



Focusing on the patient: mHealth, social media, electronic health records, and decision support systems

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The patient-centered movement started not long ago and has been accompanied by an increasing number of publications describing different aspects of patient-focused healthcare and research. For example, a study in this issue of the journal reports on characteristics of individuals who tweet weight loss attempts (*see page 1032*), and another provides a guide to conducting treatment fidelity of mHealth-based systems (*see page 959*).

Patients use the Internet not only as a means to seek help independently, but also to provide information to and about healthcare systems. For example, patients amend electronic health records (EHRs) (*see page 992*) and rate physicians online (*see page 1098*). This connected health behavior has raised concerns that a large “digital divide” could promote or exacerbate health disparities. However, there is evidence that patients may be trying to bridge the health access gap by seeking health information online (*see page 1113*). Systems to promote access to sophisticated healthcare interventions such as bone marrow transplantation have been successfully implemented in developing countries (*see page 1125*). Improving public insurance application processes through information technology (*see page 1045*) showed the importance of connectedness. The value of information provided by librarians in healthcare settings (*see page 1118*) is yet another indication that concerns expressed in the past about technology-induced gaps may be less relevant today.

Systems that help provide personalized care (*see page 1069*) and patient education (*see page 1026*) can also be considered part of the patient-centered movement. However, we still have some work to do. For example, patient-centered longitudinal care plan systems are envisioned for the future, but solutions to bridge vision and reality are needed (*see page 1082*). EHR systems must also evolve to be more patient-centered. They have been increasingly adopted worldwide, but the major inflection point in the USA resulted from the American Recovery and Reinvestment Act of 2009 that incentivized their meaningful use. The regional extension center program from the Office of the National Coordinator for Health IT supports and monitors meaningful use of EHR systems. Important area-level implementation differences (*see page 976*), adoption rates and variability among providers (*see page 1001*) and among hospitals (*see page 984*) were noted. But adoption is just the beginning: decision makers representing the government, vendors and health systems must still address EHR system interoperability (*see page 1060*), patient safety concerns (*see page 1053*), and the fact that not all technology specifications are ready for national standardization.

The informatics community has been addressing the problem of structuring the EHR so that it can serve as the basis for clinical decision support. Examples date back several decades when the problem-oriented medical record was

developed (*see page 963*). Several other examples exist, such as EHR data modeling initiatives in an integrated health delivery system (*see page 1076*), clinical decision support for antibiotic prescribing in upper respiratory infections (*see page 1091*), temporal trend monitoring in HbA1C testing (*see page 1038*), electronic systems for test result management (*see page 1104*), for decreasing the use of haloperidol in high risk patients (*see page 1109*), and for placement of HIV positive patients in antiretroviral therapy programs (*see page 1009*).

Finally, the clinical research informatics community has developed data repositories (*see page 1136*) and data quality assessment resources (*see page 1129*) to facilitate healthcare quality improvement and outcomes research. Genomic data has received a lot of attention lately. However, in most academic health systems there is still a clear separation between basic and translational research involving genome data and clinical research. Computational environments for genomic research (*see page 969*) typically have different specifications than those required of clinical systems. Strategies that use specific genome information to inform care for a particular patient (*see page 1015*) will require solutions that introduce both technical and policy innovation into existing systems, or most likely the introduction of completely new systems designed to address the challenges of integrating large amounts of data from molecular, individual, and population levels.