Q&A with David S. Channin MD: How to Make PACS Patient Centered

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As healthcare takes steps toward the Affordable Care Act's mandate for patient centricity, information technology also has some ground to traverse. Take PACS, for instance. Technology developed as a departmental workflow tool must transition to a system that contributes to a holistic view of a specific patient rather than supporting the interpretation of a specific study. Access to the data that radiology generates must be enhanced for everyone, including patients.

David S. Channin, MD

As a former chair of radiology; one-time National Institutes of Health investigator with the Annotation and Image Markup Project; and a computer programmer, David S. Channin, MD, has as intimate an understanding of the capabilities and shortcomings of imaging informatics as anyone. Now president of the recently launched health IT consulting firm Insightful Medical Informatics, Channin addressed the above question, as well as the important roles that vendors, IHE and the federal government all have to play as this system continues to evolve.

What are the inherent technological obstacles to adapting PACS for patient-centered care?

Channin: The first obstacle that comes to mind is integration with the EMR. We certainly have some degree of integration now, with most EMR systems talking to the RIS and talking to the PACS. To be more patient-centric, the level of detail of the interactions between those systems has to be increased.

For example, people have done some prototypes where you can pull information from the EMR to display to the radiologist while they are reporting a case, and I would say that is in the Stone Age right now: it's primitive. That needs to be improved so that the radiologist has the best picture of the patient possible while they are reporting that study, and that has to be provided in a very rapid, easy-to-use way so that it does not slow down the radiologist.

Right now, the radiologist might have access to the EMR, but they have to go poking around to get to the information they want. It's very cumbersome. And that's on the input side.

On the output side, I think patients like to see their radiology reports, but clinicians are very leery about patients seeing their radiology reports, especially before they see the reports. If you want to be more patient-centric, you have to think about how to report the study in a way that is explanatory to the patient.

Having tools that let the radiologist report a study in an appropriately clinical, scientific fashion that can also be understood by the patient is tricky. I think that's one of the unrealized potentials of structured reporting.

Does it impact a radiologist's reporting if he or she knows patients will be reading their own full reports through a patient portal?

Channin: I do think radiologists think about this while they are reporting a study. Does that have a

significant impact on the speed? I don't think so. But they *are* thinking about how they are writing for two or more audiences.

They are used to writing for the clinician, the lawyer and the patient already, but the goal of technology is to reduce the anxiety and uncertainty that comes with doing so. If they know an appropriate translation of their meaning is going to be provided, it does help them remain focused on other things. It will also yield more consistency in the reports.

What is the functionality necessary for a more patient-centered PACS?
Channin: This goes back to this theme of the EMR and the RIS/PACS needing to work together better. Right now, when the EMR gets the radiology report, even if the report is structured, it typically only gets an HL7 representation of that structure. That would be a functionality that needs to develop.

For example, if I say "liver," I go into the LI-RADS vocabulary, and I'm describing a specific liver lesion; or if I am making an AIM annotation, that description brings me to a specific inference about the type of liver lesion. The structure of those observations and inferences needs to be preserved so that the EMR knows those comments refer to the liver. Then, when it presents liver laboratory tests, for example, it could provide those comments to a surgeon instead of just referring them to the entire radiology report. Being much more clever about how the information is structured and used is a very patient-centered focus, because the radiology report right now is "study" focused.

The other functionality necessary is better communication between the radiologist and clinicians looking at the imaging study. It's almost embarrassing that, in this day and age of Snapchat and Skype, clinicians and radiologists can't always speak to each other when they need to.

You can imagine a button that says, "Connect me with the radiologist, I have a question about this image," that clinicians can click. Instantaneously, that image would load for a radiologist and there's audio, perhaps video, between the two people.

And maybe you schedule it so one radiologist per day is answering questions—or one physician for each specialty—but that act of making yourself available is a huge way of advancing patient-centered care. Again, we're still in the Stone Age with respect to these tools.

Is it possible for radiology to solve this conundrum by itself?
Channin: No, it isn't. Any problem in healthcare technology always involves the specialty working in partnership with the vendors. And in this case, you're usually dealing with two different vendors. Getting those vendors to talk is very hard, and even when your imaging vendor *is* your EMR vendor, those two entities still may not talk to each other.

The only way to get around this is market-driven engineering. When radiology leadership is educated about the utility of these features and functionalities, they will demand it in the product, and vendors will respond.

Does the IHE play a role in this?
Channin: Yes. The IHE is a great model for developing ways to do things. They come up with a script to orchestrate a particular process, and that simplifies the way a purchasing authority can ask for something. They don't have to know all of the details, they can just say they want this functionality as described by the IHE profile, and they won't buy the vendor's product unless it supports that profile.

IHE could specify profiles for some of these things we've talked about, but the challenge is still getting enough people to know about the IHE profile and to know about the value of the functionality.

What would you suggest to public policy makers that could help promote a single patient record that is accessible to patients and caregivers?
Channin: Well, I, personally, feel this is the rare occasion where we need more Federal regulation. Look to the Department of Transportation and their regulations for the safety and interoperability of autonomous cars! Why can't the government issue regulations that say, for example, every EMR must have an "export button" that puts all of a single patient's data into an interoperable file format?

That notion of exporting from one system and importing into another system happens everywhere;

we do that all the time. Even in imaging, you buy a PACS, you have it for ten years, and then you buy another PACS. What do you do? You do a migration. There are companies that specialize in doing the migrations.

Right now, nobody is thinking about this with EMRs. We are still trying to encode each clinical document into a human and machine readable format. What do I do when I want to export data in ten years from my EMR to the next EMR? If we had that export functionality, you could take that to the patient level, and that would be making things more patient-centric.