



**School of Medicine
and Public Health**

UNIVERSITY OF WISCONSIN-MADISON

GSI Tips & Tricks

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Manufacturer:
School of Medicine and Public Health
University of Wisconsin-Madison
610 Walnut Street
Madison, WI 53726

Manufactured in USA

GSI scanning tips and tricks

Quick Guide to GSI scanning

Guidelines:

- Weight limit: No patients over 250 pounds should be scanned using GSI
 - **Any patient "filling the scout" should not be scanned using GSI, this may happen for patients under 250 pounds**
- If the image optimize box turns red for the GSI phase/group/series, immediately "jump" back to the non GSI version of the protocol
- If the "scan type" box is orange, you are fine to proceed with the GSI scan, no changes are needed.
- If the "scan type" box turns red, it means the scanner could not find a dose within 20% of the dose it wants. You need to click on the box and compare the target dose to the dose the scanner is actually going to deliver. These values are labelled in the images below. **Do not just open it and click okay, that will make the warning go away and change nothing!**
 - If the target dose is higher than the dose the scanner selects, then lower the pitch (go to the next lower pitch value, e.g. 1.375 to 0.984). If the image optimize box turns red after you lower the pitch, immediately "jump" back to the non GSI version of the protocol.
 - If the target dose is lower than the dose the scanner selects, then raise the pitch (go to the next higher pitch value, e.g. 1.375 to 1.531).

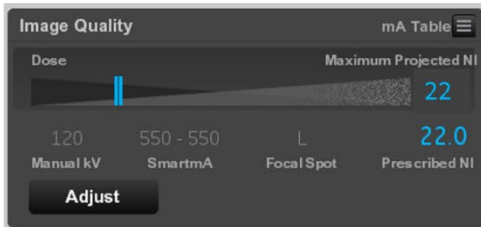
Example of a short (5 foot 3 inch) patient who weighs 250 pounds filling the scout and causing tube heating issues if GSI mode is used.



Checking the GSI Image Quality Widget

Case 1: Default pre-set is adequate dose

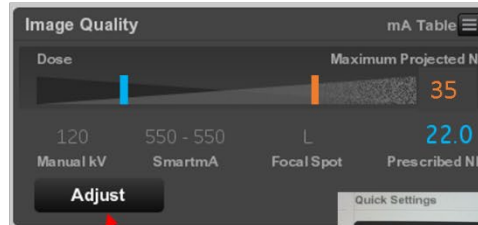
Maximum Projected NI and Prescribed NI are blue



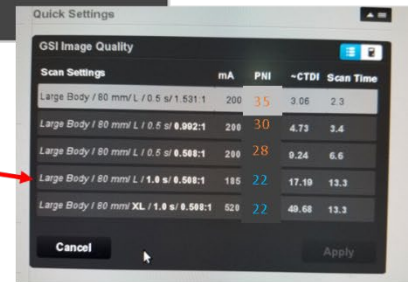
You can scan the patient with no adjustments to technique.

Case 2: Default pre-set is too low dose

Maximum Projected NI is orange and higher than the Prescribed NI



Hit the adjust button and then select the "first blue PNI in the list"

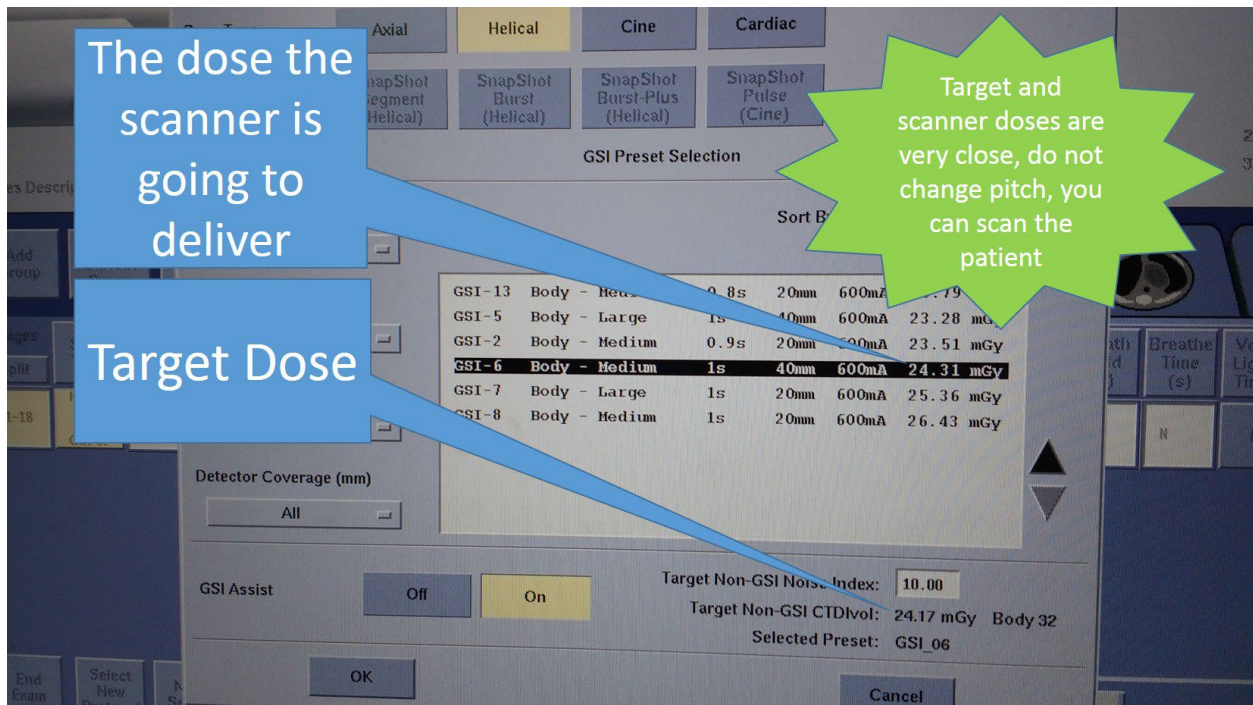


Check the GSI IQ Widget for every GSI patient (except GSI head)

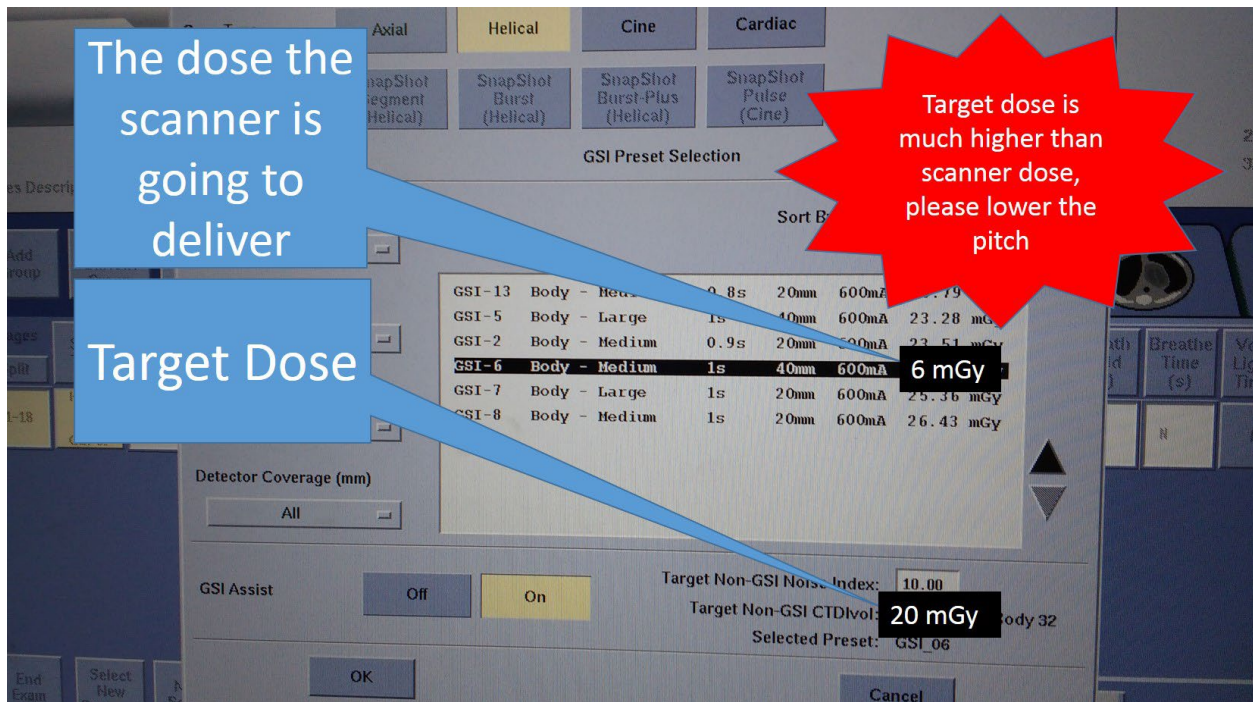
The main control panel features various buttons and a table of parameters. Annotations highlight specific areas:

- Scan type box:** Points to the 'Helical Full 0.4 s' entry in the 'Scan Type' column. Text: "You check to see if this box is red because the dose is too high or too low here".
- Image thickness box:** Points to the '5.0 1.375:1' entry in the 'Thick (mm)' column. Text: "This is where you may need to adjust the pitch".
- Image Optimize box:** Points to the 'Optimize not Needed' button. Text: "If this box is red, use the non GSI version of the protocol".

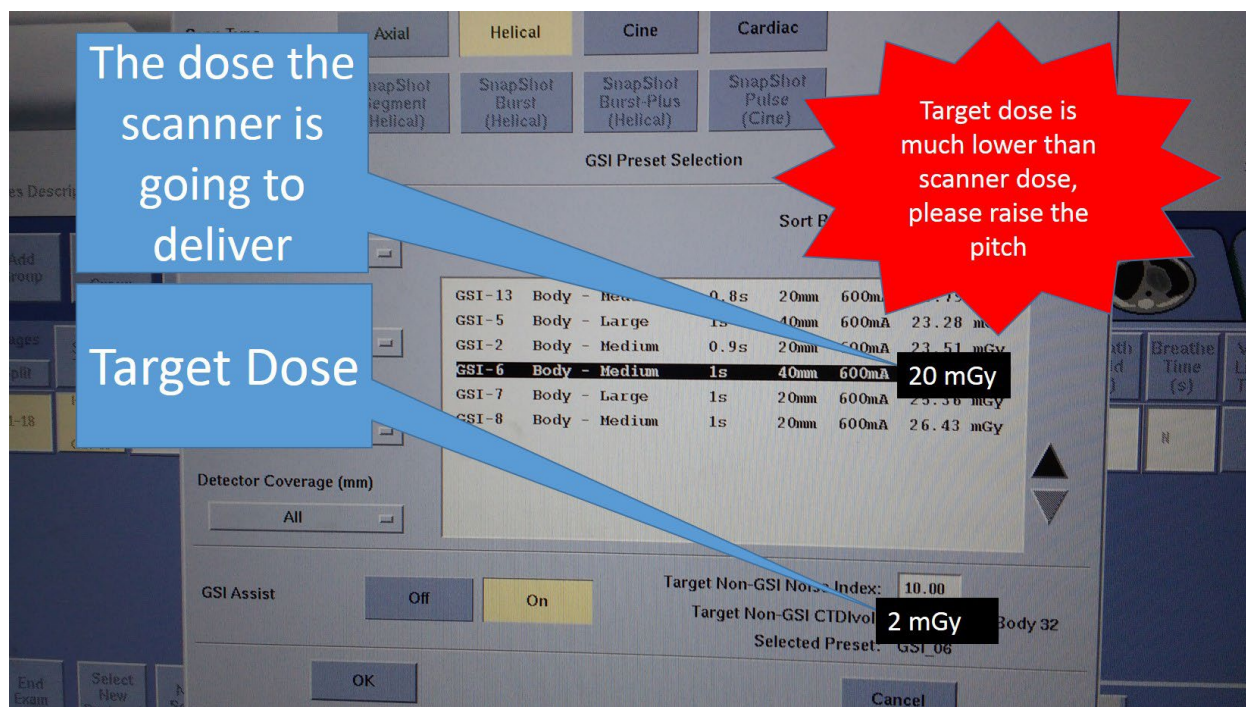
Images	Scan Type	Start Location	End Location	Recon Enabled	Phase (%)	Recon Start Location	Recon End Location	No. of Images	Thick (mm)	Interval (mm)	FOV (cm)	R/L Center (mm)	A/P Center (mm)	Recon Type	Matrix Size	Recon Option	Auto Apps
1-41	Helical Full 0.4 s	50.000	1200.000	Y	75-75 (0)	50.000	1200.000	41	5.0 1.375:1	5.000							Off



Here is a view of the screen on the GE scanner for a case where the scanner and target doses are quite close and you can scan w/o changing the pitch

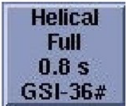


Here is a view of the screen on the GE scanner for a case where the scanner and target doses are different and you need to change the pitch.



Here is a view of the screen on the GE scanner for a case where the scanner and target doses are different and you need to change the pitch.

Table 11-8: Scan Type button indicators

Scan Type button	Description
Blue 	The system finds an optimal preset that has a CTDIvol within 20% of the Target non-GSI CTDIvol and is equal to the preset that was chosen in Protocol Management. The message "GSI Preset based on Patient Attenuation and Preset Parameter Settings" will be displayed in the operator console Message area.
Orange 	The system finds an optimal preset that has a CTDIvol within 20% of the Target non-GSI CTDIvol and is not equal to the preset that was chosen in Protocol Management. - The message "GSI Preset Updated based on Patient Attenuation and Preset Parameter Settings" will be displayed in the operator console Message area. - The system will update the GSI Preset when scan range changes and the patient attenuation in the scan range changes.
Red 	The system is unable to find an optimal preset that has a CTDIvol within 20% of the Target non-GSI CTDIvol. The preset with the closest CTDIvol value to the Target non-GSI CTDIvol has a CTDIvol difference greater than 20%. - The message "Unable to define GSI Preset based on Patient Attenuation and Preset Parameter Settings" will be displayed in the Message area. - To accept and use the preset listed, open Scan Type and click OK or select a different preset. - If there is no Scout available for a protocol with GSI Assist enabled, the Scan Type button will be red. After opening Scan Type, GSI Assist will be disabled and the GSI