



Australian Government

Australian Radiation Protection
and Nuclear Safety Agency



WELCOME TO THE

ARPANSA NDRLS Newsletter 2024

Along with your annual reminder to get all 2024 data in for the National Diagnostic Reference Level Service's (NDRLS) Multi-Detector Computed Tomography (MDCT) survey before the end of year close off, this edition also looks ahead to developments expected next year.

MDCT news

At the end of November, there were over **3730 survey submissions** to our MDCT survey, a record for this time of year. We've also had **86 new facilities register for the service**, the third highest number in a single year. Thank you to everyone who participates in our MDCT DRL survey, particularly the newcomers!

To find out more about DRLs and the NDRLS, visit [our website](#). We now have a **poster that includes the adult DRLs** and some instructions on entering data and managing your accounts.



2024/25 shutdown and data collection close off

ARPANSA will be closed from Wednesday 25 December to Friday 3 January (inclusive). During this time the NDRLS hotline and email service will be unattended, and we'll be unable to reset your passwords.

There will be a **brief service interruption** on the morning of **Thursday 9 January 2025** while we conduct the **2024 close off**. Open surveys with less than 10 patients will be locked and no DRL report will be generated. Surveys with 10 or more patients will be closed and a DRL report will be generated. The service will then re-open to receive data for 2025.

DRL update

Of all the surveys that have been submitted this year, only 10% have been above a DRL. The DRLs were intended to identify the top 25% of dose deliverers, and they did when they were introduced in 2018, but in the intervening years the doses reported to the NDRLS have decreased and so has the percentage of surveys exceeding a DRL.

This means that it is time to update the DRLs. Our last newsletter mentioned that updating the DRLs was a high priority for 2024 and that remains true.

We've convened a liaison panel and meetings on setting the new DRLs have begun.

This time around an update of paediatric DRLs is also on the table – keep an eye out for new DRLs coming next year.



It's not unusual...

While only 10% of individual surveys submitted this year were above a DRL, 40% of scanners have returned a survey above a DRL (on average, 7 surveys have been submitted per scanner). That's over 200 scanners!

When new DRLs are introduced, we would expect the proportion of scanners that exceed a DRL to be about 80% - **most survey participants will have to address a result above the DRL**. If you find yourself exceeding a DRL you should review your imaging procedures, identify reasons why you might be above the DRL and, if appropriate, conduct an optimisation process. It may be the case that the system is already optimised and further dose reduction would compromise image quality or diagnostic efficacy, in which case no changes should be made.

Some models of CT scanners tend to deliver relatively higher doses for certain imaging tasks. If your dose is above a DRL and you are struggling to explain why, contact us at ndrld@arpansa.gov.au and we can compare your doses with similar scanners.

Image-guided and interventional procedures (IGIP) news

In 2023, 141 surveys were completed from 90 rooms at 33 facilities. Thanks to all who continue to contribute data. Please spread the word to your colleagues. Third quartiles of the FRL distributions are shown in Table 1. We are planning to launch a review of the IGIP NDRLs in 2025. While we have received a healthy level of submissions for coronary procedures, more data is needed to set NDRLs for other procedures.

Table 1: Third quartiles of FRL distributions for IGIP in 2023

Procedure	Surveys	DAP (Gy.cm ²)	K _{a,r} (Gy)
Diagnostic coronary angiogram	44	22.9	0.30
Single lesion PCI	27	37.8	0.70
Line insertion	13	2.5	0.008
Barium swallow	13	13.9	0.048
Water-soluble swallow	9	12.4	0.045
Pelvic embolisation	5	220	0.70
Cerebral angiogram	5	79.8	0.47
EVAR	3	200	0.90

PCI = percutaneous coronary intervention

EVAR = endovascular aneurysm repair

DAP = dose area product

K_{a,r} = cumulative air kerma at the reference point

IGIP close-off for 2024 and mailout of 2025 templates

IGIP survey spreadsheets for 2024 will continue to be accepted and processed through to **Friday 31 January 2025**. New IGIP survey spreadsheets for 2025 will be sent to all existing IGIP survey registrants from **Monday 20 January 2025**. Don't forget to use the 'Unit Settings' box on the data entry page of the template, and then make sure you use those units when you enter your data.

Nuclear medicine news

The DRLs for nuclear medicine were updated in June of last year, so there's not a great deal to report for 2024. The most recent DRL update for nuclear medicine removed a large number of DRLs, particularly for general NM. Our DRL survey did collect dose information regarding these removed protocols and in 2025 we'll add information about these scans to our website.

A poster including the nuclear medicine and PET DRLs, along with guidance on how to conduct DRL comparisons, is available for download now on our [current NM DRL webpage](#). All the data used to derive the DRLs is available to view on this same page (in histogram format) so you can get a good feel for how your facility compares to the national dataset.

And finally, don't forget there's a template spreadsheet which can help you conduct your nuclear medicine DRL comparisons. Along with the DRLs, the [template spreadsheet](#) includes the 25th percentile and the median administered activities from the most recent NDRLS nuclear medicine survey to provide greater context on how your doses compare.

Please note we're not currently conducting a nuclear medicine survey. The template spreadsheet is for your own records to help demonstrate compliance with the regulations relating to DRL comparisons.

eDose

For several years now, members of ARPANSA's medical imaging team have been developing software to automatically classify electronic records pertaining to CT acquisitions. An article describing the software was published in July this year in [Medical Physics](#).

While initially developed to aid in automating population dose surveys, the tool has another potential application: finding and extracting data suitable for comparing against the DRLs. If you're interested in sharing some data with us please get in touch at ndrld@arpansa.gov.au. We'll find and submit your MDCT survey data for you*!

*Your mileage may vary.

ARPANSA's online courses

ARPANSA has some useful educational and training tools – if you haven't seen them, please check them out. They're free!

Radiation Protection of the Patient (RPOP)

RPOP's main audience is referring general practitioners, however clinicians and other broader audiences have also found it useful.

Radiation Protection of the Patient module

The **associated information sheet** is also quite useful in explaining the different imaging modalities and associated indicative doses with patients and the general public.

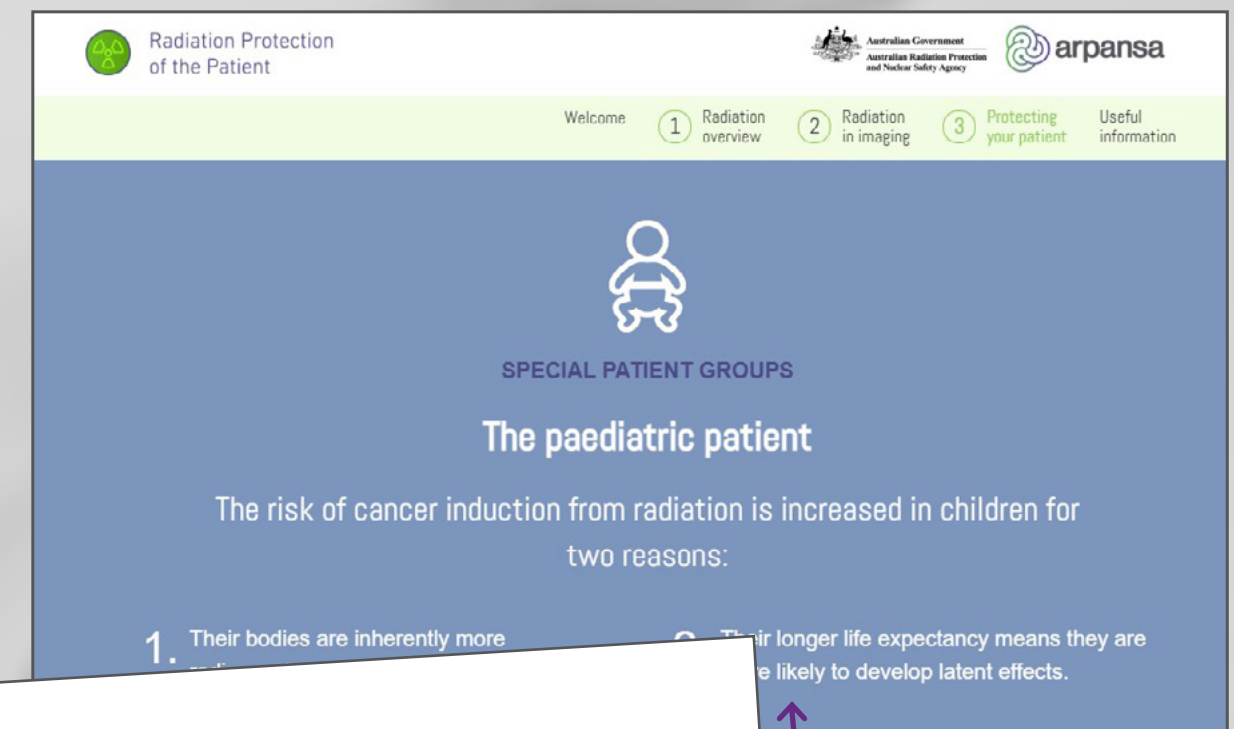
Occupational Radiation Exposure (ORE)

ORE provides medical facility staff at all levels from cleaners and admin through to clinicians, associated medical professionals and management with tailored basic radiation training suitable for their occupation and likely level of involvement.

The training is free, can be done online or downloaded for provision in-house to best suit specific or general cohorts.

Occupational Radiation Exposure for medical facilities

If you have any queries or suggestions, please contact Alan Mason at alan.mason@arpansa.gov.au or 0414 747 447.



Radiation Protection of the Patient module

Information sheet

Occupational Radiation Exposure for medical facilities

