

The nation's 3.4 million registered nurses—a force for health

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Forget those old images of caps and white uniforms, or bedpans and hypodermic needles. Bedside care is still essential but today's registered nurse is also a critical thinker, problem solver, sophisticated user of technology and leader in assuring patient centered compassionate care. It should then come as no surprise that for 14 straight years nurses hold the top spot of Gallup's poll as the most trusted and ethical profession. The nation's 3.4 million registered nurses are the eyes, ears and heart of health care everywhere you live, work, play, learn, relax and travel. So when you embrace mobile technologies supporting health care on-the-go, it is reassuring to know the healthcare provider you may not see is someone you can trust.

The healthcare community is advancing the triple aim of better care, better population health and lower costs. Increased patient engagement has been shown to help in all three areas. In addition to wanting to be healthy and manage chronic conditions, we should all be concerned with the staggering price tag of health care—\$3 trillion dollars and rising or 17.5% of the gross domestic product (1). Three fourths of that amount is spent on managing chronic conditions today; it is estimated that by 2025 half of all Americans will have at least one chronic condition.

Several trends are steering us to greater patient engagement and use of technology including the aging of the population, renewed interest in being healthy and recovering from illness at home. Technology offers powerful and easily accessible tools to keep elders safe and healthy at home, to improve health by tracking activity, nutrition, and weight and to measure physiologic values. Nurses collect, record and interpret more data than any other health care team members, but consumers are command central in this new world of mHealth. Nurses have become even more critical for managing transitions and helping people recover

at home and stay at home. They rely on technologies to coordinate care and engage patients and their families. They are the bridge between patients, technology and the care team, and ensure an experience that meets a patient's needs and preferences.

Outside the four walls of the hospital, the 'patient' becomes the 'person' in charge of game changing health technologies. Achieving the triple aim means transforming health care—not just how we pay for it but also how we deliver it. One of the key tenets of mHealth is passing control to the consumer. Many healthcare providers are early in the acceptance phase of ceding control and are still ambivalent about embracing patient engagement and trusting patient generated health data. Undeniably, portals, health information exchange, e-visits, and health apps are here to stay.

Telehealth technology is rapidly extending the availability of services to underserved communities and providing specialized expertise not available beyond academic centers. It has greatly expanded services in the home and is widely used to help those with behavioral health problems especially depression and substance use disorders. Real time telehealth allows for immediate exchange of information and support. Asynchronous telehealth, or 'store and forward', allows information to be sent and retrieved at a later more convenient time. The store and forward method is often used to review data stored in devices. Nurses and other care team members retrieve and review data then follow up to address patient needs (2). Many patients with behavioral health needs also have other chronic physical health problems. The use of telehealth in this population has resulted in lower rates of hospitalization for those with cardiac conditions as well as those with lower scores for depression, anxiety and stress (3). Use of evidence based

telehealth approaches works for mental health and substance use in the home setting providing feedback, encouragement and instruction plus allowing for two way exchange of data.

Telehealth is also common for monitoring progress on wound healing and chronic conditions such as asthma, cardiac diseases and diabetes mellitus where nurses track and evaluate patient data including measures such as blood pressure, temperature, heart rate, lung sounds, glucose, abdominal sounds, weight, gait, smoking cessation and dehydration. Convenience care/retail organizations are also growing use of telehealth to expand care of patients at home.

RNs are the remote control for smart care providing care coordination in conjunction with remote monitoring centers. More health systems are implementing remote monitoring with impressive results in value-based program measures including reduced readmissions. One system reported 90% compliance with care, 96% patient satisfaction, and a 40% reduction in readmissions for targeted cardiac, pulmonary and orthopedic diagnoses resulting from remote monitoring and care coordination (4). The platform uses an RN staffed call center, fosters patient engagement and navigation and provides for a seamless EHR interface for clinician engagement.

Nurse scientists and clinicians are also inventors and app designers creating solutions to manage illness, health and well-being. Their technology solutions are helping consumers prevent problems and manage their chronic conditions. A few examples include use of avatar-based simulation to improve management of high blood pressure and symptoms of depression (5); a biosensor band that detects stress levels in teen mothers at risk for abusing or neglecting their children which triggers a smartphone alert to access an app to reduce stress (6); a web-based personal health information management system intervention to support care givers of elders with dementia (7); and distance emergency care in rural communities using video-streaming by nurse practitioners (8).

Technology is helping to shift the balance of power from provider to patients and families. This adds convenience for patients, and saves money for the system. More development is needed to achieve greater interoperability of devices, mobile apps and EHRs as well as exchange of information across EHRs, settings and systems to make this a reality everywhere.

Care needs to be convenient, on-demand, friendly, easy, person-centered and empowered by the consumer. Technology as an enabling force should be easy to

use, interoperable, consumer-centric and economical. Manufacturers need to work together to harmonize data requirements so that data from home, acute, long-term, and post-acute care are integrated and accessible by providers as well as patients/consumers and families. With 3.4 million nurses as a force for health and wellness, device manufacturers would be wise to consult nurses on the design, testing and evaluation of effective technologies and apps. Devices should be designed with the consumer in mind and not solely for providers; consumers want to and should take command of their health and deserve the latest tools to do so. Nurses and other health team members are pivoting to the world of mHealth to connect the patient, vital data, and the team in order to prevent illness, reduce disease burden and encourage engagement for individuals to take charge of their health.

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Footnote

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