

EDITORIAL

Inevitable Evolution: How Technology has transformed Physician–Patient Partnership?

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The history of medicine is as old as civilization. The Hippocratic oath written in Greece in the fifth century BCE is still considered the basic foundation of medical ethics. Early medical traditions started in Babylon, China, Egypt, and India, whereas Italy led the way in systematic training of physicians through universities around the thirteenth century.¹ The Greeks introduced the concept of medical diagnosis, prognosis, and advanced medical ethics. As the understanding of anatomy improved, medicine progressed into real science with logic and reasoning. The germ theory of disease in the nineteenth century led to cures for many infectious diseases. Research boomed in the early twentieth century, leading to developments in biochemistry, genetics, lab technology, and radiation giving birth to modern medicine.

Similarly, the practice of Pain Medicine started as early as mankind. The word “pain” comes from the Latin word “poena” which means “punishment” whereas the word “patient” comes from the Latin word “patior” which means “to endure suffering or pain”. The treatment for pain flourished in many civilizations including Egypt, where Papyrus of Ebers contained a large variety of pharmacological information, as well as the Greek, Romans, East Indians, and early Native Americans that had a variety of pain theories and solutions for pain control.¹ The World War I (1914–1918) and World War II (1939–1946) provided the setting for rapid advancement in management of injuries and pain. John Bonica, an army surgeon during World War II, introduced the concept of multidisciplinary, multimodal management of chronic pain published in 1953 that led to solid foundation of the field that was later reinforced by advances in the field of pharmacology, psychology, rehabilitation, neurostimulation, and regenerative medicine, leading to pain management solutions that were once considered impossible.

More recently, with the advent of community education and awareness, the specialty of Pain Medicine has entered a new era of patient-centric care and consumerism. The delivery of health care is in many ways tied to consumer satisfaction as the patients search for “value” in health care purchases trying their best to balance between quality and cost.^{2,3} The availability of electronic data makes it easier for prospective patients to research for possible diagnosis based on their symptoms and evaluate services using hospital rankings, physician grades, and other quality metrics.²

On the same note, the patients are willing to become more involved in their personal health care by being part of a community that is ready to share decision making with the physicians, learn more about self-management, make healthier choices and lifestyle changes, and become less reliant on drugs or surgery while placing more emphasis on prevention and wellness.

There are several tools to assist patients’ partner in their health care. Of the available approaches, wearable activity monitors, microelectronic medical devices, and electronic communication enable patients to become engaged partners.³ Electronic messaging can be an especially effective adjunct to face-to-face intervention in weight management and smoking cessation programs. On the same note, supporting a patient through a pain flare by coping strategy exercise can help prevent a fall, need for medication, or unnecessary hospital visit.

Patient portals are also popular among health care groups, insurance companies, and employers that allow patients to communicate with their physicians or other providers, access test results and other medical information, and arrange appointments. Many portals also notify users of breathing, flare up management, and exercise routines. When combined with other wellness services, such as health coaching, risk assessments, and biometric screens, portals are useful in both educating patients and motivating them to take better care of their health.



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With the advent of e-mail, texting, patient portals, and activity/medical trackers, the connection between patients and their physicians has changed profoundly. Mobile apps, such as the one we use in our clinical practice called "Tame My Pain" senses the cause of pain flare and provides a set of flare-up management tools to help ease pain and improve function. Some others can sense high-risk environment, and warn an individual of high pain stimulus/trigger and give them useful tools to counter those triggers.

From a patient engagement standpoint, electronic technology devices like the Fit bit keep track of the user's activity and some basic but important data, including heart rate, breathing rate, steps per day, and calories burned. This can be of high value in pain management. Activity monitors can sync to a laptop, tablet, or smartphone, and integrate with portals allowing users and their providers to access their data anywhere.

Both wearable devices and over-the-counter activity monitors make individuals the primary generators of their own health data, revolutionizing the way this information is collected and used to make predictable recommendations for risk factors and health recommendations.

Advances in virtual stimulation are leading the way for virtual reality and augmented reality devices that can use a headset to create a virtual world, indistinguishable from the real world, in the mind of the patient.⁴ This

technology is being used extensively for managing pain and advancing function in catastrophic cases where standard measures fail.

Technology is a key factor in improving research and data collection. On the one hand, technology allows for "big" data collection with the use of devices described above and on the other hand, greater computer processing power allows scientists to generate, store, and manage larger amounts of data than ever before.

Innovative technologies are helping health care consumers and providers by gathering information, analyzing the data, and establishing conclusive and predictable guidelines that lead to most effective lifestyle changes, healthier behaviors, and ultimately healthier communities.

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