

**TRA** Medical  
Imaging  
**Policy and Procedure**

**Subject:** CT & MR iSTAT  
**Responsible Party:** Quality  
**Revision Date:** 7/30/18

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**POLICY:**

The following CT & MR iSTAT policy and procedure has been developed to ensure a consistent protocol is followed for CT & MR patients needing their GFR checked prior to receiving IV contrast. Staff will comply with the following protocol when using IV contrast during CT & MR examinations on all patients.

**DEFINITIONS:**

**CT:** Computed Tomography imaging exam.

**MR:** Magnetic Resonance imaging exam.

**Affiliated Location:** Franciscan Health System or MultiCare Health System hospitals where a TRA Medical Imaging Radiologist or Pediatric Radiologist can be located via phone.

**Creatinine:** A break-down product of creatinine phosphate in muscle; usually produced at a fairly constant rate by the body (depending on muscle mass). Creatinine is chiefly filtered out of the blood by the kidneys (glomerular filtration and proximal tubular secretion).

**GFR (Glomerular Filtration Rate):** Describes the flow rate of filtered fluid through the kidney. GFR is calculated using the serum creatinine and other factors such as age and gender.

**PROCEDURE:**

- Determine whether a patient needs a creatinine level; to calculate the GFR prior to giving IV contrast to the patient, use the following criteria (this can be determined several days before patient's appointment or on the day of exam):
  - AGE **60** or older.
  - History of kidney disease or kidney failure.
    - Dialysis
      - For patients who are anuric, coordination with their provider is needed to make sure patient gets dialysis within 48 hours.
    - Kidney transplant
    - Single kidney
    - Renal cancer
    - Renal surgery
  - History of diabetes mellitus – Type I or II.
  - History of hypertension requiring medical therapy.
  - Metformin or metformin-containing drug combinations

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Generic Ingredients	Trade Names
Metformin	Glucophage Glucophage XR Fortamet Glumetza Riomet
Glyburide/metformin	Glucovance
Glipizide/metformin	Metaglip
Linigliptin.metformin	Jentadueto
Pioglitazone/metformin	ActoPlus Met ActoPlus Met XR
Repaglinide/metformin	Prandimet
Rosiglitazone/metformin	Avandamet
Saxagliptin/metformin	Kombiglyze XR
Sitagliptin/metformin	Janumet Janumet XR

(Metformin and several of the combination drugs are also available in generic versions).  
List most recently revised on 4/17/14.

- If the patient needs a creatinine level to determine GFR prior to their CT or MR with contrast, contact the Ordering Physician to determine if the patient had a Comprehensive Metabolic Panel drawn within the last 30 days.
  - If the Ordering Physician's office does not have labs drawn within 30 days on file, obtain an order from the Ordering Physician to draw blood and run the iSTAT test to get a creatinine level. Record attempts to gain order from referring provider in RIS. Radiologist may order iSTAT if we're not able to obtain orders from the provider; note in RIS.
- On the day of the patient's CT or MR exam, if no prior labs have been drawn within 30 days, draw blood and run the iSTAT according to manufacturer's instructions prior to flushing the IV with saline. Record the patient's first and last name, date of birth, MRN# and date of test on the iSTAT slip, or fill out iSTAT Patient Test Results form.
- Add lab charges in RIS.

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- Once the blood sample is run through the iSTAT and a creatinine is obtained, enter the value into the GFR calculator online ([Online National Kidney Foundations Calculator](#)).
  
- **CT**
  - GFR > or = 45 proceed with the exam as ordered.
  - No need to hold Metformin after CT scan if GFR > 30.
  - GFR 35-44 administer oral hydration. Have patient sign Oral Hydration Instruction document. Give the patient a copy and scan a copy into RIS.
  - GFR 30-34 administer IV hydration.
  - GFR < 30 Non-contrast.
    - If there is a request for IV contrast for a patient with GFR < 30, consult with a Radiologist to determine if the benefits of contrast outweigh the risks.
    - In patients taking metformin who are known to have acute kidney injury or severe chronic kidney disease (stage IV or stage V; i.e., GFR < 30), Metformin should be temporarily discontinued at the time of the procedure, and withheld for 48 hours subsequent to the procedure, and reinstated only after renal function has been re-evaluated by the Referring Provider.
  - Dialysis patients who are anuric - coordination with their Provider is needed to make sure patient gets dialysis within 48 hours.
  
- **MR**
  - GFR > 30 proceed with the exam as ordered.
  - GFR < or = 30 Non-contrast.
    - If there is a request for IV contrast for a patient with GFR <30, consult with a Radiologist to determine if the benefits of contrast outweigh the risks.
  
- Follow the Radiologist's instructions on how to proceed. Document the Radiologist's instructions on history sheet and in patient's RIS account. If the exam has to be changed, contact the Prior Authorization Department to verify that patient's insurance covers exam, even after the change of CPT code. If the radiologist recommends Hydration Protocol obtain an order from the Ordering Physician or Radiologist, and coordinate the exam with the IR Nurse or Imaging Assistant's schedule, along with the CT or MR schedule.
  - If exam is changed to non-contrast due to GFR, Radiologist will dictate in report.

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- Scan lab results into RIS & PACS.
  
- Any prior lab reports from Ordering Physician or the performed iSTAT results should be scanned into RIS and PACS; also document the Creatinine, GFR, and date in the proper place on the history form.

**RESPONSIBILITY:**

There are three groups responsible for implementation and enforcement of the CT & MR iSTAT policy and procedure:

**CT/MR Technologists** - Where it pertains to screening and managing the patient's care.

**Radiologists** - Where it pertains to overseeing the CT & MRI examination process and documentation of all exams.

**Managers** - Where it pertains to education, implementation of the standardized CT & MR iSTAT examination policy and procedure.

**REFERENCE: RELATED DOCUMENTS, FORMS AND TOOLS:**

CT Program Requirements [http://www.acr.org/accreditation/computed/ct\\_reqs.aspx](http://www.acr.org/accreditation/computed/ct_reqs.aspx)

CKD EPI creatinine equation (2009) Calculator  
[http://www.kidney.org/professionals/kdoqi/gfr\\_calculator.cfm](http://www.kidney.org/professionals/kdoqi/gfr_calculator.cfm)

FDA requirements -  
<http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm142882.htm>

ACR Manual on Contrast Media v.10.5 (2016) American College of Radiology