The Electronic Health Record and the Clinical Examination

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KEYWORDS

- Clinical examination • Electronic health record • EHR • Doctor-patient relationship
- Physical examination • History

KEY POINTS

- The adoption of the electronic health record (EHR) has changed the clinical examination: history taking, physical diagnosis, documentation of findings, and doctor-patient communication have each been altered by the EHR.
- There is a paucity of evidence supporting the positive or negative impact of the EHR on patient care; the overall impact of the EHR on the clinical examination cannot be tallied as "good" or "evil".
- The EHR now has a dominant role in clinical care and will be a central factor in clinical work of the future. Conversation needs to be shifted toward defining best practices with current EHRs inside and outside the examination room.

INTRODUCTION

Few technologies in recent memory have aroused as many hopes, fears, and grumbles among health care providers as the electronic health record (EHR). The EHR is not a singular entity but a plurality of technologies, formats, and interfaces, and it is rare to find a stakeholder who has a neutral opinion. Patients, physicians, nurses, administrators, and even medical billers all have something to say, for better or worse, about these new medical media.[1–3]

As more physicians, hospital systems, and policymakers rely on EHRs, it has become harder to pinpoint the central logic for their adoption. Is the EHR an

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instrument for physicians to communicate more efficiently about clinical care? Is it an educational tool for patients to learn more about their plan of care? Does its true strength lie in its ability to rapidly check medication orders for adverse interactions? Or does clinical decision support hold the key to increasingly accurate diagnoses? Either way, the EHR has rapidly changed the landscape of medicine. The EHR facilitates improved legibility, author attribution, facile storage, and instant retrieval of notes. It allows concurrent use of the medical record by multiple users, improves security and confidentiality, and facilitates research. The medical record is no longer an illegible, fragmented collection of papers stored in the windowless basement of a hospital or clinic. It is backlit, typewritten, and increasingly available for patients and providers to see. Yet the introduction of the EHR into the examination room has altered the relationship between patient and physician. Inserted into the once binary exchange between two people, computers have created a triangular relationship, as provider and patient increasingly turn away from each other and toward the screen.

To examine how the adoption of the EHR has changed the most fundamental unit of medicine, the clinical examination, the authors performed a Medline search using the MeSH headings, “Electronic Health Records” AND (“Medical History Taking” OR “Physical Examination” OR “Clinical Competence”), which yielded 163 articles. These articles were screened by title and duplicates were excluded, yielding 90 relevant articles. One of the authors then reviewed the title and abstract of each article for relevancy, yielding 49 articles. Each of the remaining articles was then read in full by 1 of the study authors, and 25 of these were judged relevant and are included in this review. Using the snowball method, related articles were identified by citations from this primary pool of articles; 29 additional articles were identified and read in full by 1 of the study authors. Of these, 19 were deemed relevant and included. Additionally, 7 articles which were previously known to study authors, but did not result from the primary search, were added for full review. This yielded a total of 51 articles as the basis for the review.

PATIENT HISTORY

One promise of the EHR, which seems to have been fulfilled, at least from the patient perspective, is the ability of patients to shape the clinical narrative through direct participation. Studies indicate that giving patients direct ability to input information can elicit more accurate clinical information. Through the Family History Initiative—which was introduced by the Surgeon General in 2004—patients can collect and print their family history to make it more available to their providers.[4] Patients in 2 different studies were satisfied with or found a computer-based family health history tool useful.[5]

Patients interact differently with a computer than with a person, and this difference can be especially important when disclosing sensitive information. Some patients have reported a preference for entering their responses directly into a computer rather than disclosing it to a person, because they found comfort in the nonjudgmental quality of computer interfaces.[6] In another study in which patients entered their own social history, it was more common for new information to be added into the sexual history, suggesting that providers may be less likely to collect information that is viewed as taboo or stigmatized.[5]

Provider bias can also influence both the collection and the recording of patient data. In a study of 8 Veterans Affairs medical centers, pain scores as recorded by providers were significantly lower than patient-entered scores in patients with a history of diabetes, posttraumatic stress disorder, or depression and in patients who were not white.[7]

The structure of computer-collected and template-assisted patient histories also presents limitations. Some aspects of the patient history are not conducive to a

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