

JOHN So Gopal assigned this topic, and originally, I said, what the heck is this? But I actually am very grateful that I got a chance review this. Turns out there's a literature on this subject of how patients perceive the value of electronic health records. I think our concern as providers, going back in the early days of HR, depicted in this cartoon, is that we would all be focused on our computer screen, and not on the patient, OK?

MCCONNELL: As I'll show you in a little while, the data don't actually support this perception, and I think one of my conclusions from this review is, I think providers are actually more worried about this scenario on the screen than patients are.

So as I mentioned, there is actually some reasonable literature on this. I wouldn't call it high-quality, in terms of level-one evidence, but it's nevertheless helpful information. I'll try to get through this, and if we have time, Stewart, maybe see if people want to comment on their own personal experiences with this.

The only study that I found that related to the patient satisfaction, the patient experience on the inpatient side, was this study from Kazley et al in 2012. I focused only on US studies. It turns out there's a fairly rich body of information from the European literature from the VA system that had very early EHR systems, but I just stuck to more recent studies-- reasonable study design, which I thought would be more comparable to modern EHRs.

So basically this group looked at inpatient, Hospital Compare patient satisfaction-- and an interesting finding. So they did surveys of patients after hospital discharge-- this is from multiple institutions, not from a single institution-- and actually found that patient satisfaction from the CMS scores correlated positively with these three domains in the actual survey. And I assume you all are familiar with this. You should be, because your patients can go to the CMS Hospital Compare website, and look at this data.

And there was actually a fairly strong correlation between the actual degree of patient satisfaction, and did the staff give information on what to do after discharge? The strongest correlation is what's called top-box score, which is how you actually rate the facility, and then lastly, whether you would recommend the hospital. So basically the hospitals that had EHRs, and had, within that group, very strong correlation between patient satisfaction and these three measures-- all the other domains in that survey had no correlation, OK?

But this is an inpatient study, and I don't think it's particularly relevant to the most of you, from a clinical-practice standpoint, and all the rest of the data that I'm going to share with you come from the outpatient environment.

There's actually one systematic review in the literature that was published in 2009. I think it's a little flawed, because it went back, actually, into the '90s, and looking at fairly primitive EHR systems, but nevertheless, six of these studies found a positive correlation between patient satisfaction and use of EHR.

Actually, of the six studies, five were positive, and one was neutral. There was one study that had a negative correlation between EHR usage and patient satisfaction in a series of a family practices across the country.

This next study is really, I think, probably the best of the group, and there's a lot more richness of data. The methodology here was quite good. The study was done across four states, and they did two types of comparison.

One is, they compared EHR versus non-EHR practices, but they also, within the EHR group, compared people who had been in the study state-- in an EHR system for some period of time-- versus people that were still in roughly the first year of their experience with the system.

So these surveys were done immediately after the outpatient visit. I should say that the majority of the respondents actually came from private-practice environments. It was a pretty good mixture of single-specialty clinics, versus multi-specialty clinic environments, and most of the sites were nonacademic sites, so I think this study is very highly relevant.

So the majority of the patients who responded to this survey believed that electronic health records actually improved the quality of care. Now, this is a perception, OK? So this is asking the consumer patient how they feel about it. And in fact, EHR adopters, versus non-adopters-- 71% felt that it had improved the care.

Perceived equality between adopters and non-adopters, with regard to visit satisfaction-- so let me explain what this actually means. So if you compare practices who have EHR versus practices who don't, statistically they had the same visit satisfaction. That's a different type of question, which was, I happy with what happened in the office environment, OK-- equivalent.

The next one was provider's knowledge of the patient's problem. Now, I found this to be interesting, because the EHR practices did not have a higher perception that the doctor was more informed about their health care, and yet that's supposed to be one of the major purposes of an EHR is have more access to data, but that was not the patient's perception.

Providers often fear that patients will be concerned about confidentiality because of EHRs, and at least in this survey, there was no difference between the EHR and non-EHR practices.

Satisfaction with the amount of time spent with the provider? No different between EHR and non-EHR practices, and actual patient satisfaction was 88% in both groups, OK?

So I found the most interesting part of this study was really some of the drill-down information, so they then focused the rest of the study just on those practices that had EHR, and asked the patients a variety of questions.

And so 92% of the respondents said that the physician used the computer to enter notes-- not too surprising. About 2/3 actually shared information with the patient, in terms of laboratory results, imaging results, et cetera. I thought that seemed to be a low number to me, but the data sort for this goes back to, actually, the early 2000's, so that may be possible.

24% of the patients said that their physician focused on the computer screen all or most of the time, hence the cartoon at the beginning. And I found this really interesting, although this may be a capability of the system, that only 6% of the patients had communicated via email or secure portal communications with the patient in the prior 12 months. And it turned out that 88% percent of the EHR systems in these practices had that full capability for encrypted email communication, and yet only 6% of patient-provider partnerships, if you will, had used it, and I'm going to talk more about that later.

Again, now we're just focusing on those practices that utilize EHR. When asked the question to the patient, do you believe that computer use in the exam room improved the quality of care-- this is somewhat contradictory to one of the other questions-- 72% of the patients said, yes, I agree that use of the computer in the exam room improves the quality of care. 12% disagree.

Because of computer use, the provider spent less time talking to me-- only 15% agreed with that, and 85% actually disagreed that the computer caused an interference, if you will, in the quality of face to face. And actually, across all these measurements, there was really no difference between people who had recently adopted an EHR system, versus those who had been on it for several years, which I think was another surprising finding.

Now, from about a dozen studies-- and I didn't reference these, because the data to back up these statements is lacking in virtually every case-- but many of these papers in the discussion section and in some what I call IT-industry rags, you'll find papers written about, or, let's say, opinions written about the following topics.

There actually isn't any data that I could find about eye contact versus screen contact. There is data, but it's very mixed. There is clear, patient anecdotal information, however, that keeping your back turned to the patient during an encounter is not perceived in a positive way.

I know the Mayo Clinic, and several other entities I know of, have actually done very elegant industrial engineering studies to look at the position of the computer screen, versus where the patient is going to be, and their provider is to avoid this business of having your back turned to the patient, and it absolutely can be done. It's a design issue.

There are reports in the literature that are entitled, "Negative Patient Reaction to EHR." None of those studies actually measured patient satisfaction, and if you read those studies, it is the providers relaying that they believe their patients are unhappy because of EHR, and so I think those need to be heavily discounted.

There is some non-quantitative information in the literature that would illustrate or indicate that the more you can involve your patients in what I call ancillary tools that are embedded in the EHR within the encounter experience, the more the patient will be satisfied with that experience.

And I know many of issues this to some degree, but from a patient-perception point of view, it's very interesting in a multi-specialty practice, where, if they're seeing Dr. Smith in rheumatology, and Dr. Smith is sharing laboratory data on the screen-- x-rays of their joints, trending data-- and then they go see another physician who is not doing that, that's a major dissatisfier within a multi-specialty practice, because the patient doesn't understand that variance.

Why is Dr. Smith sharing all this rich data with me, and another doctor's not? So those of you that are multi-specialty practice might want to consider that. But trending data, pictorials, short videos that I know many of us use-- in general, educational materials that are linked to the EHR system.

It's very interesting. Despite the explosion of handhelds, at least as of the search that I did, there's no evidence to suggest that handhelds-- they may be more accepting to providers, but there's no data to suggest that patient satisfaction is any better with handhelds than it is with general workstations.

One of the things that I think is a great opportunity for learning for all of us is really the positive impact of EHR systems prior to the visit. I want to switch gears a little bit now, and talk about, again, some of these ancillary aspects of the electronic medical record, and I want to start first with portals.

I assume everyone knows what that means. These are secured communication systems between the patients, computer, and the EHR system itself. These have to be encrypted. They're highly variable. The products out there-- they're linked to your home EHR system, and some of them are extremely robust, in terms of their capabilities. Others are fairly primitive, and a few EHR systems for small practice don't have portal capabilities.

Here the experience-- and again, I'd put this at fairly low level of evidence-- but I can tell you from my personal experience in Dallas is that you can have a dramatic impact on workflow in your clinic if you have a high percentage of your patients utilizing the portal. We had over a 50% decline in our incoming and outgoing phone traffic, which we could measure through an automated system, and it also can drive patient satisfaction, because you have far fewer service lapses with portal communications than you do with telephone tag, OK, and that sort of thing.

The other really positive potential attribute of portal systems is-- or what I would call patient-centered contributions to the official record, and this field is exploding with remote monitoring and other capabilities-- is this includes physiologic measurements, like weight, blood pressure, glucose.

Symptoms-- Gopal mentioned this in his talk yesterday-- relevant history and family history, including the capability for annotation. Now, I would say this is the advanced course, where you allow patients to go in and annotate their own records. It's tracked or traced, so you know that's a patient annotation, but many of the systems have that capability.

And there are other types of remote data capture that do not require patient entry. So for example, there's Wi-Fi-based technology to do weights, to do glucose, so that there's a Wi-Fi connection that automatically enters the data, so patients do not have to manually log in and enter the data themselves.

Another aspect of some portal systems that's gaining some popularity is what's called a private section, so two bullets above that is the patient actually having the ability in their official record to do annotation and enter data, but also, some of these systems allow patients to essentially have their own private diary that's sequestered in there, and then they can decide later whether they want to open up parts of that to the physician, and again, no data on this, but it seems to be a growing trend.

Now, there are concerns about the portal, and I remember when we opened up the portal at UT-Southwestern, it took a year and a half for various committees to decide when and how and what information was going to be released. I found this very interesting, because when Beth Israel in Boston went live on Epic's same system, they opened up everything but biopsies essentially in the first year of operation for patient access.

But there are concerns about it, and I understand those concerns, and that is releasing data, for example, without accompanying educational information or context. There are also some intra-institutional training issues that are quite serious, actually, and with apologies to any radiologists in the audience, that is the real hot point. I'm going to make this up-- small, one-centimeter adenoma in the adrenal-- probably not malignant. Recommend clinical correlation. Now, how is a patient supposed to process that information?

So there are several ways to handle this. One is delays in release of the information, so the clinician can annotate it before it goes out. If you're going to do that, it really should be done in just a few days. Biopsies are the advanced course, but actually, there are institutions that are releasing biopsy information that is annotated.

One problem with portals is, they can be difficult to navigate through, and I think that's really a problem that the manufacturers have to address over time. There's a concern on the part of providers that they lose control of managing the patient interface. Candidly, I think there's some part of paternalism in there. Many patients are quite capable of processing information, and we've probably underestimated that capability over the years.

There are serious concerns about privacy and confidentiality. Patients often give their passwords to their portal accounts to their family members, and things like that. And so I think there's a lot of work that still needs to be done in that area, and I know some physicians are concerned that if they moved substantially to a portal system, where the communication is mainly through a portal, that there would be issues with, I'm spending time and not being reimbursed. But think of the phone calls. You're not get reimbursed for that, either, OK? And this is a much more efficient system.

There are no national standards about what can and should be communicated, which puts a little bit of risk into this, and as of today, there's really no true evidence base for patient benefit with use with portal, but I'm going to guess that's coming.

The advanced course beyond this is secured patient communications-- again, a major concern of some providers that, I'm just going to get overwhelmed with patient messages coming through the portal. This is a workflow issue. It can be managed, in terms of how that workflow flows through your office staff, et cetera, and my personal belief is this is a very, very positive benefit they can actually make you more efficient if you have the right workflow. But once again, since there's no national standard for what these communications can, should contain, I think there's risk here until there's some regulation of this particular space.

So in summary, I think, based upon the literature, but also based on my own experience, that the patient perception of electronic health records, especially in a mature system, where you're fully leveraging all of the tools of EHR is almost uniformly positive, but to get to that level of satisfaction, these more advanced tools, including direct patient communication, seem to be required. I appreciate the opportunity to share this information with you.

[APPLAUSE]