

# AJR opinion piece considers managing the radiation dose while communicating the risk

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Despite evidence that low doses of ionizing radiation associated with imaging are not dangerous, the medical community is frequently faced with the challenge of communicating the risk and managing the dose.

In an opinion piece titled, "The Role of the Medical Physicist in Managing Radiation Dose and Communicating Risk in CT," Dr. Cynthia H. McCollough, Professor of Medical Physics and Biomedical Engineering and Director of CT Clinical Innovation Center, Department of Radiology, Mayo Clinic, Rochester, Minn., discusses the discrepancy between the public's perception of radiation risk and the actual risk from low doses of ionizing radiation. The article, published in the June 2016 issue of the *American Journal of Roentgenology*, reviews resources from the medical physics community that exist to manage dose levels in CT. It also suggests approaches for presenting radiation risk and benefit information that support the ALARA (as low as reasonably achievable) principle and acknowledge the overall low or nonexistent risk of CT.

"When asked by a patient or a patient's family about the risk of radiation, it is incumbent on each of us to remember the tenet of justification first and foremost," McCollough said. "If the examination is needed, the benefit will outweigh any small or potentially nonexistent risk. The next responsibility is to image the patient with care by adjusting the delivered dose to the patient size and to the diagnostic task."

"There have been too many polarizing articles on the topic of radiation

dose in CT. These articles serve only to perpetuate the discussion, leaving patients and their families with the impression that this issue is a deeply concerning one," McCollough said.

The correct approach to the discussion of [radiation dose](#) and communicating the risk is one that includes the five elements that neither brush aside the potential for risk nor propagate the alarmist message that CT is dangerous. These elements, contained in the American Association of Physicists in Medicine's Position Statement on Radiation Risks from Medical Imaging Procedures<sup>1</sup>, are:

1. Support the radiation safety tenet of justification (i.e., medical imaging procedures should be appropriate)
2. Commit to patient safety in medical imaging by acknowledging the need to keep doses as low as reasonably achievable while also maintaining the diagnostic benefit of the examination or procedure
3. Acknowledge that the risks of [medical imaging](#) are small and may, in fact, be nonexistent
4. Emphasize that the discussion of risk needs to be accompanied by discussion of medical benefit
5. Express concern about the reporting of predicted cancers as though they are fact and, in particular, to express concern that some patients are not receiving appropriate medical care because of their fears of [radiation](#) exaggerated by speculative reports.

**More information:** "The Role of the Medical Physicist in Managing Radiation Dose and Communicating Risk in CT," is available on the AJR website at [www.ajronline.org](http://www.ajronline.org) .

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