GOALS FOR MEDICAL RADIATION PROTECTION IN DIAGNOSTIC APPLICATIONS - ISR PERSPECTIVE

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- DEVELOPED COUNTRIES
- DEVELOPING COUNTRIES

EQUIPMENT

- STATE OF ART DOSE REDUCTION MANDATORY
- REGULATION
  - MANUFACTURERS
  - BUYERS
- (CONTINUOUS) EDUCATION IN USE

GUIDELINES/JUSTIFICATION

- RESPONSIBILITY SHOULD GUIDE REFERRAL

  BEHAVIORAL CHANGE IN REFERRARS
- SELF REFERRAL SHOULD BE MINIMISED

  RADIOLOGISTS PERCIEVED AS CONFLICTED
- LOBBY AT HIGHER LEVEL

DOSE REDUCTION

- NATIONAL PROGRAMS FOR TRAINING
- TRAINING IN RADIATION PROTECTION MANDATORY
- ACHIEVERS SHOULD BE REWARDED
- OFFENDERS SHOULD BE PUNISHED

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Australian Government
Australian Radiation Protection and Nuclear Safety Agency

Protecting **People** and the **Environment** from the Harmful Effects of **Radiation**

THE NATIONAL DIAGNOSTIC REFERENCE LEVEL DATABASE

The purpose of the Australian National Diagnostic Reference Level Survey is to gather individual practice data that will be used to establish National Diagnostic Reference Levels for common diagnostic imaging procedures.

The objective of developing DRLs is to establish a measure of indicative doses for current diagnostic imaging procedures in Australia, allowing individual practices to compare their doses against those of their peers.

All practices in Australia that carry out X-ray or radioisotope diagnostic imaging procedures are invited to participate.

Participating practices can obtain reports detailing how their individual Practice Reference Level for each protocol tested compares with the National Diagnostic Reference Level.

The collection of survey data is entirely online and practice reports will be made available only to the designated practice contacts.

To participate in the survey you must first register your practice online via the website. Once registered you may then access the data entry sections. If required, data input forms can be printed from the web.

The initial survey module is for MDCT. Future module development will encompass other medical radiation imaging modalities such as interventional/fluoroscopic, nuclear medicine, mammography and general radiography.

NDRL Website : www.arpansa.gov.au/services/ndrl/index.cfm

NDRLD KEY POINTS

ENTIRELY WEB BASED

Participation in the survey is entirely electronic, allowing your response to be more easily managed.

DETAILED PRACTICE REPORTS

ARPANSA will provide each practice with a comprehensive dosimetry report detailing their specific protocol doses compared with the national or, initially, international DRLs.

DATA CONFIDENTIALITY

Practice reports are only available to the designated contact person and radiologist via a secure login. All data will be held in the strictest confidence.

REGULATORY COMPLIANCE

Practice reports can be used as evidence of complying with the ARPANSA Code of Practice — Radiation Protection in the Medical Applications of Ionizing Radiation, RPS 14, section 3.1.8

SUPPORT FROM STAKEHOLDERS

- Department of Health and Ageing
- The Royal Australian & New Zealand College of Radiologists
- Australasian College of Physical Scientists and Engineers in Medicine
- Australian and New Zealand Society of Nuclear Medicine
- Australian Institute of Radiography
- State and Territory Regulators

Contact information

ARPANSA

Mailing Address:
Diagnostic Imaging & Nuclear Medicine Section
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Yallambie VIC 3085, Australia

NDRL Helpline: 1800 033 972(Freecall)

Web Page: www.arpansa.gov.au/services/ndrl/index.cfm

Email : ndrld@arpansa.gov.au

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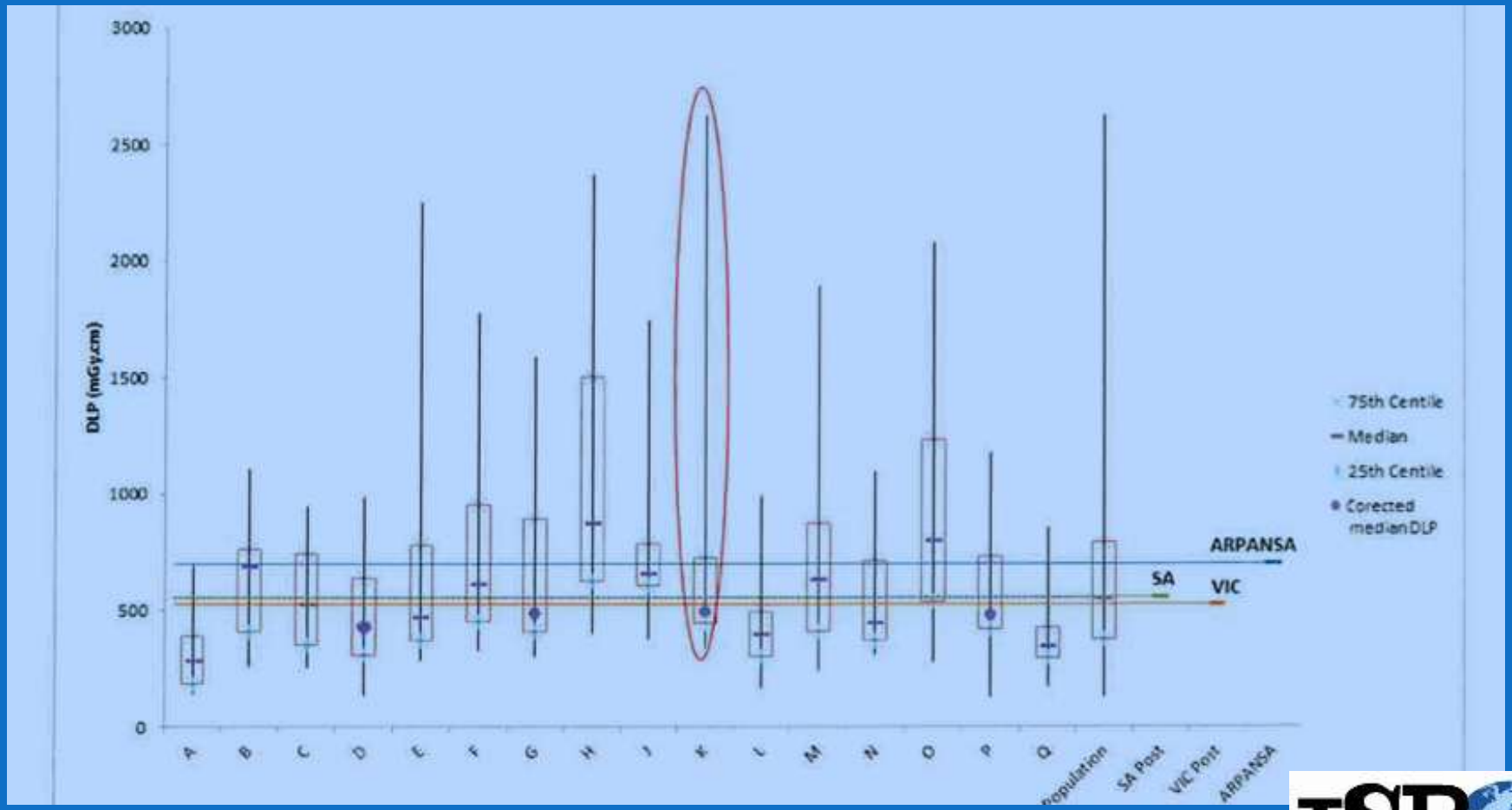
DLP - ABDOMEN

Metric	*Result*	*Comment*
Median DLP	561mGy.cm	
Median $CTDI_{vol}$	12mGy	
Median lateral girth	36.3cm	
Corrected DLP	499mGy.cm	Patients larger than average, DLP corrected to typical median of 34.4cm
ARPANSA DRL	700mGy.cm	
Average SA & VIC post optimisation DRL	542mGy.cm	This figure is the midway point of the SA CT dose optimisation project median DRL and the Victorian CT dose optimisation project median DRL
Median dose probably too high?	N	
Appropriate adjustment of AEC setting for size?	Y	Not required for Siemens systems
Evidence of adjustment of kVp for size?	N	Small to medium patients may be scanned at 100kV
Appropriate adjustment of AEC setting for kVp	N	QRef for 100kV should be approximately 35% greater than at 120kV.

DLP - ABDOMEN



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DEVELOPING COUNTRIES

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AFRICA

- 950 MILLION
- 650 MILLION

LITTLE/NO ACCESS TO IMAGING

EAST AFRICA

- 100 MILLION PEOPLE
- 200 RADIOLOGISTS

  MOST IN URBAN AREAS

RPOP – RURAL AFRICA

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RPOP – RURAL AFRICA

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BEST FORM OF PROTECTION IS NO RADIATION

BEST FORM OF PROTECTION IS NO RADIATION

–

HARDLY COMPATIBLE WITH PROPER MEDICINE

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EQUIPMENT

- VAST MARKET FOR APPROPRIATE EQUIPMENT
- DATABASE OF NEEDS

  COORDINATION OF DONATIONS
- EQUIPMENT MATCHED TO NEEDS
- BASIC IMAGING

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TRAINING

- ADJUSTED TO NEEDS
  - ULTRASOUND
  - BASIC RADIOLOGY
- NEED NOT BE RADIOLOGISTS
  - ASSISTANT RADIOLOGISTS – TANZANIA
  - MEDICAL PRACTITIONERS
  - RADIOGRAPHERS
  - NURSES

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TRAINING

- COORDINATED BY PROFESSIONAL BODIES
  - ISR
  - WFUMB
  - ISRRT
- DISSIMINATED WITH THE HELP OF
  - IAEA
  - WHO

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DEVELOPING COUNTRIES

TRAINING IN RADIATION PROTECTION MUST GO HAND IN HAND WITH IMPROVEMENT IN ACCESS TO PROPER/BASIC MEDICAL IMAGING

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INTERNATIONAL SOCIETY OF RADIOLOGY

- ICRE - BASIC RADIOLOGICAL CURRICULUM
- ICRC - INTERNATIONAL COMMISSION for RADIOLOGICAL CREDENTIALLING
- IRQN

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DEVELOPED COUNTRIES

ESTABLISH A UNIVERSAL CULTURE OF RADIATION PROTECTION

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DEVELOPING COUNTRIES

IMPROVE ACCESS TO APPROPRIATE IMAGING WITHIN A FRAMEWORK OF PROPER RADIATION PROTECTION

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