao, G., Speedie, S. (2017). Modeling Flowsheet Data to Support Secondary Use. Computers Informatics Nursing, 35(9), 452-458.

Westra, B.L., Sylvia, M., Weinfurter, E.F., Pruinelli, L., Park, J.I., Dodd, D., Keenan, G.M., Senk, P., Richesson, R.L., Baukner, V., Cruz, C., Gao, G., Whittenburg, L, Delaney, C.W. (2017). Big Data Science: A Literature Review of Nursing Research Exemplars. Nursing Outlook, 65, 549-561.

PRESENTATIONS

Johnson S, Winden T, Pruinelli L. Hands-On Full Life Cycle Data Science Workshop (2018). Workshop AMIA 2018 Clinical Informatics Conference, Scottsdale, AZ.

Johnson S, Pruinelli L, et. al. (2018). Hands-On Full Life Cycle Data Science Workshop (2018). Workshop 2018 Nursing Knowledge Big Data Science Conference – Pre-Conference Track 1, Minneapolis, MN.

Lytle, K.S. (2017, August 31). Mapping Pain Flowsheet Data. Council on Nursing Informatics Quarterly Meeting. North Carolina Nurses Association, Council on Nursing Informatics, Raleigh, NC.

Pruinelli L, Johnson S. (2018). Improving Population Outcomes Using Data Science: A Roadmap for Nurse Leaders. Poster abstract MNRS 2018.

Westra, B.L. (2018, May). Pain Information Model – Development and Validation, LOINC Nursing Subcommittee, , Online.

Westra, B.L. (2018, February 23). Pain Information Model. ANA/ ONC Collaborative – Online.

GRANT SUBMISSION (FUNDED)

Pruinelli L, Johnson S. School of Nursing Foundation Grant (Title: Improving Population Outcomes Using Data Science: A Roadmap for Nurse Leaders). 02/01/2018-01/31/2019

Context of Care

PROJECT TEAM

Co-Leaders
Amber Oliver, DNP, RN-BC, Informatics Manager, Colorado Department Human Services

Barbara Caspers, MSPHN, BSN, RN, Health Care Executive and Consultant

Members
Michele Galioto
Deb Struth

PURPOSE

Demonstrate sharable and comparable nurse data across the care continuum by capturing nursing "big data" in the Nursing Management Minimum Data Set (NMMDS), the Nursing Minimum Data Set (NMDS) and the Nursing Knowledge: Big Data Science Conference Nursing Value Data Set (NVDS) to increase nurse data usability, provide patient, family and community centric data and, fortify data generated by nurses, about nurses and nursing care across the care continuum and across care transitions in all settings where nurses provide care.

ACCOMPLISHMENTS

Continue collaboration with the Nursing Value, SBDOH, & Encoding/Modeling work groups
- Applied Framework to ONS Registry & CancerLinQ Data Lake Structure
- Planned ONS Registry & CancerLinQ Data Lake extraction
- Met with SBDOH & Nursing Value Workgroups

Continue testing the model representation of framework for integrating sharable and comparable nurse data across the care continuum
- Awaiting ONS Registry & CancerLinQ Data Lake extraction for analysis

Education

PROJECT TEAM

Co-Leaders
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PURPOSE

Strengthen informatics education at the graduate and specialty levels and the ability of educators who teach informatics to nursing student so that we can achieve the outcomes of sharable and comparable nursing data through the work of nurses at the point of care.

ACCOMPLISHMENTS

Outreach to deans and directors regarding the importance of informatics in graduate programs.
- Met with Deans Delaney, Harper and Maliski to discuss strategies to support informatics education and educators
- Began work to create multiyear pillar proposal for informatics education
- Outreach to deans and directors regarding selection and preparation of faculty teaching informatics in graduate programs.
- Discussed potential survey with AACN to assess:
  - How informatics content is being taught
  - Informatics credentials/knowledge of those teaching
  - Resources needed to support those teaching

Create resources for faculty preparation, support, and course building and educate on same.
- Platform Development
  - Worked with and introduced the work of the TIGER's International Competency Synthesis Project.
  - Worked with and introduced to NKBDSI Workgroup the platform HITComp to be used as a platform. (hitcomp.org)
  - Offered group member opportunities to participate as expert reviewers as part of international team vetting the Foundational Curriculum for HITComp.
  - Working with HIMSS Scholars Workgroup to develop open source site, ongoing support, and processes to add to HITComp and the Foundational Curriculum

Provide input into accreditation reviews (CCNE, NLN, CAHIIM) regarding informatics content and faculty.
- Participate in CAHIIM
- Contacted TriCouncil (AACN, NLN, Council of State Boards of Nursing, and NLN) on competency and accreditation support.

Disseminate concerns, gaps, opportunities, and resources regarding informatics education at the graduate level. The targets are both MSN/DNP graduate (non informatics specialty) students and the faculty attempting to teach them).
- Collaborated to disseminate the work of the TIGER International Competency Synthesis group with country specific Use Cases.
- ontinued translation of the use of the Recommended Framework

PRESENTATIONS
- AMIA Informatics Educators
- AMIA Nursing Informatics Working Group
- ANCC Masters Conference
- ANIA Annual Conference
- Medical Infomatics Education 2018
- SINI 2017/2018

PUBLICATIONS

Population Health: A nursing action plan (2018). Ariosto. D., Harper, E. Wilson, M.L., Hull, S.C., Nahm, E.S., & Sylvia, M. Population health: a nursing action plan. Open Journal of American Medical Informatics Open.

Encoding and Modeling

PROJECT TEAM

Co-Leaders

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Marisa Wilson

PURPOSE

Develop and disseminate LOINC and SNOMED Clinical Terms for electronic health record nursing assessments, and incorporate them into a framework and repository for dissemination.

ACCOMPLISHMENTS

Intensify Terminology & Modeling Focus
- Orientation for new members recorded & posted
- SNOMED CT Foundations training required for mapping exercises
- 4 mapping exercise teams applied LOINC & SNOMED CT learning to code concepts in Pain Information Model

Formalize Framework/Processes using Pain Information Model
- Mapping teams clarified pain concept definitions
- Concepts mapped to both LOINC & S-CT to facilitate international use
- Mapping heuristics guide in development for replicability
- Incorporated input from LOINC, HL7 CIMI
- Preparing submission to LOINC for missing concepts

Disseminate Deliverables
- rovided recommendations for terminology education content in nursing graduate (non-informatics) programs
- List of proprietary assessment instruments collected, shared with ONC
- Data analysis methods paper in progress

PRESENTATIONS/ PUBLICATIONS (JUNE 2017 – JUNE 2018)

- Clinical LOINC/RELMA online training: 9-26-17
- AMIA webinar: The Standards Path to Nursing Semantic Interoperability; 10-19-17
- ANIA webinar: The Blazing of a Standards Trail from Data to Wisdom; 11-20-17
- Clinical Information Interoperability Council: Nursing Assessment Content Development Process; 1-10-18
- Advancing Nursing Terminology. Morton, A., Matney, SA, Troseth, M., VandeGarde, M., Springan, G., ONC Annual Meeting, Washington D.C: Dec. 1, 2017.

Engage and Equip All Nurses in Health IT Policy

PROJECT TEAM

Co-Leaders

Joyce Sensmeier, MS, RN-BC, CPHIMS, FHIMSS, FAAN, Vice President, Informatics, HIMSS

Kelly Aldrich, DNP, RN-BC, Chief Clinical Transformation Officer, C4MI

Members
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Whende Carroll
Kelly Cochran
Willa Fields
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Norma Lang
Laura Heermann-Langford
Brenda Kulhanek
Ellen Makar
Judy Murphy
Anna Omery
Tamara Schwichtenberg

PURPOSE

Equip nurses with education, tools and resources and engage them as knowledgeable advocates for health IT policy efforts important to nursing

ACCOMPLISHMENTS

Review, update and disseminate relevant health IT policy-related educational tools and resources
- Participated in policy discussion at the ONC and ANA "Health IT for Nursing: What Now?"
- Developed position statement

Influence the health IT policy landscape
- Continued to identify and leverage key advocacy/leadership opportunities relevant to nursing
- Contributed content to Alliance for Nursing Informatics policy comments on TEFCA
- Participated in ONC-CMS effort to reduce clinician burden

Collaborate on policy efforts with other like-minded professional groups
- Developed and maintained relationships with organizations/groups to advance nursing policy efforts
  - Big Data Nursing Value Workgroup
  - Alliance for Nursing Informatics (ANI)
  - American Academy of Nursing - Informatics & Technology Expert Panel
  - American Medical Informatics Association (AMIA)
  - American Nurses Association
  - HIMSS
  - National Council of State Boards of Nursing (NCSBN)
  - Nursing and Health Policy Collaborative
  - ONC

Leverage relevant health IT policy positions for advocacy efforts
- Developed education and awareness plan
- Developed advocacy strategy
- Spearheaded efforts to gain support from key stakeholder groups

Finalized position statement:
- The NCSBN ID should be used by key stakeholders as the unique nurse identifier to enhance patient care and outcomes via more integrated documentation in the EHR, ERP, and other health IT systems.

Reviewed position statement & received support from the following stakeholder groups:
- ONC and ANA "Health IT for Nursing: What Now?" stakeholder meeting, Washington DC, September 29, 2017
- American Academy of Nursing - Informatics and Technology Expert Panel, Washington, DC, October 7, 2017
- Alliance for Nursing Informatics Governing Directors, Washington, DC, November 3, 2017
- HIMSS Nursing Informatics Committee, October 17, 2017
- HIMSS CNO-CNIO Vendor Roundtable, Cleveland, OH, December 8, 2017
- HIMSS North America Board of Directors, Chicago, IL, April 20, 2018

Mobile Health for Nursing

PROJECT TEAM:

Co-Leaders

Christie Martin, MN, MPH, RN, PHN,
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Charlene Ronquillo
Melissa Serna
Victoria Tiase
Tami Wyatt
Nancy Yates

PURPOSE

The purpose of this workgroup is to explore the use of mobile health tools and data by nurses including both nursing generated data and patient generated data. This workgroup will also identify and support activities and resources to address unmet needs and create opportunities to utilize mHealth data within nursing workflows.

ACCOMPLISHMENTS

Our goal was to conduct a systematic review to find the gaps in the literature (2010 - present) and answer the following question: What is the effect of mobile health (defined by the mHealth Alliance) interventions on persons with acute or chronic pain?

In 2017, we reached consensus on our definition of mHealth used for our research question, as well as eligibility and data extraction criteria. In 2018, our group completed over ~700 abstract reviews, ~300 full text reviews, and data extraction for all eligible articles. Data analysis will start at our final meeting on May 19.

The mHealth Alliance definition of mobile health: mHealth is use of mobile and wireless devices to improve health outcomes, healthcare services and health research. mHealth stands for mobile-based or mobile-enhanced solutions that deliver health. These may include the following: mobile phones, PDAs, wearable fitness trackers, patient monitoring devices, personal health record (mobile application).

Nursing Value

PROJECT TEAM

Co-Leaders

Ellen Harper, DNP, MBA, RN-BC, FAAN,
Assistant Professor, University of Kansas
School of Nursing

John Welton, PhD, RN, FAAN,
Professor, University of Colorado
College of Nursing

Subgroup-User Stories
Lisa Moon, PhD, RN, LNC, CCMC
Greg Clancy, DNP, RN

Subgroup-Data Dictionary
Cathy Ivory, PhD, RN-BC, FAAN

Subgroup-Pilot Study
Ellen Harper, DNP, MBA, RN-BC, FAAN
John Welton, PhD, RN, FAAN

Subgroup-Dissemination
All members

Subgroup-Research Governance
Amy L. Garcia, DNP, RN, CENP
Peggy Jenkins PhD, RN

**Subgroup-Business Intelligence and
Analytics**
Chris Looby, FACHE
John Welton, PhD, RN, FAAN

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Lynn Choromanski
Diana Farm-Franks
Maria Hendrickson
Mary L. Hook
Mikyoung Lee
Beth Meyers
Roberta Severin
Cathy Schwartz
Amy Sheide
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Bev Zabler

PURPOSE

To measure the value of nursing care as well as the contribution of individual nurses to clinical outcomes and cost. Develop big data techniques for secondary data analysis that will provide metrics to monitor quality, costs, performance, effectiveness, and efficiency of nursing care. This has been our fourth year of working together to:

- Test and refine the work products from previous years (Nursing Value data model, data dictionary, user stories, and metrics) to quantitatively measure the nursing value
- Test the feasibility of extracting, validating and de-identifying data from disparate electronic systems
- Created the Nursing Value Research Data Warehouse (NVRDW) at the University of Colorado using a high-performance computer
- Develop an NVRDW governance model to securely transfer data
- Create business intelligence tools to enable measuring the patient level nursing intensity and cost per patient across the continuum of care.

ACCOMPLISHMENTS

User Stories Subgroup

Continued to refine the user story template and begin testing feasibility with real data Submitted article to Computers in Nursing (Appendix A)

Data Dictionary Subgroup

Three virtual meetings. Continue to refine the data dictionary from research site work. Mapping to LOINC/SNOMED when possible

Pilot Study Subgroup

Conducted weekly virtual meetings with Children's Hospital of Los Angles (CHLA) staff to work through the variables and data extraction for each of the four electronic systems we needed.   We had multiple issues related to getting the correct data elements and the size of the data files that had to be resolved. We have gotten a complete data set for 2 years (2015-2016) into the NVRDW and have begun the analysis. Started the dissemination plan

Research Governance Subgroup

Created the NVRDW at the University of Colorado using a high-performance computer. Formation of big data research consortium between University of Colorado College of Nursing, University of Kansas School of Nursing, and University of Minnesota School of nursing. Created Consortium Memorandum of Understanding (MOU) signed by Deans of three Universities. Developed Charter for NVRDW Governance. Selected and invited potential NVRDW Board of Directors (academics, practice & industry). Manuscript submitted to Nursing Economics. (Appendix A)

Business Intelligence and Analytics Subgroup

Building a generalized analytic model that will recognize the value delivered to individual patients considering the total cost of RN care taking into account all the differing RN's rendering care across an episode of care in a single setting – e.g. an inpatient stay on a med/surge unit.   The model relies on standardized ways of collecting and understanding data and information gathered. Organizational factors are standardized by incorporating the Nursing Management Minimum Data Set within the Service-Profit Chain published Harvard Business Review.

Nursing Value

FUNDING

Welton, J.M. (PI) & Perraillon, M., Measuring nursing value. 1R03 HS025495-01, Agency for Healthcare Research & Quality (AHRQ

Welton, J.M. (PI), Perraillon, M., & Jenkins, P, Title: Data to Nursing Value University of Colorado School of Medicine, Data to Value Intramural Grant

Garcia, A. (PI) Relationship of Acuity to Nursing Sensitive Outcomes, University of Kansas School of Nursing Intramural Grant

Harper, E. (PI) Turning Healthcare Data into Actionable Clinical Intelligence Project, University of Kansas School of Nursing Intramural Grant

PUBLICATIONS

Jenkins, P., Garcia, A., Farm-Franks, D., Choromanski, L., Welton, J.M. Academic/Practice/

Industry Collaboration to Develop Nursing Value Research Data Warehouse Governance. Nursing Economics. Manuscript submitted for publication.

Moon, L., Harper, E., Welton, J., Clancy, G. (2018) Nursing Value User Stories: A Method for Linking Value Measurement of Nurse Contribution to Patient Outcomes. CIN, Submitted and under revision.

D'Agostino, F., Vellone, E., Welton, J.M. (in press) Nursing diagnoses and interventions and their relationship with outcomes: a prospective study using a Nursing Minimum Data Set in an oncology hospital setting. Cancer Nursing.

Welton, J.M., Jenkins, P., & Perraillon, M. (2018) Microcosting Models in Nursing, Nursing Economics. 36(1), 46-49.

Garcia, A., Lovett, R. (2018). Using NOC to determine staffing needs. In S. Moorhead, E. Swanson, M. Johnson, M. Maas, Nursing Outcomes Classification, 6th Ed., Elsevier, 29-35.

Welton, J.M., (2017) Brainstorming a national nursing data repository. Clinical Care Classification (CCC) System 3rd User Meeting Adoption, Implementation, and Outcomes, Healthcare Corporation of America (HCA), Nashville, TN December.

Adrian, B., Kleiner, C., Welton, J.M. (2017) Medication administration performance measurement using bar-code data. University of Colorado Health Nursing Grand Rounds, Aurora, CO, December.

Harper, E.M., Ivory, C, Moon, L. & Garcia, A (2017). A Structured Approach to Measuring Individual Nurse's Contribution in Patient Outcomes. Panel presentation at AMIA in Washington, DC. November.

Welton, J.M. (2017) Measuring nursing care value. Legacy Health National Conference of Nursing Leaders, Portland, OR, October.

Garcia, A. (2017) Research & the Wicked Problem of Nurse Staffing, Sigma Theta Tau, Delta Chapter, Kansas City, November.

Harper E.M. (October). Big Data – A Framework for Measuring the Value of Nursing. ANIA DFW Chapter, Dallas, TX. October

Welton, J.M., Kleiner, C., Richardson, S., Valdez, C. (2017) Using bar-code data to identify scheduled and PRN medication administration practice patterns. Denver Health Nursing Grand Rounds, Denver, CO, May.

Harper E.M. (2017) It's Innovation if You Lead IT, Disruption if You Don't. Direct Care Nurses and Beyond Missouri Nurses Association, Columbia, MO. June.

Welton, J. M., & Harper, E. H. (2018). Using NOC to Measure Nursing Care Value in Clinical Practice. In S. Morehead, E. A. Swanson, M. Johnson, & M. L. Maas (Eds.), Nursing Outcomes Classification (NOC): Measurement of Health Outcomes (pp. 29, 45-47). St. Louis, MOevier: Els.

Welton, J. M., Kleiner, C., Valdez, C., Richardson, S., Boyle, K., & Lucas, E. (2018). Using Time-Referenced Data to Assess Medication Administration Performance and Quality. Journal of Nursing Administration, 48(2), 100-106.

Welton, J. M., & Harper, E. H. (2017). Case Study 5.1: Value-Based Nursing Care Model Development. In C. W. Delaney, C. A. Weaver, J. J. Warren, T. R. Clancy, & R. L. Simpson (Eds.), Big Data-Enabled Nursing (pp. 95-101). Cham, Switzerland: Springer International Publishing.

Nursing Value

D'Agostino, F., Vellone, E., Welton, J.M., (2017) Prevalence of nursing diagnoses as a measure of nursing complexity in a hospital setting. Journal of Advanced Nursing. 73(9), 2129-2142

Welton, J.M. (2017) Measuring patient acuity: Implications for nurse staffing and assignment, Journal of Nursing Administration. 47(10), 475.

Garcia, A. (2017). Variability in acuity in acute care. Journal of Nursing Administration, 47(10, 476-483.

Welton, J.M., Kleiner, C., & Adrian, B. (2017). Time-Referenced Data. Nursing Economics, 35(3), 150-151

PRESENTATIONS

Erickson, L. & Harper, E.M. (2018). Nurse Engagement- Using Technology for New Innovations. HIMSS webinar. May

Looby, C. (2018) Driving significant financial returns: using analytics to improve your bottom line. American College of Healthcare Executives – Cluster Seminars. Phoenix, AZ.

Looby, C. (2018) Beyond big data-developing a business intelligence/analytics practice. Healthcare Financial Management Association, San Diego.

Social Determinants of Health

PROJECT TEAM:

Co-Leaders

Susan C. Hull, MSN, RN-BC, NEA-BC, WellSpring eHealth Consulting

Erin D. Maughan, PhD, RN, APHN-BC, FNASN, FAAN, Director of Research, National Association of School Nurses

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Sharon Hewner
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Brenda Kuhlhanek
Karen Monson
Amber Oliver
Chelsea Rentmeester Biel
Angie Smith
Vicky Tiase
Ruth Wetta
Marisa Wilson

PURPOSE

Support the inclusion, interoperability and data exchange of Social Determinants of Health (SDOH) data in electronic health records, personal and m-health tools, community and public health portals across care settings. Empower nurses (practice, education, research, policy) to use SDOH data as context for planning care. Develop a roadmap to engage nurses to improve population health through large-scale adoption of SDOH.

ACCOMPLISHMENTS

Harmonize mapping of SDOH Assessment Tools (Wetta, Carson, DeSilvey)

- Analyzed current SDOH tools to determine overlaps, reliability/validity of tools, collection methods, and mapping of data points with standard language, by reviewing the work of:
  - Karen Monsen and colleagues, mapping SDOH to the Omaha System
  - Sarah DeSilvey & UCSF SIREN consensus panel for screening, assessment/diagnosis, treatment:
    - Set of social and behavioral measures recommended by NAM (2014) which are the basis for the Social, Psychological, and Behavioral ONC 2015 data certification criterion for EHRs
    - The National Association of Community Health Center's PRAPARE tool
    - The Center for Medicare & Medicaid Innovation's Accountable Health Communities tool.
    - CPT, ICD-10-CM, LOINC, and SNOMED CT codes
    - Epic and Cerner colleagues, in their respective EHRs for individual and population health
- Conducted demonstration of SDOH integration in Epic, including nursing/clinical workflow, patient story, longitudinal plan of care and population health data collection (March 2018); with Cerner (May 2018)

Complete two user stories (Choromanski, Monsen)

- Completed Housing Instability User Story (with multiple related SDOH) (January 2018) (see appendix)
- Reviewed with Nursing Value, Context of Care, and Transforming Documentation workgroups (February 2018)
- Identifying database requirements and data set sources for Test Kitchen (in progress)

Engage others and complete roadmap (Hewner, Hull)

- White Paper for Roadmap: Engaging Nurses to improve population health through large-scale adoption of SBDOH (in progress)
- Liaison with other SDOH groups working to bring a nursing and nursing informatics voice, including:
- AMIA Public and Population Health workgroup, pre-symposium on SDOH (Hull), (November 2017)
- Social Interventions Research & Evaluation Network (SIREN) (Maughan, Hull) (December 2017)
- Sarah DeSilvey MSN, FNP-C, SIREN Network, invited join workgroup
- Lauren Hardin MSN, RN, National Center for Complex Health and Social Needs, cross-continuum care planning tools for reducing utilization and cost for frequent high-need patients (December 2017)
- National Alliance for Social Determinants of Health, sponsored by Leavitt Partners (Hull) (January 2018)

PUBLICATIONS

Arons, A., DeSilvey, S., Fichtenberg C., Gottlieb L., (2017). Improving the Interoperability of Social Determinants Data in Electronic Health Records: Working Paper for November 2017 Expert Panel Convening, UCSF SIREN.

Ariosto. D., Harper, E. Wilson, M.L., Hull, S.C., Nahm, E.S., & Sylvia, M. (2018). Population Health: A nursing action plan. Journal of American Medical Informatics Open.

Gao, G., Maganti, S., Monsen, K.A. (2017). Older Adults, Frailty, and the Social and Behavioral Determinants of Health. Big Data and Information Analytics (BDIA) ISSN 2380-6974 (online).

Hewner, S., Sullivan, S., & Yu, G. (2018). Reducing Emergency Room Visits and In-hospitalizations by Implementing Best Practice for Transitional Care using Innovative Technology and Big Data. Worldviews on Evidence-Based Nursing, March DOI: 10.1111/wvn.12286.*

Hewner, S., Casucci, S., Pratt, R., Sullivan, S.S., Mistretta, F., Johnson, B., Xue, Y. Q., Lin, L. & Fox, C. (2017) Integrating Social Determinants of Health into Primary Care Clinical and Informational Workflow during Care Transitions. eGEMs: Generating Evidence & Methods to improve patient outcomes, 5 (2).http://repository.edm-forum.org/egems/vol5/iss2/2 *+

Hull, S.C., Warner, J. and Smith, J. (editors), February 2018, A White Paper of the 2017 AMIAPolicy Invitational "Redefining Our Picture of Health: Towards a Person-Centered Integrated Care, Research, Wellness, and Community Ecosystem", retrievable at: https://www.amia.org/news-and-publications/pressrelease/new-white-paper-american-medical-informatics-association-seeks-

Procter, P.M., & Wilson, M.L. (2018). Nursing, professional curiosity and big data co-creating ehealth. Studies in Health Technology and Informatics. 247: 186-190.

Wilson, M.L. & Procter, P.M. (2016). Exploring community planning thinking as a model for use case development. Studies in Health Technology and Informatics. 225: 1020-1021.

PRESENTATIONS

Hewner, S. (2018) Online panel discussion on "Integrating Social Determinants of Health into Primary Care Clinical and Informational Workflow during Care Transitions," eGEMs: Generating Evidence & Methods to improve patient outcomes, 5 (2), p. 1-14 by American Medical Association's Integrated Health Model Initiative. (Invited, featured author)

Hull, S. C. (2017). Social Determinants of Health as Context for Care: Challenges in Following the Path of the Patient, AMIA 2017 Public Population Health Informatics Pre-Conference, Washington D.C. (Invited)

Procter, P.M., & Wilson, M.L. (2018). Nursing, professional curiosity and big data cocreating ehealth. Medical Informatics Europe, Gotenburg, Sweden. (Referred, Podium).

Wilson, M.L. & Procter, P.M. (2017). Lessons Learned from Systems Population Projects Incorporating Social Determinants of Health – Pulling it Together.   Summer Institute in Nursing Informatics. Baltimore, MD.

Wilson, M.L. & Hersh, W. (2018). Using Informatics to Improve the Health of Populations. American Association of Colleges of Nursing. Webinar. (Invited).

Summer Institute in Nursing Informatics, University of Maryland. (2018), Baltimore, MD

- Wilson, M.L., Procter, P.M., and Hull, S.C. (2018), Background: Social Determinants of Health (SODH), Electronic Health Records, and Health Outcomes (Session leads)
- Hewner, S., & Choromanski, L., (2018) Exploring SDOH Tools and Implications for Care Planning
- Hull, S.C. (2018), Social Determinants of Health (SDOH) Policy Drivers and Implications for Nursing
- Wilson, M.L., & Procter, P.M., (2018) An International Perspective and Track Closure

Transforming Documentation

PROJECT TEAM:

Co-Leaders

David Boyd, DNP, CNS, Regional Director, Nursing Informatics, Kaiser Permanente

Shannon L. Hulett, DNP, RN, CNL, Manager, Nursing Technology, Gundersen Health System

Members

Bonnie Adrian
Deborah Ariosto
Jane Carrington
Judith Effken
Jane Englebright
Becky Fox
Rebecca Freeman
Mary Hook
Susie Hull
Rebecca Kohler
Kay Lytle
Ann O'Brien
Anita Reger
Patty Sengstack
Theresa (Tess) Settergren
Charlotte Weaver

PURPOSE

Explore ways to decrease the documentation burden and serve up the information already in the electronic health record at the right time in the workflow to support evidence-based and personalized care. Support recommendations from the IOM Report, Best Care at Lower Cost - The Path to Continuous Learning Healthcare in America, to "accelerate the integration of best clinical knowledge into care decisions." Transformation supports enhanced data utilization to drive and measure improvement in patient outcomes, and illuminate nursing's value and contribution in healthcare.

ACCOMPLISHMENTS

- Hosted guest presenters in a 'fishbowl' format: Becky Fox, AVP/CNIO Carolinas Healthcare (reduced 18 million clicks) & Becky Kohler, Clinical Informatics Director, Hennepin County Medical Center (from 400 to 50 care plans with 'automated' intervention documentation – aligned the nursing process 'thought-flows' with EHR activity 'workflows').

- Partnered with ANA/ONC Collaborative on 'Documentation Burden/Standardization' with focus to "advance a common nursing admission assessment for acute care, with an eye on interdisciplinary collaboration on the admission assessment process and documentation". Held a Conference Call with Chairs: Rebecca Freeman & Kelly Cochran to ensure WG efforts align and co-inform where possible.

- Developed a Pre-Conference Track for Streamlining/Transforming Documentation for the June NKBDS Conference, June 13 – Invited Speakers: Charlotte Weaver, Ann O'Brien, Jane Englebright, Patricia Sengstack, Emily Barey, Shannon Hulett, David Boyd.

- Hosted guest presenters: Patricia Sengstack (Regulatory Update – ANA/ONC, CMS, NAM) and Jane Englebright (HCA Evidence-Based Documentation – minutes saved per nurse per 12-hour shift) in a 'fishbowl' format. Lively discussion including ways to leverage the attention of healthcare system leadership on the value of documentation transformation.

- Drafted Abstract with Tess Settergren, Kay Lytle, Shannon Hulett, David Boyd and Emily Barey to present an update on NKBDS at Epic's Annual User Group Meeting, Verona, Wisconsin, September 2018.

PRESENTATIONS

Admission Remodeling – User (and Patient) Centered Design, Dana Check, Tammy Henderson, Shannon Hulett, Epic Users' Group Meeting, September 2017.

2018-2019 National Action Plan

Care Coordination

PROJECT TEAM

Co-Leaders

Mary L. Hook, PhD, RN-BC, Research Scientist and Nursing Informatics Specialist, Aurora Health Care

Lori Popejoy, PhD, RN, FAAN, Associate Professor, Helen E. Nahm Endowed Professor, University of Missouri

Members

Andrew Awonigi
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Cassie Cabor
Kyle Carson
Gregory Craig
Diane Hanson
Laura Hermann Langford
Sharon Hewner
Diane Holland
Stephanie Johnson
Kay Lytle
Denise Nelson
Dan Pesut
Jean Scholz
Christine Spisla
Gregg Springan
Pauline Sockolow
Nikki VandeGarde
Bonnie Wakefield
Ruth Wetta

PURPOSE

To identify shareable and comparable data across settings to support care coordination activities and improve patient outcomes.

KEY PRIORITIES

Identify data elements (e.g. demographics, risks, SDOH, etc.) used by care coordinators for patient care.

Identify documented care coordination activities.

Explore opportunities to gather care coordination data elements used across settings.

PLANNED ACTIVITIES

Work with the Information Model Validation Group to identify flowsheet data available used by nurses to documenting patient assessment and care coordination activities. (Support effort to include data from multiple sites and diverse EHR vendors.)

Identify opportunities to map to other setting where care coordination occurs.

SNF (e.g. Point Click Care, Matrix)

Home Care (consider talking to Kathy Bowles regarding a strategy)

Continue to actively engage with HL7, ANA and the Office of the National Coordinator (ONC) to provide national nursing perspective regarding big data needs to support care coordination.

Continue to network with other groups active in care coordination (e.g. HL7, ANA, etc.) as opportunities arise.

Clinical Data Analytics

Context of Care

PROJECT TEAM

Co-Leaders

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Bonnie L. Westra, PhD, RN, FAAN, FACMI, Associate Professor, University of Minnesota, School of Nursing, Director, Center for Nursing Informatics

Subgroup-Clinical Data Models
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Alvin Jeffries

Subgroup-Population Health Informatics
Co-leads
Kay Lytle
Bonnie Westra

Subgroup-Validation of Information Models
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Christine Spisla
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Lois Walters-Threat
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PURPOSE

Demonstrate the value of sharable and comparable nurse-sensitive data to support practice and translational research for transforming health care and improving patient quality and safety. The work was conducted through three subgroups, with coordination and communication across subgroups by full workgroup meetings. The subgroups are: Data Science, Population Health Informatics, and Validation of Information Models.

KEY PRIORITIES/PLANNED ACTIVITIES

Conduct research
- Need research question
- Feasibility, requirements, plan
- Use the developed information model
- Analyze data from an organization
- Best practice examples

Education
- Define terms and techniques
- Critique paper and models
- Theory – nursing focus
- Education workgroup for implementation/curricula development
- NLP
- Workshop replication

Resource and advice to other work groups

POPULATION HEALTH INFORMATICS SUBGROUP

Key Priorities/Planned Activities
- Finalize the paper under way and submit for publication closing the sub-workgroup activities, then a "new purpose" for a potential new work group will be discussed if needed.

VALIDATION OF INFORMATION MODELS (IM) SUBGROUP

Key Priorities / Planned Activities
- Complete the GU and fall prevention IM and disseminate
- Recruit new organization members (preferable that can share data)
- Begin new IM in topics such as advanced care plans, delirium and admission

PROJECT TEAM

Co-Leaders

Amber Oliver, DNP, RN-BC, Informatics Manager, Colorado Department of Human Services

Barbara Caspers, MSPHN, BSN, RN, Health Care Executive and Consultant

Members
Denise Nelson
Michele Galioto
Deborah Struth
Kathleen Wiley
Matthew Hays

PURPOSE

Demonstrate sharable and comparable nurse data across the care continuum by capturing nursing big data in the Nursing Management Minimum Data Set (NMMDS), the Nursing Minimum Data Set (NMDS) and the Nursing Knowledge: Big Data Science Conference Nursing Value Data Set (NVDS) to increase nurse data usability, provide patient, family and community centric data and, fortify data generated by nurses, about nurses and nursing care across the care continuum and across care transitions in all settings where nurses provide care.

KEY PRIORITIES

- Continue testing the model representation of framework for integrating sharable and comparable nurse data across the care continuum
- Continue collaboration with the Nursing Value, SBDOH and Encoding/Modeling work groups
- Publish results of this work group in at least two professional nursing journals

PLANNED ACTIVITIES

- Test the model representation of framework for integrating sharable and comparable nurse data across the care continuum and the foundational data structure that supports the model encompassing the NMMDS with a focus on patient centered oncology care, pediatric asthma, and pain.
- Disseminate the Test Kitchen results with emphasis on impacting provider practice and measure influence on the Quadruple Aim.
- Publish work to date about development of the model and the foundational data structure that supports it.

Education

PROJECT TEAM

Co-Leaders

Marisa L. Wilson, DNSc, MHSc, RN-BC, CPHIMS, FAAN, University of Alabama at Birmingham School of Nursing

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Cathy Fant
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Susan Newbold
Mary Jane Rivard
Joyce Rudenick
Donni Toth

PURPOSE

Strengthen the ability of educators to teach informatics to graduate nursing students so that the goal of sharable and comparable nursing data can be attained.

KEY PRIORITIES

- Develop materials, resources and guidance in order to disseminate the efforts of the work groups through educators of graduate nursing students.
- Align and map materials with appropriate competencies.
- Provide knowledge development resources and a learning map for faculty teaching informatics content who have limited background in the subject matter.
- Disseminate information on the scope of and need for informatics education and the appropriate knowledge base of faculty who teach the content to those who make course faculty decisions.
- Collaborate with thought leaders to promote appropriate and encompassing informatics education for nurses that includes the output and messaging from the work groups.

PLANNED ACTIVITIES

- Define educational materials development process.
- Develop process to map to competencies.
- Engage with other Nursing Knowledge Big Data Science Initiative work groups and develop aligned educational materials.
- Map to HITComp tool (http://hitcomp.org) and Sigma Theta Tau site for resource storage.
- Develop and disseminate survey to gather faculty baseline preparation and learning needs related to teaching graduate level informatics content.
- Disseminate background information, tools, and directions to faculty teaching informatics content in graduate nursing programs via publications, conferences and webcasts
- Collaborate with aligned organizations and workgroups to coordinate and amplify message.

Encoding/Modeling

PROJECT TEAM

Co-Leaders

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Tae Youn Kim
Deb Konicek
Anne LaFlamme
Maria Loomis
Roxy Mahfood
Liz McCool
Holly Miller
Gordon Moyer
Yvonne Mugford
Anita Reger
Roberta Severin
Debi Sita
Christine Spisla
Vicky Tiase
Cyndalynn Tilley
Nikki Vande Garde
Kristen Vitale
Bonnie Westra
Marisa Wilson

PURPOSE

Develop and disseminate LOINC and SNOMED Clinical Terms for electronic health record nursing assessments, and incorporate them into a framework and repository for dissemination.

KEY PRIORITIES/PLANNED ACTIVITIES

- Complete Pain Information Model concept mappings
- Submit new and modified terms to LOINC & SNOMED International
- Publish Nursing Physiologic Assessment, Pain in VSAC
- Continue mapping education for members
- Publish at least one article
- Publish heuristics guide
- Prepare content for Virginia Henderson library repository

Engage and Equip All Nurses in Health IT Policy

PROJECT TEAM

Co-Leaders

Joyce Sensmeier, MS, RN-BC, CPHIMS, FHIMSS, FAAN, Vice President, Informatics, HIMSS

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Norma Lang
Laura Heermann-Langford
Ellen Makar
Judy Murphy
Anna Omery
Tamara Schwichtenberg

PURPOSE

Equip nurses with education, tools and resources and engage them as knowledgeable advocates for health IT policy efforts important to nursing.

KEY PRIORITIES

Advocating for widespread use of a Nurse Identifier.

- Hospitals and health systems need the ability to identify nurses in the electronic health record (EHR), enterprise resource planning system (ERP), and other health IT systems for documentation, education, research and training purposes.
- Nursing documentation in the EHR, ERP and other health IT systems can demonstrate nurses' value as healthcare transitions to a value-based reimbursement model.
- Nursing documentation can demonstrate nurses' value and impact on improving patient/population outcomes, patient safety, operational efficiency and clinical effectiveness.
- Nurses and employers need a mechanism to track nursing licensure across job and location changes
- Institutions need the ability to verify licensure status for their nurse employees.

Background

- The Big Data Science Health IT Policy Work Group is advocating for widespread use of the nurse identifier maintained and supported by the National Council of State Boards of Nursing (NCSBN) called the NCSBN ID, accessible via www.nursys.com.
- The NCSBN ID is a free, unique identifier, publicly available, that is automatically generated for each RN and LPN at the time of their NCLEX exam. No additional action by the nurse is necessary.
- Nurses who received licensure prior to the NCLEX exam have been assigned an NCSBN ID and were added to the Nursys database maintained by the NCSBN.
- The Nursys e-Notify® system allows institutions to receive license status including the NCSBN ID for their nurses, and electronically tracks each nurse across multiple state licensures.
- We continue to support the use of the National Provider Identifier (NPI) for all nurses including nurse providers who submit claims for reimbursement. The NPI is the industry standard for providers that submit claims, and we will work in collaboration with the ANA to achieve wider adoption of a unique identifier for all RNs.

PLANNED ACTIVITIES

Unique Nurse Identifier Advocacy

- Continue to evolve our advocacy strategy & position statement in collaboration with the ANA.
- Complete a proof of concept analysis minimally at one healthcare organization in collaboration with EHR vendor.
- Explore funding opportunities to support proof of concept activities.
- Publish article in OJNI to describe issue and increase awareness.

Mobile Health Data

PROJECT TEAM

Co-Leaders

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Tami Wyatt
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PURPOSE

Explore the use of mobile health (mHealth) data by nurses including both nursing-generated data and patient-generated data. Identify and support activities and resources to address unmet needs and create opportunities to utilize mHealth data within nursing workflows.

KEY PRIORITIES

- Disseminate literature review (abstract, poster, paper).
- Create mHealth educational resources to be shared with NKBDS attendees (LinkedIn).
- Explore the relationship of mobile health and social media.

PLANNED ACTIVITIES

- Complete literature review (data analysis, dissemination).
- Identify/create mHealth related education resources.
- Identify mHealth data sets.
- Explore mHealth in relation to social media.
- Perform assessment of mHealth competencies of NKBDS attendees.

Nursing Value

PROJECT TEAM

Co-Leaders

Ellen Harper, DNP, RN-BC, MBA, FAAN, Assistant Professor, University of Kansas School of Nursing

John Welton, PhD, RN, FAAN, Professor, University of Colorado College of Nursing

Sub-group-User Stories Co-leads
Lisa Moon, PhD, RN, LNC, CCMC
Greg Clancy DNP, RN

Sub-group-Data Dictionary Leader
Cathy Ivory, PhD, RN-BC, FAAN

Sub-group-Pilot Student Co-leads
Ellen Harper, DNP, RN-BC, MBA, FAAN
John Welton, PhD, RN, FAAN

Sub-group-Dissemination
All members

Sub-group-Research Governance Co-leads
Amy L. Garcia, DNP, RN, CENP
Peggy Jenkins PhD, RN

Sub-group-Business Intelligence and Analytics Co-leads
Chris Looby, FACHE
John Welton, PhD, RN, FAAN

Members
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Pat Hinton-Walker
Susan Hull
Grace Gao
Lisa Janeway
Steve Johnson
Mikyoung Lee
Christie Martin
Charlene Ronquillo
Melissa Serna
Victoria Tiase
Lily Tunby
Tami Wyatt
Nancy Yates

PURPOSE

To measure the value of nursing care as well as the contribution of individual nurses to clinical outcomes and cost. Develop big data techniques for secondary data analysis that will provide metrics to monitor quality, costs, performance, effectiveness and efficiency of nursing care.

KEY PRIORITIES

- Test and refine the work products from previous years (Nursing Value data model, data dictionary, user stories, and metrics) to quantitatively measure the nursing value.
- Harden the processes for extracting, validating and de-identifying data from participating research sites.
- Organize the Nursing Value Research Data Warehouse (NVRDW) Board of Directors and governance model.
- Create business intelligence tools to enable measuring the patient level nursing intensity and cost per patient across the continuum of care.

PLANNED ACTIVITIES

- Engage the Clinical Data Analytics Workgroup to help with the analytics of the NVRDW data.
- Create a new sub group dedicated to hardening the extract, load and transfer (ELT) process.
- Submit applications for external funding to help offset the burden of ELT.

eRepository

PROJECT TEAM

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PURPOSE

Develop and implement a repository designed to collect nursing informatics best evidence in the form of documents, surveys, instruments, algorithms, for example.

KEY PRIORITIES

- Pilot 10 documents uploaded to the E-Repository.
- Feasibility of workflow, evaluate process of upload, download and evaluation of materials.
- Establish and develop protocol for using and sustaining the E-Repository.

PLANNED ACTIVITIES

- Work with eRepository end users to develop a good workflow that encourages sharing of best evidence for nursing informatics. Disseminate information that eRepository exists to encourage national and international sharing of best evidence for nursing informatics.

Social Determinants of Health

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PURPOSE

Support the inclusion of Social and Behavioral Determinants of Health (SBDOH) in electronic health records, and empower nurses to use the data when planning, providing and evaluating care.

KEY PRIORITIES/PLANNED ACTIVITIES

Create a Pediatric Asthma User Story

- Conduct literature review and environmental scan to identify data points
- Create user story
- Review and identify data source to test story

Develop Guide for Community Resources for SDOH

- Develop matrix to gather information
- Review community resources/apps (e.g. Aunt Bertha, NowPow)
- Identify gaps and ways for feedback and data into EHR

Engage Others & Develop Toolkit of Principles and Recommendations

- Develop recommendations and principle papers from work collected: positive deviants, food instability, etc.
- Continue to support other NK2BD workgroups, as resource for SDOH overlaps

Streamlining/Transforming Documentation

PROJECT TEAM

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PURPOSE

Explore ways to decrease the nursing documentation burden and serve up the information already in the electronic health record at the right time in the workflow to support evidence-based and personalized care. Elevate purpose-driven, role-based, patient-centric, evidence-informed documentation transformation to capture nurse observations and interventions and drive purposeful secondary-use and precision nursing.

KEY PRIORITIES

- Continue collaboration with ANA/ONC
- Develop framework for a topical series of Transformation in Action papers including best-practices, with focus on the positive (usability)
- Expand on Dr. Sengstack's conceptual framework of Documentation Burden domains (billing/coding; regulatory/quality; usability; litigation fear; lack of interoperability; wdtto [we've done this to ourselves]
- Disseminate deliverables

PLANNED ACTIVITIES

- Join the ANA/ONC collaborative calls.
- Organize publication plans.
- Dedicate a call to defining 'secondary use' functions (what it should be for, intentional design by role – inter-professional/shared views, etc.).
- Further discuss integration of Human Factors experts & science in support of this work – weaving in the connection to bedside nurses.
- Use another call to explore linkage to personalized care (know me) as part of how we use decision-support and data visualization today. Create formal links to an overall precision nursing framework to support Industry, Service Providers and Research.

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