



# Australian Diagnostic Reference Levels for Nuclear Medicine

The national Diagnostic Reference Levels (DRLs) for nuclear medicine, as of July 2023, are listed below. For additional information, statistical tables and a DRL comparison template, please visit ARPANSA's website ([www.arpansa.gov.au/ndrls](http://www.arpansa.gov.au/ndrls)).

## General Nuclear Medicine

Category	Scan	Pharmaceuticals*	DRL (MBq)	
Cardiovascular	Gated blood pool scan	Pertechnetate, RBCs	1000	
	MPI 1-day:	1st phase (rest)	Tetrofosmin, MIBI	350
		2nd phase (stress)	Tetrofosmin, MIBI	1150
	MPI 2-day:	1st phase	Tetrofosmin, MIBI	600
		2nd phase	Tetrofosmin, MIBI	600
Endocrine	Thyroid	Pertechnetate	200	
	Parathyroid:	without subtraction	MIBI	800
		with subtraction	MIBI	900
		thyroid subtraction	Pertechnetate	220
Gastrointestinal	Gastric emptying (solid phase)	Colloid, DTPA	40	
	Colonic transit	<sup>67</sup> Ga Citrate	20	
Genitourinary	MAG3 Renal scan	MAG3	300	
	DMSA Renal scan	DMSA	200	
	Renal Imaging DTPA (not GFR)	DTPA	500	
Hepatobiliary	Hepatobiliary	HIDA, DISIDA, Mebrofenin	200	
Infection	Infection	<sup>67</sup> Ga Citrate	220	
Lymphatic	Sentinel node (breast)†:	Same day surgery	Colloid	40
		Delayed	Colloid	80
	Sentinel node (melanoma)†	Colloid	52	
Nervous system	Brain	ECD, HMPAO	800	
Pulmonary	Lung perfusion	MAA	220	
Skeletal	Bone scan	MDP, HDP	900	

\* Unless otherwise specified, all pharmaceuticals are labelled with <sup>99m</sup>Tc.

† Quoted DRL is for the total dose delivered, not per injection. The most common approach reported was 4 x 10 MBq injections for same day surgery.

## CT component of SPECT/CT

Category	Region	CTDI <sub>vol</sub> (mGy)	DRL
			DLP (mGy.cm)
Cardiac	Chest (heart)	2.1	50
Lymphatic (breast ca.)	Chest	3.8	135
Neurological	Brain	-	255
Parathyroid	Neck/Chest	7.2	240
Pulmonary	Chest (lung)	4.6	150
Skeletal	Single width	4.8	200
	Double width	4.8	365

CTDI<sub>vol</sub> – volume computed tomography dose index

DLP – dose length product

## Positron Emission Tomography

Scan	Pharmaceutical	MBq/kg*	DRL
			MBq
Whole body†	<sup>18</sup> F FDG	3.5	270
Parkinsonian/ Alzheimer's	<sup>18</sup> F FDG	-	230
NETs	<sup>68</sup> Ga DOTA-TATE	2.2	200
Prostate cancer	<sup>68</sup> Ga PSMA	2.2	200
	<sup>18</sup> F DCFPyL	3.7	270

\* Variable DRLs only applicable for patients weighing between 50 and 120 kg.

† Includes oncology, infection, inflammation and vasculitis scans

## CT component of PET/CT

Region	Arm position	CTDI <sub>vol</sub> (mGy)	DRL
			DLP (mGy.cm)
Brain vertex to prox./mid thighs	Up	4.2	430
	Down	5.3	555
Brain vertex to toes	Up	3.9	675
	Down	4.6	825
Brain	Down	-	325

CTDI<sub>vol</sub> – volume computed tomography dose index

DLP – dose length product