



DIVISION SCOPE OF SERVICE

Division: CENTRAL/WEST TEXAS
DHP Classification: LICENSED MEDICAL PHYSICIST
Name of Dependent Healthcare Professional (DHP):

<p>Licensed Medical Physicist A "Licensed Medical Physicist" is a person licensed to practice in one or more of the following specialties: Diagnostic Radiological Physics, Therapeutic Radiological Physics, Medical Nuclear Physics, and Medical Health Physics.</p>
<p>Definition of care or Service – Check applicable specialty:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Diagnostic Radiological Physics-The branch of medical physics that deals with the diagnostic application of roentgen rays, gamma rays from sealed sources, ultrasonic radiation, or radiofrequency radiation and the use of equipment associated with the production and use of that radiation. <input type="checkbox"/> Therapeutic Radiological Physics-The branch of medical physics that deals with the therapeutic application of roentgen rays, gamma rays, electron and other charged particle beams, neutrons, or radiations from radionuclide sources and the use of equipment associated with the production and use of that radiation. <input type="checkbox"/> Medical Nuclear Physics-The branch of medical physics that deals with the therapeutic and diagnostic application of radionuclides, except those used in sealed sources for therapeutic purposes, and the use of equipment associated with the production and use of radionuclides. <input type="checkbox"/> Medical health physics-The branch of medical physics that deals with the safe use of roentgen rays, gamma rays, electron or other charged particle beams, neutrons, radionuclides, and radiation from sealed radionuclide sources for both diagnostic and therapeutic purposes in humans and the use of equipment required to perform appropriate radiation tests and measurements. <p>Practice of Medical Radiological Physics" means the use of principles and accepted protocols of physics to assure the correct quality, quantity, and placement of radiation during the performance of a radiological procedure prescribed by a practitioner that will protect the patient and others from harmful excessive radiation. The term includes radiation beam calibration and characterization, quality assurance, instrument specification, acceptance testing, shielding design, protection analysis on radiation-emitting equipment and radiopharmaceuticals, and consultation with a physician to assure accurate radiation dosage to a specific patient.</p>
<p>Setting(s):</p> <ul style="list-style-type: none"> • Healthcare facilities including but not limited to hospitals, outpatient treatment facilities, imaging centers, and physician practices • Operating Room, Nuclear Medicine, Radiation Therapy
<p>Supervision:</p> <ul style="list-style-type: none"> • Direct supervision by Radiation Safety Officer, Radiation Safety Committee, Imaging Director and/or Radiation Therapy Director <p>Evaluator: Imaging department director or designee</p>
<p>Qualifications: A master's degree or doctoral degree from an accredited college or university with a major course of study in physics, medical physics, biophysics, radiological physics, or medical health physics</p>



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Experience:

- Completion of at least 2 years of full-time work experience in a specialty area (required for Texas state licensure)

Competencies:

Will demonstrate the following according to area of specialty:

Diagnostic Radiological Physics:

(A) providing evidence that imaging equipment continues to meet applicable rules and regulations of radiation safety and performance standards required by accrediting and regulatory agencies;

(B) acceptance testing or monitoring of diagnostic imaging equipment;

(C) evaluating policies and procedures pertaining to radiation and its safe and appropriate application in imaging procedures;

(D) providing consultation in development and management of the quality control program;

(E) measurement and characterization of radiation from diagnostic equipment;

(F) specification of instrumentation to be used in the practice of diagnostic radiological physics;

(G) providing consultation on patient or personnel radiation dose (effective dose equivalent, fetal dose calculations, specific organ dose determination, etc.) and the associated risk; and

(H) protective shielding design and evaluation of a diagnostic imaging facility.

(I) conducting performance evaluations of medical radiologic and fluoroscopic imaging systems which include the following physical tests and assessments:

(i) kilovolts peak (kVp) and timer accuracy;

(ii) exposure reproducibility and linearity;

(iii) exposure geometry, e.g. source to image distance (SID) and collimation;

(iv) entrance skin exposure and exposure rate;

(v) beam quality; and

(vi) image quality.

Therapeutic Radiological Physics:

(A) development of specifications for radiotherapy treatment and simulation equipment;

(B) development of procedures for testing and evaluating performance levels of radiotherapy treatment and simulation equipment;

(C) acceptance testing of radiotherapy treatment and simulation equipment;

(D) calibration and characterization of radiation beams from therapeutic equipment including radiation quantity, quality, and distribution characteristics, and assessment of the mechanical and geometric optics for proper placement of the beam;

(E) providing documentation that radiotherapy treatment and simulation equipment meet accreditation and regulatory compliance requirements;

(F) calibration and/or verification of the physical and radiological characteristics of brachytherapy sources;

(G) specification of the physics instrumentation used in the measurement and performance testing of therapeutic equipment;

(H) acceptance testing, management, and supervision of computer systems used for treatment planning and calculation of treatment times or monitor units. This includes measurement and input of dosimetry data base and verification of output for external beam radiotherapy and brachytherapy;

(I) implementation and management of dosimetric and beam delivery aspects of external beam and brachytherapy irradiation. External beam delivery aspects include treatment aids, beam modifiers, and geometrical arrangements. Special procedures are included for both external beam (e.g. radiosurgery, total body irradiation, total skin irradiation, intraoperative therapy) and brachytherapy (e.g. high dose rate, pulsed dose rate and radiolabeled microspheres);

(J) provision of consultation to the physician in assuring accurate delivery of prescribed radiation dosage to a



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specific human patient, and the associated risk;

(K) development and management of quality control program for a radiation treatment facility that includes applicable facility accreditation requirements, and the review of policies and procedures pertaining to therapeutic radiation and its safe and appropriate use;

(L) development and/or evaluation of a radiation safety program in a therapeutic radiation facility including written procedures for the protection of patients, workers, and the public; and

(M) protective shielding design and radiation safety surveys in a radiotherapy facility.

□ **Medical Nuclear Physics:**

(A) development of procedures for continuing evaluations of performance levels of radionuclide imaging devices and ancillary equipment;

(B) providing evidence that radionuclide imaging equipment continues to meet applicable rules and regulations of performance and radiation safety required by accrediting and regulatory agencies;

(C) acceptance testing of radionuclide imaging equipment;

(D) development and/or evaluation of a radiation safety program in a nuclear medicine facility;

(E) determination of radiation shielding necessary to protect workers, patients, and the public in a nuclear medicine facility;

(F) development of specifications for radionuclide imaging instrumentation or equipment;

(G) development and monitoring of a quality control program for radionuclide imaging equipment, computers and other patient related radiation detectors such as uptake probes, well counters and dose calibrators;

(H) providing consultation on patient or personnel radiation dose (effective dose equivalent, fetal dose calculations, specific organ dose determination, etc.) and the associated risk;

(I) evaluating policies and procedures pertaining to the safe and appropriate application of radionuclides;

(J) specification of instrumentation used in the practice of medical nuclear physics; and

(K) verification of calculated radiation absorbed doses from unsealed radioactive sources and radiolabeled microspheres and the provision of consultation to the physician in assuring accurate delivery of prescribed radiation dosage to a specific human patient and the associated risk in therapeutic nuclear medicine procedures.

□ **Medical Health Physics:**

(A) planning and design of radiation shielding needed to protect workers, patients, and the general public from radiation produced incident to the diagnosis or treatment of humans. This includes calculation of required shielding thickness, selection of shielding material and specification of source-shield geometry;

(B) assessment and evaluation of installed shielding, installed shielding apparatus or portable shielding designed to protect workers, patients, and the general public from radiation produced incident to the diagnosis or treatment of humans. Such evaluation specifically includes determination of whether the shielding is adequate to ensure compliance with state or federal regulatory requirements for limiting the effective dose equivalent and organ dose equivalent of medical radiation workers and members of the public. This includes the selection of appropriate radiation measurement instrumentation to conduct such evaluation as well as the methodology to be employed;

(C) providing consultation, by which determination of the presence and extent of any radiological hazard, in any controlled, restricted, uncontrolled or unrestricted area, resulting from the use of ionizing radiation or radioactivity in the treatment or diagnosis of disease in humans, is made. This includes the design, conduct, and evaluation of results of radiation surveys of health care facilities and the immediate environs intended to determine whether occupancy by medical radiation workers, patients, and members of the public is compliant with state and federal regulations for the control of ionizing radiations. A survey includes the directing of physical measurements of radiation levels and radioactivity, the interpretation of those measurements, and the provision of any conclusions or recommendations intended to limit or prevent exposure of workers, members of the public, and patients;

(D) performing dose and associated risk assessment in which an effective dose equivalent, committed effective dose equivalent, organ dose equivalent, or committed organ dose equivalent is determined by measurement or calculation or both, to any worker, member of the public, fetus or patient who received exposure to ionizing



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radiation or radioactivity from radiation sources used to treat or diagnose disease in humans. This does not include either the prospective or retrospective determination of absorbed doses to patients undergoing radiation therapy; and

(E) consultation which consists of the evaluation or assessment of the radiation safety aspects of policies or procedures which pertain to the safe and appropriate use of radiation or radioactivity, administered to human research volunteers or used to treat or diagnose conditions in humans, when such evaluation or assessment provides conclusions or recommendations regarding dose equivalent assessment, the overall radiation safety afforded to individuals resulting from activities conducted in compliance with the evaluated policies or procedures, or the compliance of any or all provisions of the policies or procedures with either state or federal regulatory requirements for the control of radiation.

References:

- Texas Licensure Board of the Texas Department of State Health Services
(https://www.dshs.state.tx.us/mp/mp_scopes.html)
- Texas Administrative Code, Title 22, Part 26, Chapter 601
([http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=22&pt=26&ch=601&rl=21](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=22&pt=26&ch=601&rl=21))

DHP Printed Name: _____ **DHP Signature:** _____

Company/Vendor: _____ **Date:** _____