Stanley H. Benedict, M.S., Ph.D.

Clinical Interests

As Chief of Clinical Physics Dr. Benedict works with a team of highly qualified medical physicists and dosimetrists, in accordance with the directives of radiation oncology physicians, to provide a wide array of highly conformal radiation therapy treatments. A few of the systems that we employ to ensure precise set-up patient positioning, and accurate delivery include: 3D and 4D simulation and delivery confirmation, image guided brachytherapy, stereotactic radiosurgery, and intensity modulated beam delivery techniques.

Research Interests

1. Developing imaging tools to improve radiation therapy planning co- registration of studies for the accurate determination of tumor and target margins and critical organs at risk (OAR), including the use of MRI-PET, PET-CT, and SPECT-CT.
2. Developing technology for image guided brachytherapy (IGBT), including 3D imaging systems (CT and MRI) for confirming applicator placement, and novel applicator designs that allow patients to be treated with minimal anesthesia (non-OR).
3. Investigating radiobiological considerations for Hypofractionated and Stereotactic Radiosurgery treatment delivery.
4. Designing new arc based treatment delivery approaches that incorporate modulation (gantry speed, dose rate, and MLC) for conformality, and 3D/CBCT for improved target positioning.

Philosophy of Care

The American Association of Physicists in Medicine states that the essential responsibility of a Qualified Medical Physicist's clinical practice is to assure the safe and effective delivery of radiation to achieve a diagnostic or therapeutic result as prescribed in patient care. The responsibilities of the medical physicist include: protection of the patient and others from potentially harmful or excessive radiation; establishment of adequate protocols to ensure accurate patient dosimetry; the measurement and characterization of radiation; the determination of delivered dose; development and direction of quality assurance programs; and assistance to other health care professionals in optimizing the balance between the beneficial and deleterious effects of radiation; and compliance with applicable federal and state regulations.

Title Professor
Vice Chair of Clinical Physics

Specialty Radiation Oncology

Department Radiation Oncology

UCDAVIS HEALTH SYSTEM

Stanley H. Benedict, M.S., Ph.D.

Division Radiation Oncology

Center/Program Affiliation UC Davis Comprehensive Cancer Center

Address/Phone UC Davis Comprehensive Cancer Center, 4501 X St. Suite 0144 Sacramento, CA 95817
Phone: 800-362-5566

Education Ph.D., UCLA, Los Angeles, California, 1992
M.S., San Diego State University, San Diego, California, 1984
B.A., UC San Diego, La Jolla, California, 1980

Board Certifications American Board of Radiology, Therapeutic Radiological Physics, 1996

Professional Memberships American Association of Physicists in Medicine (AAPM)
American Society for Radiation Oncology (ASTRO)
Health Physics Society (HPS)
International Society of Therapeutic Ultrasound (ISTU)

Honors and Awards Fellow, American Association of Physicists in Medicine (AAPM), 2008
Fellow, American College of Medical Physics (ACMP), 2007

Select Recent Publications

Timothy D. Solberg, James M. Balter, Stanley H. Benedict, Benedick A. Fraass, Brian Kavanagh, Curtis Miyamoto,Todd Pawlicki, Louis Potters, Yoshiya Yamada, "Quality and safety considerations in stereotactic radiosurgery and stereotactic body radiation therapy: Executive summary (Supplemental Material On-Line: Full Text), Practical Radiation Oncology 2: 2–9, 2012

Wensha Yang, Ryan Jones, Paul Read, Stanley Benedict, and Ke Sheng K, "Standardized evaluation of simultaneous integrated boost plans on volumetric modulated arc therapy", Phys Med Biol Jan 21;56(2): 327-39 2011

Yang, W., Jones, R., Lu, W., Geesey, C., Benedict, S., Read, P., Larner, J., Sheng, K., "Feasibility of Non-Coplanar Tomotherapy for Lung Cancer Stereotactic Body Radiation Therapy", Technol Cancer Res Treat. 10; 307-315, 2011.

Cai J, McLawhorn R, Altes TA, Lange ED, Read PW, Larner JM, Benedict SH, Sheng K., Helical Tomotherapy Planning for Lung Cancer Based on Ventilation Magnetic Resonance Imaging, Medical Dosimetry 36(4): 389-396, Winter 2011

Cai J, Yue J, McLawhorn R, Yang W, Wijesooriya K, Dunlap NE, Sheng K, Yin FF, Benedict SH. "Dosimetric Comparison of 6 MV and 15 MV Single Arc RapidArc to Helical Tomotherapy for the Treatment of Pancreatic Cancer", Medical Dosimetry 36(3): 317-320, Autumn 2011

UCDAVIS HEALTH SYSTEM

Stanley H. Benedict, M.S., Ph.D.

Alyson McIntosh, Asal N. Shoushtari, Stanley H. Benedict, Paul W. Read, and Krishni Wijesooriya, "Quantifying the Reproducibility of Heart Position During Treatment and Corresponding Delivered Heart Dose in Voluntary Deep Inhalation Breath Hold for Left Breast Cancer Patients Treated With External Beam Radiotherapy", 81(4): 569-76, 2011

Benedict SH (Chair), Yenice KM (Co-Chair), Followill D, Galvin J, Hinson W, Kavanagh B, Keall P, Lovelock M, Meeks S, Papiez L, Purdie T, Sadagopan R, Schell MC, Salter B, Schlesinger DJ, Shiu AS, Solberg T, Song D, Stieber V, Timmerman R, Tome WA, Verellen D, Wang L, Yin FF. Stereotactic Body Radiation Therapy (SBRT), the Report from the AAPM Task Group No. 101. Med Phys 37(8): 4078-4101, Aug 2010
Erratum: "Correction to stereotactic body radiation therapy: The report from the AAPM Task Group No. 101", Med Phys, 39(1): 563 (2012)

Dunlap NE, Biedermann GB, Yang W, Cai J, Sheng K, Benedict SH, Schefter T, Kavanagh BD, Larner JM. Chest Wall Volume Receiving More Than 30 Gy Predicts Risk of Severe Pain and/or Rib Fracture Following Lung SBRT. Int Jo Radiat Oncol Biol Phys 76(3): 796-801, 2010.
Neal Dunlap, Alyson McIntosh, Ke Sheng, W Yang, Benton Turner, Asal Shoushtari, David R. Jones, W. Lu, K. Ruchala, G. Olivera, D. Parnell, J Larner, SH Benedict, and PW Read, "Helical Tomotherapy-based STAT Stereotactic Body Radiation Therapy: Dosimetric Evaluation for a Real Time SBRT Treatment Planning and Delivery Program", ,em>Medical Dosimetry 35(4): 312-19, Winter 2010
Cai J, McLawhorn R, Read PW, Larner JM, Benedict SH, Sheng K. Effects of Breathing Variation on Gating Window Internal Target Volume in Respiratory Gated Radiation Therapy. Med Phys 37(8): 3927-3934, Aug 2010

© 2014 UC Regents

UCDAVIS
HEALTH SYSTEM