

Advancing Healthcare Through Old-Fashioned Implementation of Modern Innovations

by Craig B. Garner

“Nothing recedes like progress.”—Edward Estlin (e.e.) Cummings

Though cutting-edge technology serves as the foundation for modern American healthcare, an accurate measure of progress must consider the occasional conflict between society and science. Even as yesterday’s medical miracles give way to what are now considered “state of the art” practices, it is the duty of healthcare providers to remain mindful of both sides of the equation, balancing the capabilities of today’s technologies with the needs of today’s patient. If society and science are not in sync, patient care will suffer.

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Technology is not always perfect, and it usually performs better with a competent human touch. For example, information systems and picture archiving and communication systems (PACS) collaborate to deliver dynamic and brilliant medical images to any healthcare provider around the globe with access to a desktop computer or mobile device.

And yet, if these technologically advanced tools of the trade fail to employ the appropriate methods of encryption as they transmit digital health information to a doctor’s iPad, as he or she vacations on the island of Tristan da Cunha, or worse, cannot send this sensitive information to the hard drive of any one of the island’s 297 permanent residents living in the recesses of the Atlantic Ocean, a data breach could occur. This is no small matter for today’s hospital and could easily result in a series of fines that could force the shutting of its doors for a single infraction.

Likewise, the modern technique of delivering medication placed inside microscopic bubbles of fluorocarbon gas injected into a patient’s bloodstream, set to dispense a strong narcotic upon the release of a high-energy ultrasound pulse, does little to protect the attending physician from the misplaced wrath of a patient in a hypnagogic state, that period just before falling asleep. This is the state of healthcare today, where modern technology is forced to work its magic by providing what all patients want most—quality healthcare—in the last place anyone wants to be, a hospital, while remaining the focus of any patient/provider relationship. Bringing innovation to the forefront of healthcare can at times be as challenging as drawing the number six while making clockwise circles with one’s legs.

Remember the Basics

A 640-slice computed tomography (CT) scanner can digitally capture an image of the human heart in less time than it takes that heart to beat, while also aiding in the evaluation of strokes, pulmonary embolisms, abdominal illness and sinus headaches. In the hands of an inept clinician, however, the results of this \$2.5 million technological masterpiece would be just as useless today as the once-lauded but now discredited pneumoencephalography, an antiquated medical procedure which involved draining cerebrospinal fluid, replacing it with oxygen or helium and then filming the results by X-ray.

Not surprisingly, Sir William Osler, a founding professor of Johns Hopkins Hospital who was also known as the “Father of Modern Medicine, pioneered the notion that a complete medical diagnosis must also include a thorough physical examination.

Remember the Patient

Naturally, the idea of robotic surgery can leave certain patients unnerved. And yet when viewed in the proper context, the medical advantages of robotic surgery in certain common procedures, such as gallbladder removal, hysterectomy, kidney transplants and hip replacement, still outweigh the aversion experienced by some when facing high-functioning, if inanimate, healthcare providers.

When a patient views a robot as menacing, it might be prudent for a surgeon to engage in a meaningful discussion with that patient in advance. This one-on-one communication helps promote the physician/patient relationship and makes it easier to gain a patient’s written consent.

The same analogy applies to a physician’s bedside manner. To be sure, the quantity of patient health information existing on a doctor’s iPad can be astounding, and if used correctly should ultimately lead to better diagnoses based upon clinical results. But no matter how impressive the capabilities of the iPad mini 3 may be, it cannot take the place of the provider delegated to that hospital bed. Such technology can, however, remind the clinician that making regular eye contact with a patient during an examination goes a long way toward establishing trust and creating a much-needed bond between the two.

Remember to Budget

When it comes to healthcare, new equipment does not come cheaply, and the costs for most technological advances do not end with acquisition. Add the costs of installation, connectivity, implementation, labor and training, and it becomes quite an expensive proposition. That makes it even more important for a professional to be able to fully deploy a technology by understanding how it can be applied to improve patient care.

Remember to Integrate

Efficiency is the key to survival for the modern healthcare provider, and this is particularly true of hospitals. A hospital’s revenue cycle must depend upon an accurate and expedient calculation of the sum of all its clinical departments. As the push toward electronic health records and meaningful use dominates today’s healthcare news, the question of how well pharmacy charges reconcile with nursing documentation and clinical laboratory results impact any hospital’s ability to bill patients and in turn, collect payment more quickly.

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Without effective integration, an electronic health record, automated pharmacy delivery services or a PACS could be irrelevant in the hands of providers and make it difficult to peruse a patient's vital statistics in "real time" from any location.

Remember to Train and Educate

As healthcare research and development push forward, each new innovation requires proper training and education for the clinician who uses it—and of course, institutional time and investment. Training courses in PACs administration can take up to a week and cost an institution more than \$5,000 for each pair of employees. It may take another week and \$10,000 more to learn how to use a 640-slice CT scanner. For those interested in familiarizing themselves with the operation of a sophisticated robotic platform designed to make surgeons better and scars smaller, there are more than 1,000 hours of procedure videos to support education on the da Vinci Surgical System.

Remember that Innovation Itself Grows Outdated

Any hospital able to afford the 3 Tesla Digital magnetic resonance imaging (MRI) scanner for digital broadband MRI imaging, a CyberKnife for robotic radiosurgery, digital subtraction angiography equipment or even a shockwave lithotripter should not get

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too comfortable with its conquering of the healthcare tech market, especially if a faster technologically advanced device becomes available. Although technology is evolving at an astonishing rate, its users might not be maintaining the same pace. If a physician happens to be competent in using a 256-slice CT scanner, that is the equipment he or she should utilize. A much faster, more sophisticated scanner, until physicians are properly trained, will result in frustration and confusion, not to mention that the technology of today might be obsolete tomorrow, worsening the situation.

At the same time, a physician's approach to diagnosis is just as important as the technology that helps achieve results. A positron emission tomography (PET) scan identifies anomalies in the human body by tracing an injection of fluorodeoxyglucose. A radiologist should work closely with an oncologist as the pair searches for tumor metastasis, the success of which depends as much on physicians as on the accuracy of this radioactive modality.

It may seem unfortunate that the greatest scientific achievements are still beholden to the ordinary doctor, nurse or technician working in a local hospital at any given time. To be sure, most doctors prefer an institution with a strong commitment to capital innovation and in the area of healthcare technology, this proclivity is even more pronounced. If CT modalities could speak, they may wish to have a word or two with the professionals tasked to review and interpret results.

For healthcare to excel, the whole must truly be greater than the sum of its parts, and for this reason healthcare's version of the idiom "keeping up with the Joneses" must include not only the ability to afford innovation, but also to maintain it and train the appropriate staff to utilize the new technology. The challenge to ensure that today's practitioners integrate with innovation may ultimately determine the fate of tomorrow's healthcare.

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Industry News



AMA, MATTER Partner to Create Transformative Health Care Innovation and Technology-Enabled 'Physician Office of the Future'

CHICAGO—(Marketwired)—With a shared commitment to meeting the evolving needs of the healthcare marketplace, the American Medical Association (AMA) and MATTER, Chicago's new healthcare technology incubator, announce a partnership to drive innovation and create a flexible facility that will allow physicians, entrepreneurs, healthcare professionals and industry experts to test new models for healthcare delivery.

The AMA Interaction Studio at MATTER is being designed with physical and virtual infrastructure that will enable entrepreneurs and physicians to collaborate on the development of new technologies, services and products in a simulated healthcare environment.

AMA, MATTER Partner...*continued*

"Innovation is a key driver in making the health system work better for everyone, and together we can educate and inspire entrepreneurs to deliver technologies that will transform health care," says AMA CEO and Executive Vice President James L. Madara, M.D. "The AMA's partnership with MATTER will create an environment where entrepreneurs can directly collaborate with and gain insights from physicians and the healthcare community to improve and advance technologies, products and services that will improve the health of the nation."

The studio is being envisioned to include modular furniture and advanced video and audio technologies that will allow users to better understand workflows and how new products and services will fit into a healthcare delivery environment of the future.

The AMA/MATTER partnership will also include a variety of educational workshops, interactive simulations and collaboration events focused on optimizing health care—specifically clinician-patient interactions.