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Editorial:

Journal of Digital Imaging: The First 12 Years and Beyond

THE FIRST 12 YEARS

This issue is the first in the thirteenth year of the *Journal of Digital Imaging* (JDI). In 1987, a publisher at W.B. Saunders Company invited me to be the founding Editor of a new journal; at that time I was the Associate Radiologist-in-Chief at Massachusetts General Hospital. The journal's focus was to be and still is computer applications in radiology.

At about the same time, the Society of Computer Applications in Radiology (SCAR) was coming into existence. Happily, Saunders and SCAR agreed that JDI would be the official journal of SCAR from its inception.

JDI was selected for inclusion in *Index Medicus* during its second volume year. Most new, academic journals are not included, and it is uncommon for one to be chosen before its third or fourth year of publication.

JDI does not deal with how to use MRI, for example, for a certain diagnosis or other clinical matters. Rather, it deals with the broad spectrum of how computers are used in radiology. Indeed, JDI is the single best source of peer-reviewed articles in this area. Each year it has published more articles on these topics than *Radiology*, *AJR*, and *JNM* combined.

Within Radiology, JDI has and continues to make a real difference. The independent Institute for Scientific Information rates

Table 1. Impact Factors and Cited Half Life Values

Journal	Impact Factor	Cited Half Life
Radiology	4.9	6.9
Journal of Nuclear Medicine	3.5	5.6
American Journal of Roentgenology	2.3	7.7
American Journal of Neuroradiology	1.7	5.7
Journal of Digital Imaging	1.3	3.5
Journal of Ultrasound in Medicine	1.0	5.9
Investigative Radiology	0.9	7.3
Pediatric Radiology	0.6	6.3
European Journal of Radiology	0.5	5.4

Data from *Journal Citation Reports*®, 1999.

journals for their utility based on the number of citations in other manuscripts. Their 2 metrics are an *Impact Factor* and the *Cited Half Life*. The Impact Factor is “a measure of the frequency with which the ‘average article’ in a journal has been cited in a particular year.” Cited Half Life refers to “the number of journal publication years going back from the current publication year which account for 50% of the total citations received by the cited journal in the current year.”

According to Impact Factor, JDI is in the top third of Radiology, Nuclear Medicine, and Medical Imaging journals. Its very short Cited Half Life reflects how well it handles a rapidly evolving part of radiology. The values for various journals are provided in Table 1.

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2000 AND BEYOND

As always, JDI will continue to present new computer applications in Radiology. Innovations are exciting. The second equally important role is presenting information on current and evolving computer applications.

The just-completed Special Feature on Quality Assurance (QA) is a case in point. These papers were both educational and proffered techniques that could be directly used by departments in their QA efforts. It included ways to measure parameters in the field that had not been previously available outside of a monitor research facility. The number of comprehensive QA programs in place is small. More specific information on how to easily yet effectively measure various parameters is needed. What should comprise the suite of items routinely tested, and how often should each test be done? These are excellent topics for JDI. Most valuable of all, but largely still lacking, are careful studies of the impact of a QA measure and/or QA program (or the lack thereof).

Many pivotal questions await further thorough comparison studies of the positive and negative results of introducing a computer application. Only a few studies have been done. Is a workstation ergonomically sound? Is soft display (filmless) interpretation as good as, better than, or worse than hard-copy interpretation? Is it faster or slower? Of course, the individual system employed affects the answers obtained. We need to weigh the usefulness of an image processing algorithm or method

against the cost and time required for its use. How frequent, disruptive, useful (etc) were clinician visits with radiologists before and after hospital-wide availability of images? Of images with reports? And so on and so on . . .

Similarly, not nearly enough documentation of the cost benefits of various computer applications has been done. More before and after studies, carefully done, are needed.

Innovative methods of handling images continue to be of high interest. Not enough has been published on advances in workstations or the usefulness of workstation functions, on programs to educate or to aid radiologists, and on computer-aided diagnosis.

Much more on what works in workflow management would be valuable. And now, approaches to and the success of Enterprise-wide systems should be documented. Can Picture Archiving and Communication Systems and Radiology Information Systems be seamlessly adapted to function as modules in Enterprise Information Systems?

I enjoin you to investigate one or more of the above topics or some other topic and to submit your findings to JDI. Together we will use computers to move forward. The opportunity to participate in the many important findings reported in JDI has been gratifying. I look forward with eager anticipation to 2000.

Roger A. Bauman, MD, FACR, FACMI, FACER
Editor-in-Chief