

Policy Title:	USE OF CONTRAST AGENTS IN IMAGING STUDIES		
Category:	10 - Medication Management	Policy No.:	1036
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PURPOSE:

To standardize a protocol for procurement and storage of contrast material, ordering and administration of contrast material, and management of contrast allergy prophylaxis, contrast reactions, and contrast contraindications.

DEFINITION(S):

None

POLICY:

Olive View-UCLA Medical Center shall have a standardized procedure for use of oral and intravascular contrast in imaging studies.

PROCEDURE:

I. PROCUREMENT AND STORAGE

- a. Contrast material is ordered by the Department of Radiology
- b. Contrast material is stored centrally in the Department of Radiology and handled per manufacturer's recommendations and hospital policies and procedures to ensure safe medication management.
- c. Contrast is stored in locked cabinets and only accessible by technologists.
- d. A log of contrast material intake and distribution to department sections is provided to pharmacy on a weekly basis.
- e. Contrast bottle serial number is recorded in the CT log book at the time of injection to maintain a record of dose tracking

II. ORDERING

- a. Referring physician orders the appropriate imaging procedure in Cerner or through the eConsult system.

- b. Referring physician notes the precautions for young women and for pregnant and nursing mothers.

III. CONTRAST INDUCED NEPHROPATHY (CIN) AND MEDICATION INTERACTIONS

- a. Referring physician orders serum creatinine/eGFR to assess for underlying medical renal disease. All patients receiving intravenous radiographic or MRI contrast must have a creatinine/eGFR measurement and a calculated GFR during the times indicated below except for extreme emergency:
 - i. No known renal disease – creatinine/eGFR obtained within the past 30 days
 - ii. Known renal disease - Most recent creatinine/eGFR (preferably within past week). Radiologist may request a STAT test prior to administration of IV contrast
- b. eGFR is used to risk stratify for potential CIN, and contrast dose is determined by eGFR per standard protocol.
- c. Hydration – All patients should be properly hydrated prior to IV contrast CT exams to decrease the risk of CIN
- d. Follow up of renal function post contrast administration is at the discretion of the referring clinician.
- e. NSAIDs should be discontinued two days prior to IV contrast CT exams when feasible.
- f. Metformin is to be held for patients with decreased renal function (eGFR < 30 mL/min/1.73m²) and will be restarted per referring clinician after follow-up assessment of renal function.
- g. Other medications will not be routinely discontinued prior to IV contrast use, as the risks of temporarily discontinuing other medications are felt to outweigh the rare potential for interaction with contrast media.
- h. IV contrast dose for CT and MRI is to be administered by standard protocol

IV. CONSENT

- a. Consent for imaging with or without a diagnostic agent is included in the general hospital consent form.

V. ADMINISTRATION

- a. All inpatient and outpatient radiology requests will be evaluated by a Radiologist prior to scanning and assigned a departmental protocol for contrast administration. Emergency Department orders will act as a protocol, and these examinations will not be routinely assessed by a Radiologist prior to scanning in order to avoid delays in patient care.

- b. All patients will complete a patient questionnaire to assess for contraindications to contrast administration. Questionnaire will be scanned into PACS at the time of the examination and retrospectively reviewed by the Radiologist.
- c. Contrast doses and routes of administration will be in accordance with standard department protocol (attachment I). When needed, oral contrast will be administered by staff as determined by the patient's service of origin, as follows:
 - i. ER/Urgent Care: ER/Urgent Care nursing staff
 - ii. Inpatient wards: Inpatient unit nursing staff
 - iii. Outpatients: Radiology Nurse or Technologist
- d. IV access: Appropriate IV access should be obtained for power injector use (attachment II)
 - i. For inpatient, Emergency Department, and Urgent Care patients, IV access should be obtained by floor staff prior to the patient arriving at the CT suite.
 - ii. For outpatients, IV access will be obtained by Radiology Nursing Staff. Radiology Technologists can also obtain IV access, provided they have been certified to perform venipuncture from a program accredited by the American Society of Radiologic Technologists. Documentation of certification is kept with the technologists' personnel file.
- e. Contrast administration: All IV contrast is administered by a Radiologist or Radiologic technologist.
- f. Licensed Individual Practitioner (LIP) is responsible for IV contrast administration
 - i. The LIP responsible for IV contrast administration will be the in-house radiologist.
 - ii. During off hours when no in-house radiologist is available, the LIP for IV contrast administration will be the primary in-house physician.
 - iii. During off hours when no in-house radiologist is available, for emergencies regarding contrast administration, the "Code Team" will be activated.
 - iv. During off hours when no in-house radiologist is available, and the primary physician is not in house, the LIP for IV contrast administration will be the DEM Attending on duty.

VI. REACTION TO CONTRAST MATERIAL

- a. If a patient is identified as having a history of allergic reaction to contrast material, following precautions will be taken:
 - i. For history of minor or idiosyncratic reactions (eg nausea, restlessness, sweating), premedication will not be routinely given.
 - ii. For history of moderate reactions (eg itchniess and urticaria), routine premedication should be ordered by the referring physician in accordance with the Radiology protocol (attachment 3).
 - iii. For history of severe reactions (eg bronchospasm, laryngeal edema, circulatory collapse), contrast should be avoided if possible, and alternate imaging modalities or non-contrast examinations should be considered. If contrast is deemed necessary, premedication should be ordered by the referring physician

and the team should be present for the exam in anticipation of potential severe reactions.

- b. Treatments to reactions to contrast:
 - i. Immediately obtain the help of the radiologist or LIP.
 - ii. If severe, call Code Blue
- c. Medication availability:
 - i. Adult and pediatric crash carts are present in the following locations:
 - 1. Main CT suite
 - 2. Special procedures
 - 3. MRI suite
 - ii. Contrast reaction kits with Benadryl and Epipen are present in the following locations:
 - 1. Ultrasound/Breast Imaging
 - 2. Nuclear Medicine
- d. Contrast extravasation
 - i. In the event of an extravasation event during power injector use, the CT technologist is responsible for:
 - 1. Noting the estimated volume of contrast extravasation and documenting on a contrast extravasation form, which is scanned into the patient's PACS documents
 - 2. Notifying the covering LIP
 - 3. Submitting an event report in the PSN

VII. RADIOLOGICAL PROCEDURES IN PATIENTS WITH TUBE PLACEMENTS

- a. Administration of radiographic contrast, radiopharmaceutical or other agents through tubes placed into luminal structures or cavities can have serious complications. Often, when there are multiple tube placements, all of the ports are taped to the skin in one part of the body even though the tubes are directed to different regions or organs.
- b. Radiologists, Radiology Nurse, Special Procedures/Radiologic Technologists are to identify the type and location of all tubes prior to administration of contrast. If tubes cannot be well identified, the referring physician will be contacted for clarification. If confirmation cannot be obtained, the nurse responsible for the patient will be requested to come to the Department of Radiology to identify the tubes or uncover dressing to help identify tube.
- c. Prior to administration of radiographic contrast, radiopharmaceutical or other agents into tubes, of which the exact location cannot be determined, the radiologist, Radiology Nurse, or Special Procedures/Radiologic Technologist is to determine the destination of tubes based on the characteristics of the fluid aspirated from the tubing. If this is not conclusive, the study should be rescheduled until the appropriate referring physician can confirm placement of the tube.

ATTACHMENTS/FORMS:

Contrast Protocol (Attachment I)

Injection Rate Chart (Attachment II)

Contrast Reactions and Premedication (Attachment III)

REFERENCE(S)/AUTHORITY:

Joint Commission Standards MM 5.10, MM 6.20

APPROVED BY:

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