

Same Day Emergency Care Programme, London: Acute Kidney Injury

Outline of document

The following document outlines the acute kidney injury same day emergency care pathway from referral route to gold standard in-hospital pathway for London.

Version	1.3	
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Governance Steps	Date	Version produced
Pathway drafted by London SDEC AKI clinical pathway group	September 2020	1.1
Age confirmed as Age \geq 16 years	1 st October 2020	1.2
Final Version of Pathway agreed by clinical pathway group following ICS comments	10 th November	1.3
Approved by London Clinical Advisory Group	19 th November 2020	1.3

Inclusion Criteria

(Please refer to pathway diagram – inclusion criteria applies to patients referred from ED, primary care and, if sufficient data available 111 and usual clinical referral and handover processes will apply)

- Age \geq 16 years
- AKI Creatinine rise 2 x baseline (AKI stage 1-3)
- Any AKI when patient unwell or has AKI complications and not critically ill (NEWS2 $<$ 5) and complications not life threatening (K $<$ 6.5, Bic $>$ 15, not acute pulmonary oedema)

Exclusion Criteria

- Any AKI where patient critically unwell
- NEWS2 $>$ 5
- Life threatening complications known (acute pulmonary oedema, K $>$ 6.5, severe acidosis Bic $<$ 15)

Contents

Cover Page	p1
Gold Standard In-Hospital Pathway	p2 – p5
Transfer Decision Tool	p6
Urgent and Emergency Care Streaming Pathway	p7
References	p8
Supplementary Materials	p9

Same Day Emergency Care Programme, London: Acute Kidney Injury

Gold standard in-hospital pathway

Initial Clinical Assessment

It is suggested that all patients directed to an SDEC environment have a nursing assessment with calculation of NEWS2 score within 30 minutes of arrival.

Patients should be assessed by a clinician capable of initiating treatment and investigation within 1 hour of arrival.

Potential Interventions

SDEC assessment and Investigation

History and examination, observations, NEWS

Recent drugs (new or dose increment), infection, fluid assessment

Basic tests

- Renal function (review baseline Cr), use point of care Cr if available.
- bone, LFT, CRP, bicarbonate, CK
- Urine dipstick, if proteinuria do urine protein:creatinine ratio,
- blood and protein consider renal disease (in absence of infection and menstruation in women)
- Renal USS <24 hours if cause of AKI not identified or patient at risk of urinary tract obstruction. Immediate USS if pyonephrosis suspected (NICE 148)
- If evidence of infection investigate (cultures, chest x-ray etc)

Advanced tests

Consider (and discuss with nephrology if uncertain):

- Immunology (ANCA, ANA, C3/C4, anti-GBM), virology (hep B, C, HIV),
- myeloma screen (immunoglobulins, immunoglobulin electrophoresis, serum free light chain, urine Bence-Jones protein) and microangiopathy (blood film, haptoglobin, LDH, reticulocytes)
- Consider non-contrast CT Kidney, ureter, bladder (KUB) in stone disease or confirmed upper tract obstruction or where USS availability limited

Evaluate the following:

What is AKI stage and trajectory?

Are complications present?

Acidosis, hyperkalaemia, uraemia, pulmonary oedema

What is volume status?

What are background AKI risk factors?

(CKD, prior AKI, DM, vascular disease, heart or liver failure, >65, drugs)

What is the cause of the AKI?

Think STOP AKI

- Sepsis/infection/hypoperfusion
- Toxicity (drugs or high-volume contrast)
- Obstruction
- Primary renal disease (proteinuria/haematuria, glomerulonephritis, interstitial nephritis)

Same Day Emergency Care Programme, London: Acute Kidney Injury

SDEC Treatment

Stop nephrotoxins and adjust doses of renally excreted drugs

Treat complications

(hyperkalaemia, acidosis, fluid overload seeking renal or critical care advice where necessary)

Treat underlying cause in SDEC where possible

- Correct hypovolaemia with intravenous fluids
- Treat infection
- Catheterisation for bladder outflow obstruction,
- Early therapy of renal disease (with renal advice)

Criteria for escalation from SDEC

When to admit

- Need for hospitalisation for management of AKI cause
- (eg severe pneumonia, any infection with sepsis, liver failure, haemorrhage)
- Need for continuous IV fluids/fluid monitoring or IV diuretic infusion when bolus not suitable
- Serious or refractory AKI complications (get nephrology or ITU help)
- Rapidly rising creatinine
- Generally unwell, NEWS2 >5
- SDEC approach logistically difficult

When to get urgent nephrology advice

Acute primary renal disease suspected (eg haemoproteinuria)

- AKI cause unclear
- Management of significant or refractory complications
- AKI not recovering or getting worse

Criteria to remain under ambulatory/SDEC review

Reassess 24-48 hours after 1st assessment in SDEC pathway if indicated

Re-evaluate the following:

- What is AKI stage trajectory and is it recovering?
- Are complications present?
- Was the diagnosed cause of AKI correct?
- Is further treatment required?
- Then further follow up according to trajectory

Discharge from SDEC Criteria

Where clear evidence of recovery or stable renal function and when cause is clear

- Follow up <2 weeks, evaluate and plan care including need for nephrology follow up
- Refer to local AKI clinic if available and according to local referral guidance
- Specific follow up for management underlying cause (urology, renal, cardiac, liver etc)
- Patient advice on prevention
- Consider community-based follow up (hospital at home if available)

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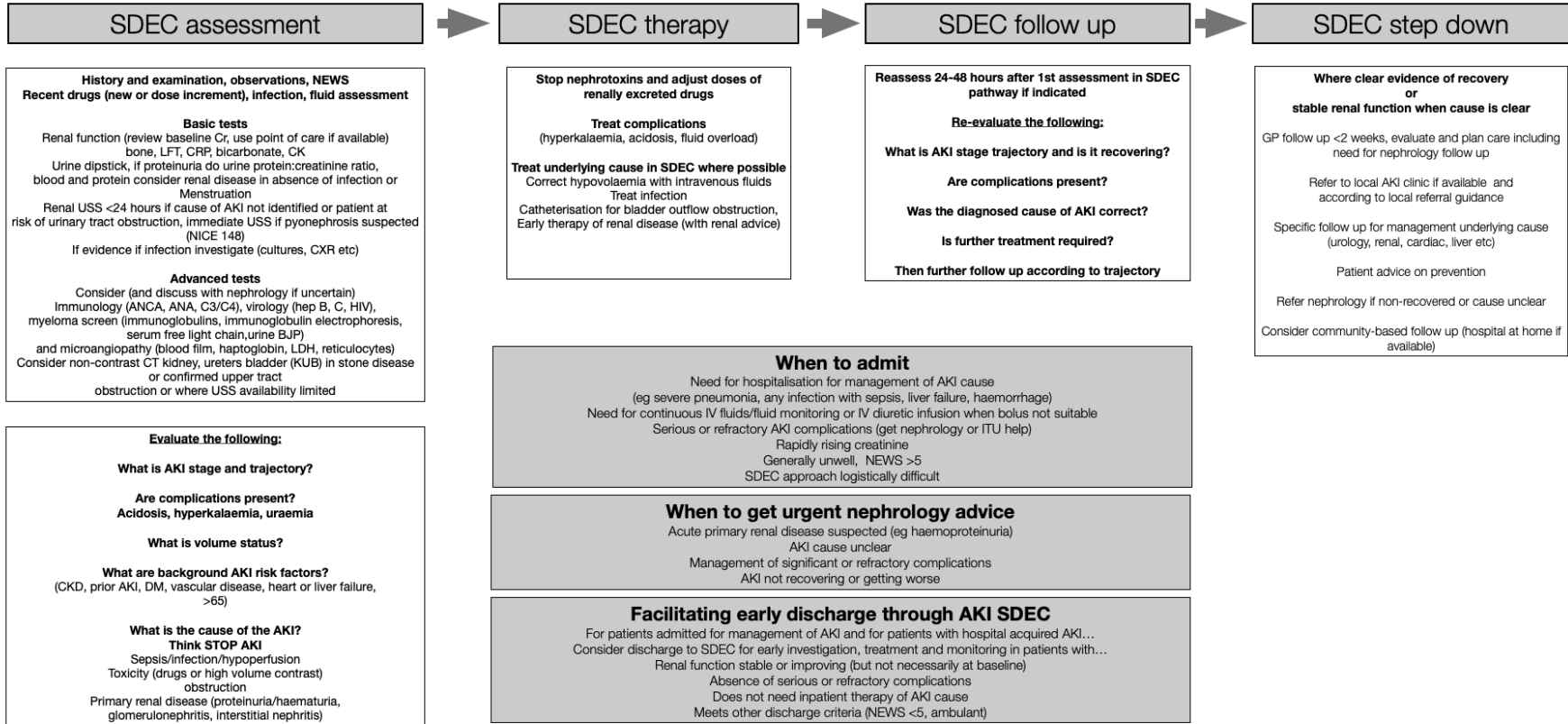


Facilitating early discharge through AKI SDEC (for patients admitted for management of AKI and for patients with hospital acquired AKI)

Consider discharge to SDEC for early investigation, treatment and monitoring in patients with...

- Renal function stable or improving (but not necessarily at baseline)
- Absence of serious or refractory complications
- Does not need inpatient therapy of AKI cause
- Meets other discharge criteria (NEWS <5, ambulant)

Management of the AKI patient in same day emergency care (SDEC)

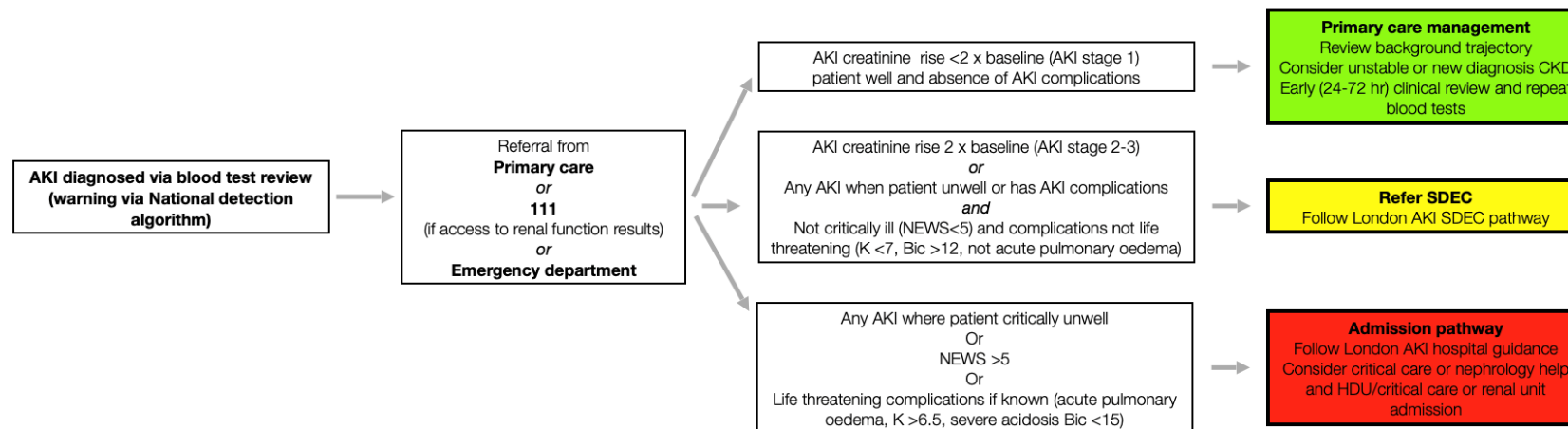


Transfer Decision Tool

ED or community	SDEC	ED
<ul style="list-style-type: none"> - AKI creatinine rise <2 x baseline (AKI stage 1) - Patient well and absence of AKI complications 	<ul style="list-style-type: none"> - AKI creatinine rise 2x baseline (AKI stage 2-3) - Any AKI when patient unwell or has AKI complications and not critically ill (NEWS2<5) and complications not life threatening (K <6.5, Bic >15, not acute pulmonary oedema) 	<ul style="list-style-type: none"> - Any AKI where patient critically unwell - NEWS2 >5 - Life threatening complications (acute pulmonary oedema, K>7, severe acidosis Bic <12)
Primary Care Management	Refer to SDEC	Admission Pathway
<ul style="list-style-type: none"> - Review background trajectory - Consider unstable or new diagnosis CKD - Early (24-72hr) clinical review and repeat blood tests 	<ul style="list-style-type: none"> - Follow London AKI SDEC pathway 	<ul style="list-style-type: none"> - Follow London AKI hospital guidance - Consider critical care or nephrology help and HDU/critical care or renal unit admission

Urgent and Emergency Care Streaming Pathway for AKI

Urgent and emergency care streaming of the AKI patient



References

1. AKI National detection algorithm
<https://www.england.nhs.uk/akiprogramme/aki-algorithm/>
2. Think Kidneys guide to management of AKI in primary care
<https://www.thinkkidneys.nhs.uk/aki/resources/primary-care/>
3. RCGP acute kidney injury toolkit (includes post-AKI care in primary care)
<https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/acute-kidney-injury-toolkit.aspx>
4. NICE clinical guideline on AKI
<https://www.nice.org.uk/guidance/ng148>
5. Think kidneys minimal care bundle for AKI
<https://www.thinkkidneys.nhs.uk/aki/wp-content/uploads/sites/2/2015/12/AKI-care-bundle-requirements-FINAL-12.07.16.pdf>
6. UK Renal Association clinical practice guideline AKI
<https://renal.org/wp-content/uploads/2017/07/FINAL-AKI-Guideline.pdf>
7. AKI patient information leaflet (Think Kidneys and British Kidney Patients Association)
https://www.thinkkidneys.nhs.uk/aki/wp-content/uploads/sites/2/2015/11/BKPA-RCGP-A4-Printout-Leaflet_v4.pdf
8. Acute care toolkit: acute kidney injury and intravenous fluid therapy (RCP)
<https://www.rcplondon.ac.uk/guidelines-policy/acute-care-toolkit-12-acute-kidney-injury-and-intravenous-fluid-therapy>
9. London AKI app (appstore and google play)

Supplemental materials

Stage	Serum creatinine	Urine output
1	1.5–1.9 times baseline OR ≥0.3 mg/dl (≥26.5 μmol/l) increase	<0.5 ml/kg/h for 6–12 hours
2	2.0–2.9 times baseline	<0.5 ml/kg/h for ≥12 hours
3	3.0 times baseline OR Increase in serum creatinine to ≥4.0 mg/dl (≥353.6 μmol/l) OR Initiation of renal replacement therapy OR, in patients <18 years, decrease in eGFR to <35 ml/min per 1.73 m ²	<0.3 ml/kg/h for ≥24 hours OR Anuria for ≥12 hours

KDIGO 2012 AKI classification (supported NICE guideline 148)