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Perspective

Population health: a nursing action plan

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ABSTRACT

The passage of the Affordable Care Act shifted the focus of health care from individual, patient specific, episodic care, towards health management of groups of people with an emphasis on primary and preventive care. Population health management assists to attain and maintain health while improving quality and lowering costs. The recent Catalyst for Change report creates an urgent call for harnessing the power of nurses—in our communities, schools, businesses, homes and hospitals—to build capacity for population health. Informatics Nurse Specialists are prepared to bridge roles across practice, research, education, and policy to support this call. Each year, the AMIA Nursing Informatics Working Group convenes an expert panel to reflect on the "hot topics" of interest to nursing. Not surprisingly, the 2017 topic was on the current state and challenges of population health. The following summary reflects the panel's perspectives and recommendations for action.

Key words: population health, nursing, informatics, NIWG

INTRODUCTION

Population health is defined as the "health outcomes of a group of individuals, including the distribution of such outcomes within the group."[1] The passage of the Affordable Care Act (ACA) shifted the focus of health care from individual, patient specific, episodic care, towards health management of groups of people with an emphasis on primary and preventive care. Population health management assists these groups to attain and maintain health with an increased focus on shared accountability for the upstream environment, social, and community factors that contribute to chronic disease and cost. With more than 3 million nurses in the United States[2,3] in all sectors of health care, nurses, because of their role, their education, and the respect they have earned, are well positioned to help shape and improve our nation's health status and care infrastructure. The recent *Catalyst for Change* report (RWJF, 2017) creates an urgent call for harnessing the power of nurses—in our communities, schools, businesses, homes, and hospitals—to build capacity for population health.[4] Informatics Nurse Specialists (INSs) are prepared and well positioned to bridge roles across practice, research, education, and policy to support this call.

Each year, the AMIA Nursing Informatics Working Group (NIWG) convenes an expert panel to focus on a "hot topic" of interest to nursing. Not surprisingly, the 2017 topic was on the current state and challenges of population health. The following summary reflects the panel's perspectives and recommendations for action.

POPULATION HEALTH IN PRACTICE

Nursing practice is experiencing a paradigm shift from siloed health information technology (HIT) designed to collect data at points-of-care within organizations, to data collected along a patient's health trajectory, co-ordinated across where they live, work, and play. However, the health care data collected today is largely designed, maintained, and groomed for transactions between providers and payers and for managing point-of-care contacts with patients. The information, communication, and technology infrastructure must: integrate data, creating robust analytic environments designed to assemble and assess populations; identify and predict adverse outcomes; support programs and interventions to address inter-professional work flow needs across all care venues; and measure success.

Nurse leaders, nurses, and INSs are active and innovative in addressing the move from transactional systems to a robust data warehouse environment with an operational analytic infrastructure. Basic capabilities start with patient identity management (PIM) and patient/primary care provider attribution. Health Information Exchanges (HIE) deal with complex PIM issues and where no HIE exists, PIM may not be possible.[5,6] Successful population health management requires primary care at its core; however; attribution is, at its best, a compromise among a complex set of methodological choices and, at its worst, fraught with errors in the data collection and workflow management process.[7]

While organizations accountable for care can demonstrate analytic expertise using risk prediction and prescription models, these capabilities come at high cost when manually executed, lacking in scale and efficiency. These challenges make it near impossible for organizations to make informed, strategic decisions for managing the health outcomes of patients, risk contracting, and gaining overall competitive advantage.

Recommendations for practice include:

- Assemble a workforce of INS's prepared to manage the complexities of population health.
- Incorporate robust analytic tools that provide near real-time knowledge that bridge patient-centered care across the continuum.
- Test translational models for moving population health methods and findings from research into practice.
- Inform HIT policymakers on practice challenges and barriers to achieving population health knowledge.

POPULATION HEALTH IN EDUCATION

Population health is not a new concept for nursing education. As far back as Florence Nightingale, nurses have fostered a philosophy of care that focuses on the assessment and management of physical, biological, social, psychological, and environmental influences on patients and populations.[8] This population focus, however, has diminished over time with a push towards education and competency development to prepare nurses for acute and critical care. Today, there is a resurgence of interest in population health-based nursing education, encouraging nurses to reclaim their history and take on key roles in a health care system responsive to the needs of populations.

Nurses must be competent in: near real-time assessment and identification of issues negatively affecting health and well-being; discernment of patterns from data and populations; creating linkages among community resources and services; developing population-focused interventions; and evaluating the impact of the efforts.[9,10] Next generation INSs must elevate their support of population health efforts through: training and competency in data capture from disparate systems; validation and maintenance of data; transformation and analysis of data; inclusion of social determinants of health (SDOH) to address disparities; predictive and prescriptive analysis; risk stratification; and evaluation of education programs.

Accreditation and certification bodies as well as licensing boards for the graduates of programs must ensure that all nursing students from entry to practice to graduate level, including INS students are provided learning opportunities to attain these competencies and advance graduates who demonstrate these skills. As we move our emphasis from an acute care focus to population health model, it will require rethinking and a shift in focus for many nursing and informatics programs.

Recommendations for education:
Nursing education programs must prepare nurses to:

- Tackle the impact of SDOH on improving health and reducing health inequalities
- Consider community resources and provide learning opportunities to build engagement
- Assess process and outcomes of community-based interventions

Nursing informatics graduate programs must prepare the INSs to:

- Manage data capture from disparate systems, beyond the electronic health record (EHR)
- Understand data validation, transformation, and maintenance
- Develop skills in data science and analytics to assess the health status and risk levels of populations
- Evaluate the use of risk stratification, as well as predictive and prescriptive analytics

POPULATION HEALTH IN RESEARCH

Population health research investigates various determinants of health, including health care services, individuals' genetics and health behaviors, physical and social environments.[11–13] Funding agencies have increased their support for population health research in response to rapidly growing chronic illness populations and sky-rocketing medical costs.[11–13] For example, the strategic plan of the National Institute of Nursing Research (NINR) focuses on 4 scientific themes: symptom science, wellness, self-management of chronic conditions, and end-of-life and palliative care. The Agency for Healthcare Research and Quality (AHRQ) supports research initiatives to improve health care quality and make health care safer, more accessible, affordable, and efficient.[14]

Health information technology (HIT) is a vital component that supports population health research. Some of examples HIT areas includes: meaningful use of EHRs, HIE, interoperability, Big Data, and health care analytics.[15] Many studies have demonstrated the important roles of HIT components in knowledge discovery and the development and implementation of new health interventions while engaging patients in their care.

Informatics Nurse Specialists including both researchers and practitioners, have an in-depth understanding of the associations among the data, clinical practices and workflow, and track records of using HIT in health-related research. They can also significantly

contribute to the advancement of population health research by using robust HIT tools that improve quality of care and patient outcomes and contributing to the development of efficient and interoperable health care systems.

Recommendations for research:

- Enhance nurses' knowledge about big data and population health knowledge
- Develop new systems and tools that engage and empower patients to improve quality of care, outcomes, and wellness activities.
- Map data to standardized terminologies and protocols for interoperability and outcome measurement
- Contribute to the science of the associations among the data, clinical practices, and workflow.
- Research health information systems that can contribute to reducing health disparities.

POPULATION HEALTH IN POLICY

The AMIA NIWG panel concluded with an update on public policy and invited continued engagement in population health efforts supported by AMIA[16] and The Alliance for Nursing Informatics (ANI).[17] Multiple policy issues impact population health, with only a few highlighted during this event. For example, AMIA's Policy Invitational (API 2017)[18] explored "redefining our picture of health," through the lens of how patients experience care, research, wellness, and community—rather than those of provider institutions, payers, and health IT vendors. Policy recommendations focused on the development of an integrated, socio-technical ecosystem that enables an individual (the "n-of-1") to improve the health of populations (the "n-of-many"), and *vice versa*.

Implementation of the 21st Century Cures Act and testimony to the Senate Health, Education, Labor & Pensions committee[19] reports progress on: interoperability; secure and trusted bi-directional exchange; Trusted Exchange Framework and Common Agreement (TEFCA); clinician burden; and information blocking. The new Centers for Medicare and Medicaid Services "Meaningful Measures" Initiative[20] was launched to reduce regulatory burden and promote innovation in the transition value-based payment.

The fields of public, population, and community health informatics offer overlapping perspectives to policy considerations, recognizing social, economic, and environmental risk factors as predictors of health disparities at the individual and community level. Nurse-led population health improvement efforts need to consider policies which address SDOH, health inequities, access to affordable care, and healthy behaviors.[4] Although early in development, infrastructure is needed across nursing practice, education, and research settings to develop and test population-based care and payment accountability models. Alternate Payment Models (APM) and payment reforms that seek to deliver better care at lower cost achieved 29% in 2016, with expected progress toward the goal of 50% by 2018.[21] Policy will continue to evolve to find ways to significantly improve affordability and value for both consumers and the health care system.

Policy recommendations:

- Promote health policy that encourages person-centered, integrated health care, research, preventive care, and wellness in the context of a community ecosystem
- Monitor progress on the Office of the National Coordinator's Shared Nationwide Interoperability Roadmap and the 21st Century Cures Act
- Incentivize data transparency and bi-directional health data exchange bridging institution-centric and person-centric approaches
- Advocate funding for population-focused nursing education and research, including support of the recommendations laid out in the Institute of Medicine's 2010 report, The Future of Nursing and the *RWJF 2017 Catalyst for Change: Harnessing the Power of Nurses to Build Population Health for the 21st Century*

CONCLUSION

In conclusion, the AMIA NIWG Population Health panel acclaims that INSs are in integral roles to actively support capacity building for nurses to build population health in the 21st century, aligned with the Catalyst for Change white paper.[4] Informatics Nurse Specialists are critical partners to lead population health, care coordination across settings of care, and inter-professional and community stakeholder collaboration. Informatics Nurse Specialists are well positioned to influence practice, education, research, and health care policy. Preparing nurses for robust roles to improve population health will require clear articulation of nursing's value proposition to impact health, cost, and outcomes for both the individual and populations; and active engagement in redesigning health data infrastructures to address current gaps. The AMIA NIWG panel of opinion leaders have provided background, identified recommendations, and perspectives to meet the demands of an evolving health care system, including the application of new knowledge and skills.

CONTRIBUTORS

All authors contributed to overall intellectual content and sections of writing.

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