Preface

It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.

– Charles Darwin

A virtually awe inspiring idea which becomes the dream of one generation often becomes the reality of the generation to come. At the turn of the twentieth century the United States had 20 million horses and 4000 cars. Gasoline, which was a waste product of the kerosene needed for lamps, was carried in buckets by automobile enthusiasts from whatever source they could find. Over the next decade, a series of watershed events rapidly transformed the car from a novelty to a useful device. In 1903, Horatio Nelson Jackson successfully drove an automobile across the United States, demonstrating the value of the car as transportation. In 1905, Sylvanus F. Bowser perfected the gasoline pump, and the world's first filling station opened later that year. Then in 1908, Ford Motor Company began mass production of the Model T. Coupled with a time of prosperity, the automobile became a lifestyle, available to people of even modest means.

By 1910, there were half a million cars in use in the United States. Unfortunately, breakdowns were still frequent, fuel was still difficult to obtain, and rapid innovation meant that even a 1-year-old car was nearly worthless. The high-wheeled buggy style, directly descendent from the horse-drawn buggy of the previous century, could be driven virtually anywhere. This was necessary, since there were less than 200,000 miles of gravel road and only 1000 miles of paved concrete. It was not for yet another decade, in 1921, that the Federal Highway Act was passed by Congress. This was legislation that coordinated state highways and standardized US road construction practices. Now a century later, we are the proud owners of about 5.7 million miles of paved highway, along with about 125,000 gas stations.

How is this progression of technology, culture, and infrastructure relevant? At any responsible organization new things are regularly introduced. Despite decades of tinkering, electronic medical record (EMR) systems remain a relatively novel technology. The DesRoches data (see Chapter 1) showed that as of 2008, only 4% of ambulatory physicians were using a full EMR, with only an additional 13% using a partial system. There are a dizzying number of models, and they can be taken in

almost any direction (even off-road). Features can become quickly obsolete, and the government has just begun settle on national standards for their use. Perhaps most importantly, the entire cultural transformation that attends new technologies is only just emerging for EMRs.

Physicians have many concerns. Will this technology interfere with the humanism and patient interactions that form the heart and soul, if not the science, of medical care? Will the placement of a screen in the room divert the physician's attention from the patient to filling out unnecessary forms and pieces of required data? Will the "narrative" of the illness, the description of the patient's experience, be lost as the representation of disease is narrowed to discrete data fields?

In addition to these humanistic concerns are the more practical concerns surrounding the efficiencies of patient care and the enormous cost of integrating an EMR into a practice. A colleague of ours, Keith Sweigart, focused this issue when, responding to a question about the efficiency of EMRs, he commented, "Remember, the most efficient care is sloppy care." This observation clarified that efficiency, while often discussed and certainly important, cannot be the sine qua non of the electronic medical record. The old practitioner who kept sparse notes about his patients on 3 by 5 inch cards gave humanistic, efficient care; however, the way that practitioner documented his care would never suffice for the complexity of modern medical care, or for the collaborative care that is now necessary in any group practice. As medical knowledge becomes more complex, it will become ever more important to have primary care physicians providing the majority of care for patients, and it will become increasingly necessary to have systems that coordinate a patient's care among all providers. In order to do this, EMRs will need to easily record and transmit medical information in a clear, predictable, and secure fashion between different practitioners.

One of the great potential benefits of EMR systems is population management. Our current system of paper-based individual medical records requires that a physician wait until a patient comes to the office before the opportunity arises to intercede on chronic disease processes. Moreover, the effort to manage risk is often compromised if that patient comes in with another agenda, if they were scheduled for insufficient time, or if the day has become particularly busy. EMRs provide a method whereby we can thoughtfully find those patients who have sub-optimal management and reach out to them proactively.

Through the use of patient portals, EMRs may additionally be able to encourage a more collaborative health system with our patients, who ultimately have the greatest stake in their health care. Patients can access their records and results, dwell over them, and discuss with others how they might address their concerns, in a way not all that different from what we as physicians do during patient care conferences.

Increasingly our method of recording information, in an electronic medical record, will force us to pay more and more attention to the *content* of the information we gather. With this attention to content it is important for us to also keep our focus on the simple fact that the *process* of gathering information and forming relationships with our patients has inherent value. Done correctly, with empathy and attention to detail, this process makes both patient and physician feel more satisfied

with the interaction and also affects health outcomes. The relationship that develops between a physician and a patient has a direct therapeutic effect, influences the information obtained, the decisions about what treatments a patient will consider, compliance with medications and lifestyle modification, and keeps the door open so that patients are comfortable returning for follow-up.

The issues surrounding EMRs will not be resolved quickly, or easily. Technology must co-evolve with technique, along with the cultural expectations of patients and physicians. With humanism sustained as the basis of medical care, and with technology enabling the best use of evidence-based medical science, we will improve patient care for individuals as well as the population.

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