

Where Are the Radiation Professionals (WARP)?

Synopsis of NCRP Statement No. 12

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Background: Since the discovery of x rays and radioactivity in the late 1800s, sources of ionizing radiation have been employed in medicine, academia, industry, power generation, and national defense. To provide for the safe and beneficial use of these sources of radiation, the United States developed a cadre of professionals with the requisite education and experience. Unfortunately, their numbers have diminished alarmingly, as assessed by the National Research Council, the Health Physics Society, and the Government Accountability Office.

Methods: To study the decline in radiation professionals and potential national crisis, the National Council on Radiation Protection and Measurements (NCRP) sponsored a workshop in June 2013 in Arlington, Virginia to evaluate whether a sufficient number of radiation professionals exist now and into the future to support the various radiation disciplines essential to meet national needs. Attendance at this workshop included professionals from government, industry, academia, medicine, and professional societies.

Findings: Evidence presented at the workshop revealed that the country is on the verge of a severe shortfall of radiation professionals such that urgent national needs will not be met. Factors contributing to the downturn include the economy, attrition, and decreased public funding. The magnitude of this shortfall varies with radiation disciplines and practice area. All radiation professionals share the same goals to develop or implement scientific knowledge to protect workers, members of the public, and the environment from harmful effects of exposure to ionizing radiation. Accordingly, the workshop concluded that the current and projected shortfall will adversely affect the public health, radiation occupations, emergency preparedness, and the environment. For example, responding to a major U.S. radiation accident or terrorist attack will require a huge surge in radiation professionals to manage the consequences and aftermath of such an incident. As the number of professionals decreases, the nation's ability to manage such catastrophic events is severely degraded. Major shortfalls have already been noted in day-to-day operations, leaving policy development, regulatory compliance, research and development, environmental monitoring, emergency management, and military applications as unfunded and under-supported mandates.

The federal government supports large-scale programs for K–12 education in science, technology, engineering and mathematics (STEM) because such skills are vital to the economic development of the United States. Similarly, support for education of radiation professionals is vital to the health and safety of the United States.

Recommendations: Courses of action to preclude and mitigate the disastrous outcome of not having sufficient radiation professionals to handle the current and future needs of the nation include:

1. Restore significant federal and state funding for scholarships, fellowships, and faculty research to increase and sustain a credible workforce of radiation professionals.
2. Reinvigorate partnerships among universities, government, and the private sector to ensure undergraduate and graduate programs are adequately resourced to support the training and qualification of radiation professionals, including those who will educate the next generation.
3. Establish a Joint Program Office for radiation professionals in the federal civil service to manage utilization and career development more effectively.
4. Monitor trends in the supply of and demand for radiation professionals.
5. Establish basic and advanced competency profiles to serve as guidance upon which to base the education, training, qualification and appropriate use of radiation professionals.