Coming to grips with EHR records: What would TV's House do?

By CBC News

Columnist Stephen Strauss has been trying to convince people close to the TV medical show House to create an episode in which lead character Gregory House and a new hospital EHR system square off to see who gives the best diagnoses.

Over the past few months, I have embarked on a somewhat quixotic enterprise to help ordinary people understand why adopting electronic health records has been so difficult. I have been trying to convince people close to the TV medical show House to create an episode in which lead character Gregory House and a new hospital EHR system square off to see who gives the best diagnoses.

There are several rationales to my pitch.

For those unfamiliar with it, the dramatic tension of the show is based on the fact that House is simultaneously a diagnostic genius and human relations toilet. Accordingly, each week, he, as nastily as possible, leads a group of other doctors as they try to translate a particularly unclear set of symptoms and responses to treatments into a final resolution of a patient's problems.

He does this without any reliance whatsoever on computerized information. No electronic medical record informs House's analysis. No Google search serves as a memory aid. Instead he mentally reflects on all he knows and has learned, and requires his interns to do the same.

And, surprise, surprise, something always clicks and House's intuition (almost) always saves the day.

Information overload

From a non-fictional perspective, House's weekly success is unrealistic on a variety of levels, not the least of which is how much information a modern doctor has to learn to remain up to date in medicine. A famous analysis in 1999 reported that six million new scientific medical papers were published annually, and that if a doctor read two a day, he or she would, at the end of the year, be 82 centuries behind the latest scientific knowledge.
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On top of this you have to consider the effects of not being able to connect symptoms accurately with causes. An analysis in the U.S. found that five percent of patients die each year as a consequence of a faulty diagnosis.

But overlaying the rational reasons to use electronic health records is a fundamental dramatic conflict. It is what Dominic Covvey, founding director of the University of Waterloo’s Institute for Health Informatics Research, describes as "a significant psychosocial problem. You have to convince doctors that they have a problem. Convince them that they are not getting adequate information."

And I believe the best way to portray the doubts, fears and follies of that "convincing process" is through a House episode where a doctor who is the archetype of the old way of doing things is confronted by the new technology.

MET Concept

To get a sense of what might underlie such a drama, I went to the University of Ottawa and sat down with Wojtek Michalowski, a professor at the Telfer School of Management. Michalowski and his compatriots, in what is known as the MET (Mobile Emergency Triage) research group, have been developing what is technically known as "clinical decision support systems" for emergency departments.

The MET concept is that information about a patient's symptoms, previous medical history, age and other existing conditions would be entered into a computer. Software would compare the data to known causes, and suggest possible diagnoses and treatments to the ER doctors.

One should quickly emphasize that the Ottawa group does not believe it is going to create a software package where you sign into a computer, list your complaints and then have a HAL-like digital doctor produce a diagnosis. "The good diagnosis is still part of the art; what we can provide is more information to exercise that art. So I don't believe that computers will replace doctors," Michalowski tells me.

Rather, what it is trying to do is organize and present information in the manner I described above. But does it make a difference?

Yes and no might be the best answer.

In one study of 574 patients, the MET system and doctors were almost equally good at linking symptoms to the likelihood of appendicitis. Another paper found a similar concordance when asthma symptoms and future complications were looked at. However, in some instances, Michalowski says, "the computer sometimes made mistakes - and from a physician's perspective, fundamental mistakes." A fundamental mistake in this context would be sending a child home when he or she should have been operated on for appendicitis.

Why did these mistakes happen? GIGO. That is: Garbage In, Garbage Out.
To understand the computer's errors, the MET group members went back over the records of some cases in which gross mistakes had occurred. They listed all of the symptoms that had been recorded, showed them to other emergency-room physicians and asked for a diagnosis based on the information provided. The result was shocking. "They were much worse than the computer," says Michalowski.

The MET team then went back to the original doctors and pointed out that what they recorded in their notes couldn't logically explain their diagnoses. One thought about it and recalled that his diagnosis came after a boy jumped off the examining table and nearly collapsed from the pain. That reaction showed him the problem wasn't a simple stomach ache, but likely appendicitis.

But what the doctor hadn't done is enter that table-jumping response in the patient's record so that the computer - or another doctor - could understand on what basis the diagnosis had been made. As Covvey pithily pointed out to me, "The system doesn't know what isn't entered."

If they are going to make significant headway in computer-assisted diagnoses, one of the things that electronic health record systems will demand is that doctors like House more absolutely record all clinically relevant information. No more unconscious, undocumented eureka moments.

A question of time

What this would mean to a doctor like House - whose personal motto is "everyone lies" - is that he personally is going to have to become absolutist when it comes to data entry. But that may take time, and time could be a huge issue in a highly intuitive doctor's resistance to a completely unintuitive technology.

And he would not be alone. I asked Ken Farion, an emergency room doctor who is part of the MET team, what Ottawa physicians' biggest complaints are about METs. He shot back: "They want to be reassured that the time they spend in making entries isn't going to be exponentially greater because of the complexity of the system."

This leads me back to my effort to convince the writers at House to script a show that might be entitled: "House vs. The Diagnostic EHR System."

It is not a proposal that has had any positive response. Dr. Lisa Sanders, an internist at the Yale University Medical School and a technical adviser to the program, is hugely skeptical House would bend one iota. "Trust me," she wrote in an email. "House wouldn't be caught dead using an EMR (electronic medical record). And why should he? His issue is the immediate need of the patient who is actively dying before his eyes (usually). The EMR adds little to that."

That may be the way it was, but clearly that is not the direction medicine is moving as records become computerized. There are already systems like METs in active if not widespread use, including DXplain in the U.S. where 900 clinical manifestations have been associated with more than 2,200 unique diseases.

So with the seeming inevitability of change looming, I have been imagining dramatic moments in a House episode to express them. House's chagrin when another doctor uses the computer system to point out something he overlooked. The same doctor's chagrin when, because of some data flaw, the computer makes a diagnosis a first-year medical student would know was idiotic. A patient Googling his condition and then challenging House's diagnosis.
I have been imagining these conflicts, but still getting nowhere in my efforts to promote an EHR storyline on House. And here is where I have a proposal for you. This is the age where people everywhere have abandoned passivity in relationship to everything in the media. If you agree this conflict is something you would like to see appear on House, let's flex our social media muscles and make it happen.

So text, tweet, email and anything else you can think of to the House website (http://www.fox.com/house/ or http://biz.yahoo.com/ic/106/106605.html). Tell the show's creators their audience wants EHR-phobic Dr. Gregory House to be forced to confront medicine's (probably) inevitable electronic information future. Now.

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