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## UAE takes public health approach to radiation protection

By Inga Stevens, AuntMinnie.com contributing writer

January 27, 2016 -- DUBAI - While the health benefits from the medical use of ionizing radiation are well-recognized across the globe, senior radiographers in the United Arab Emirates (UAE) are calling for a public health approach to controlling and minimizing the health risks of radiation, while maximizing its benefits.

With the total number of medical imaging exams performed by government hospitals in Dubai alone increasing 11.3% to 400,775 in 2015, compared with 360,207 in 2014, there is added pressure on authorities across the country to implement stringent radiation safety standards in medical imaging.



"We cannot ignore the growing evidence that many medical procedures involving radiation are being performed with insufficient justification and optimization, which means that a substantial proportion of the effective dose per capita from medical exposures is quite unnecessary," said Jamila Salem Al Suwaidi, PhD, chair of the radiation protection committee at the Dubai Health Authority. "This represents a significant risk for the UAE population, and we recognize that appropriate measures must be taken to halt this trend."

Al Suwaidi spoke on January 27 at the Total Radiology Conference at Arab Health 2016.

### Unified call for action

*Jamila Salem Al Suwaidi, PhD, chair of the radiation protection committee at the Dubai Health Authority.*

The UAE continues to take important steps to implement and align its national radiation protection program with the World Health Organization's (WHO) global initiative on radiation safety in healthcare settings and the International Atomic Energy Agency (IAEA) basic safety standards (BSS) to mobilize the health sector in the safe use of radiation in medicine.

IAEA and WHO issued a joint position statement called the Bonn Call for Action in 2012 at the International Conference on Radiation Protection in Medicine. The statement highlights 10 main actions identified as being essential for strengthening radiation protection in medicine over the next decade, stating that "employing radiation in medicine has to involve a careful

balance between the benefits of enhancing human health and welfare, and the risks related to the radiation exposure of people."

In the UAE, the Federal Authority for Nuclear Regulation (FANR) has established regulations (UAE Federal Law No. 6 2009) that are consistent with IAEA standards to protect residents working with radiation-based technologies.

"The main responsibility of FANR is to protect the public, workers, and the environment by fulfilling the licensing and inspection activities and establishing regulations, as well as capacity-building strategies and appropriate oversight of the obligations under international treaties," noted Mustafa Majali, PhD, senior radiation safety specialist and chief inspector at FANR, who also addressed the delegates at the Total Radiology Conference.

A recent international review in March 2015 by IAEA found that a system to regulate radiation in the workplace is indeed being effectively implemented by FANR in the UAE. The team also identified areas where the system could be strengthened, such as the need to coordinate and harmonize dosimetry services around the country.

### Principals of radiation protection

The International Commission on Radiological Protection (ICRP) has developed two principles of radiation protection:

1. The imaging procedure should be appropriately justified, in that all examinations using ionizing radiation should be performed only when necessary to answer a medical question, to help treat a disease, or to guide a procedure.
2. Dose optimization should be used to ensure that medical imaging examinations use techniques that are adjusted to administer the lowest radiation dose that yields an image quality adequate for diagnosis or intervention.

"Worldwide references indicate that up to 44% of CT exams in the U.S. are not justified, and pediatric radiologists suggest that one-third of CT examinations could be replaced by alternative approaches or not be performed at all," Al Suwaidi told the audience at Arab Health 2016.

Managing patient radiation dose involves both equipment design, which determines the amount of radiation required per image, and control of the image device by the operator, who determines the total number of images created during the procedure.

### Moving in the right direction

Any remaining challenges in the management of radiation dose in a clinical setting in the UAE are to be addressed through further participation with IAEA and WHO projects related to diagnostic reference levels (DRLs) and referral guidelines for diagnostic imaging (RGDI).

"Health authorities in the UAE must continue with radiation dose collection and dose tracking to enhance the protection of patients and healthcare workers; our most recent data suggest a



*Mustafa Majali, PhD,  
senior radiation safety  
specialist and chief  
inspector at FANR.*

17% to 52% reduction in pediatric and adult dose optimization as a result of our efforts to develop quality assurance procedures to implement IAEA's basic safety standards," Al Suwaidi said.

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Last Updated np 1/27/2016 5:16:42 PM

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