Influencing wisely — the path forward for value-based imaging

Rasu B. Shrestha, MD, MBA

"We change our behavior when the pain of staying the same becomes greater than the pain of changing."

— Henry Cloud

The science of behavior change dictates that most behavior change interventions are complex, and composed of many component behavior change techniques. The way health care needs to be delivered is changing right before our eyes, and healthcare delivery models that reward volume-based care delivery are rapidly evolving to ones that reward value. Perhaps it's time for a bit of soul searching to prepare for the change we know is coming.

The Patient Protection and Affordable Care Act (PPACA) of 2010 happens to represent one of the most significant regulatory overhauls of the U.S. healthcare system since the passage of Medicare and Medicaid in 1965. This law has provisions for the development of accountable care organizations (ACOs). Accountable care entails a keen focus, not on the volume generated out of our imaging centers or hospitals, but on the quality, outcomes and costs across the entire care continuum. In this new model, continuous quality improvement is the linchpin that will enable better clinical outcomes at lower costs. The initiative has the potential to remake the way healthcare is delivered, incentivizing providers of all types to work together to improve health outcomes and generate shared savings.

Learning to unlearn

With healthcare reimbursements on the decline and costs on the increase, the "do more with less" mandate is more real today than ever before. Whether we in imaging are able to save ourselves may be determined not by what we learn, but what we unlearn.

Radiology in particular has traditionally been quick to embrace innovation, and to learn new ways of doing things. Radiology was amongst the first to embrace the digital form factor in healthcare. Digital Imaging and Communications in Medicine (DICOM) essentially came into existence in 1983, through some early work by radiologists and medical physicists from the American College of Radiologists (ACR) and the National Electrical Manufacturers Association (NEMA). Indeed, our embrace of learning in radiology goes even further back, perhaps as far back as to the discovery of X-rays in 1895 by German physicist Wilhelm Röentgen. This stellar discovery gave way to the emergence of a culture of viewing, interpreting and reporting on the very images we capture in radiology. As we progressed from film-based to digital radiology, we were able to learn to garner tremendous efficiencies and leverage technology to dramatically improve productivity.

Modern day Picture Archiving and Communication Systems (PACS) in large part further propagated what was clearly working well for the practice of medicine – capturing images and viewing, interpreting and reporting on them. We have been, in many ways, treating a series of "films" at a time for decades. This image-centric culture in radiology needs to give way to a more patient-centric approach to care. As radiologists, we today often have very little information around the patient as we sit down to interpret a study. Today, much of the patient's information actually resides in clinical information systems outside of radiology. Indeed, core radiology systems do not have much more information around the patient other than just their images

Dr. Shrestha is the Chief Innovation Officer, University of Pittsburgh Medical Center, Pittsburgh, PA, and President of the UPMC Technology Development Center. He is also Chair of the RSNA Informatics Scientific Program Committee; a Founding Member of the Executive Advisory Program, GE Healthcare; a member of the advisory boards of KLAS Research and Peer60; a member of the Board of Directors of the Society for Imaging Informatics in Medicine; a member of the boards of Pittsburgh Dataworks and Omnyx Inc., and a member of the Applied Radiology *editorial board.*

and perhaps their prior reports. Providing true value as imagers calls for fuller context around the images, so we are able to have a more holistic view of the patient. This is where technology can help. Technology needs to enable a more longitudinal view of the patient in the context of the patient's presenting symptoms or the reason for the examination.

We have learned that success in radiology is brought forth by volume, both in the number of studies we interpret in a given period of time, as well as in the speed at which we interpret them. We have learned to become so efficient in our ways, thanks in large part to PACS and other systems, that it has become almost impossible for us to pause, reflect and think about what we need to really do in the best interest of the patient. It is time for a massive amount of unlearning.

Value-based imaging is a brave new world, where the very definition of value is still being contemplated in the complex web of the healthcare delivery systems around us. But there is a tremendous amount of progress being made to define and quantify value.[1,2]

The process of unlearning needs to be taken seriously in radiology, especially if we are to seriously navigate through the choppy seas of value-based healthcare. Perhaps the secret to learning new things is to be willing to unlearn – even if what you know previously brought you success as you knew it then.

Influencing wisely

Key to enabling the new norm of value-based imaging is to study the science of behavior change. Scientists know that rewards can impact everyday behavior.[3] Both primary (eg, food) and secondary (eg,, money) rewards modulate simple behaviors (eg, eating) and more complex social interactions (eg, developing trust). If we extrapolate this to the everyday behaviors of the various individuals involved though the imaging value chain,[1] we realize that patients, ordering physicians, radiologists and specialists all have goal-directed behavior. Arguably, most clinicians actually embrace the "do not harm" oath, and really do want to do what is in the best interest of their patients and of themselves. We have traditionally been rewarding behavior that meets defined volume-based metrics. What is needed, however, is a redefined system that rewards value based behaviors.

Innovation, at the end of the day, is about enabling behavior change, and leveraging better processes and technologies to make it easier to do the right things.

We have a dire need to enable interoperability among our clinical information systems, and to unlock the data that is often buried in siloes of clinical information systems, such that we are able to get to contextualized clinical information around the imaging studies being reviewed. A core focus on workflow is critical, such that we enable behavior that enables collaborative care across care teams, focused around patients. Value must be linked directly to superior outcomes, improved quality and better satisfaction per dollar spent. We need more data transparency, including around utilization data, appropriateness and costs. This calls for a more end-to-end approach around system design in being able to measure, quantify and present actionable information at the point of care, such that we can influence value-based behavior.

A seat at the table

If we do not have a seat at the table, then we will end up being on the menu. Being accountable for the care that we provide requires radiologists to be more visible across the care continuum, as well as in strategic decisions being made across healthcare institutions and across state and federal bodies.

The era of accountable care calls for radiologists to be fully engaged with emergency physicians, hospitalists and primary care physicians (PCPs) as part of a collaborative solution towards appropriate image utilization and improved outcomes. Radiologists have always served as strong, albeit silent, patient advocates around imaging appropriateness, but as healthcare organizations move from fee-for-service models to fee for value, the value needs to be quantifiable and measurable. In guiding and defining the future of radiology, the ACR seeks to affirm the role of radiologists as physician consultants.[4] The ACR's "Face of Radiology" campaign conveys to patients that the "radiologist is the physician expert in diagnosis, patient care, and treatment through medical imaging."

Radiology needs to have a strong voice in enterprise information technology (IT) purchasing decisions, and in policy decisions that impact how care will be provided.

A seat at the table is critical to expressing the logic behind the means to curtail two major policy issues that are driving increased utilization of diagnostic imaging: self-referral[5] and defensive medicine. According to a recent survey,[6] the cost of defensive medicine is estimated at $650-$850 billion, or between 26 and 34 percent of annual healthcare costs in the U.S. A massive cultural revolution, incentivizing a move away from blind defensive medicine, is needed to address a number of cascading key trigger points in support of appropriate imaging. It is not just the swell of patients' demands for more imaging, triggered by consumer directed marketing promoting the availability and benefits of procedures such as full body scans. Nor is it just the disturbing and proven relationship between physician self-referrals and higher imaging utilization,[7] perhaps to feed costs associated with acquiring expensive imaging equipment. Many physicians choose and are taught to practice 'rule-out medicine' as opposed to actual 'diagnostic medicine' in fear of liability and expensive litigations from possible missed findings.

Don't just do something, stand there!

Less is more, generally speaking. Yet, we are inclined towards performing heroics in healthcare by doing 'everything possible' to get to the bottom of it all. Blind heroics may just lead us all to the bottom of it all.

Acclaimed author Atul Gawande, in his recent piece for *The New Yorker* titled "Overkill"[8], talks about how "an avalanche of unnecessary medical care is harming patients physically and financially." Perhaps this epic piece was in part a response to frustration mounting from a firestorm of media frenzy in medical overuse sparked by a series of Tweets in early April by billionaire-entrepreneur Mark Cuban, who advised his followers to have their blood tested for "everything available" every 3 months. Despite noble efforts to spur national dialogue on unnecessary tests such as the American Board of Internal Medicine (ABIM)'s Choosing Wisely[9] campaign, JAMA Internal Medicine's Less is More[10] series and radiology's own Image Wisely[11] and Image Gently[12] campaigns, more needs to be done to push for appropriates and better utilization.

Ordering physicians often have knee-jerk reactions to the ordering panels of tests that may or often may not be appropriate or indicated for the patient. Often, these orders are tried to order-sets within electronic medical record (EMR) systems. A trigger-happy approach toward orders should be nipped in the bud. Ordering physicians want to do what is best for their patients, and presenting them with intelligent personalized data around image order entry appropriateness, alongside easy access to relevant priors will work wonders. Radiologists need to work hand in hand with their clinical counterparts and IT leaders to implement clinical decision support tools that are tightly coupled to the EMR. This is a critical step towards meaningful value based imaging.

Conclusion

Radiology, along with the rest of healthcare, is facing widespread challenges in care delivery, escalating healthcare costs and healthcare reform amid louder calls for newer care models that embrace value-based care that emphasizes rewarding better outcomes, safety and satisfaction. Imaging informatics has a tremendous opportunity to capitalize on what may be the perfect storm of needs and capabilities to lead the charge with new thinking, new technologies and compelling innovations and not just weather the storm of value based care, but come out winning on the other side.

References

1. Shrestha RB. The imaging value chain. *Applied Radiology.* 2014;43(2):23-25.
2. Sarwar A, Boland G, Monks A, et al. Metrics for radiologists in the era of value-based health care delivery. *RadioGraphics.* 2015;35:866-876.
3. Delgado MR. Human reward systems. In: *Encyclopedia of Neuroscience.* Rutgers University, Newark, NJ, USA: Academic Press, 2009.
4. Paz D. The radiologist as a physician consultant. *J Am Coll Radiol.* 2010;7: 664-666.
5. Kirby A. Current issues: Self referral. The American College of Radiology Resident and Fellow Section. http://rfs.acr.org/current/referral.htm. [Online] February 2, 2006. Accessed June 10, 2015.
6. A costly defense: Physicians sound off on the high price of defensive medicine. Jackson Healthcare. [Online] May 27, 2011. http://www.jacksonhealthcare.com/media/8968/defensivemedicine_ebook_final.pdf.Accessed June 10, 2015.
7. Winter A, Stensland J. Impact of physician self-referral on use of imaging services within an episode. Medicare Payment Advisory Commission. April 8, 2009. http://www.medpac.gov/transcripts/self%20referral%20&%20imaging_April%2009_public.pdf. Accessed June 10, 2015.
8. Gawande A. Overkill. *The New Yorker.* May 11 2015. http://www.newyorker.com/magazine/2015/05/11/overkill-atul-gawande. Accessed June 11, 2015.
9. American Board of Internal Medicine (ABIM) Foundation, 2012. http://www.choosingwisely.org/. Accessed June 10, 2015.
10. Grady D, Redberg RF. Less is more — how less health care can result in better health. *JAMA Internal Medicine.* 2010;170:749-750.
11. http://www.imagewisely.org/. Accessed June 10, 2015.
12. http://www.imagegently.org/. Accessed June 10, 2015.