I have been fascinated by new technology ever since our parents took my younger brother and me to the amazing 1964 World’s Fair in Queens, NY. We especially loved the “Theatre of Tomorrow” exhibit sponsored by General Electric. I can still see the futuristic family room rotating in front of my eyes. Perhaps that is why I am always drawn to the Technology Quarterly section in the British news magazine, *The Economist*. It provides a broad overview of technology trends across many different industries.

I am sure that most of our readers would agree that trying to keep tabs on technology in healthcare is nearly impossible. Often we will turn to junior staff to help us leverage the benefits of the spectrum of clinical, communication, and data management tools. A recent report in the Technology Quarterly section of the *The Economist* focused on 3 areas within healthcare that caught my attention.

“Robot-assisted surgery today is dominated by the da Vinci Surgical System,” that report suggests. The da Vinci system is a special device that scales down and translates a surgeon’s hand movements to facilitate surgery through tiny incisions. According to that report, “almost 2,000 da Vincis have been made, and they are used in about 200,000 operations a year around the world, most commonly hysterectomies and prostate removals.”

However, what I do not fully appreciate is that the da Vinci system is based on a proprietary-closed software system. It is costly to acquire, and researchers are not able to experiment with modifications to the software. In response to the curiosity of researchers (and the desire to make something good even better), Raven was born. Originally developed for the US Army by Blake Hannaford, PhD, University of Washington, Seattle, and Jacob Rosen, PhD, University of California in Santa Cruz, the Raven is light and (relatively) cheap. More important, it uses open-source software. Its Linux-based operating system allows researchers to experiment and collaborate to modify and improve the original code. Ownership of the resulting innovations will be retained by the researchers, but their results will be made available in an online repository.

Another area in that report that caught my eye involves “gesture recognition systems” that allow us to use our body instead of carrying around a range of portable electronic devices. According to researcher Chris Harrison, a PhD student at the Human-Computer Interaction Institute at Carnegie Mellon University in Pittsburgh, this may become the “shape of things to come.”

Harrison’s prototype for gesture recognition systems is called Armura. One project under the Armura heading is OmniTouch. OmniTouch combines an array of sensors with a small shoulder-mounted projector. The genius of Armura is that it takes this idea a step further, by mounting the sensors and the projector in the ceiling. This frees the user from the need to carry anything, and also provides a “convenient place from which to spot his gestures.”

OmniTouch would allow us to dial a phone from a hologram projection on our hand. Imagine all of the potential healthcare ramifications of this kind of consumer electronic gesture-based system. We could walk around the hospital and pull down charts “from the ceiling,” as it were, and through gestures, communicate, write notes, and send information to other caregivers.

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The third area that has fascinated me for the past couple of years is the idea of “self-tracking,” also known as “quantified self.” Those involved in self-tracking track and share with other people data about their rapid eye movement sleep, the number of miles they jog per
day, the total calories they consume, and the like. The Economist reports on new players (ie, companies that are all based in San Francisco) and developments in the “self-tracking” world:

• Jawbone has released Up, a wristband that communicates with an iPhone and can also measure physical activity and sleep patterns
• Basis is about to launch a wristwatch-type device capable of measuring heart rate, skin conductance, and sleep patterns, all of which can then be displayed on a health dashboard
• And finally, GreenGoose has devised a tiny motion sensor that can be attached to everyday items, sending a wireless signal to a base station whenever the item is used; this sensor, for example, can be attached to a toothbrush, watering can, collar of the dog, or other potential health-related activities that can become a “platform for the gamification of everyday activities.”

I am fascinated by all of the potential prevention and wellness activities that can be enhanced via the technology from companies like Jawbone, Basis, and GreenGoose. Data that have been collected can serve as the basis for a very comprehensive conversation with primary care physicians about a patient’s commitment to fitness, appropriate diet, and other prevention and wellness activities. This practical use of technology has the potential to transform the patient–physician relationship.

My future grandchildren will not be attending a World’s Fair in person anytime soon; they will, instead, be logging on and participating in a virtual way, led by some of the companies mentioned above. The potential to improve our daily life, enhanced with the appropriate technology, is nearly limitless. We can start with enhanced adherence and compliance programs and build a prevention platform and a healthcare dashboard today. I am confident that there are pharmacists, nurses, and clinicians of all types tinkering in their garages right now.

As always, I am interested in your views, and you can reach me by e-mail at david.nash@jefferson.edu. Please also visit my blog at http://nashhealthpolicy.blogspot.com.

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