



UMB News

Nursing Informatics Plays Prominent Role in Pandemic

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The [University of Maryland School of Nursing's \(UMSON\)](#) Summer Institute in Nursing Informatics (SINI) offered its 30th annual conference virtually July 15-16 with the theme "Real-World Evidence and the Changing Landscape of Health Informatics." With an undertone of celebrating its history, which is deeply entwined with the history of UMSON's Nursing Informatics master's program, SINI also focused on the future by reflecting on lessons learned during the COVID-19 pandemic.



Top: Jane Kirschling, Barbara Van de Castle, Patricia Brennan, Jianying Hu. Bottom: Eun-Shim Nahm, Polun Chang, Sayonara Barbosa.

Barb Van de Castle, DNP '14, ACNS, OCN, RN-BC, UMSON assistant professor and chair of this year's institute, welcomed more than 200 participants from around the world and said she hoped SINI would serve "to nourish, to challenge, to stimulate, and stretch your thoughts." **Jane M. Kirschling, PhD, RN, FAAN**, the Bill and Joanne Conway Dean of the University of Maryland School of Nursing, thanked the 17-member planning committee, comprising UMSON faculty and staff in addition to informatics academicians and clinicians from a variety of organizations, and welcomed all attendees.

"The Summer Institute has a long and distinguished history of engaging both leaders in informatics and those who are new to the field," she said. "The early days of nursing informatics were reflected in the shape of the earliest Summer Institutes." She explained that UMSON was the first school in the world to offer a master's specialty in nursing informatics, in 1988, followed by its groundbreaking offering of the world's first PhD specialty in informatics, in 1991.

"Today, as we think about the challenges facing nursing and health care systems, disparities are at the forefront," she said, reinforcing a primary theme of the National Academy of Medicine's recently released report, *The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity*. "Today's informatics holds the promise of helping to address these disparities. It is an exciting and challenging time with tremendous opportunities and complex questions. This is nothing new for informatics."

Kirschling then passed the virtual podium to Patricia Flatley Brennan, PhD, FAAN, director of the National Library of Medicine (NLM) and a pioneer in the development of information systems for patients. Brennan aims for the NLM to "accelerate data-driven discoveries and develop the workforce for a data-driven future," she said.

Brennan presented on "Creating a Virtuous Cycle of Evidence for Practice and Getting It Into Practice," outlining how the COVID-19 pandemic highlighted the importance of a virtuous cycle of real-world evidence and nursing practice, critically appraising the NLM's contributions, and devising nursing informatics strategies that support the cycle. "The pandemic changed the world around us and changed the world of nursing practice," Brennan said. "We're at the transition of our understanding and demands of our practice to address the post-acute sequela of the COVID-19 pandemic."

She discussed tools the NLM puts at the disposal of informaticians, clinicians, and scientists, including PubMed and PubMed Central, explaining how artificial intelligence has powered the search, retrieval, and presentation of literature. She also addressed how the NLM can help support the creation of evidence from practice, accelerating the use of data standards, “making sure data flow freely,” she said, and getting evidence into practice. “Having evidence alone at NLM isn’t enough; we have to make sure it gets into the hands of clinicians, patients, and policymakers,” she continued. NLM’s focus is on novel approaches to information delivery. “If you’ve been watching carefully, you’ve been noticing text messages, PSAs, and new types of billboard advertising are happening. Imagine our ability to link to a community, identify where resources are, and connect people to services as quickly as possible. As the future unfolds, nursing informatics plays a key role in creating a virtuous cycle and ensuring it’s valuable to patients.”

Following a brief break, SINI offered nine virtual Expert Roundtable Discussions via conferencing breakout rooms. In one focused on artificial intelligence (AI) led by **Kathleen McGrow, DNP '14, MS '02, RN, PMP**, chief nursing information officer, Microsoft Health and Life Sciences Industry Team, and **Ronald J. Piscotty Jr., PhD, RN-BC, FAMI**, assistant professor, UMSON, nearly 25 participants discussed how AI is present in mundane, everyday processes, from shopping on Amazon.com to using content streaming services. “We need to understand how to leverage AI in our clinical practice,” McGrow said before inviting participants to share how they do so and to identify the benefits and downside of the technology.

“Where do we allow the system to stop and the nurse to take over?” one participant asked. “Nurses have such great knowledge, and we should rely on them.”

“AI is *assistive* technology. It’s not here to take over the nurse’s job or anyone else’s,” McGrow asserted. “How do we train the machine to be accurate? Dirty data is a big problem in the informatics world.” McGrow explained that inaccurate data can create bias that leads to systemic racism and exacerbating disparities.

The pandemic has seen remarkable growth regarding the public’s adoption of digital health programs using innovative technologies, government financial support, and policies, according to an afternoon session presented by two international informatics scholars.

Polun Chang, PhD, FIAHSI, professor, Institute of BioMedical Informatics, National Yang Ming Chiao Tung University, China, and Sayonara Barbosa, PhD, RN, associate professor, Nursing Informatics and Critical Care Nursing, and sub-coordinator, Graduate Program in Health Informatics, Federal University of Santa Catarina, Brazil, shared their insights during a panel discussion, “Innovative Approaches to Engaging the Public in Self-Care During and After COVID-19: Global Efforts.” The session was moderated by **Eun-Shim Nahm, PhD '03, RN, FAAN**, professor and program director, Nursing Informatics, UMSON.

COVID-19 has resulted in significant contributions by nurse informaticians in patient engagement and in developing ways to help people stay safe and healthy, Chang explained.

In China, Chang said, the use of smartphones is so prevalent, officials knew that creating something for mobile devices would be most effective. Chang and his colleagues created an app to help people manage their time in quarantine and to communicate with others so they would not feel so isolated. The app also notified users when there was an outbreak in their community and included a way to track symptoms and to make appointments for COVID-19 testing.

At National Yang Ming Chiao Tung University, QR codes are located at the entrances to all buildings for faculty, staff, and students to scan using their smartphones, and the university can track a mobile user’s body temperature, testing status, and quarantine history, all monitored in real time. “So with our mobile platform, we can track all people inside our university. Each building, each floor, each area, we can control very well,” Chang said.

Barbosa echoed Chang’s remarks about the importance of informatics to manage the pandemic in Brazil.

“Remote patient monitoring, patient engagement technologies, and telehealth or virtual health access are all integral to creating an all-encompassing health care experience,” Barbosa said. “The pandemic has forced the change in the traditional model of care. What we see in primary care and also in the hospital is that the use of information and telecommunication technologies are improving.”

The Brazilian Ministry of Health developed an online chat, a hotline number, and a WhatsApp channel to facilitate communication between patients and health services, minimizing risks of exposure. The service is structured as a telephone call center operated by physicians who evaluate patients’ symptoms. Information from the consultation is transferred to the patient’s electronic file, and the respective health services follow up with patients via daily calls to assess their health.

Another initiative being used in Brazil: Biologix, a sleep apnea home diagnostic and monitoring system used to remotely monitor individuals with suspected COVID-19 or mild symptoms of the disease. A cordless portable sensor placed on a patient’s index finger captures oxygen saturation and heart rate data. The data is collected in real time by a smartphone app that automatically sends it to the cloud and to a control panel operated by a medical team responsible for monitoring each patient. If the system shows a drop in oxygen saturation, the medical team contacts the patient or on-site care provider. If the patient reports additional symptoms of fever, cough, fatigue, or difficulty breathing — all symptoms typical of a COVID-19 infection — the team advises immediate hospitalization.

“COVID-19 brings a reshape of health care. So we really need to think about health care in a different way, and it includes health care that is shaped by telemedicine,” Barbosa said. “Digital transformation is a must for the new reality we have to face.”

Wrapping up the conference, Jianying Hu, PhD, IBM Fellow, Global Science Leader, AI for Healthcare, director of the Center for Computational Health, IBM Research Fellow, IEEE, IAHSI, IAPR, presented an endnote, “Computational Methods for Next Generation Health Care.” She examined the challenge of how to leverage modern methodologies from machine learning, data mining, and decision science to extract insights from data collected over large populations and apply them at the individual level to improve health.

"Computational health, in our view, is really about enabling the journey from data to impact," Hu said. "The key lesson that we have learned over the years is we really need to resist the temptation of using one hammer to solve all the problems. Instead, we need to work very closely with domain experts to first understand the specific use case and then identify the most meaningful problem to solve. And finally, identify the most appropriate model to solve that problem."

Van de Castle and **Mary Etta C. Mills, ScD, MS '73, BSN '71, RN, NEA-BC, FAAN**, professor, UMSON, concluded the two-day event paying tribute to SINI "trailblazers" with a video featuring nursing informatics pioneers who helped build the field over the last 30 years and with the announcement of the People's Choice for Best Poster Award winner, a highlight of the conference each year.

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