

HACKING THE EPICCARE ELECTRONIC HEALTH RECORD SYSTEM

How to make this widely used EHR system more efficient for high-volume vitreoretinal surgeons.

BY WILLIAM J. FOSTER, MD, PhD, AND DAVID FLEECE, MD



There are numerous publications describing the inefficiencies and loss of productivity among ophthalmologists brought on by the introduction of electronic health records (EHRs),^{1,2} and, in particular, the EpicCare Ambulatory EHR (Epic

Systems Corporation).³ However, there are limited descriptions in the literature of direct, concrete benefits of such technology. Publications have noted the ability of the system to provide availability of the chart to billing personnel with improved billing, improved legibility of clinical notes, and reductions in (typically inexpensive) staff to pull and organize paper charts.^{4,5}

These qualities, however, are of little comfort to high-volume retina specialists who see their personal clinical efficiency reduced and a growing need to hire professionally trained clinical scribes at a time of declining reimbursements.⁶ There are retina-specific modifications to the Epic system, on the other hand, that can facilitate improved efficiency and surgeon satisfaction with this widely used system.

ABILITY TO TRACK MACULAR EDEMA

One helpful EHR technique that we have found to allow the treating physician to quickly evaluate the efficacy of treatment of macular edema is to create plots of central macular thickness versus time, noting where interventions such as intravitreal injections were performed. We have implemented this using Synopsis, a feature of the Epic EHR, defining synopsis variables for foveal thickness. We enter the central subfield thickness of each eye into the EHR at the time of interpretation of every optical coherence tomography (OCT) image, and the information on response to treatment is then immediately and visually available to the vitreoretinal surgeon and the patient. In this way, trends in response to treatment are presented in an intuitive manner. This visual presentation of treatment

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response is particularly critical when taking care of patients who do not speak English.

Cystoid Macular Edema

In some patients, the presence of macular edema may be obvious, but treatment may result in changes in macular thickness of only a few tens of microns over a month, and determining the endpoint of therapy can be difficult. Using data from two patients, Figures 1 and 2 illustrate how resolving edema can be followed and tracked over months. The patient in Figure 1 developed cystoid macular edema (CME) related to successfully treated endophthalmitis. The patient in Figure 2 had chronic CME after cataract surgery; it can be easily seen, in the resulting plot, that the CME recurred after tapering the patient off steroid eyedrops.

Macular Edema and Intravitreal Injections

We have found that patient management and patient compliance and acceptance of intravitreal injections are

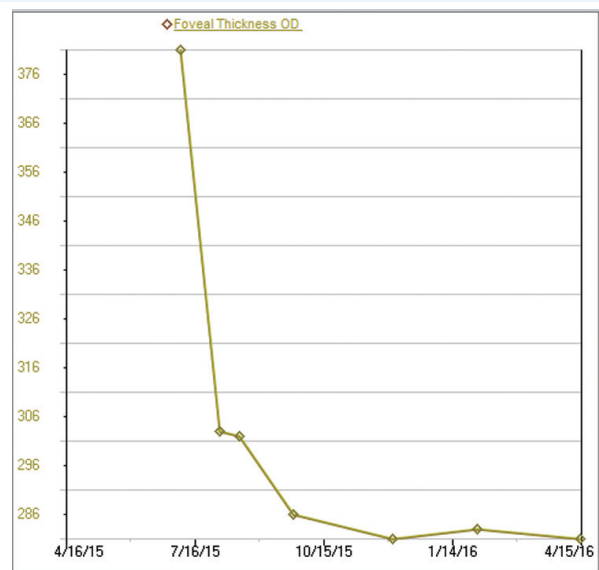


Figure 1. This patient, recovering from endophthalmitis, was monitored for resolution of her CME. This Synopsis was used to determine the timing of the taper of her antiinflammatory eyedrops and to determine if there was a recurrence in this complex patient.
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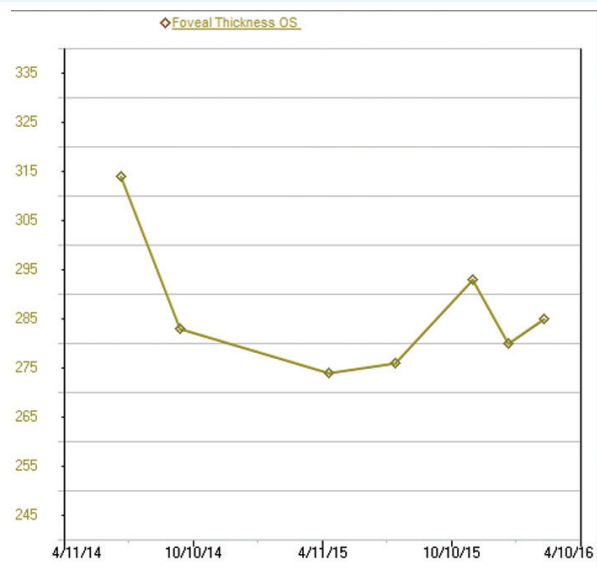


Figure 2. This patient, being treated for chronic CME, had a worsening of his CME after discontinuing his prednisolone eyedrops, which started to resolve after the eyedrops were restarted.
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improved when patients can graphically see the effects of injections on their macular thickness. Visual tools help patients to understand their own responses to treatment and treatment goals (Figure 3). Further, this visual approach helps to avoid repeated cycles of noncompliance with injections in our urban, hospital-based practice, in which patients wait until florid macular edema recurs, appear for urgent unscheduled appointments for treatment, and later experience further recurrence because of noncompliance.

EFFICIENCY IN ORDERING CLINICAL TESTS

Order sets in EpicCare can help guide and standardize elements of patient care. These SmartSets, often used for panels of laboratory and radiology tests, orders, and documentation, can help to document and code many common types of retina visits (Figures 4-6).

Intravitreal Injections

In order to survive in an increasingly injection-driven retinal practice involving the use of a growing array of expensive biologics, correct billing and documentation of intravitreal injections must be both correct and efficient. We developed a SmartSet that, in four clicks, allows the surgeon to select the eye(s) injected, the medication, and the number of units administered (Figure 4). Follow-up scheduling, preauthorization, and follow-up OCT are all automatically ordered.

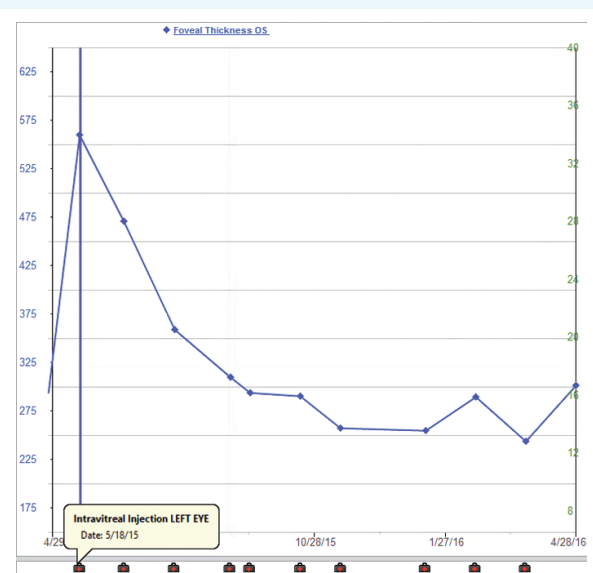


Figure 4. This SmartSet allows the surgeon to rapidly document and code an intravitreal injection.
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Diagnostics, LabCorp, etc.) and similar-sounding studies. By providing physicians with a selection of standard tests that are automatically directed toward the patient's preferred laboratory, such workups can be made much more efficient (Figures 5 and 6). Such panels, which allow the physician to place a check box next to desired tests, do not necessarily result in overuse of laboratory testing, but do, in our experience, result in thoughtful discussions with resident physicians, for example, as to what tests should be ordered for a given patient.

From the BMC Archive

Coping With an Inadequate EHR in a Vitreoretinal Practice

By Maurice B. Landers III, MD; Harry W. Flynn Jr, MD; Mark W. Johnson, MD, et al.

Retina Today, January/February 2015

Find it online at: bit.ly/0716ehr

Figure 5. This SmartSet allows the physician to efficiently select an appropriate workup for patients with ocular inflammatory disease.
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CONCLUSION

Many of the capabilities described above may be implemented in other EHR systems. We have implemented them in the EpicCare Ambulatory EHR system, and we are in the process of uploading these customizations to the Community Library on userweb.epic.com, as this is the practice recommended by Epic to allow others to benefit from our work. If more retina specialists share how they effectively use EHRs, we may all benefit, turning a currently difficult situation to our benefit. ■

The authors have described their own independent work and have not received any compensation from Epic Systems Corporation for this work. The words SmartSet and EpicCare are among the words copyrighted by Epic Systems.

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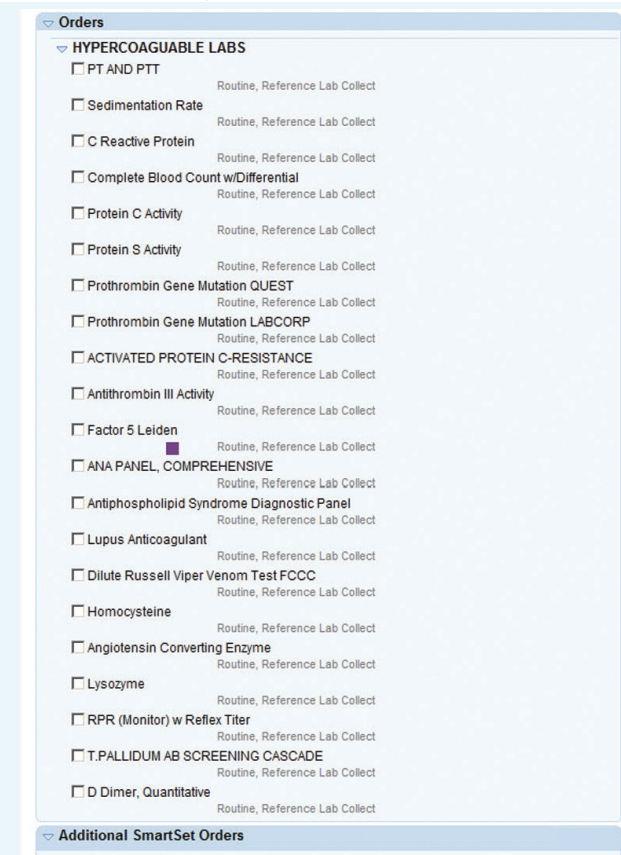


Figure 6. This SmartSet allows the physician to efficiently select an appropriate workup for patients with possible hypercoagulable states.

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