



National Diagnostic Reference Levels (NDRLs) Qatar 2018

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The following tables list the National Diagnostic Reference Levels (NDRLs) for the State of Qatar. These NDRL values are selected from several national and regional RDLs and approved by Qatar Medical Physicists Society (QaMPS) in 2018. They should be considered by employers when setting their local DRLs as required by the Executive Regulations (Dec. 4 2003) of the Radiation Protection Law 31 (2002).

A handwritten signature in blue ink, appearing to be 'Huda AlNaemi', is written over a faint, light blue circular stamp or watermark.

Dr Huda AlNaemi
President of QaMPS

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1. Qatar DRLs 2018 for Computed Tomography

1.1 Qatar DRLs 2018 for Adult Computed Tomography⁽¹⁾

Scan region	CTDIvol (mGy)	DLP (mGy.cm)
Head	52	880
Cervical Spine	23	470
Chest	10	390
Abdomen-Pelvis	13	600
Chest-Abdomen-Pelvis	11	940
Lumbar spine	26	670
CT Angiography ⁽²⁾	15	1040

1.2 Qatar DRLs 2018 for Pediatric Computed Tomography⁽³⁾

Scan region	Age group	CTDIvol (mGy)	DLP (mGy.cm)
Head	Neonate (0 y)	24	300
	1 y	28	385
	5 y	40	505
	10 y	50	650
Chest	Neonate (0 y)	1.4	35
	1 y	1.8	50
	5 y	2.7	70
	10 y	3.7	115
	15 y	5.4	200
Abdomen	Neonate (0 y)	-	45
	1 y	3.5	120
	5 y	5.4	150
	10 y	7.3	210
	15 y	13	480

2. Qatar DRLs 2018 for General Radiography

2.1 Qatar DRLs 2018 for Adult General Radiography⁽⁴⁾

Examination	DAP (cGy.cm ²) or (μGy.m ²)
Skull AP/PA ⁽⁵⁾	60
Skull LAT ⁽⁵⁾	50
Cervical Spine AP	15
Cervical Spine LAT	15
Thoracic spine AP	100
Thoracic spine LAT	150
Chest PA/AP	15
Chest LAT ⁽⁵⁾	40
Abdomen	250
Lumbar spine AP	150
Lumbar spine LAT	250
Pelvis AP	220
Hip (AP/LAT) ⁽⁵⁾	110

2.2 Qatar DRLs 2018 for Pediatric General Radiography⁽³⁾

Examination	Age group	DAP (cGy.cm ²) or (μGy.m ²)
Skull AP	1 y	22
	5 y	30
	10 y	35
Skull LAT	1 y	20
	5 y	25
	Neonate (0 y)	1.5
Chest PA/AP	1 y	2.2
	5 y	5
	10 y	7
	15 y	9
Chest LAT ⁽⁵⁾	5 y	2.5
	10 y	5
Abdomen AP/PA	Neonate (0 y)	4.5
	1 y	15
	5 y	25
	10 y	48
Pelvis AP	15 y	70
	5 y	18
	10 y	31

3. Qatar DRLs 2018 for Mammography ⁽⁶⁾

Mean glandular dose: 2.4 mGy

4. Qatar DRLs 2018 for Fluoroscopically Guided Interventional Procedures ⁽⁶⁾

Fluoroscopic radiation dose rate: 20 mGy/min

5. Qatar DRLs 2018 for Nuclear Medicine ⁽⁷⁾

Category	Procedure Name	Nuclide	Chemical Form	Route of Admin.	DRL (MBq)
Cardiac	MPI - 1 day rest + stress	Tc-99m	Tetrofosmin , MIBI	IV	1520
Endocrine	Parathyroid	Tc-99m	Tetrofosmin , MIBI	IV	900
Endocrine	Thyroid	Tc-99m	Pertechnetate	IV	215
Gastrointestinal	Blood loss	Tc-99m	Red cells	IV	1000
	Gastric emptying	Tc-99m	Colloid, DTPA	Oral	44
Genitourinary	Renal scan	Tc-99m	MAG3	IV	305
	Renal scan	Tc-99m	DMSA	IV	200
	Renal transplant	Tc-99m	DTPA, MAG3	IV	400
Hepatobiliary	Hepatobiliary	Tc-99m	HIDA, DISIDA, DIDA	IV	210
Infection	Infection	Ga-67	Citrate	IV	220
Lymphatic	Lymphoscintigraphy	Tc-99m	Nanocolloid	Perilesional	52
Oncology	Thyroid - wb scan for Ca	I-131	Iodide	Oral	185
	Somatostatin receptors	In-111	Octreotide	IV	240
Pulmonary	Lung perfusion	Tc-99m	MAA	IV	240
Skeletal	Bone scan	Tc-99m	MDP, HDP	IV	920

6. Qatar DRLs 2018 for 18F-fluorodeoxyglucose Positron Emission Tomography (18F-FDG PET) ⁽⁷⁾

Category	Pharmaceutical	DRL (MBq)
Body (Weight Corrected)	18F-FDG	2.5 x Kg* + 125
Brain	18F-FDG	250

*Kg is the weight of patient in Kg

Appendix

Approximate equivalence of weight and age groups for the purpose of pediatric DRLs ⁽³⁾

Description	Weight group	Age group based on weight-for-age charts	Most common age groups used for NDRLs (or equivalent)
Neonate	< 5 kg	< 1m	0 y
Infant, toddler and early childhood	5 - < 15 kg	1m - < 4 y	1 y
Middle childhood	15 - < 30 kg	4 - < 10 y	5 y
Early adolescence	30 - < 50 kg	10 - < 14 y	10 y
Late adolescence	50 - < 80 kg	14 - < 18 y	15 y

References

1. Unless otherwise indicated, DRLs for Adult CT examinations from Australia (July 2018) as published by ARPANSA [online](#) [Accessed September 2018]
2. DRL for CTA from United Kingdom PHE-CRCE-013: Doses from computed tomography (CT) examinations in the UK (2011 Review) and published [online](#) [Accessed September 2018]
3. Radiation Protection Report No. 185, European Guidelines on Diagnostic Reference levels for Paediatric Imaging (2018)
4. Unless otherwise indicated, DRLs for adult general X-ray examinations from United Kingdom HPA-CRCE-034: Doses to patients from radiographic and fluoroscopic x-ray imaging procedures in the UK (2010 review) and published [online](#) [Accessed September 2018]
5. Federal Office for Radiation Protection in German, The updated diagnostic reference values for diagnostic and interventional X-ray applications, vom 22. June 2016
6. Japan Association on Radiological Protection in Medicine, Diagnostic Reference Levels Based on Latest Surveys in Japan, 2015
7. Australian Radiation Protection and Nuclear Safety Agency, Nuclear Medicine Diagnostic Reference Levels (DRLs), 2017