# Zuckerberg San Francisco General Hospital and Trauma Center
# Imaging Services Department Policy MR-007

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## TITLE: IV Contrast Administration in MRI in Patients with Renal Failure

Research in the early 2000s established a link between nephrogenic system fibrosis (NSF) and intravenous administration of gadolinium in patients with chronic and end stage renal disease (1, 2). However, more recent research on newer gadolinium agents has led the American College of Radiology (ACR) to conclude that the risk of NSF in patients receiving certain gadolinium agents "is sufficiently low or possibly nonexistent" (3–5). ZSFG is amending our gadolinium administration policy in accordance with these new guidelines as follows:

1. Gadolinium-based contrast agents (GBCAs) should only be administered when deemed necessary by the radiologist.
2. Routine screening and laboratory testing for renal failure is no longer required prior to the administration of group II agents. (See chart below)
3. If a patient presents with known renal failure, the radiologist should confirm necessity of administering a group II agent.
4. If a group II agent is used in the setting of dialysis, hemodialysis should be performed as soon as possible after contrast administration.
5. Group I agents (Gadodiamide, Gadopentetate dimeglumine, Gabdoversetamide) are contraindicated in patients on dialysis, and are no longer used at ZSFG.
6. Group III agents (Eovist®) require informed consent when eGFR < 30.

| | eGFR > 30 | eGFR < 30 |
|---|---|---|
| **Group II GBCA (Gadavist®)** | Single dose appropriate | Confirm necessity of GBCA |
| **Group III GBCA (Eovist®)** | Single dose appropriate | Informed consent needed |

Routine creatinine/eGFR screening is no longer necessary for patients receiving Gadavist. For patients that already have a GFR measured and have known eGFR < 30, the technologist will

confirm with the radiologist that the gadolinium is necessary for the study.

If a gadolinium-enhanced study is ordered for a patient who is known to be on dialysis, it will be confirmed with the ordering provider and the supervising radiologist that gadolinium is necessary for this examination and there are no reasonable alternative examinations. If that is the case, hemodialysis should be arranged soon after the examination, preferably within 24 hours. Radiology will attempt to accommodate patients within 24 hours of scheduled dialysis. However, this may not always be possible, and it is the responsibility of the ordering provider to consult with nephrology should off schedule or urgent dialysis be needed.

For abdominal examinations, the contrast required will be specified at the time of protocolling. If the contrast is not specified, the study should be returned to radiologist for re-protocolling.

If MRI with Eovist is planned, all outpatients should have eGFR measured within 45 days, unless they have known eGFR < 45 mg/dl. In patients and ED patients receiving Eovist should have eGFR measured within 72 hours. If outpatient's eGFR is < 45 mg/dl, eGFR should be re-measured within one (1) week of the study. If Eovist is needed for MRI and the patient's eGFR is < 30 mg/dl, the attending radiologist should obtain informed consent from the patient or the patient's power of attorney. If informed consent is not able to be obtained, a waiver of informed consent should be obtained.

## References:


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3. Nandwana SB, Moreno CC, Osipow MT, Sekhar A, Cox KL. Gadobenate Dimeglumine Administration and Nephrogenic Systemic Fibrosis: Is There a Real Risk in Patients with Impaired Renal Function? Radiology. 2015 Apr 15;276(3):741–7.

4. Soulez G, Bloomgarden DC, Rofsky NM, Smith MP, Abujudeh HH, Morgan DE, et al. Prospective Cohort Study of Nephrogenic Systemic Fibrosis in Patients With Stage 3–5 Chronic Kidney Disease Undergoing MRI With Injected Gadobenate Dimeglumine or Gadoteridol. Am J Roentgenol. 2015 Aug 21;205(3):469–78.

5. American College of Radiology Contrast Manual [Internet]. [cited 2018 Jun 16]. Available from: https://www.acr.org/Clinical-Resources/Contrast-Manual


**Supersedes:** Section IIC of Contrast Administration in Radiology (PC-001)
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