CLINICAL ALERT – Sample Practice Guidelines
May 16, 2022

CRITICAL IV CONTRAST SHORTAGE NATIONWIDE:

GE Healthcare is a major source for intravenous contrast media. The main GE manufacturing plant located in Shanghai, China, has been dramatically impacted by a lock down imposed by the local authorities to contain a recent outbreak of COVID-19. GE Healthcare will only have a 20% supply allocation, meaning an 80% reduction in stock; an anticipated nationwide shortage *at least* until the end of July.

This is a critical shortage and requires immediate action. Next steps:

- Minimize contrast usage as clinically appropriate
- Maximize bottle usage while adhering to manufacturing guidelines regarding contrast stability
- Use alternative imaging methods if possible (e.g., MRI)
- Consider diluting the contrast using the manifold if clinically appropriate
- Utilize contrast saver device/spiked contrast controller transfer device when possible
- For non-urgent procedures, consider delaying cases for 6-8 weeks

Preparations Guidelines and Dosing

Follow safety precautions to ensure compliance with regulatory and best practice standards.

- All manufacturers of IV Contrast Media (non-ionic) can be used based on their appropriateness for the scheduled study. For all procedures utilize the smallest vial available for completing the procedure.

- Seek to maximize bottle usage while adhering to manufacturing guidelines regarding contrast sterility and utilize Contrast Saver Device/spiked contrast controller transfer device when available

- All product removed from an original vial/bottle is designated for immediate use and must be administered within 4 hours when removed from single-use vials and 8 hours when removed from a multi-dose vial (usually greater than 150mls).

- The vial from which a dose is removed must be labeled with the date/time punctured and used with 4 hours (or 8 hours for 500mL multi-dose vials) or the time frame designated by manufacturer, whichever is shorter. Recommend writing the appropriate expiration time of 4 hours (or 8 hours for 500mL multi-dose vials) on the vial. Any unused product exceeding the above timeframe must be discarded.

    - To use a product greater than 12 hours from the time of preparation/drawn up it must be prepared by PHARMACY within a sterile ISO 5 environment (sterile hood), regardless of manufacture timing.

- All nonionic contrast media formulations 300mg and higher can be used for CT imaging studies with the following recommend conservation strategies:
    1. Limit the contrast dose to 50mL-75mL
    2. When a vial is punctured and/or product is removed:
        a. Original vial/bottle is punctured with a device that facilities a single entry for use. The original vial/bottle is labelled with the time and date it was punctured and the vial expiration date and time.
        b. Each container (syringe or other) Each bottle/Vial/syringe that the contrast is transferred into/from MUST be labeled with the time of puncture and expiration date/time

As the situation progresses, pharmacy and operations in concert should evaluate the need to trigger the unit dosing of larger bottles into smaller aliquots under sterile conditions.

Imaging

- Non-contrast procedure should be scheduled as usual. These include lines and ports.
- All Imaging Departments should consider evaluating their schedules daily, working closely with the Radiologist and referring physicians to determine if the patient appointment can be performed without contrast. If yes, exam will be scheduled as appropriate

Scanning Directive for All CTs:

- ALL currently scheduled OP Contrast exams in CT and fluoro should be reviewed by a Radiologist and protocoled for Contrast vs Non-Contrast exam. If it's an Oncological reason, the Imaging team should contact the referring Physician to see if the patient's exam can be done without contrast or be prioritized

CTA guidelines

- Perform all non-CTA contrast enhanced exams including oncology cases with 50 ml of contrast for BMI<40 and 75 ml for BMI>40.
- Perform CTA exams with 75 ml
- For longer acquisitions including CAP and run-offs use 100 ml
- Injection rates should be 4 ml/second for CTA and 2 ml/second for non-CTA exams.

Interventional Radiology (IR)

- IR should review their schedule daily using the same methodology as the imaging department, working closely with IR Physicians and Referring physicians.
- IR Abscessogram patients - If the patient has less than 10cc output or experiencing fever or experiencing new significant pain the procedure should proceed; otherwise, the patient should be cancelled and the patient should be instructed to contact IR if they have less than 10 cc output or experience fever or experiencing new significant pain. •

    - Important: Sometimes the abscessogram procedure is actually a biliary cath check or Cholecystostomy tube check. It will be critical to determine the type of tube prior to contacting the patient.
- Procedures related to cancers – to be determined by the Radiologist on a case-by-case basis.
    - Exception: Y90 treatment should be scheduled as usual.
- IR Liver cases will be reviewed with appropriate physicians to determine which patients require a study or which can hold and for how long.

Imaging Dept To Do's:

- Contrast Saver Device/spiked contrast controller transfer device in CT Standard work with the use of power injector
- Expiration Date, Time, and Documentation –Each bottle/Vial/syringe that the contrast is transferred into/from MUST be labeled with the time of puncture and expiration date/time
- Standard work for Tracking Patient Schedule Procedures with Contrast – Determining inventory daily needs
- Tracking Patient Rescheduling

Surgery/GI/Urology/Pain Procedures

- All Fluoroscopy procedures can use a lower concentration (180, 240), if available
- Pain Management – can use lower concentrations, if available (180mg). Pain procedures only require 3 – 5mL per patient procedure
- GI Lab evaluated their current ERCP case load, considers 25 – 30 mL per patient if needed
- Oncology GI cases may need a higher concentration of contrast media (300mg or higher)
- Surgeons are not scheduling any OP elective cases that need IV Contrast until after July 1 (will be a moving target)
- Surgeons and Clinic/Office Schedulers to identify cases that normally require Contrast but are proceeding without using Contrast and this will be noted on each Case Request
- OR leadership reviewing OR schedules looking for any fallouts and instructing OR schedulers to alert surgeon offices that they must review, modify, or move theses OP elective cases accordingly
- Vascular Surgery- will follow process to reduce contrast use appropriately

ED/Trauma/Stroke CT Criteria

- A CT Pulmonary Angiogram is not routinely indicated if d-dimer is negative.
- Consider ordering CT Abdomen Pelvis studies WITHOUT IV contrast. (i.e., rule-out appy/diverticulitis/colitis/SBO, etc. typically don't need IV CONTRAST).
- CT Angio head/neck for TIA or RESOLVED neuro symptoms is not routinely indicated.
- Reserve Head/Neck CT angiograms for patients with Large Vessel Occlusion symptoms or have SAH to r/o aneurysm to reserve contrast for cerebral angiograms needed for embolectomy and coiling.
- For TIA or minimal neuro symptoms, a CT Head WITHOUT contrast should suffice and an MRA can be performed thereafter if needed.
- Should any of these guidelines disrupt what you feel is best care for your patients, use your own discretion and consult with the Radiologist if needed
- After hours that require a decision whether to use contrast, please contact the Radiologist on call at your location

***Recommendations to consider in minimizing contrast studies**:*

- For TIA or minimal neuro symptoms, a CT Head WITHOUT contrast should suffice and an MRA can be performed thereafter if needed.
- For **stable** rule-out ABDOMINAL aortic aneurysm, consider ordering a CT A/P without contrast or Abdominal aortic ultrasound.

CATH LAB, EP

- Cath Labs could utilize an Ultra-Low Contrast protocol to conserve contrast – See Cath Lab Manager for specific details
- Continue to perform TAVR work ups
- Cath lab staff could use the syringe (not the Acist auto injector) for coronary work and try mixing contrast with saline in the syringe. DO NOT dilute the contrast so much that you need to take extra pictures.
- Limit the number of projections to only those necessary and use IVUS liberally to help make diagnoses
- Consider cancelling 'Very' elective CT Coronary Angios.
- Research studies requiring a CT Scan should be reviewed with the Radiologist if the research patient cannot be rescheduled

ONCOLOGY

- Chest CT exams with contrast will be converted to non-contrast exams in most cases
- For abdominal and pelvic CT exams, contrast is generally needed for staging/re-staging, and you may consider the examination being delayed until after the shortage of supply is over.
- If a contrast examination is required in order to effect acute care management, discussion with Radiology to facilitate that request.