The Saudi National Diagnostic Reference Levels (NDRLs)

Version Number: 3.0
Version Date: 6/1/2025

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Table of Content

Introduction

Purpose

The purpose of this document is to establish the Saudi National Diagnostic Reference Levels (NDRLs) in medical imaging applications and to define the related requirements.

Scope

This document applies to healthcare providers who use the following devices:

- Computed Tomography (CT) devices.
- General Radiology devices.
- Mammography devices.
- Nuclear Medicine devices.

Background

The SFDA has issued this document in reference to the following:

- Royal Decree No. (60057) dated 9/11/1441 AH, approving Saudi Health Council Resolution No. (3/88), which stated that the health care provider shall comply with the national diagnostic reference level issued by the SFDA.
- Article (26) of the "Medical Devices Law" issued by the Royal Decree No. (M/54) dated 6/7/1442 H stipulated that "The SFDA shall monitor the compliance of healthcare providers with technical regulations within healthcare facilities in order to ensure the safety and efficacy of medical devices in diagnosis and treatment".
- Requirements for Safe Use of Medical Devices Inside Healthcare Facilities (MDS-REQ3).

Aming to protect patients from excessive and unjustified medical radiation doses while maintaining image quality and its diagnostic characteristics.

Requirements

1. Healthcare providers shall adopt the NDRLs related to medical imaging applications as specified in [Annex (1)](#).

2. Healthcare providers shall periodically send patient radiation dose data to the SFDA via email (NDRL@SFDA.GOV.SA), using the following forms:
   - [Data Collection Sheet for CT Scan](#).
   - [Data Collection Sheet for General Radiology](#).
   - [Data Collection Sheet for Mammography](#).
   - [Data Collection Sheet for Nuclear Medicine](#).

Annexes

Annex (1): The Saudi National Diagnostic Reference Levels

CT	A. Adult Patients (70 ± 15) Kg			
	Protocols		$CTDI_{vol}$ (mGy)	DLP (mGy-cm)
	Head	CT Brain w/ Contrast	55	1026
		CT Brain w/o Contrast		
	Abdomen and pelvis	CT AP w/ Contrast	14	706
		CT AP w/o Contrast		
	Chest	CT Chest w/ Contrast	12	430
		CT Chest w/o Contrast		
	B. Pediatric Patients (Head)			
	Age	Protocols	$CTDI_{vol}$ (mGy)	DLP (mGy-cm)
	(0-5 Y)	CT Brain w/ Contrast	28	482
	(6-15 Y)	CT Brain w/o Contrast	42	697
General X-Ray	Protocols Adult (70 ± 15) Kg		DAP(Gy.cm^2)	
	Abdomen AP		2.13	
	CHEST PA / CHEST AP		0.49	
Mammography	Protocols		MGD (mGy)	
	2D Com. Thickness (40-50) mm		1.44	
Nuclear Medicine	Protocols Adult (70 ± 15) Kg		Administered Activity (mCi)	
	Bone Imaging	Tc-99m - Phosphates & Phosphonates	25	
	Myocardial Perfusion	Tc-99m - Tetrofosmin (Rest + Stress)	40	
	Thyroid Imaging	Tc-99m - Pertechnetate	5	
	Renal Imagine	Tc-99m - DTPA	9	
	Tumor Imaging	(PET) - F-18 FDG	9.5	

Annex (3): List of Changes in the Previous Version

Number & Date of the Previous Version	Changes Description
2.0 27/10/2022	– Amendment on the "Purpose". – Amendment on the "Scope". – Amendment on the "Background". – Amendment on the "Requirements". – Amendment on the "Annex (2) – Delete Annexes (1) and (3)