

**+SUNY DOWNSTATE MEDICAL CENTER
UNIVERSITY HOSPITAL OF BROOKLYN
POLICY AND PROCEDURE**

No. RAD-12A

Subject: CT AND MRI IMAGING STUDIES
WITH CONTRAST

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Page 1 of 6

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TJC. Standards: **MM.05.01.0 (EP.6)** All medication Orders are reviewed for the following: The appropriateness of the medication, dose, frequency, and route of administration. **MM .04.01.01(EP.15)** Review and approval of standing orders and protocols by the medical staff and the hospital's nursing and pharmacy leadership

**Issued by: Radiology Department
Regulatory Affairs**

I. PURPOSE

To establish guidelines to ensure that contrast media for imaging studies is ordered appropriately, administered safely, and the process allows for Pharmacy oversight.

II. POLICY

It is the policy of SUNY Downstate Medical Center, University Hospital of Brooklyn (UHB), that all imaging studies requiring contrast media are ordered and performed as per the protocol specified for each listed study (Appendix A through D).

All orders for contrast media shall contain the elements for medication orders as specified in the policy "Patient Medication Orders" (PHA-2). All agents will be administered following the procedures in sections IV & V of Policy CT-3.

Physicians ordering contrast media shall review the contraindications and safety information associated with the contrast order, assess the risks/benefits regarding the use of contrast, and render a decision based on each patient's needs.

If Pharmacy review of the contrast order is precluded by the urgent/emergent need to obtain the study, and any additional delay may cause potential harm, the administration of the

contrast shall be supervised by a licensed independent practitioner, who must also observe the patient post-administration.

Contrast Reaction Management

In the event of a mild adverse reaction during the administration of the IV contrast, the Radiology Technologist will immediately contact the Radiology Resident to assess the patient and determine the severity of the reaction. The Radiology Resident or the Technologist will call the ED CHARGE NURSE to pick up the patient and bring them to the ED for administration of Benadryl and post –administration observation. These patients will be prioritized so they can be discharged quickly. The Radiology Resident will place a call to the ordering physician to inform them of the reaction and administration of medication.

Reactions assessed to be moderate or severe shall immediately initiate a call a code 66 or 99 (as appropriate)

III. DEFINITIONS:

Studies Requiring Oral and/or IV Contrast:

- MRI and CT Studies
- Gastrointestinal Imaging Procedures
- Genitourinary Imaging Procedures
- Interventional Radiology Procedures

RIS: Radiology Information System

IV. RESPONSIBILITIES:

Ordering Physician
Radiologist
Radiology Technician
Nurse
Pharmacist

V. PROCEDURES:

1. Orders for CT or MRI studies are ordered by a physician/prescriber of the Primary Team or Emergency Department (ED).
2. A Radiologist “protocols” every order for an imaging study with contrast. This encompasses the following:
 - Review of the ordered study for appropriateness (study type and need for contrast)
 - Entering an order in RIS for the IV and/or oral contrast, specifying the contrast and the dose to be administered by the technologist.
 - Entering the same order(s) for contrast in HealthBridge, which allows Pharmacist review of the medication orders.
- a. If approved, the exam is then flagged in RIS, to indicate that the order was approved and the study can be scheduled.
- b. If during “protocolling” the imaging study request is rejected by the Radiologist or Radiology Resident, the reason(s) shall be documented in RIS and is communicated to the ordering physician via HealthBridge. Reasons for rejecting an ordered imaging study include but are not limited to:

- i. Inadequate history
 - ii. Inappropriate exam ordered (the suggested study will be indicated)
 - iii. Patient has known allergies (that may not be adequately mitigated by regimens to reduce risk of allergic reaction)
 - iv. Exam is not medically necessary
 - v. Exam is contraindicated
 - vi. Laboratory values out of range
 - vii. Any other reasons for rejection of study as per Radiologist assessment (documented as free-text entry)
3. The Radiology resident/physician enters orders for IV and/or oral contrast, including drug name and dose, according to Radiology approved protocols.
 - a. Contrast doses that require weight-based dosing shall be calculated by the Radiology resident/physician.
 - b. For CT studies in which the dose adequate for the study may vary according to patient's body habitus, a maximum dose shall be ordered/entered by the Radiology resident.
4. For approved studies, the Radiology Technician receives the order, schedules the study, and schedules the patient in RIS.
5. For admitted patients with a medication profile, the Pharmacist screens the medication profile for allergies, contraindications, and drug interactions according to the departmental policy, "Verification and Review of Prescription Orders." The Pharmacist then reviews orders for Oral and/or IV contrast media for completeness and "Verifies" complete and correct order(s).
 - a. If review of the medication profile reveals that a patient is actively receiving metformin and the patient will receive IV contrast for a CT study, the Pharmacist will contact the ordering Primary Team to discontinue the metformin for 48 hours following administration of the IV contrast (as recommended by the manufacturer).
 - b. If the medication profile reveals a history of patient allergy to the type of contrast media ordered, the Pharmacist will contact the Radiology physician for clarification.
6. Doses of oral contrast for pediatric patients shall be prepared by Pharmacy staff for delivery to the patient care area.
7. For outpatients with no electronic medication profile for the Pharmacist to review, the Radiology physician/resident interviews the patient to identify allergies, contraindications, and the use of metformin for 48 hours after the patient receives IV contrast following a CT study.
8. When a CT study with oral contrast is ordered for an inpatient or ED patient, the Radiology technologist notifies the nurse of the scheduled time to coordinate the timing of contrast administration. Nurses administer the oral contrast to inpatients and ED patients, and the Technologist administers the oral contrast to outpatients.
 - a. Nurses shall document administration of the oral contrast in the T-System or HealthBridge, according to the patient's location.
 - b. For outpatients, the radiologic technologist will document the administration of oral contrast in RIS.
9. When the patient arrives for the study, the Radiology Technician prepares and administers the IV contrast according to the following procedure:

- a. The order in RIS serves as the source document so that the Technician can retrieve the correct contrast media and dose for administration.
 - b. For CT/MRI scans with IV contrast, the Technician shall set the CT/Medrad® Injector to deliver the dose ordered by the Radiologist, and allow for an additional 5 mL of the media for line purging.
 - c. The Technician shall document administration of the contrast in RIS, including:
 - drug name
 - volume administered to patient
 - drug vial expiration date
 - drug vial lot number
10. If contrast media has been ordered and the imaging study is cancelled in RIS, the Radiology resident /physician shall discontinue the order(s) for contrast media in HealthBridge as appropriate.
 11. If contrast media has been ordered and the imaging study is cancelled in RIS, the Radiology resident/physician shall discontinue the order(s) for contrast media in HealthBridge as appropriate.

VI. SAFETY SCREENING:

1. The radiology physician protocoling the CT study will screen patients for the risks of contrast administration including unknown effects on fetus/nursing infants, abnormal renal function, allergies, oral antidiabetic medicines, repeated administrations of contrast, multiple myeloma, sickle cell.
2. Patients will be monitored following injection for signs of a reaction, including nausea/vomiting, shortness of breath and extravasation.
3. Safety screening guidelines are based on American College of Radiology Manual on contrast media. https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf
 - a. The use of contrast agents will be requested by the Referring Physician, and then use will be reviewed and approved by the protocoling Radiologist.
 - b. **Patient must be NPO** for 4 hours prior to having an elective CT / Emergent CT exams may not require NPO status. The Radiology Resident protocoling the exam will confer with the ordering physician to determine NPO status. NPO status is usually a preventive measure to decrease the risk of aspiration from potential vomiting.
 - c. **IV access** - must be adequate to minimize risk of extravasation. CTAs requires a 20 gauge or larger access port positioned above the level of the wrist. Ports must be marked for CT injection and show the allowable rate. PICC insertion performed by Radiology Interventional can be used for injection.
 - d. **Nursing Mothers** – Breastfeeding patients will be asked to suspend breast-feeding for 2 days following contrast administration.
 - e. **Pregnant** – patients will not be administrated Gadolinium.
 - f. **Renal Function** – Patients with stable renal function must have a serum Cr within 4 weeks. Medically unstable or patients with new onset of Renal compromise

must have serum Cr performed within 24hrs. The Radiologist/Resident will calculate the GFR using the web site for all patients. GFR must be $>$ or $=$ 30. (<https://www.kidney.org/professional/KDOQI/gfrcalculator>). If GFR $<$ 30 mL/min and not on dialysis must obtain Nephrology consult.

- g. **End stage renal disease on chronic dialysis** – must undergo dialysis within 4hrs of receiving contrast. The Radiology Resident will confer with the ordering physician and/or Renal Physician to confirm that Hemodialysis will be scheduled following the procedure. The Technologist will then confirm with the patients nurse that a session has been arranged. This information will be entered into RIS. These patients will not be administered Gadolinium.
 - h. **Emergency Room Pediatric Patients (<18 years old)** – are NOT required to have serum Cr screening unless there is a history of renal disease, kidney transplant, single kidney, renal cancer, prior renal surgery, hypertension requiring medical therapy, diabetes, or on metformin or other antidiabetic drugs(diabetes requiring medical therapy.
 - i. **Allergies** – Patients stating they have allergies not related to contrast medium, so severe that they have difficulty breathing or have asthma and are on continuous medication may be pre-medicated as ordered by the Radiologist and/or the Referring physician. Patient's with known allergic reaction to contrast media may also be pre-medicated. Pre-medication will be administered as described in section (j).
- NOTE:** mild allergies, including seasonal, shellfish and medication are not usually considered significant.
- j. **Pre-Medication is recommended** in patients with a known history of allergy to contrast media.
Routine: Prednisone 50mg PO 13hrs. 7hrs, 1hr prior to the exam **and** Diphenhydramine (Benadryl) 50mg PO 1hr prior to exam
Emergent: Methylprednisolone 40mg intravenously every 4hrs until time of exam and Diphenhydramine 50mg IV intravenously 1 hr. prior to exam.
 - k. **Oral Anti-Diabetes Medications** - Patients taking Metformin (Glucophage) or metformin-containing oral antidiabetic medications should not take the morning of the exam and for 48 hours after the exam. Patients must contact their primary care physician before stopping and resuming.
 - l. **Repeated administration of contrast** - Patients requiring multiple contrast enhanced exams must have a GFR calculated before additional contrast is administered. .
 - m. **Exceptions/Escalation/Appeal:** When there is concern about whether contrast should be administered, either an alternative study or study without contrast should be considered. The safest solution is to do an alternative study or do the exam without contrast and re-evaluate. If this is not acceptable, then conduct a risk/benefit analysis including the Attending Referring Physician, Attending Radiologist, and if appropriate Nephrologist. The results of which must be documented in the patient's medical record.

VII. Attachments:

CT/Safety Screening form

- Appendix A. - Adult CT Protocol/IV Doses
- Appendix B. - Pediatric CT Protocol/IV Doses
- Appendix C. - CT protocol/Oral Doses
- Appendix D. - Magnetic Resonance Imaging Protocol

VIII. REFERENCES

UHB Policy on “Patient Medication Orders” (PHA-02)
 Pharmacy Department Policy on “Verification and Review of Prescription Orders”

American College of Radiology. ACR Manual on Contrast Media Version 10.3. (2017).
 Retrieved from https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf

Safety screening Guidelines based on ACR Manual on contrast media.
https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf

Date Reviewed	Revision Required (Circle One)		Responsible Staff Name and Title
12/2007	Yes	No	James Shanahan Administrator, Radiology Department
6/2012	(Yes)	No	James Shanahan Administrator, Radiology Department
2/2015	(Yes)	No	Donna McKenzie Administrator, Radiology Department
7/2015	(Yes)	No	Donna McKenzie Administrator, Radiology Department
2/2017	(Yes)	No	Donna McKenzie Administrator, Radiology Department LilyAnn Jeu, Medication Safety Pharmacist
10/2018	(Yes)	No	Vincent Monte, Radiology Department LilyAnn Jeu, Medication Safety Pharmacist, Pharmacy Department

Exam	Dose	Instructions
Routine Abdomen/Pelvis w/IV contrast	Administer 95 mL of Omnipaque 300mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
Abdomen/Pelvis “HEMATURA Protocol”	Administer total of 130 mL of Omnipaque 300 mg Iodine/mL intravenously as first injection of 50 mL, followed by 8-10 minute delay in scan time, then second injection of 80 mL.	Draw 135 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 130 mL dose as per protocol
Abdomen/Pelvis “Liver Protocol”	Administer 95 mL of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
Abdomen “W/ & WO Contrast” “W/Contrast”	Administer 95 mL of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
Abdomen “Adrenal Mass Protocol” “Pancreas protocol”	Administer 95ml of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
Abdomen “Aortic Dissection” “CTA Abd.W & WO” “CTA Pelvis W & WO”	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient’s body habitus, the amount of contrast administered may be less than 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol
Abdomen/Pelvis “GI Bleed Protocol”	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient’s body habitus, the amount of contrast administered may be less than 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol.
Pelvis “Pelvis W/ Contrast” “Pelvis W & WO “ -“Perirectal Abscess”	Administer 95 mL of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol

Exam	Dose	Instructions
Angio Brain “Circle of Willis protocol”	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient’s body habitus, the amount of contrast administered may be less than 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol
Angio Neck	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient’s body habitus, the amount of contrast administered may be less than 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol
Chest w/contrast Chest W & W/O	Administer 95 mL of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
Chest w/contrast “SVC Protocol”	Administer maximum of 150 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient’s body habitus, the amount of contrast administered may be less than 150 mL.	Draw 155 mL of Omnipaque 300 mg Iodine/mL to allow for 5 mL purge and administer 150 mL dose as per protocol
Chest “Pulmonary Embolism” “Thoracic Aorta Protocol” (Except Pregnant Women)	Administer 95 mL of Omnipaque 350 mg Iodine/mL intravenously. Due to patient’s body habitus, radiologist may order up to maximum 120 mL of contrast.	Add an additional 5 mL of Omnipaque 350mg Iodine/mL to ordered dose to allow for line purge. Note: Patients with known allergies to Omnipaque use VISIPAQUE 320 Iodine/mL (requires new radiologist order)
Chest “Pulmonary Embolism” for Pregnant Women	Administer 95 mL of Omnipaque 350 mg Iodine/mL intravenously. Due to patient’s body habitus, radiologist may order up to maximum 120 mL of contrast.	Add an additional 5 mL of Omnipaque 350mg Iodine/mL to ordered dose to allow for line purge. Note: Patients with known allergies to Omnipaque use VISIPAQUE 320 Iodine/mL (requires new radiologist order)
Chest “CTA W & WO Contrast”	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Due to patient’s body habitus, the amount of contrast administered may be less than 120 mL	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol

Exam	Dose	Instructions
Extremity - Upper or Lower "Unilateral or bilateral" W/ Contrast	Administer 95 mL of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
Lower Extremity "CTA PROTOCOL"	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient's body habitus, the amount of contrast administered may be less than 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol
HEAD / NECK "Orbits/temporal or Maxillofacial" "Head W Con." " Head W & W/O" " Neck soft Tissue" "CTA Head W & W/O"	Administer 95 mL of Omnipaque 300 mg Iodine/mL intravenously	Draw 100 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 95 mL dose as per protocol
SI Stroke "Head & Neck " "CTA Neck W & W/O "	Administer maximum total of 120 mL of Omnipaque 300 mg Iodine/mL intravenously as follows: Inject 40 mL bolus following perfusion study, then inject remaining 80 mL while performing angiogram of head and neck. Note: Due to patient's body habitus, the amount of contrast administered may be less than total of 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol
Venogram "lower extremity "	Administer maximum of 120 mL of Omnipaque 300 mg Iodine/mL intravenously. Note: Due to patient's body habitus, the amount of contrast administered may be less than 120 mL.	Draw 125 mL of Omnipaque 300 mg Iodine/mL to allow for a 5 mL purge and administer 120 mL dose as per protocol

Exam	Dose	Instructions
PEDIATRIC Abdomen "Appendicitis Protocol- 6mos-18yrs"	Administer 2 mL/kg of Omnipaque 300mg Iodine /mL Intravenously. Note: patients weighing in excess of 50 kg will be considered adult weight and administered 95 mL of contrast.	Add an additional 5 mL of Omnipaque 300mg Iodine/mL to ordered dose to allow for line purge.
PEDIATRIC Abdomen "Routine Protocol 6mos- 18yrs"	Administer 2 mL/kg of Omnipaque 300mg Iodine /mL Intravenously. Note: patients weighing in excess of 50 kg will be considered adult weight and administered 95 mL of contrast.	Add an additional 5 mL of Omnipaque 300mg Iodine/mL to ordered dose to allow for line purge.
PEDIATRIC Chest "Routine Protocol 6mos- 18yrs"	Administer 2 mL/kg of Omnipaque 300mg Iodine/mL Intravenously. Note: patients weighing in excess of 50 kg will be considered adult weight and administered 95 mL of contrast.	Add an additional 5 mL of Omnipaque 300mg Iodine/mL to ordered dose to allow for line purge.
PEDIATRIC Brain w/contrast "6mos-18yrs"	Administer 2 mL/kg of Omnipaque 300mg Iodine/mL Intravenously. Note: patients weighing in excess of 50 kg will be considered adult weight and administered 95 mL of contrast.	Add an additional 5 mL of Omnipaque 300mg Iodine/mL to ordered dose to allow for line purge.
Pediatric Neck w/contrast ""6mos-18yrs"	Administer 2 mL/kg of Omnipaque 300mg Iodine /mL Intravenously. Note: patients weighing in excess of 50 kg will be considered adult weight and administered 95 mL of contrast.	Add an additional 5 mL of Omnipaque 300mg Iodine/mL to ordered dose to allow for line purge.

CT PROTOCOL FOR EXAMS REQUIRING ORAL PREP

PRE-MIXED Oral Diluted Omnipaque 300mgI/ML		
Age Group	Medication and Dose	Administration Instructions
Adult Patients	Commercially formulated Omnipaque (9 mg Iodine/mL) 500 mL oral x 1 dose *ED WILL DISPENSE & ADMINISTER *Pharmacy will dispense to Nursing units	Give 500 mL starting one hour prior to CT study. Save last 100 mL to be administered immediately prior to patient leaving unit for CT study.
Pediatric Patients Age 0 – 6 months	Omnipaque (9 mg Iodine/mL) 50 mL oral x 1 dose Prepared & Delivered by Pharmacy.	Give 50 mL starting one hour prior to CT study. Save last 10 mL to be administered immediately prior to patient leaving unit for CT study.
Pediatric Patients Age 7 – 18 months	Omnipaque (9 mg Iodine/mL) 150 mL oral x 1 dose Prepared & Delivered by Pharmacy.	Give 150 mL starting one hour prior to CT study. Save last 40 mL to be administered immediately prior to patient leaving unit for CT study.
Pediatric Patients Age 19 – 35 months	Omnipaque (9 mg Iodine/mL) 200 mL oral x 1 dose Prepared & Delivered by Pharmacy.	Give 200 mL starting one hour prior to CT study. Save last 50 mL to be administered immediately prior to patient leaving unit for CT study.
Pediatric Patients Age 3 – 11 years	Omnipaque (9 mg Iodine/mL) 300 mL oral x 1 dose Prepared & Delivered by Pharmacy.	Give 300 mL starting one hour prior to CT study. Save last 75 mL to be administered immediately prior to patient leaving unit for CT study.
Pediatric Patients Age 12 years and older	Omnipaque (9 mg Iodine/mL) 500 mL oral x 1 dose Prepared & Delivered by Pharmacy.	Give 500 mL starting one hour prior to CT study. Save last 100 mL to be administered immediately prior to patient leaving unit for CT study.

**Pediatric CT Protocol Oral PREP / Barium Sulfate (Readi-Cat 2.1%)
As alternate prep when ordered by Radiologist or Ordering Physician**

Age Group	Medication	Dose and Administration Instructions
Pediatric Patients Age 0 – 3 months	Barium sulfate (Readi-Cat) 2.1% Prepared & Delivered by Pharmacy.	Give 25 mL orally every 45 minutes x 2 doses, starting one hour prior to CT study. Total dose: 50 mL
Pediatric Patients Age 4 months – 1 year	Barium sulfate (Readi-Cat) 2.1% Prepared & Delivered by Pharmacy.	Give 87.5 mL orally every 45 minutes x 2 doses, starting one hour prior to CT study. Total dose: 175 mL
Pediatric Patients Age 1 – 5 years	Barium sulfate (Readi-Cat) 2.1% Prepared & Delivered by Pharmacy.	Give 125 mL orally every 45 minutes x 2 doses, starting one hour prior to CT study. Total dose: 250 mL
Pediatric Patients Age 6 – 10 years	Barium sulfate (Readi-Cat) 2.1% Prepared & Delivered to by Pharmacy.	Give 250 mL orally every 45 minutes x 2 doses, starting one hour prior to CT study. Total dose: 500 mL
Pediatric Patients Age 11- 15 years	Barium sulfate (Readi-Cat) 2.1% Prepared & Delivered by Pharmacy.	Give 375 mL orally every 45 minutes x 2 doses, starting one hour prior to CT study. Total dose: 750 mL
Pediatric Patients Age 16 years and older	Barium sulfate (Readi-Cat) 2.1% Prepared & Delivered by Pharmacy.	Give 450 mL orally every 45 minutes x 2 doses, starting one hour prior to CT study. Total dose: 900 mL

Exam	Dose	Instructions
Contrast-Enhanced MRI for Central Nervous System	Administer 0.2 mL/kg of Omniscan (Gadodiamide 287 mg/mL) Intravenously up to maximum dose of 20 mL.	Add an additional 5 mL Omniscan (Gadodiamide 287 mg/mL) to ordered dose to allow for line purge (Not to exceed drawing up 25 mL).
Contrast-Enhanced MRI for Kidney	Administer 0.1 mL/kg of Omniscan (Gadodiamide 287 mg/mL) Intravenously up to maximum dose of 20 mL.	Add an additional 5 mL of Omniscan (Gadodiamide 287 mg/mL) to ordered dose to allow for line purge (Not to exceed drawing up 25 mL).
Contrast-Enhanced MRI for Body	Administer 0.2 mL/kg of Omniscan (Gadodiamide 287 mg/mL) Intravenously up to maximum dose of 20 mL.	Add an additional 5 mL of Omniscan (Gadodiamide 287 mg/mL) to ordered dose to allow for line purge (Not to exceed drawing up 25 mL).