

The Incorporation of Clinical Practice Guidelines for Glaucoma into an Ophthalmology Electronic Medical Record

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Abstract

Clinical practice guidelines represent the best current thinking on the management of acute and chronic medical conditions. Unfortunately, the implementation of such guidelines in clinical practice has been difficult and problematic. Electronic medical records represent an opportunity to incorporate guideline recommendations without disturbing physician workflow. We have designed a schema for incorporating guidelines for glaucoma management into an ophthalmology EMR.

Objectives

Clinical practice guidelines represent a significant effort to improve the quality of medical care. They define a standard of care that can help physicians to manage their patient's medical problems. The complexity of most guidelines makes their incorporation into clinical work flow difficult if not impossible. In addition, the guidelines themselves are updated on a regular basis and therefore need to be managed. Guidelines also allow for flexibility and practitioner preference and need to be customized for individual physicians and clinics.

The electronic medical record (EMR) represents an opportunity to manage the complexity of clinical practice guidelines. However, as versions of the EMR software change and versions of the clinical practice guidelines change, incorporating new guideline recommendations into the EMR is a challenge. For guidelines to be effective clinical aids, the EMR needs access to the most current versions. If practitioner styles and clinical needs are to be addressed, the ability to make further guideline modification is necessary. Deviations from the guidelines are an expected part of clinical management, and the ability to document these deviations and explain their necessity is important.

Project Design

We have designed a clinical practice guideline manager module (CPGM) for the NextGen EMR that facilitates the management of open angle glaucoma and glaucoma suspect patients. Our approach uses the Guideline Elements Model (GEM) to represent the knowledge in the guideline. This enables the creation of workflow-integrated decision support tools. These tools can be modified both globally and individually to create a customized patient care plan. This plan can then be monitored by the CPGM and updated as necessary. Guideline revisions will also be reflected in revised patient care plans.

The CPGM specifies the decision variables (DVs) needed for the guideline. These DVs are then mapped to the appropriate data locations in the EMR. When key DVs are encountered by the EMR, the guideline is triggered. The CPGM prompts the EMR for other necessary data, presents a treatment and management plan, and then monitors the plan.

The CPGM facilitates care and improves clinical flow. Treatment plans are easily selected and the physician can modify the plans to accommodate a patient's particular needs and co-morbidities. Once a care plan is designed for the patient, the CPGM presents the physician with the necessary data collection templates and facilitates the timely scheduling of ancillary testing. The opportunity to accept or modify the care plan is part of each patient encounter.

Our CPGM will be able to both improve the quality of care delivered and facilitate and simplify patient encounters. Data will be generated that will enable evidence based medicine studies. Although initially designed to interact with the NextGen EMR, the modular design and the ability to map data will enable its incorporation into other EMRs.