Clinical Informatics in Physiatry

Selection and Implementation of an Electronic Health Record

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Abstract

Electronic health records (EHRs) are now the standard of practice in most communities, because of transition to reimbursement that increasingly focuses on risk sharing and quality measurement, and government EHR incentive programs. The selection and implementation of an EHR is one of the most important decisions a practice faces. Organizing the search for an EHR that fits a practice, negotiating a contract, planning and successfully implementing an EHR are best accomplished with a well-informed, strong, multidisciplinary team using project management techniques. Focusing on the best match between your practice's needs and available commercial systems, and creating a strong relationship with your vendor will be key to leveraging the EHR to improve the experience of your patients and the quality of care they receive, and to the efficiency of your practice.

Introduction

The adoption of electronic health records (EHRs) has changed practice substantially for most physicians, with early evidence of improvements [1] and also difficulties [2]. Documenting visits, gathering patient study results, entering orders, and communicating with colleagues and with patients is all very different with an EHR. We use the term EHR to mean a computing system that replaces and extends functionality in the past found in paper medical records. The terms EHR and EMR are synonymous in our view.

Particularly because of federal incentive programs and possible penalties for not adopting one [3], most physicians have concluded that using an EHR is now necessary. Moreover, new payment models in which quality measures and shared risk increasingly contribute to reimbursement mean that the use of paper records is much less practical. It is now the standard of practice in most communities to use an EHR.

Most American physicians have been using an EHR since federal incentive programs began [4], but others have not yet made the transition from paper medical records, and some may wish to change from one EHR to another. The purpose of this paper is to outline the process of selecting and implementing an EHR in a physician practice and in making the transition to a new one. Although this paper is directed toward smaller practices, many physicians are now part of or affiliated with a multispecialty practice or health care delivery organization. Hence, in this paper we will also refer to health care organizations and to physician practices.

Organizing the Project to Implement an EHR

The selection and implementation of an EHR requires careful planning and organization. The framework for decision making and guiding principles should be clear at the outset. This framework generally consists of using project management concepts and selecting a project team with a clear mandate from you and your colleagues or the organization in which you practice.

Project Management

Project management can range from using general guiding principles to more formal approaches. At minimum, it requires articulating the goals of the project, determining the budget and timeline (ie, the constraints) and specifying the milestones and tasks involved in reaching those goals.

Before embarking on the selection and implementation of a new EHR, an organization must be clear on the objectives and have a firm financial commitment to the project. Being as clear as possible what the practice or organization would like to achieve will guide the

subsequent selection by specifying the functions of the system, the priorities, and the tradeoffs of costs versus functionality. Good goal definition can be achieved by following the SMART process: goals should be specific as possible, with outcomes that are measurable, attainable, and relevant, with specific timelines with deadlines [5].

Formal project management approaches vary but generally follow a process of initiation, planning, executing, monitoring, and completing the project. As the size and complexity of the EHR project increases, using the more formal methods, along with consultants and/or a designated project manager, becomes important to successful implementation. Moreover, throughout the EHR project, the team should reassess the objectives and resources and modify these as needed [6].

Aside from explicit goals and processes, successful project implementation also requires attention to less-quantifiable social change management. A broad representation of stakeholders, including clinical and administrative staff, must be involved from the beginning and throughout the implementation. There should be champions for the project representing roles throughout the practice. These champions can help communicate the goals of the EHR implementation. Leaders of the EHR implementation must manage expectations of the practice, including the time required for the implementation, and expected inefficiencies that the practice will face during the transition. Throughout the process, there should be clear and frequent communication to address concerns and barriers swiftly.

Although after EHR implementation the project may have reached a defined end-point, in reality the implementation process blends into EHR operations, which continue indefinitely as the practice adds EHR functionality and changes workflow to optimize management of the practice.

Project Team

The project team should have broad representation to incorporate different perspectives on needs and workflow. The team preferably consists of clinical and management leadership, including a lead physician, nurse, and practice manager. The team should include someone who can skillfully negotiate with an EHR vendor.

Larger organizations can include administrative representation such the Chief Financial Officer or Chief Information Officer. Other administrative members to consider include those from finance and revenue cycle, regulatory, legal, and compliance departments. If the EHR is being selected for multiple departments and/or specialties, these parties should also be represented.

Options for Acquiring an EHR

In some cases, a practice may meet its EHR objectives without contracting directly with a vendor. Some practices may choose to join with another health care organization, such as an affiliated hospital, to use its EHR. In this case, many of the details of EHR functionality and interoperability may be decided for you and options are more restricted; this also often comes with reduced ability to customize the EHR to the particular practice. In other cases, a practice may be able to add functionality to an existing billing or EHR system to meet its needs. If these options are not adequate, practices may choose an EHR directly from a vendor, which would require delving into more complex considerations.

Before turning to the characteristics of specific EHRs offered by vendors, it is important to review definitions and concepts of how EHR software and data are stored and accessed. One option is to have EHR data and software located in-house and accessed over the network that you maintain. This configuration goes by many similar terms, including a locally hosted EHR, onsite hosting, self-hosting, or provider hosting of the EHR. The practice would thus license or purchase and maintain the software, carry out upgrades, and be responsible for acquiring and maintaining the hardware (servers and other devices) such as backups and server security.

Alternatively, the EHRs can be hosted remotely or used in a cloud-based model, in which the software is licensed and the data and applications are supported by servers maintained by someone else. The terms remote hosting and cloud computing are related and sometimes confused. Remote hosting means that an application, in this case an EHR, uses hosts (powerful computers running the EHR software and databases) that are run and maintained by someone else. Cloud computing is a more general term and means using the Internet to access resources, such as servers, storage, applications, databases, and application development tools, provided by a company. If remote hosting is chosen, a practice would need to invest in tablets, laptops, or other devices to use in the clinic, and hardware for internet connectivity and security but not purchase and maintain as much hardware as in the local hosting model. There are variations in types of remotely hosted data. There are also hybrid arrangements between these 2 poles, such as servers housed in an affiliated entity such as a hospital, or on vendor servers. In the cloud model, the EHR is accessed via the Internet, such as via a web browser.

There are pros and cons to each arrangement. The remote hosting or cloud-based EHR approach generally have lower up-front costs. It can be more cost-effective and less complex for smaller practices, since in this case the practice would not require purchasing servers, security, updates, and backup arrangements as would be required for local hosting.

The remotely hosted EHR, however, may have fewer options for customization, including potentially fewer