

Nathan Krishnamurthy, M.S.

Medical Physicist

UPMC Hillman Cancer Center
Department of Radiation Oncology
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Academic Profile

- **Board eligible under ABR Medical Physics Structured Mentorship Program (2021)**, American Board of Radiology (ABR) , Tucson, AZ sponsored by Baylor Scott & White Healthcare, Temple, TX and University Medical Cancer Center, Lubbock, TX
- **CAMPEP-Accredited Medical Physics Certificate Program (2018)**, University of Florida, Gainesville, Florida, U.S.A.
- **Master of Science in Medical Physics (2002)**, Anna University, Chennai, India
- **Bachelor of science in Physics (2000)**, Madras University, Chennai, India
- **Radiological Safety Officer (2003)** certified by Atomic Energy Regulatory Board, Government of India, Mumbai, India

Texas Medical Board License

- Temporary Licensed Medical Physicist (License Number: TMP02000583) certified by Texas Medical Board, Texas, U.S.A.

Radioactive Material (RAM) License:

- Authorized Medical Physicist (license No: PA-0092) for Remote after loader unit since 2017

Honors and Awards:

International Cancer Technical Transfer fellowship (ICRETT) awarded by International Union against Cancer (UICC), Switzerland, details as given below:

- 2008: Image Guided Radiotherapy-Study of various cases and its Treatment delivering Techniques (October, 2008) supervised by Dr. Fang-Fang Yin, Director of Radiation Physics, Duke University Medical Centre, Durham, NC, U.S.A.
- 2007: Dosimetric and treatment planning aspects of Intensity Modulated Radiotherapy (IMRT) (January, 2007) supervised by Dr. Maarten Dirksen, Medical Physicist, Erasmus MC-Daniel den Hoed Cancer Center, Rotterdam, Netherlands.
- 2005: Study and Analysis of Dose Volume Histograms in High Dose Remote (HDR) Remote After Loading Brachytherapy Machines for Cervical Cancer Cases (February-March, 2005) supervised by Ms. Margaret Bidmead, Director of Radiation Physics, Royal Marsden NHS Trust Hospital, London, U.K.

Memberships:

- Member of American Association of Physicists in Medicine (AAPM), U.S.A.
- Member of American Society for Radiation Oncology (ASTRO), U.S.A.
- Life Member of Association of Medical Physicists of India (AMPI), India
- Life Member of International Union for Cancer Control (UICC), Switzerland
- Member of International review panel of UICC, for the selection of Intensity Modulated Radiotherapy (IMRT) & Brachytherapy projects, since 2007.
- Member (2008) in the Global Cancer Control Community, Switzerland

Other academic activities:

- 2011: Worked as Project Guide for the M.Sc., Pharmacy students from St. Peter's Institute of Pharmaceutical Sciences, A.P., India,
- 2010: Worked as Project Guide for the M.Sc., Micro-Biology final year students from New Science P.G. College, Kakatiya University, A.P., India
- 2008-2009: Worked as Project Guide for the M.Sc., Bio-Technology final year students from Marudu Pandiyar College (MPC), Bharathidhasan University, Tamilnadu, India and M.Sc., Bio-Chemistry first year students from Chaitanya PG College, Kakatiya University, A.P., India
- 2007: Worked as Project Guide for the B.Sc., Bio-Technology final year students from Vaagdevi Degree & P.G. College and Masterji College, A.P., India
- 2002-2004: Worked as project co-guide from M.SC. (Medical Physics) final year students from Anna University and Bharathiar University, India
- Had been a resource person for the education of Radiotherapy basics like Radiological safety and protection classes to D.M.R.T. Radio-Diagnosis Students
- Had been a resource person for the education of Radiotherapy basics like Radiological safety and protection classes and seminars to Bachelor of Engineering in Bio-Medical Students
- (Radiation Awareness Education Classes) Radiation protection classes for all the Radiation workers in the Radiotherapy and Radio-diagnosis department

Training courses:

- 2020: On Board Imaging for Physicists at Varian training center, Oncology systems customer support, Las Vegas, NV, USA
- 2020: TrueBeam Platform for Physicists at Varian training center, Oncology systems customer support, Las Vegas, NV, USA
- 2018: Portal Dosimetry at Varian training center, Oncology systems customer support, Las Vegas, NV, USA
- 2013: Eclipse Operations Course at Varian training center, Mumbai, India
- 2013: Eclipse in Clinical Practice Course at Varian training center, Mumbai, India
- 2013: Eclipse Administration & Physics course at Varian training center, Mumbai
- 2005: Intensity Modulated Radiotherapy in Clinical Practice-A three-day course on the practical implementation of IMRT and advance techniques in a Radiotherapy Clinic, Royal Marsden NHS Trust Hospital, London, U.K.
- 2005: Practical and Theoretical Radiotherapy Physics: Treatment machines, QA, Radiobiology, Brachytherapy and Radiotherapy imaging, Royal Marsden NHS Trust Hospital, London, U.K.

Special visits:

- 2007: one-day Visit and Training for Flexitron High Dose Rate Brachytherapy at the Isodose Control DV, P.O.Box: 615, 3900AP, Landjewel Street No.11, Veenandal, Amsterdam, Netherlands.
- 2005: one-day visit and training at the Elekta Head Quarters, Crawley, U.K. Had Presentation of Precise Treatment System Tour of Manufacturing Facility, Tour of Customer Demonstration Centre Inc., Elekta IntelliMax and Precise Plan

Management skills:

2004: St. Ann's General Hospital, Warangal, A.P., India

2013: Sarvodaya Cancer Hospital and Research Center, Hisar, India

- Played a key role in starting up the Cancer center, developing project budgets, projections for extension, expansion, alteration and additional functions to develop the Cancer Center
- Played a key role as a Member in Promotion of policy, purchasing of equipment and planning the Cancer center
- Played a key role in Human resource department for the appointment of Cancer center staff

Machine installation/commissioning experiences:

- Presently involved in commissioning of Nucletron Flexitron High Dose Remote After Loading Unit at UPMC, Williamsport
- Independently Commissioned TrueBeam (Varian) and Eclipse Treatment planning system got treatment approval for patient treatment at University Medical Cancer Center, Lubbock, TX
- Installed ScandiDos Delta4 Phantom+ for patient quality assurance tests at University Medical Cancer Center, Lubbock, TX
- Commissioned Optically Stimulated Luminescence Dosimeter (OSLD) microStar reader for patient quality assurance tests at University Medical Cancer Center, Lubbock, TX
- Commissioned various High Dose Rate (HDR) applicators for clinical use at University Medical Cancer Center, Lubbock, TX
- Independently did the room planning for Cobalt-60 unit and got patient treatment approval from Atomic Energy Regulatory Board (AERB), Mumbai
- Gained good knowledge in installing the below Treatment Planning System (TPS) for both External and Brachytherapy Treatment: Theraplan -Plus TPS, Asha 3-D TSG Integrated Pvt. Ltd. TPS, Nucletron Plato 3-D TPS and Prowess 3000 3-D TPS
- Done the mechanical installation of High dose Remote After loading Machine and source installation for the same. Done all the Quality Assurances for HDR machines as per the AERB protocol and got patient treatment approved from AERB, Mumbai
- Independently commissioned the Varian Unique Performance Linear Accelerator Machine and got patient treatment approval from Atomic Energy Regulatory Board (AERB), Mumbai
- Commissioned Varian TrueBeam STx (Varian) and got treatment approval from Atomic Energy Regulatory Board (AERB), Mumbai, India.
- Involved in the commissioning of Linear Accelerator – Clinac 2100 DMX in Royal Marsden NHS Trust Hospital

Work Experiences:

April, 2024 to till date: Medical Physicist at UPMC Hillman Cancer Center, Williamsport, PA

- Presently involved in decommissioning of Varian Brachy unit and commissioning of Nucletron Flexitron High Dose Remote After Loading Unit
- Performing Stereotactic Radiosurgery (SRS), Stereotactic Body Radiotherapy (SBRT), HDR Brachytherapy planning and documentations.
- Performing patient specific quality assurances for both External and Brachytherapy
- Performing Monthly and annual Quality assurance tests for LINACS and HDR unit.
- Performing Physics Initial Chart Checks, weekly chart QA, Physics end of treatment checks and offline review & approval for SRS and SBRT QAs.
- Attending physics staff meetings and chart rounds. Adhere to department policies.
- Working with Limbus AI contouring and Mobius3D for plan verifications
- Working with the following facilities: Varian Trilogy Linear Accelerator, Varian Edge Linear Accelerator and Varian VariSource iX High Dose Rate Remote After Loading Unit

2017 to 2024 date: Medical Physicist at University Medical Cancer Center (UMCC), Lubbock, TX

RR Technologies: (Aug, 2022 to April, 2024): On-site at UMCC

Varian Medical Systems: (Sep, 2019 to Aug, 2022): On-site at UMCC

University Medical Cancer Center: (Sep, 2017 to Sep, 2019): University staff

- Performed 3DCRT, Intensity Modulated Radiation Therapy (IMRT), Volumetric Arc Therapy (VMAT), Stereotactic Radiosurgery (SRS), Stereotactic Body Radiotherapy (SBRT), HDR Brachytherapy planning and documentations.
- Performed patient specific quality assurances for both External and Brachytherapy
- Performed Monthly and annual Quality assurance tests for LINACS and HDR unit.
- Performed Physics Initial Chart Checks, weekly chart QA, Physics end of treatment checks and offline review & approval for SRS and SBRT QAs.
- Attended physics staff meetings and chart rounds. Adhere to department policies.
- Worked with Mvision and Radformation, AI contouring
- Worked with clearcheck, EZ fluence from Radformation and Mobius3D.
- Worked with Scandidos Delta-4+ phantom, MapCheck for quality assurances
- Worked with IBA Blue Phantom 2, 3D water phantom
- Played a key role in getting ACR accreditation for UMCC
- Worked as a single on-site physicist with 2 of the Medical Physicist working off-site

2015 to 2017: Clinical Physics Assistant at Baylor Scott and White Health Care, Department of Radiation Oncology, Temple, TX

- Performed Intensity Modulated Radiation Therapy (IMRT), Stereotactic therapy, HDR Skin cases quality assurances (QA), and documentations.
- Verification and documentation of QA analysis in record and verify system (ARIA) as per the department policy. Performing IMRT and SBRT QA plan generation. Maintaining and creating new policy for IMRT QA procedures.
- Performed morning warmup procedures & daily QA for Linacs & CT machines.

- Assisted the clinical physicists and residents in monthly and annual QA's. Providing in-services for residents and fellows as needed.
- Performed policies, procedure documentation and maintaining revisions under the guidance of the chief physicist.
- Actively involved as a team member in the clinical needs of the dosimetry section.
- Attended physics staff meetings, chart rounds and journal clubs. Adhere to department policies.
- Performed Monthly and annual Quality assurance tests for LINACS and HDR unit.

2013 to 2015: Senior Medical Physicist at Apollo Specialty Hospitals, Department of Radiation Oncology, Chennai, India

- Commissioned TrueBeam STx (Varian) and got treatment approval from Atomic Energy Regulatory Board (AERB), Mumbai, India.
- Performed treatment planning for external therapy (Conventional, 3DCRT, IMRT and IGRT) and Brachytherapy. In-charge for dosimetry and quality assurances for both external therapy and brachytherapy techniques.
- Performed Monthly and annual Quality assurance tests for LINACS and HDR unit.

2012 to 2013: Senior Medical Physicist & RSO at SEAROC Cancer Center, Department of Radiation Oncology, Jaipur, Rajasthan, India

- Performed treatment planning for external therapy (Conventional, 3DCRT, IMRT and IGRT) and brachytherapy. In-charge of dosimetry and quality assurance. Performing radiation treatment planning and ensuring the treatments are delivered as per the instruction given to the therapist.
- Gave proper training and advised medical physics technicians on new equipment and protocols.
- Worked with patients in a range of roles, for example explaining treatment procedures and possible side effects. Worked on 3DCRT and IMRT treatment planning for Radiation Therapy Oncology Group (RTOG), U.S.A. trial cases.
- Performed Monthly and annual Quality assurance tests for LINACS and HDR unit.

2004 to 2012: Senior Medical Physicist & RSO at St. Ann's General & Cancer Hospital, Department of Medical Physics, Andhra Pradesh, India

- Performed treatment planning for external therapy and brachytherapy. In-charge of dosimetry and quality assurance. Performed room planning for both Theratron phoenix (Cobalt Unit) and high dose rate remote after loading unit (IBT-Bebig Gynsource), commissioned and successfully got approval from Atomic Energy Regulatory Board (AERB) for starting the patient treatment.
- Guided and started the radiotherapy department, in the already existing general hospital facility. In-charge of radiation oncology department. Key member in advisory panel for RT department and hospital development board.
- Performed Monthly and annual Quality assurance tests for LINACS and HDR unit.

2002 to 2004: Clinical Medical Physicist at BIBI Cancer Hospital, Department of Medical Physics, Andhra Pradesh, India

- Performed treatment planning for external therapy and brachytherapy. Key member in dosimetry and quality assurance. Gained knowledge and competent in calculating the dose rates manually (for Brachytherapy) using Paris technique, Patterson and Parker method, Quimby's method and by Sievert's Integral method.
- Confidently handled Implants for tongue, breast & for soft tissue sarcoma, Templates for cervix cancers, rectum and prostate cancers with Syed-Neblett templates and intraluminal therapy, esophagus cancer using Syed-Puthwala-Hedger applicator.
- Worked as a key member in practicing manual brachytherapy using Iridium seeds, the one and only institute in India to practice this technique.
- Performed Monthly and annual Quality assurance tests for LINACS and HDR unit.

Publications:

- S Boddu, A Morrow, **N Krishnamurthy**, A McVicker et al. "Implement Lean Methodology to Make Our Current Process of CT Simulation to Treatment More Efficient" Oral Presentation at 2016 AAPM Annual Meeting. July 2016.
- A Morrow, D Rangaraj, A Perez-Andujar, **N Krishnamurthy** et al. "An Evaluation of the Overlap between the Acceptance Testing and Commissioning Processes for Conventional Medical Linear Accelerators" poster presentation at 2016 AAPM Annual Meeting. July 2016.
- F Zhang, R Schurr, J Park, **N Krishnamurthy**, C Huerta Hernandez, S Kim, A Morrow, L Vazquez Quino et al. "Commissioning of a Treatment Plan Couch Model Using a 3-Dimensional Dose Measurement System" poster presentation at 2017 AAPM Annual Meeting. July 2017.

References upon request