MORE THAN AN ELECTRONIC CHART

An EMR is both a diagnostic and a therapeutic decision-making tool.

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The next generation of eye care-specific electronic medical record (EMR) systems is becoming increasingly relevant to clinical practice, with more predictive and intuitive user interfaces. For glaucoma practitioners, the hope is for EMRs to help guide your clinical decision making and patients’ care.1-5

SUMMARY SCREENS

Because documenting disease progression in glaucoma patients and suspects requires the serial monitoring of several parameters, EMRs have an advantage over paper charts in terms of obviating time-consuming manual entry on summary sheets. With a few clicks, EMR systems can also represent relevant data points from each patient encounter in an easy-to-read, intuitive format (Figure).

Most available glaucoma diagnostic devices have network interfaces that facilitate the direct, real-time transfer of data to the EMR, increasing efficiency and ease of access. The graphs of clinical variables over time may be superimposed over changes in treatment, providing an overview of disease evolution. You can diagnose the onset of glaucoma or its progression as the analyzed indices show change, and you can actively assess the efficiency of each intervention in terms of lowering IOP and retarding visual field/retinal nerve fiber layer loss.

EDUCATING AND COMMUNICATING WITH PATIENTS

With an EMR system, you can print graphs to show patients what treatment has been done, which can facilitate communication and potentially increase adherence. The software can be programmed to send automatic messages to patients for appointments, refills, and reminders to instill eye drops. EMR platforms can “talk” to handheld devices or communicate via secure email.

Patient portals allow patients to view clinical summaries, medical charts, and educational material as well as to schedule an appointment and request a medication refill.

ANALYTICS, BIG DATA, AND BENCHMARKING

The smarter EMR systems now offer built-in analytics where you can use your own patients as a cohort and include variables like age, gender, and ethnicity. The cloud-based EMR system can facilitate practice benchmarking and big data analysis by aggregating information from many practices and allowing you to compare your clinical outcomes with those of your colleagues.

In addition, analysis of operational, utilization, and financial metrics provides a dynamic and real-time barometer of your practice’s health and clinical quality outcomes. This can help you determine and streamline operational, clinical, and financial processes.

THE FOUNDATION OF AN EMR

An eye care-specific electronic medical records system should offer the glaucoma surgeon these 10 basics.

1. Information at your fingertips
2. Compliance with Physician Quality Reporting System and Intelligent Research in Sight reporting
3. Proper coding for office visits and diagnostic testing
4. Intuitive formatting of patient encounters
5. Generation of forms, letters, orders, and prescriptions
6. Compatibility with diagnostic tools1
7. Image viewing systems
8. Drawing tool
9. Care plans: customizable blocks of text (macros) for routine follow-up and planned procedures2
10. Patient portal: education and communication
TELEMEDICINE AND TECHNOLOGY

INTELLIGENT PROGRAMMING AND INTERFACES

With the elasticity of cloud computing, it is financially feasible for EMR companies to use the growing mountain of data their systems gather to train machine-learning models. Advances in deep learning by companies like Google, Amazon, and Facebook are becoming available to EMR companies to design systems to provide automated analysis of images and correlations of data that follow no algorithm but are modeled on your own practice’s behavior. These tools can be used to find similarities among patients, much like Netflix provides recommendations for movies.

For example, the EMR can search across its database for clinical outcomes of trabeculectomies augmented with an antivascular endothelial growth factor agent versus those augmented with mitomycin C in white men younger than 30 years of age, providing a clinical benchmark for decision making. The analyses across age, ethnicity, gender, and disease profile are only the beginning, with the EMR having the capability to link outcomes to psychosocial habits as well such as smoking. The field of data science—a combination of statistics and software development—is learning to find patterns in data to understand patients’ behavior and disease progression.

The problem of the past decade has been sorting through all the data. Technology is catching up; it will start intelligently filtering the data to find the proverbial needle of meaningful information in the haystack. This is just in time. Armed with new data and the intelligence to sort through it, you will be able to offer more accurate and more personalized care.


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Figure. The glaucoma summary screen (Integrity EMR; Eye Care Leaders) provides a longitudinal analysis of various clinical variables in a comprehensive, intuitive snapshot. The graphs of clinical variables over time, superimposed over changes in treatment, provide an overview of disease progression and management.