

## U. S. Navy Residency in Diagnostic Medical Physics

The *Naval Medical Center Portsmouth* Medical Imaging Physics Residency is a 24-month program designed for U. S. Military Officers with a M.S. or Ph.D. degree in Medical Physics who seek in-depth education and training in clinical medical imaging physics. The intent of the program is to prepare graduates for professional careers as independent diagnostic medical physicists in support of the Department of Defense Military Health System. Graduates will also be prepared for the *American Board of Radiology (ABR)* certification examinations. The training program is based on the Guidelines for Accreditation of Medical Physics Residency Programs published by the *Commission on Accreditation of Medical Physics Education Programs (CAMPEP)*, *American Association of Physicists in Medicine* and *Navy Bureau of Medicine and Surgery* requirements for Radiation Health Medical Service Corps officers in in-service Duty Under Instruction. Upon finishing the program, graduates are issued Certificates of Completion and, when possible, assigned to clinical utilization tours where they can directly apply their post graduate training.



### Facility and Department

The Diagnostic Medical Physics Residency Program is administered through the Department of Radiology at the 295 bed Naval Medical Center Portsmouth (NMCP), Virginia. NMCP is the U.S. Navy's oldest, continuously operating hospital, with 4,300 staff serving over 420,000 beneficiaries in the Hampton Roads region that composes the largest military population concentration in the United States. In August 2023, NMCP was designated as Virginia's newest Level II trauma center. The department is staffed by approximately 160 personnel including 30 faculty radiologists, and 3 board certified faculty physicists. The department has an extensive training mission including a diagnostic radiology residency, musculoskeletal imaging fellowship, diagnostic medical physics residency, clinical radiation safety officer preceptorship, and advanced clinical training for military medical radiographers and nuclear medicine technologists. The Radiology Department operates imaging facilities at NMCP's 1 million square foot main campus Charrette Health Care Center and ten subordinate clinics. Through the Military Health System Tidewater Market and arrangement with the U.S. Atlantic Fleet, the department also supports imaging operations at nearby USAF Hospital Langley, McDonald Army Health Center, and the Navy hospital ship, USNS COMFORT (T-AH 20). Medical physics residents have access to imaging equipment and support imaging operations at these facilities for their clinical training. Opportunities for short term training at other Defense Health Agency (DHA) facilities are available on a limited basis based on operational need.

## **Program Leadership**

Program Director – *Brendan. K. Glennon, MS, DABR*

Assistant Program Director – *LCDR Brandon J. Russell, MSC, USN, MS, DABR*

## **Residency Curriculum/Rotations**

Standardized Curriculum over 2 years (normally start in July/Aug):

- Orientation/Safety – 1 week
- General department observation and clinical orientation – 3 weeks
- Radiography – 12 weeks
- Fluoroscopy – 6 weeks
- Interventional Radiology – 6 weeks
- Mammography – 9 weeks
- Computed Tomography – 14 weeks
- Magnetic Resonance Imaging – 14 weeks
- Ultrasound – 8 weeks
- Pediatric and Prenatal Imaging Risks and Dosimetry (multi-modality) – 2 weeks
- Radiation Safety (including shielding design, patient dosimetry and NRC License support) – 7 weeks
- Nuclear Medicine Introduction (incl. SPECT and PET) – 4 weeks
- Imaging Display, Informatics & Patient Dose Analysis – 8 weeks
- Comprehensive Program Review (pre-examination) – 4 weeks
- Operational Diagnostic Imaging (concurrent during the two year training period)
- Ethics and Professionalism (concurrent during the two year training period)

(SPECT, PET, and Radiation Safety training may continue beyond the residency period to the end of the resident's military orders to NMCP depending on the needs of the service)

## **Equipment and Educational Materials Inventories**

NMCP maintains an extensive portfolio of diagnostic imaging equipment at its core campus and supporting branch health clinics. The core NMCP campus imaging equipment inventory currently includes:

- (7) Radiographic units – both CR and DR supported – including one robotic radiographic/fluoroscopic room; portable radiographic systems are also available in Radiology and other parts of the hospital
- (3) Comprehensive fluoroscopic units – Urology table and full and miniature C-arm systems are also available in other medical center departments
- (1) O-arm with cross sectional imaging capability
- (4) Mammography units – all with tomosynthesis capability
- (1) Stereotactic mammography unit – DR and tomosynthesis supported
- (3) MRI units – including (1) 1.5T system and (2) 3T systems. Additional, different manufacturer units are available at other facilities in the Tidewater area.
- (12) Ultrasound units from two or more manufacturers
- (2) PET/CT units – including a new Siemens Biograph 64 Vision 600 installed in 2021
- (5) Nuclear medicine units – including (1) SPECT/CT and (4) SPECT capable units
- (4) CT units –including (2) dual tube, multi energy units and one mobile CT unit
- (3) Angiographic units – including (1) biplane unit; all DSA capable
- (1) 250 TB Fuji® PACS – including 55 radiologist workstations + 33 clinical review workstations – a new PACS is scheduled for delivery in FY 2024

- (2) Cardiac catheterization labs – including (1) biplane unit; both DSA supported
- (1) Bayer Radimetrics® Enterprise Platform patient dosimetry system (currently under installation)

Additional radiographic, fluoroscopic, ultrasound, mammography, CT, MRI, and diagnostic ultrasound units are available at other Tidewater Market DHA medical facilities, Navy Medical Forces Atlantic activities and aboard select Atlantic Fleet ships (including the 1000 bed hospital ship USNS COMFORT). Residents have access to an extensive diagnostic medical imaging library with over 750 hard copy and electronic volumes including over 50 medical physics titles.

### Program History

Navy Radiation Health Officers (RHOs) have been trained at NMCP in advanced diagnostic imaging for over two decades. Prior to 2017, training was provided for RHOs graduating from a CAMPEP accredited graduate program or RHOs who had passed Part I of the American Board of Radiology examination in Diagnostic Radiologic Physics under the pre-2014 ABR certification regimen. Since 2017, RHOs have been trained per CAMPEP standards for accreditation of residential educational programs in medical physics.

Year	Applicants	Positions offered	Ranked applications	Residents accept	Residents Matriculated	Residents Graduated	Graduates Certified	Graduate Placement information
2011 - 15	NA	NA	NA	NA	2 <sup>a</sup>	1	1	1 <sup>d</sup>
2016	1	1 <sup>c</sup>	1 <sup>f</sup>	1	1 <sup>a</sup>	0	0	NA
2017	1 <sup>b</sup>	1 <sup>c</sup>	1	1	1	1	0	NA
2018	2 <sup>b</sup>	1 <sup>c</sup>	2	1	1	1	1	2 <sup>d</sup>
2019	2 <sup>b</sup>	1 <sup>c</sup>	2	1	1	1	1	1 <sup>e</sup>
2020	2 <sup>b</sup>	1 <sup>c</sup>	2	1	1	1	0 <sup>g</sup>	1 <sup>d</sup>
2021	2 <sup>b</sup>	1 <sup>c</sup>	2	1	1	1	2	1 <sup>e</sup>
2022	4 <sup>b</sup>	1 <sup>c</sup>	4	1	1	1	1	1 <sup>d</sup>
2023	0 <sup>h</sup>	0	0	0	1	1	1	1 <sup>d</sup>

<sup>a</sup>RHO assigned to NMCP under three (3) year military orders as a medical physics trainee

<sup>b</sup>RHO(s) applied competitively under corresponding BUMEDNOTE 1520 (MSC) conditions

<sup>c</sup>Training billet offered for start the following academic year

<sup>d</sup>Assigned as a staff medical physicist at a CONUS or OCONUS Naval, DHA or other medical activity

<sup>e</sup>Assigned as Radiation Health Officer to a Navy non-clinical billet

<sup>f</sup>Assigned by Radiation Health Community Specialty Leader

<sup>g</sup>ABR examinations postponed to 2021 due to the COVID-19 pandemic

<sup>h</sup>No prospective candidates met the BUMED DUINS eligibility criteria during this selection cycle

### CAMPEP Accreditation

The Naval Medical Center Portsmouth’s Diagnostic Imaging Physics Residency Program obtained full CAMPEP accreditation on 2 Dec 18 and is the only accredited Federal Government residency. CAMPEP accreditation helps assure that a medical physics educational program meets consistent quality standards and covers all necessary didactic and training materials.

## Current Residents



*LT R. E. Bolden, MSC, USN; Second Year Resident  
M.S., University of Florida*



*LCDR M. P. Tysinger, MSC, USN; First Year Resident  
M. S., Duke University*

### Past Resident Initial Post Training Assignments

*LCDR J. L. Allen, MSC, USN, MS, DABR; Regional Medical Physicist, Navy Medical Forces Atlantic*

*LT J.L. Saunders, MSC, USN, PhD, DABR; Staff Medical Physicist, NMRTC, San Diego*

*LT S. W. Dahl, MSC, USN, MS, DABR; Radiation Health Officer, USS JOHN C. STENNIS (CVN 74)*

*LCDR B. J. Russell, MSC, USN, MS, DABR; Regional Medical Physicist, Navy Medical Forces Atlantic*

*LT M. C. Japzon, MSC, USN; MS, DABR; Radiation Health Officer, NRMD King's Bay, NH Jacksonville, FL*

*LT A. Kaeck, MSC, USN; Staff Medical Physicist, USNH Naples, Italy*

*LCDR D. W. Cutler, MSC, USN; Staff Medical Physicist, Naval Medical Center Portsmouth*

### Admission

The program seeks candidates with excellent foundations in medical physics and strong desires to thrive in military clinical environments. The successful candidate is expected to have completed a comprehensive Medical Physics curriculum including some clinical exposure during his/her graduate education. Applicants shall have a strong foundation in basic physics. This shall be demonstrated either by an undergraduate or graduate degree in physics, or by a degree in an engineering discipline or another of the physical sciences including coursework that is the equivalent of a minor in physics (i.e., one that includes at least three upper-level undergraduate physics courses that would be required for a physics major). Additionally, applicants must have graduated from a CAMPEP-accredited graduate program and should be eligible for the ABR Part 1 examination prior to arriving at NMCP. The program selects residents from all CAMPEP qualified applicants; however, due to limited faculty staffing, candidates possessing a Ph.D. in physics or a related discipline who need a certificate program to meet the didactic requirements necessary to enter a CAMPEP accredited residency program cannot currently be accommodated. This may change in the future at the discretion of the Residency Steering Committee.

## **How to Apply**

The program is operated through the *Naval Medical Leader and Professional Development Command's* (NMLPDC) In-service Duty Under Instruction (DUINS) Program. It is not currently registered with *Medical Physics Match*. Barring unforeseen military requirements, the two year residency starts in July or early August. Application package content requirements and submission deadlines are listed in the current annual *BUMEDNOTE 1520 (MSC DUINS Degree and Non-degree programs)*. In addition to the requirements of the BUMEDNOTE, applicants shall also provide the following information directly to the Residency Program Director when submitting the BUMEDNOTE required package to the Navy Radiation Health Specialty Leader:

- A comprehensive and current curriculum vitae
- A copy of their graduate program curriculum (including clinical rotations and research requirements)
- Full undergraduate and graduate education transcripts. Applicants currently in graduate training and hoping to enroll immediately thereafter (i.e., the summer following graduation) shall send their transcripts through the semester of the DUINS Board convening date as soon as they are available
- One of the required letters of recommendation shall be from the applicant's graduate studies Program Director; a second shall be from a graduate program faculty member
- Copies of relevant personal military, academic and civilian awards (e.g. Dean's List, AAPM Young Investigator Award, Industry awards, etc.)
- ABR Part One Examination results (if applicable)
- Most recent GRE results

An admission selection board convenes annually at NMCP on a date that aligns with BUMED's Medical Service Corps DUINS selection timetable to review applications for the following academic year. In addition to having or making satisfactory progress towards a CAMPEP accredited graduate program degree and meeting other CAMPEP requirements in effect at the convening date, candidates are evaluated on the quality of their applications, academic strength, professional performance, promotion potential, physical readiness, and personal interviews with faculty.

## **Additional Program Conditions and Requirements**

Officers selected for DUINS who fail to select for promotion may not be enrolled in the program. Officers already enrolled in DUINS who fail to select for promotion will be considered for continuation in the DUINS program on a case basis. Misconduct or a conviction in a civilian or military court prior to commencing or during DUINS may result in immediate disenrollment from the program. Failure to remain within Navy physical readiness standards may result in disenrollment from the program. Residents are prohibited from maintaining external employment (i.e., moonlighting) during DUINS. Officers successfully completing the program incur a three (3) year active duty obligation.

## **Resident Handbook**

A resident handbook is provided to each matriculated resident upon arrival.

## **Resources**

*American Association of Physicists in Medicine*

*Commission on Accreditation of Medical Physics Education Programs, Inc.*

*BUMED NOTICE 1520 (current), ACADEMIC YEAR 2024 MEDICAL SERVICE CORPS DUTY UNDER INSTRUCTION PROGRAMS, 16 MAR 23.*



**Links:**

<b>Term</b>	<b>Link</b>
<i>Naval Medical Center Portsmouth (GME)</i>	<a href="https://portsmouth.tricare.mil/Research-Education/Graduate-Medical-Education-Dental-Programs/Residencies-Internships">https://portsmouth.tricare.mil/Research-Education/Graduate-Medical-Education-Dental-Programs/Residencies-Internships</a>
<i>American Board of Radiology (ABR)</i>	<a href="https://www.theabr.org/">https://www.theabr.org/</a>
<i>Commission on Accreditation of Medical Physics Education Programs (CAMPEP)</i>	<a href="https://www.campep.org/">https://www.campep.org/</a>
<i>Navy Bureau of Medicine and Surgery</i>	<a href="https://www.med.navy.mil/Bureau-of-Medicine-and-Surgery/">https://www.med.navy.mil/Bureau-of-Medicine-and-Surgery/</a>
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<i>LT R. E. Bolden, MSC, USN, MS</i>	<a href="mailto:ronnie.e.bolden.mil@health.mil">ronnie.e.bolden.mil@health.mil</a>
<i>LCDR M. P. Tysinger, MSC, USN, MS</i>	<a href="mailto:millicent.p.tysinger.mil@health.mil">millicent.p.tysinger.mil@health.mil</a>
<i>Naval Medical Leader and Professional Development Command</i>	<a href="https://www.med.navy.mil/Naval-Medical-Leader-and-Professional-Development-Command/Professional-Development/Graduate-Programs/Medical-Service-Corps-Graduate-Programs/">https://www.med.navy.mil/Naval-Medical-Leader-and-Professional-Development-Command/Professional-Development/Graduate-Programs/Medical-Service-Corps-Graduate-Programs/</a>
<i>Medical Physics Match</i>	<a href="https://www.natmatch.com/medphys/">https://www.natmatch.com/medphys/</a>
<i>American Association of Physicists in Medicine</i>	<a href="https://aapm.org">https://aapm.org</a>
<i>BUMEDNOTE 1520 MSC (current)</i>	<a href="http://www.med.navy.mil/directives/Pages/BUMEDNotes.aspx">http://www.med.navy.mil/directives/Pages/BUMEDNotes.aspx</a>

**To inquire about the program, please contact the Diagnostic Medical Physics Residency Program Coordinator**



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