

Upstate Medical Physics Facilities

Upstate Medical Physics (UMP) has recently moved into a 2,800 square-foot facility in the bucolic country side of the Finger Lakes Region in Upstate New York. The following provides a brief photographic overview of these facilities.



UMP's new facility (left and below) is in a modern building shared with the Village of Victor Offices and a health club.



Bob Pizzutiello, President of UMP, leaving the office for an on-site survey.



UMP reception area. All rooms either have windows to the outside or windows in areas with outside windows.



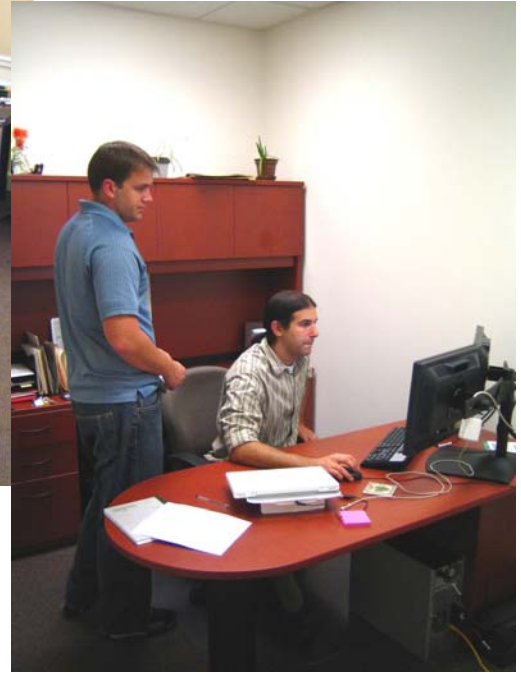
Main Conference Room. This conference room seats 10 comfortably. Usually some staff attend via video teleconferencing system (see below).



UMP's library. Much of the library is available in electronic form at each person's desk. Note the open view into the conference room and outside.



Some of the test equipment available to UMP residents. See Appendix B for a listing of all available test equipment.



UMP staff offices (left and above) and resident office area (below). Kitchen and break area are shown at the lower left.





UMP teleconference with faculty and residents in Victor and Buffalo offices (above). To the right is a training session with the Typhon Group offices in Metairie, Louisiana regarding the resident tracking software.



Electronics room (left) containing servers and communications equipment, and the hub for UMP's T1 communications link.



UMP staff and resident conference in the small conference room. Note the open and airy décor. This room also has teleconferencing capabilities.

Dosimeters- Ionization

Manufacturer	Model	Equipment Description	Serial No. Suffix	Location
Radcal	10X6-6M	Mammo Ion Chamber	0259	Dustin G.
Radcal	9096	Control Unit	0115	Dustin G.
Radcal	9660	Ion Chamber Digitizer	1136	Dustin G.
Radcal	10X6-6	Ion Chamber	0368	Dustin G.
Radcal	40X9-MO	Mammo kV Sensor	0179	Dustin G.
Radcal	40X12-W	kV Sensor	0159	Dustin G.
Radcal	9096	Control Unit	0085	Mark W.
Radcal	9660	Ion Chamber Digitizer	1072	Mark W.
Radcal	10X6-6M	Mammo Ion Chamber	0268	Mark W.
Radcal	10X6-6	Ion Chamber	0318	Mark W.
Radcal	40X9-MO	Mammo kV Sensor	0108	Mark W.
Radcal	40X13-W	kV Sensor	0148	Mark W.
Radcal	9096	Control Unit	0078	Matt S.
Radcal	9660	Ion Chamber Digitizer	1116	Matt S.
Radcal	40X12-W	kV Sensor	0131	Matt S.
Radcal	10X6-6	Ion Chamber	0313	Matt S.
Radcal	10X6-3CT	CT Ion Chamber	0149	Buffalo
Radcal	10X6-3CT	CT Ion Chamber	0198	Victor
Radcal	9096	Control Unit	0119	Bob M.
Radcal	9660	Ion Chamber Digitizer	1288	Bob M.
Radcal	10X6-6	Ion Chamber	0363	Bob M.
Radcal	40X12-W	kV Sensor	0170	Bob M.
Radcal	9096	Control Unit	0065	Bob P.
Radcal	9660	Ion Chamber Digitizer	1059	Bob P.
Radcal	10X6-6M	Mammo Ion Chamber	0254	Bob P.
Radcal	10X6-6	Ion Chamber	0317	Bob P.
Radcal	40X12-W	kV Sensor	0128	Bob P.
Radcal	40X9-MO	Mammo kV Sensor	0049	Bob P.
Radcal	9096	Control Unit	0112	Nelson J.
Radcal	9660	Ion Chamber Digitizer	1130	Nelson J.

Radcal	10X6-6	Ion Chamber	0353	Nelson J.
Radcal	40X12-W	kV Sensor	0181	Nelson J.
Radcal	10X6-3CT	CT Ion Chamber	0200	Victor

Survey Meters

Manufacturer	Model	Equipment Description	Serial No. Suffix	Location
Victoreen	190		1255	Victor
Victoreen	450B		1265	Buffalo
Victoreen	451P		1907	Victor
Victoreen	451B		799	Victor
Victoreen	451B		1074	Victor
Victoreen	450P		2219	Victor
Sypris Gaussmete	5070		0541048	Victor
Victoreen	451P		3096	Buffalo

Light Meters

Manufacturer	Model	Equipment Description	Serial No. Suffix	Location
Unfors	Light	Xi External Detector	141525	Victor
Unfors	Light	Luxi Electrometer	137206	Victor
Unfors	Light	Xi optical	N / A	Victor
Unfors	Light	Xi External Detector	141534	Bob P.
Unfors	Light	Luxi Electrometer	137160	Bob P.
Unfors	Light	Xi optical	N / A	Bob P.
Unfors	Light	Xi External Detector	141538	Mark W.
Unfors	Light	Luxi Electrometer	137154	Mark W.
Unfors	Light	Xi optical	N / A	Mark W.
Unfors	Light	Xi External Detector	141536	Dustin G.
Unfors	Light	Luxi Electrometer	137144	Dustin G.
Unfors	Light	Xi optical	N / A	Dustin G.

Unfors Equipment

Manufacturer	Model	Equipment Description	Serial No. Suffix	Location
Unfors	309	mult-o-meter	5138	Bob P.
Unfors	407 L	mult-o-meter	3533	Victor
Unfors	P10 Pro	Light-O-Meter	1482	Bob P.
Scanditronix-Wellhofer	LXplus	Luminance Meter	5349	Victor
Unfors	P11s	Light-O-Meter	125473	Mark W.
Unfors	P11s	Light-O-Meter	131825	Dustin G.
Unfors	DXR+	collimation test tool	138598	Bob P.
Unfors	DXR+	collimation test tool	138614	Bob P.
Unfors	DXR+	collimation test tool	138586	Bob P.
Unfors	DXR+	collimation test tool	138608	Bob P.
Unfors	DXR+	collimation test tool	133362	Dustin G.
Unfors	DXR+	collimation test tool	133363	Dustin G.
Unfors	DXR+	collimation test tool	138592	Dustin G.
Unfors	DXR+	collimation test tool	138542	Dustin G.
Unfors	DXR+	collimation test tool	133364	Bob M.
Unfors	DXR+	collimation test tool	133365	Bob M.
Unfors	DXR+	collimation test tool	133320	Bob M.
Unfors	DXR+	collimation test tool	138588	Bob M.
Unfors	DXR+	collimation test tool	153836	Bob M.
Unfors	DXR+	collimation test tool	133347	Matt S.
Unfors	DXR+	collimation test tool	133342	Matt S.
Unfors	DXR+	collimation test tool	On Order	Matt S.
Unfors	DXR+	collimation test tool	On Order	Matt S.
Unfors	DXR+	collimation test tool	133340	Nelson J.
Unfors	DXR+	collimation test tool	133343	Nelson J.
Unfors	DXR+	collimation test tool	138594	Nelson J.
Unfors	DXR+	collimation test tool	138587	Nelson J.
Unfors	DXR+	collimation test tool	138582	Mark W.
Unfors	DXR+	collimation test tool	138580	Mark W.
Unfors	DXR+	collimation test tool	138591	Mark W.

Unfors	DXR+	collimation test tool	138538	Mark W.
Unfors	DXR+	collimation test tool	150252	Jason S.
Unfors	DXR+	collimation test tool	150259	Jason S.
Unfors	DXR+	collimation test tool	150247	Jason S.
Unfors	DXR+	collimation test tool	150253	Jason S.

Typical Mammography Test Kit

RadCal 9096 meter (mammo ion chamber, mammo kVp sensor, electrometer)
 Acrylic blocks for Artifact Evaluation (SFM)
 BR-12: 4 2-cm slabs for AEC evaluation
 UMP custom AEC test device for SFM
 6 – 0.1 mm Al sheets (type 1140) for HVL determination
 LP resolution patterns for SFM and FFDM
 Densitometer
 4 Unfors DXR+ collimation test tools
 Unfors Light-o-meter for viewbox evaluation (SFM)
 Unfors LuXi light meter for RWS Evaluation (FFDM)

Typical CT Test Kit

ACR CT Accreditation Phantom
 AAPM Acrylic Dosimetry Phantom
 RadCal 10 cm “Pencil” CT Ion Chamber
 RadCal Farmer-type chamber (one in stock, more planned for 2010)
 Collapsible hand truck

BIOGRAPHICAL SKETCH

NAME Robert J. Pizzutiello, Jr., FAAPM, FACMP	POSITION TITLE Board Certified Medical Physicist
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AREAS OF CLINICAL INTEREST

Diagnostic Medical Physics
Breast Imaging
CT
Interventional

EDUCATION-TRAINING

(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Rochester, Rochester, NY	B.S.	1977	Electrical Engineering
University of Rochester, Rochester, NY	M.S.	1978	Electrical Engineering

PROFESSIONAL EXPERIENCE

University of Rochester, Rochester, NY - Fellow and Trainee in Medical Physics	1977 - 1978
University of Rochester, Rochester, NY - Instructor in Radiation Oncology	
Rochester General Hospital, Rochester, NY - Mgr Biomedical Eng & Physics	1979 - 1989
Upstate Medical Physics, Inc. - President and Founder	1983 - present

ACADEMIC APPOINTMENTS

CERTIFICATION AND AWARDS

American Board of Clinical Engineering, 1979
 New York State Certified Radiation Equipment Safety Officer
 American Board of Rdiology (Therapeutic Radiologic Physics), 1982
 American Board of Medical Physics (Diagnostic Imaging Physics), 1993
 Certified Radiation Equipment Safety Officer (CRESO) for NY State
 Fellow, ACMP 1994
 Fellow, AAPM 2006
 Fellow, ACR (Elected 2009, installation May 2010)

SELECT PUBLICATIONS AND PRESENTATIONS

Pizzutiello, RJ "Mammography – Screen-Film", chapter in RSNA Syllabus 2006.
 Pizzutiello, RJ: Selecting a Medical Physics Consultant. *JACR* 2005 2:10 864-866.
 Gray, J; Archer, B; Butler, P; Hobbs, B; Mettler, F; Pizzutiello, R; Schueler, B; Strauss, K; Suleiman, O; Yaffe, M;
 Reference Values for Diagnostic Radiology: Application and Impact. *Radiology*.2005; 235: 354-358
 Pizzutiello RJ: Practical and Logistical Aspects of Implementing Full-Field Digital Mammography, *Seminars in Breast Imaging*,
 June 2003. S. Feig, editor. W.B. Saunders
 Pizzutiello RJ: Stereotactic Breast Biopsy Accreditation, *Accreditation programs and the Medical Physicist* , Dixon, RL, Butler, PF,
 Sobol, WT, eds. Advanced Medical Publishing Madison WI. 2001.
 Pizzutiello RJ: Comparison of Features of Mammographic Units, *The Expanding Role of Medical Physics in Diagnostic Imaging* ,
 Frey GD and Sprawls P, eds. Advanced Medical Publishing Madison WI. 1997.
 Pizzutiello RJ: Communicating the Results of Medical Physics Mammography Surveys, *The Expanding Role of Medical Physics*
 in Diagnostic Imaging, Frey GD and Sprawls P, eds. Advanced Medical Publishing Madison WI. 1997.
 Fajardo, LL, Willison, KM, Pizzutiello, RJ. editors. A Practical Approach to Stereotactic Breast Biopsy. Blackwell Science,
 Boston, MA 1996.
 Mammography QA Manual for MQSA. Published by Upstate Medical Physics, Inc. distributed by Victoreen Nuclear Associates,
 Carle Place, NY 1995.
 Mammography Quality Assurance Manual for HCFA. Published by Upstate Medical Physics, Inc. distributed by Victoreen
 Nuclear Associates, Carle Place, NY 1993.
 Pizzutiello RJ, Cullinan J. Introduction to Medical Radiographic Imaging. August, 1993. Eastman Kodak Company.
 Pizzutiello RJ. Film Processing: A Team Approach. Presented at AAPM Symposium "Film Processing: A Practical Update
 for the Nineties." March 1992. Rochester, New York.
 Pizzutiello RJ. Radiation Dose and Risk in Diagnostic Radiology. Presented at AAPM/SPSE Symposium "Medical Imaging II:
 An Update of Conventional and New Modalities." September 1988. Rochester, New York.
 Pizzutiello, RJ. Chapter 1: Laser Physics of "Atlas of CO₂ Laser Surgical Techniques." Ishiyaku EuroAmerica, Inc., St. Louis,
 Missouri 1988.

Lanzafame RJ, Herrera HR, Jobes HM, Naim JO, Pennino RP, Porter N, Pizzutiello RJ, Rogers D, Hinshaw JR. The Influence of Hands-On Laser Training on Usage of the CO₂ Laser. *Lasers in Surgery and Medicine* 7:61-65 1987.

Reddy KV, Salazar O, Pizzutiello RJ, Castro-Vita H, Rubin P: An Effective Radiation Therapy Treatment for Spinal Cord Compression. Presented at the American Society of Therapeutic Radiologist's Meeting, Los Angeles, California. November 4, 1978.

Salazar O, Rubin P, Feldstein M, Pizzutiello RJ: The Value of High-Dose Radiation Therapy for Glioblastoma Multiforme: Final Report. Presented at the American Society of Therapeutic Radiologist's Meeting, Los Angeles, California. Session XIX.

Arcuri KB, Pizzutiello RJ, Miller MW, Kaufman GE, Carstensen EL: Reduction in Mitotic Index in *Pisum Sativum* Root Meristems by Pulsed Ultrasound Irradiation. *Radiation Research* 65: 458-461, 1976.

BIOGRAPHICAL SKETCH

NAME Jane R. Fisher, M.S.,	POSITION TITLE Consulting Medical Physicist
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AREAS OF CLINICAL INTEREST
Mammography (SF and FFDM), computed tomography

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Bloomsburg University of Pennsylvania	B.A.	1971	Physics
Bucknell University, Lewisown, PA	M.S.	1974	Physics

PROFESSIONAL EXPERIENCE

Independent Medical Physics Consultant	1990-Present
Medical Physics Consultant with Upstate Medical Physics	2005-Present
Medical Physicist and Compliance Officer, Tristan Associates, Harrisburg, PA	2002-2004
Medical Physicist, PinnacleHealth System, Harrisburg, PA	1996-2002
Medical Physicist, Polyclinic Medical Center, Harrisburg, PA	1981-1996
Health Physicist, PA Bureau of Radiation Protection, Harrisburg, PA	1974-1981

ACADEMIC APPOINTMENTS**CERTIFICATION AND AWARDS**

American Registry of Radiologic Technologists	1974
American Board of Radiology-Diagnostic Radiological Physics	1979 - present
Nuclear Medicine Technology Certification Board-Nuclear Medicine	1980
American Board of Medical Physics-Diagnostic Imaging Physics	1991-present
Licensed Medical Physicist-New York State	2005-present

SELECT PUBLICATIONS AND PRESENTATIONS

- J. Fisher et al, CRCPD Medical Practice Task Force. State Role in Better Utilization of X-ray Technology, Proceedings: 11th Annual National Conference of Radiation Control Program Directors, Inc. May 6-10, 1979.
- J. Fisher, D. Murphy et al, HPS State and Federal Legislation Committee Comments on 1984 Draft of 10CFR20, Health Physics Society Newsletter, Vol. XIV, Number 8, August 1986.
- R.T.L. Lin, K.J.Strauss, B.J.Conway, J.R.Fisher, R.J.Kriz, M.E.Moore, D.Dean, L.B.Hubbard and K.L. Miller, Protocols for the Radiation Safety Surveys of Diagnostic Radiological Equipment, AAPM Report Number 25, May 1988.
- R.Y.L.Chu, J.R.Fisher, F.R.Archer, B.J.Conway, M.M.Goodsitt, S.Glaze, J.E.Gray and K.J.Straus. Standardized Methods for Measuring Diagnostic X-ray Exposures. AAPM Report Number 31, January 1991.
- J.R.Fisher, P.P.Lin, P.Butler, B.J.Conway, F.Ranallo, R.Rossi, J.Sheppard, K.Strauss. Instrumentation Requirements of Diagnostic Radiological Physicists. AAPM Report Number 60, October 1998.

BIOGRAPHICAL SKETCH

NAME Joseph M. Greco, CHP	POSITION TITLE Licensed Medical Physicist
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AREAS OF CLINICAL INTEREST

Nuclear Medicine Physics
PET Physics
Shielding - X ray, CT, PET
Non-Ionizing Radiation safety - Lasers, RF, UV, etc.

EDUCATION-TRAINING

(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
State University College at Buffalo, Buffalo, NY	B. A.	1979	Biology
Nuclear Medicine Institute, Cleveland, OH		1981	Nuclear Medicine Technology
University of North Carolina at Chapel Hill	M. S.	1986	Radiological Hygiene

PROFESSIONAL EXPERIENCE

Aultman Hospital, Canton, OH - Nuclear Medicine Technologist	1981-82
Buffalo General Hospital, Buffalo, NY - Nuclear Medicine Technologist	1982-85
Princeton Plasma Physics Laboratory, Princeton, NJ - Health Physicist	1986-91
Eastman Kodak Company, Rochester, NY - RSO/LSO	1991-2006
Upstate Medical Physics, Victor, NY - Medical Physicist	2006 - present

ACADEMIC APPOINTMENTS**CERTIFICATION AND AWARDS**

American Board of Health Physics - Certified Health Physicist
Board of Laser Safety - Certified Laser Safety Officer
New York State Licensed Medical Physicist – Medical Health Physics subspecialty
New York State Limited Permit to Practice as a Medical Physicist in Medical Nuclear Physics
Certified Radiation Equipment Safety Officer (CRESO) for NY State

SELECT PUBLICATIONS AND PRESENTATIONS

BIOGRAPHICAL SKETCH

NAME Dustin A. Gress, MS, DABR	POSITION TITLE Medical Physicist
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AREAS OF CLINICAL INTEREST

Mammography (SF and FFDM), computed tomography, magnetic resonance imaging, softcopy image displays, and shielding for imaging facilities.

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Michigan, Ann Arbor, MI	BSE	2003	Nuclear Engineering & Radiological Sciences
University of Michigan, Ann Arbor, MI	MSE	2005	Nuclear Engineering & Radiological Sciences

PROFESSIONAL EXPERIENCE

Medical Physics Graduate Intern
Medical Physicist

Sept. 2004 - Apr. 2005
Apr. 2005 - Present

ACADEMIC APPOINTMENTS**CERTIFICATION AND AWARDS**

MQSA Initial Qualification - Qualified Medical Physicist 2006
New York State License - Diagnostic Medical Physics 2008
American Board of Radiology - Diagnostic Radiologic Physics 2009

SELECT PUBLICATIONS AND PRESENTATIONS

1. Gress DA. Screen Film and Digital Mammography - Getting the Best Images for Our Patients.
Presented at Western New York Mammography Society Meeting (Buffalo, NY), 2008.

BIOGRAPHICAL SKETCH

NAME Nelson W. Jewell	POSITION TITLE Professional Medical Physicist
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AREAS OF CLINICAL INTEREST

Radiographic, Fluoroscopic and Interventional Imaging
CT

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Gannon University, Erie PA	BS	1979-1984	Chemistry/Biology

PROFESSIONAL EXPERIENCE

1986-1992	New York State Department of Health, Senior Radiological Health Specialist
1992-Present	Upstate Medical Physics, Inc.

ACADEMIC APPOINTMENTS

CERTIFICATION AND AWARDS

NYS License in Diagnostic Physics
NYS License in Medical Health Physics
Florida License in Radiological Physics

SELECT PUBLICATIONS AND PRESENTATIONS

BIOGRAPHICAL SKETCH

NAME Michael J. Leal, M.S.	POSITION TITLE Consulting Medical Physicist
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AREAS OF CLINICAL INTEREST
 Diagnostic Medical Imagng
 Digital Imaging

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Massachusetts, Amherst, MA Worcester Polytechnic Institute, Worcester, MA	B.S. M.S.	1971 2001	Mechanical Engineering Biomedical Engineering

PROFESSIONAL EXPERIENCE

Medical Physics Consultant with Upstate Medical Physics	2009 - Present
Regional Radiological Health Representative, US Food & Drug Administration Northeast Region	2005 - 2010
MQSA Auditor, X-ray Auditor, Medical Device Specialist US Food & Drug Administration, New England District	1983 - 2005
Investigator, X-ray Inspector, US Food & Drug Administration New England District	1972 - 1983

ACADEMIC APPOINTMENTS

Adjunct Instructor, Worcester Polytechnic Institute, Worcester, MA	1995 - Present
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CERTIFICATION AND AWARDS

SELECT PUBLICATIONS AND PRESENTATIONS

Leal, MJ, *Emerging Technologies for Breast Imaging* , Mammography Workshop, New England Radiological Health Committee Annual Meeting, Newport, RI, November, 2008

Leal, MJ, *Criminal Offenses with MQSA* , Conference of Radiation Control Program Directors, MQSA training, Greensboro, NC, May, 2008

Leal, MJ, et al. FDA Basic X-ray Course, Course coordinator and lecturer, Worcester, MA, August 2002, 2003, 2004 and 2005

Leal, MJ, *Sample Handling* , Food Emergency Response Network Radiological Training, Winchester, MA, July, 2005

Leal, MJ, *Concepts of Digital Imaging* , Radiologic Technologist Seminar, University of Massachusetts, Worcester, MA., September, 2004

Leal, MJ, *Digital Imaging* , FDA Basic X-ray Course, San Francisco, CA., July, 2001

Leal, MJ, *Digital Mammography, State of the Art* , New England Society of Radiologic Technologists, Annual Meeting, Hyannis, MA., September, 2001

Leal, MJ, *MQSA Compliance Issues* , Massachusetts Society of Radiologic Technologists, Merrimac Valley Chapter Meeting, Winchester, MA., February, 2001

Leal, MJ, *Role of the MQSA Auditor* , Conference of Radiation Control Program Directors, MQSA training, Tampa, FL., May, 2000

Leal, MJ, et al. Fluoroscopic Field Testing Workshop, New England Radiological Health Committee, Worcester, MA., January, 2000

BIOGRAPHICAL SKETCH

NAME Alphonso Magri, Ph.D.	POSITION TITLE Medical Physics Resident
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AREAS OF CLINICAL INTEREST

Radiographic and Fluorographic systems, Magnetic Resonance Imaging, DICOM image processing

EDUCATION-TRAINING*(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
State University of New York at Geneseo, Geneseo, NY	B.A.	2002	Physics
Syracuse University, Syracuse, NY	M.S.	2005	Physics
Syracuse University, Syracuse, NY	Ph.D.	2009	Physics

PROFESSIONAL EXPERIENCE**ACADEMIC APPOINTMENTS****CERTIFICATION AND AWARDS****SELECT PUBLICATIONS AND PRESENTATIONS**

Magri A, Krol A, Feiglin D, Lipson E, Mandel J, McGraw W, and Lee W. Parametric Dynamic F-18-FDG PET/CT Breast Imaging. oral presentation at SPIE - Medical Imaging Conference, San Diego Ca., Feb 2008.

Magri A, Krol A, Unlu M, Feiglin D, Lipson E, Mandel J, McGraw W, Lee W, and Coman I. Nonrigid Registration of Dynamic Breast F-18-FDG PET/CT Images Using Deformable FEM model and CT Image Warping. oral presentation at SPIE - Medical Imaging Conference, San Diego Ca., Feb 2007.

BIOGRAPHICAL SKETCH

NAME Robert M. Marmat, R.T.R..	POSITION TITLE Physicist Assistant
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AREAS OF CLINICAL INTEREST
Radiographic, Fluoroscopic and Interventional Imaging
CR, DR

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Worcester State College, Worcester, MA		1984	Hospital Administration
Springfield Technical Community College, Springfield, MA	A.S.	1976	Radiologic Technology

PROFESSIONAL EXPERIENCE

The Memorial Hospital, Worcester, MA -Radiology Manager, Chief Technologist,
Educational Coordinator 1976 - 1985
St. Andrews Hospital, Boothbay Harbor, ME - Director of Ancillary Services 1985 - 1986
Fallon Clinic, Worcester, MA - Radiology Manager 1986
St. Andrews Hospital, Boothbay Harbor, ME - Chief Technologist 1986 - 1989
Jones Memorial Hospital, Wellsville, NY - Administrative Director of Medical Imaging 1989 - 1998
University of Rochester Medical Center, Rochester, NY - Chief Technologist 1998 - 2000
Geneva General Hospital, Geneva, NY - Radiology Manager 2000 - 2001
United Memorial Hospital, Batavia, NY - Director of Radiology 2001 - 2005
Upstate Medical Physics, Victor, NY - Physicist Assistant 2005 - present

ACADEMIC APPOINTMENTS

Quinsigamond Community College, Worcester, MA - Adjunct Professor,
Radiology Program 1978 - 1980

CERTIFICATION AND AWARDS

American Registry of Radiology Technologists 1976 - present
New York State Licensed Radiologic Technologist 1989 - present

SELECT PUBLICATIONS AND PRESENTATIONS

BIOGRAPHICAL SKETCH

NAME Mabelle B. Pizzutiello, R.N., B.S.N.	POSITION TITLE Trauma and Medical Education Consultant
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AREAS OF CLINICAL INTEREST
Surgery, Trauma, Emergency Preparedness, Anatomy & Physiology

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Rochester, Rochester, NY	Diploma	1960	Nursing
SUNY Brockport, Brockport, NY	B.S.N.	1992	Nursing

PROFESSIONAL EXPERIENCE

Trauma and Medical Education Consultant	2000 - present
New York State Department of Health, Albany, NY	2000 - present
Baystate Medical Center, Springfield, MA	2008
Erie County Medical Center, Buffalo, NY	2008 - present
Upstate Medical Physics, Victor, NY	2008 - present
Ontario County Medical Reserve Corp. , NY	2007 - present
Trauma Program Manager, University of Rochester Medical Center, Rochester, NY	1995 - 2007
Nurse Manager, Cardio-Thoracic Surgery Rochester General Hospital, Rochester, NY	1980 -1988

ACADEMIC APPOINTMENTS

CERTIFICATION AND AWARDS

State of New York RN Licensure #170200-1
American College of Surgeons, RTTDC® Faculty
American College of Surgeons, ATLS® Course Coordinator

SELECT PUBLICATIONS AND PRESENTATIONS

Barquist E, Pizzutiello MB, Bessey PQ. Effect of a Mandated Trauma System on Mortality of Injured Patients via Blunt Mechanism in Rural New York State. *The Journal of Trauma* 45:1113,1998.
Barquist E, Pizzutiello MB, Burke M, Bessey PQ. Arterial Blood Gas Analysis in the Initial Evaluation of the Nonintubated Adult Blunt Trauma Patient. *The Journal of Trauma* 52:1-2, 2002.

BIOGRAPHICAL SKETCH

NAME Jason R. Sherman, MS	POSITION TITLE Medical Physicist
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AREAS OF CLINICAL INTEREST

Radiographic, Fluoroscopic and Interventional Imaging
CR, DR
Mammography

EDUCATION-TRAINING

(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Rochester	B.S.	2000-2004	Biomedical Engineering
University of Buffalo	M.S.	2006-2009	Medical Physics

PROFESSIONAL EXPERIENCE

Laboratory Technician, Strong Memorial Hospital, Rochester NY	2004-2006
Assistant Radiation Safety Officer, Erie Community Medical Center, Buffalo NY	2006-2008
Medical Physicist, Upstate Medical Physics Inc., Victor, NY	2008-Present

ACADEMIC APPOINTMENTS**CERTIFICATION AND AWARDS****SELECT PUBLICATIONS AND PRESENTATIONS**

1. JR Sherman*, HS Rangwala, CN Ionita, AC Dohatcu, JW Lee, DR Bednarek, KR Hoffmann, S Rudin, "Investigation of new flow modifying endovascular image-guided interventional (EIGI) techniques in patient-specific aneurysm phantoms (PSAPs) using optical imaging"; The International Society for Optical Engineering (SPIE) February 2008 (accepted for presentation & publication)
2. JR Sherman*, HS Rangwala, AC Dohatcu, K Minsuok, CN Ionita, S Rudin, "Patient Specific Angiography Phantoms for Investigating New Endovascular Image-Guided Interventional (EIGI) Devices"; presented at The American Association of Physicists in Medicine (AAPM) conference in Minneapolis, July 2007
3. J. Sherman, HS. Rangwala, CN. Ionita, AC. Dohatcu, JW. Lee, DR. Bednarek, KR. Hoffman and S. Rudin, "Investigation of new flow modifying endovascular image-guided interventional (EIGI) techniques in patient-specific aneurysm phantoms (PSAPs) using optical imaging" in Society of Photographic Instrumentation Engineers (SPIE), (accepted), February 2008
4. T.K. Podder, J. Sherman, L. Li, J. Joseph, D.R. Rubens, E.M. Messing, J. Huang, Y. Yu, "Mechanical properties of human prostate tissue in the context of surgical needle insertion", in the International Journal of Computer Assisted Radiology and Surgery (CARS), Vol. 2, pp. S106-108, June 2007.
5. Y.D. Zhang, T.K. Podder, W.S. Ng, J. Sherman, V. Mistic, D. Fuller, E.M. Messing, D.J. Rubens, J.G. Strang, R. Brasacchio, and Y. Yu, "Semi-automated Needling and Seed Delivery Device for Prostate Brachytherapy" in the IEEE International Conference on Intelligent Robots and Systems (IROS) 2006
6. T.K. Podder, J.R. Sherman, D.J. Fuller, E.M. Messing, D.J. Rubens, J.G. Strang, and R.A. Brasacchio, and Y. Yu "In vivo measurement of surgical needle intervention parameters during prostate brachytherapy," in ASTRO, Philadelphia, PA, 2006.
7. T.K. Podder, J. Sherman, D. Fuller, E.M. Messing, D.J. Rubens, J.G. Strang, R.A. Brasacchio, and Y. Yu, "Needle Insertion Force Estimation Model using Procedure-specific and Patient-specific Criteria," in the Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS/EMBC), New York, NY, Aug. 31 – Sept. 3, 2006.
8. T.K. Podder, J. Sherman, D. Fuller, E.M. Messing, D.J. Rubens, J.G. Strang, R.A. Brasacchio, and Y. Yu, "Surgical Needle Intervention in Soft Tissue: In-vivo Force Measurement," in the Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS/EMBC), New York, NY, Aug. 31 – Sept. 3, 2006.
9. T.K. Podder, Y. Yu, Y.D Zhang, W.S. Ng, J. Sherman, E.M. Messing, D.J. Rubens, and J.G. Strang, "Ultrasound Image-guided Robotic System for Prostate Brachytherapy," in the Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS/EMBC), New York, NY, Aug. 31 – Sept. 3, 2006.

10. J. Sherman, T. K. Podder, L. Fu, V. Mistic, D. Fuller, E. M. Messing, D. J. Rubens, J. G. Strang, R. A. Brasacchio, and Y. Yu, "Efficacy of Prostate Stabilizing Techniques during Brachytherapy Procedure," in the Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS/EMBC), New York, NY. Aug. 31 – Sept. 3. 2006.
11. Y. Yu, T.K. Podder, Y. Zhang, W.S. Ng, J. Sherman, D. Fuller, V. Mistic, L. Fu, E.M. Messing, D.J. Rubens, J.G. Strang, and R. A. Brasacchio, "Robot-assisted prostate brachytherapy," in the Int. Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI), Copenhagen, Denmark, October 2-4, 2006.
12. Y.D. Zhang, T.K. Podder, L. Fu, J. Sherman, V. Mistic, D. Fuller, E.M. Messing, D.J. Rubens, J.G. Strang, W.S. Ng, and Y. Yu, "Design and Experiments of Seed Delivery Device for Prostate Brachytherapy," in the IEEE International Conference on Intelligent Robots and Systems (IROS), Beijing, China, October 9-14, 2006.
13. Y. Yu, T.K. Podder, Y. Zhang, W.S. Ng, J. Sherman, D. Fuller, V. Mistic, L. Fu, E.M. Messing, D.J. Rubens, J.G. Strang, and R. A. Brasacchio, "Robot-Assisted Platform for Intratumoral Delivery (RAPID)," in the World Congress on Medical Physics and Biomedical Engineering (WC-BME), Seoul, Korea, (accepted for presentation & publication) Aug. 27 – Sept. 1. 2006.
14. T.K. Podder, L. Liao, J. Sherman, D. Fuller, V. Mistic, D.J. Rubens, E.M. Messing, J.G. Strang, W.S. Ng, and Y. Yu, "A Method to Minimize Puncturing Force and Organ Deformation," in the International Congress & Exposition on Computer Assisted Radiology & Surgery (CARS), Osaka, Japan (accepted for presentation and publication), June 28 – July 1. 2006.
15. T.K. Podder, D.P. Clark, D. Fuller, J. Sherman, W.S. Ng, L. Liao, D.J. Rubens, J.G. Strang, E.M. Messing, Y.D. Zhang, and Y. Yu, "Effects of Velocity Modulation during Surgical Needle Insertion," in the Proceedings of the 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS/EMBC), pp. 2224-2228. Shanghai. China. September 1-4. 2005.
16. T.K. Podder, E.M. Messing, D.J. Rubens, J.G. Strang, D.P. Clark, D. Fuller, J. Sherman, R.A. Brasacchio, W.S. Ng, and Y. Yu, "Brachytherapy Needle Insertion: an in Vivo Data Analysis," in the Proceedings of the 14th International Conference of Medical Physics (ICMP), Vol. 2, pp. 913-914, Nuremberg, Germany, September 14-17, 2005.
17. T.K. Podder, J. Sherman, D.P. Clark, D. Fuller, D.J. Rubens, E.M. Messing, J.G. Strang, L. Liao, W.S. Ng, and Y. Yu, "Method to Reduce Force and Target Movement during Surgical Needle Interventions," in the IFMBE Proceedings of the 3rd European Medical & Biological Engineering Conference (EMBEC), Vol. 11, pp. 4315-4320, Prague, Czech Republic, November 20-25, 2005.
18. T.K. Podder, D.P. Clark, J. Sherman, D. Fuller, E.M. Messing, D.J. Rubens, J.G. Strang, W. O'Dell, Y.D. Zhang, W.S. Ng, and Y. Yu, "Effects of Tip Geometry of Surgical Needles: an Assessment of Force-Torque and Deflection," in the IFBME Proceedings of the 3rd European Medical & Biological Engineering Conference (EMBEC), Vol. 11, pp. 1641-1644, Prague, Czech Republic, November 20-25, 2005.
19. T.K. Podder, D.P. Clark, J. Sherman, D. Fuller, D.J. Rubens, W.S. Ng, E.M. Messing, W. O'Dell, J.G. Strang, Y.D. Zhang, and Y. Yu, "Robotic Needle Insertion in Soft Material Phantoms: An Evaluation of Properties of Commonly used Soft Materials," in the IFMBE Proceedings of the 12th International Conference on Biomedical Engineering (ICBME), Vol. 12, Singapore, December 7-10, 2005.
20. T.K. Podder, L. Liao, J. Sherman, V. Mistic, Y.D. Zhang, D. Fuller, D.J. Rubens, E.M. Messing, J.G. Strang, W.S. Ng, and Y. Yu, "Assessment of Prostate Brachytherapy and Breast Biopsy Needle Insertions and Methods to Improve Targeting Accuracy," in the IFMBE Proceedings of the 12th International Conference on Biomedical Engineering (ICBME), Vol. 12, Singapore, December 7-10, 2005.
21. Tarun Podder, Jason Sherman, Deborah Rubens, Edward Messing, John Strang, Wan-Sing Ng and Yan Yu, "Methods for Prostate Stabilization during Transperineal LDR Brachytherapy", in the Physics in Medicine and Biology (PMB), 53 pp. 1563-1579 (2008)
22. J. Sherman, T. K. Podder, L. Fu, V. Mistic, D. Fuller, E. M. Messing, D. J. Rubens, J. G. Strang, R. A. Brasacchio, and Y. Yu, "Efficacy of Prostate Stabilizing Techniques during Brachytherapy Procedure," in Physics of Medicine and Biology (2007)
23. Tarun K. Podder, Douglas P. Clark, Jason Sherman, Dave Fuller, Edward M. Messing, Deborah J. Rubens, Ralph Brasacchio, John G. Strang, Lydia Liao, Wan-Sing Ng, and Yan Yu, " In vivo Motion and Force Measurement of Surgical Needle Intervention during Prostate Brachytherapy," in the Journal of American Association of Medical Physics, Volume 33, Issue 8, pp. 2915-2922, August 2006.

BIOGRAPHICAL SKETCH

NAME Matthew C Szudzik	POSITION TITLE Physicist Asst
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AREAS OF CLINICAL INTEREST
Radiographic, Fluoroscopic and Interventional Imaging
CR, DR

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Rochester Institute of Technology, Rochester, NY Trocaire	B. S. A.A.S.	1968 1977	Photographic Arts and Science X-Ray Technology

PROFESSIONAL EXPERIENCE

Chief X-Ray Tech - Cardiac Angio - Buffalo General Hosp	1966 - 1998
Radiation Safety Asst - Kaleida Health	1998 - 2002
Physicist Asst - UMP	2002 - Present

ACADEMIC APPOINTMENTS

CERTIFICATION AND AWARDS

SELECT PUBLICATIONS AND PRESENTATIONS

BIOGRAPHICAL SKETCH

NAME Ye (Mark) Wu, PhD	POSITION TITLE Medical Physicist, Upstate Medical Physics, Inc.
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AREAS OF CLINICAL INTEREST

Diagnostic Medical Physics
Breast Imaging
MR
Ultrasound
CT

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Nankai University, China	B. S.	1990	Optical Physics
State University of New York at Buffalo	Ph. D	2005	Medical Physics

PROFESSIONAL EXPERIENCE

Medical Physicist, Upstate Medical Physics, Inc. 2005 - present

ACADEMIC APPOINTMENTS**CERTIFICATION AND AWARDS**

American Board of Radiology - Diagnostic Radiologic Physics 2009 - present
New York State Licensed Medical physicist - Diagnostic Radiological Physics 2008 - present

SELECT PUBLICATIONS AND PRESENTATIONS

Y. Wu, S. Rudin, D. R. Bednarek: A Prototype Micro-Angiographic Fluoroscope and Its Application in Animal Studies. Proceedings SPIE International Symposium of Medical Imaging, San Diego, Feb, 2005
S. Rudin, Z. Wang, I. Kyprianou, K. R. Hoffmann, Y. Wu, H. Meng, L. R. Guterman, B. Nemes, D. R. Bednarek, L. N. Hopkins: Measurement of Flow Modification in Phantom Aneurysm Model: Comparison of Coils and a Longitudinally and Axially Asymmetric Stent – Initial Findings. Radiology April 2004: 272 - 276.

BIOGRAPHICAL SKETCH

NAME Joel E. Gray, Ph.D.	POSITION TITLE Professor Emeritus, Mayo Clinic College of Medicine President, DIQUAD, LLC
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AREAS OF CLINICAL INTEREST

Radiographic and fluoroscopic systems, mammography, dental radiography, computed tomography, digital imaging, and PACS

EDUCATION-TRAINING

(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Rochester Instit. of Technology, Rochester, NY	B.S.	1970	Photographic Sciences
University of Arizona, Tucson, AZ	M.S.	1974	Optical Sciences
University of Toronto, Toronto, Ontario, Canada	Ph.D.	1977	Radiological Sciences

PROFESSIONAL EXPERIENCE (Selected)

Editor, Journal of Applied Photographic Engineering	1975 - 1979
Board of Directors, American Association of Physicists in Medicine	1983 - 1985
International Commission on Radiological Protection, Committee 3	1985 - 1997
National Council on Radiation Protection and Measurements	1987 - 2005
Consultant to the Editor of Radiology	1987 - 2000
Third Vice President, Radiological Society of North America	1993
World Health Organization, Special Consultant to China and the Philippines	1993 - Present
US Food and Drug Administration, National Mammography Quality Assurance Advisory Committee (NMQACC)	1994 - 1997
Commission on Medical Physics, American College of Radiology	1995 - 2000
International Atomic Energy Agency, Expert, Consultant, Technical Committee Member, and Teacher	2002 - Present
Technical Consultant, National Council on Radiation Protection	2006 - Present
Holds two patents	
Developed 12 products marketed by various companies	
Mentored 20 medical physicists	
Started company to measure dental image quality and dose through the mail	

ACADEMIC APPOINTMENTS

Professor, Mayo Clinic College of Medicine	1977 - 1997
Adjunct Professor of Medical Physics, University of Wisconsin-Madison	1982 - 1997
Professor Emeritus, Mayo Clinic College of Medicine	1997 - Present

CERTIFICATION AND AWARDS

Fellow, Society of Photographic Scientists and Engineers (Now IS&T)	1987
Fellow, American Association of Physicists in Medicine	1990
Fellow, American College of Medical Physics	2009
Distinguished Emeritus Member, National Council on Radiation Protection	2005

SELECTED PUBLICATIONS

Gray JE, Trefler M. Image degradation in magnification radiology by phase shift. Microcirculation 1976; 1:82-84.

Gray JE, Trefler M. Characterization of the imaging properties of x-ray focal spots. Appl Optics 1976; 15:3099-3104.

Gray JE. Photographic quality assurance in diagnostic radiology, nuclear medicine, radiation therapy. In: Volume I: The basic principles of daily photographic quality assurance (HEW publication, FDA 76-8043) Bureau of Radiological Health, Rockville, MD 1976.

Gray JE. Photographic quality assurance in diagnostic radiology, nuclear medicine, radiation therapy. In: Volume II: Photographic processing, quality assurance, and the evaluation of photographic materials (HEW publication, FDA 77-8018) Bureau of Radiological Health, Rockville, MD 1977.

Gray JE, Taylor KW, Hobbs BB. Detection accuracy in chest radiography.

BIOGRAPHICAL SKETCH

NAME Joel E. Gray, Ph.D.	POSITION TITLE Professor Emeritus, Mayo Clinic College of Medicine President, DIQUAD, LLC
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AREAS OF CLINICAL INTEREST

Radiographic and fluoroscopic systems, mammography, dental radiography, computed tomography, digital imaging, and PACS

EDUCATION-TRAINING

(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Rochester Instit. of Technology, Rochester, NY	B.S.	1970	Photographic Sciences
University of Arizona, Tucson, AZ	M.S.	1974	Optical Sciences
University of Toronto, Toronto, Ontario, Canada	Ph.D.	1977	Radiological Sciences

PROFESSIONAL EXPERIENCE (Selected)

Editor, Journal of Applied Photographic Engineering	1975 - 1979
Board of Directors, American Association of Physicists in Medicine	1983 - 1985
International Commission on Radiological Protection, Committee 3	1985 - 1997
National Council on Radiation Protection and Measurements	1987 - 2005
Consultant to the Editor of Radiology	1987 - 2000
Third Vice President, Radiological Society of North America	1993
World Health Organization, Special Consultant to China and the Philippines	1993 - Present
US Food and Drug Administration, National Mammography Quality Assurance Advisory Committee (NMQACC)	1994 - 1997
Commission on Medical Physics, American College of Radiology	1995 - 2000
International Atomic Energy Agency, Expert, Consultant, Technical Committee Member, and Teacher	2002 - Present
Technical Consultant, National Council on Radiation Protection	2006 - Present
Holds two patents	
Developed 12 products marketed by various companies	
Mentored 20 medical physicists	
Started company to measure dental image quality and dose through the mail	

ACADEMIC APPOINTMENTS

Professor, Mayo Clinic College of Medicine	1977 - 1997
Adjunct Professor of Medical Physics, University of Wisconsin-Madison	1982 - 1997
Professor Emeritus, Mayo Clinic College of Medicine	1997 - Present

CERTIFICATION AND AWARDS

Fellow, Society of Photographic Scientists and Engineers (Now IS&T)	1987
Fellow, American Association of Physicists in Medicine	1990
Fellow, American College of Medical Physics	2009
Distinguished Emeritus Member, National Council on Radiation Protection	2005

SELECTED PUBLICATIONS

Gray JE, Trefler M. Image degradation in magnification radiology by phase shift. Microcirculation 1976; 1:82-84.

Gray JE, Trefler M. Characterization of the imaging properties of x-ray focal spots. Appl Optics 1976; 15:3099-3104.

Gray JE. Photographic quality assurance in diagnostic radiology, nuclear medicine, radiation therapy. In: Volume I: The basic principles of daily photographic quality assurance (HEW publication, FDA 76-8043) Bureau of Radiological Health, Rockville, MD 1976.

Gray JE. Photographic quality assurance in diagnostic radiology, nuclear medicine, radiation therapy. In: Volume II: Photographic processing, quality assurance, and the evaluation of photographic materials (HEW publication, FDA 77-8018) Bureau of Radiological Health, Rockville, MD 1977.

Gray JE, Taylor KW, Hobbs BB. Detection accuracy in chest radiography.

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- Linoss A, Gray JE, Orvis AL, Kyle RA, O'Fallon WM, Kurland LT. Low dose radiation and leukemia. *NEJM* 1980; 302:1101-1105.
- Brown LR, Wahner HW, Hay ID, Hammell TC, Gray JE. Adrenal scintigraphy: Comparison of the Anger tomographic scanner and the large-field gamma camera: Concise communication. *J Nucl Med* 1980; 21:729-732.
- Linoss DA, Gray JE, McIlrath DC. Radiation hazard to operating room personnel during operative cholangiography. *Arch Surg* 1980; 115:1431-1433.
- Gray JE, Ragozzino MW, Van Lysel MS, Burke TM. Normalized organ doses for various diagnostic radiologic procedures. *Am J Roentgen* 1981; 137:463-470.
- Gray JE, Winkler NT, Stears JG, Frank ED. Quality control in diagnostic imaging. Maryland: University Park Press, 1983; now available through Aspen Systems, Inc., Rockville, MD. Translated into Chinese.
- Gray JE, Stears JG, Frank ED. Shaped, lead-loaded acrylic filters for patient exposure reduction and image-quality improvement. *Radiology* 1983; 146:825-828.
- Gray JE, Wondrow MA, Smith HC, Holmes DR Jr. Technical considerations for cardiac laboratory high-definition video systems. *Catheterization and Cardiovascular Diagnosis* 1984; 10:73-86.
- Fetter J, Aram G, Holmes DR Jr, Gray JE, Hayes DL. The effects of nuclear magnetic resonance imagers on external and implantable pulse generators. *Pace* 1984; 7:720-727.
- Ehman RL, Gray JE, Bryant RG, Kennedy SD, Earnest F IV. Spin-spin relaxation time (T2) dependence in MR saturation and inversion-recovery images. *AJR* 1984; 90:3-906.
- Gray JE, Lisk KG, Haddick DH, Harshbarger JH, Oosterhof A, Schwenker R. Test pattern for video displays and hard-copy cameras. *Radiology* 1985; 154:519-527.
- Williams MMD, Gray JE. Radiologic physics; Health physics (Two chapters). In *Stafne's Oral Radiographic Diagnosis*, 5th ed. JA Gibilisco, ed. Philadelphia: W. B. Saunders Co., 1985; pp 486-522. Translated into Spanish, 1987.
- Poznanski AK, Fischer HW, Gray JE, et al. Quality assurance for diagnostic imaging equipment. NCRP Report 99. National Council on Radiation Protection and Measurements; Bethesda, MD; 1988.
- Liniecki J, Arias CF, Carmichael JHE, Conway JJ, Gray JE, et al. Radiological protection of the worker in medicine and dentistry. *ICRP Publication 57; Annals of ICRP* 1989; 20(3).
- Felmlee JP, Gray JE, Leetzow ML, Price JC. Estimated fetal radiation dose from multislice CT studies. *AJR* 1990; 154:185-190.
- Gray JE, Haus A, Holland R, et al. Mammography quality control: Radiologist's, Medical Physicist's, and Radiologic Technologist's manual. American College of Radiology; Reston, VA; 1990, 1992, 1994, 1999.
- Gray JE. Use of the SMPTE test pattern in picture archiving and communication systems. *Journal of Digital Imaging* 1992; 5:54-58.
- Russell JGB, Gray JE. X-rays: Keeping the dose down. *World Health Forum* 1992; 13:213-217.
- Haus AG, Gray JE, Daly TR. Evaluation of mammographic viewbox luminance, illuminance, and color. *Med Phys* 1993; 20(3):819-821.
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- Jorgensen NJ, Messick JM, Gray JE, Nugent M, Berquist TH. ASA monitoring standards and magnetic resonance imaging. *Anesthesia and Analgesia* 1994; 79:1141-1147.
- McLean D, Gray JE. Scatter-to-primary ratio and absorption efficiency in screen-film and computed radiography systems. *Eur J Radiol* 1996; 21:212-216.
- Swensen SJ, Aughenbaugh GL, Brown LR, Harms GF, Karsell PR, Gray JE, et al. Advanced multiple beam equalization radiography: Receiver operating characteristic comparison with screen-film chest radiography. *Mayo Clinic Proceedings* 1998; 73:636-641.
- Gray JE, Orton CG. Medical physics: Some recollections in diagnostic x-ray imaging and therapeutic radiology. *Radiology* 2000; 217:619-625
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- Archer BR, Gray JE (Co-Chairs). Structural shielding design for medical x-ray imaging facilities. NCRP Report # 147. National Council on Radiation Protection and Measurements, Bethesda, Maryland. 2004.
- Gray JE, Archer BR, Butler PF, Hobbs BB, Mettler FA, Pizzutiello RJ, Schueler BA, Strauss KJ, Suleiman OH, Yaffe MJ. Reference values for diagnostic radiology: Application and impact. *Radiology* 235:354-358, 2005.
- Suleiman OH, Barnes GT, Bunch PC, Butler PF, Gray JE. Validating automatic film processor performance. AAPM Report # 94. American Association of Physicists in Medicine, College Park Maryland, 2006.
- El-Fakhri G, Fulton R, Gray JE, Marengo M, Zimmerman B, Dondi M, McLean M, Palm S. Quality assurance for PET and PET-CT systems. International Atomic Energy Agency Tec Doc. 2008.
- Mettler FA, Thomadsen BD, Bhargavan M, Gilley DB, Gray JE, Lipoti, JA, McCrohan J, Yoshizumi TT, Mahesh M. Medical radiation exposure exposure in the US in 2006: Preliminary Results. *Health Physics* 95:502-507, 2008.

BIOGRAPHICAL SKETCH

NAME Christine Kurland, M.D., FACR	POSITION TITLE Physician, Radiologist
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AREAS OF CLINICAL INTEREST
Clinical Radiology
Teaching

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Dartmouth College		1972-73	Exchange Student
Mount Holyoke College	A.B .	1974	
University of Rochester	M.D.	1978	Medicine

PROFESSIONAL EXPERIENCE

Founding Partner of Borg Imaging, Group, Rochester, NY 1983
Partner in Borg Imaging Group, Rochester, NY 1983-6/2007
Radiologist, Borg and Ide Imaging Partners, PC, Rochester, NY 7/2007-present

ACADEMIC APPOINTMENTS

Clinical Associate Professor, Imaging Sciences, Univ of Roch, Roch, NY 1994-Present

CERTIFICATION AND AWARDS

American Board of Radiology 1982
NYS Medical License 1980
Diplomat of National Board of Medical Examiners 1979
Fellow American College of Radiology 2006
Alpha Omega Alpha, University of Rochester 1978
Summa Cum Laude, Mt.Holyoke 1974
Phi Beta Kappa, Mt. Holyoke 1974
Sigma Xi, Mt. Holyoke 1974
Rufus Choate Scholar, Dartmouth 1973

SELECT PUBLICATIONS AND PRESENTATIONS

A Radiographic Approach to Chest and Abdominal Disorders, C.R. Kurland, M.D. & Richard Bernstein, M.D.; BEDSIDE PEDIATRICS, Editor, Moshen Ziai, M.D., Little Brown Publishing Co., 1983.

The Detection of Minimal Flow through a Tightly Stenotic Carotid Artery by Dynamic (Rapid Sequence) Computed Tomography, R.M. Spitzer, M.D.; J. Hollander, M.D.; G. Honch, M.D.; C. Kurland, M.D.; J. Connor, R.T.; Presented at 1983 RSNA Meeting by Robert M Spitzer MD

Cardiovascular Responses to Metrizamide and Meglumide Sodium Diatrizoate in Cerebral Angiography. H.W. Fischer, C. Kurland, F.A. Burgener, T.W. Morris. A paper presented by H.W. Fischer, M.D. to the annual meeting of the Association of University Radiologists in Kansas City, 1976.

BIOGRAPHICAL SKETCH

NAME Beth Schueler, Ph.D.	POSITION TITLE Associate Professor of Radiology Physics, Consultant, Department of Radiology
-------------------------------------	--

AREAS OF CLINICAL INTEREST
Computed tomography, interventional procedures, PACS, patient dosimetry

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Concordia College, Moorhead, NM	B. A.	1985	Physics, Mathematics
University of Minnesota, Minneapolis	Ph.D.	1990	Physics
Mayo Clinic and Foundation, Rochester, MN	Residency	1992	Medical Physics

PROFESSIONAL EXPERIENCE

Consultant, Mayo Clinic and Foundation 1992-Present

ACADEMIC APPOINTMENTS

Teaching Assistant, Department of Physics, Univ of Minnesota	1985-1987
Research Assistant, Department of Physics, Univ of Minnesota	1986-1990
Post Doctoral Assoc., Department of Physics, Univ of Minnesota	1992-1994
Assistant Professor, Department of Radiology, Univ of Minnesota	1994-1996
Assistant Professor, Radiologic Physics, Mayo Clinic, Rochester, MN	1997-2004
Consultant, Department of Radiology, Mayo Clinic, Rochester, MN	1997-
Associate Professor, Radiologic Physics, Mayo Clinic College of Medicine	2004-

CERTIFICATION AND AWARDS

Physics Graduate Student Research Prize, University of Minnesota, Minneapolis	1990
American Board of Radiology, Diagnostic Physics	1994
Robert D. Mosely Award in Radiation Protection in Medicine, NCRP	1995
Certificate of merit, Scientific exhibit, Radiological Society of North America	1998
Certificate of merit, Scientific exhibit, Radiological Society of North America	1998
Certificate of merit, Scientific exhibit, Radiological Society of North America	2002
Certificate of merit, Scientific exhibit, Radiological Society of North America	2004
Elected Fellow, American Association of Physicists in Medicine	2006
Certificate of merit, Scientific exhibit, Radiological Society of North America.	2007

SELECT PUBLICATIONS AND PRESENTATIONS

Swenson SJ, Morin RL, Schueler BA, Brown LR, Cortese DA, Pairolero PC, Brutinel WM. Solitary pulmonary nodules: CT evaluation of enhancement with iodinated contrast material -- A preliminary report. *Radiology* 1992; 182:343-347.

Schueler BA, Gray JE, Gisvold JJ. A comparison of mammography screen-film combinations. *Radiology* 1992; 184:629-634.

Schueler BA, Rüfenacht DA. Contributions to the analysis of risk factors for cerebral arterial rupture induced by intravascular balloon use. *American Journal of Neuroradiology* 1993; 14:1085-1093.

Schueler BA, Julsrud PR, Gray JE, Stears JG, Wu KY. Radiation exposure and efficacy of exposure-reduction techniques during cardiac catheterization in children. *American Journal of Radiology*, 1994; 162:173-177.

Schueler BA, Sen A, Hsiung H, Latchaw RE, Hu X. Three-dimensional vascular reconstruction with a clinical x-ray angiography system. *Academic Radiology*, 1997;4:693-699.

BIOGRAPHICAL SKETCH

NAME Donna M. Stevens, MS	POSITION TITLE Imaging Physicist
-------------------------------------	-------------------------------------

AREAS OF CLINICAL INTEREST

Computed Tomography

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Western State College, Gunnison, CO	B.A.	1989	Physics, cum laude
Univ Colorado Health Sciences Ctr, Denver, CO	M.S.	1993	Medical Physics

PROFESSIONAL EXPERIENCE

Assoc. Radiological Physicist, Radiology, Scott & White Hospital, Temple, TX 1993-1998
Medical Physicist, Imaging Physics, M.D. Anderson, Houston, TX 1998-2002
Sr. Medical Physicist, M.D. Anderson, Houston, TX 2002-2008
Imaging Physicist, Diagnostic Radiology, Oregon H&S Univ, Portland OR 2008-

ACADEMIC APPOINTMENTS

Assistant Professor, Dept Diag Rad, Oregon Health & Science University, 2008-
Portland, OR

CERTIFICATION AND AWARDS

American Board of Radiology (Diagnostic Radiology), May 1999

SELECT PUBLICATIONS AND PRESENTATIONS

Cody DD, Moxley DM, Krugh KT, O'Daniel JC, Wagner LK, Eftekhari F. Strategies for Formulating Appropriate Pediatric Chest, Abdomen and Pelvis Techniques for Multidetector CT Scanners, AJR 182(4):849-859, 2004.

Samei E, et al. Assessment of display performance for medical imaging systems: Executive summary of AAPM TG18 report. Medical Physics 32(4):1205-1225, 2005.

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BIOGRAPHICAL SKETCH

NAME Daniel B. Wopperer, M.D.	POSITION TITLE Radiologist
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AREAS OF CLINICAL INTEREST
Radiology
Teaching

EDUCATION-TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(If Applicable)</i>	YEAR(s)	FIELD OF STUDY
Canisius College, Buffalo, NY	B. A.	1976	Biology
Georgetown University, Sch of Medicine	M.D.	1981	Medicine

PROFESSIONAL EXPERIENCE

Rotating internship - University of Rochester Medical Center
Rochester General Hospital, Highland Hospital, Rochester, NY
Residency - Diagnostic Radiology, URM, Rochester, NY

July 1981 - February 1982
March, 1982 through June 1985

ACADEMIC APPOINTMENTS

Borg Imaging Group, Former Chief of Diagnostic Imaging
University Rochester Medical Center, Clinical Assoc Professor Diagnostic Radiology
Rochester Institute of Technology, Visiting Professor
Nazareth College, Visiting Professor

CERTIFICATION AND AWARDS

New York State Medical License, 1982
Diplomate, American Board of Radiology (ABR)
DiGamma National Honor Society
Honors Graduate, Canisius College
National College Editorial Arts Award, 1976
Honors Graduate, Georgetown Univ. School of Medicine 1981

SELECT PUBLICATIONS AND PRESENTATIONS

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Subject	Syllabus Year	Title	Author or Editor	Publisher	Edition
Anatomy		Anatomy of the Living Human	Csillag	Könemann	
		Atlas of Anatomy	Parramons Editorial	Barrons	
		Essentials of Anatomy and Physiology Heart, The	Scankin & Sanders	F.A. Davis	4th
		Human Anatomy and Physiology Minds Eye, The	Hurst Van De Graaff & Rhees	McGraw McGraw Hill	
		Physics of the Body	Scientific American	W.H. Freeman & Co.	
		The Ciba Collection of Medical Illustrations Volume 1, 2, (3 Part 1, 2 & 3), 4 & 5	Cameron, Skofronick & Grant	Medical Physics	
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CT		CT & MRI Pathology, A Pocket Atlas	Gray & Ailinani	McGraw Hill	
		Practical CT Technology and Techniques	Berland	Raven Press	
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Imaging		Acceptance Testing of Radiological Artifact Identification Program - A Self Teaching Guide	ACR	American Institute of Physics	
		Clinical Molecular Anatomic Imaging Data for Estimating X-Ray tube Total Filtration	Kodak	Kodak	
		Essential Physics of Medical Imaging, The	von Schulthess	Lippincott, Williams & Walkins	
		Imaging Science and Protection, Principles of	Gilmore & Fogarty	Austin & Sons Ltd.	
		Imaging Systems for Medical Diagnostics	Bushberg, Seibert, Leicholdt & Boone	Lippincott Williams & Walkins	2nd
		Interventional Fluoroscopy	Thompson , Hattaway, Hall & Dowd	Saunders	
		Medical Imaging Physics	Krestel	Siemens	
		Medical Radiographic Imaging	Balter	Wiley-Liss	
		Physical Basis of Medical Imaging, the	Hendee & Ritenour	Mosby	3rd
		Physical Principles of Medical Imaging Producing Quality Radiographs	Kodak	Kodak	
			Coulam, Erickson, Rollo, & James	Appleton-Century Crofts	
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Mammography		Digital Mammography	Pisano, Yaffe & Kuzmiak	Lippincott williams & Wilkins	
		Improving Breast Imaging Quality Standards	Nass & Ball	The National Academies	
		Mammography Quality Control Manual (1992)	ACR	ACR	
		Mammography Quality Control Manual (1994)	ACR	ACR	
		Mammography Quality Control Manual (1999)	ACR	ACR	
		MQSA Manual	Upstate Medical Physics	Nuclear Associates (1995)	
		Quality Determinants of Mammography - #13	US Dept. of Health & Human Services	US Dept. of Health & Human Services	
		Screen Film Mammography	Barnes & Frey	Medical Physics	
		Stereotactic Breast Biopsy, A Comprehensive Application to	Fajardo, Willison & Pizzutiello	Blackwell Science	
		Technologist Guide to Mammography	Egan	Williams & Wilkins	
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MRI		CT & MRI Pathology, A Pocket Atlas	Gray & Ailinani	McGraw Hill	
		Magnetic Resonance Imaging Basic Principles	Young	Raven Press	2nd
		Magnetic Resonance Imaging, A reference Guide and Atlas	Elster	Lippincott, Bradley & Lisanty	
		Magnetic Resonance Imaging, Physical and Biological Principles	Bushong	Mosby	2nd
		MRI Basic Principles and Applications	Brown & Semelka	Wiley-Liss	
		MRI In Practice	Westbrook, Roth & Talbot	Blackwell	3rd
		MRI Quality Control Manual	ACR		

MRI, The Basics Non-Mathematical Approach to Basic MRI, A	Hashemi Smith & Ranallo	Lippincott, Bradley & Lisanty Micical Physics
Principles of Magnetic Resonance Imaging	Liang & Lauterbur	IEEE Press
Understanding MRI	Newhouse & Wiener	Little, Brown & Co.

Nuclear Medicine

Handbook of Radiation Doses in Nuclear Medicine and Diagnostic X-ray	Kereiakes & Rosenstein	CRC Press
Introductory Physics of Nuclear Medicine	Chandra	Lee & Febiger 2nd
Nuclear Medical Physics-Volume 1,2 & 3	Williams	CRC Press
Nuclear Medicine, Fundamentals of	Alazraki & Mishlin	Society of Nuclear Medicine, Inc., The 2nd
Nuclear Medicine, Medical Physics Handbook of	Madsen & Ponto	Medical Physics Publishing
Physical Principles and Clinical Applications of Nuclear Magnetic	Lerski	Hospital Physicists' Association 1985

Physics

Acronyms	MPP	Medical Physics
Clinical Radiotherapy Physics - Basic Physics and Dosimetry (Volume I)	Jayaraman & Lanzl	CRC Press
Clinical Radiotherapy Physics - Volume 1 Collected Reprints	Jayaraman & Lanzl Holt Radium Institute Manchester	CRP Press
Medical Physicist and Malpractice Medical Physics 2006, Advances in Medical Physics 2008, Advances in	Shalek & Gooden Wolbarst, Zamenhof & Wolbarst, Mossman &	Medical Physics Medical Physics
Radiologic Physics, Review of Relativity	Huda Einstein	Lippincott Williams & Wilkins 3rd Crown
Review of Radiologic Physics	Huda & Slone	Lippincott Williams & Wilkins
Review of Radiologic Physics	Huda & Slone	Lippincott Williams & Wilkins 2nd
Units And Measurements, Medical Physics	Freim & Feim	Medical Physics
Using and Understanding Medical Statistics	Matthews & Farewell	Karger

Processing

Advances in Film Processing Systems - Technology and Quality Control	Haus	Medical Physics
Film Processing in Medical Imaging	Haus	Medical Physics
Radiologic Processing and Quality Control	McKinney	Lippincott

Radiation Safety

Century of X-rays and Radioactivity in Medicine, A	Mould	Institute of Physics
Effects of the Atomic Bombs at Hiroshima and Nagasaki, The	Report of the British Mission to Japan	His Majesty's Stationery Office London
Estimation of Effective Dose in Diagnostic Radiology from Entrance Surface Dose and Dose-Area Product Measurements (NRPB- R262)	Hart, Jones & Wall	NRPB
Exposure of the Pregnant Patient to Diagnostic Radiations		
Good News About Radiation, The Handbook of Medical Physics (Volume I)	Lenihan Waggener, kereiakes &	Cogito Books CRC Press
Health Physics and Radiological Health Handbook, The (1984)	Shleien & Terpilak	Nucleon Lectern Associates
Health Physics and Radiological Health Handbook, Supplement 1 (1986)	Shleien & Terpilak	Nucleon Lectern Associates
Health Risks from Exposure to Low Levels of Ionizing Radiation ((Beir V)	BEIR	National Research Council
Health Risks from Exposure to Low Levels of Ionizing Radiation ((Beir VII Phase 2)	BEIR	National Research Council
Health Effects of Exposure to Low-Level Ionizing Radiation	Hendee & Edwards	Institute of Physics

ICRP - Annals of the ICRP (Publication 85) Avoidance of Radiation Injuries from Medical Interventional Procedures	Valentin	Pergamon	
Invisible Passenger, Radiation Risks for People Who Fly, The	Barish	Advanced Medical	
Ionizing Radiation , Medical Effects of Ionizing Radiation Exposure of the Population of the United States (Report No. 160)	Mettler & Moseley	Grune & Stratton	
Management of Radiation Protection Programs, Handbook of	Prepublication Copy	National Council on Radiation Protection and Measurement	
Measurement of Risks	Miller	CRC Press	2nd
Medical Basis for Radiation-Accident Preparedness, The	Berg & Maillie	Plenum	
Medical Radiation Biology	Ricks, Berger & O'Hara	Parthenon	
Practical Radiation Protection Dosimetry	Pizzarello & Witcofski	Lea & Febiger	2nd
Radiation and Life	Law	Hospital Physicists' Association, The, 1981 - London SW1X8QX	
Radiation Detection and Measurement	Hall	Pergamon	2nd
Radiation Dose to Patients from Radiopharmaceuticals	Knoll	Wiley	3rd
Radiation Risk, A Primer	ICRP Publication 53	Pergamon	
Radiation Risks in Medical Imaging	ACR	ACR	
Radiobiology, Handbook of	Whalen & Balter	Year Book	
Radiobiology, Primer of Medical	Hall	Lippincott Williams & Wilkins	5th
Responding to a Radiological Dispersal Device, First Responder's Guide-The First 12 Hours	Prasad	2nd	
Science and Practice of X-ray Imaging and Radiation Dose Optimization, The From Invisible to Visible - Selected Tissue Doses for the Upper Gastrointestinal Fluoroscopic Examination, Handbook of	Travis	Year Book Medical	
Understanding Radiation		Conference of Radiation Control Program Directors	
	Fruksh and Huda	RSNA	
	Rosenstein, Suleiman, Burkhart & Stern	USDOHHS	
	Wahlström	Medical Physics	

Technologist's Text Book

Radiologic Science for Technologists	Bushong	Mosby	7th
Radiologic Science for Technologists	Bushong	Mosby	5th

Quality Assurance

Barium Enema Quality Control Manual (1998)	ACR		
Quality Continuous Improvement in Medical Imaging, A Guide to	ACR		
Quality Control in Diagnostic Imaging	Gray, Winkler, Stears & Frank	Aspen	
Quality Improvement, Techniques for Quality Management in the Imaging	Cofer, Greeley & Wrinn Papp	Flanagan Mosby	
Radiologic Physics, Equipment and Quality Total Quality in Radiology	Hendee, Chaney & Rossi Adams & Arora	Year Book Publishers St. Lucie Press	

Ultrasound

Doppler Physics, Basic	Smith & Zagzebski	Medical Physics	
Ultrasound Physics and Instrumentation	Henrick, Hykes & Starchman	Elsevier Mosby	4th

Other

Chinese Business Etiquette	Seligman	Warner Books	
Encountering the Chinese - A Guide for Americans	Wenzhong & Grove	Intercultural Press	2nd
Medical Physicist and Malpractice (1996)	Shalek & Gooden	Medical Physics Publishing	

Subject	Date or Report No.	Name of Book	Author or Editor	Publisher	Edition
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HPA Reports	Topic Group Report - 41	Notes on Building Materials and References on Shielding Data for Use below 300 kVp	Prepared on behalf of the Radiation Protection Topic Group by A Robinson, issued 1984	Hospital Physicists' Association - London	
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AAPM Publications

7/30/77	Quality Assurance in Diagnostic Radiology	Wagner & Wilson	American Institute of Physics
7/22/79	Physics of Medical Imaging, The: Recording System Measurements and Techniques	Haus	American Institute of Physics
10/5/79	Recent Advances in Brachytherapy Physics	Shearer	American Institute of Physics
7/20/80	Medical Physics of CT and Ultrasound: Tissue Imaging and Characterization	Fullerton & Zagzebski	American Institute of Physics
7/20/80	Biological Risks of Medical Irradiations	Fullerton, Kopp, Waggener & Webster	American Institute of Physics
3/1/82	Medical Physics Data Book	NBS Handbook 138	NBSH
7/26/82	Advances in Radiation Therapy Treatment Planning	Wright & Boyer	American Institute of Physics
3/27/83	Electronic Imaging in Medicine	Fullerton, Hendee, Lasher, Properzio & Riederer	American Institute of Physics
8/4/85	NMR in Medicine, The Instrumentation and Clinical Applications	Thomas & Dixon	Medical Physics
7/27/86	Radiation Oncology Physics	Kereiakes, Eson & Born	American Institute of Physics
6/24/99	Practical Digital Imaging and PACS	Seibert, Filipow & Andriole	Medical Physics
6/24/01	Accreditation Programs and the Medical Physicist	Dixon, Butler & Sobol	Medical Physics
7/18/02	Intravascular Brachytherapy, Fluoroscopically Guided Interventions	Balter, Chan & Shope	Medical Physics
7/29/04	Specifications, Performance Evaluations, and Quality Assurance of Radiographic and Fluoroscopic Systems in the Digital Era	Goldman & Yester	Medical Physics
7/30/06	CD AAPM 48th Annual Meeting		
7/22/07	CD AAPM 49th Annual Meeting		
7/27/08	CD AAPM 50th Annual Meeting		

AAPM Reports

Report No.			
4	Basic Quality Control in Diagnostic Radiology	Task Force	
7	Protocol for Neutron Beam Dosimetry		American Institute of Physics
9	Computer-aided Scintillation Camera Acceptance		American Institute of Physics
12	Evaluation of Radiation Exposure Levels in Cine Cardiac Catheterization Laboratories		American Institute of Physics
14	Performance Specifications and Acceptance Testing for X-ray Generators and Automatic Exposure Control Devices		American Institute of Physics
15	Performance Evaluation and Quality Assurance in Digital Subtraction Angiography		American Institute of Physics
16	Protocol for Heavy Charged-Particle Therapy Beam Dosimetry		American Institute of Physics
17	Physical Aspects of Total and Half Body Photon Irradiation, The		American Institute of Physics
18	Low-Level Ionizing Radiation and Its Biological Effects, A Primer on		American Institute of Physics
20	Magnetic Resonance Imaging Systems, Site Planning for		American Institute of Physics
23	Total Skin Electron Therapy: Technique and Dosimetry		American Institute of Physics
24	Radiotherapy Portal Imaging Quality		American Institute of Physics
25	Protocols for the Radiation Safety Surveys of Diagnostic Radiological Equipment		American Institute of Physics
26	Performance Evaluation of Hyperthermia Equipment		American Institute of Physics
27	Hyperthermia Treatment Planning		American Institute of Physics

29	Equipment Requirements and Quality Control for Mammography		American Institute of Physics
30	e-mail and Academic Computer Networks		American Institute of Physics
31	Standard Methods for Measuring Diagnostic X-ray Exposures		American Institute of Physics
33	Staffing Levels and Responsibilities of Physicists in Diagnostic Radiology		American Institute of Physics
34	Acceptance Testing of Magnetic Resonance Imaging Systems		American Institute of Physics
35	Recommendations on Performance Characteristics of Exposure Meters		American Institute of Physics
36	Essentials and Guidelines for Hospital Based Medical Physics Residency Training Programs		American Institute of Physics
38	Role of a Physicist in Radiation Oncology, The		American Institute of Physics
39	Specification and Acceptance Testing of Computed Tomography Scanners		American Institute of Physics
41	Remote Afterloading Technology		American Institute of Physics
42	Role of the Clinical Medical Physicist in Diagnostic Radiology, The		American Institute of Physics
44	Academic Program for Master of Science Degree in Medical Physics		American Institute of Physics
53	Radiation Information for Hospital Personnel		American Institute of Physics
73	Medical Lasers: Quality Control, Safety Standards, and Regulations	AAPM & ACR (October 2001)	Medical Physics

NCRP Commentaries, etc.

Commentary No. 9	Considerations Regarding the Unintended Radiation Exposure of the Embryo, Fetus or Nursing Child - Issued May 1, 1994		NCRP
Commentary No. 13	Introduction to Efficacy in Diagnostic Radiology and Nuclear Medicine, An (Justification of Medical Radiation Exposure) - Issued August 31, 1995		NCRP
Commentary No. 14	Guide For Uncertainty Analysis in Dose and Risk Assessments Related to Environmental Contamination, A - Issued May 10, 1996		NCRP
Lecture No. 12	How Safe is Safe Enough?, Lauriston Taylor Lecture Series in Radiation Protection and Measurements	Lindell - Issued 7/1/1988	NCRP

NCRP Reports

Report No.			
33	Medical X-ray and Gamma-ray Protection for Energies up to 1- Me - Equipment Design and Use	Fourth Reprinting 11/1/1977	NCRP
Superseded by No. 102			
39	Basic Radiation Protection Criteria	Issued 1/15/71	NCRP
40	Protection Against Radiation from Brachytherapy Sources	Issued 3/1/1972	NCRP
49	Structural Shielding Design and Evaluation for Medical Use of x-rays and Gamma Rays of Energies up to 10 MeV	Issued 9/15/1976	NCRP
53	Review of NCRP Radiation Dose Limit for Embryo and Fetus in Occupationally-Exposed Women	Issued 3/1/1977	NCRP
57	Instrumentation and Monitoring Methods for Radiation Protection	Issued 5/1/1978	NCRP
71	Operational Radiation Safety-Training	Second Reprinting 6/15/1994	NCRP
79	Neutron Contamination from Medical Electron Accelerators	Issued 11/1/1984	NCRP
85	Mammography - A User's Guide	First Reprinting 8/1/1987	NCRP
86	Biological Effects and Exposure Criteria For Radiofrequency Electromagnetic Fields	Issued 4/2/1986	NCRP

91	Recommendations on Limits for Exposure to Ionizing Radiation	Issued 6/1/1987	NCRP
Superseded by No. 116			
93	Ionizing Radiation Exposure of the Population of the United States	Issued 9/1/87	NCRP
94	Exposure of the Population in the United States and Canada from Natural Background Radiation	Issued 12/30/1987	NCRP
95	Radiation Exposure of the U.S. Population from Consumer Products and Miscellaneous sources	Issued 12/30/1987	NCRP
96	Comparative Carcinogenicity of Ionizing Radiation and Chemicals	Issued 3/1/1989	NCRP
97	Measurement of Radon and Radon Daughters in Air	Issued 11/15/1988	NCRP
98	Guidance on Radiation Received in Space Activities	Issued 7/31/1989	NCRP
99	Quality Assurance for Diagnostic Imaging Equipment	Issued 12/30/1988	NCRP
100	Exposure of the Population in the U.S. Population From Diagnostic Medical Radiation	Issued 5/1/1989	NCRP
101	Exposure of the U.S. Population From Occupational Radiation	Issued 6/1/1989	NCRP
102	Medical X-ray, Electron Beam and Gamma-ray Protection For Energies Up to 50 MeV	Issued 6/30/1989	NCRP
103	Control of Radon in Houses	Issued 9/1/1989	NCRP
104	Relative Biological Effectiveness of Radiations of Different Quality, The	Issued 12/15/1990	NCRP
105	Radiation Protection For Medical and Allied Health Personnel	Issued 10/30/1989	NCRP
106	Limit For Exposure to "Hot Particles" on the Skin	Issued 12/31/09	NCRP
107	Implementation of the Principle of as Low as Reasonably Achievable (ALARA) For Medical and Dental Personnel	Issued 12/31/1990	NCRP
108	Conceptual Basis For Calculations of Absorbed-Dose Distributions	Issued 3/31/1991	NCRP
109	Effects of Ionizing Radiation on Aquatic Organisms	Issued 8/30/1991	NCRP
110	Some Aspects of Strontium Radiobiology	Issued 8/31/1991	NCRP
111	Developing Radiation Emergency Plans for Academic, Medical or Industrial Facilities	Issued 8/30/1991	NCRP
112	Calibration of Survey Instruments Used in Radiation Protection for the Assessment of Ionizing Radiation Fields and Radioactive Surface Contamination	Issued 12/31/1991	NCRP
113	Exposure Criteria for Medical Diagnostic Ultrasound: I. Criteria Based on Thermal Mechanisms	Issued 6/1/1991	NCRP
114	Maintaining Radiation Protection Records	Issued 11/30/1992	NCRP
115	Risk Estimates for Radiation Protection	Issued 12/31/1993	NCRP
116	Limitation of Exposure to Ionizing Radiation	Issued 3/31/1993	NCRP
117	Research Needs for Radiation Protection	Issued 11/30/1993	NCRP
118	Radiation Protection in the Mineral Extraction Industry	Issued 11/30/1993	NCRP
119	Practical Guide to the Determination of Human Exposure to Radiofrequency Field, A	Issued 12/31/1993	NCRP
120	Dose Control at Nuclear Power Plants	Issued 12/30/1994	NCRP
121	Principles and Application of Collective Dose in Radiation Protection	Issued 11/30/1995	NCRP
124	Sources and Magnitude of Occupational and Public Exposure from Nuclear Medicine Procedures	Issued 3/11/1996	NCRP
125	Deposition, Retention and Dosimetry of Inhaled Radioactive Substances	Issued 2/14/1997	NCRP

126	Uncertainties in Fatal Cancer Risk Estimates Used in Radiation Protection	Issued 10/17/1997	NCRP
127	Operational Radiation Safety Program	Issues 6/12/1998	NCRP
128	Radionuclide Exposure of the Embryo/Fetus	Issued 9/25/1998	NCRP
129	Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-specific Studies	Issued 1/29/1999	NCRP
130	Biological Effects and Exposure Limits for "Hot Particles"	Issued 12/10/1999	NCRP
131	Scientific Basis for Evaluating the Risks to Populations From Space Applications of Plutonium	Issued 2/5/2001	NCRP
132	Radiation Protection Guidance for Activities in Low-Earth Orbit	Issued 12/31/2000	NCRP
133	Radiation Protection for Procedures Performed Outside the Radiology Department	Issued 8/31/2000	NCRP
134	Operational Radiation Safety Training	Issued 10/13/2000	NCRP
135	Liver Cancer Risk from Internally-Deposited Radionuclides	Issued 3/9/2001	NCRP
136	Evaluation of the Linear-Nonthreshold Dose-Response Model for Ionizing Radiation	Issued 6/4/2001	NCRP
137	Fluence-Based and Microdosimetric Event-Based Methods for Radiation Protection in Space	Issued 8/24/2001	NCRP
138	Management of Terrorist Events Involving Radioactive Material	Issued 10/24/2001	NCRP
139	Risk-Based Classification of Radioactive and Hazardous Chemical Wastes	Issued 12/31/2002	NCRP
140	Exposure Criteria for Medical Diagnostic Ultrasound: II. Criteria Based on all Known Mechanisms	Issued 12/31/2002	NCRP
141	Managing Potentially Radioactive Scrap Metal	Issued 11/19/2002	NCRP
142	Operational Radiation Safety Program for Astronauts in Low-Earth Orbit: A Basic Framework	Issued 11/30/2002	NCRP
143	Management Techniques for Laboratories and Other Small Institutional Generators to Minimize Off-Site Disposal of Low-Level Radioactive Waste	Issued 4/18/2003	NCRP
144	Radiation Protection for Particle Accelerator Facilities	Issued 12/31/2003	NCRP
145	Supersedes No. 35		
	Radiation Protection in Dentistry	Issued 12/31/2003	NCRP
146	Approaches to Risk Management in Remediation of Radioactively Contaminated Sites	Issued 10/25/2004	NCRP
147	Structural Shielding Design for Medical X-Ray Imaging Facilities	Issued 11/19/2004	NCRP
148	Supersedes No. 36		
	Radiation Protection in Veterinary Medicine	Issued 12/30/2004	NCRP
149	Mammography and Other Breast Imaging Procedures, A Guide to	Issued 12/31/2004	NCRP
155	Supersedes No. 37		
	Management of Radionuclide Therapy Patients	Issued 12/11/2006	NCRP

RSNA Syllabi

1992	Basic Physics of MR Imaging, Categorical Course in Physics	Riederer & Wood	RSNA
1996	Diagnostic Radiology Physics: Cardiac Catheterization Imaging, Categorical Course in Physics	Nickiloff & Strauss	RSNA
1997	Electronic Radiology Practice-Technical and Practical, Special Course in Diagnostic Radiology Physics:	Hangiandreou, Young & Morin	RSNA

1998	Technical Aspects of Breast Imaging, A Categorical Course in Physics Technology Update and Quality	Haus & Yaffe	RSNA
1999	Improvement of Diagnostic X-ray Imaging Equipment, A Categorical Course in Physics	Gould & Boone	RSNA

Journal Title	Volume	Number	Date	Available Electronically	
Journals					
American College of Radiology, The Journal of (JACR)	4	12	Dec-09	Yes	
	5	8	Aug-09	Yes	
	6	3	Mar-09	Yes	
	6	5	May-09	Yes	
	6	6	Jun-09	Yes	
	6	7	Jul-09	Yes	
<hr/>					
ACR Bulletin	64	6	Jun-09	Yes	
<hr/>					
American Journal of Roentgenology				Yes	
<hr/>					
Nuclear Medicine, The Journal of				Currently in Process with J. Greco	
	50	7	Jul-09	Yes	
	50	8	Aug-09	Yes	
<hr/>					
Medical Physics - International Journal of Medical Physics Research and Practice, The Journal of the AAPM	36	5	May-09	Yes	
	36	6	Jun-09	Yes	
	36	7	Jul-09	Yes	
	36	8	Aug-09	Yes	
<hr/>					
Health Physics, The Radiation Safety Journal				Currently in Process with J. Greco	
	Operational Radiation Safety, The		1999-2009	No	
	97	3	Sep-09	Yes	
<hr/>					
RadioGraphics - RSNA	29	3	May-Ju 09	Yes	
	29	4	July-Aug 09	Yes	
<hr/>					
Radiation Safety Officer (RSO)			1996-2002	No	
<hr/>					
Radiology					
	RSNA Publication	251	3	Jun-09	Yes
		252	1	Jul-09	Yes
		252	2	Aug-09	Yes
<hr/>					
RSNA News	19	6	Jun-09	Yes	
<hr/>					
Physics Today (Publication of the American Institute of Physics)			Jun-09	Yes	

Note: In 2009, UMP relocated its offices and recycled approximately 20 years of hardcopy journals that are now available electronically.

CDs	Name of CD		Volume	Date	Publisher
	Medical Physics on CD-ROM	Full text	25	1998	AAPM
			27	2000	
		Abstract	2	1975	
			24	1997	
	Radiation Protection			5/20/07	AAPM
	Radiation Protection			5/21/07	AAPM
	ACR Teaching Files			12/1/99	
	CT Patient- Pregnancy at 24 wk			3/6/06	
	Diagnostic Radiology Physics, Update Course in: Screen-Film & digital Mammography			10/31/08 - 10/31/11	RSNA
	National Conference on Radiation control			5/19/08	CRCPD E-08-3
	MTMI "Hands-ON" MR Course - ACR Phantom Analysis Tools			2/9/01	

Subject	Title	Author or Editor
Regulations	Massachusetts 10/6/06 Control the Radiation Hazards of Radioactive Material and of Machines which Emit Ionizing Radiation, To	Department of Public Health 105CMR 120.000
	NYSDOH 2008 Part III Rules and Regulations 10 CFR Parts 20, 32, and 35 Use of Byproduct material; Final Rule	Medical NRC
	Nuclear Regulatory Commission 4/24/02 Radiological Emergency Planning for Public Health Professionals and First Responders	NYSDOH

Appendix F

Minimum Number of Units To Demonstrate Competency

Minimum Number of Units To Demonstrate Competency

The following provides guidance regarding the minimum number of units which must be evaluated by each resident in order to demonstrate competency. These must be from a variety of facility types [large and small hospitals, private imaging centers, and private physician (non-radiologist) offices]. The evaluations must include an acceptance test of at least one of each type of equipment. In addition, the resident must set up a quality control program for each piece of equipment which is acceptance tested. A report will be provided of each evaluation.

The number in parenthesis in the following indicates the minimum number. In some cases a minimum number of specific types of equipment is also noted.

1. Mammography (20)
 - a. 2 of each FFDM (Hologic, GE, Siemens, Fuji)
 - b. 3 SFM and film processing (as long as available)
 - c. 2 SBB

2. Radiographic and Fluoroscopic (50)
 - a. Radiographic (fixed and portable)
 - b. RF
 - c. Mobile C-arms

3. Interventional (10) (vascular, cardiac, single and bi-plane)
 - a. GE
 - b. Siemens
 - c. Philips

4. CR-DR (10)
 - a. CR (Fuji, Kodak, Agfa)
 - b. DR (Fuji, GE, Siemens, Philips)

5. Dental (10)
 - a. Intraoral (film and digital)
 - b. Cephalometric
 - c. Panoramic
 - d. CT

6. Computed Tomography (25) (GE, Siemens, Philips, Toshiba)
 - a. MDCT
 - b. Flat panel office-based (ENT, dental)

7. Magnetic Resonance Imaging (10)
 - a. 1.5 T (Siemens, GE, Philips)
 - b. 3.0 T (Siemens)
 - c. Open (Hitachi)

8. Nuclear Medicine (10) (GE, Philips, Siemens)
 - a. Planar
 - b. SPECT
 - c. PET
 - d. PET-CT

9. Ultrasound (5) (GE, Philips, Siemens)
 - a. Abdomen
 - b. Breast
 - c. Vascular

10. Shielding Calculation and Design (10)
 - a. Rad
 - b. Radiographic and Fluoroscopic
 - c. Interventional
 - d. Computed Tomography
 - e. PET

11. Radiation Protection Surveys (10)
 - a. Radiographic, Radiographic and Fluoroscopic, Interventional, Computed Tomography
 - b. SPECT, PET
 - c. MRI (static magnetic field and implications of radio-frequency interference)

12. Patient Dosimetry (10) (x-ray and nuclear imaging)
 - a. Pregnant
 - b. Interventional
 - c. ESE, organ dose, Effective Dose

13. Display and Printing devices (10)
 - a. DICOM GSDF
 - b. QC

14. Radiation Safety Review (part of orientation)
 - a. X-ray
 - b. Radioactive materials
 - c. Regulatory
 - d. Instrumentation
 - e. Calibration
 - f. Personnel Monitoring (film, TLD, OSL)

15. Radiation Safety Committee Meetings (8)
 - a. University or teaching hospital
 - b. Large community hospital (>300 beds)
 - c. Small community hospital (<300 beds)

Note to CAMPEP Reviewers regarding Staff Meeting Minutes

Historically, minutes have been maintained by entering “Details” after each prepared “Agenda” item. This has been done by clerical staff - primarily to document policy decisions. We are in the process of hiring an Educational Coordinator – a Radiologic Technologist – who will be responsible for documenting all the educational aspects of these meetings, suitable for CAMPEP MPCE credits.

Sample Minutes follow for: 9/30/09, 8/25/09, 6/19/09

<p>Minutes</p>	<p align="center"> UMP Staff Meeting 9/30/09 Next meeting 11/4/09 Attendees: Bob, Bob, Dustin, Nelson, Vicki, Matt, Mark, Joe, Jason, Alphonso H:\Umpfiles\Agenda\2009 </p>	
<p>Agenda Discussion Topics</p>	<p>Details</p>	
<p>Ontario Co. RN here for Flu shots and PPDs</p>	<p>Friday 10/2/09 after 10am to read PPDs</p>	
<p>Professional Issues</p>		
<p>Contract Status Bob to call B Hospital</p>		
<p>Quality Control – Projects Completed</p>	<p>Sayre CR & PDMs, DG to schedule, CR reviewed also. Mark to schedule the St.F CTs for week in November. NJ to update audit with dates of PET work last year. ESEs will no longer be tracked through Roch/Buff Scheds. The client audit should be noted when a tech chart has been sent to a client and a reminder should be put in your schedule to follow up on the status of that chart 3 wks after the request was sent.</p>	
<p>Special Contracts in Quotes (Alphonso)</p>	<p>Al has set up quotes to reflect the special cases that would not require quotes for some testing. In the future, when a signed contract comes in, Vicki generates a new audit based on what is included in the new contract. At that point, if anything unlimited is indicated for a client, Vicki will let Al know and he can update the macros in quotes.</p>	
<p>B DOH Letter re EP Lab incident</p>	<p>Copies of this correspondence were handed out for review.</p>	
<p>Bob Marmat – Scheduling Improvements, color labels for appointments in Outlook</p>	<p>Do we want to make people responsible for specific clients? We should consider this and we can discuss this at next mtg. We assigned color labels to apts. In Outlook. People should color their apts. In their schedules to match the type of apt. I.E. a mammo survey in your schedule will appear pink.</p>	
<p>North Pavilion CT acceptances</p>	<p>Lorna wants to have her 4 units done in beg of Nov. Proposing a trip for DG & Jason to go out week of 11/9 to do her units. Her new units will be done as they are installed, hopefully with ACR accreditation at same time. DG to get in touch with Lorna re CT schedule of testing and also review her plans for new/relocated units and ACR accreditation.</p>	

North Pavilion Mammo acceptances	DG will be point person for the Smilow mammo relos for scheduling as well as whatever quotes are necessary. This should be happening beginning of December.
Vendormate, RepTrax and possibly other programs	Vicki to get cert of insurance to various clients. I should set up a listing of the clients that require Certs and the date that these Certs are updated. Use the same passwords and usernames registered for clients
CAMPEP Residency Prgram Update	3 year program Arrangements in process for Video conferencing of some Radiology conferences Arrangements in process for Radiologist video <i>Radiographics</i> journal club Application should be sent out soon.
Web Design Discussion – See attached Concept Form	
Social networking sites – be cautious about what these sites convey about you as a professional	Bob met w. Jackie/Paychex re these sites. Be sensitive to any info that you post on these sites as it is available to the public.
Scientific Issues	
AKR & CAK Measurement Locations	With the cardiovascular / interventional angiography systems that I have encountered (Siemens, Philips, Shimadzu) you don't have to use two separate setup geometries. With the C-arm positioned with the image detector over the table, place the radiation detector on the table top and set the table height such that the radiation detector is at isocenter (detector image does not drift as the c-arm is rotated). Next, lower the table 15 cm toward the tube. Finally, lower the detector to a position 30 cm from the radiation detector. Radiation measurements will then correspond to both the IRP and the FDA measurement locations. This does not work if the SID is not variable (e.g. mobile c-arms).
PE for pregnant patients: MDCT vs VQ scans	See Radiographics article
CT Course highlights (Dustin et al)	Folder on the server, T/CT that lists the slides from all the courses for MTMI Vegas course. Put in PDF then send to everyone to keep on their laptops. This will become a resource out in the field.
Pregnant Patient calculations – CT (Mark)	
Regulatory Issues	
Targeted inspections - MIBH	See above re Correspondence
Who can operate a fluoro unit	See above re Correspondence

Minutes

UMP Staff Meeting

8/25/09

Next meeting 9/30/09

Attendees: Bob, Bob, Dustin, Nelson, Vicki, Matt, Mark, Joe, Jason, Alphonso
H:\Umpfiles\Agenda\2009

Agenda Discussion Topics

Details

WELCOME Alphonso

New Letterhead, business cards, e-mail signatures.
Notify associations of change of address.

Contract Status

Work Load

Already reviewed with staff.

North Pavilion CT acceptances

CT will be adding a 64 VCT unit to their roster arriving 10/23.
PET/CT? getting 2 more pet/ct this fall

North Pavilion Mammo acceptances

Right now Susan is saying the Stereo testing should take place 10/28 or 29, a Selenia and 2 workstations 10/29. A workstation 11/2 another Selenia 11/4, a third 11/6.

Vendormate like programs

Go on website to find out what immunizations are required and the next time you visit your doctor to get a copy of your immunizations. Marmat & Bob will discuss how to approach these.

DMV checks

This will be done annually at the time of insurance renewal.

MA and MEE for digital mammo at small sites usually replaces the annual PDM if they only have 1 PDM.

When a mammo is done at OC they have 1 pdm for both so when mammo is done, pdm is done. About ¾ of our mammos have a dedicated pdm so this not an issue.

Jason:

New DAP spreadsheet
&
Testing Procedures update

This will be saved under the agenda file on the server.

Alphonso – Improvements to HVL & CR Reports

Jason will work with Al to incorporate this process in our reports. Marmat to set up mtg. w.Al and Bob P, Jason to review any possible refinements for our CR process. Al to continue to work with uniformity.
Process for new cassettes for CR: tell clients to expose cassettes, view image and use if no artifacts. Burn a cd and send it to us, we review it and generate a report to the client.

UH – Bob M
use this information when we are testing their equipment

Mr# XTESTUMP09(09 denotes year)

Last Name XTESTUMP09

First Name XTESTUMP09

Acc# XTESTUMP09

Bob will review with other clients to see if they would like us to use an identification for our testing. Every effort will be made to use this same format at other clients so we don't have to remember different formats.

<p>UMP Personnel Update Keri Summer Projects (Intern)</p>	<p>Joe would like to be included on training for Monitor QC Acceptance for his NM certification. Keri will be coming back in the summer to do an internship related to diagnostic.</p>
<p>CAMPEP Residency Program update</p>	<p>Draft ver 4 Joel to attend AAPM workshop this week Minneapolis. MP's on our Advisory Group. Bob will be speaking with Dr. K so we have an MD in the advisory group. SB to come up and deliver lectures which will be accredited.</p>
<p>Staff Meetings CAMPEP credits Professional Technical/Scientific Need volunteer to review minutes Joel Gray to ask about process</p>	<p>Wait to see what is involved from Joel then we can decide how to go about seeking a volunteer.</p>
<p>Office relocation Excellent work by our team and BarNone! Server Speed from Buffalo office Telephone system - how are we doing? Conference to a cell phone. Remaining office issues?</p>	<p>We should all become familiar w. setting up conference calls as this is a feature that will help us quite a bit. Still some problems to iron out with the phones. If anyone has any issues with the office, let Bob know as he will be meeting with the landlord.</p>
<p>Communicating with one another in a larger group and a larger office – How is this working?</p>	<p>Cell phones on – respond to office calls on the road</p>
<p>UMP quotes, SOP “sent by” the drafter How is this working?</p>	<p>This has helpful to have this info.</p>
<p>Equipment Calibration updates- Dustin status?</p>	<p>Dustin is going through a calibration cycle. No RadCal spare and each person is responsible to send in their unit in for recalibration. Therapy equipment should be calibrated every 2 years (with the exception of survey meters which needs to be done every year.) Contact Ethan in advance to turn around asap. Do overnight Fedex for the most expediency.</p>

Minutes

UMP Staff Meeting

6/19/09

Next meeting 8/4/09

Attendees: Bob, Bob, Dustin, Nelson, Vicki, Matt, Mark, Joe, Jason, Keri
H:\Umpfiles\Agenda\2009

Agenda Discussion Topics

Details

Contract Status

Work Load

Already reviewed with staff

UMP Personnel Update

Dustin – Mark DABR

Keri Summer Projects (Intern)

Alphonso (Resident) to start mid-July

Workload Modalities grid update

Jason – new areas for year 2

Joe would like to be included on training for Monitor QC Acceptance for his NM certification.

Residency Program update

One of the few private practice group accredited for residency. 2014 will require an accredited residency to sit for exam. Joel will be assisting us in writing up our program for CAMPEP. Bob would like to see this app completed the end of August for CAMPEP mtg. Software to track competencies not only for the residents but for our staff. Al will come in on an R1 level, Jason will be considered an R2. People need to start listing the competencies that people need to work in the modalities you work in.

ACR CT Acquisition – UMP policy re: Pediatric Abd dose

SOP do Pediatric Dosimetry unless we get CLEAR direction from a high level of Radiology Manager. If the tech doesn't remember how to do Peds that might take a little effort on our part to teach them. Pediatrics will become a bigger focus in the accreditation area so this is important. This is a good time to focus on Peds.

<p>Office relocation Server relocation 9:30 Am July 1 Move date: July 1 Telephone system (training – Jason is our contact) Limited Network access 7/1 (Vicki letter to clients) Moving responsibilities Office assignments</p>	<p>Shut off computers at 9:30 7/1. Each person will be responsible for taking their computer equipment to the new office. If there is any delay folks can work off their notebooks. Look as far ahead as the following Monday to have any work that is server related, such as files for a client visit, prepared before 7/1/09. Everyone needs to pack up the materials in their own offices.</p> <p>New furniture will be moved over starting at 7:30 that morning. Bob's, Dustin's, Cubicles and Vicki's furniture will need to be taken down, moved and reassembled at Blossom.</p> <p>All of this is hinged on conversion on 6/30. If that does not happen on 6/30 we do have several options laid out as back up plans. Vicki just sent Rich an e-mail suggesting we do a verification of the server backup.</p> <p>Client notification of server outage will cover Preg Pat. Documentation for client inspections.</p> <p>Dustin is investigating options for a door bell as well as a tone to announce that door has been opened.</p> <p>Put a sign on Parish Road Door that we have moved.</p>
<p>Communicating with one another in a larger group and a larger office Cell phones on – respond to office calls on the road</p>	<p>If you don't need complete quiet, please keep your doors open so that communication keeps flowing.</p> <p>Let's try to remember to keep cells on in the event of these types of situations. Use the cell phone with text messages if need be. There are occasions that a text message will get through while a voice mail might not get through.</p>
<p>Equipment Calibration updates- Dustin</p>	<p>Dustin will be completing this project within the next few weeks.</p>
<p>Image Quality investigation</p>	<p>The GE DR images are quite different from the Fuji CR images. Wrote up a 6 or 7 point QC log after our consultations for Bill. Had interesting responses from the Med List Server. The main issues are comparison films. DR images have a higher contrast look than CR.</p>
<p>RSO Handbook and other projects (Keri)</p>	<p>10 Things an RSO should know, presented to staff. Wonderful handout for our clients.</p>
<p>Senior person responsible for billing arrangements and follow-up w/client</p>	<p>It will become more typical to have someone on the trip in a training capacity. The senior person should take the lead with communication with the client and any arrangements with the client such as quotes, POs.</p>
<p>Who attends RSC meetings at all of our clients (See Attached list)</p>	<p>Joe handed out a listing that includes time of the year we attend these mtgs. This listing can be found on the J drive under work schedules. The listing below has been updated by Joe during the meeting so check on J drive for updated listing.</p>
<p>Website changes – lots of 'em (Joe)</p>	<p>Get these changes done by end of June. Jason's bio and photo are in. Need to get Al's bio and photo, Joe will send a reminder. DG & Mark need to update bios. Change the address. Logo if possible. DG took care of updating mammo credentials to Chris. Change location of Preg forms to Client Download location on the website. Put Contact Jason for DVD training info. Watermark UMP onto RSO document that Keri just finished. Joe add Abu Dhabi story.</p>

<p>CR Spreadsheet Update & Quarterly CR Discussion</p>	<p>If time is available, Jason will present some proposed CR spreadsheet modifications as well as quarterly CR QC updates. This presentation can be found on H:\Umpfiles\Agendas with a title that includes 6-09.</p> <p>For Uniformity SOP Exposure should be between 5-10 mR. Filtration 1.5mm copper. These are for AGFA systems.</p>
<p>Info items” Projects with (CBCT) and (Mammo thermal printer)</p>	<p>CT Mfr does not provide a phantom that meets standards. They’ve sent us the phantom and Bob & Dustin will do an evaluation and provide a report.</p> <p>Thermal printer consultation in progress.</p>
<p>GO contacted Matt with request for quarterly CR quote.</p>	<p>GO wants a quote for quarterly CR similar to other quote. Dustin is wants to complete their CR acceptance in July.</p>
<p>Acceptable holes in lead aprons- Nelson</p>	<p><i>Proposed Evaluation of Protective Lead Garments Word Doc</i> can be found on the server on H:\Umpfiles\Agenda\2009</p> <p>It’s good from time to time to look at our SOP to see if we need to make some changes. At this point based on Nelson’s investigation, risks to staff, we will continue our current approach to lead aprons.</p>
<p>Maynard High advice on lead aprons, saved to T:Rad Safety/Apron testing Lambert article ORS, see also attached e-mail.</p>	<p>Small Holes: Are there any HPS, AAPM, NCRP, DOH guidelines that anyone knows of that address how “leaky” an apron has to be before declaring it unfit for service? The images posted in this thread are quite common, ie straps or pockets occasionally sewn through the lead leading to a series of <1 mm punctures. For new aprons this is unacceptable and the aprons should be replaced by the vendor. But when we run into this situation with old aprons, what to do? A possible naïve approach to Bob’s question is to take the ratio of the hole area to the area of the total apron to get a “% loss of protection.” Now what % loss is acceptable? A few pinholes is going to be less than 1%. At what % should we draw the line?</p> <p>Lite Aprons: We find at our hospital that old fashioned 0.5 mm real lead aprons are never ordered anymore. The users are buying either a) 0.5 mm equiv non-lead composite aprons, b) 0.35 mm Pb rather than 0.5 mm, or c) 0.35 mm non-lead composites. Any one of these will drop the attenuation factor by a few % (say from 97% to as little as 93%). Again, what is acceptable and what should we be recommending? It seems to me that this represents a much, much bigger increase in risk than not catching a few aprons with small or pinhole leaks. Any thoughts or policies out there?</p>
<p>This is an AAPM approved document for use by state inspectors. I saved it to T: CR-All Manufacturers</p>	<p>CRDR protocol Apr21MOappBCD.doc</p>

<p>Issues to be covered at RSC mtgs.</p>	<ol style="list-style-type: none"> 1. CT Gonadal Shielding. We want to change our recommendation so that wrap around pelvic shielding is used for females of childbearing age if pelvis does not need to be imaged. Please bring this up at each meeting so the clients can change their policy. Dustin, please share a copy of the article with everyone so we can bring it to each RSC meeting. I want to do this because this is a complete reversal of our recommendation in this regard. Hence, I want to show that it is based on a newly published report. 2. Bismuth Breast shielding for females having CT exams. Please also bring this up and recommend that they try these. They do significantly reduce the dose to the female breast. Also, patients like that. They must remember to do the scout view before putting on the breast shields, so the mA modulation does not work in opposition to the breast shields. The only down side is that the CT numbers are reported to be slightly different behind the breast shields, but the radiologists don't seem to mind. <i>If we're asked we should respond that some times Breast Shields are used and sometimes they are not. There is no significant protection afforded by this procedure.</i>
<p>Copies of CR presentations from the CRCPD session on Konica can be found on T:CR/</p>	
<p>CTDP and over beaming</p>	<p>Got Manufacturer's Specs, first time we could fill that portion of the box, "meets Manufacturer Specs", in our report.</p>

Appendix I

Residency Time Allocations for Specific Competencies

Residency Time Allocations for Specific Competencies

(From IAEA, 2009)

Module	Minimum	Maximum	Average
1. Clinical Awareness, Introduction	2%	4%	3.0%
2. Safety and Radiation Protection	10%	14%	12.0%
3. Research and Development, and Teaching	4%	8%	6.0%
4. Professionalism, Communication and Quality Management	3%	8%	5.5%
5. Performance Testing of Imaging Equipment	25%	30%	27.5%
6. Technology Management	9%	15%	12.0%
7. Dosimetry, Instrumentation and Calibration	5%	10%	7.5%
8. Patient Dosimetry	8%	14%	11.0%
9. Image Quality Assessment	5%	15%	7.5%
10. Optimization	5%	10%	7.5%
Totals	76%	123%	100.0%



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Diagnostic Radiology, Medical Nuclear, Medical Health and Therapeutic Radiological Physics, P.C.

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Robert Pizzutiello, MS
FACR • FAAPM • FACMP
President

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www.upstatemp.com

Application for Residency Admission

Upstate Medical Physics Residency Program Application

Personal Information

Name:

Date of Birth:

Social Security Number:

Current Mailing Address:

Permanent Address (if different):

Current Telephone Number:

Permanent Telephone Number

e-mail Address:

*Have you ever been convicted of a crime?
(If yes, please explain)*

Education

*List colleges, universities or other post-graduate schools attended. If graduate program is not CAMPEP Accredited, you must also complete **Appendix 1 Course Summary for Graduates of Non CAMPEP Accredited Programs** and submit with this application.*

Name of School	City and State	Degree	Year Awarded	Major Field of Study

Employment History

List all employment, beginning with most recent.

Employer	Address	Type of Work	Dates

References

List three professional references. (Please have original hardcopy letters of reference sent by the deadline listed in resident position notice indicated on the web site www.upstatemp.com .)

Name	Institution	Department	Position

Waiver of Access to Reference Statements

Under the Family Educational and Privacy Rights Act, 20 U.S. C. 1232(g), you may, but are not required to waive your right of access to confidential references given in connection with this application. If you waive your right of access, the waiver remains valid indefinitely. Check the appropriate space below:

_____ I do waive my right of access

_____ I do not waive my right of access

Signature _____

Date _____

Please provide the following items as part of your Upstate Medical Physics Residency Program Application:

1. **A two page statement (not to exceed 1,200 words) detailing your interests and goals for this medical physics residency program. Address specifically—**
 - a. *Why did you select Upstate Medical Physics for your residency program?*
 - b. *Why did you select diagnostic medical physics as your career choice?*
 - c. *How and where do you picture yourself professionally in 5 and 10 years?*
 - d. *What are your goals for this medical physics residency program?*
2. **Three samples of your work.** *These may include publications in peer-reviewed journals, sections of your Masters or Doctoral thesis, reports you have prepared, or equipment evaluations. Research projects, papers or lab assignments completed during your coursework are also acceptable.*
3. **If you will not be graduating from a CAMPEP accredited graduate program, complete and submit *Appendix 1 Course Summary for Graduates of Non CAMPEP Accredited Programs* and any additional documentation to demonstrate that these courses meet CAMPEP requirements.**
4. **Submit all documents to residency@upstatemp.com**
5. **Hardcopies of your official transcripts of grades from prior undergraduate and graduate academic institutions, and letters of reference, forwarded (by each school and person giving reference) should be submitted directly to:**

*Robert J. Pizzutiello, Jr., MS
Director, Diagnostic Medical Physics Residency Program
Upstate Medical Physics
1290 Blossom Drive
Victor, New York 14564*

Carefully Read the Following Before Signing—

The responses given above are true and correct. I understand that any omissions of fact or any false or misleading statements will be considered just cause for dismissal from the program. I agree that all former employers or former faculty with whom I have been associated may furnish the Upstate Medical Physics with all information regarding my character and qualifications, and I release all such employers and faculty from any liability for providing such information in good faith.

Signature of Applicant _____

Date _____

Upstate Medical Physics is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regards to race, color, creed, religion, national origin, sex, age, marital status, disability, veteran status, or sexual orientation.

Privacy Statement

All information on this form is private. It will be used to identify and communicate with you, and to determine your qualifications for admission to this program. All items requested on the form are required to process your application. Those who may gain access to the information in your file are staff and faculty at Upstate Medical Physics who have a need to know the information to perform their job responsibilities, and outside organization and government bodies in limited circumstances, as authorized by state or federal law. In addition, you may review your own file. No one else may review your file without your written consent, a subpoena, or court order

Resident Interview Evaluation

Applicant Name _____

Date _____

Interviewer _____

Instructions: Carefully evaluate the candidate's interview performance in relation to the specific residency requirements. Quantify your evaluation for each category by indicating a number in the Rating column. Save this worksheet with the applicants last name and your initials (e.g., Lindsey RJP).

5 = Outstanding: Candidate is exceptional and is recognized as being far superior to others.

4 = Very Good: Candidate clearly exceeds program requirements.

3 = Good: Candidate is competent, dependable and meets program requirements.

2 = Improvement Needed: Candidate is deficient or below the standards required of this position.

1 = Unsatisfactory: Applicant is generally unacceptable.

General Factors	Rating	Supportive Details or Comments
<p>Experience: The extent to which the candidate's background and experience are consistent with the requirements of the residency program.</p>		
<p>Education: The extent to which the candidate's graduate program meets the requirements of the residency program.</p>		
<p>Knowledge and Skills: The extent to which the candidate possesses the practical skills and technical knowledge to perform job functions.</p>		
<p>Knowledge of and Interest in the Field: The extent to which the candidate has knowledge of or is familiar with the field of diagnostic medical physics. The level of interest the candidate shows for the field.</p>		
<p>Presentation The extent to which the presentation illustrates or describes the subject matter in a well organized fashion.</p>		
<p>Creativity: The extent to which the candidate proposes ideas and finds new and better ways of doing things.</p>		

Initiative:		
The extent to which the candidate appears to seek out new assignments and assumes additional duties.		
Composure:		
The extent to which the candidate appears to be comfortable in this setting. The candidate's ability to handle stress.		
Communication Skills:		
The extent to which the candidate communicates effectively (verbal and written).		
Professionalism:		
The extent to which the candidate will effectively promote our reputation with clients.		
Overall Impression:		
The extent to which the applicant's overall appearance, manner, and responsiveness are consistent with the program requirements.		

The overall score is 0

Additional comments



Resident Evaluation of Rotation

This form is to be completed by the medical physics resident following each rotation and is designed to gather feedback on specific rotations. The resident is encouraged to provide written comments in addition to completing this form.

Rotation: _____

Dates: _____

- | | Not at all
1 | 2 | Neutral
3 | 4 | Definitely
5 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Was the training covered by this rotation enough to provide you the knowledge required for you to accomplish your clinical duties? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Was the mentorship adequate to allow you to perform the clinical and administrative duties? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Was the availability of the rotation mentor adequate? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Was the rotation mentor's knowledge of the subject appropriate? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Not at all
1 | 2 | Once per week
3 | 4 | Daily
5 |
| 5. How often did you seek the aid of your rotation mentor? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. How often did you seek your primary mentor in regards to the subject before asking for the aid of the rotation mentor? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. How often did you seek your primary mentor in regards to the subject after asking for the aid of the rotation mentor? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. How can this rotation be improved? Provide details, if possible. | | | | | |



Semi-Annual Primary Mentor's Evaluation of Resident

This form is to be completed by the resident's primary mentor twice a year. Mentors are encouraged to obtain input about the resident's performance from other faculty and provide detailed comments in addition to completing this form.

Resident's Name: _____

Period: _____

	Outstanding		Good		Unacceptable	
	1	2	3	4	5	
Clinical rotation performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical skills and judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team relationship and maturity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication and interaction skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Initiative and productivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall score. (Does NOT have to be the average of your scores)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

Mentor name: _____

Mentor signature: _____

Date: _____

Program director's signature: _____

Date: _____

Resident's signature: _____

Date: _____



Annual Resident Evaluation of Residency Program

This form is to be completed by the medical physics resident each year and is designed to gather feedback regarding the medical physics residency program. The resident is encouraged to provide detailed and specific comments.

Date: _____

Please comment in response to the following topics:

Your primary mentor in terms of availability, professionalism, etc.

Working hours reasonable

Space and facilities (Is your office space adequate?)

Availability of equipment

Ability to attend UMP meetings

Administrative support

Any additional comments



Faculty Evaluation of Resident's Annual Oral Examination

This form is to be completed by the faculty members participating in the resident's annual, oral examination.

Resident's Name: _____

Residency Year: _____

	Outstanding		Good		Unacceptable
	1	2	3	4	5
Knowledge level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical reasoning and judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to answer questions clearly and succinctly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication and interaction skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional demeanor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall score. (Does NOT have to be the average of your scores)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

Faculty name: _____

Faculty signature: _____

Date: _____

Program director's signature: _____

Date: _____

Resident's signature: _____

Date: _____



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UPSTATE MEDICAL PHYSICS - Diagnostic Radiology, Medical Nuclear, Medical Health and Therapeutic Radiological Physics, P.C.

Robert Pizzutiello, MS
FACR • FAAPM • FACMP
President

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Faculty Annual Evaluation of the Residency Program

This form is to be completed by faculty and advisory board members on an annual basis.

Name: _____

Title _____

	Outstanding		Good		Unacceptable
	1	2	3	4	5
Resident Selection Process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facilities and Equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rotation Schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diversity of Field Work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentoring Program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional Growth Opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Journal Club	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Continuing Education Opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Board Preparation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall Educational Experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

Signature: _____

Date: _____

Program director's signature: _____

Date: _____



Upstate Medical Physics, Inc.

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Medical Physics Residency Position Available

Upstate Medical Physics (UMP) has a three-year Diagnostic Radiologic Physics Residency position available. Applicants must have obtained their graduate degree from a CAMPEP accredited medical physics graduate program, or obtained similar didactic course work. This individual must be enthusiastic about diagnostic medical physics and interested in helping clients not only meet accreditation and regulatory requirements but also improve the quality of radiology imaging and practices. UMP offers a diverse educational experience through its clients' facilities ranging from small private practice imaging centers to major academic radiology departments.

Upstate Medical physics is located in Victor, New York in the bucolic Finger Lakes region of Upstate New York and also has offices in Buffalo, New York. The Victor, New York office has recently moved to a new 2,800 square-foot facility with state-of-the-art training, IT, and teleconferencing capability. The group meets in person and via teleconferencing on a regular basis for both training and discussion of issues impacting image quality, patient and staff doses, and regulatory requirements.

This medical physics group has many years experience in the Northeastern United States. It is best characterized as a collegial group of diagnostic medical physicists, working together for the benefit of their clients and to develop their own careers. The group includes young diagnostic medical physicists developing in their careers and senior members with over 30 years experience, as well as medical physics assistants. Members have various educational backgrounds including R.T., M.S., and Ph.D. degrees.

The resident will participate in imaging system surveys (acceptance testing and annual evaluations), imaging department design and acquisition of equipment, radiation shielding design, support of facilities for ACR accreditation programs, patient and fetal dose calculations, and institutional radiation safety committee meetings.

The time spent in the UMP Diagnostic Radiologic Physics Residency Program provides the experience required to take the American Board of Radiology certification examination.

Compensation is at the G1 level and includes outstanding medical coverage plus 26 days of paid time off.

For further information contact Robert J. Pizzutiello, Jr. as noted above.



Quarterly Evaluation of Resident

This form is to be completed by the assistant program director, with input about the resident's performance from other faculty .

Resident's Name: _____

Period: _____

	Outstanding		Good		Unacceptable	
	1	2	3	4	5	
Clinical rotation performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Technical skills and judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Knowledge level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Team relationship and maturity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Communication and interaction skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Initiative and productivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Rotations completed (modality, # number of equipment surveys)	_____					

Competency Sub Modules completed	_____					

Competency Sub Modules in progress	_____					

What is needed to complete competency Sub Modules in progress?

Overall score. (Does NOT have to be the average of your scores)

Comments

Asst. Program Director: _____

Signature: _____

Date: _____

Program Director's signature: _____

Date: _____

Resident's signature: _____

Date: _____