University Health™	Policy #:5.14.3
SUBJECT: Control of Radiation Dose in Computerized Tomography	**Effective: 10/2013** **Reviewed: 10/16**
APPROVED BY: Radiology Director	**Page 1 of 3**

Control of Radiation Dose in Computerized Tomography

Purpose:

To define guidelines for radiologic technologists to follow in order to ensure radiation dose used to obtain a CT image is as low as reasonably achievable (ALARA).

Introduction:

The amount of radiation dose used to obtain image or to perform a procedure should be no more than what is required to produce a diagnostic quality image or to safely and successfully complete a procedure. The final decision on the dose required for a particular exam is that of the Supervising Radiologist. The Radiology Department recognizes guidelines are important so the technologist has a frame of reference to know when the Radiologist must be contacted regarding a dose decision. In the event the dose estimated for an exam will exceed the dose guidelines, the technologist will also follow established guidelines for alerting the physician. The Radiology Department will update these guidelines and add new guidelines as radiation dose information becomes available.

Policy:

The American College of Radiology (ACR) and the American Association of Physicists in Medicine (AAPM) have provided dose reference ranges for imaging facilities to consider in development of their internal guidelines. All technologists must follow the established guidelines in this policy including completion of documentation for those situations where dose must exceed the recommended level. All technologists will be provided education on dose guidelines during orientation, annually and upon implementation of new guidelines. University Health Shreveport's Radiology Department is committed to ensuring that every technologist has the available resources to provide quality imaging with as low a dose as possible. To that end, enforcement of these guidelines will be accomplished through education and progressive disciplinary action steps:
Step 1 – Verbal counseling and education as determined by the section manager.
Step 2 – Written reprimand
Step 3 – Written reprimand with referral to Human Resources for disciplinary action.
Violations of guidelines will be tracked within a 12 month period from the first infraction.

Guidelines:

1. *Guiding Principle* – The technologist will always be aware of the dose that the scanner calculates will be used for the exam. A patient's body habitus will affect the dose required to obtain a diagnostic quality image. After correctly positioning the patient and performing the scout, the technologist will verify the scanner's automated tube current software has proposed technique settings to not exceed the recommended doses listed in the following charts. If the scanner technique selections yield a dose greater than the recommended dose, the technologist will check positioning and attempt to determine why the proposed dose exceeds these maximums. If the technologist is unable to reduce the proposed dose, the Radiology Resident or Attending Radiologist will be contacted for guidance. If it is then determined by the Radiologist to proceed scanning with a dose

greater than recommended dose, the technologist will perform the exam and make a note in the RIS system in the providers comment section.

2. Dose check software is available on both the Siemens and GE and CT systems. A value of *CTDIvol* (in units of mGy) used to trigger an alert when the system projects that the prescribed scan will result in a dose index that will exceed the recommended dose. To proceed with the scan following the alert, the operator is required to enter his or her name along with an explanation comment to confirm the scan setting or change the scan settings to reduce the dose.

3. *Pediatric CT* - All pediatric CT exams are to be performed with documentation of medical necessity for ionizing radiation exam by the ordering physician, adequate clinical information, and weight-adjusted tube current settings according to the recommendations in the chart listed below. No pediatric patient shall undergo multipass or overlapping technique CT imaging without the expressed instruction to do so by the radiologist.

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CT Dose Index (CTDIvol) Reference Table

Technologist must verify that the dose the scanner has estimated (after performing the scout image) is within the ranges set for the exams listed.

Adult Routine Chest

Patient Size/ Weight in lbs

Small patient- 110-155lbs
CTDIvol in mGy
Average Patient- 155-200lbs
CTDIvol in mGy
Large Patient- 200-265lbs
CTDIvol in mGy

Adult Routine Abdomen/pelvis

Small Patient-110-155lbs
CTDIvol in mGy
Average Patient-155-200lbs
CTDIvol in mGy
Large Patient 200-265lbs
CTDIvol in mGy
Extra Large Patient 265-330lbs
CTDIvol in mGy

Routine Brain

Adult
CTDIvol in mGy

6 8 11
10 14 18
13 18 23

10 13 17
15 20 25
22 28 35
35 40 45
65 70 75

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SIEMENS CT SCANNER

Weight CTDI
4lbs-12.9lbs 1.0-2.0
13lbs-24.9lbs 2.0-3.0
25lbs-39.9lbs 3.0-4.4
40lbs-69.9lbs 4.5-5.5
70lbs-88.9lbs 6.0-7.0

GE LightSpeed CT Scanner

Weight CTDI
0-13lbs 1.0-2.0
13lbs-24.9lbs 2.0-3.0
25lbs-39.9lbs 3.0-4.5
40lbs-69.9lbs 4.6-6.0
70lbs-88lbs 6.1-7.5