State of California—Health and Human Services Agency
Department of Public Health

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Director

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Dear Public Health Advocate:

During the past several years, the medical and medical physics communities have raised concerns about the widespread use of multi-slice computed tomography (CT) and the resulting increases in radiation exposure to patients. These concerns have most recently led to the "*Image Gently* Campaign: Working Together to Change Practice" sponsored by the Alliance for Radiation Safety in Pediatric Imaging (www.imagegently.org) *. While CT imaging is acknowledged as an essential tool for diagnosis, the overall radiation dose to the population, especially children, has grown dramatically with the introduction of multi-slice scanners.

The purpose of this letter is fourfold: to raise awareness of the radiation burden to patients; to encourage the use of appropriateness criteria in choosing the imaging modality to be performed; to urge conscientious quality control and the lowest radiation dose commensurate with good imaging; and, finally, to encourage facilities to seek American College of Radiology accreditation for their CT programs.

At a recent meeting of the National Council on Radiation Protection and Measurements (NCRP), one of the main topics of discussion was the use of CT. During the past two decades, medical exposures to ionizing radiation have increased in number and in dose, significantly raising the radiation burden to the population exposed. According to the NCRP, the largest increase comes from the use of CT scanning which is increasing 10-15% each year. There were approximately 3 million scans performed in the United States in 1980. By 2005, the annual number of scans had grown 20 fold, to 60 million. This type of growth has both potential benefits and risks. Specifically, the potential for making a diagnosis must be weighed carefully against the risk of carcinogenesis in the future.

When CT was first introduced, the examination was usually requested in the form of a consultation with the radiologist. Today, the ordering practitioner has carte blanche access to all types of medical imaging procedures. This lack of a consultation eliminated the step whereby the radiologist acted as gatekeeper, thus preventing an honest discussion of the benefits versus the risks that are imposed by a specific imaging procedure or the availability of alternative imaging options. To provide guidance in ordering studies, the American College of Radiology (ACR) established appropriateness criteria describing when a specific type of imaging procedure should be performed. We encourage every physician to review the ACR Appropriateness Criteria^{R} and whenever possible, to hold a consultation with the radiologist and discuss alternative imaging procedures.

Facilities have a number of options available when choosing and setting up their CT equipment that impact the dose given to the patient. In January of this year, the American Association of Physicists in Medicine (www.aapm.org) published Report No. 96, "The Measurement, Reporting and Management of Radiation Dose in CT." In addition to an overview of the technology and dose determination, this report provides methods for dose reduction. Of special interest are the technique charts based on age or size of the patient and a review of automatic exposure control systems. Facilities should use this document, along with other reports, such as Image Gently's "Pediatric CT Guidance and Worksheet on How to Develop CT Protocols for Children," to maximize image quality using the lowest feasible doses.

We also encourage all facilities to consider accreditation under the ACR Computed Tomography accreditation program. Information concerning the ACR Appropriateness Criteria as well as the accreditation program can be found at www.acr.org. The accreditation process assures that facilities periodically focus on the specific technology and "keep up" with the community standard.

Thank you in advance for your cooperation and attention to this important public health concern.

* The founding organizations of the Alliance for Radiation Safety in Pediatric Imaging include the Society for Pediatric Radiology, the American College of Radiology, the American Society of Radiologic Technologists and the American Association of Physicists in Medicine. For a complete list of affiliated organizations and more information on the initiative, please go to www.imagently.org.