Ochsner | LSU Health SHREVEPORT	**Policy #6.1**
SUBJECT: Contrast Media Guidelines	**Written: 12/04** **Reviewed: 03/19**
APPROVED BY: Director of Radiology	**Page 1 of 5**

Contrast Media Guidelines

Purpose:

To define general guidelines for the use of contrast media so that it is used appropriately and safely in imaging studies.

Background:

A. Contrast Media is currently used in the following areas of radiology:

1. Diagnostic Imaging
2. CT
3. MRI
4. Breast Imaging
5. Radiation Oncology
6. Interventional

B. Personnel

1. **Ordering Physician** – A physician with ordering privileges at University Health-Shreveport may order an imaging study. The physician shall indicate in the order if the exam is to include the use of contrast. The ordering physician as described by the American College of Radiology's Practice Guideline has sufficient knowledge of the pharmacology, indications and contraindications of contrast agents to enable safe administration. A physician's assistant may write the order but it must be countersigned by the supervising physician (Note: A physician assistant's order will be acted upon when received).

   Exception - For pediatric patients, the order will be referred to the radiologist for review. The radiologist will consult with the ordering physician and determine how to proceed.

2. **Supervising Physician -** A radiologist or designated physician must be immediately available during contrast administration in case an adverse event such as an allergic reaction occurs. The physician must be knowledgeable of the recognition and treatment of adverse effects involving contrast. The technologist will verify the physician responsible for supervising the exam before contrast is used.

   Within the main hospital a radiologist or radiology resident will provide supervision of the imaging study. Outside of the hospital such as in the Feist Weiller Cancer Center and Ambulatory Care Center an emergency response team provides coverage.

3. **Technologist** – Before administering contrast a technologist must complete contrast reaction training and demonstrate competency. Before administering IV contrast the technologist must have completed the IV therapy course. Completion of these requirements is to be noted in the employee's file. The technologist can administer contrast only if a radiologist or designated physician is immediately available.

Policy:

A. Use of contrast media shall be limited to those agents specifically developed for and designated for use during imaging procedures by the FDA. Requests for additions or changes to the contrast inventory must be approved by the Pharmacy and Therapeutics Committee.
B. A **crash cart, blood pressure monitor and stethoscope** must be immediately available on the floor before contrast administration. These items will be checked daily according to hospital policy.
C. The initial order for an imaging study that will require contrast comes from the patient's physician. All imaging studies involving contrast for pediatrics, patients with unacceptable lab values or patients with known allergies must be reviewed and approved by the radiologist.

1. A Patient Questionnaire must be completely filled out including those questions regarding allergies, prior contrast exposure, pregnancy and medications.
2. **If the answer to any of the questions is yes, the decision to use IV contrast must be discussed with the radiologist.**
3. Questionnaires must be completed in the RIS system. If the e-form cannot be used, a paper form is to be completed and scanned into RIS.
4. The technologist will check the expiration date and inspect the package of contrast for any tears or leakage. Product that is out of date or damaged will not be used and is to be returned to the pharmacy.
5. The technologist will assess the patient prior to administration, during injection and post administration.
6. Outpatients will receive post procedure instructions when applicable.

Policy Specific to IV Contrast

1. The Technologist **must** obtain informed consent from the patient prior to administering IV contrast. The hospital approved form will be used and scanned into the electronic medical record.
2. Procedure guidelines for amount of contrast given and injection delays are given to the technologist by the radiologist.
3. A recent serum BUN & Creatinine is required prior to IV contrast administration.

i. The value must be no older than **60 days** for outpatients or since the last contrast exam -- whichever is more recent.

ii. An abnormal value is defined by the clinical laboratory. On the EPIC system the value will be accompanied by an H. In the case of an abnormal lab value, the technologist will contact the radiologist for guidance.

D. **Exception: In certain emergency situations the benefit of the imaging with contrast may be deemed by the ordering physician to outweigh the possible risks. If the ordering physician indicates that the scan is urgent the technologist will take the following steps:**

1. The ordering physician must provide the request to scan without lab data or abnormal lab data as an order. The Technologist as authorized by hospital policy can take a verbal order. Verbal orders must be read back and documented according to Hospital Policy 6.13.
2. If the order is given as verbal, the technologist will document the order in the patient's chart and indicate physician's name giving order in the oral contrast field in the patient information on scanner.
3. The technologist will also notify the radiologist or radiology resident that the scan was deemed urgent and requested without lab data.

E. The maximum dosage recommended for **an elective exam** is not to exceed 150 ml. Exams deemed emergent or medically urgent will be assessed on an individual basis. No emergent exam will be delayed or denied on the basis of recent contrast administration. Communication and documentation of need will be the responsibility of the ordering physician, CT technologist and Radiologist.

Procedural Requirements:

This section is not intended to serve as a procedure description for how to administer contrast. Instead the items listed are specific procedural requirements for contrast administration.

A. An intravenous heplock is placed in an antecubital vein. An 18g intracath should be used to start IV. In extreme cases when a suitable vein cannot be located a 20g may be used. Starting an IV in the hand or wrist should not be used except for extreme situations when no other vein can be located. **Absolutely do not use a hand or wrist IV for an Angiogram study.**
B. After IV contrast injection the patient is observed and accessed for possible reaction to the contrast.
C. The intravenous heplock is removed and patient is given post contrast post contrast instructions.
D. After IV contrast injection, the technologist must complete the Technologist questionnaire in the RIS system. The IV contrast dosage must be documented in EPIC system MAR.

Contrast Reaction:

A. A radiologist or designated physician must be available to respond to adverse reactions.
B. Emergency treatment kits are located in each room or in immediately accessible Automated Dispensing Machine (ADM).

C. All radiology personnel involved in these exams will demonstrate competency to recognize the symptoms of drug reactions and implement treatment of same.
D. The technologist will monitor the patient closely during the administration of contrast. At the first sign of reaction, the administration will be stopped and immediately reported to the radiologist or physician designee.
E. A variance report is to be completed for any patient having a contrast reaction, regardless of severity. The reaction must also be documented in the RIS and Pelican systems.

Premedication (IV Contrast):

When a radiologist or referring physician believes a patient's history of previous contrast reaction is significant, these two parties should discuss alternative methods of imaging. If it is felt necessary to administer contrast material intravenously, only NONIONIC agent warmed to body temperature should be utilized and the patient is to be premedicated. Secure IV access must be maintained during and after contrast injection, and consideration should be given to blood pressure and pulse oximetry monitoring.

Although controversy exists regarding dose and timing of steroid administration, the following is suggested:

A. 50mg prednisone p.o. 13, 7 and 1 hour prior to contrast administration
B. 50mg diphenhydramine (Benadryl) p.o. or IV administered at least 1 hour prior to but not more than 5 hours before the procedure
C. Someone must accompany the patient to drive him/her home for outpatient exams
D. **Urgent** premedication- 200 mg hydrocortisone IV q 4 hours (minimum of 6 hours prior to contrast) PLUS 50mg diphenhydramine IM or IV one hour before contrast

This is by no means exclusive and may be altered by the radiologist on an individual basis. This should serve as a guideline for standard dosage.

Storage of Contrast Media:

All contrast media in the Radiology Department are stocked in a secured Automated Dispensing Machine (ADM) by Authorized Pharmacy Department personnel. Contrast media is removed from the ADM by authorized users per order of a licensed prescriber and are administered to registered patients of the health science center. The ADM maintains electronic records of all transactions involving medications stocked within. Contrast media must be charted in the medical record when administered.

All contrast media shall be stored according to the manufacturer's recommendations. Contrast media warmers are not used for long term storage. (See Contrast Media Warmer Policy Rad.6.1.1)

A. Cystographin-Dilute (diatrizoate meglumine USP 18%) - protect from strong light, store at room temperature.

B. Omnipaque (iohexol injection) 300mg/ml, 240mg/ml, 180mg/ml - Do not freeze. Store at 15 C to 30 C (59 F to 86 F). Protect from strong daylight and direct exposure to sunlight.
C. Visipaque (iodixanol injection) 320 mg/ml – Do not freeze. Store at 20C to 25C (68F to 77F). Protect from strong daylight and direct exposure to sunlight.
D. Baros Effervescent Granules (Sodium Bicarbonate and Tartaric Acid) - Store at controlled room temperature 15 C to 30 C.
E. Entero C (Barium sulfate suspension) - Store indoors in temperature controlled environments.
F. Entero-Vu (barium sulfate suspension) - Protect from freezing (0 C/32 F) and excessive heat (above 40 C/104 F).
G. Esophotrast (Barium sulfate esophageal cream) - Store at room temperature. Avoid excessive heat (104 F).
H. E-Z -HD (Barium sulfate for suspension) - Protect from moisture, and store unreconstituted powder at temperatures below 30 C (86 F). Use immediately upon mixing with water - do not store reconstituted suspension.
I. Liquid E-Z-Paque (barium sulfate suspension) - Protect from freezing (0 C/32 F) and excessive heat (40 C/104 F).
J. E-Z Dose (liquid barium sulfate suspension) - Protect from freezing and excessive heat.
K. E-Z Disk (barium sulfate tablet – 10 grain) - Room temperature, protect from excessive heat and moisture.
L. Methylcellulose Solution - Protect from freezing and excessive heat.
M. MD-Gastroview (diatrizoate meglumine and diatrizoate sodium solution USP) - Store at room temperature; avoid excessive heat.
N. Gastrografin (Diatrizoate Meglumine and Diatrizoate Sodium Solution US9) Protect from light. Store at 20-25C and 68-77F. Avoid excessive heat.
O. Readi-Cat 2 (Barium Sulfate Suspension 2.1% w/v, 2.0% w/w
P. VoLumen (Barium Sulfate Suspension 0.1%w/v, 0.1% w/w) Protect from freezing and excessive heat.
Q. Omniscan (Gadodiamide) Injection- Protect from strong daylight, do not freeze and store 20-25C(68-77F)
R. Multihance (gadobenate dimeglumine)-Do not freeze. Store at 25C and 77F.
S. Eovist (Gadoxetate disodium)-Store at 20-25C (68-77F)

References:

ACR Practice Guideline for the Use of Intravascular Contrast Media: January 2002

AJR 1995; 165: 1543.

Radiology: 199(2); 263-6, May 1996.