Acute Kidney Injury (AKI)

Keeping kidneys healthy: The AKI programme board

Dr Richard Fluck
richard.fluck@nhs.net,
National Clinical Director (Renal)
NHS England
Thousands die of thirst and poor care in NHS

Up to 40,000 patients die annually because hospital staff fail to diagnose a treatable kidney problem, a figure that dwarfs the death toll from superbugs like MRSA.

"This is completely unacceptable and we can't allow it to continue. Good basic care would save these lives and save millions of pounds for the NHS.

Tragedy of 3,000 patients that die of thirst in hospitals every month

UP to 40,000 NHS hospital patients are dying of thirst every year according to damning official figures released today.
What do they do?

Public understanding of the kidneys

IPSOS Mori poll 2014 general population

- 51% knew kidneys make urine
- 8% thought the kidneys pumped blood
- 12% were aware of role on medicines processing

- Poster SP196 DO PEOPLE ‘THINK KIDNEYS’? A STUDY OF KNOWLEDGE LEVELS IN THE GENERAL POPULATION Selby et al
The challenge

Risks to the kidney

68% alcohol
53% dehydration
22% medications
1% smoking

– Poster SP196 DO PEOPLE ‘THINK KIDNEYS’? A STUDY OF KNOWLEDGE LEVELS IN THE GENERAL POPULATION
  Selby et al
Five Year Forward View

Radical upgrade in public health and prevention
Greater personal control of care
Break down barriers in system
One size does not fit all

New models of care, integration
Enablers

National leadership, local flexibility, innovation, IT
Five Year Forward View

Radical upgrade in public health and prevention
Greater personal control of care
Break down barriers in system
One size does not fit all

New models of care, integration
Enablers

National leadership, local flexibility, innovation, IT
What is acute kidney injury?

**Acute kidney injury (AKI)** is a rapid deterioration of **renal** function, resulting in inability to maintain fluid, electrolyte and acid-base balance. It normally occurs in the context of other serious illness (e.g. sepsis) on a background of risk.
Why is it important?

Associated with other serious illness

“Force multiplier” for poor outcomes

Potential to improve care

- Reduce avoidable harm - death and morbidity
- Reduce cost

Important marker of illness

1911-1986
Two patients are admitted via accident and emergency on a Friday night.

George, an 86 year old man has crushing chest pain and ECG changes consistent with a large heart attack.

Julia, a slim 56 year old, with long standing diabetes, has not been feeling right - the GP did a blood test and her serum creatinine is 456 umol/L.

Who should we most be worried about?
‘40000 excess deaths pa’ (Kerr et al April 2014)
Kolhe et al. EDTA May Congress 2015

Number of patients vs. Population incidence (pmp)
One in five emergency admissions to hospital will have AKI”

“AKI is 100 times more deadly than MRSA infection”

”Around 20 per cent of AKI cases are preventable

costs of AKI to the NHS are £434-620m pa”
Strategy

Who is at risk?
When do people sustain AKI?
How should patients with AKI be managed?
What do people need to know?
The pathway and commissioning levers

- **Risk assessment**
  - CQUIN in test in SDH
- **Improved diagnosis**
  - Safety alert NHS England
- **Treatment**
  - NICE guidance
  - Care bundles
- **Recovery**
  - Proposed national CQUIN
Who is at risk?

- Determining the vulnerable population
- Pre existing comorbidities
When?

When do people sustain AKI?

How is early diagnosis supported?

60% of AKI arises in the community

A trigger event e.g. infection, sickness, cardiac event
How?

How should AKI be managed? How does that look in primary and secondary care?

- Prevention
- Treatment
- Recovery
What?

What do people need to know?

Education for the public
Education for patients and carers
Education for professionals
What can we do?

Early detection, better treatment
The NHS campaign to improve the care of people at risk of, or with, acute kidney injury

In the UK up to 100,000 deaths each year in hospital are associated with acute kidney injury. Up to 30% could be prevented with the right care and treatment

NCEPOD. Adding insult to injury, 2009

One in five people admitted to hospital in the UK each year as an emergency has acute kidney injury


Just one in two people know their kidneys make urine

Ipsos MORI survey, July 2014

About 65% of acute kidney injury starts in the community


Think Kidneys is a national programme led by NHS England in partnership with UK Renal Registry
‘Think Kidneys’ objectives

- Develop and implement tools and interventions for prevention, detection, treatment and enhanced recovery
- Promote effective management of AKI
- Provide evidence-based education and training programmes
- Highlight importance of AKI to commissioners, health care professionals and managers
‘Think Kidneys’ AKI Programme

NHS England Patient Safety Steering Group

Acute Kidney Injury National Programme Board

Risk
Education
Detection
Intervention
Implementation
Measurement

Algorithm Sub-Group
Expert Reference Group

The NHS campaign to improve the care of people at risk of or with, acute kidney injury
Stage Three: Directive
Standardising the early identification of Acute Kidney Injury
9 June 2014

Alert reference number: NHS/PSA/D/2014/010
Alert stage: Three - Directive

Actions
Who: NHS acute trusts and foundation trusts providing pathology services
When: By 9 March 2015
Forward view: into action 2015/16
NHS England is proposing to introduce new national CQUIN indicators to tackle sepsis and acute kidney injury; and a new quality premium indicator to tackle resistance to antibiotics.
What are NHS patient safety alerts?

Method by which NHS can rapidly alert the healthcare system to patient safety risks, or to provide guidance on preventing harm.

**Level 3:** Directive: requires specific action(s) within timeframe

**Level 2:** Specific resource and information sharing

**Level 1:** Warning of emerging risk
Specific actions:

- Work with LIMS provider to integrate NHSE AKI detection algorithm into Laboratory Information Management System (LIMS)
- Ensure test results are sent:
  - To hospital patient management systems
  - Into a data message for transmission to a central point (UK Renal Registry)
- Educate primary care physicians as to the use of AKI detection
National groups

Renal Association guidelines committee
- Met October 2013
- Nephrologists, biochemists, acute physicians, ICU, patients
- Ratified algorithm
- Guidelines to be produced

British Association Paediatric Nephrologists
- Met Sept 2013
- Paediatric nephrologists, biochemists
- Ratified algorithm with one adaptation for paeds

Terminology ‘e-alerts’
Care bundles and response
Length of stay as per care bundle completion

Kolhe et al EDTA Congress May 2015

Within 24 hours
11.2

Not completed
12.5

P = 0.098

† mean
AKI progression to higher stages (Stage 1 & 2)

- Not completed: 8.1%
- Completed: 3.9%

P = 0.02
Adjusted odds for death when care bundle completed within 24 hours†

At discharge: 0.641 (0.46, 0.891)
At 30-day: 0.707 (0.527, 0.950)
At 60-day: 0.704 (0.526, 0.941)

†Adjusted for age, gender, type of admission, AKI stages, ethnicity & comorbidities
Adjusted survival curves

HR 0.771 (0.620, 0.958), p 0.019

<table>
<thead>
<tr>
<th>No at risk</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACB completed in 24 hours</td>
<td>306</td>
</tr>
<tr>
<td></td>
<td>305</td>
</tr>
<tr>
<td></td>
<td>302</td>
</tr>
<tr>
<td></td>
<td>271</td>
</tr>
<tr>
<td></td>
<td>225</td>
</tr>
<tr>
<td>ACB not completed</td>
<td>2194</td>
</tr>
<tr>
<td></td>
<td>2028</td>
</tr>
<tr>
<td></td>
<td>1845</td>
</tr>
<tr>
<td></td>
<td>1654</td>
</tr>
<tr>
<td></td>
<td>1418</td>
</tr>
</tbody>
</table>
Post AKI 3 month albuminuria was associated with CKD progression at 1 year.

P=0.005

Horne et al EDTA 2015 SuO035

Summary

AKI is
- Common
  - 1 in 5 of all emergency admissions
  - 2/3 starts in the community
- It is costly
  - It increases the risk of death and harm
  - It costs resources
- It is treatable
  - Education
  - Early detection
  - Better intervention
Acknowledgements

Joan Russell
Head of Patient Safety
NHS England
joan.russell@nhs.net

Ron Cullen
Director
UK Renal Registry
Ron.Cullen@renalregistry.nhs.uk

Karen Thomas
Think Kidneys Programme Manager
UK Renal Registry
Karen.Thomas@renalregistry.nhs.uk

Teresa Wallace
Think Kidneys Programme Coordinator
UK Renal Registry
Teresajane.Wallace@renalregistry.nhs.uk

The chairs and co-chairs of all the workstreams in ‘Think Kidneys’