

STAFFING

- 1. REASON FOR ISSUE:** To establish a Department of Veterans Affairs (VA) qualification standard for Therapeutic Medical Physicist, GS-601, appointed under 38 U.S.C. § 7401(3) and 38 U.S.C. § 7405(a)(1)(B).
- 2. SUMMARY OF CONTENTS/MAJOR CHANGES:** This handbook contains mandatory procedures on staffing. This revision establishes the Therapeutic Medical Physicist occupation under VA's title 38 Hybrid excepted service employment system in accordance with the authority established under the "Caregivers and Veterans Omnibus Health Services Act of 2010" (Public Law 111-163). Authority is given to the Secretary of the VA under 38 U.S.C. § 7402 to prescribe qualifications for occupations identified in or established under 38 U.S.C. § 7401(3) and 38 U.S.C. § 7405(a)(1)(B). This qualification standard is effective August 9, 2015. This new qualification standard will be incorporated into the electronic version of VA Handbook 5005 that is maintained on the [Office of Human Resources Management Web site](#).
- 3. RESPONSIBLE OFFICE:** The Recruitment and Placement Policy Service (059), Office of the Deputy Assistant Secretary for Human Resources Management.
- 4. RELATED DIRECTIVE:** VA Directive 5005, Staffing.
- 5. RESCISSIONS:** None.

CERTIFIED BY:

**BY DIRECTION OF THE SECRETARY
OF VETERANS AFFAIRS:**

/s/Stephen W. Warren
Executive in Charge and Chief Information Officer
Office of Information and Technology

/s/Gina S. Farrissee
Assistant Secretary for
Human Resources and Administration

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NOTE: This transmittal page accompanied the former VA Handbook 5005, Staffing publication. It is provided for reference to the establishment of this qualification standard.

FORMER VA HANDBOOK REFERENCE: PART II APPENDIX G48
EFFECTIVE DATE: July 8, 2015

**THERAPEUTIC MEDICAL PHYSICIST
QUALIFICATION STANDARD
GS-601
Veterans Health Administration**

1. COVERAGE. The following are requirements for appointment as a Therapeutic Medical Physicist (TMP) in the Veterans Health Administration (VHA). These requirements apply to all VHA TMPs in the GS-601 General Health Science series.

2. AUTHORITIES.

- a. [P.L. 111-163, Caregivers and Veterans Omnibus Health Services Act of 2010;](#)
- b. [38 U.S.C. § 7401, Appointments in Veterans Health Administration;](#)
- c. [38 U.S.C. § 7402, Qualifications of appointees;](#)
- d. [38 U.S.C. § 7403, Period of appointments; promotions;](#)
- e. [38 U.S.C. § 7405, Temporary full-time appointments, part-time appointments and without-compensation appointments;](#)
- f. [38 U.S.C. § 7407, Administrative provisions for section 7405 and 7406 appointments.](#)

3. BASIC REQUIREMENTS

a. **Citizenship.** Citizen of the United States. (Non-citizens may be appointed when it is not possible to recruit qualified citizens in accordance with chapter 3, section A, paragraph 3g, this part.)

b. **Education.** Master's degree or higher in a physics, science, or engineering discipline recognized by an accredited college or university with at least 30 semester hours in medical physics, health physics, radiological science, physics, engineering, chemistry, or biology; or an equivalent foreign degree and coursework substantiated by the National Association of Credential Evaluation Services.

c. **Board Certification.** Persons hired or reassigned to TMP positions in the VHA must be board certified in the field of therapeutic medical physics by an approved certifying body. The board certificate must be current and the applicant must abide by the certifying body's requirements for continuing education.

(1) Approved Certifying Bodies

(a) The American Board of Radiology (ABR) in any of the following field titles:

1. Therapeutic Medical Physics
2. Therapeutic Radiologic or Therapeutic Radiological Physics
3. Radiologic Physics or Radiological Physics

(b) The American Board of Medical Physics (ABMP) in the subfield of Radiation Oncology Physics.

(c) The Canadian College of Physicists in Medicine (CCPM) in the subfield of Radiation Oncology Physics.

(2) Exception for Non-Board Certified, Entry Level Candidates. Non-board certified TMPs designated by the certifying agency (e.g., American Board of Radiology) as “board eligible”, who otherwise meet the eligibility requirements, may be given a temporary appointment as a graduate TMP under the authority of 38 U.S.C. § 7405(c)(2)(B). The appointing official may waive the requirement of certification for a period not to exceed 2 years for a TMP that provides care under the supervision of a board certified TMP at or above the full performance level. This exception only applies at the GS-12 entry level. For grade levels at or above the full performance level, the candidate must be board certified. Temporary appointments of non-board certified TMPs may not be extended beyond 2 years, or converted to a new temporary appointment.

(3) Failure to Obtain Board Certification. In all cases, uncertified TMPs must actively pursue obtaining board certification from the date of their appointment. At the time of appointment, the supervisor will provide the uncertified TMP with the written requirements for board certification, the date by which board certification must be obtained, and the consequences for not becoming board certified by the deadline. Failure to obtain board certification by the prescribed date will result in removal from the GS-601 TMP series and may result in termination of employment.

(4) Loss of Board Certification. Once board certified, TMPs must maintain a full, valid and unrestricted board certification to remain qualified for employment. Loss of board certification may result in termination of employment.

d. Grandfathering Provision. All persons employed in VHA as a TMP on the effective date of this qualification standard are considered to have met all qualifications requirements for the title, series and grade held, including positive education and certification that are part of the basic requirements of the occupation. For employees who do not meet all the basic requirements in this standard, but who met the qualifications applicable to the position at the time they were appointed to it, the following apply.

(1) Such employees may be reassigned, promoted up to and including the full performance (journeyman) level, or changed to lower grade within the occupation, but may

not be promoted beyond the journeyman level or placed in supervisory or managerial positions.

(2) TMPs who are appointed on a temporary basis prior to the effective date of the qualification standard may not have their temporary appointment extended or be reappointed, on a temporary or permanent basis, until they fully meet the basic requirements of the standard.

(3) Employees initially grandfathered into this occupation, who subsequently obtain additional education and/or certification that meet all the basic requirements of the qualification standard must maintain the required credentials as a condition of employment in the occupation.

(4) TMPs who are converted to title 38 hybrid status under this provision and subsequently leave the occupation lose protected status and must meet the full VA qualification standard requirements in effect at the time of reentry as a TMP.

e. **Physical Requirements.** See VA Directive and Handbook 5019.

f. **English Language Proficiency.** TMPs must be proficient in spoken and written English as required by 38 U.S.C. 7402(d), and 7407(d).

4. GRADE REQUIREMENTS

a. Creditable Experience

(1) **Knowledge of Current Medical Physicist Practices.** To be creditable, the experience must have required the use of knowledge, skills, and abilities (KSAs) associated with current professional TMP practice. The experience must be post-master's degree or above. Experience satisfying this requirement must be active professional practice, which is paid/non-paid employment as a professional TMP.

(2) **Quality of Experience.** Experience is only creditable if it is obtained following graduation with a master's or doctoral degree in medical physics, physics, or another relevant physical science or engineering discipline from an accredited training program and includes work as a professional TMP directly related to the position to be filled. Qualifying experience must also be at a level comparable to TMP experience at the next lower grade level. For all assignments above the full performance level, the higher level duties must consist of significantly larger scope, administrative independence, complexity (difficulty) and range of variety as described in this standard at the specified grade level and be performed by the incumbent at least 25% of the time.

(3) **Part-Time Experience.** Part-time experience as a professional TMP is creditable according to its relationship to the full-time workweek. For example, a TMP employed 20 hours a week, or on a 1/2-time basis, would receive 1 full-time workweek of credit for each 2 weeks of service.

(4) **Clinical Training/Clinical Residency.** TMPs go through a post-graduate clinical training program in therapeutic medical physics before they are eligible to work as a TMP. The post-graduate clinical training may be substituted for creditable experience on a year-for-year basis.

b. **Grade Determinations.** In addition to the basic requirements for employment, the following criteria must be met when determining the grade of candidates.

(1) **GS-12 Therapeutic Medical Physicist (Entry Level)**

(a) **Experience, Education, and Board Certification.** None beyond the basic requirements.

(NOTE:

See exception to certification requirement in subparagraph 2c(2) above.)

(b) **Assignments.** The employee works under the direction of a board-certified TMP. The employee provides direct evaluation of radiation therapy patients with regard to safety and accuracy of delivery through determination of the methodology for accurate positioning of the patient and assessment of the feasibility of delivery of the prescribed plan. The employee applies specialized knowledge of treatment planning in order to assess the fidelity of treatment plan alternatives. The employee organizes treatment plans, chooses the modality, and oversees the delivery of treatment. The employee provides direct assessment of the patient in order to render clinical physics judgment for radiation planning and delivery. The employee works and exercises sound judgment in the evaluation of the quality, safety, and accuracy of radiation treatments planned and delivered to patients, thus ensuring that correct radiation dose is delivered as prescribed. The employee implements radiation therapy of marked difficulty and responsibility because the underlying radiotherapy planning and delivery process has multiple potential failure modes of a highly complex nature. The employee is responsible for the technical aspects of external beam and brachytherapy treatment procedures from treatment simulation to treatment planning to the actual treatment delivery. The employee provides limited leadership, guidance and oversight of the work of medical dosimetrists and radiation therapists. The employee performs the following actions to assist in the implementation of new equipment and processes: assesses radiation therapy equipment needs; performs acceptance testing and commissioning of new radiation therapy equipment; evaluates the adequacy of room shielding; performs radiation surveys; and develops and implements treatment processes. The employee also performs the following actions to oversee radiation therapy treatment planning: monitors and improves treatment processes; evaluates treatment plans for conformance to department standards, ensures the accuracy of treatments and integrity of data recorded in the patient's medical records; performs patient-specific treatment validation measurements; and documents medical physics policies and procedures for the delivery and quality assessment of advanced treatment procedures such as intensity modulated radiation therapy, stereotactic body radiation therapy, and brachytherapy. The employee operates and documents the medical physics quality assurance program; applies Federal regulations as they relate to ionizing radiation medical use; and manages the radiation safety program for radiation oncology.

(c) **Demonstrated Knowledge, Skills, and Abilities.** In addition to meeting the basic requirements, the candidate must demonstrate the following KSAs:

1. Knowledge of the scientific and technical principles and properties of radiotherapy devices for external beam radiotherapy. This includes specialized knowledge of the clinical applications of these devices.

2. Ability to exercise independent judgment in the calibration and commissioning of external beam photon and electron beam delivery devices for clinical use. This includes specialized knowledge of the acceptance testing and commissioning of radiation therapy treatment simulation equipment such as Computerized Tomography (CT) simulators.

3. Scientific and technical knowledge of electronic data handling techniques and software.

4. Ability to exercise independent judgment in the safe operation of radiotherapy equipment and quality assurance. This includes specialized knowledge of sources of uncertainty associated with treatment delivery and how to minimize the deviation between planned and delivered treatments; configuration of test equipment and associated software; and expected equipment performance for external beam radiotherapy treatment, brachytherapy, and simulation equipment.

5. Detailed scientific and technical knowledge of radiotherapy treatment planning principles, treatment planning algorithms, and treatment delivery.

6. Knowledge of scientific and technical aspects of brachytherapy delivery systems and radiation sources.

7. Ability to exercise independent judgment in radiation shielding techniques for external beam delivery systems. This includes specialized knowledge of detection and survey methods for external beam delivery systems. This also includes knowledge of regulatory requirements and guidelines for radiation shielding and protection.

8. Knowledge of multi-modality medical imaging to include a detailed scientific and technical understanding of megavoltage photon beam imaging, CT, radiographic imaging, magnetic resonance imaging, and positron emission computed tomography.

(2) GS-13 Therapeutic Medical Physicist (Full Performance Level)

(a) **Experience.** In addition to the basic requirements, completion of a minimum of 1 year of progressively complex experience equivalent to the next lower grade level.

(b) **Assignments.** The full performance level TMP is board certified and performs the clinical practice of therapeutic medical physics in its entirety with considerable discretion and independent judgment. The employee plans, delivers, verifies, and monitors quality assurance of radiotherapy at all levels of complexity. Specific tasks include: recommending an optimal modality and treatment technique for the patient; evaluating the quality, safety, and accuracy of radiation treatments planned and delivered to patients, thus ensuring that radiation dose is carried out correctly and completely; and safely operating all radiation planning and delivery devices. The TMP implements radiation therapy of outstanding technical difficulty and

responsibility, providing knowledge-based solutions to resolving issues where no rule-based solutions exist. The employee plans and directs a specialized program encompassing all physics and clinical aspects of external beam and brachytherapy treatment procedures from treatment simulation to treatment planning to the actual treatment delivery. The TMP provides technical oversight for the work of entry level TMPs, medical dosimetrists and radiation therapists. The incumbent oversees radiation therapy treatment planning; designs and approves treatment plans; monitors the accuracy of treatment data recorded in the patient's medical records; provides consultation to the radiation oncologist regarding difficult treatment cases; performs patient-specific treatment validation measurements; and develops medical physics policies and procedures for the delivery and quality assessment of advanced treatment modalities such as intensity modulated radiation therapy, stereotactic body radiation therapy, and brachytherapy. The TMP develops, operates and fully documents the medical physics quality assurance program and ensures regulatory compliance within the Radiation Safety Officer's radiation safety program. The employee safely utilizes and properly operates all radiation oncology equipment, and is therefore qualified and responsible for educating radiation oncology team members including radiation oncologists, radiation therapists and dosimetrists in safety issues that relate to radiotherapy planning and delivery.

(c) **Demonstrated Knowledge, Skills, and Abilities.** In addition to the experience above, the candidate must demonstrate the following KSAs:

1. Knowledge regarding the safe and efficient use of all radiotherapy devices for external beam radiotherapy.
2. The ability to evaluate and ensure correct and safe operation of radiotherapy equipment through complex problem diagnosis and scheduled quality assurance.
3. Knowledge of the scientific, clinical, and technical applications of high dose rate and low dose rate brachytherapy treatment simulation, planning, dosimetry, and treatment methods.
4. Expertise in the professional, scientific, and technical aspects of shielding methods for external beam radiation delivery systems, radiation survey methods, developing procedures, setting action levels, delivering radiation safety training, developing and documenting competencies, and reporting. This includes an in-depth knowledge of regulatory requirements and guidelines for radiation shielding and personnel protection.
5. Ability to exercise independent professional judgment in the performance and evaluation of calibration, acceptance testing, and clinical commissioning procedures for all types of external beam photon and electron beam delivery systems. Skilled in the evaluation of acceptance testing and commissioning results of CT simulators.
6. Technical skills in 3-D treatment planning, intensity modulated radiation therapy treatment planning, and stereotactic body radiation therapy planning. This includes specialized knowledge of clinical process steps and resource requirements for planning and delivery of radiation oncology treatments.

7. Ability to process information from multi-modality imaging datasets for treatment planning, treatment verification, and radiotherapy response assessment.

(3) GS-14 Therapeutic Medical Physicist (Advanced Level)

(a) **Experience.** In addition to the basic requirements, completion of a minimum of 1 year of progressively complex experience equivalent to the next lower grade.

(b) **Assignments.** For all assignments above the full performance level, the higher-level duties must consist of significant scope, complexity (difficulty), and range of variety, and be performed by the incumbent at least 25% of the time. Employees at this level who are not supervisors are able to carry out assigned tasks independently in all areas of radiation therapy requiring TMP competencies which substantially exceed the full performance level and require advanced knowledge in all areas of radiation therapy. Regardless of the nature of the specific assignment, the work must be of sufficient scope and complexity to meet the knowledge, skills, and abilities to perform at this grade level.

(c) **Demonstrated Knowledge, Skills, and Abilities.** In addition to the experience above, the candidate must demonstrate the following KSAs:

1. Advanced expertise and experience in the safe and efficient use of all radiotherapy devices for external beam radiotherapy and brachytherapy.

2. Highly developed expertise with commissioning linear accelerators and treatment planning systems for complex clinical use, to include project management, performance testing, data acquisition, beam modeling, and validation testing.

3. Advanced knowledge (treatment simulation, planning, dosimetry, and treatment methods) of the scientific, clinical, and technical applications of one or more specialized procedures including, but not limited to, high dose rate brachytherapy, low dose rate brachytherapy, stereotactic body radiation therapy, stereotactic radiation therapy, intensity modulated radiation therapy, volumetric modulated arc therapy, total body irradiation, advanced image-guided therapy, and adaptive therapy.

4. Advanced expertise in acceptance testing, clinical commissioning, and (when applicable) calibration procedures for a variety of ancillary radiation oncology delivery, imaging, dosimetry, metrology, and computational systems.

(4) GS-14 Supervisory Therapeutic Medical Physicist

(a) **Experience.** In addition to the basic requirements, completion of a minimum of 1 year of progressively complex experience equivalent to the next lower grade.

(b) **Assignments.** For all assignments above the full performance level, the higher-level duties must consist of significant scope, complexity (difficulty), and range of variety, and be performed by the incumbent at least 25% of the time. A supervisory TMP provides professional, scientific, and clinical practice of therapeutic medical physics for external beam and brachytherapy treatment procedures from treatment simulation to treatment planning to the actual treatment delivery. The incumbent oversees the technical development and

implementation of new radiotherapy techniques and modalities; oversees the activities of all other TMPs, dosimetrists, and other staff members assigned to the unit; directs the technical aspects of treatment procedures; and, performs duties qualifying them as a supervisor to include planning and directing work, developing performance plans, evaluating staff performance, and other administrative functions. The supervisory TMP has full supervisory responsibility for a staff that includes lower level TMP positions and other clinical and professional staff within the unit. The employee directs the implementation of new equipment and processes through oversight of the following activities: assesses radiation therapy equipment needs; monitors acceptance testing and commissioning of new radiation therapy equipment; evaluates the adequacy of room shielding and radiation surveys; develops and implements treatment processes in concert with a radiation oncologist; and, ensures the precision and accuracy of treatment delivery. The employee optimizes technical infrastructure and workflow for streamlined operations in the department of radiation oncology through the mastery and application of techniques such as Failure Mode and Effect Analysis (FMEA), Root Cause Analysis (RCA), and Fault Tree Analysis (FTA). The employee directs the radiation therapy treatment planning team through oversight of the following activities: designs and approves of treatment plans; monitors the accuracy of treatment data recorded in the patient's medical records; provides consultation to the radiation oncologist regarding difficult treatment cases; performs patient-specific treatment validation measurements; develops medical physics policies and procedures for the delivery and quality assessment of advanced treatment modalities such as intensity modulated radiation therapy, stereotactic body radiation therapy and brachytherapy. The employee develops, operates, and documents the medical physics quality assurance program; ensures regulatory compliance; supervises the Radiation Safety Officer's radiation safety program; and, trains and educates radiation oncology team members in safe operations in Radiation Oncology.

(c) Demonstrated Knowledge, Skills, and Abilities. In addition to the experience above, the candidate must demonstrate the following KSAs:

1. Ability to oversee the technical development and implementation of new radiotherapy techniques and modalities. This includes knowledge of current standards of care, VA policies, trends and changes in delivery technology, as well as fair, principled, and decisive leadership practices.

2. Ability to optimize technical infrastructure and workflow for streamlined operations in the department of radiation oncology. This includes the knowledge and application of techniques such as Failure Mode and Effect Analysis (FMEA), Root Cause Analysis (RCA), and Fault Tree Analysis (FTA).

3. Ability to assess the qualifications and abilities of current and prospective employees, to include staff performance evaluations and professional development.

4. Advanced knowledge of regulatory requirements, manufacturer's standards, and professional society guidelines for performing quality assurance of radiation therapy equipment to include accelerators, simulators, and high dose rate/low dose rate brachytherapy delivery systems.

5. Ability to use written and verbal communication with a strong command of technical writing considerations.

6. Ability to collaborate with the members of other disciplines and supervisors and to represent the profession both in and outside of VHA. This includes knowledge of the roles, contributions, and interrelationships with other health care specialties and supporting divisions.

7. Knowledge of instructional methods and documenting competencies.

8. Ability to manage and supervises employees.

(5) GS-15 Medical Physicist (Program Manager)

(a) **Experience.** In addition to the basic requirements, completion of a minimum of 1 year of progressively complex experience equivalent to the next lower grade level.

(b) **Assignments.** For all assignments above the full performance level, the higher-level duties must consist of significant scope, complexity (difficulty), and range of variety, and be performed by the incumbent at least 25% of the time. The employee provides leadership and exceptional experience in dealing with complex and challenging professional, scientific, and technical practice in therapeutic medical physics for external beam and brachytherapy treatment procedures from treatment simulation to treatment planning to the actual treatment delivery. The TMP at program manager level supervises the activities of other TMPs and dosimetrists and performs all duties of a supervisory level TMP. The program manager TMP manages the development and implementation of advanced techniques and special initiatives in radiotherapy, collaborates with radiation oncologists in the development of new clinical protocols, and directs special projects involving clinical applications, clinical research, or quality assurance. The employee serves as a subject matter expert on certain aspects of therapeutic medical physics in which the incumbent has achieved national recognition. The employee's expertise in medical physics is utilized to provide consultative services to the National Radiation Oncology Program (NROP), the National Health Physics Program (NHPP), other VHA program offices and other Federal agencies. In addition, the program manager level TMP provides liaison with those professional organizations whose purview is the organization, development or regulation of medical physics.

(c) **Demonstrated Knowledge, Skills, and Abilities.** In addition to the experience above, the candidate must demonstrate the following KSAs:

1. Knowledge at an in-depth level of the processes and underlying medical physics principles used in the planning and delivery of therapeutic radiation.

2. Skill to directly supervise program specialists for Departmental critical initiatives and indirectly oversee medical physicists at the facility level.

3. Knowledge of regulatory frameworks, implementation details, and their evolution in time.

4. Skill in the performance of investigatory team leadership, causal analysis, investigatory interviewing techniques, and communication of conclusions.

5. Ability to formulate, refine, and deploy major initiatives of national significance to the Department.

6. Ability to assess and improve the quality of facility-level programs based on accreditation reports and similar documentation or direct inspection.

7. Ability to communicate both in writing and verbally with exceptional concision and clarity for disparate audiences.

8. Skill in managing resources, i.e. space, equipment, personnel; at the regional or national level.

5. DEVIATIONS

a. The appointing official may, under unusual circumstances, approve reasonable deviations to the grade determination requirements for TMPs in VHA whose composite record of accomplishments, performance, and qualifications, as well as current assignments, warrant such action based on demonstrated competence to meet the requirements of the proposed grade.

b. Under no circumstances will the educational requirements be waived for any grade level. Under no circumstance will the board certification requirement be waived for grade levels GS-13 or above.

c. The placement of individuals in grade levels not described in this standard must be approved by the Under Secretary for Health, or designee, in VHA Central Office.

RESPONSIBLE OFFICE: Human Resources and Administration/Operations, Security and Preparedness (HRA/OSP) (006), Office of the Chief Human Capital Officer (OCHCO) (05), Recruitment and Placement Policy Service (059)