



AAPM Dose Check Education Slides

GE Healthcare

Last updated: 05/29/15



Disclaimer

The individuals involved in the production of this document along with the AAPM, ACR, ASRT, MITA, the FDA and the Image Gently Alliance and the Image Wisely Alliance do not endorse any of the specific products mentioned in these slides. Any screenshots of particular products are included for instructional purposes only.



Disclaimer

- Screen captures are **examples** of a common (or latest) software version only and all software versions are not represented
- The information contained herein is current as of the date shown on the title slide
- Modification of the content of these slides **is not allowed.**



User Access Controls

- Access Control for Dose Notifications
- *Notification Checking is enabled at the global level. User can set Notification Value for each protocol at the series or group level and separately for SmartPrep.*
- Access Control for Dose Alerts
- *Alert Checking is enabled at the global level. User can define a Alert Value for CTDIvol and/or DLP for adults and pediatrics if desired.*

Dose Notification Checking is enabled at global level. The Notification Values are set a group level for each series in a protocol. Dose Alert Checking is enabled at the global level. A separate Alert Value can be set for adults and pediatrics if desired. The systems arrives with the Alert Checking enabled for CTDIvol at a value of 1000 (mGy) per requirement of the FDA. Sites need to assign a Dose Check Administrator and setup AV Exceeding privileges for users prior to any physics testing or clinical scanning. **If no one has AV Exceeding privileges, you will not be able to continue scanning in an exam once the AV value has been reached for any z location in the exam.**



Configuring Dose Notifications

- NV Checking – Notification Value can be enabled for CTDIvol and/or DLP

The screenshot shows the 'Dose Check Management Tool' interface. A yellow box highlights the 'NV (Notification Value) Checking' section, which includes two yellow buttons labeled 'CTDIvol' and 'DLP'. Below this, the 'AV (Alert Value) Checking' section is visible, featuring input fields for 'Patient age ≥ 18' (with values 1000 and 2000) and 'Patient age < 18' (with values 800 and 1600). A 'Delete Age Threshold' button is also present. At the bottom, there is a 'Protocol Change Control' section with an 'OFF' button, and a 'Save' button at the very bottom. On the right side, there are buttons for 'Audit Tool', 'User Admin. Tool', and 'Quit'.

Notification Checking is enabled in the Dose Check Management Tool. NV Checking can be enabled based on CTDIvol and/or DLP value entered in a protocol.



Configuring Dose Notifications

- Notification Value can be enabled for CTDIvol and/or DLP for each group prescribed. Select Setup in Dose Information area.

Dose Information				
Images	CTDIvol mGy (NV)	DLP mGy·cm (NV)	Dose Eff. %	Phantom cm
1-24	69.68 (N)	418.09 (N)	90.53	Head 16
25-40	41.92 (N)	335.38 (N)	90.53	Head 16
Est. max Z location CTDIvol:			111.60 mGy	
Projected series DLP:			753.48 mGy·cm	
Accumulated exam DLP:			0.00 mGy·cm	

Notification Values are defined by Series for group in the series. Select Setup in the Dose Information area in Protocol Management. The display of N in the field indicated no value entered and NV checking will not be applied.



Configuring Dose Notifications

- In Dose Check Setup menu, enter a specific CTDIvol and/or DLP value to set the notification value for each group in the series. NV Checking can be turned off for SmartPrep by entering N.

Dose Check Setup					Info
Images	CTDIvol mGy	DLP mGy-cm	NV		
			CTDIvol	DLP	
1-24	69.68	418.09	N	N	
25-40	41.92	335.38	N	N	
Est. max Z location CTDIvol:			111.60 mGy		
Projected series DLP:			753.48 mGy-cm		
Accumulated exam DLP:			0.00 mGy-cm		

Dose Check Setup					Info
Images	CTDIvol mGy	DLP mGy-cm	NV		
			CTDIvol	DLP	
1-321	13.11	347.37	16	522	
SmartPrep	78.94	39.47	N	N	
Est. max Z location CTDIvol:			92.05 mGy		
Projected series DLP:			386.83 mGy-cm		
Accumulated exam DLP:			0.00 mGy-cm		

The NV value can be set to a specific value for the CTDIvol and/or DLP prescribed in the protocol. A NV for SmartPrep can be set separately or NV Checking can be turned off for SmartPrep mode by entering N.



Configuring Dose Notifications

- In Dose Check Setup menu, a factor of value can be prescribed to be applied against the CTDIvol and/or DLP value prescribed for each group in the series by clicking on the column title to display the Column Edit screen.

The screenshot shows a dialog box titled "NV Setting Column Edit". At the top, there is a yellow button labeled "CTDIvol". Below this, there are two text input fields: "Value" (which is empty) and "Factor" (which contains the value "1.2"). At the bottom of the dialog, there are two buttons: "Accept" on the left and "Cancel" on the right.

The NV value can be set as a specific value or factor for the CTDIvol and/or DLP prescribed in the protocol by clicking on the NV title bar. Enter a value in Value or Factor text field.



Configuring Dose Alerts

- Alert Value is set in the Dose Check Management Tool for CTDIvol and/or DLP. The system is shipped with Alert Value enabled at 1000(mGy) as required by the FDA.

The screenshot shows the 'Dose Check Management Tool' interface. It is divided into several sections:

- Notification Value Checking:** Contains two buttons: 'CTDIvol' (highlighted in yellow) and 'DLP'.
- AV (Alert Value) Checking:** Contains two buttons: 'CTDIvol (mGy)' (highlighted in yellow) and 'DLP (mGy-cm)'. Below these is a text input field containing '1000' and an 'Add Age Threshold' button.
- Protocol Change Control:** Contains a single button labeled 'OFF'.
- Right Sidebar:** Contains three buttons: 'Audit Tool', 'User Admin. Tool', and 'Quit'.
- Bottom:** Contains a 'Save' button.

The Alert Value (AV) is set in the Dose Check Management Tool in Protocol Management. A global Alert Value can be set for CTDIvol and/or DLP. The maximum value of 2000(mGy) can be entered for AV. The AV value is applied to all exam types including interventional studies.



Acknowledging Notifications

- Dose Notification exceeding NV pop-up. Enter Diagnostic Reason and select Confirm to continue. Or, select Cancel to return to ViewEdit and adjust parameters.

DoseNotification
One or more group result in a projected dose exceeding the Notification Value set. Select Cancel to go back to Viewedit and adjust scan parameters if clinically appropriate to set below the Notification Value. Selecting Confirm will proceed to scan and log user confirmation of scan parameters exceeding the Notification Value.

Series#	1	Series Description	
	Images	NV	Projected
CTDIvol (mGy)	1 - 64	50	52.53

Diagnostic Reason

Confirm Cancel

The NV Exceeding pop-up is displayed when the NV value exceeds value set in the protocol. To continue scanning, the user needs to enter a Diagnostic Reason. Or, return to the ViewEdit screen and adjust parameters until the Notification Value is no longer exceeded.



Acknowledging Dose Alerts

- A Dose Check Administrator must be selected and Alert Exceeding privileges assigned before acceptance testing by physicists or clinical scanning starts.
- Alert Exceeding privileges are assigned by the Dose Check Administrator in User Admin Tool selected in Dose Check menu.
- Site needs to determine how to handle an AV notification in interventional exams.
- GE Service will assist the Dose Check Administrator to initially enter User Admin Tool to assign privileges.

A Dose Check Administrator must be selected and Alert Exceeding privileges assigned prior to use of the system. Site needs to determine how instances of an exceeding Alert will be handled for interventional exams. **Prior to starting an interventional exam, operator must know the procedure for overriding an exceeding AV alert so the procedure can continue without interruption.**



Acknowledging Dose Alerts

- Dose Alert exceeding AV pop-up notification. Require user with Alert Exceeding privileges to login, enter password and diagnostic reason to continue scanning.

DOSE ALERT
A dose alert value will be exceeded!

The prescribed scan parameters result in a projected exam dose exceeding the user configured Alert Value. Select Cancel to go back to Viewedit and adjust scan parameters if clinically appropriate to set below the Alert Value. An authorized user name and password must be entered to select Confirm. Selecting Confirm will proceed to scan and log user confirmation of scan parameters exceeding the Alert Value.

	AV	Projected/Accumulated	Start	End
CTDIvol (mGy)	1000	1528.63	174.8	134.8

Logon Name:

Password:

Diagnostic Reason:

The exceeding AV notification pop-up requires that a user with Alert Exceeding privileges login, enter password and a diagnostic reason to be able to continue scanning.



Turning off Dose Alert Feature

- To disable Dose Check NV Checking, deselect NV Checking for CTDIvol and/or DLP. Select Save and Exit

Dose Check Management Tool			
NV (NIST Values) Checking	CTDIvol	DLP	
AV (AAPM Values) Checking	CTDIvol (mGy)	DLP (mGy-cm ²)	Dose-Age Threshold
Patient age: 18	1000	2000	
Patient age: 800		1600	
Protocol Change Control	Off		
Save			Quit

- To disable Dose Check AV Checking, deselect AV Checking for CTDIvol and/or DLP. Select Save and Exit.

NC Checking and AV checking can be disabled individually in the Dose Check Management Tool. After making changes select Save and Exit.

AAPM Working Group on Standardization of CT Nomenclature and Protocols

Location of alert/notification log

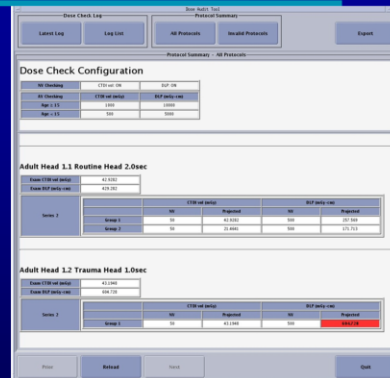
- The Dose Audit Tool provides access to Dose Check Log which shows all exam which exceeded NV or AV settings.
- Select Audit Log, select Latest Log or Log List under Dose Check Log. Can export the log to CD/DVD-R or USB.

Dose Audit Log allows for selection of Latest Log or select log from available list. The Audit Log can then be exported to CD/DVD-R or USB. Select Export to export.



Location of alert/notification log

- The Dose Audit Tool, also, provides access to Protocol Summary showing NV values for all protocols or protocols where NV or AV are exceeded.
- Protocols can be exported to CD/DVD-R or USB.



Dose Audit Tool provides ability to export protocols, protocols with exceeding NV and AV values to CD/DVD-R or USB.



Location of alert/notification log

- Dose Check Log example

The screenshot shows a software interface for 'Dose Check Log'. It includes buttons for 'Latest Log', 'Log List', 'All Protocols', 'Invalid Protocols', and 'Export'. The main area displays two identical log entries for a 'CT Head (axial)' scan. Each entry includes a date and time (2015-04-14 22:38), patient information (New Patient, Dose Check, ct mfg, ct mfg), and a table of dose metrics.

Protocol Category	Protocol Name	AK	Accumulated / Programmed	Start	End
CT Head (axial)	1100	1620.00	576.0	576.0	576.0
		1220.00	576.0	576.0	576.0
		1400.11	576.0	576.0	576.0
		1220.00	576.0	576.0	576.0
		1220.00	576.0	576.0	576.0

The Dose Check Logs provides list of events for exceeding NV and AV with diagnostic reason.