

The Role of Technology in the Bedside Encounter



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KEYWORDS

• Technology • Point-of-care ultrasound • Bedside medicine • Physical examination

KEY POINTS

- Technology has the ability to both strengthen and weaken the patient-physician relationship.
- The electronic health record has become a source of distraction from the bedside encounter, but it does not need to be.
- Point-of-care ultrasound is the most exciting way to bring physicians back to the bedside.
- Future technology needs to be implemented in ways that strengthen the patient-physician relationship.

Technology impacts nearly every aspect of modern life. Much of the technology that is used in our modern health care system is remote from patients and the patient care experience. It is the technology used in making new pharmaceuticals, new medical devices, new laboratory tests, and improved medical imaging. This technology is mostly hidden from patients as they receive care but makes headlines as society grapples with the cost of developing and implementing this new technology, such as with the combination drug ledipasvir/sofosbuvir for hepatitis C treatment.¹ This article looks to examine how technology is affecting the clinical encounter in both positive and negative ways for patients and physicians. The authors hope to show that technology, specifically point-of-care ultrasound, can be used to enhance the patient-physician relationship and the care provided at the patients' bedside.

Initial technologic developments, such as the stethoscope, brought physicians and patients closer together. Diagnoses were made in real time during the patient encounter. This practice changed as medicine moved into the modern era and new technology, especially laboratory and imaging technology, was used remotely from the bedside. Patients today need to wait for laboratory and pathology results or imaging reads to receive a diagnosis and a plan of care. Results are relayed over the phone, via electronic patient portals, during future visits, or sometimes not at all.² The development of

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point-of-care ultrasound is reversing this trend, allowing the treating physician to expand the physical examination and improve bedside decision-making in real time. In the article “Tenuous Tether” the investigators speak of the importance of the stethoscope in binding physicians to patients: “Devices that bring us closer to the bed breathe new life into our roles as healers.”³ Although the investigators spoke of the stethoscope, the authors see how this equally applies to point-of-care ultrasound. In contrast, devices that take us away from patients have the potential to distract physicians from our roles as healers. The electronic health record (EHR) is an example of a potential distraction and is discussed in more detail (See Helene F. Hedian’s article, “[The Electronic Health Record and the Clinical Examination](#),” in this issue for further details).

With the introduction of the EHR and time-saving functions like templates and copy/paste, physicians are suddenly able to document large quantities of notes in a fraction of the time. The ability to access the medical record from any location, even from outside the hospital, has eliminated the need to search for physical charts. Laboratory test results and vitals for multiple patients can also be quickly reviewed within a short period of time. Despite these advances, time-in-motion studies have consistently shown that physicians and trainees spend a significant proportion of their time at the computer interacting with the EHR.⁴ Time-intensive EHR tasks include chart review and data review, reflecting the exponential growth of documentation and laboratory data that have become prevalent in today’s health care landscape.⁵ Accordingly, trainees are becoming accustomed to prioritizing EHR data ahead of information gathered directly from patients,⁶ in contrast to the more traditional workflow of meeting patients first. This behavior has caused senior physicians to lament the evolving practice of medicine in the modern era, noting that physicians today spend more time in front of the screen, as opposed to time with patients.⁷ Although the EHR has often been cited as a detractor of direct patient contact at the bedside, it is interesting to note that time-in-motion studies predating the advent of the EHR also showed that physicians spent a significant amount of time engaged in indirect care.⁸ Perhaps the increasing use of computers in the health care workspace has suddenly made physicians more aware of the amount of indirect care for which they are responsible.

When used with a patient focus, rather than allowing the EHR to separate physicians and patients, it can be incorporated at the bedside in a way that facilitates communication.⁹ Mobile platforms and portable computers can be used to share imaging and patient data in ways that include patients in medical decision-making and promote awareness and engagement. In this way the EHR, which is often vilified for distracting from patients, could become a way to strengthen the relationship between the physician and patients.

Point-of-care ultrasound has the potential to reverse the trend of technology pulling physicians away from the bedside. Point-of-care ultrasound can be defined as limited ultrasound examinations performed by the treating clinician to make real-time decisions. It is different from traditional radiology- or cardiology-performed studies because the images are not obtained by a technician (ie, sonographer or echocardiographer) and interpreted later by a physician, but rather it is performed and interpreted by the treating clinician.¹⁰ The studies are generally termed *limited* because they tend to be less ambitious than traditional radiology and cardiology studies. Ideally, point-of-care ultrasound studies should be used to answer limited and specific diagnostic questions. This reflects the fact that most point-of-care ultrasound users have significantly less training and expertise than the specialists who read ultrasound images as well as the fact that point-of-care ultrasound machines tend to have lower resolution when compared with traditional ultrasound machines. For example, a point-of-care ultrasound study may be used to evaluate for the presence of a pericardial effusion but would be a poor choice to look for the vegetations of endocarditis.

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