1. Introduction

Patients with AKI will be admitted to the unit where they need access to specialist nephrology management (e.g. intensive fluid or circulatory management, renal support) or investigations (e.g. renal biopsy). Patients with quickly reversible AKI due to volume depletion, drug toxicity or sepsis do not necessarily require transfer but this will require individual assessment and judgment and discussion with the supervising medical team.

Once admitted to the renal unit AKI patients will have a rapid medical review by either a renal registrar or consultant. As part of this review process, the need for level 2 care (on 15A) will be assessed.

The critical care referral process should be followed for patients deemed suitable for escalation to level 3 care. The critical care team should be involved in a timely manner dependent on the patient's clinical condition to facilitate discussions and further management planning.

2. Scope

This guideline is designed to assist medical and nursing staff in the nephrology department to transfer safely and quickly patients with AKI from other wards or hospital sites to the nephrology wards.

3. Recommendations, Standards and Procedural Statements

3.1 Minimum dataset needed for all transfers to renal unit

For all referrals to the Nephrology SpR, the following are the minimum data required:

- Name / dob of patient
- Referring doctor/consultant/contact details
- Resuscitation status and escalation plan
- Presenting complaint
- Co-morbid history
- HR, BP, RR, O2 saturations, total EWS score, conscious level (GCS or AVPU)
- AKI grade and pre-morbid serum creatinine concentration
- U&E and acid-base assessment (venous bicarbonate or ABGs +/- lactate where appropriate)
- Urine dipstick analysis
- Renal US or other imaging results if obtained
- MRSA status and other infection status if applicable
• Whether diarrhoea in last 48 hrs
• COVID swab status – Transfer to renal unit if COVID is suspected or swab done will require discussion with Renal SPR/Consultant prior to transfer to ensure most up to date infection control guidelines are followed.

These should be completed and the referral discussed and accepted by the nephrology consultant on-call prior to transfer.

3.2 AKI transfer safety criteria

Patients referred for transfer to the renal unit should have been assessed by an experienced doctor defined as an ST4 or above. The responsibility for ensuring the patient is safe to transfer rests with the referring team.

All patients transferring to the renal unit (regardless of where they are transferring from) should meet the following safety criteria (adapted from London AKI Network Manual 2015):

3.2.1 Hyperkalaemia

• No ECG changes
• K < 6.5 *
• If K lowered to <6.5 after presentation this must be potentially sustained (e.g. bicarbonate therapy or dialysis/CVVH not transient therapy (insulin and dextrose)

*If K+ > 6.5mmol/L and transfer to renal unit still deemed the most appropriate action, this must be discussed and agreed with the nephrology consultant on-call prior to any transfer

3.2.2 Renal Acidosis

• pH >7.2
• Bic >12mmol/L
• Lactate < 4mmol/L
• Respiratory rate < 24/min

(N.B Renal acidosis does not have the same prognostic implications as acidosis due to hypoperfusion

3.2.3 Circulatory

• HR <120/min
• BP >100mmHg systolic
• MAP >65mmHg
• Lactate <4mmol/L

(lower BP values may be accepted if it has been established clearly these are ‘normal’ pre-morbid)

3.2.4 Respiratory

• Respiratory rate < 24/min
• Oxygen saturation >94% and not more than 35% oxygen
• If patient has required acute CPAP, must have been independent of this treatment for 24 hours
3.2.5 Neurological
- GCS >12 or alert on AVPU scale

3.3 Patients not fulfilling criteria for safe transfer

Patients who do not fulfil criteria for safe transfer should be referred to local ICU for assessment, admission or stabilisation.
Once stabilised, follow ICU to renal unit transfer policy.

3.3 Algorithms for transfer from different locations/hospital sites

3.3.1 AKI referral from UHL wards

Patient with AKI. Refer patient if:

- AKI stage 3
- Worsening AKI despite treatment
- Complications of AKI
  - Hyperkalaemia
  - Acidosis
  - Fluid overload
  - Uraemic symptoms
- Blood & protein on dipstick (not caused by catheter)
- Drug toxicity / poisoning
- Known myeloma
- Possible HUS/TTP
- Obstruction on USS (regardless of AKI)

Refer to on-call nephrology SpR

- Ensure minimum dataset available for referral (see p1)
- If considering moving patient, ensure written documentation that patient is fit for transfer (by SpR or above) is documented in notes prior to transfer

Refer to UROLOGY

NB: Paper copies of this document may not be most recent version. The definitive version is held on INsite Documents
3.3.2 AKI transfer policy from UHL ICU to renal unit

- Patient on ICU deemed fit for transfer by ICU consultant
- Phone renal SpR reviewing patient on ICU (LGH only) or renal SpR on-call to arrange transfer to renal wards; generally this will be to renal HDU
- Below is consensus guideline for safe transfer from ICU to renal wards (taken from North London guidelines):

<table>
<thead>
<tr>
<th>Metabolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>K &lt; 6.0, ionised Ca &gt; 1</td>
</tr>
<tr>
<td>pH normal</td>
</tr>
<tr>
<td>Bicarbonate &gt; 16</td>
</tr>
<tr>
<td>Lactate normal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory</th>
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<tbody>
<tr>
<td>Respiratory rate &lt; 24</td>
</tr>
<tr>
<td>Saturations &gt; 94% on no more than 35% oxygen</td>
</tr>
<tr>
<td>If patient required acute CPAP patient must have been independent of this treatment for 24 hours</td>
</tr>
<tr>
<td>If ventilated &lt; 1 week patient should have been independent of respiratory support for 48 hours</td>
</tr>
<tr>
<td>If longer term invasive ventilation patient should have been independent of all respiratory support for 1 day for each week ventilated and for a period not less than 48 hours.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Circulatory</th>
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</thead>
<tbody>
<tr>
<td>HR &lt; 120</td>
</tr>
<tr>
<td>BP &gt; 100mmHg systolic</td>
</tr>
<tr>
<td>MAP &gt; 65MMHg</td>
</tr>
<tr>
<td>Lactate &lt; 4</td>
</tr>
</tbody>
</table>

Aim to transfer within 24 hours of being deemed fit to step down from ITU
3.3.3 AKI transfer policy from DGH or other hospital to renal unit

Refer to Renal SpR, including all details of minimum dataset (see 3.1)

All patients to be discussed with renal consultant on-call prior to transfer to renal bed

If patient is coming from an ICU outside UHL or is repatriating from area and has spent time on ICU, the patient must also be discussed with the LGH ICU consultant

Prior to transfer, all patients must have been reviewed by consultant in referring hospital with written documentation that they:

• are a suitable candidate for transfer
• are medically fit to transfer and meet transfer safety criteria (this must be documented in notes). See 3.1
• transfer discussed with patient (if applicable) and carers/family

4. Education and Training
These guidelines will be available on the Insite documents to help staff make decisions about transfer of patients with AKI.

5. Monitoring and Audit Criteria

<table>
<thead>
<tr>
<th>Key Performance Indicator</th>
<th>Method of Assessment</th>
<th>Frequency</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidents related to unsafe or delayed transfers of patients with AKI</td>
<td>Datix incidents</td>
<td>Ad hoc</td>
<td>Head of Service</td>
</tr>
</tbody>
</table>

6. Legal Liability Guideline Statement
7. Supporting Documents and Key References


8. Key Words

Acute kidney injury, patient transfer

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