Improved Patient Care Through Sharable, Comparable Nursing Data

Proceedings of the Conference:

Nursing Knowledge: 2015 Big Data Science

June 4 - 5, 2015

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Complete Conference Information

This proceeding document provides a summary of the Nursing Knowledge: 2015 Big Data Science Conference. To see the conference agenda, detailed 2013 and 2014 action plan abstracts and posters, and 2015 action plans, please visit http://z.umn.edu/bigdata.

2016 Nursing Knowledge Conference

Nursing Knowledge: 2016 Big Data Science Conference will be held June 1 - 3 at the University of Minnesota in Minneapolis, Minnesota.

Our Vision: Why a Nursing Knowledge Conference Series

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

Conference Overview

More than 130 professionals from nursing practice, education, research, information technology and professional nursing, policy and informatics and standards organizations gathered for the *Nursing Knowledge: 2015 Big Data Science* conference in Minneapolis in early June.

Since its inception in 2013, the conference has engaged participants in developing and implementing a national plan of action to ensure that nursing data are captured in electronic health records and other information systems – and that the data are available in sharable, comparable formats for clinicians, nursing administrators, researchers, policy makers and others who may be interested in gaining useful insights from it. The ultimate aim, of course, is to be able to use nursing data to improve health outcomes.

Organized in three segments – Hindsight, Insight and Foresight, this year's conference provided time to report progress made to date, check the pulse on the current state of nursing data and its status as a tool in clinical and research settings, and plan next steps.

Objectives

- Education
  - Develop a standard curriculum for nursing informatics faculty and students
  - Influence certification, credentialing and accreditation in nursing informatics programs
- Practice
  - Transform nursing documentation
  - Develop strategies to measure value of nursing
- Policy and incentives
  - Advance the National Database for Nursing Quality Indicators pressure ulcer eMeasure work
  - Coordinate efforts to engage nurses in health IT policy
  - Build an infrastructure for the collection and dissemination of standardized workforce data
- Research
  - Develop and disseminate LOINC/SNOMED CT framework for integration into EHRs
  - Promote harmonization and standardization of nursing data and model
  - Promote nursing and the science of big data.

During the Insight session, participants heard from two groups of nurse "celebrities" – one group of executives from national health systems, the other of leaders in national practice and research – on the current state of health data and its application.

During the Foresight session, participants defined projects, now termed "Big Data Expert Groups," for the 2015-2016 Action Plan, proposing to continue some projects from previous years and to launch new ones. In all, 12 projects were identified. They are summarized in the section, Foresight: The 2015 National Action Plan, beginning on page 15. They are also available at http://z.umn.edu/bigdata.

The conference concluded with a strong sense of momentum: Though there is more work to do, significant progress has been made and, through continued collaboration, the vision – better health outcomes through increasingly effective nursing based on evidence-based interventions – is attainable.

Conference Takeaways

A major process take away overall for the conference is best summed up by an African proverb: "If you want to go fast, go alone; if you want to go far, go together." The conference is about going together. Additional reflections are:

Common terminologies and comparable, sharable data

- If we cannot name it (nursing), we cannot control it, teach it, finance it, research it, or put it into public policy. (Thanks to attendee Norma Lang.)
- We need to move beyond naming and begin implementing one or more of the American Nurses Association -recognized nursing terminologies in consistent and efficient ways. Doing so will streamline documentation and create reusable data for the benefit of both quality improvement and research.
- When creating clinical data warehouses for comparative effectiveness research or for the exchange of a Consolidated Continuity of Care Document (C-CDA) with another setting, Systematized Nomenclature of Medicine - Clinical Terms (SNOMED CT) and Logical Observation Identifiers Names and Codes (LOINC) should be used. LOINC should be used for coding nursing assessments and outcomes and SNOMED CT for problems, interventions and observation findings. (From the ANA Position Statement, 2015)

Nursing data in clinical care and research

- Clinical decisions need to be supported by accurate, timely and up-to-date clinical information To ensure quality, safety and value in healthcare. Information in EHRs must be available at the right time in the workflow to support evidence-based and personalized care.
- The documentation burden must be reduced.
- Healthcare organizations should employ nurse informaticists to provide insight into concept representation, design, implementation and optimization of health IT to support evidence-based practice, research and education.
- Nurse informaticists should have formal informatics training, education and certification to provide valuable leadership and insights.
- Nursing leaders should be engaged to understand – and advance – the importance of data science in evidence-informed nursing practice – and in achieving the Institute of Medicine's triple aim of better health, better experience and better efficiency in health care.
- New nursing business intelligence and analytic tools are needed to optimize the use of rich clinical, operational, financial, and quality/safety outcome data currently available to measure and compare nursing value.
- Nurses should be engaged in health IT policy.

Hindsight: Progress on the 2014 National Action Plan

The Hindsight session asked, "Where have we been? What have we accomplished?" Participants heard updates from the leaders of the 10 projects that were identified as priorities at the 2014 conference. The list below reflects accomplishments from the 10 projects. For more complete information on the individual projects, please visit http://z.umn.edu/bigdata.

Project 1: Certification, credentialing, and accreditation in nursing informatics programs

Project Leader:

Judith J. Warren, PhD, RN, FAAN, FACMI; Board member of CAHIIM Professor Emeritus, University of Kansas School of Nursing

Members:

Lynn Choromanski
Connie Delaney
Patti Dykes
Jaen Englebright
Janice Kelly
Gail Latimer
Jacqueline Moss
Ramona Nelson
Cheryl Peterson
Jessica Peterson
Joyce Sensmeier
Diane Skiba
Marisa Wilson

Accomplishments

- Conducted survey of accreditation, certification and credentialing programs influencing informatics.
- Submitted credentials of two members for consideration as program site visitors/reviewers.
- Gave testimony at the Institute of Medicine on credentialing research.

Project 2: Nursing and the science of big data

Project Co-Leaders:

Connie W. Delaney, PhD, RN, FAAN, FACMI; University of Minnesota School of Nursing, Dean

Bonnie L. Westra, PhD, RN, FAAN, FACMI; University of Minnesota School of Nursing

Members:

Ida Androwich
Julianna Brixey
Barbara Caspers
Molly Cummins
Jane Englebright
Colleen Hart
Laura Heermann-Langford
Susan Hull
Jung In Park
Judith M. Pechacek
Lisiane Pruinelli
Virginia Saba
Martha Sylvia

Accomplishments

- Created an integrative review to determine current applied nursing informatics research methods and recommendations for the future.
- Completed updates of the Nursing Management Minimum Data Set (NMMDS) and submitted to LOINC for coding, adoption and public distribution. The updated NMMDS is now available via LOINC and the implementation guide can be found at http://z.umn.edu/nmmds
- Interviewed stakeholders (national associations, boards of nursing, industry leaders) on the use of standardized nursing management data for benchmarking across the care continuum.
- Created a CTSA Nursing Informatics special interest group as a subgroup of CTSA nurses.
- Created a "Big Data Checklist for Chief Nurse Executives" to facilitate progress in developing learning health systems.
- Developed the Core Essentials Interprofessional Practice & Education Data Set.
- Submitted two articles for publication in July 2015 on NMMDS.

Project 3: Advancing the national database for Nursing Quality Indicators (NDNQIs) pressure ulcer eMeasure work

Project Co-Leaders:

Judith J. Warren, PhD, RN, FAAN, FACMI, Consultant to NDNQI

Nancy Dunton, PhD, FAAN, Director, NDNQI

Members:

Harriet Aronow
Carolyn Aydin
Carolyn Aydin
Sandra Bergquist-Beringer
Nell Buhlman
Janet Cuddigan
Denise Downing
Lillee Gelinas
Ellen Harper
Catherine Ivory
Gail Latimer
Sue Lundquist
Nikolas Matthes
Cheryl Peterson
Tess Settergren
Roy Simpson

Accomplishments

- Gave presentations and provided national representation (HL7, eMeasure Kazen, NQF HIT Safety subcommittee, CMS Hospital Structural and Process Measure eCQM TEP, ANA, MNRS)
- Published "Guiding Principles for Big Data in Nursing, Executive Summary" and "Top Ten Recommendations."

Project 4: Coordinate efforts to engage nurses in health IT policy

Project Leader:

Joyce Sensmeier, MS, RN-BC, CPHIMS, FHIMSS, FAAN; HIMSS

Members:

Kari Ballou
Thomas Clancy
Patricia Dykes
Lille Gilanas
Erin N. Grace
Ellen Harper
Laura Heermann Langford
Susan Hull
Catherine Ivory
Sue Lundquist
Susan A. Matney
Erin D. Maughan
Marion McCall
Kathleen McCormick
Beth Meyers
Judy Murphy
Sara Parkerson
Cheryl A. Peterson
Libby Rollinson
Kathleen M. Schwarz
Roy Simpson
Charlotte Weaver
Marla J. Weston

Accomplishments

- Published several papers and adopted ANA Position Statement: Inclusion of Recognized Terminologies Supporting Nursing Practice within Electronic Health Records and Other Health Information Technology Solutions.
- Partnered with vendors to use a coded, standardized nursing terminology for perioperative nursing documentation.
- Published Guiding Principles for Big Data in Nursing, Executive Summary and Top Ten Recommendations (HIMSS).
- Provided multiple presentations and additional publications.
- Collaborated with American Nurses Association, Alliance for Nursing Informatics, and American Academy of Nursing to make recommendations for nurses for policy-related committee/workgroup appointments.

Project 5: Promote harmonization and standardization of nursing data and model

Project Co-Leaders:

Laura Heermann-Langford, PhD, RN; Intermountain Healthcare and
Judy Murphy, RN, FACMI, FHIMSS, FAAN; IBM

Members:

Allan Abilla
Kari Ballou
Amy Coenen
Denise Downing
Jane Engelbright
Janice Kelly
Anne LaFlamme
Sue Lundquist
Susan Matney
Virginia Saba
Asta Thoroddsen
Bonnie Westra

Accomplishments

- Continued integration of the Perioperative Nursing Data Set across the continuum of care, including the patient's care plan, and made progress mapping PNDS to LOINC/SNOMED-CT.
- Advanced the discussion on care coordination and the need to define it (HL7, IHE, ONC, S&I, ONC HITSC).

Project 6: Develop standard curriculum for Nursing Informatics faculty/students

Project Co-Leaders:

Thomas Clancy, PhD, MBA, RN, FAAN; University of Minnesota School of Nursing

Daniel J. Pesut, PhD, RN, PMHCNS-BC, FAAN, ACC; University of Minnesota School of Nursing

Members:

Jehad Adwan
Barbara Caspers
Connie Delaney
Valerie Fong
Dorcas Kunkel
Judy Warren
Marissa Wilson

Accomplishments

- Delivered or scheduled three AACN presentations.
- Participated in Quality and Safety Education for Nurses (QSEN) 2015 National Forum.
- Created University of Minnesota National Nursing Informatics "Deep Dive" resource website.

Project 7: Develop strategies to measure value of nursing

Project Co-Leaders:

Ellen Harper, DNP, MBA, RN; Cerner Corporation

John Welton, PhD, RN; University of Colorado School of Nursing

Members:

Barbara Caspers
Lynn Choromanski
Jane Englebright
Amy Garcia
Cathy Ivory
Erin D. Maughan
Peter McMenamin
Beth Meyers
Karen A. Monsen
Lisa Moon
Sharon Pappas
Martha Sylvia

Accomplishments

- Gave two national presentations (AMIA, AONE) and published two articles on measuring the value of nursing.
- Developed consensus that nursing care is provided by individual nurses who act as unique providers with the primary focus of measuring nursing care as an encounter between a single nurse and patient, family, or community.
- Developed a data model that is vendor agnostic to capture the care nurses provide and costs associated with the care.

Project 8: Develop and disseminate LOINC/ SNOMED CT framework for integration into EHRs

Project Leader:

Susan A. Matney, PhD, RN, FAAN; 3M Health Systems

Members:

Emily Barey
Kari Ballou
Jane Carrington
Janice Kelley
Mary Ann Lavin
Stephanie Lambrecht
Susan Matney
Robert Nieves
Chelsea Rentmeester
Denise Downing
Roxy Rewolinski
Rachel Richesson
Tess Settergren
Amy Sheide
Kathy Schwartz
Judy Warren
Bonnie Westra
Marisa Wilson
Melanie Schumann

Accomplishments

- Developed a fully encoded medical/surgical basic physiologic assessment.
- Collaborated with the Clinical LOINC subcommittee to approve project and content and approve the use of the "impression" code when encoding a nursing judgement.
- Developed a framework for nursing assessments to organize data and provide a structure for finding assessment data.

Project 9: Build an infrastructure for the collection and dissemination of standardized workforce data

Project Co-Leaders:

Amy Garcia, MSN, RN, CAE; Cerner Corporation and

Barbara Caspers, MS, RN; Barbara Caspers Associates

Members:

Lynn Choromanski
Connie Delaney
Colleen Hart
Dorcas Kunkel
Susan Matney
Jung In Park
Lisiane Pruinelli
Mary Jo Swanson
Mary Jo Swanson
Amar Subramanian
Tylor Wagner
Bonnie L. Westra

Accomplishments

- Completed update of all Nursing Management Minimum Data Set (NMMDS) data elements and coding in LOINC.
- Completed NMMDS implementation guide reviewed by NMMDS and LOINC experts http://z.umn.edu/nmmds.
- Publications submitted and presentations given.

Project 10: Transform Nursing Documentation

Project Co-Leaders:

Ann O'Brien, RN, MSN, CPHIMS; Kaiser-Permanente

Charlotte Weaver, PhD, RN, FAAN

Members:

Deborah Ariosto
Keri Ballou
Emily Barey
Vicki Baukner
Denise Downing
Jane Engelbright
Colleen Hart
Mary Hook
Laura Heermann-Langford
Cathy Ivory
Janice Kelly
Stephanie Lambrecht
Kathleen McCormick
Erin Maughan
Donna Mayo
Tess Settergren
Roxy Rewolinski
Chelsie Rentmeester
Virginia Saba

Accomplishments

- Developing a set of recommendations for leveraging EHRs and clinical intelligence tools to promote evidence based, personalized care across the continuum
  - ▶ Spread best practices for EHR documentation, decision support and data visualization
  - ▶ Disseminate skills in mapping EHR terms to SNOMED-CT & LOINC
- Promoting open source library for best care practices, knowledge tools, content
- Publishing an article on current state of EHRs and principles for the redesign of electronic documentation to support knowledge-enabled patient care and to demonstrate the value of nursing care.

Insights: Perspectives from Nursing Leaders and Researchers

Where are we now? What do nursing leaders think about the current state of big data, big data analysis and its relevance to their work? Conference participants were able to listen in on the conversations when two panels of nurse "celebrities" -- the first with executives from national healthcare systems, and the second with leaders from research and national practice – discussed their perspectives, then answered questions. Following are excerpts:

Perspectives from Nurse Executives

The panelists were Jane Englebright, PhD, RN, CENP, FAAN, Senior Vice President and Chief Nursing Officer, Hospital Corporation of America; Marilyn P. Chow, DNSc, RN, FAAN, Vice President, National Patient Care Services, Kaiser Permanente; Lillee Gelinas, MSN, RN, FAAN, System Vice President and Chief Nursing Officer, Christus Health; and Laura Reed, MS, MBA, RN, Chief Nursing Executive, University of Minnesota Health Fairview. The moderator was Barbara Caspers, MS, RN.

Key points shared from these celebrities

- When it comes to big data, it's not just volume, it's also velocity, because data is flowing faster than it can be processed; the challenge is that because we have so many data sources now, how do we begin to analyze it?
- Big data is just so big – we can't use any of our traditional ways of thinking about, using or analyzing data.
- Big data has so much potential for answering today's problems and helping us predict the future.
- One strategy for use of big data is to design the EHR to capture the most discrete elements of care, so no matter the measure requirement, the data could be pulled.
- The capability exists to leverage big data; the challenge is trying to figure out how to just input information and come up with answers.
- One of the first steps when analyzing big data is looking at it intuitively to determine if it makes sense.
- Health systems move at the speed of business, not at the speed of nursing decision-making or research. We don't have that luxury any more. How do we do research at the speed of business?
- Clinical data and some agreed-upon measures of nursing effectiveness and impact on patient outcomes, positions us to begin to put big data resources, techniques, and skills together to provide evidence to guide our decision-making and the result will be better patient outcomes.
- Big data has some of the answers for doing really comprehensive studies that take into account different variables and give us results we can have confidence in, so much so that we are willing to change practice or operations based on outcomes of even a single study.
- There's got to be a bridge between practice and researchers. We're sitting on top of a vast volume of fast-moving data and we need to get everyone in the conversation so we can contribute to nursing knowledge at a much faster level.
- It can't be just the nursing voice, it's got to be the entire clinical team and the patient voice because it takes a village to provide the care we need. And it can't be about an episode of care, or a unit or a hospital. We need to move beyond that and have a much better picture of that continuum.
- Nurses are often seen as data inputters, and certainly we do more of that than anybody else on the team. We also need to become data consumers at the staff nurse level to do studies to learn how we're going to take care of patients tomorrow.

Perspectives from researchers

Connie White Delaney, PhD, RN, FAAN, FACMI, Dean of the School of Nursing, University of Minnesota; Marilyn P. Chow, DNSc, RN, FAAN, Vice President, National Patient Care Services, Kaiser Permanente; and Gail M. Keenan, PhD, RN, FAAN, Annabel Davis Jenks Endowed Professor for Teaching and Research in Clinical Nursing Excellence, University of Florida, offered their perspectives. Karen Monsen, PhD, RN, FAAN, moderated.

Key points shared from these celebrities

- We have to learn how to do research at the speed of business. We can't afford to wait years to get answers.
- Researchers generate a question they feel is important, but may not be informed by the operations side. Partnerships should be formed with organizations and academics in order to generate questions rather than independent questions.
- Wise use of technology and computing are necessary to perform new research along with collaborations between people and machines.
- Interdisciplinary collaboration requires nurses to bring data to the table in order to contribute to the discussion of value.
- It is very difficult and expensive to analyze unstructured nursing data, and our focus should continue to be on creating nursing data that is interoperable and analyzable.
- Creation of new nursing standards and implementing the standards using best practices are important. Likewise working with secondary data also has benefits as long as it is done in a wise, predictable and repeatable way. Maximize the use of currently available data keeps us moving forward.
- We need to use standards in standardized ways. Building systems for users is a very important step in the creation of good data.
- Collaborative conversations should be a testing ground where decisions can be made across organizations for the uses of information and data standards. Leaders should remain involved in these conversations and support the decisions made in collaborative conversations.
- It is imperative that the academic community boldly prepare graduates who can smoothly transition into a practice world that depends on a high degree of standardized data.
- We need nurse leaders to understand the needs and value of using standards from nursing.

Foresight: Bold Ideas from the Group

Participants were asked to think big and bold and discover the most attractive of their ideas together by asking, "If you were ten times bolder, what big idea would you recommend?" Through an interactive process of generating a recommendation, then having five people rank the idea on a scale of 1-5. The boldest ideas related to the vision of how to implement and effectively use sharable and comparable nurse data are summarized below.

- Advocate and lobby for nursing Leaders and informatics nurse specialists to be nominated to committees and work groups to influence policies for all aspects of data and nursing practice and the development of nursing data science.
- Require the adoption of nursing quality measures in hospital pay-for-performance.
- Develop programs to help nurses understand, appreciate and value the diversity and usefulness of standardized languages and terminologies.
- Promote and engage end- user staff in benefits and uses of informatics and big data. Grass roots, real-time feedback and data specifically to documentation.
- Advocate for executive leadership support for nursing informaticians who are formally trained, (including data science) in all institutions to demonstrate the value in data at the point of care and outcomes that are supported through data analysis.
- Insist on inclusion of mandatory nursing care components in EHRs. Include mandatory and minimum data elements describing a patient's social determinants of health with payment/ accreditation attached for assessment, plan, implementation and evaluation.
- Build consensus across nursing leaders, nurse informaticians, executives to commit to selection of an agreed-upon terminology across organizations, countries, etc.
- Engage all nurses in health IT policy and equip them with the knowledge, skills, and abilities they need.
- Explore a different platform for documentation that integrates: open notes documents, voice activated software, natural language processing and makes collaboration, storage, and communication as easy as a google browser.
- Build a partnership (agency/ academic) with local health care organizations to collaborate on QI and research.
- Develop a curriculum for practicing nurses (in all arenas) teaching them how to utilize data not just document.
- Teach data structures/ standard concepts in high school. Have informatics professionals explain to teachers how the workforce needs to understand these concepts.
- Create a YouTube Channel for nursing informatics. Video tape an introductory video, real-world use application and potential of nursing informatics value.
- Relate informatics competencies to job descriptions for all nurses, and align with nursing curriculum.
- Develop an EHR that works for nurses and communicates the whole patient story and not compartmentalizes them.
- Partner with vendors, data analysis experts and academics with nursing leaders and practice leaders in one area of discipline to explore what can currently be done with electronic capture and use of data. And then how to move from that state, to when nursing thinks they want to go.
- Establish open collaboration to share how to create comparable data processes across systems and software users.
- Make data science a major component of DNP education. Data cleaning, data pattering for improvement of patient outcomes.
- Develop a standardized system of mapping/coding all nursing terminology and value sets to start comparing and contrasting nursing data. This would be associated with the certification of code mapping.

Foresight: 2015-16 National Action Plan

Below are the Big Data Expert Groups that will be active in 2015 - 2016

Education

Previously Project 1, Education/certification/accreditation, and Project 6, Develop standard curriculum for nursing informatics faculty/students

Project Team:

Coordinators

Thomas Clancy, PhD, MBA, RN, FAAN
University of Minnesota, School of Nursing

Judith J. Warren, PhD, RN, FAAN, FACMI
CAHIIM Board, Professor Emeritus,
University of Kansas School of Nursing

Lori Ballantyne
Vicki Baukner
Karen Chang
Elizabeth Clark
Janet Cuddigan
Di Fang
Gail Keenan
Janice Kelly
Andrea Kline
Alex Knutson-Smisek
Kelli Kramer-Jackman
Susan Newbold
Kirk Phillips
Mary Jane Rivard
Patricia Senk
Roy Simpson
Marisa Wilson
Roxanne Wilson
Connie White Delaney

Purpose

Integrate competencies between the American Association of Colleges of Nursing Essentials for Information Management and the Application of Patient Care Technology, QSEN KSA's for Nursing Informatics. Develop a course curriculum that incorporates the competencies for informatics.

Proposed Key Tasks

- Provide a preconference workshop at the AACN Baccalaureate Education Summit in November 2015.
- Continue providing workshops in 2016 aimed at providing faculty resources needed to teach nursing informatics at the prelicensure level.
- Develop a crosswalk between the AACN Essentials for Information Management and Patient Care Technologies and the QSEN competencies for graduate level students.
- Investigate developing a course curriculum that incorporates the AACN Essentials, QSEN KSA's and TIGER competencies for informatics at the graduate level.
- Develop the resources and conduct workshops for faculty teaching graduate level nursing informatics.
- Encourage nursing informatics administrators and faculty to become fully informed of the changing accreditation and certification options for health/nursing informatics practitioners and programs.
- Encourage informatics nurses to be certified by appropriate certification organizations.
- Support the work of the Institute of Medicine on credentialing research.

Proposed Deliverables

- Develop guidelines to map informatics competencies to job descriptions.
- Based upon expected competencies, determine graduate level education, accreditation, certification, essentials, and standards that reflect current practice.
- Collaborate with professional organizations (AACN, ANA, ANCC CCNE and others) to align education and competencies.

Clinical data sets and analytics

Previously project 2, Nursing and the science of big data

Project Team:

Co-coordinators

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

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

Vicki Baukner
Kathryn Bowles
Janet Cuddigan
Dianna Dodd
Meg Furukawa
Gail Keenan
Andrea Kline
Catherine Kleiner
Rebecca Kohler
Debra Konicek
Kelli Kramer-Jackman
Stephanie Lambrecht
Susan Newbold
Amber Oliver
Lisiane Pruinelli
Roxy Rewolinski
Patricia Senk
Luann Whittenburg
Roxanne Wilson
Jim (Woody) Woodburn

Purpose

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

Proposed Key Tasks

- Support nursing informatics scientists to engage in national networks i.e. PCORI, CTSA, etc.
- Develop a registry and collaborative mechanism for nursing informatics scientists to share efforts and strategies to integrate nurse-sensitive data into common data models.
- Expand collaboration to test ontologies and mappings to standardized flowsheet data.
- Publish cutting edge big data research methods and studies to encourage nursing to teach and use big data science methods for translational research.
- Develop a broad multidisciplinary research methodology, bringing the nursing perspective, for big data research, including computer science, engineering and business.

Proposed Deliverables

- Create a collaborative for developing clinical data models for extended clinical data, including vendor representation.
- Invite people to NINR CTSA Nursing Informatics Specialty Interest subgroup and conduct comparative effectiveness research.
- Develop a plan for coding extended clinical data, and incorporate into analytics and clinical repositories.
- Publish 3 articles on strategies for teaching use of big data for research, systematic review of big data science in nursing, and actual research conducted using cutting edge methods for big data science

Engage all nurses in health IT policy and equip them

Previously project 4, Promote standardization and engage in health IT policy

Project Team:

Co-coordinators

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

Kelly Cochran, MS, RN
Policy Advisor, Health Information Technology, American Nurses Association

Christie Martin
Eva LaVerne
Grace Gao
Ida Androwich
Judy Murphy
Kari Ballou
Karyn Nicholson
Kelli Kramer-Jackman
Kelly Cochran
Lori Ballantyne
Marianne Baernholdt
Karen Martin
Laura Heermann-Langford
Norma Lang
Nancy Dunton

Advisory

Carol Bickford
Willa Fields

Purpose

Engage all nurses in health IT policy efforts; To provide nurses with the education, tools and resources to equip them as knowledgeable advocates for policy efforts that are important to nursing.

Proposed Key Tasks

Identify existing and develop or modify relevant health IT policy-related educational tools and resources; make them available in a resource library for nurses. Include items such as:

- How to give testimony
- How to write a blog
- What is health IT policy? Why is it important to nurses?
- Success stories, best practice examples, storyboards
- Contact information and listing of relevant individuals, groups and organizations.
- Key talking points/recommendations/position statements
- Student projects
- Example testimony, blogs, comments
- Newsletters, blogs and websites
- Webinars
- Describe how to contact elected officials, including visits, calls, email, website communication, and the value of establishing an ongoing relationship with elected official staffers.

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Identify key advocacy and leadership opportunities such as:

- Comments on government regulations
- Quality efforts and outcomes analysis
- FACA committees/workgroups
- Describe how to find federal rules open for comment (federal register), how to comment on rules, and the value of joining a professional organization's task force/process on commenting.
- Develop fast track process for commenting.
- Leverage the TIGER Virtual Learning Environment, where feasible, for policy efforts. Explore opportunity to use the VLE as a resource library.
- Provide an overview of professional organizations and link to their policy activities/agendas (ANA, AMIA, HIMSS, etc.)
- Develop guide for faculty and perform outreach to key partners to influence curricula and equip them to include health IT policy related content for professional development. (AACN, NLN, etc.)

Identify existing processes to advance nursing policy efforts such as:

- ANA Tipping Point group
- Alliance for Nursing Informatics
- AAN, AMIA, ANIA, HIMSS
- ONC FACA Committee nurses
- ONC nurses

Advocate the ANA Position Statement on the Inclusion of Recognized Terminologies Supporting Nursing Practice within Electronic Health Records and Other Health Information Technology Solutions.

- All health care settings should create a plan for implementing an ANA recognized terminology supporting nursing practice within their EHR.
- Each setting type should achieve consensus on a standard terminology that best suits their needs and select that terminology for their EHR, either individually or collectively as a group (e.g. EHR user group).
- Education should be available and guidance developed for selecting the recognized terminology that best suits the needs for a specific setting.
- When exchanging a Consolidated Continuity of Care Document with another setting for problems and care plans, Systematized Nomenclature of Medicine - Clinical Terms and Logical Observation Identifiers Names and Codes should be used for exchange. LOINC should be used for coding nursing assessments and outcomes and SNOMED CT for problems, interventions, and observation findings.
- Health information exchange between providers using the same terminology does not require conversion of the data to SNOMED CT or LOINC codes.
- Development of a clinical data repository that includes multiple recognized terminologies should be based on the national recognized terminologies of ICD-9 (or 10), CPT, RxNorm, SNOMED CT, and LOINC. Background: Nursing terminologies identify, define, and code concepts in an organized structure to represent nursing knowledge. Since 1973, multiple organizations have developed nursing terminologies. ANA created a recognition process beginning in 1989 to identify terminologies (aka classification systems) or data sets that support nursing practice and knowledge generation.

Support the Guiding Principles for Big Data in Nursing. Promote standards and Interoperability

- Nurses should promote the use of standardized and accepted terminologies that address the documentation needs of the entire care team regardless of care setting. All care delivery settings should create a plan for implementing an ANA-recognized nursing terminology that is mapped to national standards i.e. SNOMED CT and LOINC.
- Nurses should recommend consistent use of research-based assessment scales and instruments that are standardized through an international consensus body. The lack of standardization makes comparison of data challenging and adds to the burden of cost for copyright permissions and/or licensing of such instruments.
- The ANA-recognized nursing terminologies should be consistently updated and made available to international standards organizations for translation and complete, comprehensive mapping.
- Minimize use of free text documentation. When 'within defined limits' is used, discrete data elements should be stored within the EHR to enable decision support, research, analytics and knowledge generation.

Advance Quality eMeasures

- Efforts to develop and design quality eMeasures must ensure the data to be collected and measured are aligned with the clinician's workflow, not as additional documentation.
- To advance nursing sensitive quality eMeasures, paper measure sets must be evaluated for appropriateness, and expectations set for which data should be collected, how the data are collected and the required terminologies to be used.
- Initiatives and programs that define and promote new quality eMeasures and their requirements should allow time for testing and piloting with defined timeframes that consider all stakeholders.
- Clinical quality eMeasures must support evidence-based, cost effective care that follows clinical practice guidelines and minimizes the negative impact on clinicians' workflow.
- Healthcare organizations should utilize nurse informaticists who will provide valuable insight into concept representation, design, implementation and optimization of health IT to support evidence-based practice, research and education.
- To achieve the desired outcomes, nurse informaticists should have formal informatics training education and certification.

Standard data organizations & core documentation

Previously project 5, Promote harmonization and standardization of nursing data and models

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Purpose

Coordinate and facilitate efforts related to standardization of data and data models of interest to nursing.

- Determine the nurse sensitive data items needed for interoperability.
- Align efforts of the multiple efforts of nursing involvement in the many areas and measured are aligned with the clinician's workflow, not as additional working on "care coordination" to coordinate and strengthen the voice of nursing in standards development.

Proposed Key Tasks

- Document nursing representation and involvement with standard data organizations
- Encourage communication between all nurses involved in various SDO work and strive for a coordinated strategy and voice in the various efforts
- Create a roadmap for nursing towards interoperability and care coordination
- Perform a gap analysis of data elements needed for interoperability/care coordination and standardized data models completed

Stretch Activities

- Define a shared space and approach for a data repository
- Link assessment nursing data to outcomes

Proposed Deliverables

- List of SDOs with and without nursing representation (naming specific representative if possible)
- Method for coordination between nurses engaged in various SDOs
- List of specific data useful and required needing to be interoperable to support nursing care
  - ▶ Strategic roadmap for nursing to obtain interoperability and care coordination
  - ▶ Demonstrate at interoperability showcase at NI2016.

Nursing value

Previously project 7, Measure the Value of Nursing

Project Team

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Purpose

Develop a national consensus model to measure patient level nursing intensity and costs per patient in multiple care settings to support the continuum of care and to produce objective measures of nursing value.

Proposed Key Tasks

Dissemination

- ANA Staffing and Quality Conference (March 2016) abstract submitted.
- NI2016 pending abstract submission and preconference workshop in Switzerland in collaboration with Michael Simon University of Basel, Suisse.
- Editorial in International Journal of Nursing Studies follow up from conference.
- Abstract submitted for Spring 2016 ANA Nurse Staffing and Quality conference.

Research

- Pending pilot testing of common data model with actual acute care data.
- AHRQ/NINR potential submissions for extramural funding.

Collaboration

- Seek funding for interdisciplinary meeting with HFMA and non-nursing healthcare finance and policy community.
- Collaborate with the NMMDS team to align the nursing value model with the NMMDS.

Proposed Deliverables

We will create a number of subgroups to work directly on specific components.

Subgroups

Use case development: this subgroup will continue to add use case examples across venues. These will be used to test the data model

Data dictionary development: this subgroup will work with other models including the NMMDS to harmonize the work of this expert panel with other work completed. This subgroup will work with University of Minnesota School of Nursing faculty, and possibly Dean Delaney to identify similarities/synergy and ways to reconcile differences between the two models, integrate methods to allow transfer of data from the common data model to NMMDS, and develop further metrics and analytics methods to allow development of nursing business intelligence and analytic systems. Create a common data dictionary

(continued on page 22)

Nursing value, continued
to describe patient, nurse, and system level data elements to be extracted from existing data sets to populate the conceptual model to measure nursing value. Map conceptual data model for measuring nursing value with minimum data sets, LOINC, SNOMED-CT, HL7

Test the common data model: this subgroup will work with the group co-leaders to devise a method and data analysis plan to test the common data model with live data. We anticipate doing initial feasibility and data integrity testing, then seeking additional extra mural funding for a larger study in the next few years. Create new nursing business intelligence tools and analytics that will utilize the common data elements to benchmark, compare, and trend nursing value.

Dissemination: this subgroup will organize and synthesize the work of the expert panel to date and identify opportunities to write articles and presentations at conferences (John will co-lead this subgroup). Note: we anticipate presenting our work next year at both the Univ of MN Big Data conference and the Nursing Informatics 2016 congress in Geneva Switzerland.

Encoding nursing assessments using LOINC and SNOMED CT

Previously project 8, Develop and disseminate structured standardized nursing assessments

Purpose

Develop and disseminate Logical Observation Identifiers Names and Codes (LOINC®) and Systematized Nomenclature of Medicine - Clinical Terms (SNOMED CT®) for electronic health record nursing assessments and incorporate them into a framework and repository for dissemination.

Proposed Key Tasks

Continue mapping more nursing specific data sets across the continuum of care.

- Prioritize next content focus area, next project could be pediatric physiologic assessments but this needs team input.
- Note that because of state of the standards space, it's too early to model abilities and functions, goals or outcomes. This is needed but will not be on the plan for this year.
- Mapping other ANA recognized nursing terminologies to LOINC/SNOMED-CT is out of scope for this group. That is the responsibility of the terminology developers who need to work with the NLM to obtain their mappings.

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Create a common repository for sharing the data models and coding nursing data to prevent duplication of effort across researchers, health systems, and EHR vendors.

Determine if the coded value sets should be submitted to the Value Set Authority Center (VSAC). If yes, develop a process for value set processes (import, maintenance, linking OID to observation)

Prioritize next content focus area, such as environmental/social, considering the level of care, interventions and outcomes to prevent patient readmission.

Provide training resources for clinical data coding into LOINC and SNOMED-CT, dissemination through workshops and online training. Note: terminology competency levels, and method of verification (certification versus hands on training versus CEU's) is also out of scope for this group. That is the responsibility of the terminology developers.

Collaborate with other health systems through EHR user groups to assure that similar methodology and coding are used for the same vendor.

Coordinate terminology modeling work with Project #5 Promote Harmonization and Standardization of Nursing Data and Models. We will attend each other's meetings.

Key Deliverables

- Complete minimum med/surg physiologic assessment encoded with LOINC and SNOMED CT.
- Repository (aligned to the framework) developed on the LOINC site.
- Complete the next prioritized content areas.
- Decision regarding VSAC.

Context of care

Previously project 9, Develop and disseminate Nursing Management Minimum Data Set

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Purpose

Develop a Nursing Management Minimum Data Set dissemination plan working group, and to design a comparative study to compare the NMMDS and to the Minimum Data Sets used by the National Forum of State Workforce Centers.

Proposed Key Tasks

- Review most recent NMMDS
- Review what's changed, common definitions for context.
- Establish a work group to develop a NMMDS dissemination plan.
- Compare the NMMDS to the Minimum Data Sets used by the National Forum of State Workforce Centers.
- Conduct a content and clinical validation of the NMMDS.

Transform documentation and context of care

Previously project 10, Transforming nursing documentation

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Purpose

Recommend ways for decreasing the documentation burden and serving up the information already in the EHR at the right time in the workflow to support evidence based and personalized care.

Proposed Key Tasks

- Develop standards for nursing documentation in order to reuse data in the learning health system
- Develop essential standards for the learning cycle
- Present interoperability and documentation across care work at the NI 2016 conference
- Include discussion around continuity of care CCD and CCD-A and how to link to this project.
- Promote documentation as more than just EHR.
- Work on business cases in order to show outcomes between nurses and MDs when they text each other using smart room/mobile technology (nurses as mobile knowledge workers).
- Bring in the best exemplars of success in context of care, and how nurse's live in the LHS environment.
- Contextualize nurse driven protocols, alerts systems, and warming systems for early detection and prevention of critical conditions in the context of care (e.g. sepsis)
- Align context of care from data entry to data representation, and align to AMIA 2020 EHR task force recommendations for patient centered care
- Develop, plan, operationalize, disseminate a set of recommendations for leveraging EHRs and clinical intelligence tools to promote evidence based, personalized care across the continuum.
- Collaborate with other Big Data Working Groups for:
  - Guidance identifying resource for housing national nursing repository of clinical content, evidence based bundles
  - Volunteers and within NI community, WGs for best practice examples for repository and content sharing

Connect emerging and expert nurse informatics leaders (new)

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Purpose

Provide a platform for emerging and expert informatics nurses to connect and discuss opportunities to enhance nursing knowledge.

Proposed Key Tasks

- Connect emerging and expert informaticists through a social media outlet.
- Provide resources, guidance, and support to emerging nurse informaticists for leadership skill set development.

Proposed Deliverables

Develop a platform to encourage communication and connections between emerging and expert nurse informatics leaders.

mHealth data (new)

Project Team

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Purpose

Explore the use of mobile health 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.

Proposed Key Tasks

- Assess current landscape of work where nurses utilize mHealth data in the clinical setting.
- Understand from a policy perspective the current or planned activities for mobile health data in nursing practice.
- Identify information and resources to aid nurses incorporating patient generated mobile health data into existing workflows.

Proposed Deliverables

- Define the use of mobile health data within health information exchange and use of standards for mobile health data/patient generated data.
- Develop a catalog of mobile health data use cases by nurses with case study examples.
- Recommend strategies, resources, and opportunities for patient centered research using mobile health data.
- Provide periodic updates to the conference attendees and nursing community.

Support inclusion of social and behavioral determinants of health in electronic health records (new)

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Purpose

Develop a toolkit of resources to support the inclusion of Social and Behavioral Determinants of Health into electronic health records, including expected requirements for the CMS Meaningful Use Programs

Proposed Key Tasks

- Bring insights forward based on existing data and knowledge
  - How do patient, provider and community data interplay?
  - What are new role implications for nursing?
  - What are best ways to integrate this data into EHRs?
  - What practices will support transparency?
  - Develop SMART objectives for the next year

- Discover "where" it is already working (Massachusetts, Texas, etc.) and Health Information Exchanges between states. Are states already collecting data? If so, what do they do with the data? Is there existing mapping? Are nurses a part of this?

- Quick scan of existing Social Behavioral Determinants of Health literature
  - Ask the authors to be a part of the dialogue.
  - Research centers and academia involvement.
  - Showcase how we use data sets.
  - Demonstrate how data can be used, including for individual and population health profiles, care interventions, health behavior scores, social-connectedness scores.

Nursing practice informatics issues related to care coordination (new)

Project Team:

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Purpose

Identify nursing implications related to "big data" associated with "care coordination." Rationale: No common measure has been developed in order to define the aspects of patients who may receive the most benefit from care coordination, leading to the most potential financial benefit, for the organizations providing care coordination services.

Proposed Key Tasks

- Map the most common care coordination processes.
- Document the current state of care coordination and then begin to deconstruct the current state, breaking it down into segments or components to study further.
- Develop information model for the most important variables related to patients who will most benefit from care coordination patients.
- Determine a strategy to identify from "big data" those who will most benefit from care coordination.
- Identify key patient characteristics from data elements in the electronic health record "big data" indicating the patients who will receive the most value from care coordination.
- Consider building off the data model for nursing value that group 7 developed, to show the interventions and outcomes associated with nursing care coordination work.

Proposed Deliverables

- White paper discussing common care coordination processes.
- Begin the development of standardized processes across the continuum of care. May include a consensus model that clarifies roles, responsibilities, interactions across settings and organizations, scope of practice and defines in a complex system of care management the duties that should be considered based on leading practices.
- Create a method to identify patients who will receive the most value from care coordination.

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