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Quality Assessment & Improvement Via The Ten-Step Model

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Quality assurance is a process by which departments can derive a sense of pride in what they do, project a positive image to referring physicians and patients, and survive in today's competitive health care market.

Radiation oncology departments are familiar with quality control. To ensure the safe delivery of radiation, they institute policies, procedures, and practices to assure: 1) proper functioning of equipment; 2) competency of those individuals prescribing, planning, and delivering the radiation treatments; and 3) adoption of the standards of practice that are acceptable to the radiation community at large. In addition to these internal controls, radiation oncology departments are held accountable to agencies such as the Nuclear Regulatory Commission, which exercises strict controls on the handling and use of radioactive materials, and state and local regulatory agencies that establish standards to ensure the radiological health of occupational workers and the general population.

Today's health care climate, however, dictates that these practices extend beyond quality control and into the realm of quality assurance, i.e., assurance that all aspects of the service are of highest quality, and thus, the service that is delivered is the best that can be offered.

Quality assurance is a dynamic process that involves a continual assessment of policy, procedure, and practices to identify areas where improvement is needed. Quality assessment and improvement extend across all functions within a department and the institution of which they are a part.

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QUALITY AND THE JCAHO

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) was established in 1953 and has been a driving force in helping health care organizations to implement quality health care. From its inception until the early 1970s, JCAHO standards referred to assessment and improvement of quality of care in general terms, and did not offer any suggestions on how to monitor these activities. In 1975 the organization published its Quality of Professional Services standard, "...requiring hospitals to demonstrate that the quality of patient care was consistently optimal by continually evaluating care through reliable and valid measures."[1] The standard required specific, measurable criteria based on retrospective audits of the outcomes of care for a specific time period.

Because of this method's shortcomings, in 1979 the Commission replaced the Quality of Professional Services chapter with a chapter on Quality Assurance. The standards that it contained offered health care organizations greater flexibility in assessing and improving quality of care, and emphasized that these activities focus on problems affecting patient outcomes.

JCAHO standards were revised in 1985. Because a problem-focused approach did not address other significant issues related to quality of care, the standards were replaced, and a more comprehensive approach was offered. This approach involved a systematic monitoring and evaluation of the important aspects of care. With this approach, health care organizations identified their important aspects of care, collected data on performance relating to the aspect of care, and took necessary measures to improve care.

In response to requests for assistance in determining how the selection, monitoring, and evaluation of the important aspects of care might be accomplished, the JCAHO developed its now well-known Ten-Step Model, and in 1992 it became part of its quality assurance standards. This model included:

- assigning responsibility
- identifying important aspects of care
- identifying indicators to monitor the aspects of care
- collecting and evaluating data
- taking actions to improve care
- evaluating the results of these actions.

Yet another change is about to take place. The stimulus for this change dates back to 1987 when the quality improvement techniques of W. Edwards Deming and Joseph M. Juran, so successful in Japan, were adapted to the health care arena. At that time, the Commission launched its Agenda for Change to: 1) refocus Joint Commission standards, 2) improve survey and decision-making processes, and 3) create an interactive data system based on well-tested indicators of an organization's performance.[1] This Agenda for Change process has been evolving over the past two years, and in 1994 will be complete. Many believe that the JCAHO survey process will then shift from determining whether an organization provides good care to whether it is consistently making efforts to improve the care that is provided.

THE TEN-STEP MODEL APPLIED TO RADIATION ONCOLOGY

Although the JCAHO no longer places emphasis on the ten-step model, and allows more flexibility to organizations in the design of the

quality assessment and improvement process, the model does serve as a means of establishing a program in an organized and systematic way. Here is one way in which this model can be applied to a Quality Assessment and Improvement (QA/I) Program in radiation oncology.

Step 1: Assignment of Responsibility. The overall responsibility for the execution and coordination of the QA/I Program rests with the individual or individuals who assume clinical and administration responsibilities in the department. Direct responsibility for specific areas of the program, however, can be assigned to the supervisors of the sections to which these aspects apply. For example, equipment quality control and treatment planning activities can be assigned to the chief of the physics area, and treatment delivery activities to the chief therapist. All staff members need to be involved in the design and execution of the plan in order to foster greater acceptance and participation.

There may be other hospital departments that have quality control responsibilities within radiation oncology, such as a biomedical engineering department, which monitors medical devices or repairs and maintains major equipment. These responsibilities should also be included in the overall plan.

In a busy department, it is often difficult for everyone to meet to design and implement the QA/I Plan. A possible solution is to form a department QA/I Committee that is representative of all areas of the department (physician, secretarial, physics, treatment, simulation, and nursing). This committee may also be responsible for determining areas needing assessment and improvement, determining the monitoring methodology, evaluating the data, brainstorming, and selecting possible solutions to improve the quality of care. Depending on the organizational structure of the department, the QA/I Committee may also have the authority to institute a change in practice, policy, or procedure. The QA/I Committee may need to report to the Executive Committee of the department for input and final approval.

Step 2: Delineate Scope of Care. A narrative should be prepared that delineates the department's scope of patient care, including:

- the services offered
- the credentials of the individuals performing the services
- a definition of the patient population served
- the commonly treated cancer sites
- the hours of operation
- a list of the major equipment
- a definition of the processes of referral, consultation, simulation, treatment planning, treatment, and follow-up.

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Step 3: Identify Important Aspects of Care. According to the JCAHO, monitoring and evaluation should focus on important aspects of care. Priority should be given to those aspects of care that 1) occur frequently or affect large numbers of patients and 2) are high-risk and have tended to produce problems for staff or patients.[2]

Earp and Gates, in the *Development of a Quality Assessment Plan,* state that aspects of care, "...include the major operating functions of the department and clinical activities considered the most important in providing patient care" and "...should focus on clinical activities having the greatest impact in the department."[3] Although the important aspects of care may vary from department to department, most facilities will need to consider: consultations, equipment, simulation, treatment planning/dosimetry, treatment delivery (teletherapy), nursing and patient education, brachytherapy (conventional and high dose rate), radiation safety, general safety, and follow-up (short and long term).

Step 4: Identify Indicators and Criteria. Next, indicators should be determined. JCAHO defines an indicator as a "...measurable variable relating to the structure, process, or outcome of care,"[2] in other words, the activities, events, and outcomes that relate to the aspect of care. These indicators may vary from department to department. Indicators are further defined through criteria and are the means by which indicators are measured and evaluated.

As an example, one aspect of care, simulation, may be assigned to be the responsibility of the supervisor and staff. Indicators would include accuracy and completeness of information gathered at simulation. The criteria:

- Parameters of treatment field defined at simulation require no modification or adjustment for treatment.
- Simulation films are properly labelled.
- All necessary information required for treatment set-up, shielding blocks and treatment planning is gathered and properly recorded.

Step 5: Establish Thresholds for Evaluation. Departments must then decide acceptable levels of compliance with the criteria established in Step 4. There should be agreement on what the threshold is and if this threshold is attainable within the confines of the operation. Thresholds may be set by the department as a whole, by the department QA/I Committee, or by the section of the department that is responsible for monitoring the indicator. Thresholds should be realistic; as assessment and improvement occur, they can be raised to higher levels.

As an example, the level of compliance for obtaining a patient's informed consent for treatment before treatment planning might be set at 100 percent. However, the conformity of simulation treatment field parameters with treatment set-up would not be set at 100 percent, because experience tells us that there are often variables that require some slight modifications. More realistically, the threshold would be set at 90 or 95 percent. Failure to attain these

established thresholds would necessitate further assessment to determine whether changes in policy, procedure, and/or practice are indicated.

Step 6: Collect and Organize Data. JCAHO recommends that "...appropriate staff members must determine the following for each indicator: the data sources, the data collection method, the appropriateness of the sampling, the frequency of data collection, and the process for comparing cumulative data with the thresholds for evaluation".[2] The department QA/I Committee should make these decisions, and the supervisors of the section to which the criteria apply should collect and organize the data.

Leebov and Ersoz, in their publication *The Health Care Manager's Guide to Continuous Quality Improvement*,[4] offer many ways that data can be collected. In a Radiation Oncology Department, data collection to determine the reasons contributing to errors in treatment set-up or calculations could be accomplished through a treatment incident reporting system. Here, a written report is made each time a treatment or calculation deviates from the prescription or treatment plan. Another data collection technique that helps reduce the number of retakes is to tabulate the reasons why verification films are not approved. To uncover the patients' impressions of care, devise a patient satisfaction questionnaire to be completed by the patient at the end of a course of treatment.

Step 7: Evaluate Care. The collected data should by evaluated by the department QA/I Committee whose representation has the expertise to evaluate whether an area needing improvement exists. Failure to achieve an established threshold is a definite indication that improvement in the quality of care is needed. Evaluation of the data may indicate the need for monitoring in a different direction.

Step 8: Take Actions to Solve Identified Problems. Once it has been decided that there is an opportunity to improve care, the QA/I Committee has the responsibility to determine the corrective measure(s) that are appropriate to the factors contributing to the problem. "A plan of corrective action identifies who or what is expected to change; who is responsible for implementing action; what action is appropriate in view of the problem's cause, scope and severity; and when change is expected to occur."[2]

Step 9: Assess the Actions and Document Improvement. It is not enough to institute a change that may correct a problem. One must also determine whether the corrective action was successful. Such a determination can be done only through further monitoring and evaluation.

Quality assessment and improvement will help health care providers to become more efficient in the care that they deliver.

An example of this process involves the monitoring of blood counts of patients who are under treatment.

A department decided that these patients should have blood counts every five treatments, and set the threshold for this criteria at 80 percent. Since the department did not have registered nurses assigned to it, infusion center nurses were instructed on the management of the side effects of radiation therapy. They became involved with patient education and the collection of the blood for the counts. About one year later, the percentage of patients receiving weekly blood counts rose from about 35 to 60 percent. This increase served as a justification to have a registered nurse assigned to the department as a convenience for the patients. About a year after the assignment of a nurse, the established threshold had not been attained. Monitoring revealed that the required doctor's order was not being consistently written, and was the probable reason for the inability to attain the threshold. It was then decided to establish a standing order that all patients under treatment would have weekly blood counts done unless otherwise ordered by the radiation oncologist. Shortly after this change was made, 85 percent of the patients were receiving weekly blood counts.

Step 10: Communicate Relevant Information to the Organization. Quality assessment and improvement are organization-wide activities and, as such, should be coordinated by the CEO of the organization. The efforts of each department in the organization must be communicated to the appropriate individuals. The channels of communication and the reporting system need to be clearly defined in the organization's quality assurance plan.

THE FINAL WORD

The foremost objectives for continuous improvement should be 1) to improve overall capabilities by raising the level of outputs of the process and 2) to achieve desirable results consistently and predictably by reducing and controlling the variability built into the process.[4]

Quality assessment and improvement will help health care providers to improve the quality of care that they give as well as to become more efficient in the care that they deliver, thereby increasing their productivity and reducing the cost of health care. In other words, we will be doing more with less.

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