

Standards of Qualification and Practice (SQ/P)
**Qualifications for
Healthcare Facility Radiation Safety Officer**



**Medical Health
Physics Section**

American Academy of Health Physics and
Medical Health Physics Section
of the Health Physics Society

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Preface

This document has been developed by the American Academy of Health Physics (AAHP) and the Medical Health Physics Section of the Health Physics Society (HPS) to assist management with the proper selection of a Radiation Safety Officer for a healthcare facility. This standard has been developed and reviewed by health physicists who have worked as Radiation Safety Officers in a healthcare facility and have a strong familiarity with the skills and abilities needed to carry out successfully the duties of this position.

Since healthcare facilities vary widely in their uses of radiation and radioactive materials, this standard is meant to be a guide rather than a mandatory checklist, with lists of skills and abilities that may apply to the position of Radiation Safety Officer depending upon the particular program's complexities. No one person may have all the skills or qualifications listed in this document, nor may any one facility require a person with all the skills and qualifications contained in this document.

The AAHP and the HPS Medical Health Physics Section would like to thank the many people who provided useful comments during the writing of this report. The final version of this report may not reflect their individual opinions, but the writing committee appreciates their time and the thoughtfulness of their suggestions.

1. Introduction

The safe application of radioactive materials and radiation-producing equipment in a medical setting poses problems that are very different from those encountered in most other settings. This is due in part to the wide variety of procedures using radiation, but also to the often unexpected nature of patient involvement. Meeting the challenge of supervising the radiation safety program at a healthcare facility requires considerable training and experience. This document describes the minimum qualifications that should be held by the Officer (RSO) for a healthcare facility. The main intention of this document is to assist healthcare facility administrators in evaluating candidates for such positions.

An RSO for a healthcare facility must possess at least the minimum qualifications pertinent to the head of the radiation safety program. In the most general sense, an RSO must be able to manage and keep current a comprehensive radiation safety program. An RSO must possess the broad range of scientific background and experience in both radiation control and medical settings required to carry out such a program. The necessary science background can be obtained by completing a graduate degree in health physics, medical physics, radiation physics, nuclear engineering, radiation biology, nuclear physics, biomedical engineering, or another closely related field. In addition, hands-on experience in radiation safety program development and implementation is necessary. Experience in committee processes is desirable.

Attachment 1 gives the “Recommended Combinations of Training and Minimum Experience for a Healthcare Facility RSO.”

An RSO who is certified by the American Board of Health Physics or the American Board of Medical Physics in Medical Health Physics is highly desirable for those facilities indicated as “large” in Attachment 1. This certification establishes a nationally recognized minimum standard of relevant knowledge. The require-

ment for periodic (every four years) renewal of the certification helps to ensure that a certified individual remains current in recent radiation Radiation safety program developments.

Although this standard contains the recommended qualifications and credentials for an RSO in general terms, Attachment 2 is a specific list of topics for management to consider when hiring an RSO. Management should review this list against the needs of the specific institution to identify RSO candidates with the most appropriate levels of education, experience, and credentials for that institution.

2. Standard

2.1 Medical Facility Management

Medical facility management is responsible for establishing RSO qualifications and credentials based on the unique requirements of its facilities and programs, and the regulations governing its licenses for radioactive material and radiation-producing devices, considering, at a minimum:

- All requirements contained in the facility's radioactive materials licenses, registrations (as applicable), and ALARA statements.
- The number of radiation-producing machines at the facility and their use, including diagnostic and interventional x-ray equipment, linear accelerators, and PET cyclotrons.
- The possession or use of radioactive materials, sealed and unsealed, including high- and low-dose-rate afterloaders, ^{60}Co teletherapy units, and blood and cell irradiators.
- The use of nonionizing radiation sources, including lasers, microwave generators, and other electromagnetic radiation sources.
- The use of radioactive materials or radiation-producing equipment in areas other than conventional radiology, nuclear medicine, or radiation oncology, such as surgery,

cardiology, or clinical or research laboratories.

Medical facility management shall also periodically review the requirements for RSO qualifications and credentials based on anticipated changes in facilities and programs.

At least annually the RSO shall evaluate her or his qualifications and credentials against the medical facility's needs and programs (current and anticipated) and the regulations governing those programs. The RSO shall notify the medical facility management when additional training, experience, or personnel are necessary to fulfill the responsibilities of the office. In notifying management of the need for additional qualifications, the RSO should recommend the most appropriate means to achieve these ends, including the possibilities of:

- Self-training for the RSO and possibly the safety staff.
- Acquiring additional knowledgeable staff in the needed subject areas.
- Using the services of experts on an as-needed basis from other facility services, manufacturers, or outside consultants.

2.2 Recommended Qualifications/ Credentials

In developing qualifications and credentials for the RSO position, management should consider:

- The duties and requirements listed in the regulations and regulatory guidance.
- Requirements established in any licenses held by the medical facility.
- Guidance on training and experience (see Attachment 1).
- Interpersonal and communication skills.

Healthcare facility management may wish to use the checklist in Attachment 2 to develop a template for establishing the breadth of experience required for a potential RSO.

3. References

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National Council on Radiation Protection and Measurements. Operational Radiation Safety Program. Bethesda, MD: NCRP Publications; NCRP Report 127; 1998.

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National Council on Radiation Protection and Measurements. Dental X-ray Protection. Bethesda, MD: NCRP Publications; NCRP Report 177; 2019.

3.3 Other texts

Miller K., CRC Handbook of Management of Radiation Protection Programs. 2nd ed. Boca Raton, FL: CRC Press; 1992.

Attachment 1

Recommended Combinations of Training and Minimum Experience for a Healthcare Facility RSO

<u>Formal education and certification*</u>		<u>Minimum experience**</u>
Large healthcare organization – Includes radiation oncology, diagnostic and interventional radiology, and diagnostic and therapeutic nuclear medicine.		
A. Comprehensive certification by the American Board of Health Physics or the American Board of Medical Physics in Medical Health Physics	AND	A. Two years beyond training in a program with radiation safety problems similar to those in the program to be managed.
OR		
B. Graduate degree in health physics, medical physics, radiation physics, nuclear engineering, radiation biology, nuclear physics, or a closely related field*	AND	B. Four years beyond training in a program with radiation safety problems similar to those in the program to be managed.
Intermediate healthcare organization – Includes diagnostic radiology, nuclear medicine, and clinical laboratories using tracer amounts of radionuclides.		
A. Bachelor's degree in health physics, medical physics, radiation physics, nuclear engineering, radiation biology, nuclear physics, or a closely related field*	AND	A. Two years beyond training in a program with radiation safety problems similar to those in the program to be managed.
OR		
B. Certification in radiology, nuclear medicine, or radiation therapy; or registration in radiography, nuclear medicine technology, radiation therapy technology, or radiation protection technology	AND	B. Two years beyond training in a program with radiation safety problems similar to those in the program to be managed.
Small healthcare organization – For example, a facility where diagnostic radiology is the only use of radiation or a laboratory using only radioimmunoassay kits.		
Residency in radiology or registration in radiography	AND	One year beyond training in a program with radiation safety problems similar to those in the program to be managed.

NOTES: Performing quality management procedures for diagnostic or therapeutic radiation-producing equipment normally does not fall within the function of a radiation safety officer, but rather a medical physicist.

* Where relevant, NRC regulations specify that the training include 200 hours in radiation physics and instrumentation, radiation protection, mathematics pertaining to the use and measurement of radioactivity, radiation biology, and radiopharmaceutical chemistry.

** Where relevant, NRC regulations specify that one year of the experience be at a medical institution under the supervision of the individual identified as the Radiation Safety Officer on a Commission or Agreement State license. Agreement State requirements may vary and must be referenced. In cases where the scope of the position includes activities beyond human use of radiation and radioactive materials, experience bearing on the activities must be included.

Attachment 2

Checklist for Evaluating Healthcare Facility RSO Candidate Experience

This checklist will help healthcare facility management evaluate a candidate's breadth of experience. If no member of management is knowledgeable about these topics, management should consider hiring an RSO from another healthcare facility with a similar program to assist in developing requirements, reviewing candidates, and evaluating the needs of the program.

In establishing qualifications for the RSO, management must consider the requirements contained in radioactive materials regulations, licenses, and license applications.

- A. Name of RSO candidate
- B. Education (degree, major, and institution)
- C. Certification (specialty, category, month and year certified, and dates of certification renewal)
- D. Dates and locations of all practical clinical experience obtained to meet the requirements described below
- E. Training received in basic radioisotope-handling techniques
- F. Experience using radioisotopes in diagnostic and therapeutic applications
- G. Experience supervising use of diagnostic and therapeutic radioisotopes
- H. Experience implementing a radiation safety program
- I. Administrative and supervisory experience
- J. Computer expertise (e.g., word processing, databases, or spreadsheets)
- K. Experience with regulatory agencies
- L. Experience writing licenses for radioactive materials similar to those governing the institution
- M. Public speaking abilities (e.g., presentations at scientific sessions, or rounds)
- N. Ability to interact positively with clinical and scientific staff
- O. Experience interacting with clinical staff, patients, and the general public
- P. Affiliations or service with professional organizations
- Q. Appointments to committees with professional organizations
- R. Awards, scientific presentations, and publications