

## The Boice Report #44



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### Where Are the Radiation Professionals and Where Are You?

Remember the popular series of books titled *Where's Waldo?* Well, similar to radiation professionals, it seems that even allowing GPS location on his smartphone won't help much—if there's no one to answer the call! Where are the radiation professionals (WARP) and where are you? We're losing human capital and the losses are increasing. If you believe we have a national crisis, do you have ideas on how we can avert the impending disaster or mitigate its consequences? We at the National Council on Radiation Protection and Measurements (NCRP) tried with our workshop in 2013 with representatives from government, academia, industry, and societies, which resulted in a [synopsis](#) and now a fuller statement available on the NCRP [website](#). Perhaps you can help with the distribution as well as the enhancement of ideas for the future. We shouldn't be limited by conventional notions of what is practical or feasible. We need to be imaginative and visionary. NCRP advocates a sequence of activities in the areas of education, training, research, and personnel management to address this urgent national need. But more can be done:

- Restore significant federal and state funding for scholarships, fellowships, and faculty research to increase and sustain a credible workforce of radiation professionals.
- 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.
- Establish a Joint Program Support Office (JPSO) for radiation professionals in the federal civil service to manage utilization and career development of personnel more effectively.
- Monitor trends in the supply of and demand for radiation professionals.
- Establish basic and advanced competency profiles to serve as guidance upon which to base the education, training, qualification, and appropriate use of radiation professionals.

NCRP has created [Council Committee 2](#), Meeting the Needs of the Nation for Radiation Protection, where we will continually monitor and make suggestions on ways to address vanishing professionals. Further, this year's NCRP Annual Meeting (11–12 April 2016) is similarly titled—[Meeting the Needs of the Nation for Radiation Protection](#)—and you don't want to miss it! [Register](#) now.

**Keynote speakers.** The venue remains in beautiful downtown Bethesda and the lead-off speaker will be Dick Toohey making the 13<sup>th</sup> Warren K. Sinclair Keynote Address. His talk—aply “WARP”—



**Dick Toohey**



**John Poston**



**Randy Hyer**

will set the stage. The 40<sup>th</sup> Taylor Lecturer, the highest honor bestowed by NCRP, goes to [John Poston](#) of Texas A&M University. John is tied with [Edith Quimby](#) in number of participations on NCRP committees, annual meetings, and boards. His talk will be “Radiation Protection and Regulatory Science.” The annual Member's Dinner speaker will be [Randy Hyer](#), one of the world's most effective communicators. His topic will be on communicating radiation risks. Although the talk

is open only to Council members, we have asked Randy to prepare a manuscript for publication in the *Health Physics Journal* so this important topic will be widely distributed.

Now, how to summarize the program succinctly and yet convince you to register at the same time (if the above wasn't sufficient)? A mosaic of three sessions will consider (1) how we got into the current predicament, (2) where we really need to be, and (3) how we get “back to the future.”

The opening session will begin with a consideration of the inexorable effects of population demographics on the future radiological workforce. The declining membership numbers of radiation-re-

lated professional societies will then be discussed, and the picture is not pretty. Next, a look at the current and future needs for radiation protection experts in medicine will be reviewed, and finally, the changing roles of health physicists, particularly in state radiation control programs, will be presented. The leadoff hitter will be [Hedvig Hricak](#), who recently chaired an Institute of Medicine Committee on the [Research on Health Effects of Low-Level Ionizing Radiation](#). Hedi will provide an overview of the radiation brain drain: “While necessity may be the mother of invention, preparation is the father of inspiration.” We better do something or we’ll sink like a stone (or have we sunk already?). Next up will be [Kathy Pryor](#) covering the membership trends (downward) in the Health Physics Society. [Wayne Newhauser](#) will review the radiation protection workforce in [medicine](#) with emphasis on medical physics, health physics, and radiation oncology. He will provide a factual but provocative view of the selected factors that influence the supply of radiation professionals, ranging from the cost of higher education to job opportunities and job satisfaction. The changing roles of health physicists will be covered by [Ruth McBurney](#). The emerging technologies, especially in healing arts applications, present ever-changing training needs for radiation control staff. There are new challenges, such as technically enhanced naturally occurring radioactive materials (TENORM), that emphasize the need for health physics resources and knowledge base (plan to attend the HPS midyear meeting in February 2016 and the NCRP workshop on [TENORM](#)).

The second session will be “Where Do We Need to Be?” Think things are rosy within the nuclear industry? [Jerry Hiatt](#) will present “Commercial Nuclear Power—Assessing and Meeting the Need.” The reality of challenges encountered in maintaining the needed number of health physicists in industry will be discussed, along with their pipeline survey results and the curriculum programs for developing the needs for the future. [Kathy Higley](#) will then line up with “[Educational Training—Does It Matter?](#)” Radiation protection professionals are an endangered species. Multiple actions must be taken, and soon. Will health physics be relegated to a subspecialty footnote within other academic programs, if it survives at all? Kathy will provide recommendations on how disaster might be averted. And she will be followed with a dose of science by the always provocative and informative [David Brenner](#) discussing “what can be done” to estimate cancer risks at very low radiation doses. The corollary question is whether we will have knowledgeable professionals to provide the needed estimates in the not-so-distant future. [Nolan Hertel](#) will then follow with “Developing a Radiation Protection Hub.” His vision forges a working and funded relationship between major research universities, national laboratories, technical colleges, and other partners. Nolan suggests that it is time for a Consortium for the Advancement of Radiation Protection (CARP). CARP rhymes with WARP! Coincidence? Cleanup hitter for the session will be [Mike Weber](#), who will weigh in with “Meeting Regulatory Needs.” The world is experiencing change at an unprecedented pace, as reflected in societal, cultural, economic, political, and technological advances around the globe. Regulatory agencies must also keep pace. The [U.S. Nuclear Regulatory Commission Project Aim 2020](#) is an attempt to transform the agency, enhancing efficiency, agility, and responsiveness. Such a program will assure that our future regulators will know the difference between a becquerel and a mackerel!

The final session will be challenging: how do we get to where we want to be? [Shaheen Dewji](#) will represent the next generation and future. She’ll present “[Critical Issues in Knowledge Management and Domestic Radiation Protection Research Capabilities](#).” A vision is for the Oak Ridge National Laboratory Center for Radiation Protection Knowledge to become a hub of domestic capabilities providing a way for knowledge transfer from outgoing subject-matter experts in the field of radiation protection to younger radiation professionals who will be the ones meeting future needs for the nation. [Matt Moeller](#) will then present “The Business of Health Physics: Jobs in a Changing Market.” Health physics is changing. The early legends have long since passed. The first generation of young health physics professionals is now almost gone as well. How are health physicists evolving and are we changing effectively to meet the nation’s needs? [Steve Musolino](#) covers first responders after a nuclear detonation has occurred, including the role of the [radiological operations support specialist](#). The final presentation will be by [Don Frush](#)—“Meeting Medical Needs.” Not all is rosy in the medical arts, more expertise is needed, numbers in key programs are dropping, interdisciplinary programs for radiation protection of patients are needed, there are potential shortages in personnel, and there are training concerns as well as inconsistencies in competency certification throughout medical providers’ careers.

Remember the days when people were smart and phones were dumb? When the call comes, will there be anyone home to answer the phone (smart or otherwise)? Public health, radiation safety, emergency preparedness, and the environment are all at risk. This is a clarion call to act now!