

Revised 12/07

**AMERICAN COLLEGE OF VETERINARY RADIOLOGY
RECOGNIZED VETERINARY SPECIALTY OF RADIATION ONCOLOGY(ACVR-RO)
RESIDENCY TRAINING PROGRAM APPLICATION**

NOTE: Some questions in this form are included for data collection purposes. The inclusion of an item does not necessarily imply that the item is a program requirement for ACVR-RO residency program. Please refer to the current Radiation Oncology Training Program Guidelines for comprehensive residency training requirements. This document may be downloaded from Members Only Downloads section of the ACVR website at <http://www.acvr.org>.

APPLICATION INSTRUCTIONS:

Training program directors wishing to have their programs evaluated should submit 4 copies of this form to the Assistant Executive Director of the ACVR. The application must be received at least 60 days before the meeting of Executive Council at which the program will be evaluated. There are two meetings of Executive Council each year; a midyear meeting in April, and the Annual Meeting held in conjunction with the Annual meeting of the ACVR. Exact dates of Executive Council meetings are available on the ACVR Calendar which can be viewed on the ACVR Web site, and which is also printed in each issue of Veterinary Radiology & Ultrasound. There will be no exceptions to the 60 day lead time requirement. The Executive Director will forward copies to the Residency Standards Committee of the Recognized Veterinary Specialty for evaluation. The committee will evaluate the application, a vote will be taken, and the results of the vote and the majority recommendation of the committee forwarded to the President of the Recognized Veterinary Specialty for consideration at Executive Council at one of the two annual meetings.

For the required ACVR and ACVIM Diplomates providing consultation in medical oncology and imaging, please provide a brief 2-page curriculum vitae and specify the number of weeks each year that the individual will be available to actively support the radiation oncology trainee.

ACVR-RO RESIDENCY TRAINING PROGRAM APPLICATION

1. Date of Application

7/11/2008

2. Program Director(s): (Must be a Diplomate of ACVR Recognized Veterinary Specialty of Radiation Oncology)

Deborah M. Prescott, DVM, PhD, Diplomate ACVR (Radiation Oncology)
Veterinary Radiation Oncology Specialists
MedVet Associates
300 East Wilson Bridge Rd.
Worthington, OH 43085

Number of weeks per year faculty member is available to resident on a daily basis.

45

Program Director's Contact Information:

Work Phone:	(614) 431-4403
Fax:	(614) 431-6296
E-mail:	dprescott@medvetohio.com

3. Application is made for check one (see below):

Standard Program	Alternative Program
<input checked="" type="checkbox"/>	<input type="checkbox"/>

The following conditions define an Alternative Program:

- a. If the program is not at least a minimum two-year continuous radiation oncology training program which fulfills all of the trainee requirements of the training program guidelines, it will be defined as an Alternative Program.
- b. If exemption from any other requirement for a Standard program is requested in the application, the program must be submitted as an Alternative Program.

4. Location of Primary Institution

Primary Site:

Radiation Oncology

Department

Med Vet Associates, Ltd

Hospital/University

300 East Wilson Bridge Rd

Address

Worthington, OH 43085, USA

City, State Zip Country

5. Cooperating Institution(s) (If applicable):

Departments of Pathology, Radiology and Radiation Oncology

Department

Ohio State University – Univerity Medical Center

Hospital/University

129 Hamilton Hall, 1645 Neil Ave.

Address

Columbus, OH 43210 USA

City, State Zip Country

For cooperating institutions, attach letters of agreement signed on behalf of the institution(s) by appropriate individual(s).

6. Length of Training Program (months):

24

If greater than 2 years, will this period include 24 months of continuous training in radiation oncology?

7. Number of months dedicated solely to radiation oncology training (excluding time on Medical Oncology service, Radiology/Imaging, etc.)

18

8. Advanced Degree:

	Yes	No	Optional
Masters:		X	
PhD:		X	

9. Essential Program Faculty: individual faculty member may serve in only one capacity

Please list all qualified faculty in support of program

a. Diagnostic Radiologist(s): (Must be Diplomate(s) of the ACVR)

Jonathan T. Shiroma, DVM, MS, DACVR (Radiology) - MedVet
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Number of weeks per year faculty member(s) is/are available to resident on a daily basis.

Please list for each faculty member.

Jonathan T. Shiroma - 45

Faculty member on site?

Yes	No
X	

If off site, please explain relationship.

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b. Medical Oncologist(s): (must be Diplomate(s) of ACVIM, Specialty of Oncology)

Lisa M. Fulton, DVM, DACVIM (Oncology)

Number of weeks per year faculty member(s) is/are available to resident on a daily basis.
Please list for each faculty member.

Lisa Fulton - 45

Faculty member on site?

Yes	No
X	

If off site, please explain relationship

c. Surgeon(s): (must be Diplomate(s) of the ACVS)

Eric R. Schertel, DVM, PhD, DACVS Matthew D. Barnhart, DVM, MS, DACVS Shawn Kennedy, DVM, MS, DACVS

Number of weeks per year faculty member(s) is/are available to resident on a daily basis.
Please list for each faculty member.

Eric R. Schertel - 45 Matthew D. Barnhart - 45 Shawn Kennedy - 45

Faculty member on site?

Yes	No
X	

If off site, please explain relationship.

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d. Pathologist(s): (must be Diplomate(s) of the ACVP)

Gary Kociba, DVM, PhD, DACVP
Sameh Youssef, DVM, PhD, DACVP
Agatha Boisvert, DVM, DACVP
Michelle Wells, DVM, DACVP
Stephanie Corn, DVM, DACVP

Number of weeks per year faculty member(s) is/are available to resident on a daily basis.
Please list for each faculty member.

Gary Kociba – 3 days per week for 45 weeks/year
Sameh Youssef – 45 weeks
Agatha Boisvert – 45 weeks
Michelle Wells – 45 weeks
Stephanie Corn – 45 weeks

Faculty member on site?

Yes	No
X	

If off site, please explain relationship.

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10. Please list all additional board certified specialists in direct support of the program. If offsite, please explain relationship.

Name	Certifying College / Board
John G. Gordon, DVM, MS, Diplomate ACVD	Dermatology
Abby Foust, DVM, Diplomate ACVD	Dermatology
Robert J. Starkey, DVM, Diplomate ACVIM	Internal Medicine
Cory Brown, DVM, Diplomate ACVIM	Internal Medicine
Marnin Forman, DVM, Diplomate ACVIM	Internal Medicine
Roger Hostutler, DVM, MS, Diplomate ACVIM	Internal Medicine
Denali Bras, DVM, MS, Diplomate ACVO	Ophthalmology
Terah R. Webb, DVM, Diplomate ACVO	Ophthalmology
William Fenner, DVM, Diplomate ACVIM	Neurology
Linda B. Lehmkuhl, DVM, MS, Diplomate ACVIM	Cardiology
Thaibinh Nguyenba, DVM, MS, Diplomate ACVIM	Cardiology
Diane Wilson, DVM, MS, MRCVS, Diplomate ACVA	Anesthesiology
Anna Crosby, DVM, Diplomate ACVECC	Critical Care

11. How will resident receive training in Medical Oncology? What is time allotted for this training. Please provide description of formal and informal training experiences?

The radiation oncology resident will have two month-long rotations in medical oncology where they will be seeing cases with the board-certified medical oncologist, Dr. Lisa Fulton or other board certified medical oncologist to be hired in the future. They will be expected to participate in the diagnostic and therapeutic plans for patients on the medical oncology service. Due to the large number of shared cases between the radiation and medical oncology services, the radiation oncology resident will receive continued exposure and training in medical oncology during the 18 months that the resident is on the radiation oncology service.

12. How will resident be trained in diagnostic imaging? What is time allotted for this training. Please provide description of formal and informal training experiences?

The radiation oncology resident will spend a one month rotation in diagnostic imaging under the direct supervision of the board certified radiologist, Dr. Jon Shiroma. This will include reviewing clinical radiographs, ultrasounds, CT and MRI scans from all MedVet services with a concentration on oncology cases. The resident will also generate timely written radiology reports during this rotation.

13. How will resident be trained in radiation biology?

Didactic courses are offered at the Arthur G. James Cancer Hospital at Ohio State University Medical Center through the radiology department. Dr. Robert Snapka is the coordinator of the class and teaches the class with other qualified instructors. Attach in the Addendum is a copy of the letter giving consent for the MedVet radiation oncology resident to participate in this class. An example of the syllabus for this class is attached in the Addendum.

Provided no space is available in this class, Dr. Deborah M. Prescott will provide a one-on-one review of Eric Hall's text entitled Radiobiology for the Radiologist. The text by Steele entitled Basic Clinical Radiobiology will also be used as an auxiliary text as outlined in the syllabus for the OSU class.

14. How will resident be trained in cancer biology?

A didactic course using the textbook The Basic Science of Oncology by Tannock and Hill is offered at Ohio State University through the Department of Pathology. Dr. Rolf Barth is the coordinator of the class and teaches the class with other qualified instructors. The MedVet radiation oncology resident can participate in this class provided there is space available for an auditor. An example of the syllabus for this class is attached in the Addendum.

Provided no space is available in this class, Dr. Deborah M. Prescott will provide a one-on-one review of this text with the radiation oncology resident.

15. How will residents be trained in radiation oncology physics?

Dr. Vern Leininger is the medical physicist for the MedVet facility. He will conduct a radiation oncology physics course for the resident. We have attached a syllabus for the course in the Addendum. The textbook used will be The Physics of Radiation Therapy by Faiz M. Khan.

There are also didactic classes in Therapeutic Radiation Medical Physics offered at the Arthur G. James Cancer Hospital at Ohio State University Medical Center through the radiation oncology department for their residents. The resident will be encouraged to proxy the classes if possible.

16. Please list any formal courses and their instructors included in the residency training curriculum. Please attach syllabi and instructor credentials for each listed course.

Radiation Biology	OSU Dept of Radiology faculty members or Dr. Deborah Prescott
Cancer Biology	OSU Dept of Pathology and CVM faculty members or Dr. Deborah Prescott
Radiation Therapy Physics	Vern Leininger, PhD, DABR, DABMP

Syllabi for these courses are attached in the Addendum. Please note that there are several OSU faculty members teaching the Radiation Biology and the Cancer Biology courses. The participating speakers will vary slightly from year to year as the University faculty changes. Attached are the websites listing the faculty and their credentials for these two classes. Dr. Prescott's CV and Dr. Leininger's CV can be found in the addendum.

17. Will the resident participate in clinical rounds on a daily basis while on clinical rotations?
Is a supervising Diplomate available for the majority of rounds? If no, please describe how rounds are attended and supervised.

Yes	No
X	

Comments:	Radiation Oncology patient review rounds will be held daily to discuss progress of patients and development of side effects between the radiation oncology resident, Dr. Prescott, and the radiation therapy technicians.
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18. Are formal conferences, such as clinicopathologic conferences, journal clubs, or seminars held on a weekly basis?

Yes	No
X	

Comments:	Several rounds and conferences are available on a weekly or monthly basis. Oncology journal club, tumor rounds, resident seminars, grand rounds, and clinicopathologic rounds are some of the rounds available for the radiation oncology resident.
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19. Please provide a description of the conferences, etc., that are provided and the typical schedule.

Oncology Journal Club will be formalized when the RO resident is in the program. We are planning for the journal club to meet on every other Tuesday morning. Radiation and Medical Oncology literature will be covered in these sessions for maximum exposure of the resident. All MedVet residents will be invited to participate in the Oncology Journal Club meetings.

Tumor Rounds are attended by medical, radiation and surgical oncology doctors as well as all interns and residents. The purpose of the rounds is to review current oncologic cases and to provide a team-oriented approach to the care of the patient. Tumor rounds are held every Thursday morning from 8-9AM.

Resident seminars are held twice a month on Wednesday morning from 8-9AM. These seminars allow MedVet residents of all disciplines to gain experience giving formal talks and for all residents to receive current knowledge in other disciplines outside of their interest.

Grand Rounds presented by the board-certified clinicians on interesting clinical cases that have touched on several disciplines in the hospital. These rounds are held once a month on Wednesday morning from 8-9AM and do not conflict with the resident seminars.

The radiation oncology resident will be required to attend the Oncology Journal Club, Tumor Rounds, Resident Seminars and Grand Rounds during their training period unless they conflict with other course work or vacation time.

Breakfast meetings with local general practitioners are held once a month at 7AM and oncology-related topics are discussed 2-3 times a year. The breakfast meetings covering oncology-related topics will be required to be attended by the radiation oncology resident.

Clinicopathologic rounds with Dr. Gary Kociba and other clinical pathologists and the radiation oncology resident will be held once a week at a time to be arranged. These rounds will allow the resident to review cytologic slides from oncologic cases with the pathologists on duty.

20.

Yes	No
X	
Comments:	Yes, two formal presentations on a yearly basis are required. These presentations may include MedVet in-house resident seminars, local veterinary association continuing education seminars as well as national conferences such as VCS or ACVR.

21. How many major veterinary medical or medical meetings is each resident able to or expected to attend during his/her training program?

None	One	Two	> Two
			X
Comments:	ACVR, VCS, and/or ASTRO		

22. Does the training program require a research project? Please indicate the number of research projects required.

Yes	No	Optional	Number
	X		
Comments:	Strongly encouraged and time will be allocated but is not required.		

23. Are one or more publications required as part of the training program?

Yes	No	Number
	X	
Comments:	Strongly encouraged but not required.	

24. Please indicate the availability of the following facilities or equipment. Indicate if these are available at the primary training site, or at a different location. For facilities that are not on-site, please describe the situation and availability in the space at the end of this section.

Equipment / Service	Available?		On-Site?	
	Yes	No	Yes	No
Megavoltage Teletherapy Machine Please specify manufacturer and model: Varian Clinac 2100C	X		X	
3D - Computer based treatment planning system Please specify manufacturer and model: MDS Norton, Theraplan Plus	X		X	
2D/2½ D - Computer based treatment planning system Please specify manufacturer and model:		X		X
LDR Brachytherapy treatment and planning		X		X
HDR Brachytherapy treatment and planning		X		X
Diagnostic Radiology / Imaging Services	X		X	
Conventional Radiography	X		X	
Fluoroscopy	X		X	
Ultrasound	X		X	
Nuclear Medicine		X		X
Computed Tomography	X		X	
Magnetic Resonance Imaging	X			X
Positron Emission Tomography		X		X

Intensive Care Facility - 24 hours	X	X
Clinical Pathology capabilities: (includes CBC, serum chemistries, blood gases, urinalysis, cytology, parasitology, microbiology, and endocrinology)	X	X
Veterinary Library w/Literature Searching Capabilities	X	X
Medical Library w/Literature Searching Capabilities	X	X
Computerized Medical Records w/Searching Capabilities	X	X

25. If any of the above equipment or facilities are available off-site, please explain how the resident can access them for case management, research, or study.

MRI studies are performed on MedVet patients through The Children's Hospital of Columbus, OH in the evenings or on weekends and at the Wright's Imaging Center at OSU in the afternoons on Tuesday and Thursday. The Medical School as well as the Veterinary School libraries at Ohio State University are readily available to the resident and include veterinary journals. Please note that we do have a Library in our facility which includes several relevant veterinary journals and textbooks for our residents use.

26. Please list numbers of patients treated in the last 12 months using the listed radiation treatment modalities.

Modality	Number Treated
Megavoltage Gamma / X-ray Teletherapy	> 230
LDR Brachytherapy	0
HDR Brachytherapy	0
Injectable Radionuclide therapy	
Radioiodine	> 75
Other (please specify)	
⁹⁰ Strontium Pleiotherapy	0
Other - please specify	

27. Describe procedures for resident record recording of radiation treatment details of all patients.

The radiation oncology resident will be required to keep a log of patients treated during their residency. This log will include the tumor type and location, treatment date, RT prescription, type of RT treatment plan, modifying devices used, and follow-up information on those patients. A separate radiation treatment folder is generated for each patient. That record includes treatment plans, port films, prescriptions, treatment logs, and pictures.

28. What procedures are in place to facilitate collection of follow up information of patients treated?

The medical records for all patients are computerized using the Intravet system. Intravet has searching capabilities that allow all patients with a given diagnosis or treatment to be selected. All radiation oncology patients are also logged into an Excel spreadsheet which includes information relevant to the diagnosis, RT treatment and recheck visits. Excel spreadsheets are updated by all radiation oncology staff with follow-up information on a regular basis. Typically, weekly rechecks are done at MedVet until the RT acute side effects have healed and then owners are encouraged to return to MedVet for rechecks every 3 months for the first year after RT, and every 6 months thereafter.

29. By what mechanisms and how often will trainees be evaluated? Please attach form used in this evaluation (required).

Residents are formally evaluated annually. If any concerns or questions arise prior to the annual review, a separate evaluation can be done at that time. An example of the Radiation Oncology Resident Performance Evaluation Form is attached in the Addendum.

30. If applicable, please list the residents who have completed the training program within the last five years, including the year that each individual's training program ended. If at all possible, please provide an address, and any information you have on the status of each individual with respect to the board certification process.

N/A

31. Please list any additional information of interest in support of this residency application.

Attachments:

Please attach the following documents to the application if applicable. Please mark box to indicate which documents are included. Please list any addition documents attached in support of this application.

Attached?	Documents
X	Twenty-four (24) month calendar of resident's activities - Required
X	CV - ACVR-RO Diplomate - Program Director(s) - Required
X	CV - ACVR-R Diplomate(s) - Required
X	CV - ACVIM-O Diplomate(s) - Required
X	Syllabi of formal course work included in the training program – Required
X	Credentials of instructors providing formal course work - Required
X	Forms used in resident evaluation - Required
X	Letters of agreement from cooperating institutions - Required

**ADDENDUM FOR THE MEDVET RADIATION ONCOLOGY
RESIDENCY PROGRAM APPLICATION**

MedVet Radiation Oncology Residency Program Typical Training Schedule

MONTH	YEAR 1	YEAR 2
1	RAD ONC	Medical Oncology
2	RAD ONC	RAD ONC
3	RAD ONC	RAD ONC
4	Diagnostic Imaging	RAD ONC
5	RAD ONC	RAD ONC
6	RAD ONC	Vacation
7	Medical Oncology	RAD ONC
8	RAD ONC	RAD ONC
9	RAD ONC	RAD ONC
10	RAD ONC	RAD ONC
11	Project	RAD ONC
12	RAD ONC	Study for Certifying Examination

DEBORAH MCLEOD PRESCOTT, DVM, PhD

CURRICULUM VITAE

Date prepared: 8/29/08

Name: Deborah McLeod Prescott

Primary appointment: Radiation Oncologist - MedVet

Date of birth: 1/19/58

Place: Baltimore, Maryland

Citizen of: USA

Veterinary Medicine Licensure and Board Certification:

Ohio – OH License #8325

Alabama (Inactive)

Maryland, North Carolina, Florida, Kentucky, Georgia (Expired)

Diplomate, American College of Veterinary Radiology, Specialty of Radiation Oncology

Education:	Place	Date	Degree
High School	Spring Valley High School Columbia, SC	1972-1975	Diploma
College Science	Clemson University Clemson, SC	1975-1978 (degree conferred - 1980)	BS Pre-veterinary
Professional	University of Georgia Athens, GA	1978-1982	DVM Veterinary Medicine
Graduate	North Carolina State University Raleigh, NC	1986-1989	PhD Radiation Biology

Dissertation: Modification of Radiation Damage in the Canine Kidney by
Hyperthermia: A Histologic and Functional Study.

Professional experience and academic career:

1982-1983: Small Animal Internship, School of Veterinary Medicine,
Auburn University, Auburn, AL

1983-1985: Veterinary Associate, Radcliff Veterinary Clinic, Radcliff, KY

1985: Veterinary Associate, Catoosa Veterinary Clinic, Ringgold, GA

Professional experience and academic career (continued):

- 1986-1988: Graduate Research Assistant (Radiation Oncology), Department of Anatomy, Physiological Science, and Radiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- 1989-1990: Research Associate in Radiation Oncology, Division of Radiation Oncology, Department of Radiology, Duke University Medical Center, Durham, NC
- 1990-1993: Associate in Radiation Oncology, Department of Radiation Oncology, Duke University Medical Center, Durham, NC
- 1993-1997: Assistant Professor in Radiation Oncology, Department of Radiation Oncology, Duke University Medical Center, Durham, NC
- 1996-1997: President - Chapel Hill Veterinary Services, Inc. - mobile small animal practice providing full medical and surgical services to clients in the Research Triangle Area.
- 1996-1998: Adjunct Assistant Professor, Department of Anatomy, Physiological Sciences, and Radiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- 1997-1998: Associate Member in the Graduate Faculty - Department of Anatomy, Physiological Science, and Radiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- 1997-2002: Veterinary Radiation Oncologist - Veterinary Centers of America - Veterinary Referral Associates, Gaithersburg, MD
- 2002-Present: Veterinary Radiation Oncology Specialists – Affiliated with MedVet, Associates, Inc. Worthington, OH

Honors:

- Magna Cum Laude - Clemson University, 1980
Outstanding Senior Student in the Small Animal Clinic, University of Georgia, 1982
Cum Laude - University of Georgia, 1982
Phi Zeta - North Carolina State University, 1988
President - NCSU College of Veterinary Medicine Graduate Student Association, 1988
Phi Kappa Phi Honor Society - North Carolina State University, 1989
Radiation Research Student Travel Award, 1989
Radiation Research Travel Award, 1991

Professional and Scientific Societies:

American College of Veterinary Radiology - Affiliate of Radiation Oncology
Veterinary Radiation Therapy Oncology Group
American Society for Therapeutic Radiology and Oncology
American Veterinary Medical Association
Veterinary Cancer Society
Ohio Veterinary Medical Association
Columbus Academy of Veterinary Medicine

Teaching Experience:

Graduate or Professional Level

Participant in VMA 860, Radiology and Radiation Biology, Third year veterinary students, North Carolina State University, 1987, 1988.

Participant in Radiation Biology course for Radiation Oncology and Radiology Residents, Duke University Medical Center, 1989, 1990, 1992-1996.

Participant in Radiation Biology course for Radiation Oncology and Radiology Residents, University of North Carolina, School of Medicine, 1992, 1993.

Participant in Basic Science of Oncology course for 3rd Year Medical Students, Graduate Students, and Radiation Oncology Residents and Fellows, Duke University Medical Center, 1994, 1995, 1996.

Graduate Committees:

Chieko Azuma, PhD candidate, NCSU, Committee Member.

YingHua Liang, PhD candidate, NCSU, Committee Member.

Publications: (Please note DA McLeod is maiden name.)

A. Refereed Journals

1. Thrall DE, Page RL, **McLeod DA**: Use of insulation to reduce extremity temperature nonuniformity during whole body hyperthermia. *Cancer Res* 47:5880-5882, 1988.
2. Price GS, Armstrong PJ, **McLeod DA**, Babineau CA, Metcalf MR, Sellett LC: Evaluation of citrate, phosphate, dextrose, adenine (CPDA-1) as a storage medium for packed canine erythrocytes. *J Vet Inter Med* 2:126-132, 1988.

A. Refereed Journals (continued)

3. Thrall DE, Robertson ID, **McLeod DA**, Heidner GL, Hoopes PJ, Page RL: A comparison of radiographic and computed tomographic findings in 31 dogs with malignant nasal cavity tumors. *Vet Radiol* 30:59-66, 1989.
4. Thrall DE, **McLeod DA**, Bentel GC, Dewhirst MW: A review of treatment planning and dose calculation in veterinary radiation oncology. *Vet Radiol* 30:194-221, 1989.
5. **McLeod DA**, Thrall DE: The combination of surgery and radiation in the treatment of animal tumors: A review. *Vet Surg* 18:1-6, 1989.
6. Thrall DE, Page RL, Dewhirst MW, Macy DW, **McLeod DA**, Scott RJ, Allen S., Gillette EL: Whole body hyperthermia in dogs using a radiant heating device: Effects of heating technique on temperature uniformity. *Int J Hyperthermia* 5:137-143, 1989.
7. Thrall DE, Dewhirst MW, Page RL, Samulski TV, **McLeod DA**, Oleson J: A comparison of temperatures in canine solid tumors during local and whole-body hyperthermia administered alone and simultaneously. *Int J Hyperthermia* 6:305-317, 1990.
8. Dewhirst MW, **Prescott DM**, Clegg S, Samulski TV, Page RL, Thrall DE, Leopold K, Rosner G, Acker JC, Oleson JR: The use of hydralazine to manipulate tumor temperature during hyperthermia. *Int J Hyperthermia* 6:971-983, 1990.
9. **Prescott DM**, Hoopes PJ, Thrall DE: Modification of radiation damage in the canine kidney by hyperthermia: A histologic and functional study. *Radiat Res* 124:317-325, 1990.
10. Thrall DE, **Prescott DM**, Samulski TV, Dewhirst MW, Cline JM, Lee J, Page RL, Oleson JR: Serious toxicity associated with annular microwave array induction of whole body hyperthermia. *Int J Hyperthermia* 8:23-32, 1992.
11. Laskowitz DT, Elion GB, Dewhirst MW, Griffith OW, Savina PM, Blum MR, **Prescott DM**, Bigner DD, Friedman HS: Hyperthermia-induced enhancement of melphalan activity against human rhabdomyosarcoma xenografts. *Radiat Res* 129:218-223, 1992.
12. **Prescott DM**, Samulski TV, Dewhirst MW, Page RL, Thrall DE, Dodge RK, Oleson JR: Use of nitroprusside to increase tissue temperature during local

hyperthermia in normal and tumor-bearing dogs. *Int.J Radiat Oncol Biol Phys* 23(2):377-385, 1992.

A. Refereed Journals (continued)

13. **Prescott DM**, Charles HC, Sostman HD, Page RL, Thrall DE, Moore D, Oleson JR, Dewhirst MW: Manipulation of intracellular and extracellular pH in spontaneous canine tumors by use of hyperglycemia. *Int J Hyperth* 9:745-754, 1993.
14. Sostman HD, **Prescott DM**, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR, Charles HC: MR imaging and spectroscopy for prognostic evaluation in soft-tissue sarcomas. *Radiology* 190:269-275, 1994.
15. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR: Therapy monitoring in human and canine soft tissue sarcomas using magnetic resonance imaging and spectroscopy. *Int J Radiat Oncol Biol Phys* 28:415-423, 1994.
16. Samulski TV, Clegg ST, Das S, MacFall J, **Prescott DM**: Application of new technology in clinical hyperthermia. *Int J Hyperth* 10:389-394, 1994.
17. Anscher MS, Murase T, **Prescott D**, Marks LB, Reisenbichler H, Bentel G, Spencer D, Sherouse G, Jirtle RL: Changes in plasma TGF- β levels during pulmonary radiotherapy as a predictor of the risk of developing radiation pneumonitis. *Int J Radiat Oncol Biol Phys* 30:671-676, 1994.
18. MacFall JR, **Prescott DM**, Fullar E, Samulski TV: Temperature dependence of canine brain tissue diffusion coefficient measured in vivo with magnetic resonance echo planar imaging. *Int.J Hyperth* 11:73-86, 1995.
19. Rosner GL, Clegg ST, **Prescott DM**, Dewhirst MW: Estimation of Tumor Cell Survival. *Int J Hyperth* 12:223-239, 1996.
20. Concannon KT, Price GS, **Prescott DM**: Adverse physiologic effects of the thermosensitizing agents amiloride and DIDS in normal dogs: Correlation to amiloride infusion rate. *Radiat Oncol Invest* 4:60-65, 1996.
21. Thrall DE, **Prescott DM**, Samulski TV, Denman DL, Legorreta RL, Rosner GL, Dodge RK, Page RL, Cline MJ, Lee J, Evans SM, Oleson JR, Dewhirst MW: Radiation and local hyperthermia versus radiation and whole body hyperthermia combine with local hyperthermia in canine sarcomas. *Int J Radiat Oncol Biol Phys* 34:1087-1096, 1996.

A. Refereed Journals (continued)

22. Jones DN, McCowage G, Sostman HD, Brizel DM, Layfield L, Charles HC, Dewhirst MW, **Prescott DM**, Friedman HS, Harrelson JM, Scully SP, Coleman RE: Monitoring of neoadjuvant therapy response of soft tissue and musculoskeletal sarcomas using F18-FDG PET. *J Nucl Med* 37:1438-1444, 1996.
23. MacFall JR, **Prescott DM**, Charles HC, Samulski TV: 1H MRI Phase Thermometry in vivo in Canine Brain, Muscle and Tumor Tissue. *Med Phys* 23:1775-1782, 1996.
24. **Prescott DM**, Charles HC, Poulson J, Page RL, Thrall DE, Vujaskovic Z, Dewhirst MW: The relationship of intracellular and extracellular pH in spontaneous tumors. *Clinical Cancer Research*, 6:2501-2505, 2000.
25. Vujaskovic Z, Poulson JM, Gaskin AA, Thrall DE, Page RL, Charles HC, MacFall JR, Brizel DM, Meyer RE, **Prescott DM**, Samulski T., Dewhirst MW: Temperature-dependent changes in physiologic parameters of spontaneous canine soft tissue sarcomas after combined radiotherapy and hyperthermia treatment. *Int J Radiat Oncol Biol Phys* 46:179-185, 2000.
26. Poulson J, Dewhirst MW, Gaskin AA, Vujaskovic Z, Samulski TV, **Prescott DM**, Meyer RE, Page RL, Thrall DE: Acute pancreatitis associated with administration of a nitric oxide synthase inhibitor in tumor-bearing dogs. *In Vivo*. 14:709-714, 2000.
27. Poulson JM, Vujaskovic Z, Gaskin AA, Larue SM, Meyer RE, **Prescott DM**, Samulski TV, Thrall DE, Dewhirst MW: Effect of calcitonin gene related peptide vs sodium nitroprusside to increase temperature in spontaneous canine tumours during local hyperthermia. *Int.J Hyperth.* 20:477-489, 2004.

B. Scientific Abstracts

1. **McLeod DA**, Thrall DE, Dewhirst MW, Page RL: Temperature nonuniformity in the canine kidney during whole body hyperthermia. *North American Hyperthermia Group 8th Annual Meeting*, Apr. 16-21, 1988.
2. Thrall DE, Dewhirst MW, Page RL, Heidner G, **McLeod DA**, Tso CY: Treatment of canine soft tissue sarcomas with radiation and hyperthermia - A phase II study with analysis of variables affecting response. *Vet Cancer Society 8th Annual Meeting*, Oct 3-5, 1988.

B. Scientific Abstracts (continued)

3. **McLeod DA**, Thrall DE, Hoopes PJ, Giesbrecht FE: Modification of radiation damage by hyperthermia in the canine kidney. *North American Hyperthermia Group 9th Annual Meeting*, Mar 18-23, 1989.
4. Stone EA, **McLeod DA**, Thrall DE: Effects of whole body hyperthermia on renal blood flow. *North American Hyperthermia Group 9th Annual Meeting*, Mar 18-23, 1989.
5. Thrall DE, Dewhirst MW, Samulski T, Page RL, **McLeod DA**, Oleson J: Temperatures in solid tumors during whole body hyperthermia alone and in combination with local hyperthermia. *North American Hyperthermia Group 9th Annual Meeting*, Mar 18-23, 1989.
6. **McLeod DA**, Samulski T, Dewhirst MW, Oleson J: Use of nitroprusside to induce step-down heating in canine subjects. *Vet.Cancer Society 9th Annual Meeting*, Oct 15-17, 1989.
7. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW: Use of hyperglycemia and vasoactive drugs to manipulate metabolic status of tumors. *North American Hyperthermia Group 10th Annual Meeting*, Apr 7-12, 1990.
8. **Prescott DM**, Samulski TV, Dewhirst MW, Oleson JR: Physiological manipulation using nitroprusside, a hypotensive agent, to induce step-down heating in canines. *North American Hyperthermia Group 10th Annual Meeting*, Apr 7-12, 1990.
9. Thrall D, **McLeod D**, Samulski T, Dewhirst M, Page R, Oleson J: Miniature annular phased array (MAPA) induction of whole body hyperthermia (WBH). *North American Hyperthermia Group 10th Annual Meeting*, Apr 7-12, 1990.
10. **Prescott DM**, Samulski TV, Dewhirst MW, Page R, Thrall DE, Oleson JR: Effects of nitroprusside on tumor and normal tissue temperatures during local hyperthermia in tumor-bearing dogs. *Vet Cancer Society 9th Annual Meeting*, Nov 4-6, 1990.
11. **Prescott DM**, Samulski TV, Nalesnik MA, Samulski RJ: Radiation-induction of solid tumors in a transgenic mouse line. *Radiation Research Society Workshop entitled Oncogenic Mechanisms in Radiation-Induced Cancer*, Jan 16-19, 1991.
12. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW: Use of hyperglycemia to manipulate metabolic status of spontaneous canine tumors. *Society for Magnetic Resonance Imaging*, Apr 13-17, 1991.

B. Scientific Abstracts (continued)

13. Laskowitz DT, Elion GB, Dewhirst MW, Griffith OW, Casero R, **Prescott DM**, Bigner DD, Friedman HS: Therapeutic interaction between hyperthermia, melphalan, and perturbations of glutathione and polyamine levels in human rhabdomyosarcoma xenografts. *American Association for Cancer Research Meeting*, 1991.
14. **Prescott DM**, Samulski TV, Schenkman DI, Nalesnik MA, Samulski RJ: Initial characterization of radiation-induction of solid tumors in a transgenic mouse line. *9th International Congress of Radiation Research*, July 7-12, 1991.
15. Oleson JR, Clegg S, Dewhirst MW, Samulski TV, **Prescott DM**, Rosner G, Murphy K: Variability associated with hyperthermia temperature sampling. *9th International Congress of Radiation Research*, July 7-12, 1991.
16. **Prescott DM**, Charles HC, Thrall DE, Page RL, Dodge RK, Sostman D, Dewhirst MW: Correlation of MRI/MRS parameters with time to local failure in spontaneous canine tumors following therapy with hyperthermia and radiation. *6th International Congress on Hyperthermic Oncology*, April 26-May 1, 1992.
17. Sostman HD, Charles HC, **Prescott DM**, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR: MRI/MRS for prognostic evaluation of soft tissue sarcomas. *17th LH Gray Conference*, 1992.
18. Zalutsky MR, Vaidyanathan G, Hoffman JM, **Prescott DM**, Dewhirst MW, Coleman RE: [C-11] alpha-aminoisobutyric acid (AIB): A potential blood-brain barrier permeability tracer for PET. *The Society of Nuclear Medicine 39th Annual Meeting*, June 9-12, 1992.
19. Sostman HD, Charles HC, **Prescott DM**, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR: MRI/MRS for prognostic evaluation of soft tissue sarcomas. *11th Annual Meeting of Society of Magnetic Resonance in Medicine*, Aug 8-14, 1992.
20. **Prescott DM**, Charles HC, Sostman HD, Leopold KL, Dodge RK, Thrall DE, Page RL, Oleson JR, Dewhirst MW: MRI/MRS for therapy monitoring in human and canine soft tissue sarcomas treated with hyperthermia and radiation. *34th Annual Scientific Meeting of the American Society for Therapeutic Radiology and Oncology*, Nov 9-13, 1992. *Int J Radiat Oncol Biol Phys* 24(Suppl 1):196, 1992.

B. Scientific Abstracts (continued)

21. Charles HC, **Prescott DM**, Britt J, Ong ET, Sostman HD, Dewhirst MW: Measurement of tumor pO₂ using a perfluorinated blood substitute and ¹⁹F-MRS *Radiation Research Society - 41st Annual Meeting*, Mar 20-25, 1993.
22. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW: Effects of amiloride and DIDS on tumor pH in canines with spontaneous tumors. *North American Hyperthermia Group 13th Annual Meeting*, Mar 20-25, 1993.
23. Anscher MS, Marks LB, Sherouse G, Spencer D, **Prescott D**, Reisenbichler H, Jirtle RL: Changes in plasma transforming growth factor- β levels during pulmonary irradiation. *Radiation Research Society - 41st Annual Meeting*, Mar 20-25, 1993.
24. Foltz RM, **Prescott D**, Samulski T, Clegg S, Maurer E, Bigner D, Dewhirst M: Manipulation of blood-brain barrier with microwave-induced hyperthermia. *North American Hyperthermia Group 13th Annual Meeting*, Mar 20-25, 1993.
25. MacFall JR, Samulski TV, **Prescott DM**: Echo planar imaging of tissue apparent diffusion coefficient in vivo during hyperthermia. *Society Magnetic Resonance Medicine*, Aug 14-20, 1993.
26. Anscher MS, **Prescott D**, Reisenbichler H, Spencer D, Bentel G, Marks LB, Sherouse G, Jirtle RL: Changes in plasma TGF- β levels during pulmonary radiotherapy as a predictor of the risk of developing late radiation pneumonitis. *35th Annual Scientific Meeting of the American Society for Therapeutic Radiology and Oncology*, Oct 11-15, 1993. *Int J Rad at Oncol Biol Phys* 27(Suppl 1):182, 1993.
27. Anscher MS, Murase T, **Prescott D**, Reisenbichler H, Marks L, Bentel G, Spencer D, Jirtle RL: Plasma TGF- β levels as a predictor for radiation pneumonitis. *Radiation Research Society - 42st Annual Meeting*, Apr 29-May 4, 1994.
28. MacFall JR, Samulski TV, **Prescott DM**, Fullar E: Thermal mapping using the MR image phase in vivo during hyperthermia. *Society of Magnetic Resonance - 2nd Meeting*, Aug 6-12, 1994.
29. MacFall JR, Samulski TV, **Prescott DM**, Fullar E: MR monitoring of tissue temperature and thermal damage during hyperthermia. *AAPM*, 1994.
30. Clegg ST, McCauley G, **Prescott D**, MacFall J: Prospective modeling of clinical hyperthermia treatments using MRI contrast images. *ASME*, 1995.

B. Scientific Abstracts (continued)

31. Thrall D, **Prescott D**, Samulski T, Denman D, Legorreta R, Page R, Cline M, Lee J, Evans S, Oleson J, Dewhirst M: A trial of radiation + local hyperthermia (LH) versus radiation + whole body hyperthermia (WBH) + LH in canine tumors. *Radiation Research Society - 43rd Annual Meeting*, Apr 1-6, 1995.
32. Concannon KT, **Prescott D**, Price S, Dewhirst M: Cardiovascular effects and pharmacokinetic analysis of the thermosensitizing agents amiloride and 5-N,N(-Hexamethylene)-amiloride (HMA) in dogs. *North American Hyperthermia Group 15th Annual Meeting*, Apr 1-6, 1995.
33. **Prescott DM**, Concannon KT, Covington W, Samulski TV: Use of calcitonin gene-related peptide to increase tissue temperature during local hyperthermia in canines. *North American Hyperthermia Group 15th Annual Meeting*, Apr 1-6, 1995.
34. **Prescott DM**, Clegg ST, McCauley G, Concannon KT, Thrall D, Page R, MacFall J: Use of dynamic contrast-enhanced MRI to measure perfusion-related indices in canine tumors. *American College Veterinary Radiology 1995 Annual Meeting*, Aug 5-11, 1995.
35. **Prescott DM**, Clegg ST, McCauley G, Concannon KT, Thrall D, Page R, MacFall J: Use of MRI to measure perfusion-related indices in canine tumors. *Vet Cancer Society 15th Annual Meeting*, Oct 21-24, 1995.
36. **Prescott DM**, Samulski TV, Concannon KT, Brooks J, Thrall DE, Page RL, Dewhirst MW: Comparison of several vasoactive agents during local hyperthermia in normal and tumor-bearing dogs. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
37. **Prescott DM**, Clegg ST, McCauley G, Concannon KT, Brooks J, Thrall D, Page R, Charles HC, MacFall JR: Use of dynamic contrast-enhanced MRI to measure perfusion-related indices in canine tumors. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
38. Samulski TV, MacFall J, **Prescott DM**, Concannon K, Brooks J: Magnetic resonance chemical shift temperature mapping. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
39. **Prescott DM**, Dewhirst MW, Brooks J, Charles HC: Relationship of intracellular and extracellular pH in spontaneous soft tissue tumors in dogs. *Radiation Research Society - 45th Annual Meeting*, May 3-7, 1997.

B. Scientific Abstracts (continued)

40. MacFall JR, Samulski TV, Prescott DM, Poulson J: Temperature dependence of the apparent diffusion coefficient in anisotropic canine brain tissue *in vivo* for different diffusion directions. *ISMRM*, 1997.

C. Book Chapters

1. **Prescott DM**, Dewhirst MW, Hyperthermia: Update and current indications. In: *Kirk's Current Veterinary Therapy XI, Small Animal Practice*, Eds. Kirk RW, and Bonagura JD, WB Saunders, pp.418-423, 1992.
2. **Prescott DM**, Manipulation of physiological parameters during hyperthermia. In: *Principles and Practice of Thermoradiotherapy and Thermochemistry*, Eds. Seegenschmiedt MH, Fessendon P, and Vernon CC, Springer-Verlag, pp. 177-189, 1995.

D. Submitted manuscripts

1. Dewhirst MW, Prosnitz L, Thrall D, **Prescott D**, Clegg S, Charles C, Rosner G, Samulski T, Gillette E, LaRue S: Hyperthermic treatment of malignant diseases: Current Status and a view toward the future. *Int J Hyperth* (Submitted), 1997.
2. Carter DL, MacFall JR, Clegg ST, **Prescott DM**, Charles HC, Samulski TV: Magnetic resonance thermometry during hyperthermia for human high-grade sarcoma. . *Int J Radiat Oncol Biol Phys* (Submitted), 1997.

E. Invited Presentations

1. **Prescott DM**: Use of Client-Owned Pet Dogs with Spontaneous Tumors in Cancer Research. *NC Society of Radiologic Technologists, Inc.*, Apr 9, 1993.
2. **Prescott DM**, Charles HC, Samulski TV, Thrall DE, Dewhirst MW: Manipulation of Various Physiological Parameters to Enhance Thermal Sensitivity of Canine Spontaneous Tumors. *Radiation Research Society - 42st Annual Meeting*, Apr 29-May 4, 1994.
3. **Prescott DM**: Evaluation of Dynamic Contrast-Enhanced MRI as a Predictor of Tumor Heatability Pretherapy. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
4. **Prescott DM**: Soft Tissue Sarcomas as a Tumor Biologic Model. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.

E. Invited Presentations (continued))

5. **Prescott DM:** Use of Dynamic Contrast-Enhanced MRI to Preselect Patients for Manipulation of Tumor Blood Flow During Hyperthermia. *Thomas Jefferson University Hospital - Bodine Center for Cancer Treatment*, May 15, 1996.
6. **Prescott DM:** Use of Dynamic Contrast-Enhanced MRI to Preselect Patients for Manipulation of Tumor Blood Flow During Hyperthermia. *University of Pennsylvania - School of Veterinary Medicine* May 16, 1996.
7. **Prescott DM:** Manipulation of Tumor pH to Enhance Cancer Therapy. *MR of Cancer Physiology and Metabolism*, Aug 7-9, 1996.

Participation in academic and administrative activities of Duke University and the Medical Center:

Member, Duke Comprehensive Cancer Center, 1992-1997
Alternate Representative for the Department of Radiation Oncology, Clinical Faculty Sciences Council, Duke University Medical Center, 1994-1995
Representative for the Department of Radiation Oncology, Clinical Faculty Sciences Council, Duke University Medical Center, 1995-Present
Secretary, American College of Veterinary Radiology - Affiliate of Radiation Oncology, 1994-1999
Member, Student Selection Committee, Duke Comprehensive Cancer Center's Summer on the Edge Program, 1995-1997.
Mentor, Stephanie Broughton, Duke Comprehensive Cancer Center's Summer on the Edge Program, 1995
Mentor, Timothy Carle, NC School of Science and Mathematics Mentorship Program, 1995-1996
Mentor, Necia McRae, Duke Comprehensive Cancer Center's Summer on the Edge Program, 1996
Member, Research-Track Promotion Committee, Clinical Faculty Sciences Council, Duke University Medical Center, 1996

Prior Research Support:

Fiscal 1987-1988, Determining the effects of whole body hyperthermia on renal blood flow with non-radioactive colored microspheres, School of Veterinary Medicine State Funds, North Carolina State University, \$17,985, Co-investigator, (E. Stone - P.I.)

Fiscal 1987-1990, Hyperthermia and perfusion effects in cancer therapy, NCI, \$3,770,379, Research Associate, (J. Oleson - P.I.)

Fiscal 1989-1990, Use of low voltage applicator in the treatment of cancer, Aqua Dynamics, Inc., Adamsville, Tennessee, \$6,001, Co-investigator, (M. Dewhirst - P.I.)

Prior Research Support (continued):

Fiscal 1990-1991, Use of low voltage applicator in the treatment of cancer, Aqua Dynamics, Inc., Adamsville, Tennessee, \$1,880, Principal Investigator

Fiscal 1993, Evaluation of NS-105 on choline uptake in the brain using MRS, Dupont/Merck, \$94,832, Co-P.I. (H.C. Charles - P.I.)

Fiscal 1990-1995, Hyperthermia and perfusion effects in cancer therapy, NCI, \$3,770,379, Investigator, (M. Dewhirst - P.I.)

Fiscal 1994-1996, Patient treatment planning for ultrasound induced hyperthermia using the finite element method, Whitaker Foundation, \$180,000, Veterinarian (S. K. Das - P.I.)

Fiscal 1992-1997, Ultrasound & Phased Array Applicators for Hyperthermia, NCI, \$924,715, Investigator (T.V. Samulski - P.I.)

Fiscal 1994-1997, Magnetic resonance monitoring of hyperthermia, NCI, \$599,383, Investigator (J.R. MacFall - P.I.)

Fiscal 1995-1997, Hyperthermia and perfusion effects in cancer therapy, NCI, \$14,286,022 (Total PPG), Project II - \$1,518,661 (Direct only), Project Director - Project II, Investigator – Project I&V (M. Dewhirst - P.I.)

Fiscal 1995-1997, Predicting human tumor response by 31P MRS, NCI, \$500,000, Investigator (H.C. Charles - P.I.)

Curriculum Vitae

Jonathan T. Shiroma, DVM, MS

Title

Veterinary Radiologist
Diplomate
American College of Veterinary Radiology

Radiology Consultant
 MedVet Associates and
 Columbus Veterinary Emergency Service
 Indianapolis Veterinary Emergency Center
 and Indianapolis Veterinary Referral

Professional Positions

May 22, 1995 – present	Staff Radiologist	MedVet Associates
September 27, 1991 - May 19, 1995	Assistant Professor	College of Veterinary Medicine University of Florida
August 15, 1988 - August 15, 1991	Resident in Radiology	Veterinary Clinical Sciences Ohio State University
July 1, 1987 - July 31, 1988	Intern	Santa Cruz Veterinary Hospital Santa Cruz, California
July 1, 1986 - May 30, 1987	Staff	Care Animal Hospital Honolulu, Hawaii

Board Certification

American College of Veterinary Radiology, 1993

Education

1988-1992	Veterinary Clinical Sciences Ohio State University	Master of Science
1982 - 1986	College of Veterinary Medicine Oregon State University Corvallis, Oregon	Doctor of Veterinary Medicine
1979 - 1983	Oregon State University	Bachelor of Science, General Science

Refereed Publications

Shiroma JT, Engel HN, Wagner PC, Watrous BJ. Dorsal subluxation of the proximal interphalangeal joint in the pelvic limb of three horses. JAVMA 1989;195:777-783.

Hardy J, Shiroma JT. What is your diagnosis? Luxation of the temporomandibular joint in a horse. JAVMA 1991;198:1663.

Hance SR, Shiroma JT, Bertone JJ. Ultrasonographic Diagnosis: Splenic lymphosarcoma in a horse. Vet Radiol 1992;33:101-102.

Shiroma JT, Weisbrode SE, Biller DS, Olmstead ML. Pathologic fracture of an aneurysmal bone cyst in the lumbar vertebra of a dog. JAAHA 1993;29:434-437.

Shiroma JT, Clark CK, BonenClark GD, Ginn PE, Keldahl CW. Paraesophageal cyst in a horse. Vet Radiology & Ultrasound 1994;35:158-161.

Simpson KW, Shiroma JT, Biller BS, Wicks J, Johnson SE, Dimski D, Chew D. Ante mortem diagnosis of pancreatitis in four cats. J Small Anim Pract 1994;35:93-99.

Marble SL, Edens LM, Shiroma JT, and Savage CJ. Massive spontaneous subcutaneous emphysema in a neonatal foal. JAVMA 1995;208:97-99.

Hawkins IF, Mladinich CRJ, Weingarten KE, Shiroma JT, Heaton-Jones T, Effects of carbon dioxide (CO₂) Arterial infusion on hepatic function and histology in a rabbit model. Investigative Radiology 1995;30:192-195.

Stubbs WP, Voges AK, Shiroma JT, Wolf J. What is your diagnosis? Infiltrative lipoma of the parotid salivary gland. JAVMA 1996;209:55-56.

Romagnano A, Shiroma JT, Heard DJ, Mladinich CRJ, Schiering MR. MRI of the brain and coelomic cavity of the domestic pigeon (*Columbia livia domestica*). Vet Radiology & Ultrasound, 1996;37(6):431-440

Leveille R, Biller DS, Shiroma JT. Sonographic evaluation of the common bile duct in cats. J Vet Int Med, 1996;10(5):296-9

Shiroma JT, Gabriel JK, Carter RL, Scruggs SL, Stubbs PW. Effect of reproductive status on feline renal size. Vet Radiology & Ultrasound, 1999 May-Jun;40(3):242-5

Shiroma JT, Anderson SE. Radiographic Diagnosis: Esophageal foreign object. Vet Radiology & Ultrasound, 1999 Mar-Apr;40(2):126-7

Murphy ST, Lewis DD, Shiroma JT, Neuwirth LA, Parker RB, Kubilis PS. Effect of radiographic positioning on interpretation of cubital joint congruity in dogs. Am J Vet Res. 1998 Nov;59(11):1351-7)

Wosar MA, Lewis DD, Neuwirth L, Parker RB, Spencer CP, Kubilis PS, Stubbs WP, Murphy ST, Shiroma JT, Stallings JT, Bertrand SG. Radiographic evaluation of elbow joints before and after surgery in dogs with possible fragmented medial coronoid process. J Am Vet Med Assoc. 1999 Jan 1;214(1):52-8

Lisa Fulton DVM, DACVIM
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USA
614-846-5800 Ext. 2201
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EDUCATION:

Miami University, Oxford, OH	BA Zoology (Cum Laude) 1974-1978
Ohio State University, Columbus, OH	DVM (Cum Laude) 1978-1982
The Animal Medical Center, New York, NY	Internship: Small Animal Medicine and Surgery 1982-1983
The Animal Medical Center, New York, NY	Residency: Medical Oncology 1983-1985

EMPLOYMENT:

VCA - Veterinary Referral Associates, Gaithersburg, MD 1985-2005
Staff Oncologist Practice limited to oncology and internal medicine
MedVet - Medical Center for Pets, Worthington OH 2005-Present
Staff Oncologist

PROFESSIONAL MEMBERSHIPS:

Diplomate of the American College of Internal Medicine (Oncology)
American Veterinary Medical Association
Maryland Veterinary Medical Association
Veterinary Cancer Society

PROFESSIONAL LICENSES:

Maryland
Ohio
Massachusetts
New York

PUBLICATIONS:

Fulton, LM Steinberg HS: Preliminary Study of Lomustine in the Treatment of Intracranial Masses in Dogs Following Localization by Imaging Techniques. Semin Vet Med Surg (Small Animal) 1990; 5:241-245.

Fulton, LM, Bromberg NM, Goldschmidt MH: Soft Tissue Fibrosarcoma with Intraocular Metastasis in a Cat. Progress in Veterinary & Comparative Ophthalmology 1991; 1:129-132.

Jankowski M, Fulton LM: Betathine a Novel Antitumor Agent for Cats and Dogs: Results of an Ongoing Phase I/II Evaluation. Veterinary Cancer Society Newsletter Summer 1999

PRESENTATIONS:

- “Veterinary Oncology” Mercy College Animal Technician Program NY, NY 5/85
- “Visceral Mast Cell Tumor in the Cat” The AMC Continuing Education Lecture NY, NY 5/85
- “Alimentary Lymphosarcoma in the Cat” Veterinary Cancer Society Meeting Purdue, IN 4/86
- “Abdominal Neoplasia in the Cat” Friendship An Hosp Continuing Ed Seminar Washington, DC 5/86
- “Cancer and Veterinary Practice” NOVA Veterinary Technician Program Leesburg, VA 5/86 & 5/87
- “Introduction to Chemotherapeutic Agents and Their Application in Small Animals MD/PA Mid-Atlantic States Veterinary Clinic Timonium, MD 5/91
- “The Use of Lomustine for the Treatment of Brain Masses in Dogs” The 9th Annual ACVIM Forum New Orleans, LA 5/91
- “Lymphoma in the Ferret” The 9th Small Mammal Veterinary Conference Baltimore, MD 8/97
- “Canine Mast Cell Tumor” Wheeling Area

This is a copy of the e-mail from Dr. Snapka allowing my residents to participate in the Radiation Biology Course offer at OSU.

From: Robert M. Snapka [<mailto:snapka.1@osu.edu>]

Sent: Saturday, September 10, 2005 5:08 PM

To: Deb Prescott

Subject: Re: Radiation Biology and Physics class for Radiation Oncology Residents

Your residents are very welcome. Vet Med students, including those with a specialty interest in radiology, have done well in our class in the past. We maintain a library of board type exams, including in-service exams, radiology board exams and others, which we base many of our test questions on. These also include vet rad exams that I have been provided with in the past, but they strongly resemble the exams the COM rad Onc residents take. I have attached a lecture schedule. As you see, we meet on Wed each week at 4:30 PM and the lectures are 2 hr. We continually update them. The board exams have been increasing emphasis on molecular aspects of radiation biology (cell cycle checkpoints, DNA repair mechanisms etc) and we will be including them. We will all be including material in the new BEIR VII report in this year's lectures. I'll be glad to talk to you about the course, let me know when is the best time to call.
-Bob Snapka

At 06:23 PM 9/9/2005, you wrote:

Hi,

I was given your name, phone numbers and e-mail addresses from Dr. John Hoftiezer. I am a veterinary radiation oncologist that will be starting a residency training program next year. To appropriately prepare the candidate for boards, I would like to have them complete/attend a radiation biology, a radiation physics course and if possible a cancer biology course that is similar to the course work providing to radiation oncology residents at your facility.

When I did my radiation oncology training at North Carolina State Univ School of Vet Med, I attended the radiation biology, radiation physics and cancer biology courses offered at Duke Univ. Medical Center for their radiation oncology residents. I know that these classes are probably early in the AM in order to avoid conflicts with the clinical responsibilities for the residents.

Since it is now late on Friday and I haven't had a chance to talk to either of you, I thought that I would start with this e-mail asking your permission for my future residents to attend your classes. If you have a chance to call me, I would love to talk to each of you further. I am currently preparing the application to get the radiation oncology residency program approved. Therefore, with your permission, I can attach syllabi for the courses as well as names of the instructors and their credentials to the application.

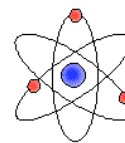
Thank you for your help now and in the future.
Deb

Deborah M. Prescott, DVM, PhD
Diplomate ACVR in Radiation Oncology

Rad Onc Ph 614-431-4403
MedVet Ph 614-846-5800
fax 614-431-6296



RADIATION BIOLOGY
 (Radiology 680, Fall 2005, Call #17914-8, 2 credit hrs)
 S-207 Rhodes Hall, 450 W. 10th Av., Wednesdays, 4:30 pm



Text: *Radiobiology for the Radiologist*
 5th edition, Eric J. Hall, Lippincott, 2000
 Aux. Text: Basic Clin. Radiobiol. Steel, 3rd Ed.

Coordinator: Robert M. Snapka,
 2001 Polaris Parkway 293-0822
 Snapka.1@OSU.edu

<u>Lecture</u>	<u>Date</u>	<u>Topic & Instructor</u>	<u>Hall Chapter</u>	<u>Steel</u>
1.	Sept 21	Physics of Radiation Biology, Dr. Robert Snapka	1, 7, 14	
2.	Sept 28	Cellular & Molecular Aspects of Radiation Biology, Dr. Steven D'Ambrosio (Dambrosio.1@osu.edu)	4, 16, 17	1, 2
3.	Oct 5	Cell Death, Apoptosis and Survival, Dr. Altaf Wani (wani.2@osu.edu)	3, 18, 20	
4.	Oct 12**	Molecular Mechanisms of Damage and Recovery, Dr. Altaf Wani	5, 7	
5.	Oct 19	Modification of Radiation Damage, Dr. Altaf Wani	6, 9, 25, 28	
6.	Oct 26	Organ & Tissue Pathogenesis, Dr. Steven D'Ambrosio	13, 19	3, 4, 5
7.	Nov 2**	Radiation Carcinogenesis, Dr. Robert Snapka	10	
8.	Nov 9	Whole Body & Time-dose relationship Dr. Steven D'Ambrosio	8, 12, 22	12
9.	Nov 16	Genetics and Molecular Mechanisms of Radiation Mutagenesis, Dr. Robert Snapka	2, 11	
10.	Nov 23	NO CLASS (Thanksgiving Nov 24, Columbus Day Nov 25)		
11.	Nov 30	Occupational and Medical Exposure, Dr. Robert Snapka	24, 25	

** = Midterm Exam

Grade Value:

Class participation 20%

Midterms (2, mult.choice) 30%

Final Exam 50% (Dec 7, 4:30 pm)

**Department of
Pathology**



**N-308 Doan Hall
410 W. Tenth Avenue
Columbus, OH 43210
Phone: 293-3055
Fax: 293-7273**

SUBJECT: Pathology/Veterinary Biosciences 640, "Fundamentals of Oncology"
DATE: September 19, 2005
FROM: Rolf F. Barth, M.D. (Pathology) and
Charles C. Capen, D.V.M., Ph.D. (Veterinary Biosciences)
Course Coordinators
TO: Participating Faculty

Attached is a draft of the lecture schedule for our course Pathology/Veterinary Biosciences 640 "Fundamentals of Oncology", which will be given during Winter Quarter 2006. Would you please check your calendar for any possible conflicts? Please call or e-mail Gretchen Staschiak in the Pathology Education Office (3-3055) or fax (3-7273), e-mail Staschiak.2@osu.edu if you have a conflict with your tentative assigned date. Please let us know and we will come up with an alternative. If we don't hear from you by September 28th, we will assume that the time that you have been scheduled for is satisfactory. We plan to distribute this lecture outline as a course announcement using the Cancer Center mailing list in the third week of October for posting across campus.

The required text will be the new, fourth edition of *The Basic Science of Oncology* by Tannock and Hill (McGraw Hill, 2005). Copies of the chapters relating to your lecture/discussion topic will be sent to you in November. We suggest that you include the chapter(s) as part of the assigned reading for your session. Further details relating to the course will be sent to you in early December.

Thank you again for your continued interest and participation in this course!

Attachment

**PATHOLOGY / VETERINARY BIOSCIENCES 640
FUNDAMENTALS OF ONCOLOGY**

Winter Quarter 2006

Tuesdays and Fridays, 3:30-5:30 p.m., Room 400 Health Sciences Library
Use call number for either Pathology or Veterinary Biosciences (4 Credit Hours)

The course will be oriented towards graduate students in cancer-related programs and will consist of a series of lecture/seminars, each two hours in duration, covering a variety of aspects of experimental oncology including chemical and biologic carcinogenesis, epidemiology, genetics, developmental biology, biochemistry, cell kinetics, clonality, metastases, hormonal and immunologic factors, and the molecular basis of cancer therapy. Reading will be from primary sources in the current scientific literature and the required text, *The Basic Science of Oncology* (4th edition, 2005) by Ian Tannock and Richard Hill, et. al. Seminars will be interactive and encourage critical evaluation of the reading assignments. Enrollment will be limited to approximately 20 students.

Jan. 3	Course Overview	Rolf Barth, M.D. and Charles Capen, D.V.M., Ph.D.
Jan. 3	Nomenclature, Classification, & Pathology of Neoplasms; Properties of Malignant Cells	Steven Weisbrode, D.V.M, Ph.D, Veterinary Biosciences
Jan. 6	Epidemiology of Cancer	Randall Harris, M.D., Ph.D., Preventive Medicine
Jan. 10	Oncogenes & Tumor Suppressor Genes	Jas Lang, Ph.D., Otolaryngology
Jan. 13	Oncogenes & Tumor Suppressor Genes	Jas Lang, Ph.D., Otolaryngology
Jan. 17	Oncogenes & Tumor Suppressor Genes	Jas Lang, Ph.D., Otolaryngology
Jan. 20	DNA Viruses and Cancer	Marshall Williams, Ph.D., Molecular Virology, Immunology and Medical Genetics
Jan. 24	RNA Viruses and Cancer	Patrick Green, Ph.D., Veterinary Biosciences
Jan. 27	Chemical Carcinogenesis	Michael Pereira, M.D., Internal Medicine
Jan. 31	Radiation Carcinogenesis and Other Physical Agents	Altaf Wani, Ph.D., Radiology
Feb. 3	Midterm Examination Hall	4:00 pm – 7:00 pm, 107 Hamilton
Feb. 7	Growth Factors and Intracellular Signaling Medicine	Sissy Jhiang, Ph.D., Internal Medicine
Feb. 10	Genetic Testing	Gail Wenger, Ph.D., Pathology
Feb. 14	Genetic Basis of Cancer	Steven Qualman, M.D., Pathology
Feb. 17	Cancer Cytogenetics	Nyla Heerema, Ph.D., Pathology

Feb. 21	Tumor Growth and Cell Kinetics	Dale Vandre, Ph.D., Physiology & Cell Biology
Feb. 24	Tumor Immunology Pathology	Xue-Feng Bai, M.D., Ph.D.
Feb. 28	Invasion and Metastasis Tumor Angiogenesis	Sanford Barsky, M.D., Pathology Rolf Barth, M.D., Pathology
Mar. 3	Hormones and Cancer	Charles Capen, D.V.M., Ph.D., Veterinary Biosciences
Mar. 7	Experimental Radiotherapy Gene Therapy	Steven D'Ambrosio, Ph.D., Radiology Sissy Jhiang, Ph.D., Internal Medicine
Mar. 10	Biological and Pharmacological Properties of Anti-Cancer Drugs	Michael Grever, M.D., Internal Medicine
Mar. 13	Final Examination Hall	4:00 pm – 7:00 pm, 107 Hamilton

Course Coordinators: Rolf F. Barth, M.D. (2-2177) Department of Pathology, and Charles C. Capen, D.V.M., Ph.D. (247-6206) Department of Veterinary Biosciences

August 22, 2008

Dr. Deborah Prescott
MedVet Radiation Oncology
300 E. Wilson Bridge Rd.
Worthington, OH 43085

Dear Dr. Prescott,

Attached is the course outline that I propose for the radiation physics class for your radiation oncology resident. The course will be conducted over a 16 week period with 2 one hour sessions per week. The intent of the course is to cover the material presented in Kahn's textbook. The course will deal with basic atomic and nuclear physics, the production and properties of the types of radiation involved in Radiation Oncology, their interaction with matter, and their measurement. Assigned readings will be given from the main text. Written work in the course will consist of completing selected questions at the end of each chapter and a final examination. Evaluation for the course will be based on the completion of the assigned reading, written work, as well as in-class participation.

Sincerely,

Vern Leininger, PhD, ABR, ABMP

MedVet Radiation Oncology Residency Radiation Physics Training Program

Radiation Physics: The Physics of Therapeutic Radiology

Instructor: Vern Leininger, PhD, ABR, ABMP

This course deals with basic atomic and nuclear physics at a simplified level: the production and properties of the types of radiation involved in Radiation Oncology, their interaction with matter, and their measurement.

Text: Faiz M. Khan. *The Physics of Radiation Therapy*, 3rd ed. Philadelphia: Lippincott, 2003.

1. STRUCTURE OF MATTER

The Atom
The Nucleus
Distribution of Orbital Electrons
Atomic Energy Levels Nuclear Forces
Particle Radiation
Electromagnetic Radiation
 Wave Model
 Quantum Model

Deuteron Bombardment
Neutron Bombardment
Photodisintegration
Fission
Fusion
Activation of Nuclides
Nuclear Reactors

2. NUCLEAR TRANSFORMATIONS

Radioactivity
Radioactive Series
Radioactive Equilibrium
Modes of Radioactive
Decay
 α Particle Decay
 β Particle Decay
 Negatron Emission
 Positron Emission
 Electron Capture
 Internal Conversion
 Isomeric Transition
 Nuclear Reactions
 The α, p Reaction
 The α, n Reaction
 Proton Bombardment

3. PRODUCTION OF X-RAYS

The X-Ray Tube
 The Anode
 The Cathode
 Basic X-Ray Circuit
 Voltage Rectification
 Physics of X-Ray Production
 Bremsstrahlung
 Characteristic X-Rays
 X-Ray Energy Spectra
 Operating Characteristics

4. CLINICAL RADIATION GENERATORS

Kilovoltage Units
 Grenz-Ray Therapy
 Contact Therapy
 Superficial Therapy
 Orthovoltage Therapy or Deep Therapy
 Supervoltage Therapy

- Megavoltage Therapy
- Linear Accelerator
 - The Magnetron
 - The Klystron
 - The Linac X-Ray Beam
 - The Electron Beam
 - Treatment Head
 - Target and Flattening Filter
 - Beam Collimation and Monitoring
 - Gantry
 - Betatron
 - Microtron
 - Cyclotron
 - Machines Using Radionuclides
 - Cobalt-60 Unit
 - Source
 - Source Housing
 - Beam Collimation and Penumbra
 - Heavy Particle Beams
 - Neutrons
 - D-T Generator
 - Cyclotron
 - Protons

5. INTERACTIONS OF IONIZING RADIATION

- Ionization
- Photon Beam Description
- Photon Beam Attenuation
- Coefficients
 - Attenuation Coefficient
 - Energy Transfer Coefficient
 - Energy Absorption Coefficient
- Interactions of Photons with Matter
- Coherent Scattering
- Photoelectric Effect
- Compton Effect
 - Special Cases of Compton Effect
 - Direct Hit
 - Grazing Hit
 - 90° Photon Scatter
 - Dependence of Compton Effect on Energy and Atomic Number
 - Pair Production
 - Annihilation Radiation
 - Variation of Pair Production with Energy and Atomic Number
 - Relative Importance of Various Types of Interactions
 - Interactions of Charged Particles
 - Heavy Charged Particles
 - Electrons

- Interactions of Neutrons
- Comparative Beam Characteristics

6. MEASUREMENT OF IONIZING RADIATION

- Introduction
- The Roentgen
- Free-Air Ionization Chamber
- Thimble Chambers
 - Chamber Wall
 - Effective Atomic Number
 - Chamber Calibration
- Practical Thimble Chambers .
 - Chamber Sensitivity
 - Stem Effect
 - Farmer Chamber
- Electrometers
- Special Chambers
 - Extrapolation Chamber
 - Parallel-Plate Chambers
- Ion Collection
 - Saturation
 - Collection Efficiency
- Chamber Polarity Effects
- Environmental Conditions
- Measurement of Exposure

7. QUALITY OF X-RAY BEAMS

- Half Value Layer
- Filters
- Measurement of Beam Quality Parameters
 - Half-Value Layer
 - Peak Voltage
 - Direct Measurement
 - Voltage Divider
 - Sphere-Gap Method
 - Effective Energy
 - Mean Energy
- Measurement of Megavoltage Beam Energy
- Measurement of Energy Spectrum

8. MEASUREMENT OF ABSORBED DOSE

- Radiation Absorbed Dose
- Absorbed Dose
 - Kerma
 - Exposure and Kerma
 - Absorbed Dose and Kerma
- Calculation of Absorbed Dose from Exposure
 - Absorbed Dose to Air

- Absorbed Dose to any Medium
- Dose Calibration with Ion Chamber in Air
- Dose Measurement from Exposure with Ion Chamber in a Medium
- The Bragg-Gray Cavity Theory
 - Stopping Power
 - Chamber Volume
 - Effective Point of Measurement
 - Plane Parallel Chambers
 - Cylindrical Chambers
- Calibration Protocol for Megavoltage Beams
 - Cavity-Gas Calibration Factor (N_{gas})
- Chamber as a Bragg-Gray Cavity
 - Photon Beams
 - Electron Beams
- Transfer of Absorbed Dose from One Medium to Another
 - Photon Beams
 - Electron Beams
 - Exposure from Radioactive Sources
 - Measurement of Absorbed Dose
 - Calorimetry
 - Chemical Dosimetry !
 - Ferrous Sulfate (Fricke) Dosimeter
 - G Value
 - Solid State Methods
 - Thermoluminescence Dosimetry
 - Simplified Theory of TLD
 - Lithium Fluoride
 - Practical Considerations
 - Film Dosimetry

9. DOSE DISTRIBUTION AND SCATTER ANALYSIS

- Phantoms
- Depth Dose Distribution
- Percentage Depth Dose
 - Dependence on Beam Quality and Depth
 - Initial Dose Buildup
 - Effect of Field Size and Shape
 - Dependence on Source-Surface Distance
- Tissue-Air Ratio
 - Effect of Distance
 - Variance with Energy, Depth, and Field Size
 - Backscatter Factor
 - Relationship between TAR and Percent Depth Dose
 - Depth Dose
 - Conversion of Percent Depth Dose from One SSD to Another---the TAR Method
 - Calculation of Dose in Rotation Therapy

- Scatter-Air Ratio
 - Dose Calculation in Irregular Fields-Clarkson's Method

10. TREATMENT PLANNING: FUNDAMENTALS

- Dose Calculation Parameters
 - Collimator Scatter Factor
 - Phantom Scatter Factor
 - Tissue-Phantom and Tissue-Maximum Ratios
 - Properties of TMR
 - Scatter-Maximum Ratio
- Practical Applications
 - Accelerator Calculations
 - SSD Technique
 - Isocentric Technique
 - Cobalt-60 Calculations
 - Isodose Chart
 - Measurement of Isodose Curves
 - Sources of Isodose Charts
 - Parameters of Isodose Curves
 - Beam Quality
 - Source Size, SSD, and SDD- The Penumbra Effect
 - Collimation and Flattening Filter
 - Field Size
 - Wedge Filters
 - Wedge Isodose Angle
 - Wedge Transmission Factor
 - Wedge Systems
 - Effect on Beam Quality
 - Design of Wedge Filters

11. ELECTRON BEAM THERAPY

- Electron Interactions
 - Rate of Energy Loss
 - Collisional Losses (Ionization and Excitation)
 - Radiation Losses (Bremsstrahlung)
 - Polarization
 - Stopping Power
 - Absorbed Dose
 - Electron Scattering
- Energy Specification and Measurement
 - Most Probable Energy
 - Mean Energy
 - Energy at Depth
- Determination of Absorbed Dose
 - Output Calibration
 - Ion Chamber
 - Phantom

Reference Depth and Field Size
 Absorbed Dose Calculation
 Depth Dose Distribution
 Ionization Chambers
 Silicon Diodes
 Film
 Phantoms
 Characteristics of Clinical Electron Beams
 Central Axis Depth Dose Curves
 Isodose Curves
 Field Flatness and Symmetry
 Beam Collimation
 Field Size Dependence
 Electron Source
 X-Ray Contamination
 Treatment Planning
 Choice of Energy and Field Size
 Corrections for Air Gaps and Beam
 Obliquity
 Tissue Inhomogeneities
 Bone
 Lung
 Small Inhomogeneities
 Use of Bolus and Absorbers
 Problems of Adjacent Fields
 Field Shaping
 External Shielding
 Effect of Blocking on Dose Rate
 Internal Shielding
 Electron Arc Therapy
 Calibration of Arc Therapy Beam
 Treatment Planning
 Beam Energy
 Scanning Field Width
 Location of Isocenter
 Field Shaping
 Isodose Distribution
 Total Skin Irradiation
 Translational Technique
 Large Field Technique
 Field Flatness
 X-Ray Contamination
 Field Arrangement
 Dose Distribution
 Dual Field Angle
 In Vivo Dosimetry

12: BRACHYTHERAPY
 Radioactive Sources
 Radium
 Decay
 Source Construction

Source Specification
 Exposure Rate Constant
 Radon Hazard
 Cesium-137
 Cobalt-60
 Iridium-192
 Gold-198
 Iodine-125
 Palladium-103
 Calibration of Brachytherapy Sources
Specification of Source Strength
 Activity
 Exposure Rate at a Specified Distance
 Equivalent Mass of Radium
 Apparent Activity
 Air Kerma Strength
 Calculation of Dose Distributions
Exposure Rate
 Effect of Inverse Square Law
 Absorbed Dose in Tissue
 Isodose Curves
 Systems of Implant Dosimetry
 The Paterson-Parker System
 Planar Implant
 Volume Implants
 Paterson-Parker Tables
 Determination of Implant Area or Volume
 Orthogonal Radiographs
 The Quimby System
 The Memorial System
 The Paris System
 Computer System
 Computer Dosimetry
Localization of Sources
 Orthogonal Imaging Method
 Stereo-Shift Method
 Dose Computation
 Implantation Techniques
 Surface Molds
 Interstitial Therapy
 Intracavitary Therapy
 Uterine Cervix
 Uterine Corpus
 Dose Specification: Cancer of the Cervix
 Milligram-Hours
 The Manchester System
 Dose to Bladder and Rectum
 The ICRU System
 Absorbed Dose at Reference Points
 Commentary

13. RADIATION PROTECTION

- Dose Equivalent
- Effective Dose Equivalent
- Background Radiation
- Low-Level Radiation Effects
- Effective Dose Equivalent Limits
 - Occupational and Public Dose Limits
 - Dose Limits for Pregnant Women
 - Negligible Individual Risk Level
- Structural Shielding Design
 - Primary Radiation Barrier
 - Secondary Barrier for Scattered Radiation
 - Secondary Barrier for Leakage Radiation
 - Door Shielding
 - Protection against Neutrons
- Protection against Radiation from Brachytherapy Sources
 - Storage
 - Source Preparation
 - Source Transportation
 - Leak Testing
- Radiation Protection Surveys
 - Radiation Monitoring Instruments
 - Ionization Chamber
 - Geiger-Muller Counters
 - Neutron Detectors
 - Equipment Survey
 - Area Survey
- Personnel Monitoring
 - Administrative Requirements
 - ALARA Program
 - Radiation Safety Officer
 - Radiation Safety Committee
 - Quality Management Program

14. QUALITY ASSURANCE

- Equipment
 - External Beam Units
 - Brachytherapy Sources
 - Dosimetric Accuracy
 - Acceptance Testing
 - Linear Accelerator
 - Radiation Survey
 - Jaw Symmetry
 - Coincidence
 - Collimator Axis, Light Beam Axis and Cross-Hairs
 - Light Beam with X-Ray Beam
 - Mechanical Isocenter
 - Collimator Rotation

- Gantry Rotation
 - Radiation Isocenter
- Collimator
- Treatment Table
- Gantry
 - X-Ray Beam Performance
- Energy
- Field Flatness
- Field Symmetry
 - Electron Beam Performance
- Energy
- Flatness and Symmetry
- Monitor Chambers
- Wedges
- Commissioning
 - Linear Accelerator
 - Central Axis Depth Dose Tables
 - Isodose Curves
 - Monitor Unit Calculations
 - Treatment-Planning Computer System
- Periodic Quality Assurance
 - Linear Accelerator
 - Cobalt-60 Unit

15. SPECIAL TOPICS

- a) Total Body Irradiation
- b) Total Skin Irradiation
- c) Radiosurgery
- d) Data Acquisition & Commission of Treatment Planning Systems & Treatment Planning Algorithms – Choice of algorithm for IMRT
- e) IMRT: Overview
- f) IMRT: Tx Planning & QA
- g) Intravascular Brachytherapy
- h) Virtual Wedge
- i) High Dose Rate Brachytherapy



~Resident Performance Evaluation~

Resident: _____
 Department: _____
 Advisor: _____

Year of Evaluation: _____
 Review Date: _____

RATINGS

1	Unsatisfactory
2	Improvement Needed
3	Meets Expectations
4	Exceeds Expectations

I. Clinical Ability

▪ Knowledge (theory/principle)	1	2	3	4
▪ Application of knowledge	1	2	3	4
▪ Productivity	1	2	3	4
▪ Patient Management/Care	1	2	3	4
▪ Communication/Listening Skills	1	2	3	4
▪ Innovative Problem Solving/Creativity	1	2	3	4
Section I Total	=			_____

II. Sense of responsibility

▪ Initiative, motivation	1	2	3	4
▪ Judgement	1	2	3	4
▪ Reliability	1	2	3	4
▪ Organization	1	2	3	4
▪ Punctuality/attendance at rounds and seminars	1	2	3	4
➤ _____				
➤ _____				
➤ _____				
Section II Total	=			_____

III. Interpersonal Skills

▪ Positive Attitude/Sense of Humor	1	2	3	4
▪ Professional Appearance	1	2	3	4
▪ Communication with Internal Staff/Drs	1	2	3	4
▪ Receptiveness towards guidance	1	2	3	4
▪ Performance under stress	1	2	3	4
Section III Total	=			_____

Scoring

- Section I Total _____
- Section II Total _____
- Section III Total _____

TOTAL POINTS = _____

