American College of Radiology

Radiation Oncology Practice Accreditation

Thanks to:

Peter Hulick, MD

James Lui, Ph.D.

Karen Dopke, MS

and

Lisa Mc Call

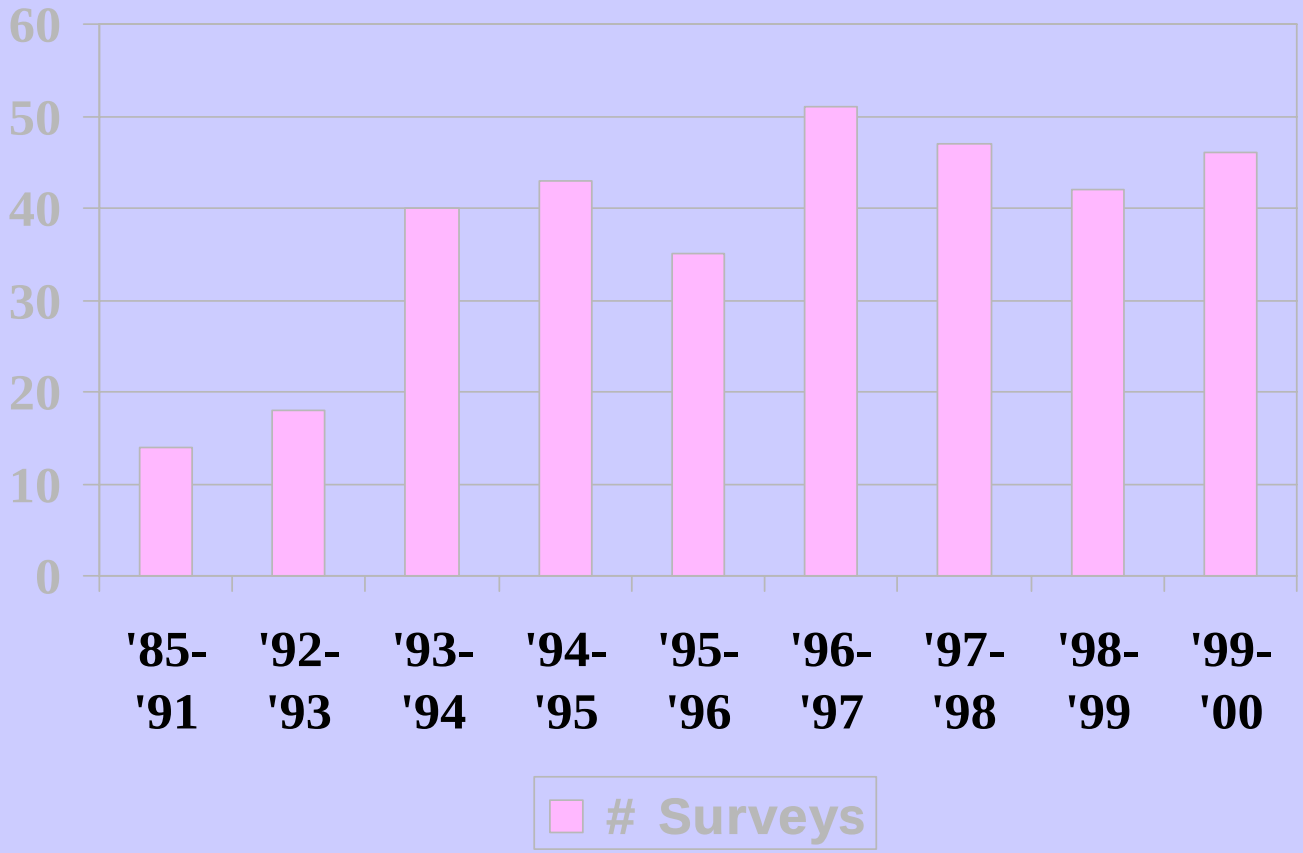
for their cheerful aid.

History of Radiation Oncology Accreditation Program

- Originated in 1986
- Based on National Longitudinal Patterns of Care Study which investigated all types of radiation oncology practices
- Workup and treatment elements are reviewed and compared with national and stratum norms

Radiation Oncology Practice Accreditation Program

FISCAL YEAR (OCTOBER 1 - SEPTEMBER 30)



R.O. Surveys - FY 1999-2000

46 Surveys Conducted:

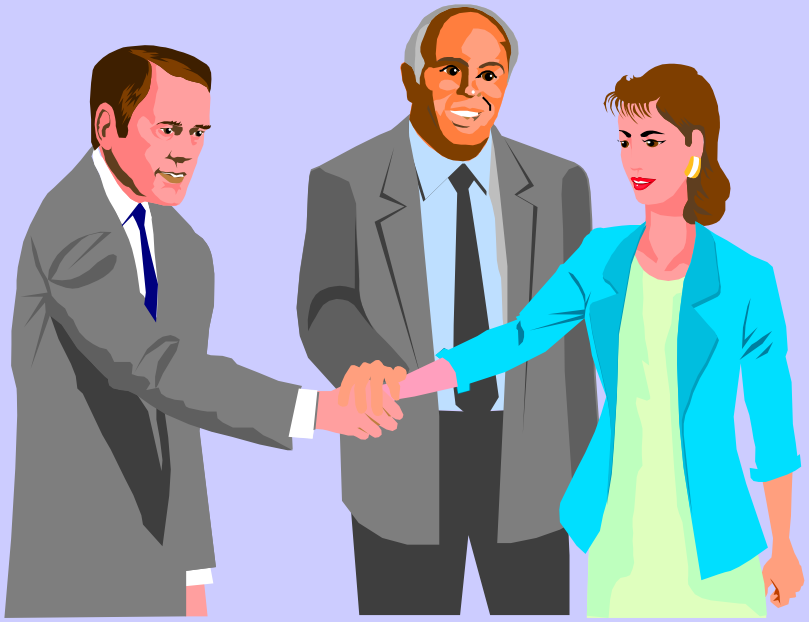
43 Accreditation surveys

3 Consultative surveys

160 Accredited Facilities in 31 States

RADIATION ONCOLOGY PRACTICE ACCREDITATION PROGRAM

- Provides impartial, third party peer review to practices
- Provides direct feedback to practices through recommendations in final report
- Provides recognition to quality practices through accreditation



2 Types of Surveys:

1.Consultative

2. Accreditation

CONSULTATIVE SURVEY

Focus: *Practices obtain objective, skilled consultation to address areas of concern*

- Qualifications of personnel
- Quality assessment and improvement program
- Adequacy of equipment and staffing
- Treatment patterns
- Addresses the specific concerns of the practice
- Comprehensive review of the stated problem that prompted request for the consultative survey
- Interviews with key personnel

CONSULTATIVE SURVEY

Single Site Survey Example:

- Two day site visit
- Four member team (additional radiation oncologist or medical physicist)
- Requested by the Radiation Oncologist or the elected Chief of the Medical Staff

ACCREDITATION SURVEY

Single Site Survey Example:

- Two day site visit
- Three member team (Radiation Oncologist, Physicist, Data Manager)
- Requested by the Chief of Radiation Oncology

Reasons for Requesting an ACR Accreditation Survey

- Furthering the goal of providing the best possible radiation therapy treatment
- Advantage in competitive healthcare environments
- Informed patient population with many treatment options

Benefits of ACR Practice Accreditation Surveys

- Unique opportunity for Peer Review
- Quality of Practice is likely to improve
- Increased respect and prestige
- Practices obtain objective, skilled consultation to address areas of concern
- Proof to payers, regulatory agencies and employers that you provide appropriate care
- Benchmarking
- JCAHO Cooperative Agreement
- May help meet regulatory requirements

ACR/JCAHO COOPERATIVE AGREEMENT

The ACR has a cooperative agreement with the Joint Commission for the Accreditation of Health Care Organizations (JCAHO). As a result of this agreement, JCAHO will accept accreditation decisions of the ACR Radiation Oncology Practice Accreditation program for facilities that are part of a health plan or other managed care organization. This network agreement became effective September 1, 1998. It is anticipated that this agreement will be extended to hospital-based facilities in the near future.

Eligibility Criteria

- Hospital-based or Freestanding
- 6 months of patient care
- Completed application

Stratum Categories

A1 – RTOG full member of an NCI designated comprehensive cancer center

A2 – Training program with more than two residents, not included in A1

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H1 – Hospital based, greater than 600 patients per year

H2 – Hospital based, 201-599 patients/year

H3 – Hospital based, 200 or fewer patients per year

Stratum Categories (continued)

F1 – Freestanding, over 600 patients/yr
F2 – Freestanding, 201-599 patients/yr
F3 – Freestanding, under 200 patients/yr

Multi-Site Criteria

- Every physician is a member of a single group
- Physician group has medical director
- All sites utilize single group of physicists
- Physicist group has single director
- Physicians' peer review includes all sites
- Uniform treatment methods used at all sites
- Uniform chart organization and forms
- Geographically accessible

ACR Standards - Medical

1. **Radiation Oncology (1999)**
2. **Diagnosis & Management of Invasive Breast Carcinoma (1997)**
3. **Diagnosis & Management of Ductal Carcinoma in Situ (1997)**
4. **Standards of Communications (1999)**

ACR Standards - Physics

- Radiation Oncology Physics for External Beam Therapy (1998)
- Standards for Quality Assurance of Radiation Oncology Dose Distribution Calculations & Implementation (1998)
- Performance of HDR Brachytherapy (2000)
- Performance of Brachytherapy Physics; Remotely loaded HDR sources

(Continued)

ACR Standards – Physics (continued)

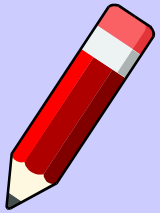
- Performance of LDR Brachytherapy (2000)
- Performance of Brachytherapy Physics; Manually loaded sources (2000)
- 3-D External Beam Radiation Planning and Conformal Therapy (1997)
- Performance of Stereotactic Radiation Therapy (1997)
- Transperineal Permanent Brachy of Prostate Cancer (2000)

ACR Standard for

- Radiation Oncology Physics for External Beam Therapy (1998)

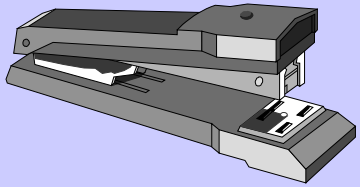
Qualifications of the Medical Physicist

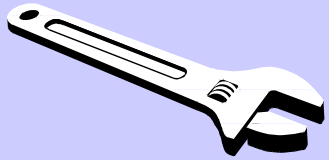
- Certified by the ABR in either Radiological Physics or Therapeutic Radiological Physics
- Meet all state and/or local radiation Control agencies' requirements
- Meet ACR continuing education requirement



Minimum Equipment Requirement

- ADCL Calibrated electrometer/chamber
- Computerized water phantom
- Computerized film densitometry system
- Computerized treatment planning system
- Patient dose monitoring system, TLD’s or diodes
- Radiation survey instrument, and
- Quality assurance test tools for therapeutic equipment

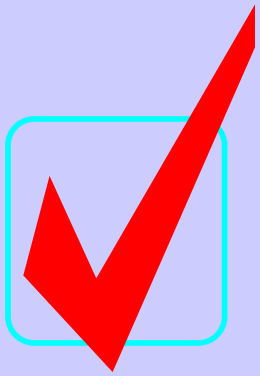


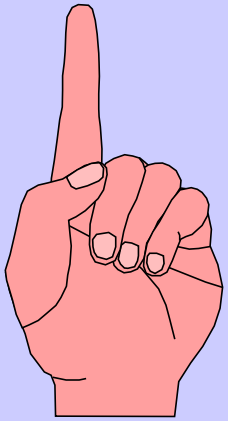


The Qualified Medical Physicist shall:

- Establish and maintain a quality management program
- Be available for consultation with the radiation oncologist and the technical staff
- Review all dosimetric and physics activities
- Develop a protocol for calculating and checking monitor units
- Check all monitor units and isodose plans
  - before 3 fractions, or
  - 20% of the dose

- Participate in chart rounds
  - develop chart checking protocol
  - review patients chart
- Review the completed chart to affirm fulfillment of the prescription
- Supervise complicated setups





External Beam Therapy
Quality Management Program

- Annual review of the program
  - written summary of physics activities, along with the critique, reviewed with medical director and management
  - add summary to the department's QM report

Elements of a QM Program

- Electrometer/ionization chamber calibrated by the ADCL every 2 years
  - Two independent dosimetry systems are recommended
- AAPM TG-21/TG-51 calibration protocol
- Independent output check of each beam annually
  - TLD Services, or
  - Independent physicist with an independent dosimetry system
- Imaging equipment should be included
  - simulator, CT, MRI
- Integrity of treatment aids

ACR Standard for

- Quality Assurance of Radiation Oncology Dose-Distribution Calculation and Implementation (1998)

Quality Management Program

- All dosimetric parameters shall be measured
- Calibration of new sources
- Brachytherapy applicators should be radiographed annually
- The source location inside the applicator should be determined prior to the first use
- The dose calculated to a point should be calculated using two independent methods

ACR Standard for

- Performance of High Dose Rate Brachytherapy (2000)

Brachytherapy Physics: High Dose Rate

- Additional equipment requirements:
  - ADCL calibrated well-type ionization chamber for high-activity source
  - appropriately shielded emergency transportation cart and manipulation devices
  - dedicated HDR treatment planning computer

- Computerized dosimetry must be performed and approved before treatment begins
- Independent verification of parameters must be done prior to treatment
- Physicist & radiation oncologist must be in the immediate vicinity at all times while HDR brachytherapy is being administered.
- At the end of each treatment, the patient and the room must be surveyed to ensure that the source has retracted
- At the conclusion of treatment, a written summary of the treatment delivery parameters should be generated. This should include both external beam and HDR doses.

Quality Management Program

- Develop a radiation safety program and emergency procedures.
- Provide annual training of staff for emergency procedures
- Perform periodic testing of the treatment planning computer and the HDR unit

Quality Management Program (continued)

- Calibration of new source
- Leak testing of the source
- Regular inspection of all applicators
- Procedures should be in compliance with AAPM TG56 & TG 59 reports

ACR Standard for

- Performance of Brachytherapy Physics: Remotely Loaded HDR Sources (2000)

- Peer review of brachytherapy program
- Measure source with NIST-traceable calibrated well chamber
- Decay correction should be made for each day source is used
- Physicist shall document that source moves to the intended position, and that the steps are accurate to 1 mm
- Written dosimetry report shall be generated

ACR Standard for

- Performance of Low Dose Rate Brachytherapy (2000)

ACR Standard for

- Performance of Brachytherapy Physics: Manually-Loaded Temporary Implants (2000)

Brachytherapy Physics: Manually-Loaded Temporary Implants

- Additional equipment requirements:
  - ADCL Calibrated well-type ionization chamber
  - Instrumentation or arrangement to perform leak testing of the sealed sources
  - Appropriate shielding, transportation cart, and manipulation devices

The Medical Physicist shall:

- Independently verify the source strength of each source
- Make corrections for decay on a regular basis so the actual source strength and the calculation never differ by more than 2%
- Obtain localization films for all intercavitary, intraluminal, or interstitial implants
- Establish a QA program for the computerized treatment planning program

- Provide a dosimetry report for each brachytherapy procedure which should include:
  - Description of sources
  - Description of technique and source pattern
  - Dose rate and total time of implant
  - Total source strength
  - Prescribed dose
  - Isodose distributions in appropriate planes

ACR Standard for

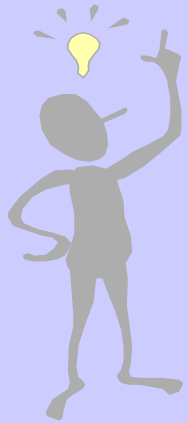
- 3-D External Beam Radiation Planning and Conformal Therapy (1997)

The Qualified Medical Physicist shall:

- Commission the 3D treatment planning system and localization devices used for the determination of the target
- Establish a QA Program for the planning system
- Review each plan for accuracy and precision before treatment
- Be available to the radiation oncologist and staff for consultation

Quality Management Program for 3D Planning

- Includes all elements for conventional external beam planning



PLUS:

- Periodic check for functionality and accuracy of the CT, MRI, device interfaces, digitizer, video capture device, output devices, and treatment planning software
- Follow guidelines of TG 53

ACR Standard for

- Performance of Stereotactic Radiation Therapy/ Radiosurgery (1997)

Stereotactic Guidelines for Physicist

- Make checklists and double check at critical junctures
- Perform acceptance tests and commissioning of radiosurgery system (AAPM report 54)
- Establish & maintain QC program for the image-based, 3-D treatment planning system
- Directly supervise 3-D planning process

(con't.)

Stereotactic (continued)

- Supervise beam delivery process to assure the accurate fulfillment of the prescription
- Establish QA procedures for imaging systems and stereotactic accessories

ACR Standard for Transparineal Permanent Brachytherapy of Prostate Cancer (2000)

Prostate Seed Implants

- Dosimetric planning should be done prior to the implant
- Full definition of prostate in both longitudinal & transverse planes should be available, with high resolution biplanar ultrasound probe. CT-guided insertion is an alternative
- Acceptable needle and seed insertion procedures

(continued)

Prostate (continued)

- Calculations based on TG-43
- Post implant dosimetry mandatory, with either CT or MRI, not orthogonal nor stereo-shift films
- QC procedures must be established for
  - Ultrasound
  - Treatment planning system
  - Source calibrators

Prostate Post Implant Report

Include:

1. Prescribed dose
2. Percent of the prostate that received 90% prescribed dose (V-90)
3. Percent of volume that received 100% of dose (V-100)

Accreditation Focus

- Compliance with applicable ACR standards
- Qualified personnel
- Adequate equipment and staff
- Adequate workup and treatment
- Quality Assurance and Quality Improvement
- Peer Review
- Compliance with national norms

Commonly found Medical Deficiencies

- Incomplete Prescriptions
- Port film frequency and lack of signature and dating
- Lack of MD coverage
- Incomplete history and physical
- Incomplete Brachytherapy written directive
- Physician Peer Review
- Documentation of weekly on-treatment visits

Commonly found Medical Deficiencies

- Inadequate follow-up
- Inadequate formal documented CQI
- Lack of Documented Numerical Functional Performance Status
- Lack of small bowel contrast and bowel displacement technique with rectum/rectosigmoid cases

Commonly found Physics Deficiencies

- No end-of-treatment chart check by a medical physicist
- No Quality Assurance Program for treatment planning system
- Physicist delegation of authority
- No documentation of radiation safety policy/procedures and dose calculations
- Incomplete brachytherapy documentation

ACR Survey Steps

- Facility obtains application
- Completed application is submitted
- Site visit is scheduled and performed
- Surveyors send their confidential reports to ACR
- Committee members review draft report
- Report approved by Chair

Application Components

- Purpose of survey (letter)
- Structure Form
- Survey Agreement
- Consent Forms
- Census Forms: Breast, Cervix, Prostate, Rectum/Sigmoid
- RPC/TLD’s
- CV’s and CME Attestation

Accreditation Survey Team

Radiation Oncologist — One Day

- Reviews QA program, reviews selected cases, interviews department staff

Medical Physicist — Two Days

- Reviews Physics Policies and Procedures, Radiation Safety, Treatment Planning, Dosimetry and Equipment Calibration

Clinical Data Manager — Two Days

- Reviews charts for eligibility, abstracts clinical information from patient records, coordinates on-site visit

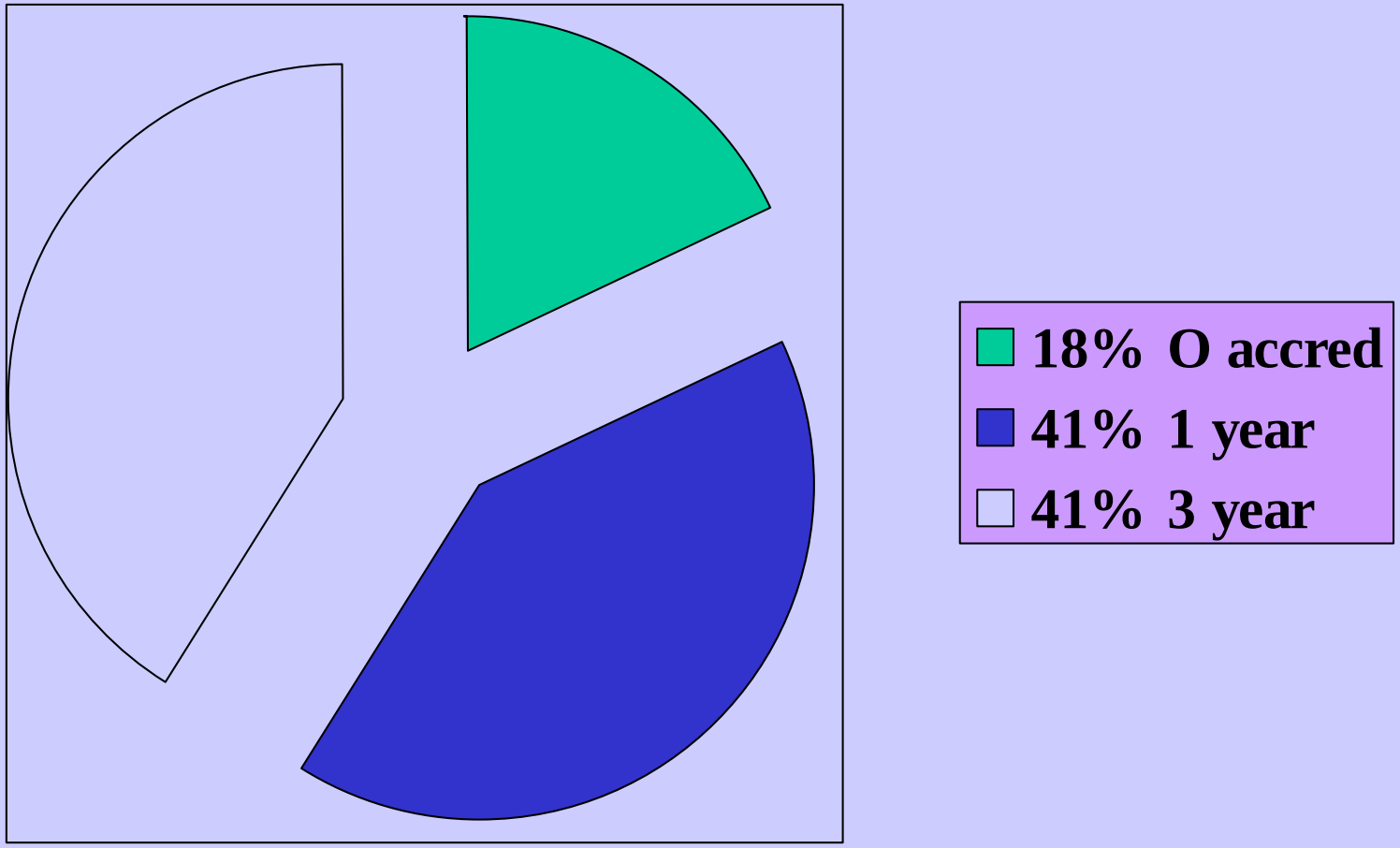
On-Site Visit

- Tour of Facility
- Review of 25 Treatment Records from 4 Disease Sites plus selected generic cases
- Review of Radiation Safety Program
- Review of Quality Assessment and Improvement Plan and Documentation
- Review of Equipment Calibration and Treatment Planning Verification
- Review of Department Policy & Procedures
- Interviews with Medical Director, Medical Physicist, Department Manager and/or Chief Therapist

Final Report

The Radiation Oncology Practice Accreditation Program uses application information and surveyors' reports to develop the final report and accreditation status based on ACR Standards, Patterns of Care Studies and Committee input.

Survey Outcomes 1999-2000



American College of Radiology
Certificate of Accreditation

The Radiation Oncology Services of

University Medical Center
123 Brown Avenue
Anytown, Any State 12345

were surveyed and accredited by the
Committee on Radiation Oncology Accreditation of the
Commission on Standards and Accreditation

Period of Accreditation:

July 20, 1999 through July 31, 2002

CHAIRMAN, COMMITTEE ON RADIATION ONCOLOGY ACCREDITATION

PRESIDENT, AMERICAN COLLEGE OF RADIOLOGY


The
End!