continuum® HEALTH
Better Business. Better Care.

The Internet of Things
3 Cool Examples in Healthcare

Companies across many industries are embedding objects with electronics that sense and collect information, and transmit it through online networks. This so-called Internet of Things (IoT) will revolutionize many fields, including healthcare.

Here's a quick sampling of some healthcare IoT advances:

Smart Pills

Only about 50% of patients with chronic conditions take their medication as directed.[1] A California company has developed a potential solution: pills embedded with tiny, ingestible sensors that can report when they're swallowed. The FDA-cleared system, by Proteus Digital Health, includes a small wearable sensor patch, an app for the patient's mobile device, and a provider portal.

The sensor inside each pill is the size of a grain of sand, and made of "elements found in a typical diet." When it reaches the stomach, it transmits a signal to the patch on the torso. The patch sends a digital record to the patient's mobile app. With the patient's permission, the record then goes to the physician's portal. The patch can also measure the patient's activity and rest.

A variety of drugs can be embedded with these sensors, such as metformin (for type 2 diabetes) and losartan (for hypertension). Patients using the system take their medication 80% of the time or more, resulting in better outcomes, according to Proteus's studies.[2]

Wi-Fi Connected Pacemakers

Medtronic has introduced the first app-based remote monitoring system for patients with implantable pacemakers. The system enables patients with a Medtronic pacemaker to use their own smartphone or tablet with cellular or Wi-Fi service, to securely transmit data from their pacemaker to their physician. The doctor can then use the data to help make treatment decisions.

The system can also provide patients with email and text reminders, confirmations and notifications of their data transmissions, according to Medtronic.

Such remote cardiac monitoring can bring many benefits, including shorter time to treatment if the transmitted data reveals a problem, fewer office visits for periodic checks of the pacemaker, fewer hospitalizations if problems are caught and treated early, and a potential increase in survival rates.[3]

Brain Trackers

One day soon, people may wear tiny EEGs to track their brain activity – like a Fitbit for the mind. Such devices could help identify neurologic problems, like dementia or depression, before obvious symptoms emerge.

For example, the iBrain by NeuroVigil – which is already used by NASA astronauts – was slated for delivery last year to multiple senior centers through a partnership with the American Senior Housing Association (ASHA).[4] "The program could be used by researchers to investigate changes in brain activity induced by aging, or changes in diet, lifestyle, or sleep," said ASHA Chairman John Rios.[5]

Another firm, Emotiv, offers both a "research grade" and a consumer-oriented version of its wearable EEG system. CEO Tan Le believes the technology could spur a shift in how neuroscience is conducted, by encouraging routine scanning of seemingly healthy brains for early signs of problems.[6]

[1] *World Health Organization, Adherence to Long-Term Therapies, 2003.*
[2] *Proteus Digital Health, FDA Issues Complete Response Letter for Digital Medicine New Drug Application, April 2016.*
[3] *Medtronic Newsroom, Medtronic Announces FDA Approval and Launch of World's First App-Based Remote Monitoring System for Pacemakers, Nov. 2015.*
[4] *Newsweek, A Fitbit for Your Brain is Around the Corner, April 2016.*
[5] *BusinessWire, NeuroVigil and the American Senior Housing Association Announce Landmark Neurotechnology Alliance to Monitor the Aging Brain, Feb. 2015.*
[6] *Newsweek, op. cit.*

Continuum is monitoring such developments in "connected care,"so we can help physicians successfully navigate healthcare's changing landscape. For more information on how we can assist your practice, please call (856) 782-3300 or visit **www.continuumhealth.net.**