



**Service Priorities and Programmes**  
**Electronic Presentations**

**Convention ID:** 797

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**Post title:** Other(Please specify):, CLSD, HO

**Radiation Doses from Computed Tomography (CT) Examinations in Hospital Authority (HA) – Survey Results for the Period 2015 – 2017**

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**Keywords:**

Radiation dose

Computed Tomography Dose Index

Dose Length Product

Diagnostic Reference Level

**Introduction**

While CT examinations that are justified and carefully performed provide a net benefit for patient management, the increasing number of scans and the relatively high radiation doses in CT contribute a substantial source of radiation exposure for populations. Clinical practice at each CT center is typically characterised by mean values of parameters such as Computed Tomography Dose Index CTDIvol and Dose Length Product (DLP) determined for samples of patients for each examination. It is common for each center to compare its CTDIvol and DLP for each examination with the 3rd quartile value of the national CT dose survey, and to make continuous quality improvement in optimising both imaging quality and radiation protection

**Objectives**

(1) To perform dose surveys on four common CT examinations in HA and compare them with the United Kingdom (UK) National Diagnostic Reference Levels (DRLs) , and (2) to establish DRLs for four common CT examinations in HA

**Methodology**

All Radiology Departments with CT scanner in HA were invited to join the CT dose surveys. Surveys were conducted on four common CT examinations including head, chest, kidney-ureters-bladder (KUB), abdomen & pelvis in the period of 2015 to 2017. One CT protocol was compared each time. Surveys on the same CT protocol were conducted twice with 6 months apart to monitor any improvement on dose reduction. The DRLs based on the 3rd quartile of the data collected for each examination in HA were calculated and compared with the results of the UK survey.

**Result**

In the head, chest and KUB CT examinations, dose reduction in the second surveys

was noted. For the abdomen & pelvis CT examination, the results of both surveys were very close. The survey results indicated that the DRLs for head, chest, KUB, abdomen & pelvis CT examinations are 65 mGy, 12.4 mGy, 15.6 mGy and 15.5 mGy respectively for CTDIvol, and 1030 mGy.cm, 799 mGy.cm, 548 mGy.cm and 683 mGy.cm respectively for DLP based on the 2nd surveys. Radiation dose reduction in the second surveys has suggested that dose surveys lead to dose reduction initiatives and enhancement of CT protocols. The DRLs for the four CT examinations in HA are comparable with those in the UK survey. Establishment of DRLs for common CT examinations in HA can be considered.