



The new features of the DACS

RADIATION DOSE MONITOR (RDM)

AUTOMATIC DOSE REPORT

- · Automatic and customized report sent directly to the person concerned
- Two different reports (in compliance with the 2013/59/Euratom directive):



a. Statistical Report modalities and/or procedures

- · Percent of conformity per Dosimetry Type
- Dose range per Dosimetry Type
- · Alerts Distribution
- · Dosimetry Evolution per Dosimetry type
- · Dose comparison per patient BMI

b. Patient Report

- · Patients general demographics
- · Alerts patient level
- · Alerts study level
- · Statistics patient care (justification, reassignation, etc.)

ORGAN DOSE

NUCLEAR MEDECINE

- Calculation of the effective dose based on the ICRP-106 and ICRP-128, including management of pediatrics
- · Calculation based on the radiopharmaceutical
- Multiple injection support (e.g., Exercise testing: at rest and after effort)

SCANNER

Partnership with Virtual Phantoms for the integration of the organ dose module into the DACS RDM solution $\,$

- Monte Carlo algorithm calculation of mean doses delivered to organs by type of activity using existing dose data (DLP, CTDI, etc.)
- Estimation of the dose received by the fetus from the different stages of gestation of the pregnant woman
- Several parameters are considered: weight, height, age, pregnancy stages of the pregnant woman, etc.
- Calculation in accordance with ICRP-103 recommendations







EFFECTIVE DOSE

NUCLEAR MEDECINE

- Calculation of the effective dose based on the ICRP-106 and ICRP-128, including management of pediatrics
- Calculation based on the radiopharmaceutical
- Multiple injection support (e.g., Exercise testing: at rest and after effort)

SCANNER

- Calculation by acquisition of the effective dose
- Calculation based on the ICRP-103 and ICRP-60

SIMULATION TOOLS

- Organ dose and effective dose in scanner
- Organ dose, effective dose and Peak Skin Dose in interventional imaging



PIVOT TABLE

- Creation of dynamic pivot tables, based on the different categories of the RDM solution, which can be created in a few clicks:
 - Age
 - Procedures
 - Acquisition Protocols
 - Acquisition Types
 - Anatomical Regions
 - Institutions
 - Stations
 - Ftc
- · Ability to have synthetic tables, which facilitate the interpretation and relevance of the dose data
- Ability to analyze and perform quick statistics
- · Export dose data in 1 click in Excel format

				Prvot Grid (CT)					186	7100
Procedure O Study P	otocol									Procedure
Procedure - Acc	juisition Protocol A Acq	isition Type 🔺	Scanning Lenght (mm) - Au	DLP (mGy.cm) - Av	CTDIvol (mGy) - Av	SSDE (mGy) - Av	KVP (KV) - Av	Pitch Factor (ratio) - Av	-	Check All
	10.11 CATHAN 600	AXIAL	16.25	59.63	38.68		120.00	1.00		
		HEUC4L	12.50	98.03	33.70	25.61	120.00	0.53		ASDOMENAL IN: ANGIOSCANNER
		LOCALIZER	211.61				120.00			
	10.12 CIRS	AXIAL	10.22	2637	38.21		118.57	1.00		ABDOMINO-PELVIEN
	50.4 hu mhe	AXIAL	20.00	48.46	24.23		100.00	1.00		ANGIOSCANNER.
ABDOMBNAL INI	5.7 TAP Portal (MAR RS R6 + CHANGER PITCH)	HELICAL	609.38	631.87	9.69	11.02	120.00	1.38	Study Protocol	
		LOCALIZER	778.55				110.00			■ Check All
	6.1 Abd Pelv Portal (MAR 83 - CHANGER PITCH)	HELICAL	422.44	457.86	9.65	11.12	120.00	1.38		M 11 CRANE HELICE SANS IV (MAR.R4 R5) M 113 POLYGONE DE WILLIS (MAR.R3)
		LOCALIZER	612.72				110.00			
	6.2 Abd Pelv Sans + Portal (MAR R3 + CHANGER PITCH)	HELICAL	346.88	481.66	11.62	12.42	120.00	1.42		
		LOCALIZER	608.55				110.00			
ANGIOSCANIVER AEDOMINO-PELVEN	9.1 Aorte Membre Inf	HELICAL	1411.88	975.64	6.75		100.00	0.52		
		LOCALIZER	1398.55				90.00			Acquisition Protocol
		STATIONARY	5.00	18.93	37.86		100.00			II Check All
	9.2 Aorte Membre Inf Smart Prep Poplite	HELICAL	1330.00	493.79	3.56	5.87	100.00	1.53		# 11 Crane helice Sans IV (MAR R4 R5) # 1.13 Polyspone de WWils (MAR
		LOCALIZER	1398.55				90.00			
		STATIONARY	5.00	11.04	22.08		500.00			
ANGIOSEANNUR CAROTIDIEN INU	1.1 Crane helice Sans TV (MAR R4 R5)	HELICAL	173.88	490.50	25.73		120.00	0.53		# 113 Polygone de Wills (KA
		LOCALIZER	208.55				120.00			II 1 2 Crane halice Aver IV
	1.13 Polygone de Wills (MAR R3)	LOCALIZER	208.55				120.00			Agguisition Type
	1.2 Crane helice Avec IV (MAR R4 R5)	HELICAL	163.96	481.14	26.32		120.00	0.53		II Check All
		LOCALIZER	208.55				120.00			
	1.7 CAROTIDES Wells + TSA (Haut vers Bas) + Crane	HELICAL	269.93	408.45	16.82	10.60	120.00	1.18		■ AXSAL
		LOCALIZER	408.55				500.00			■ HECKAL
		STATIONARY		11.92	23.84		120.00			■ LOCALIZER
	3.9 Crane IV + TSA (Haut vers Eas.)	HELICAL	360.31	369.48	934	14.71	120.00	0.98	■ STATIONARY	■ STATIONARY
		LOCALIZER	428.55				300.00			

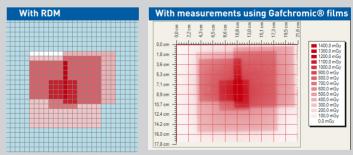
LATEST NEWS AT JFR 2017

- · Peak Skin Dose (PSD) study: publication of the first results
- · Four hospitals of the AP-HP group are currently conducting a study to validate the new feature of skin dose mapping. The RDM solution will hence be compared with experimental measurements using Gafchromic® films – first performed on anthropomorphic phantom, and then on patients in routine clinical conditions. The following experts have validated this study:
 - Jad FARAH, medical physicist, University Hospital of Le Kremlin-Bicêtre
 - Bouchra HABIB-GERYES, medical physicist, University Hospital of Necker Enfants-Malades
 - Lama HADID-BEURRIER, medical physicists, Hospital of Lariboisière
 - Marie-Joséphine WARYN, medical physicist, Hospital Jean-Verdier

First results of the Peak Skin Dose (PSD) study

On average, there is less than 10% difference between RDM's solution and the measurements using Gafchromic® films. These results will be presented by Bouchra HABIB-GERYES, medical physicist, University Hospital of Necker Enfants-Malades during JFR 2017.

CALCULATION OF THE PEAK SKIN DOSE (PSD)



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