



Dr. Hamilton is the Director of Radiation Oncology Physics at Banner University Medical Center in Tucson and Emeritus Professor of Radiation Oncology at the University of Arizona.

He completed his undergraduate degree in physics at the University of Illinois graduating summa cum laude earning the University of Illinois Bronze Tablet recognition as well as the Ernest M. Lyman Award for Outstanding Undergraduate in Physics. He then earned his doctoral degree in physics at Stanford University in studies of theoretical astrophysics. Dr. Hamilton began his medical physics career in 1993 through a fellowship in radiation and cellular oncology at the University of Chicago. He was subsequently promoted to the faculty as assistant professor. Dr. Hamilton moved to the Department of Radiation Oncology physics section at the University of Arizona in October of 2002, becoming the physics section director where he remains today.

Dr. Hamilton's objectives are excellence in clinical service, education and research. His clinical focus is in improving patient care by incorporating technological innovations into routine radiation therapy clinical practice.

Dr. Hamilton's general research is in the application of mathematical methods to problems in radiation therapy. He is currently investigating phenomenological modeling of radiotherapy toxicity, iterative reconstruction algorithms for optimizing intensity modulated radiation therapy treatment (IMRT), using functional imaging (PET or SPECT) data in radiotherapy planning, incorporating biologically based objectives in IMRT optimization and exploring methods to monitor and control patient motion during radiotherapy delivery. Dr. Hamilton has a strong research record having published over 60 papers in peer reviewed journals. He is a founder of Salutaris Medical Devices, Inc. which is a clinical stage company devoted to treating age related macular degeneration with radiation. He holds eight patents related to this technology and has developed two FDA-510k devices.

Dr. Hamilton considers the education of future generations to be of paramount importance. He provides classroom instruction at the undergraduate, graduate medical physics and medical resident levels, as well as practical clinical training for physicists and medical dosimetrists. Undergraduates, graduates and postdoctoral students have participated in his research projects. He was a founder of both the medical physics residency program (Banner / UArizona) and medical physics graduate program (UArizona). He was the Director of the Medical Physics Residency program for twelve years and now serves as a mentor. He has successfully trained a generation of medical physicists who hold director positions in academia, industry, and private practice.



Christopher Watchman, PhD, DABR is a clinical academic medical physicist who serves as the medical physics residency program director in the Department of Radiation Oncology, Banner University Medical Center Tucson. He is certified by the American Board of Radiology and is an Associate Professor in the Department of Radiation Oncology at the University of Arizona.

Dr. Watchman received his bachelor's degree in physics and Exercise Physiology from Brigham Young University, a master's degree in physics with an emphasis in Health Physics from Idaho State University and then completed a PhD in medical physics at the University of Florida. Following his doctorate, he joined the Department of Radiation of Oncology at the University of Arizona as a postdoctoral associate and then as a medical physics resident. He then joined the faculty as an assistant professor. During his time in the department, he served as the Director of the Professional Science Degree Program in Medical Physics. He then went to Memorial Sloan Kettering Cancer Center and served as the Education Director for the Department of Medical Physics, where he oversaw education and training programs, including their medical physics residency program. He recently returned to the Department of Radiation Oncology at Banner University Medical Center and now serves as the program director for the medical physics residency.

Dr. Watchman's research interests are in medical physics education and training, adaptive therapy, and radiopharmaceutical dosimetry.



Brian Miller is a board-certified radiation oncology physicist at Banner University Medical Center in Tucson and Assistant Professor of Radiation Oncology at the University of Arizona. He completed his BS, MS, and PhD degrees in Optical Sciences from the University of Arizona and a Linus Pauling post-doctoral fellowship at Pacific Northwest National Laboratory. He received clinical training from the University of Colorado Therapeutic Medical Physics Residency Program. Research interests include development of video-based distraction therapy techniques for pediatric patients, additive manufacturing techniques for brachytherapy, developing charged-particle imaging detectors, quantitative digital autoradiography, and targeted radiopharmaceutical therapy.



Dr. Ewell is a clinical physicist in the Department of Radiation Oncology at Banner University Medical Center in Tucson, Arizona.

Dr. Ewell holds a BS and MS in engineering physics and nuclear physics respectively, from the University of Illinois at Champaign Urbana. He holds a PhD in experimental nuclear physics from Iowa State University. After completing his doctoral studies, he did a medical physics residency in the Department of Radiation Oncology at the University of Michigan, Ann Arbor.

Dr. Ewell is focused on excellence in clinical care and has been involved in external beam radiotherapy and ^{192}Ir brachytherapy.

Regarding clinical research, Dr. Ewell has interests in medical imaging. Most recently, he presented his work at the annual (2023) meeting of the American Association of Physicists in Medicine (AAPM) in Houston Texas. This work involved metal artifacts in cone beam CT scans, and how they differ from helical planning CT scans that use metal artifact reduction (MAR) in the reconstruction algorithm.



Tim Johnson is a second-year medical physics resident at Banner University Medical Center Cancer Center. He obtained a BS in Physics and a BA in English at Northern Arizona University, and he earned an MS in medical physics from Duke University. His special interests have included GRID therapy and custom 3D-printed applicators for brachytherapy. At home, he enjoys tabletop games and writing science fiction.



Andy Liu is a first-year medical physics resident at the Tucson North campus. He majored in Nuclear Engineering at the University of Illinois at Urbana Champaign for his B.S. His interest in combining technical engineering skills with healthcare lead him to pursue his graduate M.S. education at Thomas Jefferson University's Medical Physics program. He worked with developing a theoretical beam shaping assembly for boron neutron capture therapy in his undergraduate research followed by investigating the heart sparing effects of DIBH in left-sided breast cancer patients in his graduate studies. Following his graduation, he joined Tucson North as a medical physics assistant for a year and presented two ePosters at AAPM 2023: Rapid, Non-Destructive Quality Assurance for GammaTile® Sources within Sterilized Packaging Using a High-Resolution Gamma-Ray Imaging Scintigraphy System and Cone-Beam/Planning CT Comparison: Pixel/Voxel Deviation. In addition, he presented for RadCalc (LAP Solutions) on the Clinical Implementation of RadCalc EPID Dosimetry.



Monica Senese is a first year Medical Physics Resident in Radiation Oncology at Banner University Medical Center Tucson. She received her Bachelor's Degree in Physics with a Math Minor, and Master's Degree in Medical Physics at San Diego State University.