The Society for Computer Applications in Radiology

DESPITE the somewhat protracted development of PACS during the 80s and early 90s, recent advances in computer hardware and software, as well as an increased awareness of the benefits of a digital radiology department, have led to an almost explosive growth in PACS installations over the past 3 years. From a mere handful of filmless departments at the beginning of the decade, there are now many hundreds of PACS installation worldwide, of various degrees of complexity and sophistication.

It has been a long-held belief that the financial restrictions imposed because of health care reform and managed care would drive radiologists to seek additional sources of income, and that teleradiology would be a natural method by which a more cost-effective radiological coverage of small institutions could be performed. Interestingly enough, however, the development and acceptance of teleradiology as the means of supporting radiological enterprises in rural or isolated communities has not grown at the expected rate. The reasons for this lack of anticipated growth are complex. The initial move toward teleradiology occurred at a time when computer hardware and software were still relatively expensive, image quality was marginal, and speed of image transfer was less than ideal. Also, in parts of the country, particularly the rural areas where teleradiology was likely to be most beneficial, the cost of telephone or cable communication was extremely high. As a result, it was often difficult to justify financially a teleradiology system in areas with only a low volume of work. There were also problems associated with archiving of radiographic studies, with respect to the technical difficulties of archiving studies from a different institution with a different (or no) radiology information system, as well as issues of image storage. Also of concern was the medicolegal implementation of an electronic archive of suboptimal images with the "hard copy" at a distant site. As a result, it was not uncommon for an institution to enter into the field of teleradiology merely by digitizing film, and sending the digital images to the central institution for interpretation only. This had many inherent problems, concerning transfer time, the quality of the images presented for interpretation, and the fact that the rural institution was still forced to make and store its own films, with all the associated problems and lack of financial means. At

the same time, the cost of implementing a full-blown "mini PACS" in the rural center was prohibitive.

In addition to cost issues, the political aspects of such a venture also were prominent. Radiology groups that attempted to move into rural communities, possibly where a group of radiologists had previously provided the service, were regarded as "pirates," and antagonistic relationships and even destructive price battles often resulted, further decreasing the financial benefit of installing teleradiology systems.

Finally, it has become apparent to many radiologists involved in such arrangements that referring physicians still prefer the presence of a "warm body" over the impersonal atmosphere created by a television monitor. At our own institution, we provide radiology service for a hospital 93 miles away, and in a small rural community. Although the hospitals are linked by teleradiology, and the entire rural department is interfaced into our host PACS and RIS, we are still obliged to provide a radiologist 3 days a week to perform studies such as barium procedures and to provide a personal relationship with the referring physician. It has been made abundantly clear to us that if we are not willing to provide this service, the hospital would seek other arrangements.

It is clear that with improving technology and increasing competition between network providers, the cost of teleradiology and satellite PACS will decrease significantly over the next few years. Therefore, it is likely that there will be more attempts to deploy teleradiology and PACS into the field, and to provide additional support and coverage to smaller and underserved rural communities. In some cases, especially small communities, it may well be that teleradiology provides the only means of radiological support, but it is interesting, and in some ways gratifying, to know that many physicians still desire one-to-one personal contact with the radiologist.

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