

Making Cancer History®

# CT Intensive IV: Preparing for Inspections

### RICK LAYMAN, PHD ASSISTANT PROFESSOR DEPARTMENT OF IMAGING PHYSICS

American Association of Physicists in Medicine

60<sup>th</sup> Annual Meeting

August 1, 2018

# Outline

Defining the team and roles

Inspection types

- o State
- ACR
- Joint Commission

Lessons learned

Tips for successful inspections





Roles to define:

- Who will perform specific tasks?
- How will data integrity be assured?
- Program oversight for specific sections
- Updating specific tasks and applicable policies
- Coordinate meetings, take minutes and distribute (CT protocol management)

Roles to define:

- Who will perform specific tasks?
- How will data integrity be assured?
- Program oversight for specific sections
- Updating specific tasks and applicable policies
- Coordinate meetings, take minutes and distribute (CT protocol management)

Required roles:

• QMP must oversee equipment QC program (ACR)

THE UNIVERSITY OF TEXAS

### Supervising Radiologist (ACR)

- Broad oversight and ensure program is implemented and effective
- Quality of images at appropriate radiation dose

### **Qualified Medical Physicist (ACR)**

- Establish QC program and action limits
- Equipment performance testing

### **Quality Control Technologist (ACR)**

- Performing QC tasks
- Image quality and radiation dose is appropriate for each exam



Expand to include State rules and Joint Commission standards

Define leader for specific program sections

# **Common Inspection Elements**

Credentials

Equipment performance

Quality control

Policies and procedures

THE UNIVERSITY OF TEXAS

Expand to include State rules and Joint Commission standards

Define leader for specific program sections

- Responsible for maintenance and updating
- Preparing necessary elements at time of inspection

Expand to include State rules and Joint Commission standards

Define leader for specific program sections

- Responsible for maintenance and updating
- Preparing necessary elements at time of inspection

Determine format to present at time of inspection

• Paper or electronic

### Facility Type

- Hospital
- o Ambulatory center
- Free-standing imaging center

### **Facility Type**

- Hospital
- o Ambulatory center
- Free-standing imaging center

Does accreditation extend to other facilities in the Health System???

### **Facility Type**

- Hospital
- o Ambulatory center
- Free-standing imaging center

#### Announced vs. Unannounced

Does accreditation extend to other facilities in the Health System???

### **Facility Type**

- Hospital
- o Ambulatory center
- Free-standing imaging center

Announced vs. Unannounced

Does accreditation extend to other facilities in the Health System???

Format	Description	State	ACR	JC	IACCT
On-site	Records review	Х	Х	Х	
	Equipment evaluation	Variable			
	Interview (tracer method)	Х	Х	Х	
Remote	Record review				Х

THE UNIVERSITY OF TEXAS

### Resources

T He Se	EXAS Palth and Human rvices	Texas Depai Health Serv	rtment of State rices	Advanced	Inicio en español Text Size: 🕀 😑			
Home	About Us	News	l am a	I'm looking for	Resources	Online Services	Contact Us	
X-Ray Machines Registrations	at Services	Home > Radia	ation Control > X-R s of X-Ray Macl	Ray > Inspections of X-F nines	ay Machines			
Applications &	Forms							
Laws & Rules	0	What is nee	eded for an X-R	ay Inspection?				
Biennial Fees	0	At the time o	of the inspection,	the inspector will nee	d contact with the	Radiation Safety Of	ficer (RSO) or per	son with the
Regulatory Guid	des	highest level	l of management	present and available	e at the facility.			
Inspections & C	ompliance 🛛 🖸	• Our inspect	tor will need a st	aff member that norm	ally operates the $>$	k-ray unit(s) availab	le to operate the	x-ray unit(s)
Frequently Aske	ed Questions 👂	during an ins	spection. It takes	s approximately 10-20	) minutes to test e	ach x-ray unit		
Enforcement Ad	ctions	• Gather the	paperwork liste	d below. Review of pa	aperwork and safe	ty operations may t	ake approximately	60 minutes at
Open Records		most facilities the inspectio	s. Larger facilitie on.	s and hospitals will ta	ke longer, depend	ling on the number o	of x-ray units and	the complexity of
Contact this Pro	ogram	• Currer	nt Certificate of	Registration				
Search this Pro	gram	Persor     Dece t	nnel monitoring	<ul> <li>records of radiation</li> </ul>	badge reports - (N facilities)	V/A for dental facilitie	es)	
Customer Su Please let us are doing by customer serv	Irveys know how we completing our <u>vice survey</u> .	<ul> <li>Equipn</li> <li>Creder</li> <li>CT - S</li> <li>Fluoro</li> <li>Posted</li> <li>Operation</li> </ul>	ment Performance ntials - (N/A for of tatus of Radiation scopy - Status of <u>1 Notice to Emplo</u> ting and Safety	ce Evaluations – The Jental and veterinary n Protocol Committee of Radiation Protocol C <u>ovees</u> Procedures	last 3 previous EPE facilities) - (N/A for dental a committee - (N/A fo	E results for each x- nd veterinary faciliti r dental and veterir	ray unit es) aary facilities)	
Report Website	Issues	• A copy • Notice • Receip	of Applicable 2 of Violation - a ot of Purchase -	5 TAC §289 Regulati and your Response Le or FDA 2579 Report o	ons in accordance tters to each notic f Assembly	e with your Certific e	ate of Registratio	n
		Transfer or D	)isposal for all un	its if applicable				
		• Annua • Annua • X-ray	l Evaluation of P l Inventory of X <sup>.</sup> Image Processii	Protective Devices - ( -ray units ng – records of compli	N/A for dental facili ance QA/QC for dic	ities) jital acquisition syst	ems or film	

https://www.dshs.texas.gov/radiation/x-ray/inspections.aspx

### Resources

The Joint	int Commissi	L ON Fo	og In   Request Guest Acces	s Con Sea	Contact Us   Careers   JCR Web Store   F								
Accreditation	Certification	Standards	Measurement	Topics	About Us	Daily Update							
Home > Topic Details Topic Details Sign up f	for Topic Lil	orary Item		C Twitter	book Vimeo in	InkedIn 😳 Share Print							
Sign up here	Downloa The Imaging standards.	ad This File	klist for Diagno st is a helpful tool that addu e it to perform a self-assess	stic imagin resses the recently i sment and prepare fo	<b>g</b> mplemented diagnos or on-site surveys.	tic imaging							

https://www.jointcommission.org/compliance\_checklist\_for\_diagnostic\_imaging/

# Joint Commission CT Checklist Overview

Requirement	Summary Description
EC.02.02.01 EP 17	Staff dosimetry review
EC.02.04.01 EP 10 & EC.02.04.03 EP 15	Equipment quality control defined and performed
EC.02.04.03 EP 17	Annual radiation dose measured for common protocols by a <i>medical physicist</i>
EC.02.04.03 EP 19	Annual equipment performance evaluation
EC.02.04.03 EP 23	Annual acquisition monitor performance evaluation
EC.02.06.05 EP 4	Radiation shielding design and survey
EC.02.06.05 EP 6	Radiation protection survey performed prior to clinical use
HR.01.02.05 EP 20	Qualifications of medical physicist
HR.01.05.03 EP 14	Staff annual training
PC.01.02.15 EP 5	Radiation dose index documented for every exam
PC.01.02.15 EP 10	Correct patient, imaging site and positioning verified prior to exam
PC.01.03.01 EP 25 & PC.01.03.01 EP 26	Imaging protocols established and reviewed
PI.02.01.01 EP 6	Exceeded radiation dose indices are reviewed and analyzed

### Resources



#### ACR Accreditation Toolkit for Validation Site Surveys

https://www.acraccreditation.org/-/media/ACRAccreditation/Documents/Site-Survey-Toolkit/Tool-Kit-for-Practice-Sites.pdf?la=en



#### ACR Accreditation Toolkit for Validation Site Surveys

Facility Information Interpreting Physician Personnel Qualifications Medical Physicist/MR Scientist Personnel Qualifications Technologist Personnel Qualifications Annual Physics Survey/Performance Evaluation Technologist Quality Control Policies and Procedures Physician Peer Review Patient Report Evaluation Image Labeling Evaluation

	Facilit	y Inform	ation	
Facility Name:				
Facility Address:				
Practice Site ID #:				
Practice Site Supervising Physician:				
Practice Site Administrator name:				
Practice Site Administrator email:			· · · · · · · · · · · · · · · · · · ·	
	Modality	ID #	Modules Accredited In	Contact Person (*Update ACRedit)
	ст			
			Lung CA Screening $Y \square N \square$	
	MRI			
Accredited Modalities:	Breast MRI			
	NM			
	PET			
	UAP			

Facility and equipment information in agreement with other groups?

# Facility and equipment information in agreement with other groups?

#### **Owners of overlapping data involved with inspections**

**Radiation Safety** 

Service Engineers

Administration

#### Tracking of common data elements

Serial numbers

Descriptions

## Lesson Learned: Texas State Inspection

### **System Identification**

State of Texas

• Console serial number

### **MDACC** Physics

o Gantry serial number

### **Radiation Safety**

o Some serial number

### Service

• Service site ID

### Lesson Learned: Texas State Inspection

### **System Identification**

State of Texas

• Console serial number

### **MDACC** Physics

• Gantry serial number

### **Radiation Safety**

• Some serial number

#### Service

• Service site ID

# Common Database!!!

the university of texas **MDAnderson Cancer Center** 

# Credentials

Physician

# **Credentials**

Physician

### **Medical Physicist**

	State	ACR	JC
License	Varies		
Board Certification	Varies	Yes + alternate	Yes + alternate
Continuing Experience	Varies	2 units/24 months	10 units (alternate)
Continuing Education	Varies	MOC or 15 CME/24 months	

# **Medical Physicist Personnel Qualifications**

	Copy of	Copy of	мос		Continuing	Experience	CME				
Name	Board Certifica- tion	of alternate pathway if not boarded		Modalities	Requirements met	Documentation available	Requirements met	Documentation available			
				СТ							
				MRI							
				Breast MRI							
	<b>–</b>	<b>–</b>		NM							
				PET							
				UAP			Q				

HR.01.02.05 EP 20 Specified qualifications for medical physicist supporting CT services

# Credentials

Physician

Medical Physicist

	State	ACR	JC
License	Varies		
Board Certification	Varies	Yes + alternate	Yes + alternate
Continuing Experience	Varies	2 units/24 months	10 units (alternate)
Continuing Education	Varies	MOC or 15 CME/24 months	

### Technologist

 On-going education to include radiation dose optimization techniques (Image Gently) and safe operating procedures HR.01.05.03 EP 14

# Lesson Learned: ACR

#### **Credentials**

- Active license, if applicable
- CME/CEU
  - Maintained in common list
  - CMEs dropped off with rolling calendar date
  - Inspector allowed additional CMEs to be shown during inspection
- o BCLS/ACLS up-to-date

# Lesson Learned: ACR

#### **Credentials**

- Active license, if applicable
- CME/CEU
  - Maintained in common list
  - CMEs dropped off with rolling calendar date
  - Inspector allowed additional CMEs to be shown during inspection
- o BCLS/ACLS up-to-date

Office of Inspector General's exclusion list http://oig.hhs.gov/fraud/exclusions.asp

Protocol review team

Radiologist, Medical Physicist and Lead Technologist

Elements for review

- Current standards of practice (indication, technique, phases, coverage, contrast, etc)
- Account for CT imaging equipment considering dose reduction
- Radiation dose are appropriate

#### Radiation dose reference index

- Protocol reference radiation dose for average patient (ACR)
- Protocol radiation dose index range (JC PC.01.03.01 EP 25)

Review timeframe

- Every 2 years (ACR)
- Organization determines (JC PC.01.03.01 EP 26)

#### HD750 Reference Body

Protocol Ni	r Patient	Cat		Description	1		Reviewed	l Last modificat	on <mark>CABLC</mark>	<u>I CT14</u>	( <u>CT15</u>	<u>CT16</u>	<u>CT17</u>	<u>ct2</u>	<u>CT3</u>	<u>ct7 ct8</u>	<u>CT9</u>	<u>CTIC</u>	<u>i6 i7 i8</u>	WHCT1	WHCT2
6.2	adult	abdomen CT ABD WO	O & W IVCON 4	0 DFOV AND B	ELOW		3	list sheet PDF 07/05/2018 09:	0 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.3	adult	abdomen CT ABD WO	) & W IVCON 4	2-48 DFOV			3	list sheet PDF 07/05/2018 09:	0 NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.4	adult	abdomen CT ABD WO	O & W IVCON 5	0 DFOV			0	list sheet PDF 05/01/2018 12::	7 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.7	adult	abdomen CT ABD PE	LVIS WO & W I	VCON 40 DFOV	AND BELO	W	3	list sheet PDF 12/19/2017 08:	4 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.8	adult	abdomen CT ABD PE	LVIS WO & W I	VCON 42-48 DF	OV		3	list sheet PDF 05/01/2018 12::	8 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.9	adult	abdomen CT ABD PE	LVIS WO & W I	VCON 50 DFOV	t		0	list sheet PDF 07/13/2018 09:	5 NF	0	0	0	0	4 <u>L S</u>	0	0 0	0	0	0 0 0	0	0
6.12	adult	abdomen CT CHST A	BD WO & W IV	CON 40 DFOV A	AND BELOW		3	list sheet PDF 05/01/2018 12::	9 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.13	adult	abdomen CT CHST A	BD WO & W IV	CON 42-48 DFO	v		3	list sheet PDF 05/01/2018 13:	0 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.14	adult	abdomen CT CHST A	BD WO & W IV	CON 50 DFOV			0	list sheet PDF 05/01/2018 13:	0 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.16	adult	abdomen CT CHST A	BD PELVIS WO	& W IVCON 40	DFOV AND	BELOW	3	list sheet PDF 05/01/2018 13:	1 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.17	adult	abdomen CT CHST A	BD PELVIS WO	& W IVCON 42	48 DFOV		3	list sheet PDF 05/01/2018 13:	1 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.18	adult	abdomen CT CHST A	BD PELVIS WO	& W IVCON 50	DFOV		0	list sheet PDF 05/01/2018 13:	2 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.21	adult	abdomen CT CHST PH	ELVIS WO & W	IVCON 40 DFO	V AND BELC	W	3	list sheet PDF 06/12/2018 15:	8 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.22	adult	abdomen CT CHST PI	ELVIS WO & W	IVCON 42-48 D	FOV		3	list sheet PDF 06/12/2018 16:	0 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.23	adult	abdomen CT CHST PI	ELVIS WO & W	IVCON 50 DFO	V		0	list sheet PDF 06/12/2018 16:	8 NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.26	adult	abdomen CT PELVIS	WO & W IVCO	1 40 DFOV ANI	BELOW		3	list sheet PDF 12/20/2017 09:4	0 NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.27	adult	abdomen CT PELVIS	WO & W IVCO	1 42-48 DFOV			3	list sheet PDF 05/01/2018 13:	4 NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.28	adult	abdomen CT PELVIS	WO & W IVCO	V 50 DFOV			0	list sheet PDF 05/01/2018 13:	5 NF	0	0	0	0	0	0	0 0	0	0	000	0	0

HD750 Reference Bod	ly
---------------------	----

		-															
Protocol Ni	r Patient	Cat Description	Reviewed	d Last modification	<u>CABI CT</u>	<u>CT14</u>	<u>CT15</u>	<u>CT16 (</u>	<u>CT17</u>	<u>ct2</u>	<u>CT3</u>	<u>ct7</u> ct8	<u>CT9</u>	<u>CTIC</u>	<u>i6 i7 i8</u>	WHCT	1 <u>WHCT2</u>
6.2	adult	abdomen CT ABD WO & W IVCON 40 DFOV AND BELOW	3	list sheet PDF 07/05/2018 09:30	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.3	adult	abdomen CT ABD WO & W IVCON 42-48 DFOV	•	list sheet PDF 07/05/2018 09:30	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.4	adult	abdomen CT ABD WO & W IVCON 50 DFOV	$\bigcirc$	list sheet PDF 05/01/2018 12:57	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.7	adult	abdomen CT ABD PELVIS WO & W IVCON 40 DFOV AND BELOW	3	list sheet PDF 12/19/2017 08:54	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.8	adult	abdomen CT ABD PELVIS WO & W IVCON 42-48 DFOV	3	list sheet PDF 05/01/2018 12:58	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.9	adult	abdomen CT ABD PELVIS WO & W IVCON 50 DFOV	$\bigcirc$	list sheet PDF 07/13/2018 09:15	NF	0	0	0	0	4 <u>L S</u>	0	0 0	0	0	000	0	0
6.12	adult	abdomen CT CHST ABD WO & W IVCON 40 DFOV AND BELOW	8	list sheet PDF 05/01/2018 12:59	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.13	adult	abdomen CT CHST ABD WO & W IVCON 42-48 DFOV	8	list sheet PDF 05/01/2018 13:00	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.14	adult	abdomen CT CHST ABD WO & W IVCON 50 DFOV	$\bigcirc$	list sheet PDF 05/01/2018 13:00	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.16	adult	abdomen CT CHST ABD PELVIS WO & W IVCON 40 DFOV AND BELOW	8	list sheet PDF 05/01/2018 13:01	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.17	adult	abdomen CT CHST ABD PELVIS WO & W IVCON 42-48 DFOV	8	list sheet PDF 05/01/2018 13:01	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.18	adult	abdomen CT CHST ABD PELVIS WO & W IVCON 50 DFOV	$\bigcirc$	list sheet PDF 05/01/2018 13:02	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.21	adult	abdomen CT CHST PELVIS WO & W IVCON 40 DFOV AND BELOW	3	list sheet PDF 06/12/2018 15:38	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.22	adult	abdomen CT CHST PELVIS WO & W IVCON 42-48 DFOV	3	list sheet PDF 06/12/2018 16:20	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.23	adult	abdomen CT CHST PELVIS WO & W IVCON 50 DFOV	$\bigcirc$	list sheet PDF 06/12/2018 16:28	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.26	adult	abdomen CT PELVIS WO & W IVCON 40 DFOV AND BELOW	8	list sheet PDF 12/20/2017 09:40	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.27	adult	abdomen CT PELVIS WO & W IVCON 42-48 DFOV	8	list sheet PDF 05/01/2018 13:04	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.28	adult	abdomen CT PELVIS WO & W IVCON 50 DFOV	0	list sheet PDF 05/01/2018 13:05	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0

#### HD750 Reference Body

Protocol Ni	r Patient	t Cat		Descrip	lion		Review	ed	Last modification	CABI CT	<u>CT14</u>	<u>CT15</u>	<u>CT16</u>	<u>CT17</u>	<u>ct2</u>	<u>CT3</u> c	<u>t7 ct8</u>	<u>CT9</u>	<u>CTIC</u>	<u>i6 i7 i8</u>	WHCT1	WHCT2
6.2	adult	abdomen CT ABD W	O & W IVCON	40 DFOV ANI	D BELOW		8	list sheet PDF	07/05/2018 09:30	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.3	adult	abdomen CT ABD W	O & W IVCON	42-48 DFOV			8	list sheet PDF	07/05/2018 09:30	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.4	adult	abdomen CT ABD W	O & W IVCON	50 DFOV			$\bigcirc$	<u>list</u> sheet PDF	05/01/2018 12:57	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.7	adult	abdomen CT ABD PE	LVIS WO & W	IVCON 40 DF	OV AND BE	LOW	8	list sheet PDF	12/19/2017 08:54	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.8	adult	abdomen CT ABD PE	LVIS WO & W	IVCON 42-48	DFOV		8	list sheet PDF	05/01/2018 12:58	NF	0	0	0	0	0	M		0	0	0 0 0	0	0
6.9	adult	abdomen CT ABD PE	LVIS WO & W	VIVCON 50 DF	ov		$\bigcirc$	<u>list</u> sheet PDF	07/13/2018 09:15	NF	0	0	0	0	4 <u>L S</u>	~	0 0	0	0	0 0 0	0	0
6.12	adult	abdomen CT CHST A	BD WO & W I	VCON 40 DFC	V AND BEL	OW	8	list sheet PDF	05/01/2018 12:59	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.13	adult	abdomen CT CHST A	BD WO & W I	VCON 42-48 E	FOV		8	list sheet PDF	05/01/2018 13:00	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.14	adult	abdomen CT CHST A	BD WO & W I	VCON 50 DFC	V		$\bigcirc$	list sheet PDF	05/01/2018 13:00	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.16	adult	abdomen CT CHST A	BD PELVIS W	O & W IVCON	40 DFOV A	ND BELOW	8	list sheet PDF	05/01/2018 13:01	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.17	adult	abdomen CT CHST A	BD PELVIS W	O & W IVCON	42-48 DFO	7	8	list sheet PDF	05/01/2018 13:01	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.18	adult	abdomen CT CHST A	BD PELVIS W	O & W IVCON	50 DFOV		$\bigcirc$	list sheet PDF	05/01/2018 13:02	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.21	adult	abdomen CT CHST P	ELVIS WO & V	N IVCON 40 D	FOV AND B	ELOW	8	list sheet PDF	06/12/2018 15:38	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.22	adult	abdomen CT CHST P	ELVIS WO & V	N IVCON 42-4	8 DFOV		8	list sheet PDF	06/12/2018 16:20	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.23	adult	abdomen CT CHST P	ELVIS WO & V	N IVCON 50 D	FOV		$\bigcirc$	list sheet PDF	06/12/2018 16:28	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.26	adult	abdomen CT PELVIS	WO & W IVC	ON 40 DFOV A	ND BELOW		8	list sheet PDF	12/20/2017 09:40	NF	0	0	0	0	0	0	0 0	0	0	0 0 0	0	0
6.27	adult	abdomen CT PELVIS	WO & W IVC	ON 42-48 DFO	V		8	list sheet PDF	05/01/2018 13:04	NF	0	0	0	0	0	0	0 0	0	0	000	0	0
6.28	adult	abdomen CT PELVIS	WO & W IVCO	ON 50 DFOV				list sheet PDF	05/01/2018 13:05	NF	0	0	0	0	0	0	0 0	0	0	000	0	0

### Lesson Learned: Texas State Inspection

Inspector commented on minutes from meetings

Hand written minutes not acceptable

Select the best person to coordinate and maintain committee

### **Radiation Dose Monitoring**

<pre>Oate (dd-mm-yyyy)</pre>	Time (hh:mm:ss) Patient ID	Study UID	Type Range	User	r name	Diagnostic reason	Password config	gured	CTDI (	rGy)	CTDI limit (mGy)	DLP (mGy*cm)	DLP limit (mGy*cm)
				Dose	e notificat	ion PEL DEL	BMI 46		25.13	25.00	425.5		
				Dos	e notificat	ion ABD PRE	BODY HABITUS		31.09	30.00	910.7		
				Dose	e notificat	ion ABD PEL DEL	50 dfor	v		25.06	25.00 885.8		
				Dose	e notificat	ion PEL DEL	pt body habitu:	s	32.67	25.00	665.9		
				Dose	e notificat	ion ABD DEL	51.13 BMI		32.08	25.00	706.6		
				Dose	e notificat	ion PEL DEL	51.13 BMI		46.20	25.00	685.1		
				Dose	e notificat	ion ABD PEL PV	BODY H	ABITUS		85.44	75.00 4061.2		
				Dose	e notificat	ion ABD DEL	bmi 56.28		45.60	25.00	865.4		
				Dose	e notificat	ion PEL DEL	bmi 56.28		52.30	25.00	710.2		
				Dose	e notificat	ion CH PV	BHI 51	25.18	25.00	962.8			
				Dose	e notificat	ion ABD PEL DEL	BMI 51		30.75	25.00	1091.4		
				Dose	e notificat	ion PEL DEL	body habitus		50.99	50.00	674.5		
				Dose	e notificat	ion CH PV	BHI 59	41.77	28.00	1410.9			

JC Incidents where radiation dose indices exceeded expected dose index range are reviewed, analyzed and compared to external benchmarks PC.02.01.01 EP 6

# **Quality Control Program**

#### ACR

Technologist's QC Tests										
Water CT number and SD (daily)     Artifact evaluation (daily)	<ul> <li>Visual checklist (monthly</li> <li>Dry leaser OD (monthly)</li> </ul>									
Wet laser QC (weekly)	<ul> <li>Dry laser QD (monthly)</li> <li>Acquisition display QC (monthly)</li> </ul>									

Past 3 months of records for each unit (or the last performed if the frequency of testing is less)

### JC

Equipment quality control and maintenance activities are identified EC.02.04.01 EP 15 Timeframes are established for how often they are to be done EC.02.04.01 EP 15 Equipment quality control and maintenance activities are done EC.02.04.03 EP 15 QC logs are complete EC.02.04.03 EP 15 Past 4 years of records for each unit

## Lesson Learned: ACR

**MDACC** Policy

**I. Review daily QC of clinical CT systems, including weekends for applicable systems** ACR CT Accreditation Program guidelines are followed for CT quality control. TAC§289.227(n)(4)(C), §289.227(n)(5)

- 1. Uniformity
- 2. Artifact evaluation
- 3. Noise (water)
- 4. CT number accuracy (water)
- 5. CT number linearity

## Lesson Learned: ACR

**MDACC** Policy

**I. Review daily QC of clinical CT systems, including weekends for applicable systems** ACR CT Accreditation Program guidelines are followed for CT quality control. TAC§289.227(n)(4)(C), §289.227(n)(5)

- 1. Uniformity
- 2. Artifact evaluation
- 3. Noise (water)
- 4. CT number accuracy (water)
- 5. CT number linearity

### How is this documented?

the university of texas MDAnderson Cancer Center

From Date: To Date:	2018-07-23 <b>:</b> 2018-07-23 <b>:</b> Show Clear					All Scann Sub-grou Individual Scanner:	ers:	ALL Weekend CT Oper								
Artifacts Checked:										98%						
Export to PDF																
Drag a column hea	ider and	drop it her	re to group by tha	at column												2
Artifacts	_		_					Water			Linearity (C	T#)				
► ✓ None	T		CT12	R3.1838	2018-07-23	Scan II 06:24:37	MDAQC	C ▼	Unifor ▼	Std ▼	Acr T	w ▼	Air <b>T</b>	Yes	Comments	•
► ✓ None			CT12	R3.1838	2018-07-23	06:25:59	GEQA	<b>v</b> 0.48	<b>√</b> 1.5	<mark>√</mark> 4.7						
▶ 🗹 None			CT2	G3.3585a	2018-07-23	03:14:24	MDAQC	<b>v</b> 2.10	<b>√</b> 0.5	<b>√</b> 5.8	<b>v</b> 122.9	<b>√</b> 1.5	<b>√</b> -996.0	Yes		
🕨 🗹 None			CT2	G3.3585a	2018-07-23	03:15:20	GEQA	✓ 2.60	✓ 0.2	(?) 5.2						
🕨 🗹 None			СТЗ	G3.3589a	2018-07-23	03:15:37	MDAQC	<b>v</b> 0.92	<b>√</b> 0.2	<b>√</b> 5.6	<b>√</b> 121.0	<b>-</b> 0.6	<b>√</b> -996.2	Yes		
► ✓ None			СТЗ	G3.3589a	2018-07-23	03:16:22	GEQA	<b>√</b> 0.14	<b>√</b> 0.6	<b>?</b> 5.0						
► 🗹 None			CT4S	R3.1815	2018-07-23	06:07:02	SIEMENS			<mark>√</mark> 3.6						
► 🗹 None			CT4S	R3.1815	2018-07-23	06:08:53	SIEMENS	✓ -0.33	<b>√</b> 0.5							
► 🗹 None			CT5S	R3.1818	2018-07-23	06:10:45	SIEMENS			<b>y</b> 3.6						

From Date: To Date:	2018-07-23 <sup>†</sup> <sup>†</sup> <sup>†</sup> <sup>1</sup>					All Scanners: ALL   Sub-groups: Weekend CT Oper   Individual    Scanner:								C Logout	
Artifacts Checked:											98%				
Export to PDF	Export to	Excel													
Drag a column head	der and drop it her	e to group by tha	at column												ß
Artifacts							Water			Linearity (C	T #)				
► V None	T	CT12	Locat Y	Scan D Y	Scan Ti	Protocol Y	C ▼	Unifor ▼	Std ▼	Acr <b>Y</b>	W ▼	Air <b>Y</b>	Yes	Comments	•
► ✓ None		CT12	R3.1838	2018-07-23	06:25:59	GEQA	✓ 0.48	✓ 1.5	<b>√</b> 4.7						
▶ 🗹 None		CT2	G3.3585a	2018-07-23	03:14:24	MDAQC	✓ 2.10	<b>v</b> 0.5	<b>√</b> 5.8	✓ 122.9	✓ 1.5	<b>√</b> -996.0	Yes		
► 🗹 None		CT2	G3.3585a	2018-07-23	03:15:20	GEQA	✓ 2.60	<b>√</b> 0.2	🥐 5.2						
► 🗹 None		СТЗ	G3.3589a	2018-07-23	03:15:37	MDAQC	✔ 0.92	<b>v</b> 0.2	✓ 5.6	✓ 121.0	<b>√</b> -0.6	<mark>√</mark> -996.2	Yes		
► ✓ None		СТЗ	G3.3589a	2018-07-23	03:16:22	GEQA	<b>v</b> 0.14	<b>√</b> 0.6	🥑 5.0						
► ✓ None		CT4S	R3.1815	2018-07-23	06:07:02	SIEMENS			<b>√</b> 3.6						
► ✓ None		CT4S	R3.1815	2018-07-23	06:08:53	SIEMENS	<mark>√</mark> -0.33	<mark>√</mark> 0.5							
► 🗹 None		CT5S	R3.1818	2018-07-23	06:10:45	SIEMENS			<b>√</b> 3.6						

From Date: To Date:	2018-07-23 <ul> <li>2018-07-23</li> <li>2018-07-23</li></ul>					ers:	ALL Weekend CT Oper								
Artifacts Checked:											98%				
Export to PDF															
Drag a column hea	der and drop it her	re to group by tha	at column												$\searrow$
Artifacts Type	T	Scanner 🔻	Locat 🝸	Scan D 🔻	Scan Ti	Protocol <b>T</b>	Water C <b>T</b>	Unifor <b>Y</b>	Std 🍸	Linearity (C	⊤#) W <b>▼</b>	Air <b>Y</b>	Position O <b>Y</b>	Comments	
► 🗹 None		CT12	R3.1838	2018-07-23	06:24:37	MDAQC	<b>v</b> 0.90	<b>√</b> 1.4	<mark>√</mark> 5.8	<b>v</b> 121.2	<b>√</b> -0.6	<mark>√</mark> -996.8	Yes		
► 🗹 None		CT12	R3.1838	2018-07-23	06:25:59	GEQA	<b>√</b> 0.48	<mark>√</mark> 1.5	<mark>√</mark> 4.7						
► 🗹 None		СТ2	G3.3585a	2018-07-23	03:14:24	MDAQC	<del>v</del> 2.10	<b>v</b> 0.5	<b>√</b> 5.8	✓ 122.9	<b>V</b> 1.5	<b>√</b> -996.0	Yes		
► 🗹 None		СТ2	G3.3585a	2018-07-23	03:15:20	GEQA	<mark>√</mark> 2.60	✓ 0.2	🥐 5.2						
► 🗹 None		СТЗ	G3.3589a	2018-07-23	03:15:37	MDAQC	<b>v</b> 0.92	✓ 0.2	<b>v</b> 5.6	<b>v</b> 121.0	<mark>√</mark> -0.6	<mark>√</mark> -996.2	Yes		
► ✓ None		СТЗ	G3.3589a	2018-07-23	03:16:22	GEQA	<b>√</b> 0.14	<b>v</b> 0.6	<b>(?)</b> 5.0						
► 🗹 None		CT4S	R3.1815	2018-07-23	06:07:02	SIEMENS			<b>√</b> 3.6						
► ✓ None		CT4S	R3.1815	2018-07-23	06:08:53	SIEMENS	<mark>√</mark> -0.33	<b>v</b> 0.5							
► 🗹 None		CT5S	R3.1818	2018-07-23	06:10:45	SIEMENS			<b>√</b> 3.6						

# **QMP Equipment Evaluation**

QMP Test	ACR	JC
Protocol review	24 months or State	Define
Scout prescription & alignment accuracy	Х	Х
Table travel accuracy	Х	Х
Radiation beam width	Х	Х
Low contrast performance	Х	Х
Spatial resolution	Х	Х
CT number accuracy	Х	Х
Artifact evaluation	Х	Х
CT number uniformity	Х	Х
Dosimetry	Х	Х
System monitor performance	Х	
Slice thickness accuracy		Х
Geometric or distance accuracy		Х
Image uniformity		Х

### Lesson Learned: ACR



**Policy Compliance** 

# Lesson Learned: JC

#### **Tracer Method**

- Performed at the CT system
- Follow patient and ask questions relevant to JC requirements of the staff
  - How are the CT radiation dose index stored?
  - How is IV contrast administered? Weight based or one size fits all?
  - Technologist questioned on training and Image Gently/Wisely
  - Request for all service records of the CT system
  - Request for CT acceptance and last annual report

# Lesson Learned: JC

#### **Tracer Method**

- Performed at the CT system
- Follow patient and ask questions relevant to JC requirements of the staff
  - How are the CT radiation dose index stored?
  - How is IV contrast administered? Weight based or one size fits all?
  - Technologist questioned on training and Image Gently/Wisely
  - Request for all service records of the CT system
  - Request for CT acceptance and last annual report

### Inspector asked to see supporting documents!

Consider a database with useful dashboards

- Credentials
- o Equipment inventory
- o Alerts when items about to expire

Consider a database with useful dashboards

- Credentials
- Equipment inventory
- Alerts when items about to expire

### Develop *smart* policies

• Make sure what is stated is achievable and resources available

Consider a database with useful dashboards

- Credentials
- Equipment inventory
- Alerts when items about to expire

### Develop *smart* policies

Make sure what is stated is achievable and resources available

Make sure data and policies are accessible

Consider a database with useful dashboards

- Credentials
- Equipment inventory
- Alerts when items about to expire

### Develop *smart* policies

Make sure what is stated is achievable and resources available

Make sure data and policies are accessible

Document! Document! Document!

Consider a database with useful dashboards

- Credentials
- Equipment inventory
- Alerts when items about to expire

### Develop *smart* policies

Make sure what is stated is achievable and resources available

Make sure data and policies are accessible

Document! Document! Document!

Develop your own checklist and add to it!

# Always be Ready

Continuous maintenance is critical

High frequency for all regulation and accreditation inspections

- State variable
- ACR annual (can be unannounced)
- JC every 39 months (can be unannounced)