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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.

Conference Overview

The seventh-annual Nursing Knowledge: Big Data Science (NKDBD) 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 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.
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.
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 (e.g. 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.

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Care Coordination

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

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 nurse-related data content that can be used to inform this process. This is done 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; UCLAL Health; Aurora Health Care; Duke University Health System; Cedars-Sinai Health System; Allina Health; North Memorial Medical Center; and Brunner in Arland International. Validate the Genitourinary and Fall Prevention information models.

ACCOMPLISHMENTS
- Results of the pain IM were published
- Revisited the process for validation of information models
- Incrementally developed and used FlobMap 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 the GU IM
- Collaborated with nursing informatics groups to obtain broader validation of the GU IM
- Incrementally developed and used FloMap software for validation of the Genitourinary and Fall Prevention Models across 10 organizations
- Revised the process for validation of information models
- Results of the pain IM were published
- Revisited the process for validation of information models
- Incrementally developed and used FlobMap 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 the GU IM
- 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 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 Science Conference in June (Pre-Conference Track 1), and one at the 2019 Knowledge Big Data Science Conference: Pre-Conference Track 1, Minneapolis, MN.
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## 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 (NMDSS) and the Nursing Knowledge: Big Data Science Conference Nursing Value Data Set (NVDS) to increase nurse data usability, provide patient, family and community context 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

- **Priority #1**: Continue testing the model representation of framework for integrating sharable and comparable nurse data across the care continuum
- **Priority #2**: Continue collaboration with the Nursing Value, Social Behavioral Determinants of Health (SBDOH), & Encoding/Modeling Workgroups
- **Priority #3**: 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 CancerLitQ 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

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
- Have active memberships on:
  - American Nurses Association Scope and Standards of Nursing Informatics Practice update
  - 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

### 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 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
Tessa Settigren, MHA, MA, RN-BC, Independent Consultant
Stephanie Hartlieb, MHA, MSN, RN-BC, Clinical Informatics Manager, Elsevier

Members
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Rachel Tharp (IV)
Cyndalynn Tilley (ED, PA)
Nikko Vande Gande (PA)
Bonnie Westra
Marisa Wilson

Small Workgroup Membership
AA – Admissio...
e-Repository

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

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 NK/BDS Education working group
  • Submitted article to ANI Connections CJN (April 2019, currently under review)
Nursing Value

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 (NCPOE)

PRESENTATIONS
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].
Nursing Value


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


PROJECT TEAM:

Co-Leaders

Susan C. Hull, MSN, RN-BC, NEA-BC, FAMSA, 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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Laura Munno

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Ruth Wetta

Manita Wilson

PUBLICATIONS


Social Determinants of Health

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 resources 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 the launch of GRAMITY, an industry wide consensus group on standards for Housing Instability, Food Insecurity and Transportation, convened by UCSF SIREN, https://sirenwork.ucsf.edu/TheGravityProject.
  • Participation in the National Alliance to Impact SDOH (primarily at policy level at this time) nasdoh.org
  • Looking for ways to provide input into Nursing 2030 report related to SDOH.

(continued next page)
Social Determinants of Health

PUBLICATIONS


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

PRESENTATIONS


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


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.


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


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.


• Hull, S.C. (2018), Social Determinants of Health (SODH) Policy Drivers and Implications for Nursing.

• Hewner, S. and Choromanski, L. Exploring SDOH Tools and Implications for Care Planning.

• Wilson, M.L., and Proctor, 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, Gunderson Health System

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- Yvonne Ashton
- Deborah Avisto
- Vicki Baunker
- Chito Belchez
- Ann Bandier
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- David Boyd
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- Chien Chen
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- Jenny Horn
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- Shannon Hulett
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- Rebecca Kohler
- Brenda Hufnake
- Anne LaFlamme
- Stephanie Lambrecht
- Kay Lytle
- Mary Mathew
- Tsedey Melaku
- Ann O’Brien
- Donna Mayo
- Anita Reger
- Patty Sengstack
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- Lori Popejoy
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- Jeff Morse (when able)
- Laura Leerman Langford
- Diane Hanson
- Sharon Hewner
- Carrie Helgeson
- Ann Kunkel
- Donna Mayo
- Lisa Moon
- Milyon Fears
- Carol Geary
- Vivika Baukner
- Mary Popejoy
- Susan Grossman
- Mary Hook
- Lori Corob
- Emily Flahaven
- Linda Dietrich
- Rivka Atadja
- Mari Akre
- Lisa Hendrix
- Precious Olowo
- Mandy vanEs
- Amy Coenen
- Chito Belchez
- David Boyd
- Mary Hook
- Mary L. Hook

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

2018-2019 Progress on the National Action Plan

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

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- Linda Dietrich
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- Carol Geary
- Laura Leerman Langford
- Diane Hanson
- Sharon Hewner
- Ann Kunkel
- Donna Mayo
- Lisa Moon
- Jeff Morse (when able)
- Denise Nelson
- Lara Pasek
- Amy Rosa
- Suzanne Sullivan

Purpose:
- To identify nursing-sensitive sharable 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

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 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
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Mari Akre
Samira Ali
Sena Chae
David Cloyed
Tristan Fin
Meg Furukawa

Stephanie Hartlieben
Mary Hook
Kay S. Lytle
Tari Rachael
Sarah (Collins) Rossetti
Darinda Sutton
Tess (Theresa) Settergren,
Marylou Menard Thibeaux
Bonnie L. Westra
Joe Zillmer

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

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 SBDOH & Mental/Behavioral Health
• Apply findings to taxonomy design for Danger to Self/Others Plan of Care
2019-2020 National Action Plan

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

Project Team

Co-Leaders
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2019-2020 National Action Plan

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

Project Team

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**eRepository**

**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

**PROJECT TEAM**
**Co-Leaders**
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**mHealth Data**

**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

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*Systematic Review Subcommittee Members
Nursing Value

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

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

**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 NIQ2BD 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

**PROJECT TEAM**
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Streamlining/Transforming Documentation

**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.

**PROJECT TEAM**
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For the latest information on the National Action Plan, visit http://z.umn.edu/bigdata

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The 2020 Nursing Knowledge: Big Data Science Conference will be held June 3-5, 2020, in Minneapolis.