THIS WEEK

Combining wearables and AI: A value play

Much of the buzz around artificial intelligence in health care has focused on diagnosing disease more accurately and improving operational efficiency. But another use of AI — to provide early warning to patients and their doctors that medical intervention may be needed — has begun to spark serious interest and action.

A National Health Service pilot program underway in southeast England is using AI, a telehealth platform and a Wi-Fi-enabled armband to remotely monitor vital signs of recently discharged patients to analyze their data in real time in an effort to reduce readmissions. The armband, which reportedly delivers continuous intensive care unit-level accuracy, was developed by startup Current Health. It uses algorithms that constantly analyze data on respiration rate, oxygen, pulse rate, skin temperature, posture and activity for warning signs and the system instantly alerts patients and caregivers if the data signal an emerging problem.

The Current Health system includes Bluetooth integrations with other devices to track patient metrics. Patients receive a tablet with a chatbot for Q&A, medication reminders and educational

content. Patients also can connect with clinicians via video chat or text message to report symptoms or discuss care.

The system is used at four sites in England that serve a population of more than 500,000. The NHS reports a 22% reduction in home visits for discharged patients and decreased readmissions. Long-term adherence to treatment plans has increased to 96% compared with the field average of 50%.

The Food and Drug Administration in late March cleared the Current Health armband and telehealth platform for use in the U.S., and Mount Sinai Hospital in New York City has begun piloting the system as it tries to reduce readmissions.

A recent Harvard Business Review report notes that combining wearables and AI holds promise for providing affordable and convenient care solutions. With AI-driven models, it's now possible to provide patients with interventions and reminders throughout the day-to-day recovery process, based on changes to their vital signs.

Grady Health in Atlanta has saved $4 million in preventing readmissions by using AI with patient data to determine which recently discharged patients were at risk for returning to its facilities for conditions that were preventable. Staff reached out to patients via in-person visits from their Mobile Integrated Health unit that comprises their emergency medical services team members.

The HBR report notes that early successes like these drive home important lessons in using AI to address what Harvard Business School Professor Clayton Christensen calls "non-consumption" — opportunity areas where consumers have a need that isn't addressed by an affordable or convenient solution.

GOT A MINUTE? TAP INTO PATIENTS' SOCIAL NEEDS

Sometimes simple solutions can yield big results. Take the case of Virginia Commonwealth University's department of family medicine and population health. It created a tool to measure the biggest social priorities for patients in the emergency department and the hospital that could be completed in a minute or less.

The goal: to determine which social needs were adversely affecting patients' health most frequently. This would enable the organization to then identify resources where they could have the greatest impact and ultimately lower costs and burden to the system by decreasing complications and avoidable readmission rates.

Here's how the survey was conducted, according to a recent study in the Annals of Family Medicine. A research team member approached patients in the ED waiting room as well as inpatients with the 60-second, 15-question checklist survey, printed on a 4-by-6-inch card. Patients were asked to identify their age, gender and whether they needed help with such issues as food, housing, utilities, transportation, day care, substance use, etc., within the past 30 days. Patients also could write in other needs. Intake nurses also asked patients whether they had

been admitted to a hospital in the last 30 days. Ninety-three percent of patients who asked to take the survey complied.

Among the findings:

- More than 60% of patients reported at least one unmet social need within the past 30 days.
- Nearly 8% of inpatients and ED patients surveyed reported two unmet needs and 18.4% of inpatients and 15.5% of ED patients reported three or more unmet needs.
- Respondents listed transportation, food and housing as the most common social services they had received in the last 30 days.

INTELLECTUAL PROPERTY THEFT: A GROWING THREAT TO RESEARCH AND INNOVATION

Concern is growing among the FBI, Congress and some health care leaders about the theft of U.S. medical research intellectual property by foreign governments — most notably China, Russia, Iran and North Korea, according to a new whitepaper from the AHA Center for Health Innovation. The concern came into sharp focus recently when a leading research center ousted three researchers found to have violated federal grant rules from the National Institutes of Health, including keeping peer review confidential and disclosing foreign ties.

In the whitepaper, available exclusively to AHA members, John Riggi, senior adviser on cybersecurity risk for the AHA, and Edward You, supervisory special agent for weapons of mass destruction at the FBI, outline the nation state-sponsored threats.

"Broadly, these include criminal threats to IP; where that information is bought and sold on the black market; and nation state-sponsored threats where governments steal IP to advance their national security goals, such as for military use (including bioweapons), intelligence application or to gain a better assessment of U.S. technological capabilities," the article notes.

Riggi, a former FBI cyber division executive, emphasizes much of the focus is on the activities of the government of China and that the vast majority of the thousands of Chinese researchers and scientists employed in U.S. academic and medical research facilities are honest and contribute to the advancement of science and medical research.

The whitepaper also provides health care leaders with guidance on what their organizations can do to mitigate the risk of IP theft.

We want to hear from you! Please send your feedback to Bob Kehoe at rkehoe@aha.org.

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