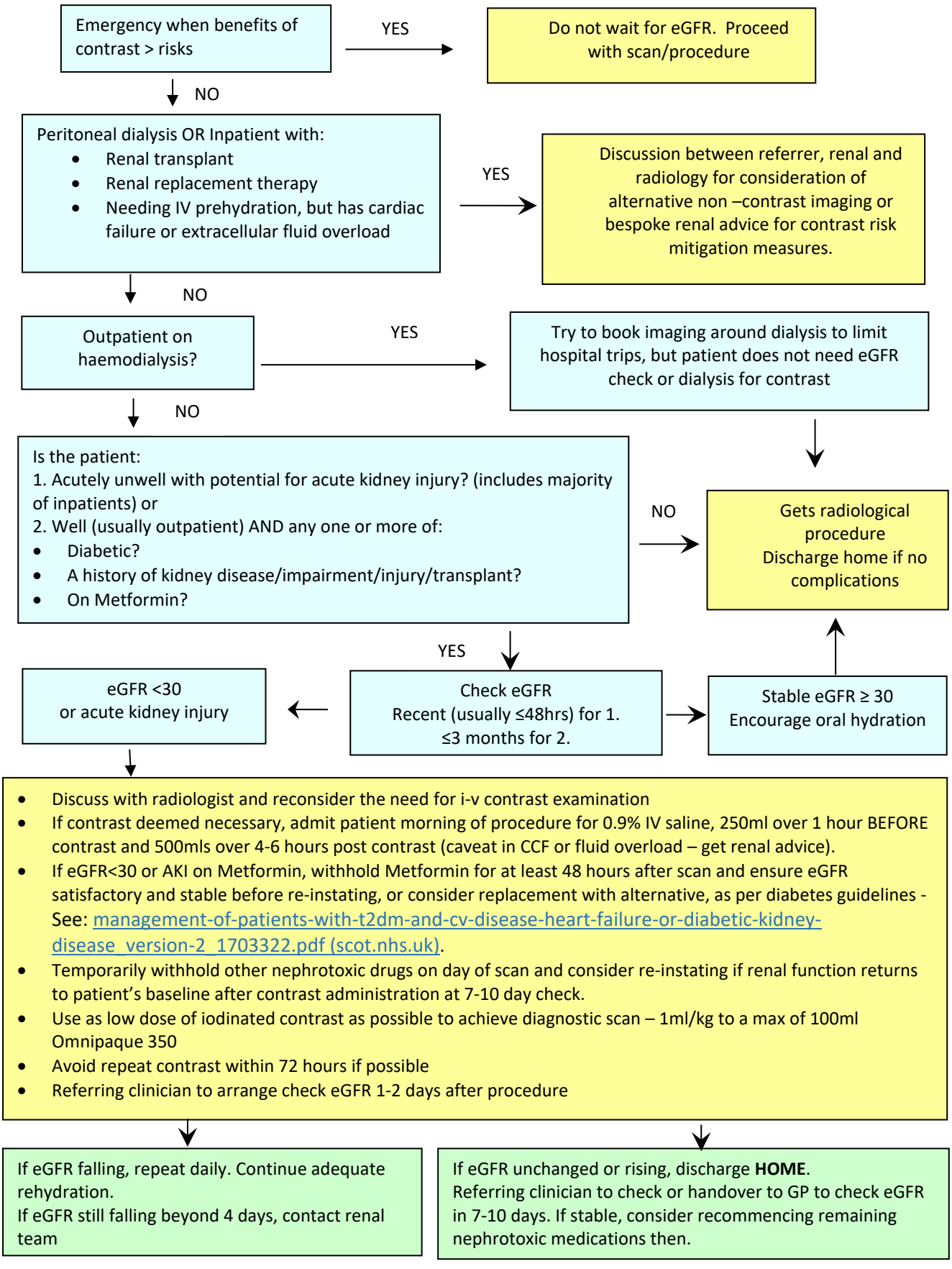
TITLE- *NHSL IV IODINATED CONTRAST GUIDELINES for RADIOLOGY*

TARGET AUDIENCE	Secondary care
PATIENT GROUP	Patients undergoing IV iodinated contrast enhanced scans/procedures in radiology within NHSL

NHSL IV IODINATED CONTRAST GUIDELINES for RADIOLOGY



Lead Author	**Dr. Leigh Smart**	**Date approved**	**18th October 2023**
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NHSL IV IODINATED CONTRAST GUIDELINES for RADIOLOGY

1. IV contrast media should be given to any patient, regardless of renal function, if the perceived diagnostic benefit to the patient, in the opinion of the radiologist and the referrer justifies the administration and outweighs the risk.

2. Emergency imaging procedures requiring contrast media administration – e.g. acute stroke, acute bleeding, trauma, etc should not be delayed in order to obtain eGFR prior to the procedure.

3. All adult patients answering YES to any of the following questions require an eGFR assessment within the last 3 months to be supplied with the request for a procedure/scan requiring IV iodinated contrast:
   a) Do you have a history of diabetes?
   b) Do you have a history of kidney disease/impairment/injury or kidney transplant?
   c) Are you taking Metformin?

4. If patients answer NO to all 3 questions above, then assessment of eGFR is NOT routinely required, unless there are reasons to suggest a potential acute kidney injury. Most inpatients are unwell and at risk of AKI – these should have a recent eGFR, at a time interval to be dictated by clinical judgment, usually within the last 2 days. Acutely unwell outpatients deemed at risk of AKI, should also have more recent eGFR checks, with interval between eGFR and contrast administration dictated by clinical judgement.

5. Inpatients on renal replacement therapy or with a history of renal transplant require discussion with a renal physician prior to contrast administration, unless emergency–see point 2. Outpatients on long term haemodialysis do not require dialysis after contrast, though timing scans with dialysis days can improve quality of life for patients by reducing number of trips to hospital.

6. If there is any clinical suspicion of renal impairment in patients <18 yrs old, please discuss with radiologist (eGFR not validated in this age group).

7. Requests should supply information to risk stratify patients regarding potential contrast reactions. Where possible, information supplied should include: current use of beta blockers, history of previous contrast reactions and type, history of atopy or other allergies, history of myasthenia gravis or recent IL-2 administration.

8. In patients at high risk of contrast reaction (see appendix for risk factors), consider alternative imaging without contrast or consider alternative contrast agent to any previous reaction inducing agent. If giving contrast to high risk patient, maintain close supervision and keep venous access and observation for 30 mins (low risk patients routinely 15 mins) in an environment with easy access to emergency drugs and resuscitation equipment.

9. Clinical information regarding special circumstances listed on pages 3 and 4 should also be supplied on the imaging request form, in particular, with regard to thyroid cancer and radio-iodine.

Special Circumstances

Allergies & Asthma

- The patient should be asked about previous reactions to contrast media, and these should be documented in detail in RIS contrast reaction information boxes (contrast type, dose, severity of reaction and treatment).
- The patient should be asked about other severe or life-threatening allergies (anaphylaxis) and severe or unstable asthma.
- If the patient answers positively to either of the above, seek advice from a radiologist before injecting contrast.
- If the patient suffers anaphylaxis after administering contrast, obtain appropriate medical help and follow Resuscitation Council guidelines on Anaphylaxis 2021. https://www.resus.org.uk/library/additional-guidance/guidance-anaphylaxis/emergency-treatment
- For less severe contrast reactions, involve a radiologist in routine working hours or escorting medical team/A&E if out of hours. Document contrast reaction in RIS contrast reaction information box, including the exact contrast used, nature of reaction, severity of reaction, treatment given and date.
- For all contrast hypersensitivity/anaphylactic reactions, the patient and referring clinician should be advised that the patient should be referred to the West of Scotland Anaphylaxis service for testing in order to determine which contrast media may be safely used in future. Currently, the contact for this is West of Scotland Anaphylaxis Service led by Dr. Malcolm Shepherd, Tel: 0141 2100390.
- Routine scans on patients who developed a contrast reaction should not be outsourced for reporting so as to robustly document this on the report locally. If outsourcing emergency scans for out-of hours reporting, the radiographers should complete the RIS sections as above and communicate the details of the contrast reaction and treatment to the outsourcing company for them to document this on the report.

Breast feeding

- No specific precautions with regard to IV iodinated contrast in this group. There is no need to cease breastfeeding or discard milk after i.v. Omnipaque, though if patients ask, they are welcome to do so.

Haemodialysis

- No specific precautions with regard to IV iodinated contrast in long term haemodialysis patients who are otherwise well.
- There is no need to expedite haemodialysis after contrast administration.
- However, it may be logistically easier for the patient to be scanned on same day and in same hospital as dialysis to save the patient hospital trips, so liaison with dialysis team/patient can be useful.
- NICE guidelines 148 also suggest discussion about those on renal replacement therapy with the renal team, unless emergency scenario. However, locally the renal team do not require discussions on otherwise well out patients on long term haemodialysis.

Peritoneal dialysis

- Please liaise with the renal team prior to scanning, unless emergency.

Phaeochromocytoma

- No specific precautions are required in patients with phaeochromocytoma receiving IV iodinated contrast.

Thyrotoxicosis:

- Iodinated contrast should not be administered IV to patients who have untreated hyperthyroidism. Treatment (usually β-blockers and carbimazole) should be initiated by the referring clinician first.
- In the emergency situation contrast may be administered and endocrinological advice sought afterwards, as thyrotoxicosis can take weeks to occur after contrast administration.
- Patients with a hyperfunctioning nodule, with/without multinodular goitre, are at increased risk of hyperthyroidism after contrast and should be warned, and monitored, in the following weeks.

Thyroid cancer

- Administration of iodine based contrast will prevent the use of radioactive iodine to treat thyroid cancer for up to 8 weeks afterwards.
- Give i.v. contrast, unless the referrer specifies in the clinical history to avoid iodine or that patient is due radio-iodine within next 8 weeks. Check the clinical history carefully.

Myasthenia Gravis

- Symptoms including breathing difficulties may be worsened after i.v. iodinated contrast, although this is rare (approx 5%). Acute deterioration with myasthenic crisis has been reported and thus these patients should be observed for longer in the department and only be scanned at sites with resuscitation teams available. Patients should be made aware of the small risk and told to report any worsening of symptoms.

Sickle Cell Disease

- No known serious medical risk but patients may experience temporary worsening of pain and should be informed of this.

Pregnancy

- Due to theoretical risk to the foetal thyroid gland, TFTs should be checked after birth.
- As this is routine in the UK (heel prick test), no special precautions are necessary unless mother had contrast in third trimester, in which case neonatal TFTs should be repeated at age of 2-3 weeks.

See RANZCR guidelines at:
https://www.ranzcr.com/college/document-library/iodinated-contrast-guidelines-2016?searchword=contrast%20guidelines&indexedsearch[sorting]=score:desc
for more details.

Appendix

As per point 8 on page 3, in patients at high risk of contrast reaction (especially if previous reaction to iodinated contrast media), consider alternative imaging without contrast or consider alternative contrast agent to any previous reaction inducing agent. If giving contrast to high risk patient, maintain close supervision and keep venous access and observation for 30 mins (low risk patients routinely 15 mins) in an environment with easy access to emergency drugs and resuscitation equipment.

Risk factors for contrast reaction – any of below warrant 30 minute observation:

- History of a previous reaction to iodinated contrast media
- History of asthma
- Previous significant allergic reactions to other substances
- History of eczema
- Current use of beta adrenergic blockers – (no increased risk in incidence of reaction, but increased risk it may be more severe and may not respond to adrenaline.)
- History of myasthenia gravis- (increased risk of worsening symptoms.)
- History of Interleukin 2 administration within last 6 months – (increased risk of delayed hypersensitivity reaction.)

References/Evidence

RANZCR Iodinated Contrast Media Guidelines V2.3 published March 2018, adopted by RCR.
https://www.ranzcr.com/college/document-library/iodinated-contrast-guidelines-2016?searchword=contrast%20guidelines&indexedsearch[sorting]=score:desc
NICE guidelines NG 148 Acute Kidney injury: prevention, detection and management published December 2019
Some content copied from Greater Glasgow and Clyde contrast administration guidelines version 1 active from 22/4/2020 , with authors permission.

Appendices

1. Governance information for Guidance document

Lead Author(s):	Dr. Leigh Smart
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Responsible Person (if different from lead author)	

CONSULTATION AND DISTRIBUTION RECORD	
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Distribution	Distributed to NHSL Radiology site leads and on to radiographers and radiologists at each NHSL site. Awaiting distribution to remainder of NHSL secondary care following guideline approval for website.

CHANGE RECORD			
Date	**Lead Author**	**Change**	**Version No.**
November 2012	Dr. L.Smart	Review, revise and update guideline to fall in line with RCR national guidance.	1
April 2018	Dr. L.Smart	Review, revise and update guideline to fall in line with RANZCR and RCR national guidance.	2
May 2023	Dr. L.Smart	Review, revise and update guideline to fall in line with national guidance from RANZCR and RCR, with particular focus on relaxing rules on eGFR checking for some patients.	3
July 2023	Dr. L. Smart	Clarification of drug withhold times for v. high risk of CI-AKI group and responsibilities following review by ADTC	3.1
October 2023	Dr. L.Smart	Updated statement on additional neonatal TFT check in cases where mothers of babies received contrast in third trimester following ADTC review.	3.2
August 2024	Dr. L. Smart	Fixed broken web links to RANZCR guidelines on pages 5 and 7.	3.3