

January 9, 2018

The Honorable Lamar Smith
Chair, Committee on Science, Space and Technology
United States House of Representatives
Washington, DC 20510

RE: Letter of Support for the H.R. 4675, the Low-Dose Radiation Research Act of 2017

Dear Chairman Smith:

On behalf of the American Association of Physicists in Medicine (AAPM), representing over 8700 scientists whose clinical practice is dedicated to ensuring accuracy, safety and quality in the use of radiation in medical procedures such as imaging and radiation therapy, I am pleased to submit to you this letter expressing our strong support of H.R. 4675, the Low-Dose Radiation Research Act of 2017, that would authorize a low-dose radiation research program within the Department of Energy (DOE) Office of Science.

Medical physicists are uniquely positioned across medical specialties because of their role in connecting the physician to the patient through the use of radiation-producing technology in both diagnosing and treating people. Medical physicists are responsible for ensuring that the radiation prescribed in imaging and in radiation therapy is delivered accurately and safely. To meet this important responsibility, greater knowledge is needed regarding the effects of low dose radiation; it is difficult to optimize benefit to risk when the information about potential risks is lacking.

AAPM works to identify and implement improvements in patient safety for medical use of radiation in imaging and radiation therapy. The bill will advance these important goals. The legislation would direct the Office of Science to carry out a research program on low-dose radiation to enhance the scientific understanding of and reduce uncertainties associated with the effects of exposure to low-dose radiation. The bill also would direct the DOE to coordinate with other agencies, including the National Academies, to conduct a study assessing the current status and development of a long-term strategy for low-dose radiation research. It

would also require the DOE to submit to Congress a four-year research plan that identifies and prioritizes research needs.

On November 1, 2017, the House Committee on Science, Space & Technology (SST) Subcommittee on Energy held a hearing about the future of research on low-dose radiation. The Subcommittee explored what could be gained by restarting research programs on low-dose radiation in DOE. Testimony supported the view that medical use of radiation has allowed some of the greatest advances in modern medicine, including the virtual elimination of exploratory surgery, the ability to diagnose disease earlier and monitor treatment for optimal patient care. Witnesses stressed the importance of continuing research in this area, advocating for more research on dosimetry and the potential long-term effects of low-dose radiation exposure.

AAPM believes this bill would provide a much needed boost in research on the long-term effects of low-dose radiation. Domestic efforts to study low-dose radiation have slowed. International organizations such as the European Union's High Level and Expert Group (HLEG) have been more active in researching this topic, as evidenced by HLEG's 2009 [report](#) on low-dose radiation in a "European context." Though this report is widely respected by the international community, AAPM believes the Low-Dose Radiation Basic Research Act of 2017 will be a catalyst for an American research context.

Medical physicists are relied upon to determine what radiation dosage is appropriate for each individual patient as well as to help tailor a treatment plan for each patient's unique needs. Though we are confident with current standards and practices for low-dose radiation dosage, much is unknown about the long-term effects of low-dose radiation. As scientists, we welcome the discoveries and innovations that come with newer and better research. Understanding the long-term effects of low-dose radiation will help medical physicists make the most accurate determinations possible.

Without additional knowledge, the medical community may be erring on the side of "overprotecting," which can lead to unnecessary increases in health care costs. For example, ordering a more expensive and time consuming MRI exam instead of a CT exam, simply because the CT exam uses ionizing radiation, increases both costs and delays in patient care. Data that might alleviate concerns about the low doses of radiation used in CT imaging would therefore contribute to improved and more cost-efficient medical care in a very practical way.

AAPM notes that the most common source of low-dose exposure is x-rays used for medical imaging. Accordingly, AAPM believes DOE's research in this area should focus on x-rays used in x-ray imaging, taking into account factors like age and cell resiliency.

Accordingly, AAPM is pleased that the House of Representatives is considering advancing this important area of research, and we urge members to pass this bill.

Sincerely,

A handwritten signature in black ink that reads "Bruce Thomadsen". The signature is written in a cursive, flowing style.

Bruce R. Thomadsen, Ph.D., FAAPM
President, AAPM