

# NURSING KNOWLEDGE 2019 Big Data Science



## Conference Proceedings

June 5-7, 2019

Minneapolis, Minnesota

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**SCHOOL OF NURSING**

UNIVERSITY OF MINNESOTA

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### Complete Conference Information

To see the conference agenda, action plans from this year and previous years, abstracts and presentations, visit <http://z.umn.edu/bigdata>

### Join the Conversation on LinkedIn – Big Data: Empowering Health

<https://www.linkedin.com/groups/12096820>

### 2020 Conference Dates

Nursing Knowledge: *Big Data Science Conference* will be held June 3-5, 2020, 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 seventh-annual Nursing Knowledge: Big Data Science (NKBDS) Conference brought together professionals from academia, practice, research, information technology, health systems and standards organizations. Currently, there are 11 virtual workgroups, which shared their accomplishments to advance sharable and comparable nurse sensitive data integrated with patient, interprofessional and social determinants of health data to improve health and health care.

The preconference provided three hands-on tracks: Track 1-Data Science, Track 2-Standardized Data for Dash Boards and Real Time Alerts for Pain Management, and Track 3-Standardizing the Nursing Admission History and Screening to Reduce Documentation Burden. The purpose of the Data Science Track was for participants to learn all phases of a data science project to have a better overall understanding and improve collaboration with data science experts for their specific projects and/or organization. The morning session was an introduction to data science and tools while the afternoon session was an advanced hands-on workshop where participants worked with data and used tools in data science. The purpose of Track 2 was for participants to expand understanding about end-to-end capture and use of data for pain management from staff



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

nurses through all levels in the organization. Participants engaged in hands-on exercises addressing specific topics: information modeling, methods to optimize implementation an information model, challenges and solutions in creating alerts and reports, and principles of data visualization for public health reporting to address the opioid crisis. In Track 3, participants critiqued the work products of the Nursing History and Current State Screening Task Force to address the problem of documentation burden. This included the guiding principles and the model documentation elements. During the preconference, participants planned education and dissemination interventions for the next step of creating an information model and adding standard codes.

The opening keynote was given by Cyrus Batheja, EdD, MBA, PHN, BSN, RN, Chief Growth Officer for myConnections™ and Medicaid Vice President at United Healthcare Community & State. He discussed the MyConnections™ program, which is a United Healthcare program that helps low-income individuals and families' access essential social services that are the gateway to better health. A second keynote was given by Jennifer Lundblad, PhD, and Lisa Moon, PhD, RN, addressing health information technologies (HIT), information exchange, and HIT policies

from national and local implementation perspectives. Opening the last day of the conference, Jane Englebright, PhD, RN, FAAN, presented *When "Big Data Runs Health care."* She described a framework for analyzing technology and data support for nursing and discussed current and future applications of artificial intelligence that will transform health care.

The focus of the Big Data conference continues to be the work groups achievements, work group meetings during the conference and developing plans for 2019-2020. These are included in the next pages of the proceedings.

### Save the Date

Nursing Knowledge: Big Data Science Conference  
will be held on June 3-5, 2020, Minneapolis, MN

## Key Notes from the Keynotes

**Cyrus Batheja**, EdD, MBA, BSN, RN, PHN, Chief Growth Officer for myConnections™ and Medicaid Vice President at UnitedHealthcare Community and State, presented an overview of strategy to achieve better care at lower costs.

The first key action is aligning data from disparate data sources and resources from health care organizations, universities, jails and prisons, social service agencies, transportation and others. "By collaborating with entities that control vast economic, human, intellectual, and institutional resources, anchor institutions have the potential to bring crucial, and measurable, benefits to local patients, their families, and communities," he said. Effective interventions require vigilant member qualitative insights about the patient's story and selection stratification of populations to apply the right evidence-based strategies to the right people. Basic needs, such as food, clothing and housing, must be addressed before "medicalizing" problems.

One of the most expensive Medicaid claims is for people who have high complex needs and who are homeless. UnitedHealth developed a program, "Housing First," to address the needs of the homeless population, then addressed health issues to optimize health outcomes and reduce costly care. By understanding the patient's story and tailoring strategies to meet needs, United Health was able to reduce average monthly costs for 248 high-risk, high-cost Medicaid members by 44 – 51% in three states over an 18-month period. Additionally they saw a reduction of ER visits by 33-44%, a reduction in inpatient admissions by 55%, and a 67% reduction of inpatient days.



## Key Notes from the Keynotes

Drs. **Jennifer Lund** and **Lisa Moon** shared insights on health information technology (HIT) policies ranging from local to national perspectives. One such policy is the 21st Cures Act, which includes an emphasis on interoperability to follow patients over time and across organizations. Standardization of nurse-sensitive data is essential to provide continuity of care across the continuum.

They described challenges that need to be addressed including the HIT infrastructure, transport standards, information blocking, and ability to including data from the community as well as hospitals and clinics.

Their recommendations were to establish nursing as a key contributor and active participant in policy development and task forces. They recommended joining innovative projects that aim to "move data" and also ensure that the consumer patient and caregivers are included in conversations.



## Key Notes from the Keynotes

**Jane Englebright**, PhD, RN, FAAN, Senior Vice President and Chief Nurse Executive at HCA, highlighted current use of artificial intelligence (AI) and implications for future decision making in health care. She contrasted current consumer products with AI such as self-driving cars, robotic vacuum cleaners, and voice enabled home environment controls to emerging technologies in health care such as automated image reading, robotic surgery, and environmental controls (i.e. lights and temperatures).

A prime example at HCA is detecting sepsis with AI vs manual chart reviews, which proves to be more accurate and additionally a major reduction of time and resources. Future HCA examples include prediction of hospital discharges to optimize timely care.

Dr. Englebright indicated that HCA is also using technology to match nursing with desired career paths and just in time support for advancement. This strategy helps inspire nurses and leads to nurse retention. She challenged participants to consider how technology makes our lives easier and creatively think about similar applications to health care to improve both patient outcomes and nurse satisfaction.



## 2018-2019 Progress on the National Action Plan

### Care Coordination

#### PROJECT TEAM

##### Co-Leaders

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

**Mary L. Hook**, PhD, RN-BC, Research Scientist, Advocate Aurora Health Care

##### Members

Chelsea Biel  
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

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

#### ACCOMPLISHMENTS

- Work with the task force, "Standardizing the Nursing Admission History and Screening to Reduce Documentation Burden" to identify data elements needed to support patient assessment and care coordination activities. (Hook – representative)
- Networked with Care Coordination Researchers Sheila Haas, PhD, RN, FAAN (Dean & Professor Emeritus, Loyola University) and Beth Ann Swan, PhD, CRNP, FAAN (Professor Thomas Jefferson University) regarding their work with the American Academy of Ambulatory Care Nurses (AAACN) to complete work identified at the Care Coordination Summit (2018). We hope to learn more about how AAACN and their associated organizations envision using the electronic health record and tools such as Better Outcomes for Optimizing Safe Transition (BOOST) related data elements to stratify patients and support care coordination (work in progress)



# Clinical Data Analytics

## PROJECT TEAM

### Co-Leaders

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

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

### Population Health Informatics Subgroup Co-leads

Alvin Jeffrey  
Sharon Hewner

### Validation of Information Models Subgroup Co-Leaders

Kay Lytle  
Bonnie Westra

### Data Science Subgroup Co-Leaders

Steven Johnson  
Lisiane Pruinelli

### Members

Mischa Adams (IM)  
Mari Akri (IM)  
Samira Ali (IM, PHI)  
Marlene Alonso (DS)  
Kenrick Cato (DS)  
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Jung In Park (DS)  
Lisiane Pruinelli (PHI, DS)  
Tari Rajchel (IM)  
Jethrone Role (DS)  
Sarah Collins Rossetti (IM, DS)  
Martha Sylvia (PHI)

## OVERALL 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 subgroups are: Population Health Informatics, Validation of Information Models, and Data Science.

## POPULATION HEALTH INFORMATICS 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

- Completed publication on risk assessment with implications for nurses' role. This subgroup has now disbanded

## VALIDATION OF INFORMATION MODELS (IM) SUBGROUP

Disseminate the Pain IM model concepts and value sets validated 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.

## ACCOMPLISHMENTS

- Results of the pain IM were published
- Revised the process for validation of information models
- Incrementally developed and used FloMap software for validation of the Genitourinary and Fall Prevention Models across 10 organizations
- Collaborated with the Encoding and Modeling Workgroup to provide clarification and rationale for concepts and values for the Pain IM
- Developed an internet-based survey methodology for obtaining broader validation of information models
- Collaborated with nursing informatics groups to obtain broader validation of the GU IM
- Presented information on the work of the IM Validation group on Pain Management
- Submitted an abstract to present at AMIA
- Articles in process on Revised Method for Genitourinary Model and Overview with Pain, GU and Falls

## DATA SCIENCE 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 and conducted three "hands-on/interactive" workshops on Data Science. We presented one at the AMIA 2019 Informatics Summit (~120 participants), one at the 2019 Nursing Knowledge Big Data Conference in June (Pre-Conference Track 1) and we will be presenting the third at MedInfo 2019 in August
- A Data Science Environment was setup for all of the workgroup members to use for learning data science techniques. The Environment was loaded with the MIMIC III EHR data and uses the Google Big Query database. Data is accessed via Colaboratory and Jupyter notebooks. The environment is paid for via a grant from the University of Minnesota School of Nursing.

(continued next page)

# Clinical Data Analytics

## Members, continued

Mary Anne Schultz (DS)  
Theresa (Tess) Settergren (IM)  
Christine Spisla  
Suzanne Sullivan (DS)  
Bonnie Westra (IM)  
Luann Whittenburg (IM)  
Dana Womack (DS)

## Small Workgroup Membership

DS – Data Science  
IM – Information Modeling  
Validation  
PHI – Public Health Informatics

- Received an award: Improving Population Outcomes Using Data Science: A Roadmap for Nurse Leaders
- School of Nursing Foundation, University of Minnesota, Award Dates: January 31, 2018 - January 30, 2019. Funded Amount: \$3,000.00
- The Data Science Roadmap developed by the group has been included as part of national and international presentations
  - The Potential of Using EHR data for Big Data Science Addressing Complex Conditions – Big Ten Broadcast via WebEx (Pruinelli, April 2019)
  - Nursing in the Big Data Era, Opening Speech at the 30th Scientific Nursing Week at Hospital de Clinicas of Porto Alegre, Brazil (Pruinelli, May 2019)

## PRESENTATIONS

Johnson S, Winden T, Pruinelli L. Hands-On Full Life Cycle Data Science Workshop (2019). Workshop AMIA 2019 Informatics Summit, San Francisco, CA.

Johnson S, Pruinelli L, et. al. (2019). Data Science Workshop (2019). Workshop 2019 Nursing Knowledge Big Data Science Conference: Pre-Conference Track 1, Minneapolis, MN.

Pruinelli L, Johnson S, Winden T. Hands-On Full Life Cycle Data Science Workshop (2019). Workshop MedInfo 2019, Lyon, France.

Johnson, S. G., Pruinelli, L., & Winden, T. (2018). Hands-on full life cycle data science workshop. [youtube.com/watch?v=aiAfr1Y6lmg&feature=youtu.be](https://www.youtube.com/watch?v=aiAfr1Y6lmg&feature=youtu.be). [youtube.com/watch?v=aiAfr1Y6lmg&feature=youtu.be](https://www.youtube.com/watch?v=aiAfr1Y6lmg&feature=youtu.be) [Non-Refereed].

Johnson, S. G., & Pruinelli, L. (2018). Hands-on full life cycle data science workshop. [http://github.com/nkbds/track1](https://github.com/nkbds/track1) [http://github.com/nkbds/track1](https://github.com/nkbds/track1) [Non-Refereed] – Patent & Intellectual Property Johnson & Pruinelli, 2018.

Klann, J.G., Collins, S.A., Cato, K.D., Waitman, L.R., Westra, B.L. Nursing Documentation and the Clinical Research Informatics Pipeline, AMIA Joint Summit, San Francisco, CA, March 2019.

Lytle, K. & Hook, M. (April 26, 2019). Analyzing current data to refine nursing pain documentation (session #703). American Nurses Association (ANA) Quality and Innovation Conference. Orlando, FL.

Lytle, K. & Boyd, D. (August 26, 2018). UGM134 What's in your pack? Nursing knowledge big data summit. Epic User Group Meeting (UGM). Verona, WI.

Westra, B.L., Pruinelli, L., Wilson, M., Androwich, I., Harper, E. (2019). Panel. Workshop MedInfo 2019, Lyon, France.

## POSTER PRESENTATION

Lytle, K., Westra, B. & Hook, M. (2018, November 15). Analyzing current data to refine nursing pain documentation. 2018 Nursing Research Conference – From the Clinic to the Community: The Impact of Nursing Research on Population Health. Duke University School of Nursing, Durham, NC.

## PUBLICATIONS

Pruinelli, L., Johnson, S. G., Freismeier, B., Coviak, C., Winden, T., & Delaney, C. W. An applied health care data science roadmap for nursing leaders: a workshop development, conceptualization and application. CIN. [Under Review].

Jeffery, A.D. Hewner, S., Pruinelli, L., Lekan, D., Lee, M., Gao, G., Holbrook, L., Sylvia, M. (2019). Risk prediction and segmentation models used in the United States for assessing risk in whole populations: a critical literature review with implications for nurses' role in population health management, JAMIA Open, 0(0), 1–10, doi: 10.1093/jamiaopen/ooy053.

Lytle, K. S. (2019). Information models offer value for nursing. Nursing2019 49(7), 61-62.

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, doi: 10.1055/s-0038-1636508.

## Context of Care

### PROJECT TEAM

#### Co-Leaders

**Amber Oliver**, DNP, RN-BC,  
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**Barbara Caspers**, MSPHN, BSN, RN,  
Health Care Executive and Consultant

#### Members

Chelsea Backler  
Michele Galimoto  
Matthew Hays  
Denise Nelson  
Deborah Struth  
Kathleen Wiley

### 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, Social Behavioral Determinants of Health (SBDOH), & Encoding/Modeling Workgroups
- Publish results of this workgroup in at least 2 professional nursing journals

### ACCOMPLISHMENTS

- **Priority #1:** Continue testing the model representation of framework for integrating sharable and comparable nurse data across the care continuum
  - Applied the framework to potential Oncology data and CancerLinQ with a focus on development of an Oncology Minimum Data Set & Registry data eMeasure specifications to drive improvements in care
  - Developed an eMeasure/Pilot Site Data Plan
  - Outlined a Position Description for work with Pilot Site
- **Priority #2:** Continue collaboration with the Nursing Value, SBDOH, & Encoding/Modeling Workgroups
  - Completed data codification for two symptoms
  - Outlined potential staffing data integration from ONS Staffing and Acuity Project to NMMDS, NMDS, NVDC, and Quadruple Aim
  - Reviewed potential collaboration with The Happiness Project
- **Priority #3:** Publish results of this workgroup in at least 2 professional nursing journals.
  - Prepared a list of journals & outlined manuscript focus



## Education

### PROJECT TEAM

#### Co-Leaders

**Marisa L. Wilson**, DNSc, MHSc, RN-BC, CPHIMS, FAMIA, FAAN, Associate Professor, Specialty Track Coordinator Nursing Informatics Director, Nursing Health Services Leadership Pathway, University of Alabama at Birmingham, School of Nursing

**LaVerne Manos**, DNP, RN-BC, FAMIA, Director, KUMC Center for Interprofessional Health Informatics, Clinical Associate Professor, Kansas University Medical Center, School of Nursing

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Cathy Fant  
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Marie McDuff  
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MaryJane Rivard  
Joyce Rudenick  
Denise Sandell  
Marie Tietze  
Donnie Toth  
Marie Vanderkooi  
Dongjuan Xu

### PURPOSE

Ensure that faculty and system's educators who impact practicing nurses and nursing students are competent and capable to mentor those they influence to be full participants or leaders in a technology rich environment where they are able to use information technology to process data to form information and knowledge.

### KEY PRIORITIES

- Engage with other Nursing Knowledge Big Data Science (NKBDS) Initiative workgroups to co-develop aligned educational materials for faculty and educators
- Upload educational materials to NKBDS resource storage sites
- Disseminate background information, tools, and directions to faculty teaching informatics content in graduate nursing programs
- Disseminate background information, tools, and directions to faculty teaching informatics content in graduate nursing programs

### ACCOMPLISHMENTS

- **Priority #1:** Engage with other NKBDS workgroups to co-develop aligned educational materials for faculty and educators
  - Educational resources based on output of the workgroups are under development
  - Mobile applications and Social Determinants of Health were developed
  - Encoding and Modeling will be completed at the annual meeting
- **Priority #2:** Upload educational materials to NKBDS resource storage sites
  - Continue to monitor progress on NKBDS storage sites for educational resources
  - Identify external storage sites for the educational materials such as HIMSS Virtual Learning Environment and HIMSS Informatics Educators' Resource Network (IERN)
- **Priority #3:** Disseminate background information, tools, and directions to faculty teaching informatics content in graduate nursing programs
  - Produced and completed training and education workshops at:
    - HIMSS, 2/11 – 2/15/19
    - AMIA Clinical Informatics Conference, 4/30 – 5/2/19
    - QSEN Workshop, 5/29 – 5/31/19
  - Preparing for upcoming conferences:
    - AMIA Informatics Educators Forum, 6/18 – 6/20/19
    - Summer Institute in Nursing Informatics: Track C Documentation Burden, 7/17 – 7/19/19
    - MedInfo 2019 Panel Lyon, 8/25 – 8/30/19
- **Priority #4:** Disseminate background information, tools, and directions to faculty teaching informatics content in graduate nursing programs
  - Have active memberships on:
    - American Academy of Nursing Information Technology Expert Panel
    - AMIA Nursing Informatics Program Directors
    - AMIA Educators Working Group
    - AMIA Academic Forum
    - HIMSS TIGER Scholars Workgroup
    - HIMSS TIGER Scholars Resource Workstream
    - HIMSS TIGER International Task Force
  - Invited working group member on:
    - American Association of Colleges of Nursing BSN, MSN, and DNP Essentials Rewrite with Domains and Competencies
    - American Nurses Association Scope and Standards of Nursing Informatics Practice update

## Encoding and Modeling

### PROJECT TEAM

#### Co-Leaders

**Tess Settergren**, MHA, MA, RN-BC, Independent Consultant

**Stephanie Hartleben**, MHA, MSN, RN-BC, Clinical Informatics Manager, Elsevier

#### Members

Mischa Adams (ED)  
Samira Ali (ED, IV, PM)  
Angela Anderson (AA, IV)  
Lisa Anderson  
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Liz McCool  
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Yvonne Mugford  
Young Park IV  
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Anita Reger  
Tess Settergren (AA, ED, IV, PA)  
Roberta Severin  
Christine Spisla (HD, IV, PA)  
Rachel Tharp (IV)  
Cyndalynn Tilley (ED, PA)  
Nikke Vande Garde (PA)  
Bonnie Westra  
Marisa Wilson

#### Small Workgroup Membership

AA – Admission Assessment Task Force  
ED – Education Content Development  
HD – Heuristics Development  
IV – PIV/CVC Model  
PA – Physiologic Assessment Review  
PM – Pain Model Scale Author Information

### PURPOSE

Develop and disseminate LOINC and SNOMED CT for electronic health record nursing data elements and incorporate them into a framework and repository for dissemination.

### KEY PRIORITIES

- Intensify Terminology & Modeling Focus
- Formalize Framework/Processes using information models from Pain Management, Central Line Bloodstream Infection (CLABSI) and Peripheral IV – Central Venous Catheters
- Disseminate deliverables

### ACCOMPLISHMENTS

- Completed PIV/CVC modeling and mapping
  - Team analyzed past work
  - Added back interventions (originally omitted)
  - Technical review in progress
  - Clinical content validation planned
- Inclusion of proprietary assessment tools in LOINC
  - Pain assessment proprietary tools author info was sent to LOINC
  - LOINC will contact authors after we send prioritized list
- Pain Management Information Model Content
  - The mapping is near completion
  - The LOINC Nursing Subcommittee review completed
- Education
  - LOINC Training completed (targeted for workgroup)
  - In process is development of content for Education Work Group to use
  - Participate in SINI preconference in planning for 2020
- Heuristics/Style Guide
  - The draft in in revision
- Publish the Basic Physiologic Assessment in the Value Set Authority Center (VSCA)
  - Team reviewing the Physiologic Assessment now for QA purposes (consistency)



## Engage and Equip All Nurses in Health IT Policy

### PROJECT TEAM

#### Leaders

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

#### Members

Kelly Aldrich  
Susan Alexander  
Ida Androwich  
Marianne Baernholdt  
Kari Ballou  
Whende Carroll  
Willa Fields  
Valerie Fong  
Laura Heermann-Langford  
Brenda Kulhanek  
Norma Lang  
Ellen Makar  
Judy Murphy  
Anna Omery  
Tamara Schwichtenberg  
Joyce Sensmeier  
Guest: Nur Rajwany

### PURPOSE

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

### KEY PRIORITY

Advocate for widespread use of a Nurse Identifier

### ACCOMPLISHMENTS

- Unique Nurse Identifier Advocacy
  - Continued to evolve our advocacy strategy and position statement in collaboration with the ANA
  - Follow up discussion held with ANA leadership on Friday, August 24, 2018. Discussed proposed course of action for the National Council State Board of Nursing Identifier (NCSBN ID) to be used as a glide path to widespread adoption/use of the National Provider Identifier (NPI)
  - Presented recommendations at the ONC and ANA "Health IT for Nursing: What Now?" stakeholder meeting – September 26, 2018
  - Presented recommendations at the American Academy of Nursing Informatics & Technology Expert Panel meeting, Washington, DC – November 3, 2018
  - Follow up discussion held with ANA leadership and NCSBN leadership on November 19, 2018 re: ongoing collaboration and advocacy for Unique Nurse Identifier
  - Presented recommendations at the HIMSS CNO-CNIO Vendor Roundtable Summit, December 6, 2018
  - Reviewed and discussed proposed rules from ONC and CMS with Jeff Coughlin, HIMSS Senior Director, Federal and State Affairs, March 21, 2019
  - ONC 21st Century Cures Act NPRM
  - CMS Interoperability and Patient Access
  - Launched proof of concept at the Center for Medical Interoperability by leveraging the NCSBN ID as the unique nurse identifier for the Digital Citizen use case in the Trust Data Network Platform
  - Article authored by the Workgroup titled "Demonstrating the value of nursing through use of a nurse identifier" accepted for publication in the Online Journal of Nursing Informatics (OJNI). Expected publication date is July 1, 2019.
  - Panel presentation accepted for MedInfo 2019 in Lyon, France on August 25-30, 2019. Ida Androwich will represent the Workgroup

## e-Repository

### PROJECT TEAM

#### Co-Leaders

**Lynda R. Hardy**, PhD, RN, FAAN,  
Associate Professor of Clinical Practice;  
Director, Data Science, and Discovery,  
College of Nursing, The Ohio State

#### Members

Jane Carrington  
Judy Effken  
Dominique Tobbell  
Marybeth Slebodnik  
Charlotte Weaver  
Bonnie Westra

### 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

### ACCOMPLISHMENTS

- Analyzed the Virginia Henderson library as an e-repository for the Nursing Knowledge Big Data Science resources
- Determined the need to compare multiple e-repository options
- Completed a survey about the use of the Virginia Henderson Repository
  - Framework and criteria development
    - Logistics of housing the e-repository in the LinkedIn site
    - Usability
    - Dissemination needs and abilities
  - Faculty Survey: usability, user friendliness of
    - 57% of nursing faculty knew of the repository
    - 26% of faculty who knew of repository used it
  - REDCap usability survey for data entry
    - 3 respondents
    - 1 noted difficulties using Virginia Henderson site
    - Submission was rejected
- Evaluated the <https://nursingbigdata.org> website as a potential location for the e-Repository.
  - Recommending adding the e-Repository as a workgroup (it was new last year at the end of the conference)
  - Made recommendations for incorporating the e-Repository
  - Developed a submission form – first as a fillable PDF and after testing, it will become an online form
  - Developed guidelines for submission of sharable resources from workgroups
  - Defined webpages for submission and display of data submitted.



## Mobile Health (mHealth) for Nursing

### PROJECT TEAM:

#### Co-Leaders

**Christie Martin**, PhD-C, MPH, MN, RN,  
PHN, LHIT-HP, Registered Nurse, Abbott  
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**Lisa M. Janeway**, DNP, RN-BC, CPHIMS,  
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#### Members

Caitlin Bakker\*  
Karen Dunn-Lopez  
Kevin Durr  
Grace Gao\*  
Lisa Janeway\*  
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Mikyoung Lee\*  
Christie Martin\*  
Martin Michalowski  
Melissa Serna\*  
Judd Simmonds  
Victoria Tiase\*  
Lily Tunby\*  
Tami Wyatt\*

\*Active members of the  
Systematic Review  
Subcommittee

### 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.

### KEY PRIORITIES

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

### ACCOMPLISHMENTS

- Priority # 1: Systematic Review
  - Completed data extraction for MEDLINE via OVID
  - Submitted protocol to PROSPERO (April 2019)
  - Refined research question
  - Completed updated literature search (5 total databases)
- Other Accomplishments
  - Created mHealth education module for the NKBDS Education working group
  - Submitted article to ANI Connections CIN (April 2019; currently under review)



# 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

### Members

Amy L. Garcia  
Cathy Ivory  
Peggy Jenkins  
Chris Looby  
Lisa Moon  
Beth Myers

## 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 the feasibility of extracting, validating and de-identifying data from disparate electronic systems
- Synthesize results of data extractions
- 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

## ACCOMPLISHMENTS

- **Priority #1:** Test the feasibility of extracting, validating and de-identifying data from disparate electronic systems
- Built the study team that included research staff, clinical subject matter experts, hospital IT staff, Cerner Clairvia® staff, & Nursing Value Expert Workgroup members
  - Received IRB approval from study hospital, Univ. of Colorado (COMIRB), and University of Kansas School of Nursing as a limited data set
  - Data were extracted, anonymized and encrypted from 4 different electronic systems at a tertiary care pediatric hospital:
    - Patient-specific data from Cerner EHR
    - Nursing characteristic data from Peoplesoft HR system
    - Patient acuity, nursing staffing, and assignment from Cerner Clairvia® system
    - Patient's APR-DRG from the hospital's financial system
  - Data setup and cleaning within the HIPAA compliant research repository at Univ. Colorado
  - Study sample
  - Secondary data analysis of admissions over a 3-year time frame (2014-2016)
    - 43,936 pediatric and neonatal patients and 1,728 nurses
    - 4,645,732 nursing assessments
- **Priority #2** Key findings from the research study
  - To the best of our knowledge, this is the first study to examine nursing intensity, costs, interventions and outcomes (limited to pain care) in a pediatric population. Previous efforts to describe the value of nursing work have been limited by the inability to link nurse and patient data in large clinical and managerial data sets. This development of new data science techniques has provided a mechanism for linkage of individual nurses to individual patients.
  - Direct nursing costs adjusted for wage, shift differential, and holiday. Does not include indirect costs, e.g. vacation/sick time, benefits, not patient care pay
    - Med/Surg (RN \$480.52)
    - Critical Care (RN \$916.31)
    - Note: these are actual direct costs of care for each patient, not average nursing costs per patient day (NCPD)

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# Nursing Value

- Acuity by unit and day of stay
  - Shows high variability with some M/S units have outliers as high as ICU
  - The mean acuity at 12 hours was significant to the length of stay
- Nurse's experience variability between day and night shift
  - Day shift mean experience was higher than night shift on all units
  - Even with similar acuity
- APR-DRG
  - Correlation between length of stay, total care hours, costs, acuity and case mix for all severity levels (1-4)
- **Priority #3:** Implications for future study
  - Demonstrated the ability to extract, transform and load (ETL) nursing value variables for analysis is feasible and informative
  - Big data research requires partnership with clinical, informatics and technical knowledge
  - Health care providers (nurses) and the outcomes of nursing care are under-represented big data warehouses and national clinical research networks. Semantic harmonization and mapping to national standards (LOINC, SNOMED\_CT consideration should be given to common data model i.e. Patient-Centered Outcomes Research (PCORnet), Observational Medical Outcomes Partnership (OMOP) should be considered.
  - Secure funding to upgrading hardware (computers, servers) to manage the file size
  - Nursing cost adjusted for inflation needs further consideration
  - Continue to identify and leverage key advocacy/leadership opportunities relevant to nursing
- **Current Funding**
  - 1R03 HS025495-01 Agency for Healthcare Research & Quality (AHRQ) "Measuring nursing value" August 2017 to July 2019
  - University of Colorado School of Medicine, Data to Value "Data to Nursing Value" July 2017 to June 2019
- **Future Funding**
  - Submitted CTSA PAR 16-328 "Advancing Interprofessional Research across Data Networks by Incorporating Patient-Provider-Location Relationships Through HL7 FHIR Bulk Data Extensions." Univ of KS & Univ of CO. Submitted R01 PAR 18-975 Agency for Healthcare Research and Quality "Inpatient Nursing Medication Administration Safety and Patient Outcomes: A Big Data Multi-site Approach" University of CO
  - Pending submission, CTSA multi-CTSA grant to examine pain management

## PRESENTATIONS

Garcia, A., Moon, L. & Ivory, C. The nursing value model: A structured approach to measuring nursing care. Proceedings, Nursing Informatics March 2018, Guadalajara, MEXICO [International Conference Presentation].

Garcia, A. & Harper, E. Using Big Data at the Nurse/Patient Level to Measure Intensity, Costs and Outcomes. CGEAN International Nursing Administration Research Conference, Atlanta, GA, November 2018. [International Conference Poster].

Garcia, A. & Harper, E. The Science Behind the Right Dose of Nursing. Midwest Nursing Research Society, Kansas City, KS, March 2019. [Regional Conference Presentation].

Harper, E. Big Data Research: It's Innovation if You Lead it, Disruption if You Don't. Keynote presentation at Children's Hospital of Los Angeles Hospital Research Day, Los Angeles, CA, June 2018 [Local Conference Presentation].

Harper, E. & Garcia, A. Measuring the Value of Nursing in a Pediatric Hospital Poster. Midwest Nursing Research Society, Kansas City, March 2019. [Regional Conference Poster].

Harper, E. & Garcia, A. Nursing Value Research: Variability of Acuity Among Pediatric Populations. University of Kansas School of Nursing, Kansas City, KS, May 2019 (in fulfillment of Q114RD00-01). [Local Presentation].

(continued on page 18)

## Nursing Value

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Jenkins, P. Nursing Informatics and Leveraging the EHR. CALNOC Conference 2018. San Diego, CA. October 2018. [Regional Conference Presentation].

Looby, C. Nursing Value Case Study. Healthcare Finance Managers Association (HFMA) Big Data Seminar, Chicago, IL, December 2018. [National Conference Presentation].

Looby, C. Understanding Big Data. Community Health System, Chicago, IL [Regional Presentation].

Looby, C. Nursing Value Case Study. ACHE - Analytics Seminar, Clearwater, FL, January 2019 [National Conference Presentation].

Swanson, E., Garcia, A., Welton, J.M, Harper, E. Development of the Nursing Value Model: A project to measure nursing care value. ACENDIO 2019 The 12th Biennial Conference of the Association for Common European Nursing Diagnoses, Interventions and Outcomes, Falun, Sweden, March 28-30 [International Conference Presentation].

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Garcia, A., Harper, E., Welton, J. (2019). National clinical research networks: Where is the nurse? Nursing Economics 37(2), 1-3.

Harper, E., Welton, J., Baird, J., Blake, N., Luker, G., Garcia, A., Bulson, D., Ritter, D. (2018). Working with large data: Lessons learned. Nursing Economic\$, 36(6), 1-3.

Jenkins, P. Garcia, A., Farm-Franks, D., Choromanski, L., Welton, J. (2018). Academic/ practice/ industry collaboration to develop nursing value research data warehouse governance. Nursing Economic\$, 36(5), 207-212, 251.

Nelson-Brantley, H. V., Jenkins, P., & Chipps, E. (2019). Turning health systems data into actionable information. Journal of Nursing Administration. 49(4). 176-178.

Loresto, F., Grim, S., Welton, J.M. (in press) Exploring Inpatient Medication Pattern: A Big Data and Multi-level Approach. Journal of Nursing Administration.

Moon, L., Clancy, G., Looby, C., Hook, M., Welton, J.M., Harper, E. (2019) Nursing Value User Stories: Value Measurement between Nursing Contribution and Patient Outcomes. Computers, Informatics, Nursing. 37(3): 161-170.

Oliver, A., Garcia, A., Swanson, E., Moorhead, S., Abe, N. (2019). Sharable and comparable data: The importance of embedding a nursing taxonomy in the electronic health record. Computers in Nursing. In review.

Pearce, P.F., Morgan, S., Matthews, J. H., Martin, D.M., Ross, S.O., Rochin, E., & Welton, J.M. (2018) The Value of Nurse Staffing: ANA Principles Redevelopment and Direction for the Future, Nursing Economics. 36(4), 169-176.

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

## Social Determinants of Health

### PROJECT TEAM:

#### Co-Leaders

**Susan C. Hull**, MSN, RN-BC, NEA-BC, FAMIA, Senior Director, Gartner Inc.

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

#### Members

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Kathy Bobay  
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Lynn Choromanski  
Sarah DeSilvey  
Amy Garcia  
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Sharon Hewner  
Dorcus Kunkel  
Laura Munro  
Sue Nokleby  
Marti Rheault  
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 and evaluating care. Develop a roadmap to engage nurses to improve population health through large-scale adoption of SDOH.

### KEY PRIORITIES

- 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

### ACCOMPLISHMENTS

- **Priority 1:** Pediatric Asthma User Stories (Choromanski)
  - Use case for housing instability and pediatric asthma coded to Omaha System
  - Consultation with Karen Monsen
  - Looking for funding for data set and testing
- **Priority 2:** Develop Article on community resources/SDOH apps and role of the nurse
  - Scan of the literature indicated others had already done this work. What was missing was the role of the nurse.
  - Small group (DeSilvey, Hewner, Maughan, Bivona-Tellez, Bell) focusing efforts in 3 written documents:
    - Letter to the Editor in response to an article on SDOH and medical associations.
    - Current state of science related to SDOH and nursing.
    - SDOH in care plans and interoperability.
- **Priority 3:** Engage others and complete roadmap
  - Education for SDOH plan developed with education sub-group (led by Marisa).
  - Series of presentations and new articles by our workgroup members.
  - Collaboration with Nursing Admission documentation nursing workgroup, to include SDOH as "collected" by others, and core nursing role to assess and document.
  - Participation in State of the Science: National Research Meeting on Medical and Social Care Integration in Health Care Delivery Settings, February 4-5, 2019, sponsored by UCSF SIREN, OCHIN, and Kaiser Permanente <https://sirenetwork.ucsf.edu/NRMprogram>.
  - Participation in the launch of GRAVITY, an industry wide consensus group on standards for Housing Instability, Food Insecurity and Transportation, convened by UCSF SIREN, <https://sirenetwork.ucsf.edu/TheGravityProject>.
  - Participation in the National Alliance to Impact SDOH (primarily at policy level at this time) [nasdoh.org](https://nasdoh.org).
  - Looking for ways to provide input into Nursing 2030 report related to SDOH.

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## Social Determinants of Health

### PUBLICATIONS

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Hewner, S., Sullivan, S. 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*, 15, 170-177. <https://doi.org/10.1111/wvn.12286>.

Somayaji, D., Chang, YP, Casucci, S., Xue, Y, & Hewner, S. (2018). Exploring Medicaid claims data to understand predictors of healthcare utilization and mortality for Medicaid individuals with or without a diagnosis of lung cancer: a feasibility study. *Translational Behavioral Medicine (TBM)*;8: 400-408 <https://doi.org/10.1093/tbm/iby023>.

Wetta RE, Severin R, Gruhler H, Lewis, N. Capturing Health Literacy Assessment in the Electronic Health Record through Evidence-Based Concept Creation: A Review of the Literature and Recommendations for Action. *Health Informatics Journal*, November 2017.

Wetta, R.E. (2017). Nurses Poised to Address Social Determinants of Health. Cerner Corporation. <https://www.cerner.com/blog/nurses-address-social-determinants-of-health>.

Wilson, M.L. July Nursing Management journal column - Incorporating Social and Behavioral Determinants of Health in Patient Care.

### PRESENTATIONS

Hewner, S. (2018) Online panel discussion on "Integrating Social Determinants of Health into Primary Care Clinical Ariosto, D., Wilson, M. O'Brien, A., Monsen, K.A., Hull, S.C. "What's hot in nursing informatics: Social Determinants of Health," AMIA NIWG, November 4, 2018, San Francisco, CA.

Choromanski, L. Using the Omaha System: Exploring Social Determinant of Health Tool and Implications for Care Planning. Henry Street Consortium, October 15, 2018.

Choromanski, L. Using the Omaha System: Exploring Social Determinants of Health Tools and Implications for Care Planning. The Omaha System International Conference, April 4, 2019.

Wetta, R.E. Adopt Evidence-Based Concepts to Advance Social Determinant Initiatives and Elevate Population Health Strategies. Presented at the Proceedings of the World Congress Inaugural Payer and Provide Summit on Social Determinants of Health for Complex Populations, Washington, D.C. September 12, 2017.

Wetta, R.E., Daldaldian, M., Gullickson, S. Adoption of Social-Behavioral Determinants of Health. Online webinar presentation for the eHealth Initiative, October 18, 2017.

Wetta, R.E., Severin, R. (2019) Evidence-based strategy to achieve equivalency in the assessment, storage and use of Social and Behavioral Determinants of Health (SBDH). Presented at the proceedings of the LOINC Spring Clinical Conference, February 19, 2019, Salt Lake City, Utah.

## Social Determinants of Health

Wetta, R.E., Severin, R. (2019) Evidence-based strategy to achieve equivalency in the assessment, storage and use of Social and Behavioral Determinants of Health (SBDH). Presented at the proceedings of the LOINC Nursing Subcommittee meeting, March 4, 2019, online webinar.

Wetta, R.E. Social and Behavioral Determinants of Health in the Electronic Health Record: The case for equivalency scoring to address complexity. Presented at the proceedings of American Nursing Informatics Association-Kansas City Chapter, May 1, 2019.

Wetta, R.E. Social and Behavioral Determinants of Health in the Electronic Health Record. An evidence-based strategy to achieve equivalency in the assessment, storage and use of Social and Behavioral Determinants of Health (SBDH) Presented at the proceedings of Accelerate-Health Care Acumen for the Cerner Corporation Leadership program, May 2, 2019.

Wilson, M.L. "Incorporating Social and Behavioral Determinants of Health in Patient Care, HIMSS 19, February 11, 2019, Nursing Informatics Symposium.

Wilson, M.L. "Informatics Considerations: Social Determinants of Health in Patient Care, HIMSS Webinar, Clinical Informatics Community, May 20, 2019.

Wilson, M.L. Doswell Conference on Connected Communities, The Role of Health Informatics – Informatics Considerations: Social Determinants of Health, April 5, 2019 Texas Woman's University Dallas, TX.

Wilson, M.L., Procter, P.M., and Hull, S.C. (2018), Social Determinants of Health (SODH), Electronic Health Records, and Health Outcomes (Session leads). Summer Institute in Nursing Informatics, University of Maryland 2018. Baltimore, MD, July 18-20. <https://www.nursing.umaryland.edu/academics/pe/events/sini/sini-2018/schedule/>.

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



# Transforming Documentation Work Group & Admission History Cross-Work Group Task Force

## PROJECT TEAM:

### Co-Leaders

**David Boyd**, DNP, RN-BC, Regional Director, Nursing Informatics, Kaiser Permanente, Northern California  
**Jane Englebright**, PhD, RN, CENP, FAAN, Senior Vice President & Chief Nurse Executive, HCA Clinical Services Group

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

### Members

Mischa Adams  
 Bonnie Adrian  
 Angela Anderson  
 Yvonne Ashton  
 Deborah Ariosto  
 Vicki Baukner  
 Chito Belchez  
 Ann Bentler  
 Kathryn Bowles  
 David Boyd  
 Lori Cathey  
 Chien Chen  
 Amy Coenen  
 Lori Corob  
 Avaretta Davis  
 Heather DeMoss  
 Linda Dietrich  
 Denise Dowding  
 Kevin Durr  
 Chadeesia Dunkley  
 Julietta Fajardo  
 Belinda Farrelly  
 Jane Englebright  
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 Stephanie Hartleben  
 Mary Hook  
 Jenny Horn  
 Emily Flahaven  
 Susie Hull  
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 Sharon Kirby  
 Rebecca Kohler  
 Brenda Hulhanek  
 Anne LaFlamme  
 Stephanie Lambrecht  
 Kay Lytle  
 Maxy Mathew  
 Tsedey Melaku  
 Ann O'Brien  
 Donna Mayo  
 Anita Reger  
 Patty Sengstack  
 Tess Settergren  
 Darinda Sutton

## ABOUT

The Task Force is composed of volunteers and representatives from five NKBDS Work Groups: Transforming Documentation, Care Coordination, Social Determinants of Health, Clinical Data Analytics and Encoding/Modeling.

## PURPOSE

- Explore ways to decrease the documentation burden and serve up information 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.
- Transformation supports enhanced data utilization to drive and measure improvement in patient outcomes and illuminate nursing's value and contribution in healthcare.
- The Admission History Cross-WG Task Force is charged with defining a model for Nursing Admission History for the adult patient admitted to an acute care facility for medical/surgical care. The outputs will provide the foundation for continued work in defining Nursing Admission History for other patient populations and care settings.

## 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.

## ACCOMPLISHMENTS

- Transforming Documentation WG – Co-Leads: David Boyd and Shannon Hulett
  - Continued WG meetings.
  - Participated in ANA/ONC Documentation Burden Task Force.
  - Developed draft Documentation Burden Domain Framework publication under the leadership of Dr. Patty Sengstack.
  - Supported HIMSS Nursing Informatics Committee discussion of documentation burden.
- Admission History Cross-WG Task Force – Leader: Jane Englebright, David and Shannon Co-Leads
  - Organized team developed a draft Charter and Guiding Principles (Charter reviewed and approved by NKBDS Steering Committee).
  - Initiated document aligning Admission History elements with ANA Scope and Standards of Practice.
  - Agreed to meeting cadence required for June 2019 presentation of conference outputs.
  - Established pre-conference breakout track for Big Data 2019.

## PRESENTATIONS

2018 Epic Annual User Group Meeting: NKBDS Update, David Boyd & Kay Lytle.

2019 Epic Expert Group Meeting: Documentation Collaborative, Shannon Hulett, Bonnie Adrian.

Invited: Summer Institute in Nursing Informatics, Univ. of Maryland School of Nursing, July 2019, Admission Screening, Shannon Hulett.

# 2019-2020 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

Mari Akre  
 Rivka Atadja  
 Linda Dietrich  
 Milyon Fears  
 Carol Geary  
 Laura Heerman Langford  
 Diane Hanson  
 Sharon Hewner  
 Ann Kunkel  
 Donna Mayo  
 Lisa Moon  
 Jeff Morse (when able)  
 Denise Nelson  
 Lana Pasek  
 Amy Rosa  
 Suzanne Sullivan

## PURPOSE

To identify nursing-sensitive shareable and comparable data to support care coordination activities and improve patient outcomes.

## ANNUAL GOALS

- Draft a formal project plan and timeline to support work group engagement
- Create a standardized list of data elements to support nurse-led care coordination/decision-making with focus on selecting unique elements relevant to the patient/person plan of care.
- Identify essential nurse-sensitive data elements that are needed for exchange (including social determinants) that are missing
- Collaborate with other entities including Standards Development (HL7/IHE), American Association of Ambulatory Care Nurses (AAACN), Transforming Documentation/ Admission History Task Force (Hook), Social (Vital Signs) Determinants of Health, Information Modeling (Mary Hook) and Encoding/Modeling (Carol Geary)



# Clinical Data Analytics

## PROJECT TEAM

### Co-Leaders

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

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

### Information Modeling Subgroup

#### Co-Leaders

Kay Lytle  
Bonnie Westra

### Data Science Subgroup Co-Leaders

Steven Johnson  
Lisiane Pruinelli

### Members

Samira Ali  
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Chih Lin Chi  
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Mary Anne Schultz  
Tess Settergren  
Dana Woman  
Ann Wirben

## 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 subgroups are: Data Science and of Information Modeling (previously Information Model Validation).

## DATA SCIENCE 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.

## ANNUAL GOALS

- Conduct end-to-end data science exemplar focused on a nursing quality question using MIMIC data using Google Big Query environment and analytics tools
- Publish a short position paper on why nurse leaders need to know about and be informed about data sciences and how that enables the Learning Health System for nurses
- Publish a year-in-review on nursing data science focused paper, looking at clinical and operational aspects of nursing
- Engage with the Education Workgroup to start to develop what nurses need to know about data science

## MEMBERS INFORMATION MODELING TEAM

Mischa Adams	Stephanie Hartleben	Tess (Theresa) Settergren,
Mari Akre	Mary Hook	Mariaelena Thibdeaux
Samira Ali	Steve Johnson	(ME)
Sena Chae	Kay S. Lytle	Bonnie L. Westra
David Cloyed	Tari Rajchel	Luann Whittenburg
Tristan Fin	Sarah (Collins) Rossetti	Joe Zillmer
Meg Furukawa	Darinda Sutton	

## INFORMATION MODELING SUBGROUP

Validate previously developed information models from flowsheet data to extend national standards with nurse-sensitive data; assist with information modeling when requested i.e. Admission History and Screening task force; and, continuously improve and adapt information model validation and creation from flowsheet data and other nurse-sensitive information.

## ANNUAL GOALS

- Pass GU Model to Encoding and Submit article on modeling process for publication
- Complete Fall Prevention survey, send final model to Encoding group, and submit publication
- Finalize the VTE model and prepare the survey for validation
- Collaborate with the Admission History and Screening task force to complete definitions and do the UML modeling

# Context of Care

## PROJECT TEAM

### Co-Leaders

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

### TBD

### Members

Lana Pasek  
Laura Block  
Cheryl Wagner  
Heather Shirk

## 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.

## ANNUAL GOALS

- Work with the Social Behavior and Determinants of Health (SBDOH) group to promote #SocialVitalSigns & Continuity of Care minimum data set
- Crosswalk SBDOH and Psychosocial Assessment in EHR Vendors for Information Model
- Review the literature for Mental/Behavioral Health Taxonomy Selection
- Conduct a secondary examination of existing data set from one of the workgroup participants
- Review of Continuity of Care (Intake/Discharge Information) for SDOH & Mental/Behavioral Health
- Apply findings to taxonomy design for Danger to Self/Others Plan of Care



## Education

### PROJECT TEAM

#### Co-Leaders

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

**LaVerne Manos**, DNP, RN-BC, Kansas University Medical Center for Health Informatics, Kansas University School of Nursing

#### Members

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 Alisha Cornell  
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 Susan McBride  
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 Susan Newbold  
 Carren Ondara  
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### PURPOSE

Ensure that faculty and system's educators who impact practicing nurses and nursing students are competent and capable to mentor those they influence to be full participants or leaders in a technology rich environment where they are able to use information technology to process data to form information and knowledge.

### ANNUAL GOALS

- Provide and explain competency gap and NKBDS resources to faculty and educators
- Finalize education materials resource development from work of other groups
- Develop case study/patient story to tag resources to help align informatics and information technology with practice
- Continue to coordinate with other organizations (AMIA, HIMSS, TIGER, ANIA) to align all work in order to reach faculty and educators
- Develop recommendations for faculty development
- Speak to Deans and Directors at the AACN about informatics and who should teach
- Work with AACN, QSEN, NLN as informatics competencies are revised
- Determine how to inform accrediting bodies on what to look for in regards to informatics education
- Participate in ANA revision of Scope and Standards of Nursing Informatics Practice
- Work with American Academy of Nursing (AAN) as they move into supporting education in informatics as a way to support their 2019-2020 policy goals



## Encoding/Modeling

### PROJECT TEAM

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### PURPOSE

Develop LOINC and SNOMED Clinical terms content for electronic health record nursing data and incorporate the content into a framework and repository for dissemination.

### ANNUAL GOALS

- Review and validate the Peripheral IV and Central Venous Catheter (PIV/CVC) clinical content and model
  - Use the Information Modeling survey process
  - Analyze LOINC/SNOMED CT Mapping for existing codes and submit new codes as needed
- Enhance workgroup member expertise
  - LOINC training – live and recorded
- Complete review of the Physiologic Assessment
- Prioritize Pain assessment tools list
- Refine mapping heuristics and publish a toolkit
- Prepare for the Genitourinary model from Information Modeling group
- Prepare for Nursing Admission History and Screening model



## 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.

### ANNUAL GOALS

- **Phase 1** - Pilot test the eRepository with resources produced by work groups
  - Landing page development
  - Process development and testing
  - Linkage to work groups
  - Initial upload testing
- **Phase 2** – Expand the functionality and use of the eRepository
  - Increased usability
  - Extension of upload process
  - Continued process evaluation
  - Go live
- Disseminate information for the eRepository as the “go to” place for finding nursing informatics best practices



## mHealth Data

### PROJECT TEAM

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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.

### ANNUAL GOALS

- Publish ANI Connections, Computer Informatics Nursing (CIN) online journal
  - Date: August 2019
  - Title: The Intersection of Mobile Health and Nursing Knowledge Big Data Science
- Publish systematic review protocol paper
- Publish systematic review of the literature
  - Research Questions: What is the efficacy of mHealth interventions on persons with acute or chronic pain? What components of mHealth applications are used to manage acute or chronic pain?
- Determine strategy to explore mHealth data sets
  - Obtain accessible data sets
  - Review and analyze content accessed
- Explore real-world use cases with organization such as ANA and HIMSS



## Nursing Value

### PROJECT TEAM

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### 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.

### ANNUAL GOALS

- Finish the research plan set out from the pilot study and disseminate (publications & presentations) with health system partners
- Create a task force to work with a large health system to run a 2nd study
  - Create a research plan
  - Reproduce methods to extract data in a format for conduction research.
  - Build out processes and gaps to test the work products (user stories, data model, etc.)
- If CTSA grants are funded, work to extend the common data models (PCORnet, OMOP) to include this data sensitive to nursing practice



## Policy and Advocacy

### PROJECT TEAM

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### PURPOSE

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

Position Statement: The National Council of State Boards of Nursing (NCSBN) ID should be used by key stakeholders as a nurse identifier to demonstrate the value of nursing through research, and enhance individual care and health outcomes via more comprehensive documentation in the EHR, ERP, and other health IT systems.

### ANNUAL GOALS

- Continue advocacy for widespread use of the NCSBN ID as the unique nurse identifier
- Launch proof of concept/pilot at one healthcare organization in collaboration with an EHR vendor
- Disseminate article Demonstrating the Value of Nursing Care through use of a Unique Nurse Identifier after publication in OJNI, to describe the issue and increase awareness
- Develop a policy brief to describe the value of widespread use of the NCSBN ID as the Unique Nurse ID
- Submit a proposal to HIMSS for a Big Data Conference update at the NI Symposium, including a focus on the Unique Nurse ID
- Develop and implement a Social Media/Digital Campaign Strategy
- Advocate for other policy related assets produced by other Big Data Workgroups



## Social Determinants of Health Workgroup

### PROJECT TEAM

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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.

### ANNUAL GOALS

- #SocialVitalSigns Campaign
  - Develop a campaign plan partnering with other organizations
- Develop exemplars to advance standardizing the location of social vital signs (in collaboration with Context of Care Committee)
  - Nursing documentation
  - Care plan exchange
  - Health information exchange activities, including with School Nurses
- Education
  - Collaborate with NK2BD Education Committee to disseminate the UCSF SIREN Gravity Project consensus standards for 3 social determinants (housing instability, food insecurity and transportation) and other FHIR resources



## 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 & precision nursing. Transformation supports enhanced data utilization to drive and measure improvement in patient outcomes and illuminate nursing's value and contribution in healthcare.

The Admission History Cross-Workgroup Task Force is charged with defining a model for Nursing Admission History for the adult patient admitted to an acute care facility for medical/surgical care. The outputs will provide the foundation for continued work in defining Nursing Admission History for other patient populations and care settings.

### ANNUAL GOALS

- Explore lateral integration across functional expert domains/teams – ANA/ONC, HIMSS Nursing Informatics Community, ANIA, AMIA, AONL, Vendor Community, etc.
- Implement the plan developed in Pre-Conference Track – publish, present, repeat for additional patient populations.
- Transition final adult admission content to our Encoding/Modeling Workgroup partners.
- Review potential for a 'Seal of Approval' style endorsement by ANA or similar of the Admission History task forces' work (the process, not the content).
- Work across the Nursing Knowledge Big Data Science Workgroups to assure consistency in recommendations.



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For the latest information on the National Action Plan, visit <http://z.umn.edu/bigdata>

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