



U.S. Diagnostic Reference Levels and Achievable Doses for 10 Adult CT Examinations

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Using data from the American College of Radiology’s Dose Index Registry, the world’s largest registry of dose information, Kanal et al have established U.S. national dose levels for the 10 most common adult CT examinations based on patient size. The study establishes patient-size based diagnostic reference levels (DRLs) and achievable doses (ADs) for the 10 most common CT head, neck and body examinations. A summary table of ADs and DRLs for median size patients is presented below. Except for head and brain without contrast, all exams used water-equivalent diameter as an indicator of patient size. For head and brain without contrast, lateral thickness was used.

Examination	Median Patient Size (cm)	CTDI _{vol} (mGy)		SSDE (mGy)		DLP (mGy-cm)	
		DRL	AD	DRL	AD	DRL	AD
Head and brain without contrast	14-16	56	49			962	811
Neck with contrast	18-22	19	15			563	429
Cervical spine without contrast	18-22	28	20			562	421
Chest without contrast	29-33	12	9	15	11	443	334
Chest with contrast	29-33	13	10	15	11	469	353
Chest pulmonary arteries with contrast	29-33	14	11	17	13	445	357
Abdomen and pelvis without contrast	29-33	16	13	19	15	781	639
Abdomen and pelvis with contrast	29-33	15	12	18	15	755	608
Abdomen, pelvis and kidney without contrast	29-33	15	12	19	14	705	576
Chest, abdomen and pelvis with contrast material	29-33	15	12	18	14	947	779

Healthcare facilities can use this information to effectively compare their patient doses to national benchmarks, optimize their exam protocols so that dose is commensurate with the size of the patient, and help avoid unnecessary radiation exposure.

REFERENCES

1. Kanal KM, Butler PF, Sengupta D, et al. [U.S. Diagnostic Reference Levels and Achievable Doses for 10 Adult CT Examinations](#), Radiology 2017;284(1):120–133.