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Assessment of “Best Practice” Treatment Patterns for A “Radiation Oncology Community Outreach Group” (ROCOG) Engaged In Cancer Disparities Outcomes

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Abstract

Purpose/Objective—Minority cancer patients have higher recurrence rates than the general population and are more likely to be treated at community centers where the standard of care has been reported to be inferior to that at academic centers. These issues are being explored by ROCOG, a consortium of 5 Community Radiation Oncology (RO) centers participating in an NCI funded Disparities Grant. As a QA/QI Initiative, this study was undertaken to ensure that treatment was at a "best practice" level.

Materials/Methods—Using ACR Accreditation Criteria, a first self-evaluation was done on 10 randomly selected cases at each of five radiation oncology clinics for patients treated between Jul-02 and Dec-03. Results were analyzed and presented to the centers with recommendations for improvements in Apr-04. As part of an application to the ACR for accreditation, a second self-evaluation was performed on randomly selected cases treated between Jul–Dec-04. ACR surveyors conducted the last randomly selected case evaluation.

Results—All centers had acceptable standards at baseline. The ROCOG average compliance rate (avg CR) at first evaluation was 88% versus 93% for ACR Accredited Facilities (AAF). At re-evaluation, the ROCOG avg CR was 95% versus 93% (AAF). The final evaluation rated ROCOG avg CR as 92% versus 90% (AAF). All five sites received ACR accreditation.

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Conclusions—Despite a small sample, patients served by these institutions, regardless of minority status, received radiation oncology care at or above the accepted standards. A QA/QI initiative using ACR accreditation to ensure “best practice” levels led to improved standards. Accreditation is one method that could be used to support a “pay for performance” program.

Keywords

Quality assurance; Quality improvement; Accreditation; Quality Care; Radiation Therapy; Minority Cancer Care; ACR

Introduction

Every year more than a million Americans are diagnosed with cancer and about half of them will die from it [1]. On the other hand, significant improvements in treatment and survival have been made over the last decade and have caused a steady decline in cancer death rates [2,3]. Nevertheless, racial and ethnic minorities have benefited significantly less than others from these advances. Racial disparities in cancer screening and treatment, often due to reduced access to medical care, have led to diagnosis at a more advanced stage of disease and resulting higher recurrence rate for ethnic and or economically deprived subpopulations compared to the general population [4–7]

The report produced by The Institute of Medicine in 2002 titled “Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care” indicated that minorities were less likely than whites to receive needed services, including clinical services that were equally effective for all racial and ethnic groups. Despite the abundant evidence for documented health disparities in racial and ethnic groups, there is little evidence describing successful interventions that address health disparities [8–10].

In January 2000, the National Institutes of Health (NIH) instituted a plan to eliminate persistent health disparities through research training, medical research, and dissemination of medical information. While Academic health centers have played a major role in this effort, the standard of care at community centers that also treat a considerable number of racial/ethnic minority and economically disadvantaged subpopulations has been reported to be inferior to that at multicenter academic institutions [11–13].

The NCI's Cooperative Planning Grant for Cancer Disparities Research Partnership (CDRP) Program, issued by the Radiation Research Program, supports the planning, development and the conduct of radiation oncology clinical trials in Community Cancer Centers, which care for a disproportionate number of medically underserved populations and have not been traditionally involved in NCI-sponsored research. These centers, with the help of mentoring institutions, are expected to develop an infrastructure during the funding period that will allow continuation of these efforts once the funding period has been completed [14].

A consortium of five Community Radiation Oncology Centers participates in the Radiation Oncology Community Outreach Group (ROCOG), an NCI funded Disparities Grant program, in Western Pennsylvania. The consortium includes the grant recipient UPMC McKeesport Hospital (McKeesport), the Murtha Pavilion Cancer Center (Johnstown), both with their Radiation Oncology departments managed by University of Pittsburgh Medical Center, Somerset Oncology Center (Somerset), a West Penn Allegheny Health System directed community oncology center, Jameson Memorial Hospital (New Castle), and Mercy Hospital (Pittsburgh metro), which are both independent hospitals with the Radiation Oncology departments staffed by University of Pittsburgh Medical Center physicians.

Based on information from the Federal census the 2 towns (New castle and Johnstown) and surrounding rural areas (Lawrence, Cambria, Somerset and Indiana) served by Jameson, Somerset and Murtha are populated mostly by poor rural residents (often elderly) with a higher percentage of socio-economically deprived subpopulations (11.9%–17.3%) compared to the state average (11%). The other two facilities McKeesport and Mercy serve areas that contain a significant minority sub population of urban African American in Allegheny County (12.4%) that is also higher than the state average of 10% [15].

The purpose of this grant program was to build infrastructure for clinical research at these 5 community centers which serve a considerable number of the disparities population in Western Pennsylvania.

Within their principles ROCOG intended to integrate the centers into radiation oncology clinical research, to increase radiation oncology services for underserved minorities and low income individuals, and to promote quality of radiation oncology service at the participant facilities.

One of the Quality Assurance/Quality Improvement (QA/QI) initiatives outlined in the grant was designed to ensure that a “best level” of Radiation Practice existed for all the centers. Using ACR Accreditation evaluation criteria, we reviewed the 5 centers as a baseline and progress following interventions. We are reporting the process of this initiative and its outcome.

Methods

This Project was approved as a Quality Improvement Study by the "QI Review committee of the Quality Patient Care Committee of the UPMC" for 2 of the grant participants whereas the 3 other sites that did not belonged to UPMC had their separate approval as a QA initiative from their respective committees.

A single radiation oncologist, trained at Jameson by an experienced surveyor for the ACR accreditation program at Jameson, performed all site self-evaluation surveys for this study. This reviewer was affiliated with the Grant, but not with any of the surveyed facilities. The self-evaluation consisted of completing a standard set of questions on each of two randomly selected disease sites (head and neck, breast, prostate, lung, and generic). These cases covered patterns of practice, approaches to management and delivery of radiation treatments as well as involvement of physicists in treatment and Quality Assurance activities (case metrics). There were also additional questions directed at the infrastructure and general QA/QI activities (institutional metrics) that are not covered by this report.

The initial internal evaluation of the five ROCOG community facilities was performed during January to March 2004 on randomly selected cases that had been treated between July 2002 and December 2003. For the charts selection process it was required that each facility should provide a list of 50 cases consisting of 10 randomly select cases for each of the 5 disease sites (described above) from the total number of patients treated between July 2002 and December 2003. This was performed by a nurse or a department manager at each ROCOG community. Out of this list, a third party performed another random selection of 2 cases of each disease site (head and neck, breast, prostate, lung, and generic) that was used for review. The 10 cases were reviewed at each facility using ACR Accreditation Criteria to establish the level of care at these centers. The results were analyzed and presented to the centers with recommendations for improvements in April 2004.

The second internal evaluation was completed between January and March 2005, using the same process for chart selection and identical criteria for reviewing cases treated between July and December 2004. This was submitted as part of a formal accreditation to ACR. The third

evaluation performed by ACR had the same chart selection process described above for the 50 cases; however, the random selection of the 10 cases for review was carried out by the ACR headquarters staff as part of the ACR accreditation process.

Results

A table was created to record the average scores from reviews of the ten charts for each ROCOG facility (A–E), for the three sets of evaluations (self-evaluations 1 and 2, and the ACR on site survey). In addition, it includes the average scores obtained for ACR Accredited Facilities (AAF). The ACR updates AAF scores on a regular basis so that new applicant facility scores can be compared to those from sites accredited during roughly the same time period. The first set of AAF data was the standard for comparison with the first and second self evaluations the second set was for the ACR on site survey. Abbreviated descriptors of the evaluation items are included in the On Site Case Review column (Table 1).

The first evaluation demonstrated an acceptable level of practice at each of the 5 centers (Table 1). These sets of metrics measured patterns of practice and quality issues and provided a semi-quantitative tool for comparison and analysis. The total average compliance rate for the five facilities was 88% varied from (85% – 93%), compared to the 93% average for ACR accredited facilities. The ROCOG sites exceeded AAF averages in 78% of the compliance criteria.

The second internal evaluation showed that each of the five institutions improved after the initial survey. The compliance rates were 86% – 99% (ROCOG average 95%) compared to AAF average (93%) and exceeded the AAF average in 83% of the compliance monitors. The third evaluation was completed by 2 surveyors (a Radiation Oncologist and a Medical Physicist) during the on-site visits that took place in October (Jameson, Mercy and Somerset) and November (McKeesport and Murtha) of 2005. The average compliance rate for ROCOG sites was 92% (89%–95%) compared to an average of 90% for the AAF. ROCOG averages exceeded the AAF averages in 86% of the compliance standards of practice. There was no significant difference in the average evaluation scores between the ACR on-site review and the second internal evaluation (Table 1). A final report was issued after the on-site survey and granted ACR accreditation for three years to each of the 5 ROCOG participating facilities. Each institution was encouraged to review the ACR recommendations for improvement and to develop a corrective plan for any deficiencies cited in the report. We decided to pursue a re-evaluation specific for the ACR recommendations as well as the corrective actions for the cited deficiencies. The re-evaluation was completed in July 2007; the same previous process was used in which 10 random charts were reviewed by the same radiation oncologist that did the first 2 evaluations within a determined period (June 2006–February 2007). The ACR deficiencies and recommendations cited in the report included aspects from case findings, Physics QA, and institution related metrics that varied from site to site (table 2).

Discussion

Although academic health centers have lead the efforts to identify and reduce disparities, many community centers can play a significant role in developing models of strong cancer programs to reduce the burden of cancer disparities within the U.S. The CDRP program of the NCI funded ROCOG is designed to promote radiation oncology clinical trials at these community level institutions.

A QA/QI initiative, outlined in this grant, was designed to establish a program to ensure a “best level” of practice at these 5 community sites using ACR Accreditation criteria as a benchmark. The ACR Accreditation program, established in 1986, was based on the Patterns of Care Study established by Dr. Simon Kramer in 1976 [16]. The evaluations have changed substantially

since 1986, but the intent of measuring quality has not changed. The program is voluntary and recognizes “quality” radiation practices. Surveys include recommendations for improvement in treatment practices, quality issues and patient outcomes based on nationally recognized standards [17]. As part of the ACR application, case and institutional metrics are collected and submitted to ACR, which compiles the data and sends a Radiation Oncologist and a Physicist Surveyor for an on-site visit. The ACR Staff for Radiation Oncology Practice Accreditation compiles all data from the application and the on-site survey. The Radiation Oncology Practice Accreditation Committee reviews the draft report, makes recommendations and a final report is issued to the facility either granting or deferring accreditation. Tables showing comparisons between the facility's staffing, equipment ratios and the facility's compliance with the ACR Practice Guidelines and Technical Standards are provided. Additionally, pooled data from the ACR accredited facilities are included for comparison along with comments and recommendations regarding the reviewed patient cases as well as recommendations for improvement. Facilities that are not granted accreditation receive specific recommendations. When the recommendations are addressed to the satisfaction of the ACR committee, the facility may be granted a 3-year accreditation.

Our study demonstrated that the 5 facilities already maintained an acceptable level of quality in radiation oncology care and were able to improve the quality of care in their practices. A weakness of the current study is the low number of cases reviewed, and there is also a potential for a selection bias when charts were selected. The 10 cases of each disease site were selected on a random basis for the three evaluations. For the first two self evaluations a third party randomly selected the 2 out of 10 cases of each disease site to be reviewed. The ACR selected the final 2 cases reviewed at the site visit. Given the low numbers and the requirement for a randomized selection, no attempt was made to assess actual disparate cases for this study. Therefore we can only claim that the standard of practice was high and that this same standard is available to all members of the community irrespective of socio economic or ethnic status. The re-evaluation demonstrated that the facilities maintained a continuous quality improvement initiative with effective corrective plans to guarantee the quality of care in their practices.

There has been a gradual recognition in academia and in the public sector that quality care in medicine is not only efficient, but provides optimal outcomes at reasonable cost to the patient [18–22]. Furthermore, the use of evidence based treatment guidelines is the most effective way for achieving this goal [23,24]. Historically, efforts seeking improved care have often been time consuming and economically unrewarding. There is now a quantum shift in the third party health care paradigm where reimbursement may be equated to performance based on the level of quality care. A voluntary pilot study was recently completed for Medical Oncology [25]. This quality improvement initiative included measurements derived from clinical guidelines or published standards, feedback, and improvement, which creates a culture of self-examination and progress leading to excellence in cancer care.

A similar effort is under the review of a multi-organization task force for Radiation Oncology, aiming to define national standards of quality care based on best evidence for radiation treatment and the emerging technologies for selected major cancers. Preliminary results have shown a potential positive impact on the shift of national practice towards new technologies and techniques designed to improve cancer care assuming they are sensibly used [26–28].

Radiation Oncology Centers have the opportunity to validate the level of care at their facilities using the American College of Radiology or the American College of Radiation Oncology Accreditation Programs. Historically, the ACR was a more demanding and considerably more expensive option, but the gap has narrowed both in terms of the depth and breadth of the requirements and also the cost [29]. The major difference at this time is that the ACR demands

a mandatory on site evaluation. Although the current number of radiation oncology practices is unknown, based on a ACR study for Patterns of Care funded by NCI carried over 2003–2005 there were an estimated 3200 practices in the United States and this number has grown [Paul E. Wallner, personal communication]. Currently there are 202 facilities accredited or under review by the ACR (Fern Jackson, personal communication) and 228 by ACRO [30]. Hopefully the gathering momentum of the “pay for performance” movement will provide the incentive for more centers to gain accreditation.

Conclusion

Despite a small sample, this study demonstrates that all patients from the five ROCOG communities were receiving radiation oncology care at or above accepted standards at the Community Radiation Oncology facilities that would, probably, treat most disparities cases. A practice evaluation in the form of a QA/QI initiative, using ACR accreditation criteria, can lead to improvements in compliance with accepted standards.

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References

1. Weissman JS, Betancourt J, Campbell EG, et al. Resident physicians' preparedness to provide cross-cultural care. *Jama* 2005;294:1058–1067. [PubMed: 16145026]
2. Edwards BK, Brown ML, Wingo PA, et al. Annual report to the nation on the status of cancer, 1975–2002, featuring population-based trends in cancer treatment. *J Natl Cancer Inst* 2005;97:1407–1427. [PubMed: 16204691]
3. Wingo PA, Howe HL, Thun MJ, et al. A national framework for cancer surveillance in the United States. *Cancer Causes Control* 2005;16:151–170. [PubMed: 15868456]
4. Heimann R, Ferguson D, Powers C, et al. Race and clinical outcome in breast cancer in a series with long-term follow-up evaluation. *J Clin Oncol* 1997;15:2329–2337. [PubMed: 9196147]
5. Levine RL, Wilchinsky M. Adenocarcinoma of the prostate: a comparison of the disease in blacks versus whites. *J Urol* 1979;121:761–762. [PubMed: 458946]
6. Jandorf L, Fatone A, Borker PV, et al. Creating alliances to improve cancer prevention and detection among urban medically underserved minority groups. The East Harlem Partnership for Cancer Awareness. *Cancer* 2006;107:2043–2051. [PubMed: 16977600]
7. Dignam JJ, Colangelo L, Tian W, et al. Outcomes among African-Americans and Caucasians in colon cancer adjuvant therapy trials: findings from the National Surgical Adjuvant Breast and Bowel Project. *J Natl Cancer Inst* 1999;91:1933–1940. [PubMed: 10564677]
8. Institute of Medicine. *Unequal treatment: confronting racial and ethnic disparities in health care*. Washington, DC: National Academies Press; 2002.
9. Betancourt JR, Carrillo JE, Green AR, et al. Barriers to health promotion and disease prevention in the Latino population. *Clin Cornerstone* 2004;6:16–26. [PubMed: 15707259]discussion 27–19
10. Villarruel AM. Introduction: Eliminating health disparities among racial and ethnic minorities in the United States. *Annu Rev Nurs Res* 2004;22:1–6. [PubMed: 15368765]
11. Bennett CL, Crane JM. Quality improvement efforts in oncology: are we ready to begin? *Cancer Invest* 2001;19:86–95. [PubMed: 11291561]
12. Betancourt JR, Maina AW. The Institute of Medicine report "Unequal Treatment": implications for academic health centers. *Mt Sinai J Med* 2004;71:314–321. [PubMed: 15543432]
13. Hewitt, M.; Simone, JV. *Ensuring Quality Cancer Care: National Cancer Policy Board*. Hewitt, M.; Simone, JV., editors. Washington, DC: National Academy Press; 1999.

14. National Center on Minority Health and Health Disparities. [Accessed Aug 5, 2006]. Available at <http://ncmhd.nih.gov/>.
15. U.S. Census Bureau Statistics. [Accessed Aug 5, 2006]. Available at <http://www.census.gov>.
16. Kramer S, Herring DF. The patterns of care study: a nationwide evaluation of the practice of radiation therapy in cancer management. *Int J Radiat Oncol Biol Phys* 1976;1:1231–1236. [PubMed: 993097]
17. ACR American College of Radiology. [Accessed Aug 5, 2006]. Available at <http://www.acr.org>.
18. Brush JE Jr, Krumholz HM, Wright JS, et al. American College of Cardiology 2006 principles to guide physician pay-for-performance programs: a report of the American College of Cardiology Work Group on Pay for Performance (A Joint Working Group of the ACC Quality Strategic Direction Committee and the ACC Advocacy Committee). *J Am Coll Cardiol* 2006;48:2603–2609. [PubMed: 17174211]
19. DoBias M. IOM's pay-for-performance fix. Plan would trim all payments, pool money for rewards. *Mod Healthc* 2006;36:8–9.
20. Romano M. Bridging a quality movement. Collaboration seeks to make pay-for performance a mainstream practice. *Mod Healthc* 2006;36:14.
21. Stoker J. Pay for performance--Medicare's new payment model? *Home Healthc Nurse* 2005;23:283. [PubMed: 15891471]
22. Thrall JH. The emerging role of pay-for-performance contracting for health care services. *Radiology* 2004;233:637–640. [PubMed: 15564401]
23. Timmermans S. From autonomy to accountability: the role of clinical practice guidelines in professional power. *Perspect Biol Med* 2005;48:490–501. [PubMed: 16227662]
24. Timmermans S, Mauck A. The promises and pitfalls of evidence-based medicine. *Health Aff (Millwood)* 2005;24:18–28. [PubMed: 15647212]
25. Neuss MN, Desch CE, McNiff KK, et al. A process for measuring the quality of cancer care: the Quality Oncology Practice Initiative. *J Clin Oncol* 2005;23:6233–6239. [PubMed: 16087948]
26. Glatstein E. The return of the snake oil salesmen. *Int J Radiat Oncol Biol Phys* 2003;55:561–562. [PubMed: 12573740]
27. Owen JB, Wilson JF. Measuring Quality of Care in Radiation Oncology- A Profession in the Forefront.[Abstract]. *Int J Radiat Oncol Biol Phys* 2005;63:S384.#2261
28. Owen JB, Wilson JF. Improving quality of care: Challenges to implement quality indicators. [Abstract]. *J Clin Oncol* 2006;24#16030
29. Ellerbroek NA, Brenner M, Hulick P, et al. Practice Accreditation for Radiation Oncology: Quality Is Reality. *Journal of the American College of Radiology* 2006;3:787–792. [PubMed: 17412169]
30. A.C.R.O. American College of Radiation Oncology. [Accessed Feb 7, 2007]. Available at <http://www.acro.org>.

Table 1
Case reviews for RCOG evaluations (1 and 2) and ACR survey score results

	On Site Case Review	ACR Accredited Facility Avg*	ACR Accredited Facility Avg	A Eval. #1	A Eval. #2	A ACR Eval.	B Eval. #1	B Eval. #2	B ACR Eval.	C Eval. #1	C Eval. #2	C ACR Eval.	D Eval. #1	D Eval. #2	D ACR Eval.	E Eval. #1	E Eval. #2	E ACR Eval.
+	Disease stage stated by the radiation oncologist?	98	95	80	90	100	80	89	100	100	100	75	100	100	100	67	100	100
	Patient staged correctly?	97	94	80	90	100	80	89	67	100	100	67	100	100	100	67	90	100
	Appropriate and adequate pathology reports?	99	99	100	100	100	100	100	75	100	100	100	100	100	100	100	100	100
	Pre-treatment performance status stated in chart?	58	63	0	100	0	0	30	0	0	100	100	100	100	90	0	90	60
	Patient's informed consent in chart?	99	88	50	100	100	100	100	100	100	100	100	100	100	90	100	100	100
	Pertinent and thorough history?	98	95	100	80	80	90	100	50	100	100	100	100	100	100	100	100	100
	Treatment volume appropriate?	99	96	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Dose and fraction size appropriate for the disease stage?	99	97	100	90	100	100	80	100	100	100	100	100	100	100	100	90	100
	Proper immobilization/positioning?	79	90	100	90	60	100	100	100	100	100	100	100	100	100	100	100	100
	Port films done?	79	93	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Port films signed by the radiation oncologist?	98	98	100	100	100	100	100	100	100	90	75	100	100	100	100	100	100
	Port films dated by radiation oncologist?	95	92	100	100	100	100	100	100	0	25	89	100	100	100	100	78	100
	Treatment field covers all clinical disease?	99	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Chemotherapy use/type documented?	92	85	83	100	88	80	100	100	100	100	50	100	100	100	40	100	80
	Adequate documentation of weekly exam during treatment?	97	93	100	100	100	100	100	100	100	100	100	100	100	56	100	100	100
	Radiation oncologist's summary at end of treatment?	99	98	90	90	100	100	100	100	100	100	100	100	100	100	100	90	100
	Follow-up plan documented?	99	97	90	100	80	100	100	100	90	100	100	100	90	100	100	100	100
	Radiation oncologist's follow-up within 3 months?	95	88	80	100	60	90	100	100	70	100	100	100	100	100	100	86	90
	Appropriate follow-up by the radiation oncologist?	96	84	90	100	90	100	100	100	38	100	75	100	100	89	100	100	70
§	Pathological size of primary documented?	96	96	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Final margin status stated?	99	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Hormone receptors documented?	90	88	50	100	0	100	100	100	100	100	100	100	100	100	100	100	100
	Menopausal status stated?	88	85	100	0	100	0	100	100	NA	50	NA	100	NA	100	100	100	NA
	Breast cancer family history obtained?	97	89	100	0	100	0	100	50	100	100	100	100	100	100	100	100	100
	Use/non-use of hormonal therapy reposition?	69	70	50	0	50	100	100	50	0	50	100	100	100	100	100	100	0
[]	Hormone therapy documented?	93	83	100	50	50	100	100	50	100	100	100	100	100	100	0	100	100
	Recent pre-treatment prostate specific antigen documented?	96	97	100	100	100	100	100	NA	100	100	100	100	100	100	100	100	100
	Patient's potency history before Radiotherapy documented?	65	55	0	50	0	0	0	NA	0	100	100	0	100	100	50	100	100
	Potency after treatment documented?	71	54	0	0	NA	0	0	NA	0	NA	NA	0	100	NA	0	NA	NA
	Prostate pts only: Contrast used for simulation?	83	52	0	0	NA	0	NA	NA	0	NA	0	100	100	0	0	NA	50
	On Site Case Review	ACR Accredited Facility Avg	ACR Accredited Facility Avg	A Eval. #1	A Eval. #2	A ACR survey	B Eval. #1	B Eval. #2	B ACR survey	C Eval. #1	C Eval. #2	C ACR survey	D Eval. #1	D Eval. #2	D ACR survey	E Eval. #1	E Eval. #2	E ACR survey
+	Signed/dated in prescription?	99	99	100	100	100	100	100	100	100	100	100	90	100	100	100	100	100
	Treatment site or volume in the prescription?	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Planned total dose in prescription?	97	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Total # of fractions in prescription?	94	94	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Dose/fraction documented in prescription?	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Mode and energy documented in the prescription?	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Treatment plan simulation performed?	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Isodose plan, signed/dated by physicist and radiation oncologist?	96	93	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Isodose plan correctly used for dose calculation?	99	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Dosimetry calculations documented?	99	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Dosimetry calculations independently checked?	96	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Clear calculation /data used for monitor setting?	97	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Treatment fields shaped?	92	92	100	100	100	80	100	100	70	100	100	78	88	90	89	100	100
	Diagrams and/or photos of fields documented?	98	93	100	100	100	60	100	100	90	100	100	100	100	100	100	100	100
	Diagrams and/or photos correctly labeled?	98	93	100	100	100	67	100	100	90	100	NA	100	100	100	100	100	100
	Delivered and prescribed dose agree?	97	97	100	80	90	100	100	50	100	90	100	100	90	100	100	90	100
	Accumulated dose to sensitive structure recorded?	86	76	100	100	100	100	100	100	100	100	0	67	100	67	100	100	100
	Does summary include all treatment to volume?	98	97	90	80	100	100	100	100	100	100	100	100	100	100	100	100	100
	Weekly physics check on charts?	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Chart checked by physicist at completion?	95	89	90	100	100	100	100	100	100	100	100	89	90	100	100	100	50
¶	Written directive (prescription) in the chart?	97	94	100	NA	NA	100	NA	NA	100	100	100	0	100	100	NA	NA	100
	Complete course recorded in the chart?	94	93	100	NA	NA	100	NA	NA	0	100	100	100	100	100	NA	NA	100
	Post-implant dosimetry documented?	88	92	100	NA	NA	100	NA	NA	100	NA	NA	100	100	100	NA	NA	NA
	Both the radiation oncologist and physicist present during high dose radiation?	77	96	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA
	Radiation safety survey documentation available?	97	95	0	NA	NA	100	NA	NA	100	100	100	100	100	100	NA	NA	100
	Rectum/recto-sigmoid only: Contrast to small bowel?	50	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	100	NA	NA	NA	NA
**	Portal imaging confirmed Patient positioning?	100	94	NA	100	100	100	100	100	NA	100	100	NA	NA	NA	NA	NA	NA
	Doses to target and non-target vol.?	100	97	NA	100	100	100	100	100	NA	100	100	NA	NA	NA	NA	NA	NA
	Precisely check dose planned was given?	100	82	NA	100	100	100	100	100	NA	100	100	NA	NA	NA	NA	NA	NA
	% of average compliances of ACR Accredited Facilities compared to the RCOG averages	92	90	85	86	89	87	94	92	86	96	92	93	99	95	90	98	94
	% of questions where RCOG exceeded the averages of ACR Accredited Facilities			68	67	80	71	82	83	79	85	85	87	94	92	86	87	88

* average,

† evaluations for RCOG sites;

‡ generic questions to all cases,

§ related only to breast cases;

|| related only to prostate cases;

¶ related only to brachytherapy;

** related to IMRT cases,

% percentage.

Note: ACR Accredited Facility Average first column was the standard comparison used for the first two evaluations. Accredited Facility Average second column was the standard for the ACR survey.

Table 2

Re-evaluation from ACR deficiencies based on corrective plans.

FACILITY	CASE FINDINGS	ACR Evaluation	Re-Evaluation
A	Pre-treatment performance status stated in chart?	0%	100%
	Proper immobilization/positioning?	60%	100%
	Follow-up plan documented?	70%	100%
	RO [*] follow-up within 3 months?	60%	90%
	Hormone therapy documented?	50%	100%
	Hormone receptors documented?	0%	100%
	Use/non-use of HRT [†] ?	50%	100%
B	Pre-treatment performance status stated in chart?	0%	90%
	Patient staged correctly?	67%	90%
	Pertinent and thorough history?	50%	100%
	Breast cancer family history obtained?	50%	50%
	Use/non-use of HRT [†] ?	50%	100%
	Delivered and prescribed dose agree?	50%	100%
C	Patient staged correctly?	67%	100%
	Port films dated by RO [*] ?	25%	90%
	Chemotherapy use/type documented?	50%	100%
	Accumulated dose to sensitive structure recorded?	0%	100%
D	Chemotherapy use/type documented?	40%	100%
	Adequate documentation of weekly exam during treatment?	56%	100%
	Accumulated dose to sensitive structure recorded?	67%	100%
E	Pre-treatment performance status stated in chart?	60%	100%
	Use/non-use of HRT [†] ?	0%	100%
	Chart checked by physicist at completion?	50%	100%
	RO [*] follow-up within 3 months?	50%	100%

* Radiation oncologist,

[†] Hormone replacement therapy