Nurses Collaborating with Cross Disciplinary Networks: Starting to Integrate Genomics into Practice

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Abstract

Nurses and other health-care providers are poised to include genetic discoveries into practice settings and to translate such knowledge for consumer benefit within culturally appropriate contexts. Nurses must seek collaboration with multi-disciplinary networks both locally and internationally. They must also capitalize on the expertise of other seasoned researchers in order to gain national and international exposure, recognition, and funding. Scholarly tailgating is using network relationships to achieve one’s professional goals, and capitalizing on expert knowledge from seasoned researchers, educators, and practitioners from diverse international groups. By using scholarly tailgating principles, nurses can become important agents of change for multi-disciplinary networks, and thereby assist in decreasing health disparities. The purpose of this document is to encourage and inspire nurses to seek collaborative multi-disciplinary networks to enable genomic integration into health-care practice and education. Strategies for integrating genomics into practice settings are discussed.

Key Words: cross disciplinary, genetics, genomics, health disparities, multi-disciplinary, scholarly tailgating, scholarship

Introduction

There is increasing potential for clinical researchers such as nurses to include genetics and genomics in their area of study and practice. Integrating genetics into practice will foster competent practice (Burk & Kirk, 2006), potentially enable personalized care, and enhance the prediction of health outcomes (Brousseau et al., 2007; Desmeules et al., 2004; Lötsch & Geisslinger, 2005). There have been numerous attempts to motivate nurses to use resources to learn about genetics, and to include genomics into practice and education (Maradiegue, 2008; Burke & Kirk, 2006). However, despite these attempts, paucity exists in the number of nurses who incorporate genomic discoveries and information into their practice settings (Anderson & Metcalfe, 2008). One of the greatest barriers to the integration of genetics into nursing practice is that nurses generally do not see the relevance of genomics to their nursing practices (Kirk, Lea, & Skirton, 2008). Possibly, by becoming engaged in multi-disciplinary and cross-disciplinary research and practice networks (Adegbola, 2009a), nurses can partner better with other disciplines to translate genomic discoveries, to meet the needs of patients, and to advance research science (Anderson & Metcalfe, 2008). Such collaborative initiatives would accelerate the transmission of bench science to translational science with bedside and consumer applicability. Translational research activities are essential for all categories of patients and are especially important for those who are vulnerable and prone to disparate, marginal care.

The purpose of this manuscript is to encourage and inspire nurses to seek multi-disciplinary and cross-disciplinary collaborative networks, both locally and internationally, in order to forge ahead and integrate genomics into practice. Strategies for integrating genomics into practice are discussed. In this manuscript the term genomics will be used to describe both genetics and genomics. Guttmacher and Collins (2004) refer to genetics as the study of single gene disorders and to genomics as the study of function and interaction of all the genes in the genome including their interaction with each other and with environmental factors. Multi-disciplinary and cross-disciplinary, in this manuscript, denote collaborative practices among different disciplines.

Nurses, Genomics, and Scholarship

Nurses in the genomic era are compelled to become beacons of hope and enlightenment. Because of the large number of nurses, their multi-disciplinary focus, and their access to health-care consumers, nurses are poised to carry the torch and become active in our rapidly changing world at large and specifically in the health-care system and our communities (Adegbola, 2009b). Ultimately, through research and practice, nurses should be able to demonstrate that knowledge and inclusion of genomics into practice has a positive outcome on care given to patients and families (American Academy of Nursing [AAN], n.d.). Genomic research activities must be communicated to minority communities in culturally appropriate and meaningful ways (International Council of Nursing [ICN], 2004). Consumers of healthcare who are vulnerable to health disparities are in dire need of genomic-related research and subsequent modification of care. The charge then is for nurses to project their abilities to provide genomic-related interventions (Adegbola, 2009b), and to demonstrate the validity of those interventions through research findings. When nurses translate genomic research activity into safe, evidence-based clinical practice, they lead as change agents for the profession and society. Their
leadership role in genomics will span all facets of health-care delivery and position nurses for excellence.

The zenith of excellence is scholarship that involves generating, sharing, and utilizing knowledge, and documentation of accomplishments (Walker, Golde, Jones, Bueschel, & Hutchings, 2008). Nurses in the future will participate in research and educational activities that utilize genomic research, predict outcomes, and personalize care (Adegbola, 2009b). When moving towards excellence and the zenith of career role function, scholarship includes transitioning from being a generalist to becoming a specialist (AACN, 1999). The terms generalist and specialist are used in the context of one’s area of practice and professional growth perspective. Candidly, it has to do with becoming an active participant and a ‘doer,’ rather than remaining passive. Nurses need to become scientists who generate research and translate research for consumers and patients. Nurses have to clarify bench research activities and relate them to clinical practice (Foley & Sommers, 1998). The active roles of research scientists and conveyors of translational research will benefit health-care consumers.

Application

A practical approach to the integration of genomics must focus on the clinical application. Nurses in clinical practice must embrace and enact the reality and applicability of genomics. Cragun, Couch, Prows, Warren, and Christianson (2005) suggest that nurses are reluctant to identify their positional power, expertise, and confidence in their ability to perform interventions that realistically provide genomic-related impact. On a daily basis, nurses offer genomic-related care and at times are unaware of their practice. However, by using the nursing process as outlined by Pestka and colleagues, nurses can highlight, apply, and integrate genetic-related care into practice and educational settings (Pestka, Meisheid, & O’Neil, 2008).

The American Academy of Nursing’s white paper (n.d.), Nurses Transforming Healthcare Using Genomics and Genetics, offers clear directions and outlines of genomic scholarship in various nursing roles. Additionally, for nurses in any practice setting, Boyer’s (1990) model of scholarship can be applied to integrating genomics into nursing and any health-care practice by focusing on the areas of discovery, integration, application, and teaching. Table 1 offers some abbreviated strategies for each area of focus. These strategies can be included in one’s bag of nursing scholarship, and can serve as an entrée to forging multi-disciplinary research networks. For example, by viewing applied genomics through a collaborative lens, nurses can employ storytelling and narratives as a poignant, non-threatening framework for integrating genetics (Anderson, 1998). Nurses must endeavor to integrate genomics into practice and seek collaborative, multi-disciplinary forums in which to function (see Table 1).

Scholarly Tailgating: Intentionally Seek Collaborators

In addition to integrating genomics into practice settings, nurses should intentionally seek multi-disciplinary and cross-disciplinary network relationships and capitalize on such networks to build both homophilic and heterophilic relationships. As nurses seek collaborative multi-disciplinary networks, and include genomics into practice, research, and education, it is essential to utilize the principles of scholarly tailgating in order to achieve their goals and capitalize on expert knowledge from seasoned researchers, educators, and practitioners from diverse international groups (Adegbola, 2009a, 2009b). Adegbola (2009a) defines scholarly tailgating as the process whereby individuals create an aerodynamic lift for their career by networking and benefiting from their professional partners’ expertise. By using social network principles, individuals desirous of multi-disciplinary collaboration can benefit best from both heterophilic and homophilic network relationships.

Homophilic relationships are embedded in a common bond, where individuals of like mind move in the same direction for a common purpose. Heterophilic relationships, the opposite of homophilic relationships, are moving in opposite directions, and can reflect diverse innovative outcomes (Rogers, 2003). By balancing heterophilic and homophilic relationships, nurses can capitalize on expertise from multi-disciplinary groups and allow scholarly tailgating to propel scholastic gain (Adegbola, 2009a, 2009b). For example, by using scholarly tailgating principles, multi-disciplinary research teams can effectively enhance and foster divergent thinking that, eventually, can be effective in tackling global health problems. Nurses operate with a holistic framework which can serve as a carriagy for all disciplines for the benefit of the consumers of healthcare.

In addition to the direct benefit of multi-disciplinary networks and scholarly tailgating, there are other serendipitous benefits such as overcoming barriers to funding, thus capitalizing on receiving both funding and recognition. Agencies that may historically fund one type of effort now will fund multi- and cross-disciplinary ventures (Max, 2003). Another unexpected benefit is fostering culturally sensitive, comprehensive care with involvement of different disciplines and perspectives. Hence the approach is both homophilic and heterophilic. The value of intentionally working together and partnering in network relationships offer massive value and positive endpoint results.

Conclusions

Nurses, individually and collectively, are actively charged to include and apply genomic information in their areas of practice and demonstrate the relevance of genomic information to the care of individuals. Nurses as research scientists, educators, and practitioners have strategic roles to generate and translate genomic-based research for the benefit of patients and health-care consumers. To accomplish research, education, and practice
Table 1. Integrating Genomics into Practice Using Boyer’s Model of Scholarship

**Discovery**

- Build genomic knowledge through on-line programs. Get a basic understanding of Genetics 101 and beyond. The University of Cincinnati offers web-based courses.
- Motivate yourself or your group to learn more about the impact of genetics on the care you deliver.
- Strive to contribute to the body of knowledge by generating multi-disciplinary vignettes and case studies related to your care setting. Share these with members of your team, and with colleagues locally and internationally.
- Network and collaborate with other nurses, health-care providers, and scientists to share ideas about clinically applicable topics.
- Document and publish your creative work about genetic variations.
- Encourage colleagues to share their creative ideas at staff conferences and multi-disciplinary care meetings.
- Become knowledgeable about procedures or genetic tests that your patients may ask you about.

**Integration**

- Collaborate with multi-disciplinary, global networks.
- Become a part of a group that has identified the advancement of genomics as one of their core goals.
- Formulate a project with other health-care providers from your work group that will help patients and others better understand the implications and necessity of incorporating genetic principles into care planning.
- Discuss why some patients are more prone to developing DVTs (deep vein thrombosis).
- Bring new insight regarding inadequate pain control for some post-operative patients.
- Encourage discussion with fellow co-workers on strategies to integrate genomics into the curriculum and unit-based competencies.
- Apply for and plan to attend the Summer Genetics Institute (SGI), sponsored by the National Institute of Nursing Research (NINR).
- Compile references on genomics and nursing.

**Application**

- Aid others in addressing some problems that may be related to ethical dilemmas regarding genetic tests. Use storytelling or narratives as a relay tool.
- Become involved in professional organizations and special interest groups such as ISONG (International Society of Nurses in Genetics).
- Advise others on the state of the science broadly, and nursing specifically.
- Become an expert in your field.
- Foster professional growth of others, such as that of a fellow staff member or a student.
- Aid society by giving a talk to elementary students on the role of the professional nurse and how the nurse uses new science to care for others.
- Talk with your director about tracking a problem pertaining to patient groups who develop respiratory depression from epidural use.
- Start a journal club and review scientific nursing research articles.
- Seek assistance from representatives from the pathology department in formulating teaching strategies for a presentation on interpretation of lab tests, including genetic tests.
- Conduct a family history on your patients.

**Teaching**

- Advance your knowledge base by getting a fundamental understanding of genomics.
- Instruct others in your community about genomics and healthcare. Be prepared to answer consumers’ questions about commercially available genetic tests.
- Design and implement a program for citizens of your community to become aware of genetic testing for frequently occurring diseases.
• Teach other team members about pain management and genetics.
• Foster an open forum at work to discuss interindividual differences regarding medication metabolism and genomics.
• Visit a lab in your institution (hospital or biology department), and find out about a western blot or Polymerase Chain Reaction (PCR). You may have to explain these tests to a patient.
• Advance your learning to have a better understanding and in turn be able to interpret for your patients. Include culturally appropriate material.
• Use case teaching modules for fellow staff presentations and nursing rounds.

goals that include genomic application, nurses must utilize scholarly tailoring principles, and intentionally seek collaboration with multi-disciplinary teams and networks both locally and internationally. A serendipitous benefit from cross-disciplinary collaboration is the acquisition of difficult to tap funding and national/international professional exposure.

By using frameworks such as the nursing process, storytelling, and narratives, nurses can discretely integrate genomic content into practice. Additionally, the use of Boyer’s model of discovery, integration, application, and teaching can assist nurses and health-care providers in applying some of the learned genomic principles to their area of practice.

References


