

ASNR Strategic Plan 2013

Strategic Issue #1: Demonstrating the value of neuroradiology in healthcare and to society at large.

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Based on the growing consensus in healthcare circles, the definition of “value” has been distilled to an equation where: $\text{Value} = \text{Benefit}/\text{Cost}$. “Benefit” may be further subdivided into some type of measurable health outcome, plus stakeholder or customer experience or satisfaction. The latter component includes a spectrum of expectations for “satisfaction” which is beyond the scope of this discussion.

Having defined value in this increasingly accepted fashion, we need to identify stakeholders, or customers seeking “value”. Traditionally, these would include referring physicians, patients, payers (private and government), as well as regulators of those payments – these are evolving. Neuroradiology must consider its trainees as stakeholders as well. General radiologists are also stakeholders or “customers” of neuroradiologists.

Having suggested the above, the fundamental attributes of neuroradiology should be considered next. Neuroradiology is a subspecialty within the profession of medicine. The subspecialty’s professional and cultural authority derives from the fact that it is a discipline that concerns itself with helping to develop and clinically test tools used for imaging the anatomy, and pathophysiology of the brain, head and neck, and spine. More specifically, it concerns itself with the use of imaging technology to diagnose disorders of anatomy (including those based on congenital developmental defects) as well diagnoses of various pathophysiologic states. Let’s call these attributes or assets Neuroradiology’s “Information Business”. Finally, our discipline also utilizes the diagnostic knowledge it constantly expands, and its imaging tools, for purposes of minimally invasive intervention and treatment of various disorders in its anatomic sphere of consideration. In these two functions, Neuroradiology defines the lexicon and is the “owner” of the body of scientific knowledge encompassed by neuroimaging and image guided interventional techniques, and should aim to demonstrate the downstream outcomes or value to the health care enterprise from these functions.

To these ends, the profession of neuroradiology created, maintains, and continually refines a consensual, peer-reviewed, empirically rigorous approach that expands the body of knowledge and enhances the credibility of the evidence base for that knowledge. That approach should set standards for defining anatomic terminology, knowledge-based diagnostic lexicon, generally accepted methodologies used for intervening within its sphere of capabilities, and to some degree the criteria for those who can practice in the field.

Neuroradiology should aim for a standardized, accurate interpretation of objective data obtained from the technology that neuroradiology has helped develop. It should provide trusted, credible expertise in that technology, its utilization, and provide interpretive information which transforms into actionable consultative actions based as much as possible on a body of evidence,

while at the same time expanding that body of evidence. Perhaps most importantly, neuroradiology should embrace and develop tactics for measuring the efficiency of its processes and the satisfaction of its stakeholders. This particularly should include the holy grail of measuring the health and satisfaction impact on our patients derived from our actionable consultations, and the health outcomes from our image guided interventions, as well as developing tactics to measure our overall value in societal health, including costs.

The most critical challenge faced by neuroradiologists is the inadequate job to date of demonstrating and documenting the value of neuroradiology. Our focus has been predominantly on technological innovation, demonstration of higher levels of diagnostic image-guided interventional capability while neglecting the downstream impact to individual patients, and healthcare in general of such innovation. Slowly but increasingly, the realization has crept into neuroradiology that some widely used, profitable diagnostic studies, and even interventional techniques, may not be ultimately beneficial to our stakeholders. Cost data are beginning to trump the ability of neuroradiology to demonstrate positive outcome data on population health, as the latter is scarce. Hence, value is increasingly being defined on the basis of cost. Outcomes and cost effectiveness research has not been as incentivized by our current academic processes, where research has centered largely on development of new technology, new techniques, and very granular insights into these processes, without regard for whether such activity ultimately contributes to actionable patient management.

Some low hanging fruit to consider for development of the concepts of value of neuroradiology may be the following.

For the “Information Business” side:

- 1) Standardization of nomenclature for some widely prevalent disorders has occurred, but is not well adhered to. An example would be cervical and lumbar CT and MRI imaging where a number of anatomic/pathologic observations are delivered by neuroradiologists (and others) without use of consensually accepted standards, and with disparate reporting techniques. Our colleagues in mammography are ahead of us in standardized reporting lexicon. ASNR’s participation in the RSNA’s RadLex process for standardization of report content is strongly recommended. ASNR should consider building a registry for the most common and high value neurointerventional procedures.
- 2) The addition of prevalence data in the Summary or Conclusion sections for observations discussed in the body of the report for commonly observed “abnormalities” could greatly help add value. For example, a recent study (McCullough, et al., *Radiology*, v.262, n. 3, March 2012) documented that simply providing prevalence data at the end of a typical lumbar spine MRI report for common findings (disc protrusions, degenerative joint disease) could cut the use of opiate prescriptions significantly. Opiate overuse has been amply documented, has major negative health outcomes in our society, and greatly increases health care costs. Actually measuring the health outcome and cost implications of a simple tactic such as the addition of prevalence statistics to a lumbar spine MRI report could be an example of “added value” of neuroradiology. Similarly, the prevalence of white matter abnormalities in the aging population and its rather poorly

standardized nomenclature, and report variability, without any prevalence data, can fuel anxiety in patients and caregivers, as well as further downstream overutilization of imaging and other diagnostic studies. Another tactic for highlighting the value of neuroradiology's "Information Business" is establishing the role of and guidelines for existing and emerging diagnostic techniques. Example: the increasing focus on head trauma in our population, particularly minimally traumatic brain injury in athletes and others, emphasizes the need for appropriate utilization of the use of routine CT, brain MRI, and advanced techniques such as diffusion tensor imaging. These should be consensually directed by neuroradiologists for appropriate utilization in emergency rooms, and the downstream effects of appropriate utilization management in both health and cost outcomes should be studied. Similarly, appropriateness and utilization of cross-sectional imaging modalities for evaluation of spine injury in the emergency room could be studied in terms of downstream management/cost effects. Tactics to interface patients directly to neuro-radiologists, including "patient friendly" reports that contain hotlinks to vetted web enabled explanations of commonly used neuroradiologic medical jargon might be developed.

- a. ASNR should consider: creating a SWAT team of its members experienced in cost efficacy research, and perhaps engaging a consultant, an expert in the science of process improvement metrics (one with industrial engineering background), to help further identify, promote and measure selected, targeted tactics that demonstrate value derived from our neuro-diagnostic and interventional activities
 - b. ASNR should create or participate in multidisciplinary panels to evaluate imaging for specific diseases and clinical presentations. These Imaging Value panels must produce rigorous, evidence based assessments and recommendations. Consensus panels are inadequate. The panels can begin with major and common diseases such as the evaluation of imaging ischemic stroke, hemorrhagic stroke and GBM.
- 3) Innovation of such common interventional techniques as vertebral augmentation for osteoporotic compression fracture has come under increasing scrutiny. Neuroradiology could take the lead in further defining appropriate patient selection, and measurement of health and cost outcomes. To date, the payers appear to be leading that effort rather than neuroradiologists.
- 4) Other tactics could include:
- a. Demonstrating the impact of a negative study on medical management where obviating further expense or measuring the impact on patient anxiety levels (and their satisfaction) should be included. An early effort should focus on the value of a negative CT, MRI scans in patients with new neurological complaints and in patients with headache.
 - b. Proving faster time from diagnosis to appropriate management pathway (shortened ED or hospital length of stay), and its effects on costs in selected, large volume categories of disease would be beneficial.
 - c. Documenting further cost savings and improved outcomes from certain neuro-interventional procedures (e.g., aneurysm coiling vs. surgery).

The above selected tactics are an example. However, the overriding strategy for organized neuroradiology needs to promote the original purpose of our discipline as discussed earlier in this

report. Neuroradiology should be the recognized discipline to which patients, payers, and trainees turn when credible expertise in the technology of diagnostic imaging and image-guided intervention are required, and when policy decisions about appropriate utilization of our tools and our integrative expertise are sought.