ONLINE EXTRAS

Quality in Radiation Oncology

Defining and measuring QA: A look at initiatives and the impact of new technologies

By Rebecca Schuster, MHA, RTT, and Troy Schmanke, PhD

There is considerable public focus on the quality of health care in the U.S. today, as evidenced by increased media exposure and interest of major health care purchasers. Health care providers are faced with the mounting concern of accreditation, mainly by the Joint Commission on Accreditation of Health care Organizations (JCAHO), which evaluates and accredits more than 15,000 U.S. health care organizations and programs. When annual contributions to the industry are reported to be over $10 billion dollars, attention to the quality of this care is imperative. What does this mean for radiation oncology?

Quality care defined

In radiation oncology, quality care is measured by high patient satisfaction scores, low treatment error rates, accreditation status, compliance with the American Association of Physicists in Medicine (AAPM) Task Group report (TG) TG-40 and TG-53 recommendations, physician satisfaction, employee satisfaction, equipment functionality and the associated amount of downtime. The most important measure is likely patient satisfaction.

The patient defines quality in terms of outcomes (tumor management), symptom control, treatment process education, staff responsiveness, scheduling, environment (clean, quiet, soothing atmosphere, etc.). Clinicians view quality care in terms of the processes in place to assist with quality assurance guidelines. These processes consist of chart/reviews and rounds, therapist chart audits, physics checks prior to treatment and physician peer review. JCAHO guidelines also require chart audits to ensure patients are receiving supportive care (social work, nutrition) and to document other quality initiatives.

The Radiation Physics Center (RPC), part of the Outreach Physics section located at Houston's University of Texas M.D. Anderson Cancer Center, conducts on-site third party independent reviews on beam output data and other dosimetric parameters in radiation oncology departments. This is done as required by the National Cancer Institute (NCI) in departments that receive funding for clinical trials. According to a report published in February of 2003, they currently monitor 1308 institutions in North America and internationally. Visits include a review of dosimetry data for photon and electron beams, planning systems for external beam treatment, brachytherapy sources and planning systems.

The RPC will issue recommendations on ways to improve the quality of radiotherapy treatments. Of the institutions visited, over 97 percent have received one or more recommendations for improvement, with an average of four recommendations per site. During the 2001-2003 period, 82 percent of the institutions reviewed were found to not be in compliance with TG-40 quality assurance guidelines. Another 50 percent were found deficient in the 2 percent tolerance guidelines for wedge transmission, along with various other recommendations. General observations can be made from these data. One is that comprehensive quality assurance (QA) tests recommended by TG-40 are necessary, even though the state in which you practice is not an agreement state and there are no regulations regarding accelerators. The second is that if the results of these QA tests are not compared to current clinical values, then they are basically useless. These results were obtained from cooperating departments with NCI funding.

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Steps for QA in the U.S.

A recent Quality Assurance Demographics Survey (QADS) is investigating some of the issues and procedures in rad onc departments. Four hundred twenty-five surveys were distributed to the membership of the Society for Radiation Oncology Administrators (SROA), the results of which are summarized as follows:*

Eighty percent conduct physician peer review meetings (56 departments responded providing a 13 percent response rate; 73 percent are hospital based and 27 percent from freestanding clinics). During peer review such things as high risk/low volume procedures, unplanned treatment breaks (48 percent), mortality (41 percent), and recurrences either adjacent to or within previously irradiated fields (31 percent) are reviewed. Ninety three percent of the managers reported knowing what constitutes a state reportable event, and 83 percent had conducted a root cause analysis for a state reportable event.

Only 50 percent of the managers knew the AAPM TG-40 guidelines, and only 32 percent tracked compliance with the TG-40 recommendations.

In addition, 41 percent of the departments were accredited with either the American College of Radiology (ACR) or American College of Radiation Oncology (ACRO). Quality indicators being tracked included the following in ranking order: patient satisfaction (95 percent), treatment misadministration (80 percent), physics checks prior to third treatment (73 percent), number of sim and starts (48 percent), patient wait time (36 percent), consistency between what is written in the chart and what is entered into the R/V system (30 percent), port film repeat rate (30 percent), machine overrides (29 percent) and block re-cut rate (7 percent).

Tracking QA initiatives

According to the QADS, 85 percent of departments did use CQI methodology within their departments and 50 percent cross-departmentally in an effort to improve processes to ensure delivery of a quality service. FOCUS-PDCA is the most popular CQI methodology being utilized within health care. Another methodology that is migrating into health care is six sigma. Early adopters are enjoying tremendous success with cost reductions, patient safety improvements, patient and staff satisfaction ratings.

Of particular interest to radiation oncology should be the use of the failure mode and effectives analysis (FMEA), a tool that is embedded in six sigma to identify and prevent errors from occurring. It is recommended by JCAHO and is useful when implementing new technology.

The explosion of newer/complex technology within radiation oncology is rampant and many departments are faced with implementing new services in a rather short time frame. FMEA could assist us in helping to identify what could possibly go wrong *before* implementation and provide the opportunity to correct before the first patient is treated. Eighty percent of delays or errors are caused by 20 percent of our activities. What are your 20 percent?

Large purchasers of health care—employers—want to ensure that their employee health

benefits are contracted with providers who provide quality service and have the data to back it up. Insurance payers are also looking to contract with evidence-based providers—those with the volume and a quality track record. Departments that can provide that information will be ahead of the game and may benefit with higher reimbursement rates. Having said that, tracking our institution's patient outcomes within radiation oncology can be a daunting task. Patients may not be followed for as long a period of time as they used to be. This is due to either physician preference, patients moving geographically or needing to be referred elsewhere for insurance purposes.

Also radiation oncology fields within the cancer registry are no longer required fields. At best we can obtain dosages delivered, but little information regarding complication rates—short or long term—are available to us in most cases. Doing retrospective studies is time-consuming and most non-academic facilities do not have the staff to support such endeavors. Whatever the barriers, we must make this a priority.

There are several software packages available to assist oncology managers in tracking quality assurance issues. The most widely used are IMPAC, VARIS, TMA Technology and various MS Office Applications (Excel, Access). Both IMPAC and VARIS have extensive reports that will provide information regarding demographics (zip code, gender), revenue enhancement (payment, authorizations, co-payments and costs), patient statistics (new/old, curative/palliative, referring doctor), scheduling (equipment utilization, productivity), and treatment information (site specific treatment plans, variances, overrides, dosage).

The impact of new technology

The rad onc field has seen the recent emergence of new labor-intensive technologies like intensity modulated radiation therapy (IMRT). In addition, the AAPM has not had time to standardize and make final recommendations via an official task group report for the QA processes of these types of procedures. This adds additional processes onto an already large workload for many oncology departments.

In addition, there is a staffing shortage in many departments. A recent survey of American Society for Therapeutic Radiation and Oncology (ASTRO) members reveals that practices have a staffing vacancy rate of 18 percent. This represents a need for an additional 1800 therapists. A significant majority of the respondents also felt that the shortage impacted the quality of patient care being delivered in their respective departments. While recruitment numbers are rising in the field, there is also a loss due to movement into management, education, retirement and other fields. The bottom line is that adoption of new technologies requires more skilled man hours. Adoption of resources to streamline and improve quality assurance issues will maximize efficiency and improve performance.

Rad onc procedures are by their very nature complex and it is important for staff (physics, dosimetrists, therapists) to be well prepared and to record the procedures in an accurate and timely fashion. Often it appears that first patients are being rushed into treatment with a newer technology either due to physician insistence or because there are financial incentives with better reimbursement. Treatment and QA policy and procedures should be in place prior to application.

Moreover, patient education should precede treatment. The tools and resources are available for efficient data collection and tracking. With the growing consumer emphasis on quality health care these procedures are likely to become required for treatment and licensing.

Rebecca Schuster, MHA, RTT, is an oncology consultant, and Troy Schmanke, PhD, is a research consultant at TMA Technology, Ltd., Grapevine, Texas.

** Total survey results can be found on the TMA Web site at* www.tmatech.com.

Quality in Radiation Oncology:

<Previous
1 | 2