

Driving Quality with Imaging CDS: The Right Exam for the Right Reason

By Mary C. Tierney, MS

When it comes to ramping up on imaging clinical decision support, now is the time to assess your choices, set expectations, map out a plan and get the wheels of implementation turning. Imaging leaders need to play a key role in implementing CDS, educating ordering physicians and ensuring program success. The leadership team at NewYork-Presbyterian/Weill Cornell Medical Center in New York City was an early adopter of CDS. Now they are sharing their experience and expert advice on deploying targeted CDS as the right solution at the right time.



Transitioning to Value-based Care

Healthcare is undergoing a transformation. Industry consolidation is omnipresent, and the belief exists that the healthcare market will continue to consolidate in order to achieve better outcomes at lower costs. However, the reality is the expected economies of scale are not yet being realized. Economic reform continues to evolve as legislators ramp up efforts to achieve this goal. As part of the Protecting Access to Medicare Act (PAMA) of 2014, use of an imaging CDS becomes mandatory in January 2020 for facilities to be paid for advanced imaging exams for all Medicare patients. The bullseye is optimizing high-cost imaging utilization for the Medicare population, all 57.1 million beneficiaries¹—some 17 percent of the U.S. population—and growing. The ruling is designed to improve the quality of patient care by requiring ordering providers to consult evidence-based appropriate use criteria when ordering. Under this Medicare

regulation, imaging providers such as radiologists and cardiologists will be penalized through payment denial by Medicare if referring physicians don't use an approved CDS system when ordering advanced imaging examinations. At first a tool for quality improvement and cost control in academia and at big hospital systems, imaging CDS is making its way into community hospitals large and small across the U.S.

The NewYork-Presbyterian/ Weill Cornell Medical Center way

This 2,478-bed hospital is ranked as the 8th best hospital in the United States and 1st in the New York City metropolitan area by *U.S. News & World Report*. It is one of the largest hospitals in the country and one of the world's busiest. Weill Cornell strives to maintain its top-tier rankings by deploying the latest game-changing technologies in continuous pursuit of the optimal patient experience and the best clinical outcomes. As such, they are an imaging CDS superuser, offering health systems and community care providers alike practical advice on planning, choosing and deploying a system well. A Qualified Provider-led Entity (QPLE) certified by the Center for Medicare & Medicaid Services, they create appropriate use criteria for imaging: rules that define when it is appropriate to use certain imaging methods. They are now one of 18 healthcare systems approved to create and modify clinical guidelines for CDS development.

Six years ago, Weill Cornell identified and selected the Medicalis CDS system, recognizing it as a tailored, enterprise workflow solution that allows them to focus on patients, quality and excellence and seamlessly integrates with their Epic EMR.



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Keith Hentel, MD, MS, NewYork-Presbyterian/Weill Cornell Medical Center

Where We Are, Where We're Going

One of the early champions of CDS at Weill Cornell Medicine has been Keith Hentel, MD, MS, executive vice chairman of radiology at NewYork-Presbyterian/Weill Cornell Medical Center and chair of the patient access and experience committee for the Weill Cornell Physicians Organization.

Hentel is focused on improving clinical operations within radiology to provide outstanding patient care, simplify operational efficiency and improve the practice of radiology. His dedication and leadership come through as radiology sustains its place as the medical center's leading department in patient access and patient experience. Month after month, scorecards and metrics reflect these high standards in high-touch areas like scheduling, call center and patient satisfaction, enabling the hospital to thrive in this transformative era.

A mix of evidence and software makes the magic—with imaging CDS also capturing end-user reactions and responses to the evidence and recommendations. With just a few clicks, and within their natural workflow, physicians can evaluate the appropriateness of radiology exams with up-

to-date, evidence-based and clinical best practice guidelines at the point of order entry. The potential to reduce waste is significant, as are fewer delays in care and enhanced communication among physicians. The name of the game is measurable reduction of inappropriate, low-utility or otherwise unnecessary imaging while minimizing distractions and disruptions to workflow and caregiver productivity with a targeted approach to CDS. The use of evidence-based decision-making not only improves patient outcomes, it reduces unwarranted variability and improves operational efficiency, potentially reducing costs in imaging and across the enterprise—a win-win.

Job one is appropriateness, Hentel notes. When you're focusing on the use of appropriate imaging, you have to focus on a specific clinical condition and specific types of exams to do. "That's one of the points I just didn't get in the beginning because I thought insuring appropriateness was the same as decreasing utilization," he says. "That's important because the costs of our healthcare system are high, and you want to reduce utilization of unnecessary imaging, although I prefer the word avoidable."

Appropriateness must be governed by a local review process on both the practice, and institutional levels to ensure that the evidence deployed supports the local standards of care. “We’ve published on the effect of conflicting with local best practice,” Hentel notes. “When you conflict with local

best practices, nobody listens to decision support. That’s because physicians think they know better. Medicine is still practiced at the local level.”

To avoid that kind of conflict, Hentel recommends choosing a vendor that can implement a solution for a specific and priority clinical area. “This is where multispecialty groups come into play,” he says. “It’s also key to have those specialists from different areas demo and play with the systems before you buy. There’s nothing better than having [physicians] go through the process themselves and see how the rules play out.

The team at Weill Cornell chose the CDS system because it is a workflow solution that allows them to focus

on patients, quality and excellence, and it integrates well with their Epic EMR. They wanted to focus on local best practice first and target only Priority Clinical Areas (PCAs) for their clinical decision support.

Here’s how it works: The solution offers localized standard of care to match the health system’s needs. The platform helps physicians evaluate the appropriateness of radiology exams by delivering up-to-date, content-agnostic, evidence-based and clinical best-practice guidelines at the point of order entry. The objective is the right order the first time, thus reducing waste, delays in care and improving physician to physician communication. It decreases alert fatigue and improves clinical relevance, while appropriately supporting radiologists in their work. It consumes data assets from the EHR, being closely integrated with Epic, and helps anticipate and streamline provider’s work. This gives the institution control over the implementation of best practices by specialty, provider group and patient population. Also key is augmenting physician workflow with focused, structured indication capture for narrow differential conditions. The goal is providing value for every click to maximize physician engagement.

Commanding the best results

Experienced users like Weill Cornell bring perspective and insight to the conversation as does some published advice from radiology thought-leaders and early adopters via the “Ten Commandments for Effective Clinical Decision Support for Imaging: Enabling Evidence-Based Practice to Improve Quality and Reduce Waste.”² As one of the co-authors, Hentel says these



Ten Commandments for Effective Imaging Clinical Decision Support

1. Effective imaging clinical decision support should be viewed as a **multi-disciplinary** clinical program rather than an information technology initiative.
2. The strength of evidence supporting the clinical actions and recommendations embedded in imaging clinical decision support must be **transparent to the user at the time of order entry**.
3. **Sources of evidence** embedded in imaging clinical decision support must be **diverse**.
4. Evidence must be **current**.
5. **Clinical recommendations** and assessments embedded in imaging clinical decision support must be **brief, unambiguous and actionable**.
6. **Respect** ordering provider **workflow**.
7. Establishing **consequences for ignoring** clinical decision support recommendations will enhance the impact of imaging clinical decision support as education alone.
8. Imaging clinical decision support initiatives that **target well-defined clinical performance goals** are more likely to be effective.
9. Imaging clinical decision support must **enable measurement of its impact**.
10. Position imaging clinical decision support to **improve workflow** efficiencies for patients, providers and payers.

Source: AJR 2014;203:345-951

10 commandments grew out of the desire to share what a variety of early adopters learned via hard work, bumps, bruises and scrapes. “We don’t want people to make the same mistakes we made along the way,” he says. “The more information radiologists and doctors have, the better we can do our jobs. CDS is practical and doable. It should be under serious consideration by hospitals [that are] serious about improving quality, enhancing efficiency, utilizing evidence and potentially reducing costs. It works.”

He sees the framework as a guiding principle in bringing imaging CDS onboard. To succeed, the project needs to be an enterprise endeavor and a multidisciplinary clinical effort. “This is about images and data helping physicians, not about another IT install. Treat it that way,” he offers. “It is a clinical change project overseen not by IT but rather by our physician practice committees.”

The imaging CDS must be intelligent and strong, user friendly and completely transparent to the user. “Like a talented athlete makes his or her sport look easy and effortless,” he notes, “so too should be the transparency of the user at the time of order entry.”

Choosing a strong imaging CDS means selecting one that imbeds diverse and current sources of evidence with clearly defined clinical performance goals. The system also must include recommendations that are brief and actionable and respect the workflow of the ordering provider. No extra steps, no extra clicks.

From staying current, considerations move to setting consequences for ignoring the recommendations. As Hentel offers: “We need consequences, but the degree



depends on the institution.” At Weill Cornell, that most often means a phone call.

Measure for measure, this facility has proven imaging CDS makes a difference—for the enterprise, the radiology department and especially the patient. “Our analytics tell us we’re doing less because we’re changing fewer exams,” he says. “That shows us we are doing the right exams and reducing waste.”

Once a CDS has been deployed, Hentel’s advice is to get to know your analytics. Look at your rules, decision-making and interactions—and the outcomes of those. Look at the recommendations made and note which ones were followed. Divvy

it up by individual physician types and individual physicians. “You ultimately need to go down to the individual physician level,” he says.

The appropriate exam speeds diagnosis and significantly decreases workflow in the practice in terms of the radiologist having to change the orders after the orders have been placed. “It also improves patient satisfaction,” he says. “Patients don’t show up and then we have to get on the phone to get authorization to change exams or sometimes we’re going to have to send the patient away. That doesn’t happen anymore.”

Physicians are pleased too. “The system has become helpful rather than a disruption,” he says.

Lessons learned

Turning commandments into strategies starts with C-level buy-in, Hentel offers, starting with the chief medical officer. Next is asking for help from similar health systems or hospitals that have done this before. “Be sure not to make this a radiology department project,” he says. “You can lead it, you can champion it, but it has to be a multidisciplinary project across the health system—neurology, cardiology, subspecialty radiology, internal medicine, primary care, ED, rehabilitation medicine, psychiatry and so on.”

Put together a SWAT team within your organization made up of IT and informatics folks who are well-versed in clinical practice, operations and quality improvement. Bring on a

strong project manager who carries weight from the clinical and IT sides. “A project like this is disruptive across all the clinical practice areas, so if you don’t have buy-in from the core team with representation in all the clinical areas, you’re doomed to fail or meet heavy resistance,” he says.

To succeed with imaging CDS, the organization must minimize the interactions physicians have with it, not just key clicks per interaction. “I want it firing for the orders where I believe I have an opportunity for improvement,” Hentel says.

A big part of that is choosing the right system for your needs. “There’s huge variance between the vendors in terms of implementation strategies,” he says. “We chose Medicalis because

they champion the targeted implementation. This is a clinical transformation project, targeting areas of practice that need improvement.”

Pushing practice success

Hentel says now is the time to bring on imaging CDS. “U.S. healthcare needs to change, because we’re in a non-sustainable model. Everybody has to cut the waste out of the system. This is a solid way to make that happen. Sure, we worried about declining volumes with CDS, but we have become known as the practice that’s going to do the right imaging—and we are filling our schedule with appropriate imaging.”

He points out that, with PAMA making imaging CDS mandatory in 2020, “radiology departments will not lose percentages of payments for these advanced imaging exams for not complying—they will not get paid at all. That’s steep. It’s a very big deal.”

Through the process, Weill Cornell realized more than ever before that medicine is practiced at the local level. Local teams make local decisions for local patients. And while tools like imaging CDS can offer slight barriers in terms of workflow, outcomes are better over the long run. “Imaging CDS offers the perfect translation medium to push evidence-based medicine to the community in a digestible way,” Hentel says. “It is the right thing to do for the patient and will move the bar in medicine. It drives more standardization and also allows us to take care of individual patients well. It is not perfect but definitely better. We always need to strive for better.” ■

5 Minutes More With Dr. Hentel

The Future Is Unfolding Fast With Evidence-based Imaging

Where do you see the expanded role of CDS moving into the future?

We will define a new model for creation of evidence. Artificial intelligence will continue to play a huge role. The standard of doing experiments, data collection and waiting for it to publish is going to be compacted. Anecdotally we already see that with the rules we implement. Three weeks later, by looking at the analytics, we know if they are working or not and we can fix them if we need to.

How do you see CDS expanding and improving the practice of radiology?

CDS is important for the ordering provider, but just as important for the radiologist. We need to make sure we’re providing evidence-based recommendations in our reports. If done right, it’s going to improve the quality of the interpretations because we know what information to ask for. The fidelity of the data I’m getting to what the patient has is much higher.

Will we challenge the radiologist at the time of the interpretation of the read?

Yes. I want our radiologists to make standard recommendations for follow up in areas like pulmonary nodules. We want to guide the radiologist to standardize the way we practice and the recommendations we make.

1. <https://www.cms.gov/Research-Statistics-Data-andSystems/Statistics-Trends-and-Reports/CMS-StatisticsReference-Booklet/index.html>
2. AJR 2014;203:345-951