AVOIDING CONTRAST NEPHROPATHY - CLINICAL GUIDELINE

1. Aim/Purpose of this Guideline

1.1. This assessment guideline is applicable to any clinician who requests or performs contrast associated clinical imaging. This includes nurses and doctors at RCHT and primary care teams who request imaging studies at RCHT.

2. The Guidance

See Appendix 1.

3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Assessment of the risk of contrast nephropathy in patients having radiological studies. This does not apply to emergency cases.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The assessment is reviewed by radiology at every request to perform a contrast study. The only exception is emergency procedures. Failure to complete the assessment will result in the request being returned to the requester.</td>
</tr>
<tr>
<td>Lead</td>
<td>Dr Jon Stratton – for clinical support</td>
</tr>
<tr>
<td></td>
<td>Dr Ben Rock – for radiology governance</td>
</tr>
<tr>
<td>Tool</td>
<td>The effectiveness of this tool will be demonstrable to the renal team who will be aware if contrast nephropathy occurs.</td>
</tr>
<tr>
<td></td>
<td>An audit of in-patient compliance looking at the adherence to the policy of repeat blood testing, and the prescription changes should happen after 6 weeks and, if satisfactory, 1 year</td>
</tr>
<tr>
<td>Frequency</td>
<td>Yearly, after its initiation</td>
</tr>
<tr>
<td></td>
<td>If compliance falls, yearly, if compliance holds, it is not necessary to review the procedure and performance.</td>
</tr>
<tr>
<td>Reporting arrangements</td>
<td>Audit .</td>
</tr>
<tr>
<td></td>
<td>The primary question will be: Are requesters assessing patients referred for contrast radiology studies?</td>
</tr>
<tr>
<td></td>
<td>This will make up part of the renal audit programme</td>
</tr>
<tr>
<td>Acting on recommendations and Lead(s)</td>
<td>Renal department</td>
</tr>
<tr>
<td></td>
<td>Actions will follow as required</td>
</tr>
<tr>
<td>Change in practice and lessons to be shared</td>
<td>This guidance is not changing practice for in patient work. The guidance however formalises what should be done at present. For out-patient work, this guidance will ensure adequate assessment. That assessment needs to be completed in real time. Failure to do so will result in immediate feedback, otherwise the test will not be performed.</td>
</tr>
</tbody>
</table>
4. **Equality and Diversity**

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ‘Equality, Diversity & Human Rights Policy’ or the [Equality and Diversity website](#).

4.2. **Equality Impact Assessment**

The Initial Equality Impact Assessment Screening Form is at Appendix 2.
Appendix 1. Assessing risk factors in adults having iodinated contrast agents

NICE guidance CG169 – Aug 2013

Assessing risk factors in adults having iodinated contrast agents

1.1.5 Before offering iodinated contrast agents to adults for non-emergency imaging, investigate for chronic kidney disease by measuring eGFR or by checking an eGFR result obtained within the past 3 months.

1.1.6 Before offering iodinated contrast agents to adults for emergency or non-emergency imaging, assess their risk of acute kidney injury. Be aware that increased risk is associated with:
   - chronic kidney disease
   - diabetes but only with chronic kidney disease
   - heart failure
   - renal transplant
   - age 75 years or over
   - hypovolaemia
   - increasing volume of contrast agent
   - intra-arterial administration of contrast agent.

Ensure that risk assessment does not delay emergency imaging.

1.1.7 Include the risks of developing acute kidney injury in the routine discussion of risks and benefits of the imaging procedure. Follow the recommendations on shared decision-making in Patient experience in adult NHS services (NICE clinical guidance 138).

Preventing acute kidney injury in adults having iodinated contrast agents

1.2.7 Offer intravenous volume expansion to adults having iodinated contrast agents if:
   - they are at increased risk of contrast-induced acute kidney injury because of risk factors in recommendation 1.1.6, or
   - they have an acute illness.

Offer either isotonic sodium bicarbonate or 0.9% sodium chloride.

1.2.8 Consider temporarily stopping ACE inhibitors and ARBs in adults having iodinated contrast agents if they have chronic kidney disease with an eGFR < 40 ml/min/1.73 m².

1.2.9 Discuss care with a nephrology team before offering iodinated contrast agent to adults with contraindications to intravenous fluids if:
   - they are at increased risk of contrast-induced acute kidney injury, or
   - they have an acute illness, or
   - they are on renal replacement therapy.
Risk Assessment of contrast nephropathy in patient not currently admitted in an acute hospital*(Not MRI)

If stable – within 6 weeks, if progressive ckd, within 1 week of request

Check renal function

- eGFR >30 mls/min
  - Lower risk
    - Hold nephrotoxic medication for day of study only
      - Proceed with study
  - Higher risk
    - Arterial endovascular procedures
      - 2nd study within 3 days
      - Proceed with study
    - Reno-protection
      - Proceed with study
  - Very high risk
    - Contact renal team
      - *Assumption patient is physiologically stable with no AKI – if concerns use the “admitted” pathway
Risk Assessment of contrast nephropathy in patient currently admitted in an acute hospital. In an absolute emergency, proceed with study (Not MRI)

Check renal function

- eGFR >30 mls/min
  - no AKI or AKI-1
  - Lower risk
    - Adequate hydration
    - Hold nephrotoxic Rx
    - Proceed with study
    - Check renal function 24 to 48 hrs
    - Restart treatments if OK

- eGFR 20-30 mls/min
  - or AKI-2
  - Higher risk
    - Isotonic bicarbonate
    - Hold nephrotoxic Rx
    - Check renal function at 24 and 72 hrs
    - Restart treatments at 72 hrs if results OK

- eGFR <20 mls/min
  - or AKI-3
  - Very high risk
    - Contact renal team

High Contrast Risk
- Arterial endovascular procedures
- 2nd study within 3 days

If stable – within 1 week, if progressive AKI, within 2 days of request
Medication checklist

**Must stop medication**
- ACE-i, A2RB’s
- Metformin
- NSAIDs

**Preferably hold medication**
- Diuretics

Prescription of Reno-protection

500mls of 1.26% sodium bicarbonate IV, 100mls /hr

*Note: The infusion has to have been started, but not necessarily completed by the time contrast is given*
Appendix 2. Avoiding Contrast Nephropathy – Risk Assessments

Avoiding Contrast Nephropathy – Risk Assessments have been published separately as Appendix 2 and can be accessed via the Document Library by searching for “Contrast Nephropathy” or click here.
## Appendix 3. Governance Information

<table>
<thead>
<tr>
<th><strong>Document Title</strong></th>
<th>Avoiding of Contrast Nephropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date Issued/Approved:</strong></td>
<td>14 Jul 17</td>
</tr>
<tr>
<td><strong>Date Valid From:</strong></td>
<td>14 Jul 17</td>
</tr>
<tr>
<td><strong>Date Valid To:</strong></td>
<td>14 Jul 20</td>
</tr>
<tr>
<td><strong>Directorate / Department responsible (author/owner):</strong></td>
<td>Dr Jon Stratton, Renal Medicine</td>
</tr>
<tr>
<td><strong>Contact details:</strong></td>
<td>01872 252734</td>
</tr>
<tr>
<td><strong>Brief summary of contents</strong></td>
<td>This assessment guideline is applicable to any clinician who requests or performs contrast associated clinical imaging. This includes nurses and doctors at RCHT and primary care teams who request imaging studies at RCHT.</td>
</tr>
<tr>
<td><strong>Suggested Keywords:</strong></td>
<td>Contrast, AKI, Prevention, Nephropathy</td>
</tr>
<tr>
<td><strong>Target Audience</strong></td>
<td>RCHT</td>
</tr>
<tr>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Executive Director responsible for Policy:</strong></td>
<td>Medical Director</td>
</tr>
<tr>
<td><strong>Date revised:</strong></td>
<td>This is re-issue of an expiring document</td>
</tr>
<tr>
<td><strong>This document replaces (exact title of previous version):</strong></td>
<td>As above</td>
</tr>
<tr>
<td><strong>Approval route (names of committees)/consultation:</strong></td>
<td>Governance in renal and radiology</td>
</tr>
<tr>
<td><strong>Divisional Manager confirming approval processes</strong></td>
<td>Medicine and radiology</td>
</tr>
<tr>
<td><strong>Name and Post Title of additional signatories</strong></td>
<td>Not Required</td>
</tr>
<tr>
<td><strong>Signature of Executive Director giving approval</strong></td>
<td>{Original Copy Signed}</td>
</tr>
<tr>
<td><strong>Publication Location (refer to Policy on Policies – Approvals and Ratification):</strong></td>
<td>Internet &amp; Intranet</td>
</tr>
<tr>
<td><strong>Document Library Folder/Sub Folder</strong></td>
<td>Clinical / Renal</td>
</tr>
<tr>
<td><strong>Links to key external standards</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Related Documents:</strong></td>
<td>NICE CG169</td>
</tr>
<tr>
<td><strong>Training Need Identified?</strong></td>
<td>No</td>
</tr>
</tbody>
</table>
## Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Jul 14</td>
<td>V1.0</td>
<td>Initial Issue</td>
<td>Dr Jon Stratton</td>
</tr>
<tr>
<td>14 Jul 17</td>
<td>V2.0</td>
<td>Re-issue</td>
<td>Dr Jon Stratton</td>
</tr>
</tbody>
</table>

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

**Controlled Document**

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.
Appendix 2. Initial Equality Impact Assessment Form

This assessment will need to be completed in stages to allow for adequate consultation with the relevant groups.

<table>
<thead>
<tr>
<th>Name of the strategy / policy / proposal / service function to be assessed</th>
<th>Prevention of Contrast Nephropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directorate and service area:</td>
<td>Nephrology, Specialty Medicine</td>
</tr>
<tr>
<td>Is this a new or existing Policy?</td>
<td>existing</td>
</tr>
<tr>
<td>Name of individual completing assessment:</td>
<td>Roz Davies, Directorate Manager</td>
</tr>
<tr>
<td>Telephone:</td>
<td>01872 253244</td>
</tr>
</tbody>
</table>

1. **Policy Aim***
   - Who is the strategy / policy / proposal / service function aimed at?
   - To reduce the risk of contrast induces nephropathy
   - To all users of the radiology services at RCHT

2. **Policy Objectives***
   - To reduce the risk of contrast induced nephropathy

3. **Policy – intended Outcomes***
   - To reduce the risk of contrast induced nephropathy

4. *How will you measure the outcome?
   - Audit

5. Who is intended to benefit from the policy?
   - Improve safety for the patient

6a Who did you consult with?
   - Workforce
   - Patients
   - Local groups
   - External organisations
   - Other

   ![Checkmark]

   **Please record specific names of groups**
   - Nephrology team
   - Radiology
   - Primary Care colleagues

What was the outcome of the consultation?
   - This policy is an adaptation of a NICE Guideline
   - Clear and explicit details will need to be adequately communicated
7. The Impact
Please complete the following table. **If you are unsure/don't know if there is a negative impact you need to repeat the consultation step.**

<table>
<thead>
<tr>
<th>Equality Strands:</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (male, female, trans-gender / gender reassignment)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race / Ethnic communities /groups</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion / other beliefs</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage and Civil partnership</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation- this excludes any policies which have been identified as not requiring consultation. or
- Major this relates to service redesign or development

8. Please indicate if a full equality analysis is recommended. **Yes** | **No** | ✓ |

9. If you are not recommending a Full Impact assessment please explain why.

It does not fulfil any of the requirements.
Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead
c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa, Truro, Cornwall, TR1 3HD

This EIA will not be uploaded to the Trust website without the signature of the Human Rights, Equality & Inclusion Lead.

A summary of the results will be published on the Trust’s web site.

Signed ____________________

Date _____________________