Responding to Acute Kidney Injury Warning Stage Test Results in Primary Care

From April 2016 primary care will start receiving Acute Kidney Injury (AKI) warning stage test results when a significant change in creatinine concentration is measured. This is as a result of a new detection algorithm, which was recommended for implementation in path labs' information management systems across the country, through an NHS England Patient Safety Alert, in June 2014.

GPs and practice nurses will want to know how to respond to the alerts, which identify potential cases of acute kidney injury in real time, producing a test result (AKI stage 1, 2 or 3) alongside the serum creatinine result. The result, called 'AKI Warning Stage' will be delivered directly to the GP clinical IT systems of the requesting GP or practice nurse.

Help is at hand in managing these results, which are likely to be small in number (1 alert per whole time GP per 1-2 months). Think Kidneys has produced a number of resources to help clinicians decide the appropriate response to the test result, and to help establish a process for timely communication of the test results to both in and out-of-hours primary care services.

The resources have been designed to help primary care manage AKI and are all online at https://www.thinkkidneys.nhs.uk/aki/resources/primary-care/

- **Short film on AKI and Primary Care**
- **Response Times to AKI Warning Stage Test Results for Adults in Primary Care** This at-a-glance resource explains what actions to take when, when to treat or when to refer.
- **Recognising and Responding to AKI in Primary Care** – Understanding cause, possible medication factors, fluid volume status and options for review.
- **Guidelines for Medicines Optimisation in Patients with AKI** - Medicines management for patients with, or at risk of AKI, e.g. which meds should or shouldn't be suspended, which may be used with caution and alternative therapeutic options.
- **Quick Guide to Potentially Problematic Drugs and Actions to Take in Primary Care**
- **When or if to re-start drugs after an episode of AKI**
- **Useful Patient Leaflets**
- **Best Practice Guidance - Responding to AKI Warning Stage Test Results in Primary Care** which provides more detail on factors to consider when responding to results for adults, including, for example, the stages of AKI, history of acute illness, co-morbidities and risk factors.

Table1. Acute Kidney Injury: Recommended response times to AKI Warning Stage Test Results for Adults in Primary Care

AKI Warning Stage Test Result Confirm **or** refute automated AKI Test Result by comparing patient's current creatinine **within clinical context** against baseline creatinine	**Clinical Context Within Which Blood Test Taken#** If clinical context is unknown, then assume high pre-test probability until proven otherwise	
	LOW Pre-test Probability of AKI Stable Clinical Context	**HIGH Pre-test Probability of AKI** Context of Acute Illness
AKI Warning Stage 1 Current creatinine ≥1.5 x baseline level (or creatinine rise >26 mol/L 48 hrs)	**Consider clinical review ≤ 72 hours of e-alert* If AKI confirmed** → manage as per table 2	**Consider clinical review ≤ 24 hours of e-alert* Likely Stage 1 AKI** → manage as per table 2
AKI Warning Stage 2 Current creatinine ≥2 x baseline level	**Consider clinical review ≤ 24 hours of e-alert* If AKI confirmed** → manage as per table 2	**Consider clinical review ≤ 6 hours of e-alert* Likely Stage 2 AKI** → manage as per table 2
AKI Warning Stage 3 Current creatinine ≥3 x baseline level (or creatinine 1.5 x baseline and >354 mol/L)	**Consider clinical review ≤ 6 hours of e-alert* If AKI confirmed** → consider admission	**Consider Immediate Admission*** Likely Stage 3 AKI

#Clinical Context

Why was the blood test taken?

- Routine chronic disease monitoring
- Drug monitoring
- Assessment of acute illness

Creatinine rise within stable clinical context may reflect unstable CKD instead of AKI, especially if longer time period between current and baseline creatinine.

***AKI Risk Factors/Clinical Features Prompting Earlier Review**

- Poor oral intake/urine output
- Evidence of hyperkalaemia, especially if moderate(K+ 6.0-6.4) or severe (K+ ≥ 6.5)¥
- Known history of CKD stages 4 & 5 or history of kidney transplant
- Deficient Immunity
- Frail with co-morbidities (CKD, diabetes, heart failure, liver disease, neurological or cognitive impairment)
- Past history of AKI
- Suspected intrinsic kidney disease
- Suspected urinary tract obstruction

¥ UK Renal Association Clinical Practice Guidelines (2014) recommends emergency assessment and treatment of severe hyperkalaemia (K+≥6.5mmol/l) – click here
Refer to main guidance document – Responding to AKI Warning Stage Test Results for Adults in Primary Care

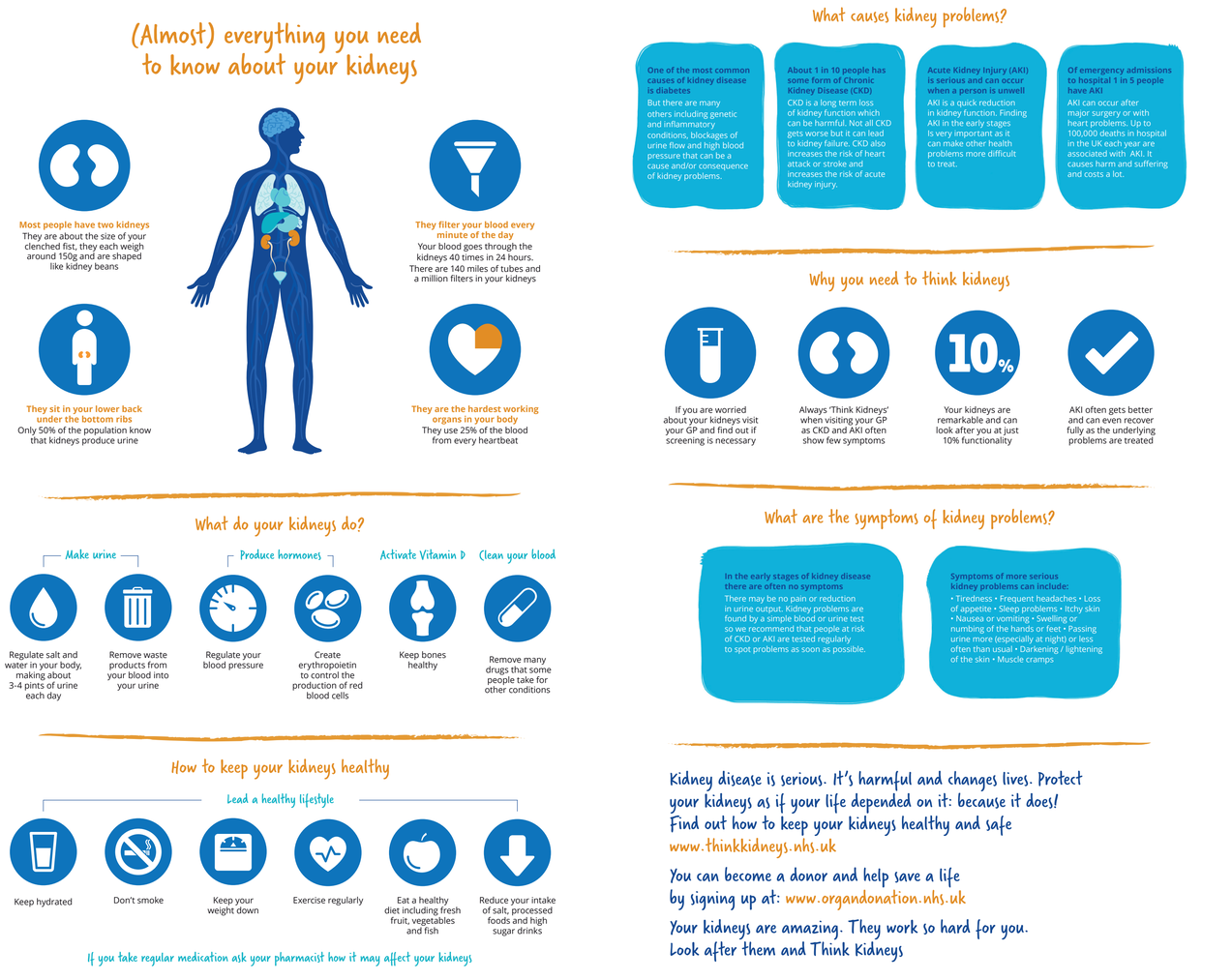
The table is a guide to support an initial response to an AKI Warning Stage Test Result but clinical judgement must prevail.
The table does not apply to children and young people (<18 years) or patients receiving end of life care.

Table 2: Recognising and Responding to Acute Kidney Injury for Adults in Primary Care*

"Think" Cause	"Think" Medication#	"Think" Fluids	"Think" Review¥
History of acute Illness? • Think Sepsis • Think Hypotension Intrinsic kidney disease? (E.g. vasculitis) • Think Urinalysis Urinary tract obstruction?	Any medication which could **exacerbate** AKI? Consider withholding: • NSAIDs • Diuretics • Antihypertensive medication Any medication which may **accumulate** and cause harm during AKI? Any **new** medication that may **cause** AKI?(E.g. drug induced tubulo-interstitial nephritis)	What is the patient's volume status? If hypovolemia present: • When did patient last pass urine? • Can the patient increase fluid intake? • Is admission for IV fluid replacement and monitoring required? Does the patient have and/or need carer support?	Does the patient need acute admission? If not, when will you review? Have you ensured handover?¥

*Refer to main guidance document – Responding to AKI Warning Stage Test Results in Primary Care
Refer to medicines optimisation toolkit for primary care http://www.thinkkidneys.nhs.uk/aki/medicines-optimisation-for-aki
¥ Refer to overarching principles in communication of diagnostic test results https://www.england.nhs.uk/patientsafety/discharge

The table is a guide to support recognition and response to AKI in primary care
The table does not apply to children and young people (<18 years) or patients receiving end of life care



Your patients, everyone else and AKI

We know from our research people generally don't know much about their kidneys – what they do and how to keep them healthy. Think Kidneys will be running a public campaign in the summer to help raise awareness for everyone – those at risk of AKI and everyone else who needs to know more.

If you'd like to be involved in the campaign in your practice, drop us an email at thinkkidneys@renalregistry.nhs.uk and write 'campaign' in the message box, and we'll send you all the information and materials.