Measuring Quality Health Care

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Today there is considerable public focus on the quality of health care in the United States. The public is inundated with news about health care quality – in local and national newspapers, on the Internet and in a variety of magazines. *U.S. New & World Report*, *Fortune* and *Modern Healthcare* are just a few of the publications that publish lists of the top 100 hospitals in general and by disease category. In Fort Worth, Texas, the *Star-Telegram* ran a large story reporting on the quality of local Dallas/Fort Worth hospitals. In this local newspaper, an entire section was allocated to reporting outcome data from each of the hospitals and how they performed with regard to cardiology procedures, birth rates, mortality rates, etc.

The question of quality health care also has become a focus for employers and other major health care purchasers. In November 2000 a small group of employers, supported by the Business Roundtable launched the Leapfrog Group. Leapfrog's goal is to initiate breakthroughs in safety, quality and affordability of health care in the United States. The Leapfrog Group is a growing organization of Fortune 500 companies and private and public health care purchasers who are providing health benefits to more than 34 million Americans in all 50 states. This voluntary program mobilizes the large purchasers of health care benefits to alert the health care industry that improvements in safety and value will be recognized and rewarded with preferential use. They are recommending three leaps, or practices: computer physician order entry, ICU staffing with intensivists and evidence-based hospital referrals. The Leapfrog Group maintains that implementing these practices will have the greatest impact on reducing the number of American deaths attributed to preventable medical errors.

Accreditation also is a growing concern for health care providers. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) evaluates and accredits more than 15,000 health care organizations and programs within the United States. The JCAHO is an independent, not-for-profit organization that has been the nation's predominant standards-setting and accrediting body for hospitals since 1951.

Quality Care Defined in Radiation Oncology

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 recommendations (TG-40 and TG-53), physician satisfaction, employee satisfaction, and equipment functionality and the associated amount of downtime. Patient satisfaction is probably the most important measure. 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 before 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 the University of Texas M.D. Anderson Cancer Center in Houston, Texas, conducts on-site third-party independent reviews on beam output data and other dosimetric parameters in radiation oncology departments. Primarily 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 2003, RPC currently monitors 1,308 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 issues recommendations to improve the quality of radiation therapy treatments. Of the institutions visited, more than 97 percent have received one or more recommendations for improvement, with an average of four recommendations per site. During the 2001 to 2003 period, 82 percent of the institutions reviewed were found not to 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. First, 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. Second, if these QA test results are not compared to current clinical values, they basically are useless. These results were obtained from cooperating departments with NCI funding.

A recent Quality Assurance Demographics Survey (QADS) developed by TMA Technology is investigating some of the issues and procedures in

radiation oncology departments. A total of 425 surveys were distributed to SROA members. About 56 departments responded, providing a 13 percent response rate. Of those responding, the following information was gathered: Of participating radiation oncology departments, 73 percent are hospital based and 27 percent are freestanding clinics. The responses indicated that 80 percent conduct physician peer-review meetings. During peer review the following high-risk/low volume procedures are examined: unplanned treatment breaks (48 percent), mortality (41 percent), and recurrences either adjacent to or within previously irradiated fields (31 percent).

A large majority (93 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. Most importantly, 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).

Tracked quality indicators 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 chart documentation and information 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 Radiation Oncology QA Initiatives

According to the QADS, 85 percent of departments used CQI methodology within their departments, while 50 percent used it cross-departmentally to improve processes that may lead to quality service delivery. FOCUS-PDCA is the most popular CQI methodology being used within health care. Another methodology that is migrating into health care is Six Sigma.

Of particular interest to radiation oncology should be the use of the failure mode and effects analysis (FMEA), a tool that is embedded in Six Sigma to identify and prevent errors. JCAHO recommends FMEA and it 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 in helping to identify what could go wrong before implementation and provide the opportunity for correction before treating the first patient. Eighty percent of delays or errors are caused by 20 percent of activities.

Large purchasers of health care (employers) want to ensure that their employee health benefits are contracted with providers who have the data to back up their quality services. Payers also are looking to contract with evidence-based providers – those with volume and a quality track record. Radiation oncology practices that can provide quality data will be ahead of the game and may benefit through higher reimbursement rates. Tracking an 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 physician preference, patients moving geographically or patients needing to be referred elsewhere for insurance purposes. Also, radiation oncology fields within the cancer registry are no longer required fields. At best, users can obtain dosages delivered, but little information regarding complication rates – short- or long-term – are available in most cases. Retrospective studies are time consuming and most nonacademic facilities do not have the staff to support such endeavors. Whatever the barriers, this must take priority.

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Several software packages assist oncology managers in tracking QA data. The most widely used are IMPAC, VARIS, 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, copayments and costs), patient statistics (new/old, curative/palliative, referring doctor), scheduling (equipment utilization, productivity), treatment information (site-specific treatment plans, variances, overrides, dosage). TMA Technology has developed the radiation oncology performance enhancement (ROPE) database as a complement to IMPAC and VARIS to help oncology managers track quality indicators, benchmark departmental processes and print reports for internal use as well as for accreditation. It also helps educate staff about JCAHO, ACR and ACRO standards by linking departmental processes to relevant advisory material and streamlining them to create a more efficient program. Many departments currently are conducting paper

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chart audits and using MS Office applications mainly as data repositories, with time-consuming encoding or data exporting required to view the information as a report.

The Impact of New Technology on Radiation Oncology

The radiation oncology field has seen the recent emergence of highly labor-intensive new technologies such as IMRT, MammoSite and tomotherapy. The AAPM has not had time to standardize and make final recommendations via an official task group report for the QA processes of these procedures. This adds additional processes to an already large workload for many oncology departments. In addition, many departments have a staffing shortage. A recent survey of ASTRO members revealed a practice staffing vacancy rate of 18 percent. This represents a need for an additional 1,800 therapists. A significant majority of the respondents also felt that the shortage affected 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 the 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.

Radiation oncology procedures are complex by nature; it is important for staff (physicists, dosimetrists, therapists) to be well prepared and to record the procedures in an accurate and timely fashion. Often it appears that patients are being rushed into treatment with newer technologies, either due to physician insistence or because there are financial incentives from higher 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.

To learn more about TMA's QA survey of SROA members and the ROPE database, visit its Web site at www.tmatech.com.

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