Medical Informatics

HOW HEALTH IT IS CREATING A NEW BREED OF HEALTH CARE WORKER AT AMERICA'S UNIVERSITIES.

BY CHRIS MCCOY, M2VA EDITOR

The field of medical informatics is expected to continue growing over the next five years in both the military and civilian sectors. The 2009 Health Information Technology for Economic and Clinical Health Act and associated stimulus funding to support the adoption of health care technology has greatly expanded educational opportunities in the informatics arena. As the greater health care community focuses on adoption of health care IT and Office of the National Coordinator meaningful use requirements, there has been greater attention paid to these areas in the Department of Defense as well.

"Nursing informatics specialists are critical in the Army to ensure the maximal use of health care information technology in support of safe, quality patient care," said Richard H. Breen Jr., APR director, Office of Strategic Communications, Office of the Assistant Secretary of Defense for Health Affairs. "Nursing informatics specialists are utilized at every level of Army Medicine, including in the operational environment."

A number of universities offer programs in nursing informatics and other related health and medical informatics tracks. Representatives of Nova Southeastern University, Walden University, the University of Missouri and the University of Pittsburgh offered insight into their informatics programs.

FOCUSING ON THE APPLICATION AND EVALUATION OF HEALTH IT

The biomedical informatics program at Nova Southeastern University's College of Osteopathic Medicine was established in

2006. The degrees and certifications offered include a Master of Science in biomedical informatics, a graduate certificate in medical informatics, a graduate certificate in public health informatics, an American Medical Informatics Association 10x10 certificate, and a Master of Science in Nursing (MSN) in nursing informatics.

"Being offered both onsite and online, our programs allow working professionals the opportunity to obtain their degree without career disruption," said Christine Nelson, program manager of the biomedical informatics program. "Our skills-based curriculum offers courses leading to Lean Six Sigma Green Belt, Certified Professional in Healthcare Information Management Systems and NextGen certifications."

The program's curriculum focuses on application and evaluation of health IT and the business/management of health IT. Students can apply for and begin their studies in winter, summer and fall.

"Students who study biomedical informatics at Nova Southeastern University have a number of different options when it comes to both career setting and job title," said Nelson.

Examples of settings in which a biomedical informatics student might work include hospitals and health care systems; clinics, community health centers, or private medical practices; federal and state governmental health care agencies; health IT systems vendors or eHealth companies; consulting services; and academic institutions. Potential positions include C-level administrators (i.e. CMIO, CMO, CIO, CNIO) or informatics department directors; consultants; systems analysts; project managers or designers; implementation specialists; template writers; educators and trainers; researchers; and programmers.

The students of the biomedical informatics program are a diverse group. The students hail from a multitude of career fields including health care, information technology, business, education and others. Due to the field being relatively new, and few people previously being trained in both health care and information technology, students with a number of different backgrounds are working to enter this field of study. "Our students range in age from 22 to 64, originate from 17 different countries, and currently reside in 21 different U.S. states and five countries," said Nelson. "More than half of Nova Southeastern University students are female. In addition, our students identify with a number of different races/ethnicities."

Leveraging a History of Informatics Research

The University of Missouri (MU), home to the world's first computerized laboratory system, has been a leader in health and biomedical informatics research since the 1960s. The university began offering training in health and biomedical informatics in the 1970s and counts among its alumni some of the leading figures in the field.

Christine Nelson

David Moxley

"Our Department of Health Management and Informatics, a part of the School of Medicine, leverages this history," said David Moxley, associate director, Executive Program for Health Management and Informatics. "Our dual expertise in informatics and health services management creates organizational leaders prepared to transform and integrate health systems in the 21st century. Through partnership with MU's Informatics Institute, we also offer Ph.D.s in informatics and train the next generation of health informatics faculty and researchers."

Moreover, MU provides graduate education such as a Master of Science in health informatics, a graduate certificate in health informatics and dual degrees with Master of Health Administration in both traditional and distance formats.

"The curriculum provides an applied orientation drawing on the best evidence, to develop an in-depth understanding of how health organizations and systems are structured and function," said Moxley. "[The curriculum also teaches] how information technology can be applied to improve the integration, quality and safety of clinical services as well as the efficiency and overall business function."

The average age of MU's executive students is 38. However, the university has students ranging from their 20s into their 60s.

"Our executive cohort consists of students from all kinds of backgrounds, including nurses, physicians, etc.," said Moxley. "Each class is diverse both in ethnicity as well as professional backgrounds."

Translating Knowledge into Practice

Walden University, an online university with its academic headquarters located in Minneapolis, Minn., offers an MSN with a specialization in nursing informatics that is accredited by the Commission on Collegiate Nursing Education. The university provides a nursing education through faculty and opportunities in the field that prepare students for the role of nurse informaticists.

Walden University also maintains an extensive library and offers a writing center for students to prepare them to be scholar practitioners. After graduation, the students are prepared to apply for the American Nurses Credentialing Center Nursing Informatics Exam.

"Our MSN graduates are well prepared to enter the nursing informatics field as new master's prepared specialists or as experienced nurse informaticists ready to contribute to the application of evidence in practice," said Dr. Tracy Scott, Walden's MSN nursing informatics program coordinator.

The Walden University CCNE-accredited Doctor of Nursing Practice (DNP) degree provides advanced practice nurses with the opportunity to build on their knowledge and expertise to augment health care delivery and improve patient outcomes. The DNP program's coursework covers a range of topics,

including health care policy and advocacy, quality improvement, evidence-based practice, information systems/technology, advanced nursing practice and organizational and systems leadership. Students may work with preceptors and faculty experts to enhance their skills in informatics and focus their practicum and project work.

"Students in our School of Nursing come from diverse backgrounds, and typically have several years of nursing experiences," said Scott. "Many MSN students specializing in nursing informatics work in an informatics role and want to expand their knowledge. Students in our virtual classroom are not only from the United States but other countries around the world, so the cultural experience is rich at Walden."

Tracy Scott

Combining Academic Work, Research and Experience

The University of Pittsburgh School of Nursing educates students for the field of nursing informatics through a curriculum that combines academic work with varied and intensive clinical experiences and a growing involvement in research. Completing the required coursework leads them to an MSN with a concentration in nursing informatics.

"The nursing informatics curriculum includes coursework such as introduction to informatics, clinical information systems and project management for technology. There are also two practicum opportunities designed to enhance the students' knowledge and skill set through active participation in a selected informatics role," said Elizabeth M. LaRue, Ph.D., coordinator of nursing informatics.

The University of Pittsburgh School of Nursing also offers nursing administration (NA) and clinical nurse leader (CNL) concentrations that complement informatics coursework. The NA concentration is designed to prepare nurses to work in leadership and management positions at the department and director level.

"The curriculum builds on students' experiences in direct-care nursing roles and provides the knowledge base needed to develop the conceptual, interpersonal and technical skills required to function in health care management and administration," said LaRue. "In addition, it is designed for individuals who wish to make a positive contribution to patient outcomes and service delivery in ways that support and complement direct patient care."

The NA concentration is offered at both the MSN and DNP level. According to LaRue, the core courses build a foundation in research for evidence-based practice, nursing outcomes, use of technology, leadership development and organizational theory. This training is then enhanced with coursework in economics, health policy and health promotion.

LaRue explained that the CNL concentration is focused toward nurses who want to make a difference in the clinical setting or provide leadership in educating others to gain these skills.

"The CNL assumes responsibility for patient care outcomes by coordinating and supervising the care provided by interdisciplinary team members," said LaRue. "The CNL role includes

development of skills in precepting, mentoring and coaching and can be applied in educational as well as clinical settings."

For academic year 2012-2013, the Pittsburgh School of Nursing had a total of 1,101 students enrolled. Of those, approximately 14 percent were male, 11 percent represented minority or underserved populations and 24 percent were from out of state.

Many of the students graduating from these universities' informatics programs will face a welcoming job market due to their unique skill-sets, and the military is hiring.

"Career prospects for nursing informatics professionals in the U.S. Army are good," Breen said.

The Army Nurse Corps has assignment opportunities for civilian nursing informatics professionals at the military treatment facility, regional medical command and Medical Command Office of The Surgeon General levels. Ultimately, a move into medical informatics can seriously advance one's career in medicine in both the civilian and military spheres. ✶