

# International cooperation for healthcare: The example of radiation medicine in the UAE

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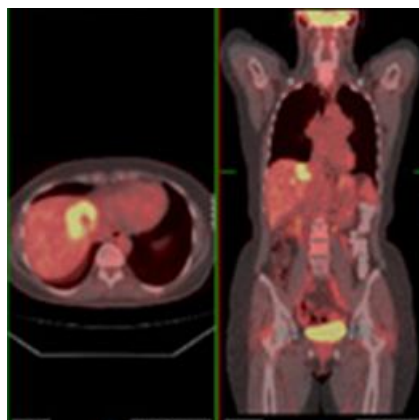
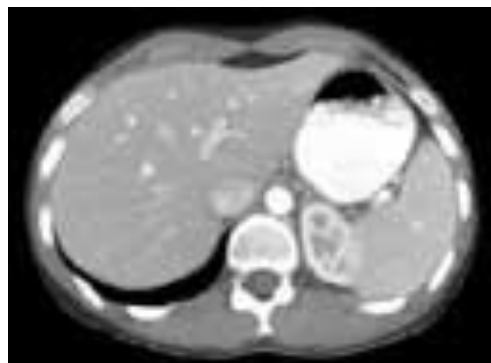
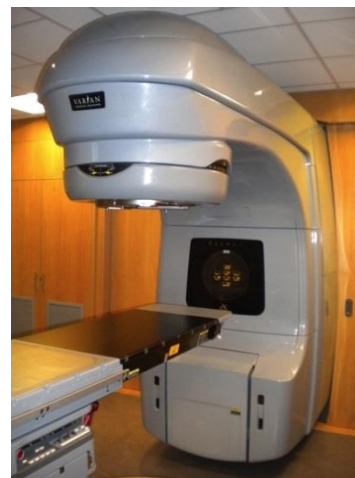
2016 IAEA Scientific Forum

**Nuclear Technology for  
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# Radiation in Medicine

- Radiation in Medicine (RM) serves Diagnostic (Medical Imaging), Therapy (Radiotherapy) and is also used for palliative treatment.



# Radiation in Medicine



UAE Healthcare Organizations meet state-of-art Nuclear and Radiation Technology through the implementation of all ranges of radiation in medicine.

## UAE Scientific Contribution related to RM

**Publications / 2015**



"Training Course on Justification of Diagnostic Imaging and Use of Referral Guidelines"



The Course is accredited as **35 CME Credit Hours**  
(The DHA Accreditation Number **0910/14**)



### Review UAE Dental Radiology Dosimetry Results for National DRLs Establishment

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**Abstract**— Establishment of the Diagnostic Reference Levels (DRLs) is required and essential for all radiology procedures including Dental Radiology. The objective of this study is to investigate pediatric and adult doses in different Dental Radiology modalities. It is also part of technical projects structured by the International Atomic Energy Agency (IAEA) to evaluate and monitor patient radiation doses. In UAE dental centers, 85% of dental radiology units in operation are digital system. Total number of dental units involved in this survey is 122 Intra-Oral dental units and 16 Panoramic (OPG) dental units.

All of the dental radiology units evaluated in this survey are digital. For Intra-Oral units measurements, Multi-O-Meter electronic dosimeters are used. Quality control tests are applied for all dental units involved in this study. Multi-O-Meter (Dental Unfors) and CT Cylindrical Ionization Chamber are used for OPG measurements. Molar examination which is the longest exposure time used in dental procedures is selected. Patient Entrance Dose, HVT, Exposure time and kVp are

UAE consists of small dental clinics situated as part of large government or private hospitals, special government dental centers and a network of special satellite dental clinics (government and private). 85% of dental radiology units in operation are digital system (around 15% are still film system).

The objective of this study is to investigate pediatric and adult doses in different dental radiology modalities and it is also part of technical projects structured by the International Atomic Energy Agency (IAEA) to evaluate and monitor patients radiation doses. This review study considers two type of dental radiology examinations: Intra-oral dental and panoramic OPG dental. Total number of dental units involved in this survey is 122 Intra-Oral dental units and 16 Panoramic (OPG) dental units. The previous UAE dental radiology dosimetry study was including 85 Digital units and 16 Panoramic (OPG) machines.

# Radiation in Medicine

The UAE implements the RM sciences to improve healthcare services through:

- **National Quality Assurance programs at UAE Hospitals:** Radiology, Nuclear Medicine, Radiotherapy and Dental Radiology.
- **Continuous Medical Educational Programs** on Radiation Safety for all RM professionals to ensure Patient, Public and Staff safety.

• *Radiation Medicine plays essential role to achieve the SDG3 target to reduce deaths from non-communicable diseases by one third by 2030.*



# Radiation in Medicine



On global level, UAE participates in Radiation Safety and Educational & Research programs:

❖ **UAE – IAEA cooperation to achieve highest level of safety and quality in the use of radiation in medicine.**

❖ **UAE – WHO**

❖ **UAE - UNSCEAR**



# Radiation in Medicine

*(Continued) On global level, UAE participation in Radiation Safety programs:*

## 1- IAEA Activities (local) (2014-2016).

Total of Activities	Total No. of attendees	DHA	No. of (Government Sector)	No. Of (Private Sector)	No. Participants (OUT OF UAE)
16	912	173	532	120	87

## 2- DHA Radiation Protection Educational Program (RPEP):

### 2.1 Basics of Radiation Protection in Hospitals –(2012-2016)

Total of training courses	Total No. of attendees	DHA	Non DHA)
14	872	354	518

### 2.2 Radiation Protection for Dental Radiology Practices-(2014-2016)

Total of training courses	Total No. of attendees	DHA	Non DHA)
4	387	90	297

1259

# Radiation in Medicine

Radiation is controlled and reduced to ensure safety of patients, public and staff.

## Public awareness on Radiation Safety

[AJR Am J Roentgenol.](#) 2013 Oct;201(4):858-64. doi: 10.2214/AJR.12.10233.

### Continuous Monitoring of CT Dose Indexes at Dubai Hospital.

[Alsuwaidi JS](#), [Albalooshi LG](#), [Alawadhi HM](#), [Rahaniam A](#), [Elhallaq MA](#), [Ibrahim JS](#), [Rehani MM](#).

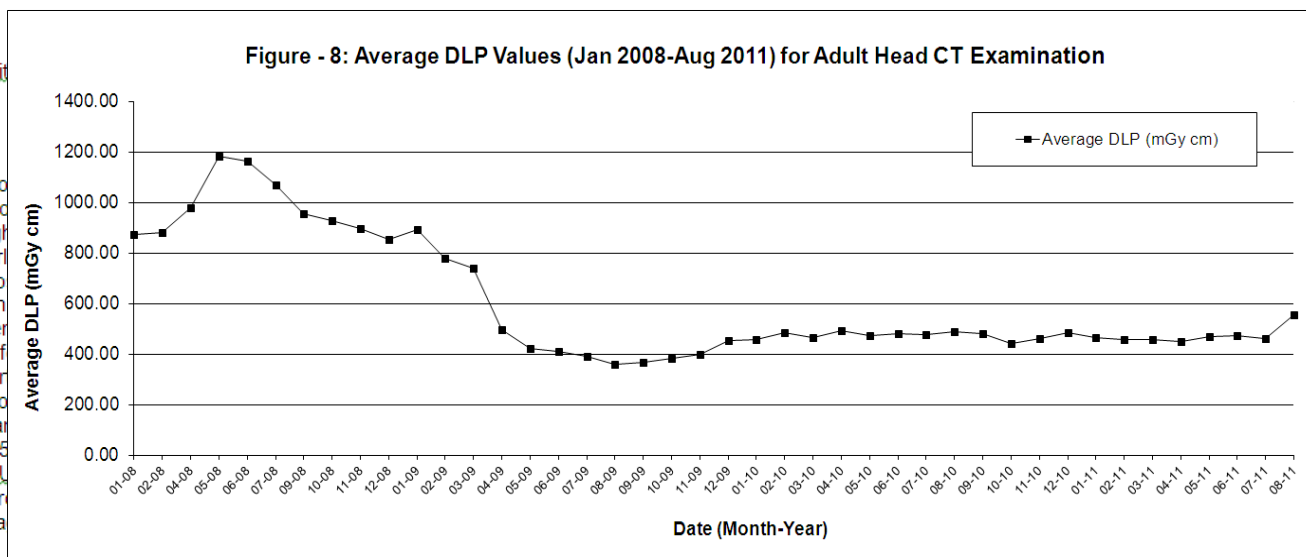
#### Source

[1. Department of Medical Education, Dubai Health Authority](#)

#### Abstract

**OBJECTIVE.** Experience of continuous monitoring and control over a period of approximately 4 years (January 2008 through January 2011). **AND METHODS.** Dose measurements in particular, weight product (DLP), and estimated effective dose were regularly performed on a monthly basis using a standard adult body (32 cm diameter) CT phantoms. Patient radiation data for common CT examinations: head, chest, and abdomen were recorded within the radiology information system taken while maintaining a watch on image quality. The effective change in average DLP on a monthly basis and third quartile levels were used for comparison. **RESULTS.** The reduction with 2008 was 52%, 16.4%, and 34.8% for head, chest, and abdomen examinations, respectively. For the pediatric group, the reduction was 45%, 16.4%, and 34.8% for head, chest, and abdomen examinations, respectively. **CONCLUSION.** Common examinations of adults and children is shown through this action. The results indicate the need to introduce local adapted ones.

Figure - 8: Average DLP Values (Jan 2008-Aug 2011) for Adult Head CT Examination



# Radiation in Medicine

## Recent Publication on Radiation Safety Awareness



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### UAE steps up campaign on dose awareness

By Frances Rylands-Monk, AuntMinnie.com contributing writer

September 13, 2016 -- Moves to limit medical radiation exposure are intensifying in the United Arab Emirates (UAE), and safety issues and education now are high on the agenda of healthcare professionals. Every effort must be made to reduce exposure and boost risk awareness, according to key participants at next month's summit in the region.

In addition, a yearly workshop has taken place since 2014 in collaboration with the International Atomic Energy Agency (IAEA). The first workshop in December 2014 covered patient radiation safety and dosimetry in interventional radiology and mammography, while the second in October 2015 covered referral guidelines and was aimed at referring physicians.

*Radiation safety courses should target nonradiology staff such as endoscopy, dental, and orthopedic surgery personnel, according to Wadha Al Shamsi (far right), shown here with colleagues at Al Ain Hospital.*





# Thank you!

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