Improving Outcomes from Acute Kidney Injury - Lessons from the UK

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Improving outcomes from AKI

• AKI can occur in patients cared for in many different specialties
  – acute illness (hypoperfusion)
    • marker of vascular dysfunction
      – Pre-renal (functional)
      – Renal (structural damage)
  • marker clinical care – Patient safety
    – Fluid status/nutritional status
    – Treatment of sepsis
    – Medicine management
Improving outcomes from AKI

• Despite increased understanding within the renal community AKI is still under recognised by other healthcare specialists

• Not all hospitals have renal units
  – Delays in
    • Recognition
    • Transfer
  – Patient pathways required
  – Patient follow up following episode of AKI
    • ↑ risk of CKD
Improving outcomes from AKI

• There is a need to widen the target audience
  – Healthcare professionals
    • Clinicians/nurses/pharmacists
      – Hospital-based
      – Community-based
  – Academic researchers
    • Potential for collaboration
  – Patients
    • Patients with pre-existing risk factors/previous episode of AKI
  – Politicians
    • Increased funding
Raising awareness of AKI

- National Confidential Enquiry into Patient Outcomes and Death (NCEPOD) AKI study ‘Adding Insult to Injury’
  - Proposed by John Feehally
  - Published in 2009
  - [www.ncepod.org.uk](http://www.ncepod.org.uk)
Adding Insult to Injury

A review of the care of patients who died in hospital with a primary diagnosis of acute kidney injury (acute renal failure).
Key findings

- 50% of AKI care considered good
- Poor assessment of risk factors
- 43% of post-admission AKI - unacceptable delay in recognition
Key findings

• Poor recognition of
  – acute illness
  – hypovolaemia
  – sepsis
Recommendations

• **Improved education required surrounding**
  - Recognition and responding to the acutely ill patient
  - Risk of AKI
  - Precipitants
  - Prevention
  - Early management
  - Appropriate referral
NCEPOD

• Failure to identify surgical patients with AKI
  – related to the coding

• Further study investigating management of patients aged > 80 years who died within 30 days of surgery
  – Proposed looking for episodes of AKI
An Age Old Problem
A review of the care received by elderly patients undergoing surgery
(patients aged 80 or older who died within 30 days of a surgical procedure)
# Acute kidney injury

## Table 6.6 First identification of AKI – Advisors’ opinion

<table>
<thead>
<tr>
<th>When AKI was noted</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-operatively</td>
<td>87</td>
<td>36.6</td>
</tr>
<tr>
<td>Post operatively</td>
<td>151</td>
<td>63.4</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>238</td>
<td></td>
</tr>
<tr>
<td>Unable to answer</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Not answered/not applicable</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>248</td>
<td></td>
</tr>
</tbody>
</table>
### Acute kidney injury

**Table 6.7 Reasons for post operative AKI – Advisors’ opinion**

<table>
<thead>
<tr>
<th>Reasons for post operative AKI</th>
<th>n*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complications of surgery</td>
<td>46</td>
</tr>
<tr>
<td>Poor post operative management</td>
<td>39</td>
</tr>
<tr>
<td>Poor intra-operative management of fluids/cardiovascular status</td>
<td>24</td>
</tr>
<tr>
<td>Unsatisfactory pre-operative resuscitation</td>
<td>22</td>
</tr>
<tr>
<td>Timeliness of surgery</td>
<td>7</td>
</tr>
<tr>
<td>Poor surgical technique</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>42</td>
</tr>
<tr>
<td>Unable to answer</td>
<td>16</td>
</tr>
</tbody>
</table>

*answers may be multiple*
Raising awareness of AKI in the UK

• Both NCEPOD studies have helped raise the awareness of AKI in the UK

• Questions surrounding AKI Management were posed in Parliament
Raising awareness of AKI in the UK

• Mr. Benyon: Question
  - asked the Secretary of State for Health what steps he planned to take in response to each of the 8 recommendations in the NCEPOD report on AKI
Raising awareness of AKI in the UK

• Ann Keen: Answered
  – The Department of Health will work with a range of national health service, professional, and patients' organisations at a national level to improve the
    • Prevention
    • Detection and
    • Management of AKI
Raising awareness of AKI in the UK

• All NHS trusts sent the report and advised to audit patient care against the recommendations

• Proposals to National Institute of Health and Clinical Excellence (NICE)
  – AKI guideline – October 2013
  – iv fluid guideline
    • Wide range of stakeholders signed up to provide input - patients
Raising awareness of AKI

- Department of Health AKI Delivery Board
  - Group of experts representing a range of specialties
    - Medical and surgical societies
    - Clinical Biochemistry
    - Hospital managers
    - General practitioners
    - Pharmacists
    - Nursing colleges
    - Patient group representatives
AKI Delivery Board

• National AKI core competencies
  – progress in complexity dependent upon status of healthcare professional
  – Recording vital signs
    • nurse/doctor
  – Recognising patients at risk or with AKI
    • Nurse/doctor/pharmacist
  – Responding to patients at risk or with AKI
    • Nurse/doctor/pharmacist
    • Level of response is dependent upon the status of the healthcare professional
AKI Delivery Board

- AKI core competencies
  - Endorsed by
    - Academy of Medical Royal Colleges
    - Royal Nursing Colleges
    - Critical Care Outreach Forum
  - Implementation?
AKI Delivery Board

• National audit of
  – NHS capacity to care for patients with AKI in
    • ICU
  – number of patients with a diagnosis of AKI in
    • renal units
    • ICU
    • Outside hospitals awaiting transfer
  – Performed on World Kidney Day
    • Survey monkey
Welcome to the AKI capacity survey.

Your input in this audit is essential - the more responses we receive, the clearer the picture we can build about the current capacity of critical care and renal services to manage AKI. This will inform future decisions about developing capacity for the treatment of people with AKI, helping to improve patient outcomes.

If you have any queries about the survey, contact benjamin.bray@dh.gsi.gov.uk.

The survey should take 5-10 minutes to complete. Click 'next' to start.

Thank you for taking the time to participate in this audit.

Better Kidney Care for All
Renal Unit AKI Capacity Survey

- 10 March 2011
- 38 Renal Units Responded
- 1016 - renal inpatients
- 223 (21.9%) - AKI (any stage)
- 116 (11.4%) - dialysis dependent AKI
- 66 patients with AKI awaiting transfer to renal unit
Proportion of renal beds occupied – regional breakdown
ICU AKI Capacity Survey

• 10 March 2011
• 41 Critical Care Units Responded
• **8.9 %** of the available critical care beds were in use by patients with RRT dependent AKI
• 7 patients were waiting step down to a renal unit for ongoing care
Education

- AKI in undergraduate curriculum
- AKI in CMT competencies
- E-learning
- AKI consensus conference to be held at the Royal College of Physicians of Edinburgh
Improving outcomes from AKI

• Cost-NHS Kidney Care
  – £434-£630M in England
  – 4.7 days longer stay
Patient Safety Agenda
Teenager drowned in excess saline

BY HELEN JOHNSTONE

A TEENAGER died after being “effectively drowned” with inappropriate levels of saline solution during a catalogue of medical errors, an inquest heard yesterday. Alex Reed, 17, had been failed by the system, the Nottingham hearing was told. The coroner, Dr Nigel Chapman, said his death last March was preventable. Recording a verdict of accidental death, Dr Chapman said: “I think with a far higher consultants’ input he should and would have survived.”

Doctors did not realise Alex, from Long Eaton, Derbyshire, had suffered a rare complication of glandular fever. A post mortem revealed he had a ruptured spleen. The inquest heard too much saline solution had been administered by the two junior doctors at Nottingham’s Queen’s Medical Centre, who believed Alex had leukemia.

The hospital’s acting chief executive, Stephen Moss, said: “We have changed a number of systems and procedures as a direct result of Alex’s case. Everybody here is devastated by his death.”

The Times, 28 January 2000

1 in 5 postoperative general surgical patients develops intravenous fluid associated complications

1999

- Patients are dying as a result of infusion of too much or too little fluid by inexperienced staff.

- Fluid prescription must be given the same status as drug prescription.
Fluid Prescribing

- Left to the most junior member of the team
- Wide variability in prescribing practices
- 84% of junior doctors prescribed 3L fluid/day to a 70kg man on the third day after an uncomplicated laparotomy

British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients
GIFTASUP

Jeremy Powell-Tuck (chair)¹, Peter Gosling², Dileep N Lobo¹,³ Simon P Allison¹, Gordon L Carlson³, Marcus Gore³, Andrew J Lewington⁴, Rupert M Pearse⁵, Monty G Mythen⁵

On behalf of ¹BAPEN Medical, ²the Association for Clinical Biochemistry, ³the Association of Surgeons of Great Britain and Ireland and Society of Academic and Research Surgery, ⁴the Renal Association and ⁵the Intensive Care Society.
Improving outcomes from AKI

• IV Fluid guidelines
  – widely debated
  – changing practice
  – www.renal.org

• NICE
  – Quality standards being developed and will cover fluid management with respect to AKI
  – opportunity to improve patient safety
Thank you