The Acute Kidney Pathfinder Project

Dr Richard Fluck
National Clinical Director
National Acute Kidney Injury (AKI) Programme
The clever (nice) approach

Build a blender with rubber blades.
Install a kitty detector

The simple (implementation) approach

Don’t stick a kitty in a blender
Don’t press the start button if you see a kitty in the blender

What you might need

A chart to help you tell the difference between a kitty and food
Education

What we all need
Measurement!!!!!
NHS Outcomes Framework

Domain 1
- Preventing people from dying prematurely

Domain 2
- Enhancing quality of life for people with long-term conditions

Domain 3
- Helping people to recover from episodes of ill health or following injury

Domain 4
- Ensuring people have a positive experience of care

Domain 5
- Treating and caring for people in a safe environment and protecting them from avoidable harm

Effectiveness

Experience

Safety
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.
The economic impact of acute kidney injury in England

Marion Kerr\textsuperscript{1}, Michael Bedford\textsuperscript{2}, Beverley Matthews\textsuperscript{3} and Donal O’Donoghue\textsuperscript{4}

\textbf{Results.} AKI was recorded in 2.43\% of hospital admissions in Hospital Episode Statistics (HES), but age- and gender-standardized estimates derived from laboratory data suggest the true prevalence may be more than five times as high (14.15\%). We estimate that the annual number of excess inpatient deaths associated with AKI in England may be above 40,000. The annual cost of AKI-related inpatient care in England is estimated at £1.02 billion, just over 1\% of the NHS budget. The lifetime cost of post-discharge care for people who had AKI during hospital admission in 2010–11 is estimated at £179 million.
‘reducing avoidable death, long-term disability and chronic ill health…’

VTE prevention: estimate 25,000 deaths pa

Who is most at risk?

- 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?
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
Who is at greatest risk?

- For George, his risk of death is 32.2%
- For Julia, her risk of death is 53.1%

Data adapted from Chawla et al Clin J Am Soc Nephrol 2013
“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”
NCEPOD report published in 2009

Poor assessment of risk factors for AKI and acute illness

Delays in recognising AKI

Most patients with AKI are not cared for by nephrologists

Post admission AKI
Design principles for national programme

Measurement underpins evidence

Simplify data flows

Use to evidence change

Global

• Social, primary and secondary care
• Multiprofessional with patients and across specialties
• Inclusive

Strategy not tactics
• Who is at risk?

• Determining the vulnerable population
When do people sustain AKI?

How is early diagnosis supported
‘Community acquired’ AKI accounts for two-thirds of cases

Selby NM et al CJASN 2012; 7(4): 533
How

• How should AKI be managed?
  • Prevention
  • Treatment
  • Recovery
What

- What do people need to know?
  - Education for the public
  - Education for patients and carers
  - Education for professionals
Acute Kidney Injury Patient Pathway

- Well Group
- At Risk Group
- At Risk + Event
- Diagnosis
- Treatment
- Recovery
The Patient Characteristics / Group is demonstrated with this diagram
## AKI National Programme

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Size</th>
<th>Impact</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well</td>
<td>Largest</td>
<td>Small</td>
<td>4</td>
</tr>
<tr>
<td>At Risk</td>
<td>Large</td>
<td>Large</td>
<td>1</td>
</tr>
<tr>
<td>At Risk + event</td>
<td>Medium</td>
<td>Large</td>
<td>2</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Small</td>
<td>Large</td>
<td>2</td>
</tr>
<tr>
<td>Treatment</td>
<td>Small</td>
<td>Medium</td>
<td>3</td>
</tr>
<tr>
<td>Recovery</td>
<td>Small</td>
<td>Medium</td>
<td>3</td>
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</table>
AKI National Programme

**WHO - General population/public**

**ACTIONS**
- **Education** – raising awareness/publicity campaign/website
- **Risk** – low involvement
- **Intervention** – Possible screening interventions
- **Measurement** – Demographic information demonstrating the size of the problem
- **Detection** – no involvement
- **Implementation** - evidence
Acute Kidney Injury Patient Pathway

WHO - At Risk – previous AKI, multi-morbidities (patients on registers), frail/elderly, dementia, those patients with mental health issues

**ACTIONS**

**Education** – Patients, carers, health professionals particularly primary care

**Risk** – Identify at risk communities, map existing tools, look at the current structures for identifying risk, risk tools for primary care

**Intervention** – No involvement

**Measurement** – Demographic information demonstrating size of at risk group

**Detection** – Algorithm agreed and in place

**Implementation** - evidence
At Risk + Event

Unplanned Event
- D + V
- Feeling Unwell
- Infection
- Medication
- Trauma

Planned Event
- Contrast/Imaging
- Operation
- Testing/Scanning

WHO - At risk + Event (either planned or unplanned)

ACTIONS

Education – Information for healthcare professionals, information for patients and carers, specific information for primary care about whether to hospitalise or not

Risk – Identify key events that could impact on AKI, identification of risk tools in secondary care

Intervention – Care Bundles designed around such things as medicines management, hydration, decision tree for what action to take

Measurement – Demographic information demonstrating size of actual AKI problem

Detection – messaging for primary care

Implementation - evidence

Acute Kidney Injury Patient Pathway
AKI National Programme

WHO – Diagnosed patients

ACTIONS
Education – Education for Healthcare professionals so they know what AKI is and so they know what to do when
Education for patient so they are aware of what AKI is and what is likely to happen to them
Risk – Low involvement
Intervention – What actions need to be taken – hydration, medicines management, tests and retesting, refer to specialist
Measurement – Low involvement
Detection – Urine, AKI test, NEWS
Implementation – evidence

Unplanned Event
A & E

Planned Event
Secondary Care

Acute Kidney Injury Patient Pathway
**AKI National Programme**

**WHO** – Treatment – those patients receiving treatment for AKI

**ACTIONS**

**Education** – Patients and carers on how to manage their condition and what to look out for in any reoccurrence. Professionals on how to treat and help the patient manage their condition.

**Risk** – No involvement

**Intervention** – Develop appropriate care bundles

**Measurement** – Adherence of acute sector to care bundles

**Detection** – No involvement

**Implementation** – evidence
WHO – Recovery – those patients who are recovering from AKI

**ACTIONS**

*Education* – Patients and carers on how to avoid reoccurrence.

*Risk* – Identify what the future risks could be triggered by, identify existing structures for identifying risk

*Intervention* – Letter to GP, suggested follow up, medicines review

*Measurement* – Downstream harm - CKD

*Detection* – No involvement

*Implementation* - evidence
<table>
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<tr>
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<th>Education</th>
<th>Intervention</th>
<th>Detection</th>
<th>Measurement</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priorities 1. Identify at risk groups 2. Gain an understanding of at risk communities from existing data stores 3. Identify events that mean AKI is more likely to happen 4. Develop a matrix around the risk and the event 5. Identify risk tools in use – are they fit for purpose or are new ones commissioned</td>
<td>Priorities 1. Identify educational tools in use – are they fit for purpose or are new ones commissioned 2. Specific education materials for GPs 3. Educational materials for patients and carers on what AKI is and how to manage condition and any reoccurrences 4. Educational materials for healthcare professionals</td>
<td>Priorities 1. Design a range of Care Bundles designed around such things as medicines management, hydration etc 2. Develop a decision tree for what action to be taken by healthcare professionals i.e. hydration, medicines management, tests and retesting, refer to specialists etc.</td>
<td>Priorities 1. Algorithm agreed and in place 2. Education re algorithm 3. Communicating with LIMS providers 4. Messaging for primary care and the impact</td>
<td>Priorities 1. Demographic information demonstrating the size of the AKI problem 2. Demographic information demonstrating size of at risk group 3. Adherence of acute sector to care bundles 4. Downstream consequences</td>
<td>Priorities 1. Provide evidence that tools work 2. Collect baseline data from the pilot projects 3. Develop commissioning tools – CQUINs, enhanced service agreements</td>
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Education Workstream Stakeholders

Care Homes ➔

Allied Health Professionals ➔
National algorithm for adoption

ACB scientific committee
- Met July 2013
- Biochemists, nephrologists and software providers
- Initial algorithm and minutes available online

# Care bundles

**Derby Hospitals NHS Foundation Trust**

**The Derby Acute Kidney Injury Care Bundle - AUDITS**

<table>
<thead>
<tr>
<th>Observation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assess History and Examine (Venus)</strong></td>
<td>Volume depletion, Detailed history, Haemoglobin, Haematocrit, Hyperkalaemia, Rash, Recent vascular intervention, raised DOO</td>
</tr>
<tr>
<td><strong>Urine Dipstick</strong></td>
<td>No blood or protein - Prerenal, Blood &amp; protein - Renal, Only blood - Post renal or renal</td>
</tr>
<tr>
<td><strong>Clinical Diagnosis</strong></td>
<td>Think cause of AKI as Pre renal, Renal and Post renal</td>
</tr>
<tr>
<td><strong>Investigations</strong></td>
<td>Urine, biochemistry, Glucose, ECG, CT, MSU, Blood &amp; urine cultures depending on clinical suspicion, USS to no post renal cause</td>
</tr>
<tr>
<td><strong>Treatment - PUMP</strong></td>
<td>Perfusion - ensure euvolaemic status, Underlying cause - stop nephrotoxins, antibiotics for sepsis, relieve obstruction, Monitor - EWS, volume status, daily U&amp;Es, fluid balance, Prevent &amp; treat complications - fluid overload, adjust doses of inhibitors</td>
</tr>
<tr>
<td><strong>Seek advice</strong></td>
<td>Seek renal advice (b leaflet) for all AKI stage 3 and, if specific cause for AKI is suspected, refer to Trust AKI guidelines on the website</td>
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What it is not about

• Bad doctors or nurses

- There is poor practice but AKI needs robust systems at the individual level to support care – education to underpin risk assessment, improved diagnosis and reliable therapy

• It is not a failing of the NHS

- This is a global healthcare issue
### AKI National Programme

#### Key Milestones

<table>
<thead>
<tr>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td><strong>Establish Programme Board</strong></td>
<td>Complete all programme management documentation and accountability</td>
<td>Hold major national AKI conference</td>
<td>Transfer programme to suitable owner</td>
</tr>
<tr>
<td><strong>Identify Workstreams</strong></td>
<td>Devise a reporting process for the Programme to UKRR and NHS England</td>
<td>Establish publicity campaign</td>
<td>Transfer all Programme collateral to new owner</td>
</tr>
<tr>
<td><strong>Identify Workstream Chairs and Co-Chairs</strong></td>
<td>Establish workstreams and define scope and outputs</td>
<td>Maintain programme plans and outputs</td>
<td>Formally close programme down</td>
</tr>
<tr>
<td><strong>Recruit a Programme Manager</strong></td>
<td>Launch event for key stakeholders</td>
<td>Report on epidemiology and variation of AKI across England</td>
<td>Publish results develop AKI reporting</td>
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<tr>
<td></td>
<td>Establish Website and programme collateral such as leaflets/posters etc</td>
<td>Link to HES and other relevant datasets</td>
<td>Publish results develop AKI reporting</td>
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<td>Establish AKI algorithm on NHS England website and Master Patient Index</td>
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<td>Plan to mainstream and create an AKI registry</td>
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<td>Establish Master Patient index via laboratory feeds</td>
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<td>Establish means to link to HES and other datasets</td>
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Summary

- The NHS England AKI programme is well established

- It will deliver change in 2-3 years by offering leadership but developing local solutions

- A national system of measurement will be commenced in summer 2014
AKI Programme

How to find out more

Karen Thomas, AKI Programme Manager – Karen.Thomas@renalregistry.nhs.uk
Teresa Wallace, AKI Programme Coordinator – Teresajane.Wallace@renalregistry.nhs.uk
www.england.nhs.uk/AKIProgramme
Follow us on Twitter: @ActKidneyInjury

Thanks to Ron Cullen, Joan Russell and the team